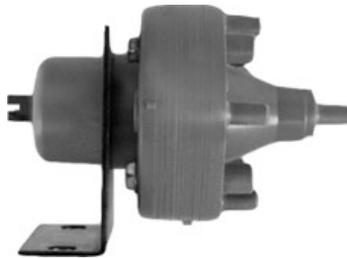


# Pneumatic Controls



## Pneumatic Controls Sections

- **Controllers and Switches**
- **Thermostats**
- **Relays**
- **Sensors and Transmitters**

See the Contents Section at the front of the Product Catalog for the complete data sheet listing. See also Pneumatic Actuators and Pneumatic Valves tabs.

### **Description**

The KMC CCC-1001 Receiver Controller is a pneumatic proportional controller designed for use with pneumatic transmitters, or 3 to 15 psig (21 to 103 kPa) pneumatic devices, to control valves and actuators in HVAC systems. The unit is particularly suitable in low limit applications.

The CCC-1001's dual inputs accept 3 to 15 psig (21 to 103 kPa) signals. Field selectable proportional band action, set points and a remote setpoint adjustment add extra flexibility. The unit's authority is adjustable from 20 to 200% of the primary input signal.

### **Features**

- ◆ Dual inputs
- ◆ Remote setpoint adjustment
- ◆ Field selectable proportional action
- ◆ Adjustable authority

### **Application**

The CCC-1001 is designed to control valves and actuators in HVAC systems, including low limit applications.

The CCC-1001 is designed to work with pressure switches, receiver gauges, relays and temperature transmitters.

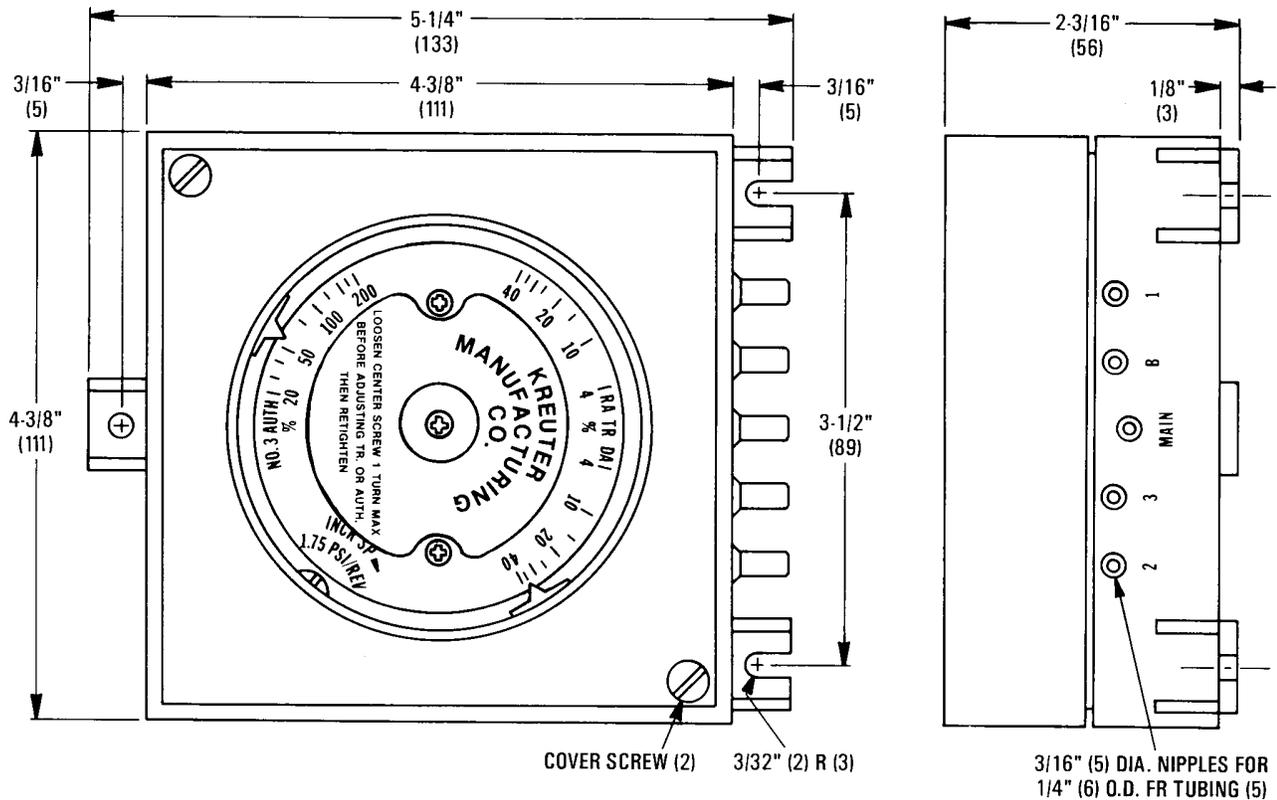


### **!CAUTION**

Pneumatic devices **MUST** operate with **CLEAN, DRY**, control air. Any other medium will result in the device's eventual failure.

## Details

All dimension in inches (mm).



## Specifications

<b>Pressure Supply</b>	20 psig (138 kPa)	<b>Connections</b>	3/16" (5 mm) nipples for 1/4" (6 mm) O.D. polyethylene tubing
<b>Max.</b>	30 psig all ports (207 kPa)	<b>Weight</b>	21 oz. (595 grams)
<b>Air Consumption</b>	43.2 scim max. (11.8 mL/s)	<b>Material</b>	
<b>Setpoint</b>	1.75 psi (12 kPa)/ rev. adjustable	Base	ABS UL Flame Class 94 HB
<b>Throttling Range</b>	4% to 40%	Levers, Flexures	Stainless Steel
<b>Action</b>	Direct or Reverse	Diaphragms	Neoprene
<b>Authority</b>	20% to 200% of primary input	Finish	Beige with clear cover
<b>Remote Setpoint</b>	+/- 10% of primary input span, direct acting	<b>Temperature Limits</b>	
<b>Inputs</b>		Operating	40° to 120° F (4° to 49° C)
Port 1	Primary signal 3 to 15 psig (21 to 103 kPa)	Shipping	-40° to 140° F (-40° to 60° C)
Port 2	Remote setpoint adjustment 3 to 15 psig		
Port 3	Secondary signal 3 to 15 psig		
<b>Output</b>	Port "B" branch		

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### Description

The CCC-1002 is a pneumatic, proportional control device. Use with pneumatic transmitters or other 3 to 15 psig pneumatic devices, for controlling valves and actuators in HVAC systems.

Proportional band action, authority and setpoint are easily adjustable. Remote setpoint adjustment may be used if the application dictates.

The integral setpoint dial applies to port "1" and is marked from 3 to 15 psi. Adhesive dials are available to match the ranges of each Kreuter pneumatic transmitter. Order dials separately.

With the inputs and features included, it is particularly suitable for most control applications requiring a receiver controller. For "Low Limit" applications, use CCC-1001 Receiver Controller.



### Features

- ◆ Dual inputs
- ◆ Remote setpoint adjustment
- ◆ Field selectable, proportional, direct or reverse action
- ◆ Adjustable authority

### Application

The CCC-1002 is designed to control valves and actuators in HVAC systems, including low limit applications.

The CCC-1002 is designed to work with pressure switches, receiver gauges, relays and temperature transmitters.

### !CAUTION

Pneumatic devices **MUST** operate with CLEAN, DRY, control air. Any other medium will result in the device's eventual failure.

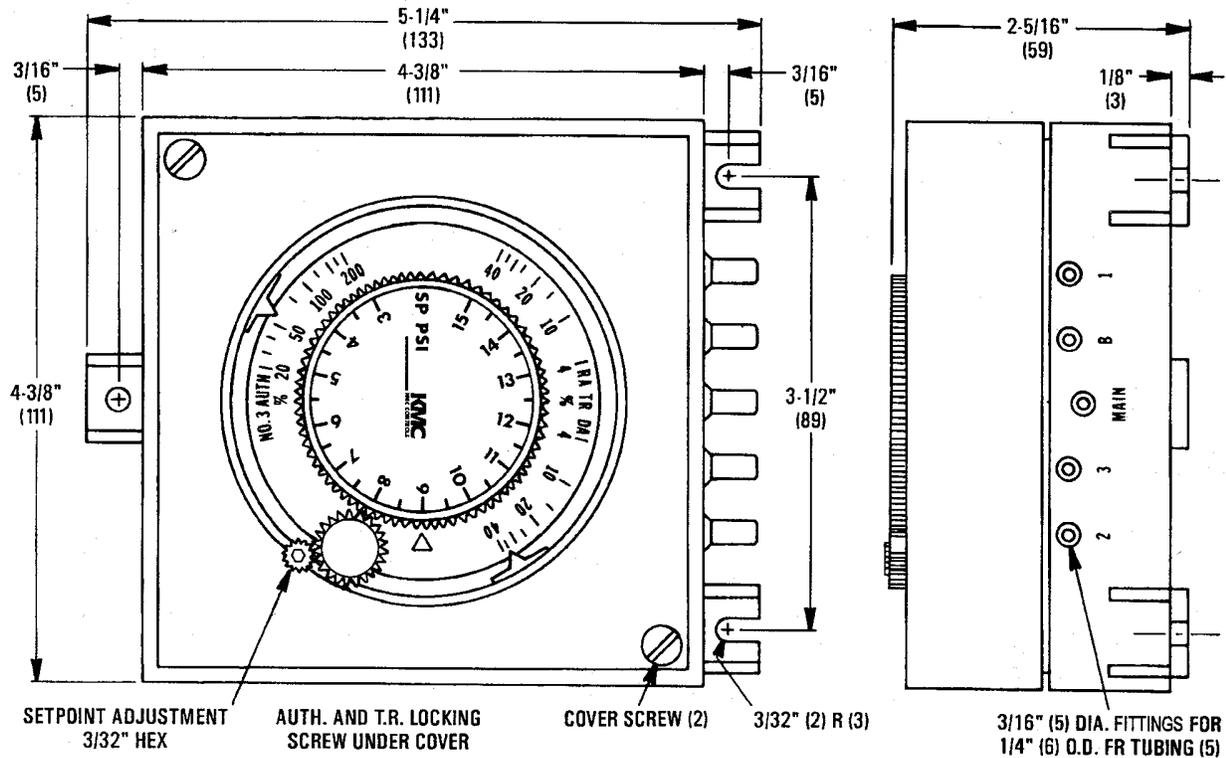
### Accessories

Adhesive dials for the CCC-1002.

HDO-2301: 0 to 50 psi	HDO-3301: 0 to 3.5 kPa
HDO-2302: 0 to 100 psi	HDO-3302: 0 to 7.0 kPa
HDO-2304: 0 to 300 psi	HDO-3304: 0 to 21.0 kPa
HDO-2310: 200 to 2,000 psi	HDO-3310: 1 to 10 M/S
HDO-2311: 300 to 3,000 psi	HDO-3311: 1.5 to 15 M/S
HDO-2312: 400 to 4,000 psi	HDO-3312: 2 to 20 M/S
HDO-2313: 550 to 5,500 psi	HDO-3313: 2.5 to 28 M/S
HDO-2320: 0 to 0.5" WC	HDO-3320: 0 to 125 Pa
HDO-2321: 0 to 1.0" WC	HDO-3321: 0 to 250 Pa
HDO-2322: 0 to 2.0" WC	HDO-3322: 0 to 500 Pa
HDO-2323: 0 to 4.0" WC	HDO-3323: 0 to 1,000 Pa
HDO-2324: -0.5" to 0.5" WC	HDO-3324: -125 to 125 Pa
HDO-2330: 30° to 150° F	HDO-3330: 0 to 65° C
HDO-2331: 30° to 230° F	HDO-3331: 0 to 110° C
HDO-2332: -50° to 150°	HDO-3332: -45° to 65° C
HDO-2333: 0° to 100° F	
HDO-2334: 50° to 150° F	
HDO-2335: 50° to 100° F	

## Details

All dimensions in inches (mm).



## Specifications

<b>Pressure Supply</b>	20 psig (138 kPa)
<b>Max.</b>	30 psig all ports (207 kPa)
<b>Air Consumption</b>	43.2 scim max. (11.8 mL/s)
<b>Setpoint</b>	1.75 psi (12 kPa)/ rev. adjustable
<b>Throttling Range</b>	4% to 40%
<b>Action</b>	Direct or Reverse
<b>Authority</b>	20% to 200% of primary input
<b>Remote Setpoint</b>	+/- 10% of primary input span, direct acting

<b>Inputs</b>	
Port 1	Primary signal 3 to 15 psig (21 to 103 kPa)
Port 2	Remote setpoint adjustment 3 to 15 psig
Port 3	Secondary signal 3 to 15 psig
<b>Output</b>	Port "B" branch

<b>Connections</b>	3/16" (5 mm) nipples for 1/4" (6 mm) O.D. polyethylene tubing
<b>Weight</b>	21 oz. (595 grams)
<b>Material</b>	
Base	ABS UL Flame Class 94 HB
Levers, Flexures	Stainless Steel
Diaphragms	Neoprene
Finish	Beige with clear cover
<b>Temperature Limits</b>	
Operating	40° to 120° F (4° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)

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### Description

The KMC CCE-1000 Series pneumatic-electric relays are designed for use in HVAC system control circuits. The CCE-1000 series are ideal for applications such as starting fan coil unit fans, exhaust fans, and direct control of electric duct heaters.

Models 1001 and 1003 are single-pole, double-throw units. Models 1002 and 1004 are double-pole, double-throw units.

Models CCE-1001 and 1002 have a case and cover to conceal the switching mechanism. Wiring is accessed through two 1/2" conduit openings.

Models 1003 and 1004 are intended for use in enclosures, such as electric duct heater control panels, and do not have cases or covers.

### Features

- ◆ Choice of single-pole, double-throw or double-pole, double-throw units.
- ◆ Models are not position sensitive and may be mounted on surfaces or in enclosures.
- ◆ CCE-1001, 1002 are UL and CSA listed, CCE-1003, 1004 are UL recognized, CSA listed

### Application

The CCE-1000 series are ideal for starting fan coil unit fans, exhaust fans, and direct control of electric duct heaters.

### !CAUTION

Pneumatic devices **MUST** operate with CLEAN, DRY, control air. Any other medium will result in the device's eventual failure.



### Models

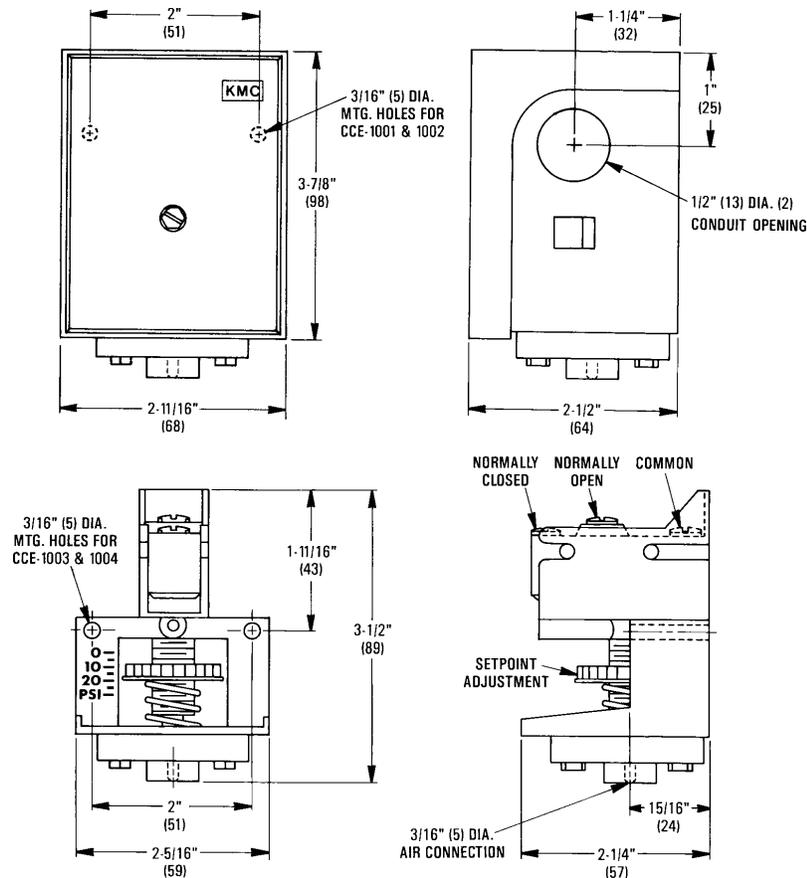
CCE-1001	SPDT, with case and cover
CCE-1002	DPDT, with case and cover
CCE-1003	SPDT, without case and cover
CCE-1004	DPDT, without case and cover

### Accessories

HPO-0009	Replacement Diaphragm
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## Details

All dimensions in inches (mm).



## Specifications

**Setpoint Range** 2 to 25 psig (14 to 172 kPa)

**Differential** 2 psi fixed (14 kPa)

**Pressure Max.** 30 psig (207 kPa)

**Switching Action**

CCE-1001	SPDT
CCE-1002	DPDT
CCE-1003	SPDT
CCE-1004	DPDT

**Connections**

Air	3/16" (5 mm) nipples for 1/4" (6 mm) O.D. polyethylene tubing
Electrical	8-32 UNC binding head combination terminal screw and cup washer.

**Electrical Ratings** 20 amps non-inductive @ 120-240-480 VAC  
1 HP @ 120 VAC; 2 HP @ 240 VAC

**Weight**

CCE-1001	10 oz. (283 grams)
CCE-1002	12 oz. (340 grams)
CCE-1003	4 oz. (113 grams)
CCE-1004	6 oz. (170 grams)

**Material**

Black polycarbonate

**Approvals**

CCE-1001, 1002: UL Listed, CSA

CCE-1003, 1004; UL recognized, CSA

**Temperature Limits**

Operating	40° to 120° F (4° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)

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## Description

The KMC CCE-3001 is a single-stage pneumatic-electric relay designed for applications where a single pneumatic signal requires one predetermined air pressure setting to actuate an electric switch.

The CCE-3002 is a two-stage pneumatic-electric relay, and the CCE-3003 is a three-stage pneumatic-electric relay. These relays are designed for applications where a single pneumatic air signal requires two or three predetermined air pressure settings, each actuating its own electric switch.

These relays are CSA and UL recognized. Their electrical ratings make them ideal for applications such as starting fan induction terminals or controlling one, two, or three stages of electric heating or refrigeration.

## Features

- ◆ Choice of one, two, or three stage units.
- ◆ SPDT switching on each stage.
- ◆ Electrical rating of 25 amps each switch (non-inductive) @ 120/240/277 VAC, 1 HP @ 125 VAC, 2 HP @ 250 VAC, 750 VA pilot duty
- ◆ Fixed differential, 1 to 2 psi nominal (7 to 14 kPa)
- ◆ Setpoint range, 2 to 20 psig (14 to 138 kPa)
- ◆ Models are not position sensitive and may be mounted on surfaces or in bulk heads.
- ◆ CSA and UL recognized.

## Application

The CCE-3000 series relays are ideal for starting fan induction terminals or controlling one, two, or three stages of electric heating or refrigeration.

## Models

CCE-3001	One stage
CCE-3002	Two stage
CCE-3003	Three stage

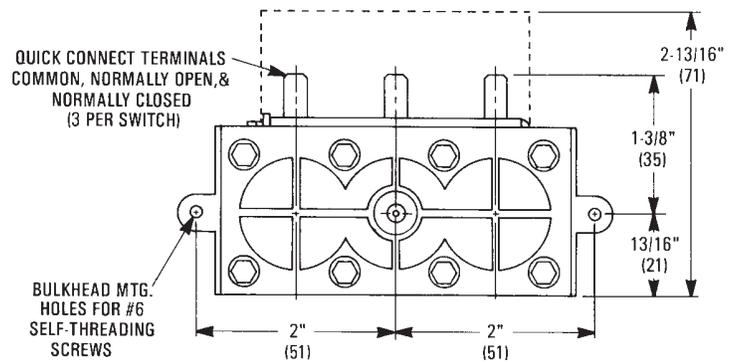
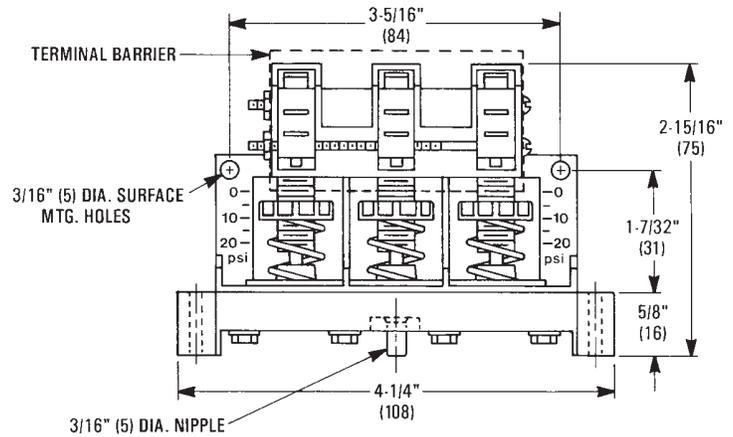
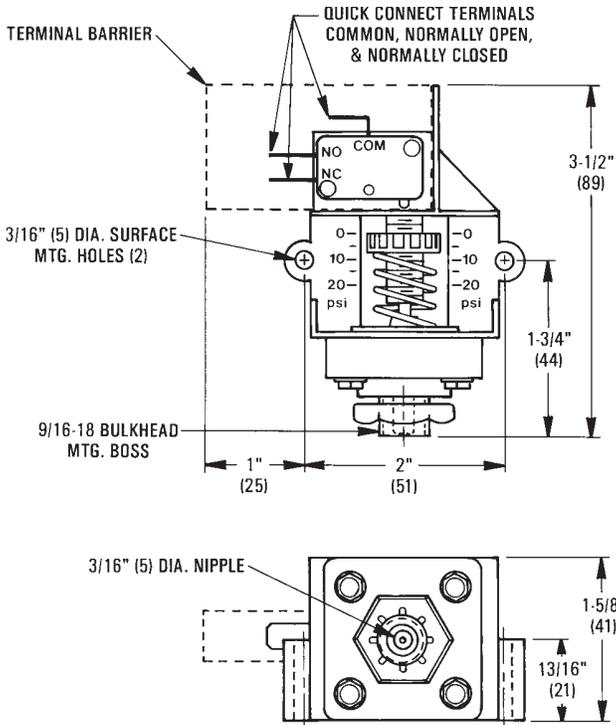


## ▲ CAUTION

Pneumatic devices must be supplied with clean, dry control air. Any other medium (e.g., oil or moisture contamination) will cause the device to fail.

## Details

All dimensions are in inches (mm).



## Specifications

<b>Setpoint Range</b>	2 to 20 psig (14 to 138 kPa)
<b>Differential</b>	Fixed differential, 1 to 2 psi nominal (7 to 14 kPa)
<b>Pressure Max.</b>	30 psig (207 kPa)
<b>Connections</b>	
Air	3/16" (5 mm) nipples for 1/4" (6 mm) O.D. polyethylene tubing
Electrical	1/4" quick-connect terminals
<b>Switching Action</b>	SPDT each stage
<b>Electrical Ratings</b>	25 amps each switch (non-inductive) @ 120/240/277 VAC, 1 HP @ 125 VAC, 2 HP @ 250 VAC, 750 VA pilot duty
<b>Weight</b>	
CCE-3001	2 oz. (57 grams)
CCE-3002	4.5 oz. (128 grams)
CCE-3003	5 oz. (142 grams)

### Material

Housing	Black polycarbonate
Diaphragm	Silicone

### Temperature Limits

Operating	40° to 150° F (4° to 60° C)
Shipping	-40° to 150° F (-40° to 60° C)

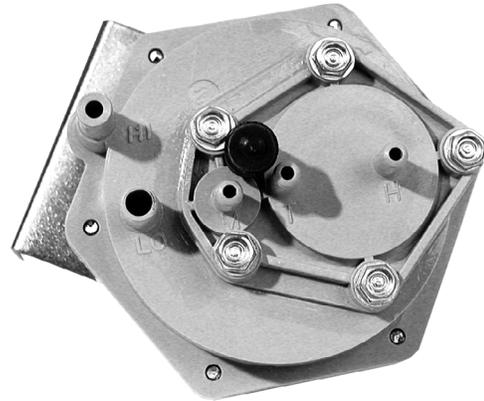
### Approvals

CSA and UL recognized  
Patent Number 4,855,545 (CEE-3002/3003)

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### Description

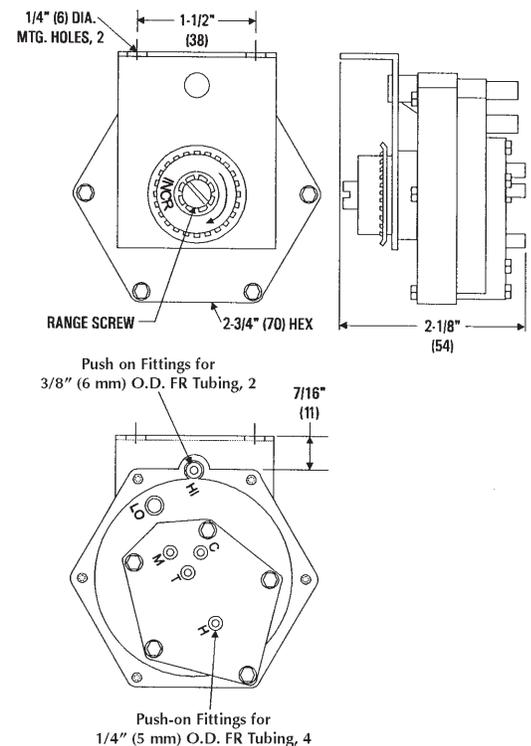
The CSC-1001 Constant Volume Controller is designed for use on constant volume boxes in HVAC systems. The CSC-1001 has two low-volume output connections that allow two different modes of operation. In one mode, the CSC-1001 is a constant volume controller without a thermostat override. In the other mode, the CSC-1001 is a high-limit controller that assumes control of a VAV terminal if a thermostat calls for too much flow.



### Specifications

<b>Setpoint Range</b>	0 to 1" wc (249 kPa)
<b>Proportional Band</b>	0.04" wc (10 Pa)
<b>Supply Pressure</b>	20 psig (138 kPa) operating 30 psig (207 kPa) maximum
<b>Air Consumption</b>	14.4 scim (3.93 mL/s) @ 20 psig
<b>Action</b>	N.O. dampers only; requires D.A. Thermostat for heating, R.A. for cooling
<b>Ports</b>	Differential Pressure Flow Sensor (HI and LO), Main Air (M), Thermostat (T), Actuator (H or C, dependent on application)
<b>Material</b>	ABS UL Flame Class 94 HB
<b>Weight</b>	4 oz. (113 grams)
<b>Temperature Limits</b>	
Operating	40° to 120° F (4° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)

### Details



### CAUTION

Pneumatic devices must be supplied with clean, dry control air. Any other medium (e.g., oil or moisture contamination) will cause the device to fail.

### Accessories

HFO-0006	In-line control-air filter
HFO-0013	Replacement C/H port rubber cap
ICI-1005	Pressure gauge
SSS-1002	1 sensing point; 3-5/32" length
SSS-1003	2 sensing points; 5-13/32" length
SSS-1004	3 sensing points; 7-21/32" length
SSS-1005	4 sensing points; 9-29/32" length

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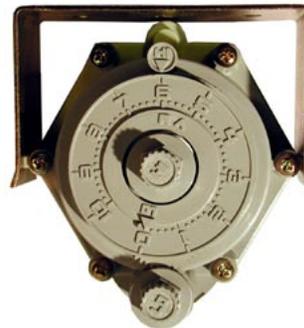


### Description

The pneumatic CSC-2000 series are designed for use on VAV terminal units in HVAC systems. These are differential-pressure, sub-master controllers with adjustable minimum and maximum airflow settings. A master controller, typically a room thermostat, resets the CSC-2000 velocity setpoint.

Direct acting models are for normally open VAV terminal units. Reverse acting are for normal closed VAV terminal units.

Each is equipped with separate adjustment knobs for minimum and maximum airflow settings. All models should be calibrated with the use of airflow measuring equipment.



With 0–10 Molded Plastic Dial  
(Mount with Face Up Only)



Without Molded Dial

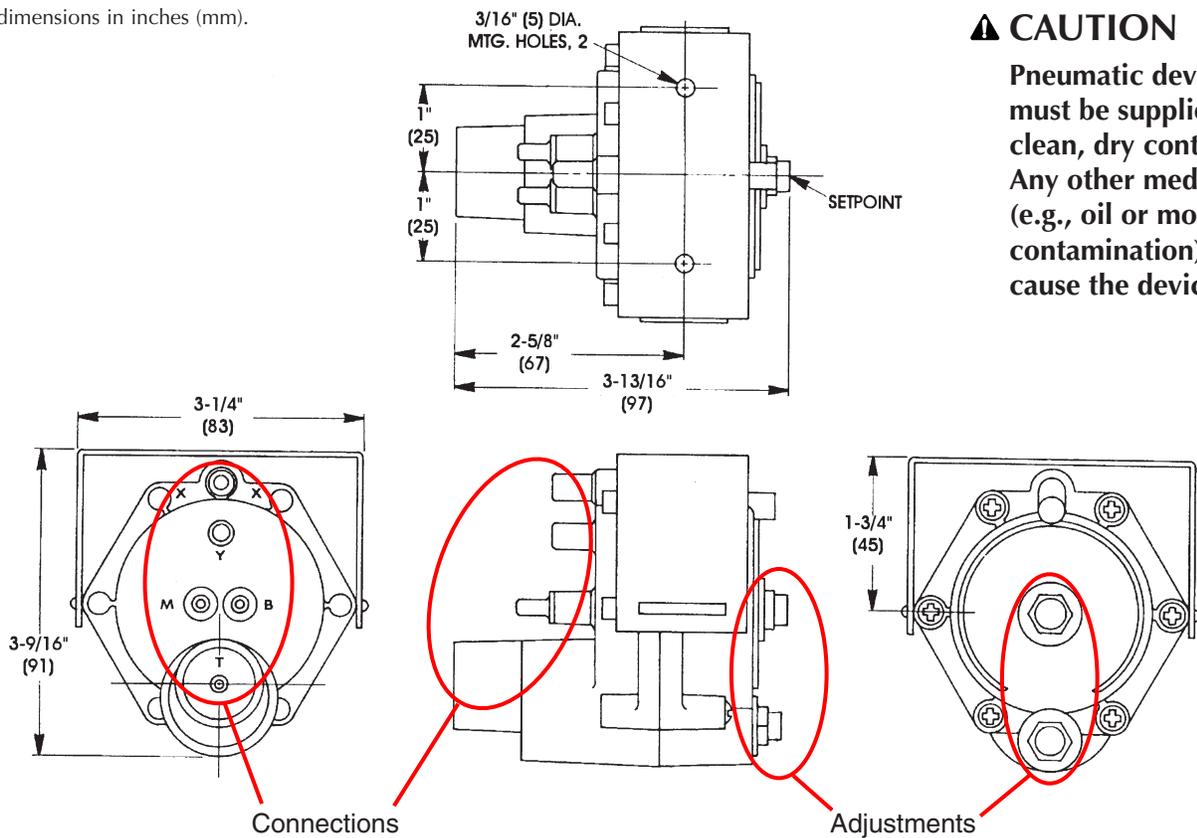
### Models

The table below illustrates the appropriate model for each application. If replacing a CSC-2001-22 or CSC-2002-22 (now obsolete), use the CSC-2001, CSC-2002, CSC-2003, or CSC-2004 and mount appropriately.

Direct Acting (Beige Controllers) for Normally Open Dampers							
Model	Thermostat Required		Setpoint Range		Reset Pressure Band	Air Consumption	0–10 Molded Plastic Dial
	For Cooling	For Heating	Minimum	Maximum			
CSC-2001	Direct Acting	Reverse Acting	0 to 1.0" wc (249 Pa)	Min. plus 1.0" wc (249 Pa)	8 ±0.5 to 13 psig (55 ±3.5 to 90 kPa)	14.4 scim @ 20 psig (3.93 mL/s @ 138 kPa)	Yes
CSC-2003						14.4 scim @ 20 psig (3.93 mL/s @ 138 kPa)	No molded plastic dial— has paper label instead
CSC-2007						11.5 scim @ 20 psig (3.1 mL/s @ 138 kPa)	
CSC-2009			14.4 scim @ 20 psig (3.93 mL/s @ 138 kPa)				
CSC-2017			11.5 scim @ 20 psig (3.1 mL/s @ 138 kPa)				
Reverse Acting (Gray Controllers) for Normally Closed Dampers							
Model	Thermostat Required		Setpoint Range		Reset Pressure Band	Air Consumption	0–10 Molded Plastic Dial
	For Cooling	For Heating	Minimum	Maximum			
CSC-2002	Reverse Acting	Direct Acting	0 to Max	0 to 1.0" wc (249 Pa)	3 ±0.5 to 8 psig (21 ±3.5 to 55 kPa)	14.4 scim @ 20 psig (3.93 mL/s @ 138 kPa)	Yes
CSC-2004						14.4 scim @ 20 psig (3.93 mL/s @ 138 kPa)	No molded plastic dial— has paper label instead
CSC-2008						11.5 scim @ 20 psig (3.1 mL/s @ 138 kPa)	
CSC-2010			14.4 scim @ 20 psig (3.93 mL/s @ 138 kPa)				
CSC-2018			11.5 scim @ 20 psig (3.1 mL/s @ 138 kPa)				

## Details

All dimensions in inches (mm).



## CAUTION

Pneumatic devices must be supplied with clean, dry control air. Any other medium (e.g., oil or moisture contamination) will cause the device to fail.

## Specifications

<b>Output Sensitivity</b>	0 to 1" range unit, 5 psig/0.02" wc (35 kPa/5 Pa)  0 to 2" range units, 5 psig/0.04" wc (35 kPa/10 Pa)
<b>Main Air Pressure</b>	15 to 30 psig (103 to 207 kPa)
<b>Max. Signal Pressure</b>	6" wc (1493 Pa) applied to either port (X or Y)
<b>Material</b>	ABS (beige or gray)
<b>Output Capability</b>	0 to supply pressure
<b>Weight</b>	7.5 oz. (213 grams)
<b>Temperature Limits</b>	
Operating	40° to 120° F (4° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)
<b>Mounting Position</b>	

The controllers are position sensitive. The min. and max. flow limits must be set (calibrated) in the same position the controller will be mounted. The CSC-2001/2002 (with molded plastic dials) must be mounted horizontally with dials facing up. The CSC-2003 through CSC-2018 may be mounted horizontally (preferred), with the adjustment knobs up or down, or mounted vertically.

## Features

- ◆ Separate adjustments for minimum and maximum airflow settings.
- ◆ CSC-2001/2003/2007/2009/2017 are designed for normally open dampers with direct-acting thermostats for cooling and reverse-acting thermostats for heating.
- ◆ CSC-2002/2004/2008/2010/2018 are designed for normally closed dampers with reverse-acting thermostats for cooling and direct-acting thermostats for heating.
- ◆ CSC-2001/2002 are equipped with 0 to 10 molded plastic reference dials; others have blind adjustments.

## Accessories/Repair Parts

HFO-0006	In-line control-air filter
HMO-4505	Mounting bracket
ICI-1005	Pressure gauge
SSS-1000 Series	Flow sensors

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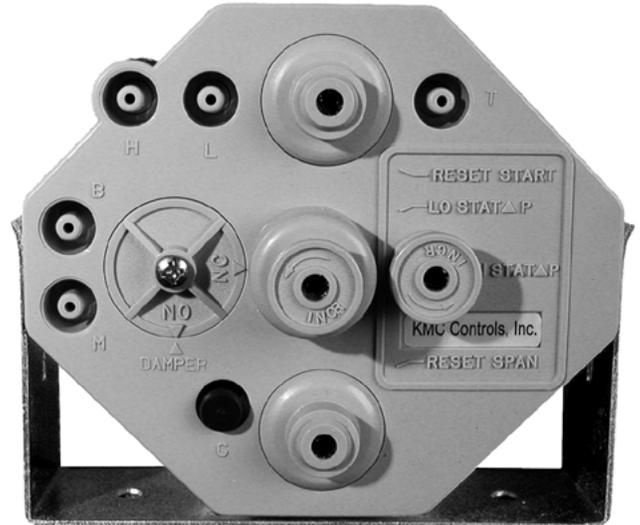
### Description and Application

These CSC-3000 series reset volume controllers are designed for use on heating or cooling systems with (normally open or normally closed) VAV terminal units and (direct or reverse acting) thermostats.

They are sub-master air velocity controllers. Each is equipped with separate adjustment knobs for minimum and maximum airflow setpoints. Models are available with various reset start points. A master controller, typically a room thermostat, resets the CSC-3000 between the minimum and maximum velocity setpoints.

The universal design of the CSC-3000 series is intended for new or replacement applications that call for direct or reverse acting reset on normally open or normally closed VAV terminal units.

\*(These specifications do **not** apply to the CSC-3014 or CSC-3501/3505; see their separate Data Sheets.)



### Models

NOTE: See the Model Selection Chart on the next page.

CSC-3011-10	0 to 1" range; 8 psig start
CSC-3016-10	0 to 2" range; 8 psig start
CSC-3017-16	(Identical to the CSC-3011-10 but does not come with a mounting bracket or KMC logo.)
CSC-3021-10	0 to 1" range; 3 psig start
CSC-3023-10	0 to 1" range; 10 psig start
CSC-3025-10	0 to 2" range; 8 psig start (high flow, for Trane® units)
CSC-3026-10	0 to 2" range; 3 psig start

NOTE: These CSC-3000 Series controllers are position sensitive. They must be mounted and calibrated in either the horizontal or vertical plane.

For the **CSC-3014** (designed to work with CTC-2100 Thermostats) and the **CSC-3501/3505** (Linear Volume Reset Controllers), **see their separate Data Sheets.**

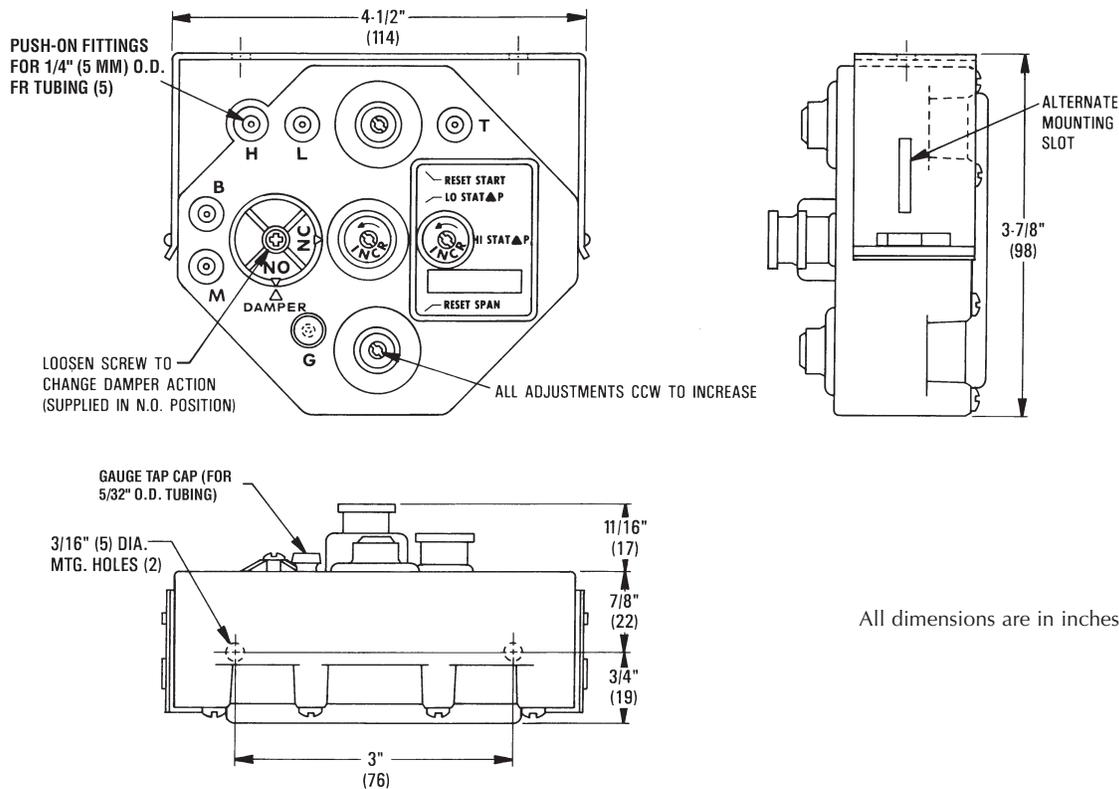
### Features

- ◆ Adjustable direct or reverse acting reset (normally open or normally closed damper settings)
- ◆ Adjustable minimum and maximum setpoints
- ◆ Available in 0 to 1" and 0 to 2" wc differential pressure ranges
- ◆ Available with factory-set 3, 8, or 10 psig reset start points (field-adjustable 0–10 psig if necessary)
- ◆ See the Specifications section for more details

### Accessories/Repair Parts

HFO-0006	In-line control-air filter
HFO-0014	G port rubber cap replacement
HMO-4508	Mounting bracket
ICI-1005	Pressure gauge
SSS-1002	Flow sensor, one sensing point; 3-5/32" (80 mm) length
SSS-1003	Flow sensor, two sensing points; 5-13/32" (137 mm) length
SSS-1004	Flow sensor, three sensing points; 7-21/32" (195 mm) length
SSS-1005	Flow sensor, four sensing points; 9-29/32" (252 mm) length

## Details



All dimensions are in inches (mm).

## Specifications

### Model Selection Chart

(\*CSC-3017-16 is identical to the CSC-3011-10, but it does not come with a mounting bracket or the KMC logo)

Model #	Reset Start Point Factory Set (all field- adjustable 0–10 psig)	Differential Pressure	Min. Setpoint	Max. Setpoint	Output Sensitivity	Air Consumption
CSC-3011-10 CSC-3017-16*	8 psig (55 kPa)	0 to 1.0" wc (249 Pa)	0 to 1.0" wc (249 Pa)	Min. to 1.0" wc (249 Pa)	5 psi/0.02" wc (35 kPa/5 Pa)	28.8 scim @ 20 psig (7.87 mL/s @ 138 kPa)
CSC-3021-10	3 psig (21 kPa)					
CSC-3023-10	10 psig (69 kPa)					
CSC-3026-10	3 psig (21 kPa)					
CSC-3016-10	8 psig (55 kPa)	0 to 2.0" wc (498 Pa)	0 to 2.0" wc (498 Pa)	Min. to 2.0" wc (498 Pa)	5 psi/0.04" wc (35 kPa/10 Pa)	46.1 scim @ 20 psig (12.59 mL/s @ 138 kPa)
CSC-3025-10						

**Damper Action** Factory set @ NO, adjustable for NC or NO

**Thermostat Action** Direct or reverse action

**Main Air Pressure** 15 to 30 psig (103 to 207 kPa)

**Max. Signal Pressure** 6" wc (1493 Pa) applied to either port (H or L)

**Reset Span** Factory set @ 5 psig (35 kPa)

### Temperature Limits

Operating 40° to 120° F (4° to 49° C)

Shipping -40° to 140° F (-40° to 60° C)

**Material** ABS

**Weight** 11 oz. (312 grams)

### ▲ CAUTION

**Pneumatic devices must be supplied with clean, dry control air. Any other medium (e.g., oil or moisture contamination) will cause the device to fail.**

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www.kmccontrols.com; info@kmccontrols.com

### Description

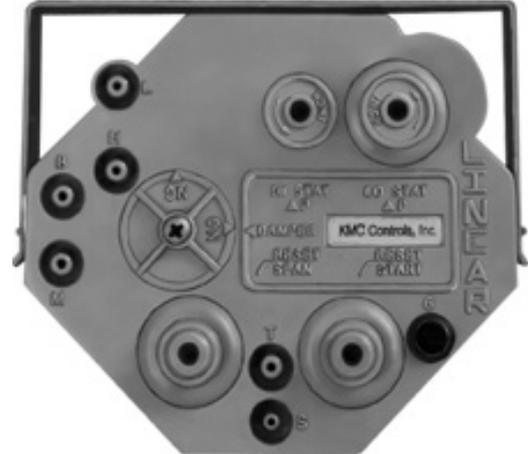
The KMC CSC-3501 and CSC-3505 Linear Reset Volume Controllers are sub-master air velocity controllers designed for use on VAV terminal units in HVAC systems where linear reset is necessary. They are ideal for dual-duct constant volume systems, and exhaust or supply tracking systems. The CSC-3501 has a one-inch differential pressure range. The CSC-3505 has a two-inch differential pressure range.

The velocity setpoint is linearly reset between preset minimum and maximum limits by a master controller, usually a room thermostat.

The CSC-3501/3505 multifunctional controllers are used for either direct or reverse acting reset for normally open or closed terminal units. The reset start point and reset span (the changes between the preset minimum and maximum flows) are factory set but field adjustable. Once set, the span is always constant regardless of the minimum and maximum limit settings.

### Features

- ◆ One or two inch differential pressure range
- ◆ Direct or reverse action
- ◆ Field adjustable reset start point and span



### Models

CSC-3501	0 to 1" Range
CSC-3505	0 to 2" Range

### !CAUTION

Pneumatic devices **MUST** operate with **CLEAN, DRY**, control air. Any other medium will result in the device's eventual failure.



## Description

The YMC Switch Series combine manually actuated gradual switches with selector switches.

The YMC-1001, gradual switch, is designed to deliver a variable, selected air pressure from the branch line to a remote device. The YMC-1001 is used in pneumatic control circuits to remotely position devices and adjust receiver-controller set-points.

The YMC-2001 and 2002 models have two selector switches, the YMC-3001 and 3002 have three switches and the YMC-6001 has six positions.

Typical application for these switches include diverting and supply/exhaust of pneumatic signals to other devices.

A variety of scale plates are available. A mounting bracket for panel mounting is also available.



## Model

YMC-1001	Gradual switch
YMC-2001	2-position switch, DPDT, non-vented
YMC-2002	2-position switch, DPDT, vented
YMC-3001	3-position switch, non-vented
YMC-3002	3-position switch, vented
YMC-6001	6-position, non-vented

## Accessories

HMO-4506 Mounting bracket

### Scale Plates All Models

HDO-1101 Blank

### Scale Plate YMC-1001

HDO-1102 0 to 100%

HDO-1103 Increase CW arrow

HDO-1104 Increase CCW arrow

### Scale Plate YMC-2001/2002:

HDO-1201 Occupied- Unoccupied

HDO-1202 Summer-Winter

HDO-1203 On-Off

HDO-1204 On-Auto

HDO-1205	Open-Close
HDO-1206	1-2
HDO-1207	Day-Night
HDO-1208	Heat-Cool
HDO-1209	Manual-Auto

### Scale Plate YMC-3001/3002:

HDO-1301	1-2-3
HDO-1302	On-Auto-Off
HDO-1303	Day-Auto-Night
HDO-1304	Occ.-Auto-Unocc.
HDO-1305	Heat-Auto-Cool
HDO-1306	Summer-Auto-Winter
HDO-1307	Open-Auto-Close

### Scale Plates YMC-6001:

HDO-1601	1-2-3-4-5-6
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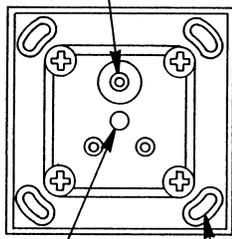
**NOTE:** Scale plates are sold in packs of ten.

## Details

All dimensions in inches (mm).

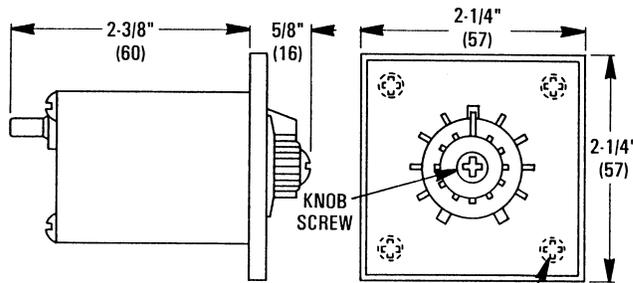
### YMC-1001 Model

PUSH-ON CONNECTIONS FOR  
3/16" (5) ID FR TUBING



EXHAUST HOLE-  
DO NOT PLUG

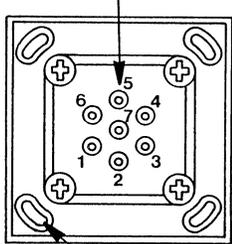
4 MOUNTING SLOTS ALLOW  $\pm 5^\circ$   
ROTATIONAL ALIGNMENT



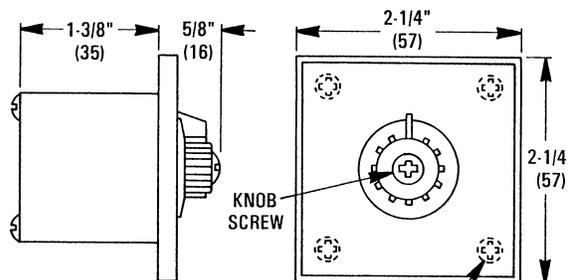
MTG. SCREWS ARE CONCEALED  
BEHIND PLATE WHEN MOUNTED

### YMC-2001, 2002, 3001, 3002, & 6001 Models

PUSH-ON CONNECTIONS FOR  
3/16" (5) ID FR TUBING



4 MOUNTING SLOTS ALLOW  $\pm 5^\circ$   
ROTATIONAL ALIGNMENT



MTG. SCREWS ARE CONCEALED  
BEHIND PLATE WHEN MOUNTED

### SWITCH PATTERN

MODELS	POSITION	PORTS CONNECTED
YMC-2001, 2002	Left	2-1; 5-4
	Right	2-3; 5-6
YMC-3001, 3002	Left	7-1
	Center	7-2
	Right	7-3
YMC-6001	1	7-1
	2	7-2
	3	7-3
	4	7-4
	5	7-5
	6	7-6

## Specifications

**Supply Pressure** 30 psig (207 kPa) max

### Air Capacity

YMC-1001 28.8 (7.87 mL/s)

YMC-2000/3000/6001 576 scim (157.4 mL/s)

### Air Consumption

YMC-1001 28.8 (7.87 mL/s)

YMC-2000/3000/6001 None

**Output Range** YMC-1001 2-18 psig (14-124 kPa) equals 0-100%

**Branch Ports** YMC-1001, B1 and B2 internally connected. Cap if unused.

**Connections** 3/16" (5 mm) nipples for 1/4" (6 mm) O.D. polyethylene tubing.

### Temperature Limits

Operating 40° to 120° F (4° to 49° C)

Shipping -40° to 140° F (-40° to 60° C)

### Material

Housing: Beige ABS, UL  
Flame Class 94 HB; Scale  
plates: aluminum

### Weight:

YMC-1001 3 oz (85 grams)

YMC-2,3,6001 2 oz. (57 grams)

## !CAUTION

Pneumatic devices MUST operate with CLEAN, DRY, control air. Any other medium will result in the device's eventual failure.

### KMC Controls, Inc.

19476 Industrial Drive

New Paris, IN 46553

574.831.5250

www.kmcccontrols.com

## Description

### RCC-1001, 1012, 1101, 1112

Pilot capacity *reversing relays* designed for reversing a proportional signal from a controlling device. Factory adjusted to decrease branch line pressure as the input pressure increases. Comes with a bias adjustment and two factory calibration points (8 and 9 psi).

### RCC-1102

*Averaging relays* designed for applications that do not require large amounts of output air volume. Suitable for room or zone applications such as VAV terminals. Use where the output signal to the controlled device must be the average of two source signals.

### RCC-1006, 1106

*Low pressure selector relays* are designed to control a final device based on the lower of two pneumatic input signals.

### RCC-1008, 1108

*High pressure selector relays* are designed to select the greater of two pneumatic signals as the control signal for a final device. These signals must be supplied by "relieving" type devices such as thermostats and receiver-controllers.

### RCC-1009, 1109

Adjustable *diverting relays* are SPDT devices. They divert one signal to either of two branch circuits *or* select one of two inputs and transmit it to another control device. They can also be used to feed, or exhaust, a circuit.



## Models

Using the list below choose the model appropriate for your application.

### Without bracket

RCC-1001	Reversing; 9 psi calibration
RCC-1006	Low pressure selector
RCC-1008	High pressure selector
RCC-1009	Diverting; SPDT
RCC-1012	Reversing; 8 psi calibration

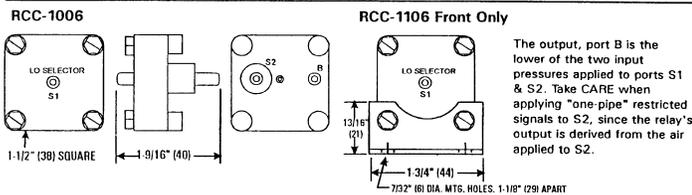
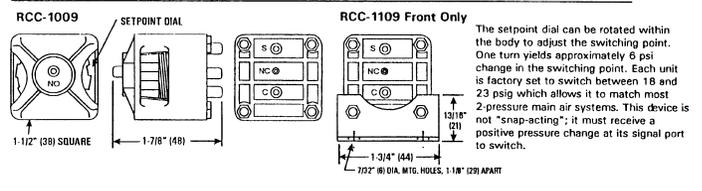
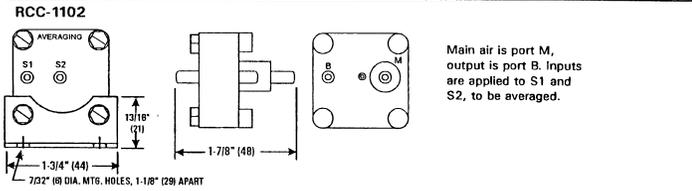
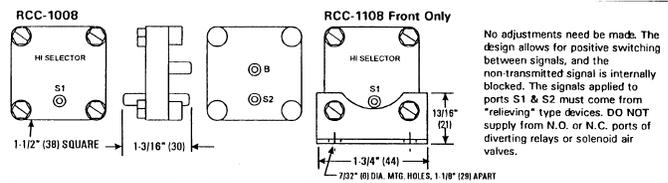
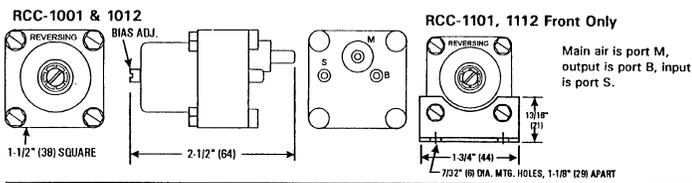
### Includes Bracket

RCC-1101	Reversing; 9 psi calibration
RCC-1102	Averaging
RCC-1106	Low pressure selector
RCC-1108	High pressure selector
RCC-1109	Diverting; SPDT
RCC-1112	Reversing; 8 psi calibration

## Details

All dimensions in inches (mm).

ALL PORT CONNECTIONS ARE 3/16" (5) DIA. x 3/8" (9)



## !CAUTION

Pneumatic devices **MUST** operate with **CLEAN, DRY**, control air. Any other medium will result in the device's eventual failure.

## Specifications

<b>Supply Pressure</b>	0 to 20 psig (138 kPa) operating 30 psig (207 kPa) maximum
<b>Air Capacity</b>	
RCC-1001, 1012	17.3 scim (4.7 mL/s) @ 20psig
1101, 1112	(138 kPa)
RCC-1009, 1109	432 scim (117.9 mL/s) @ 20psig (138 kPa)
RCC-1008, 1018	260 scim (70.6 mL/s) @ 5 psig (34.5 kPa) pressure drop
<b>Setpoint Range</b>	
RCC-1009, 1109	3 to 23 psig (21 to 159 kPa)
<b>Air Consumption</b>	
RCC-1001, 1012, 1101, 1112	17.3 scim (4.7 mL/s)
RCC-1102	on main, 0 on signal
RCC-1006,1106	Port S2; 0-21.6 scim (5.9 mL/s)
RCC-1008, 1108	None
RCC-1009, 1109	None
<b>Bias Adjustment</b>	RCC-1001,1012,1101,1112 +/-15 psi (103 kPa)

<b>RCC-1009,1109;</b>	
Switching Differential	5 psig (34 kPa)
Action:	Below setpoint; C & NO connected Above setpoint; C & NC connected
Factory Setpoint	18 to 23 psig 124-159 kPa)
<b>Supply Connection</b>	3/16" (5 mm) for 1/4" (6 mm) O.D. polyethylene tubing
<b>Material</b>	RCC-1009, 1109 glass filled nylon, all other models beige ABS UL Flame Class 94 HB
<b>Weight</b>	2.5 oz. (71 grams) maximum
<b>Temperature Limits</b>	
Operating	40° to 120° F (4° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)

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www.kmccontrols.com

### Description

The KMC RCC-1010 is an adjustable ratio relay designed for sequencing pneumatic control components in HVAC systems.

The RCC-1010 can reduce the rate at which a pneumatic device responds to a control signal. This ratio may be adjusted on a percentage basis from zero to 100% (1 to 1). This feature reduces instability in a final control device by effectively increasing the proportional band of the circuit.

Additionally, the device output can be biased in a positive direction to increase the output of the relay. This allows the ratio operation to begin at a specific pressure, such as the start point of a pneumatic actuator.

### Features

- ◆ Allows sequencing of pneumatic control components
- ◆ Allows positive bias of relays output signal
- ◆ Reduces final device instability by decreasing response rates

### Specifications

<b>Maximum Pressure</b>	30 psig (207 kPa)
<b>Air Consumption</b>	14.4 scim (3.93 mL/s)
<b>Ratio Range</b>	0 to 1
<b>Supply Air</b>	20 psig +/- 5 psi (138 kPa +/- 34 kPa)
<b>Bias Adjustment</b>	0 to 8 psi (55 kPa)
<b>Weight</b>	6 oz. (170 grams)
<b>Material</b>	ABS, UL Flame Class 94 HB
<b>Temperature Limits</b>	
Operating	40° to 120° F (4° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)

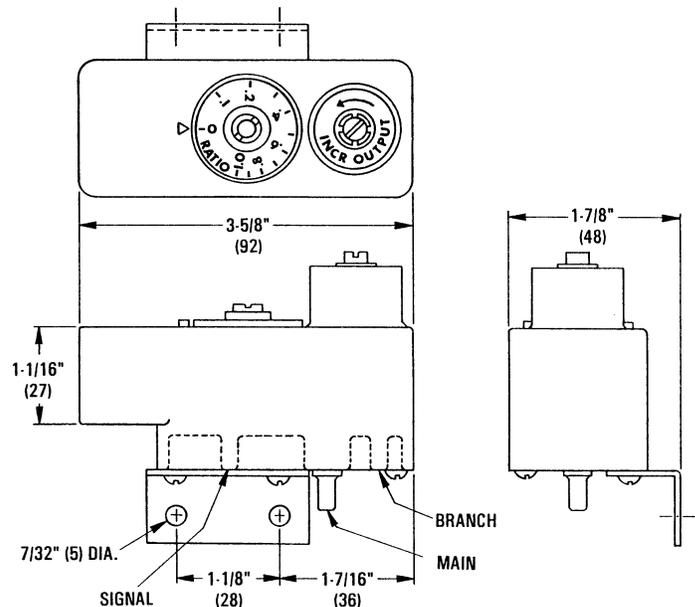
### !CAUTION

Pneumatic devices **MUST** operate with CLEAN, DRY, control air. Any other medium will result in the device's eventual failure.



### Details

All dimensions in inches (mm).



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### **Description**

The RCC-1011 and RCC-1111 multiple input selector relays are designed for selection of the lowest and/or highest of 6 different pneumatic inputs.

They are restricted devices designed for pilot-duty operation. If a large output volume is required, use a volume booster relay. For applications requiring a "low" output, the integral selector valve must be set for the correct number of inputs. If a "high" output is required, this dial does not need be set.

The RCC-1011 can be mounted in-line and the RCC-1111 can be mounted using the included right angle bracket.



### **Features**

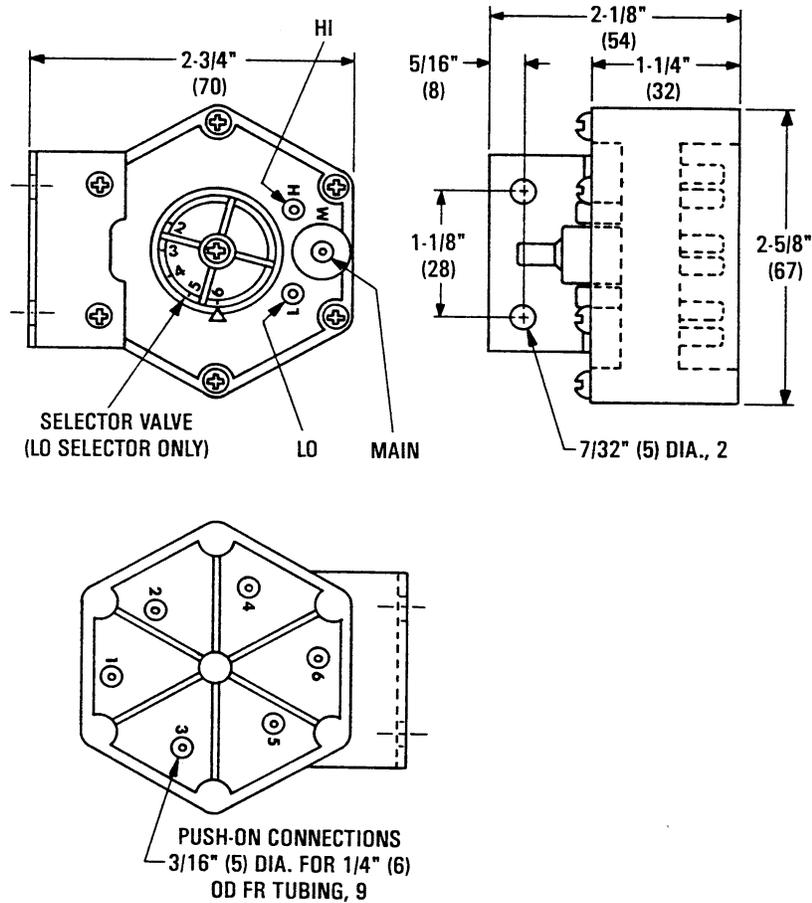
- ◆ Designed for pilot-duty operation
- ◆ Selects the lowest and/or highest of up to 6 different pneumatic inputs
- ◆ May be mounted in-line or with a right angle bracket.

### **Models**

RCC-1011	6 Input high/low selector relay
RCC-1111	6 Input high/low selector relay with bracket

## Details

All dimensions in inches (mm).



## Specifications

<b>Supply Pressure</b>	20 psig (138 kPa) 30 psig (207 kPa) maximum
<b>Air Consumption</b>	28.8 scim (7.85 mL/s)
<b>Connection</b>	3/16" (5mm) nipple for 1/4" (6 mm) OD polyethylene tubing
<b>Material</b>	ABS, UL Flame Class 94HB
<b>Weight</b>	RCC-1011 3 oz. (85 grams) RCC-1111 3.5 oz. (99 grams)
<b>Temperature Limits</b>	
Operating	40° to 120° F (4 to 29° C)
Shipping	-40° to 140° F (-40° to 60° C)

## !CAUTION

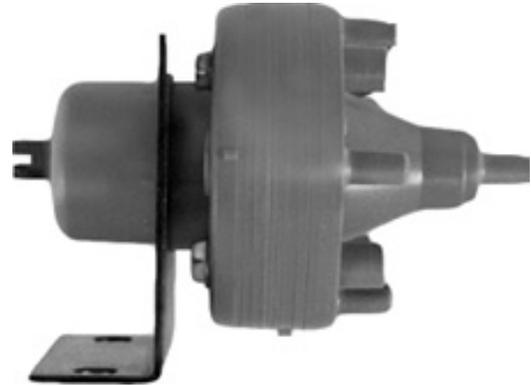
Pneumatic devices MUST operate with CLEAN, DRY, control air. Any other medium will result in the device's eventual failure.

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### Description

The KMC RCC-1501 to 1504 adjustable reversing relays are designed to reverse a proportional signal from a controlling device. These relays are intended for any application where the output signal to the controlled device must be the reverse of the source signal.

The RCCs are factory adjusted so the input and output cross-over at a certain pressure. The RCC-1501/02 is 8 psig (55 kPa) in and out while the RCC-1503/4 is 9 psig (62 kPa) in and out. A bias adjustment of +/- 15 psig (103 kPa) is provided to retard, or advance, the output. The RCCs small size and light weight make them suitable for in-line mounting.



### Features

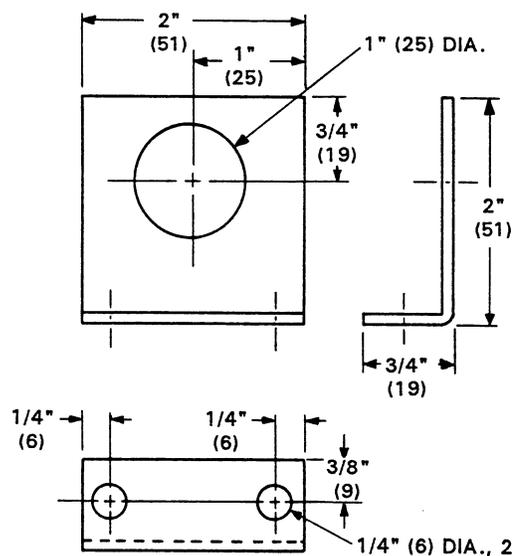
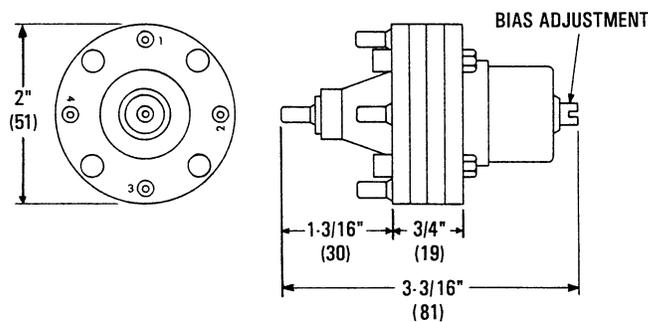
- ◆ Available in 8 and 9 psig calibrations.
- ◆ Bias adjustment to retard or advance output +/- 15 psig (103 kPa)
- ◆ Suitable for in-line mounting

### Models

RCC-1501	8 psig calibration; in-line
RCC-1502	8 psig calibration; with bracket
RCC-1503	9 psig calibration; in-line
RCC-1504	9 psig calibration; with bracket

## Details

All dimensions in inches (mm).



## Specifications

<b>Supply Pressure</b>	30 psig (207 kPa) maximum
<b>Air Consumption</b>	14.4 scim (3.93 mL/s)
<b>Air Capacity</b>	1728 scim (473 mL/s) @ 20 psig (138 kPa)
<b>Connection</b>	3/16" (5 mm) nipple for 1/4" (6 mm) OD polyethylene tubing
<b>Material</b>	ABS, UL Flame Class 94 HB
<b>Weight</b>	1501/2: 2-1/4 oz. (64 grams) 1503/4: 3-1/2 oz. (99 grams)

### Temperature Limits

Operating	40° to 120° F (4° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)

## !CAUTION

Pneumatic devices **MUST** operate with **CLEAN, DRY**, control air. Any other medium will result in the device's eventual failure.

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## **Description**

The KMC RCC-1505 thru 1508 Addition and Subtraction Relays are designed for use in pneumatic control circuits.

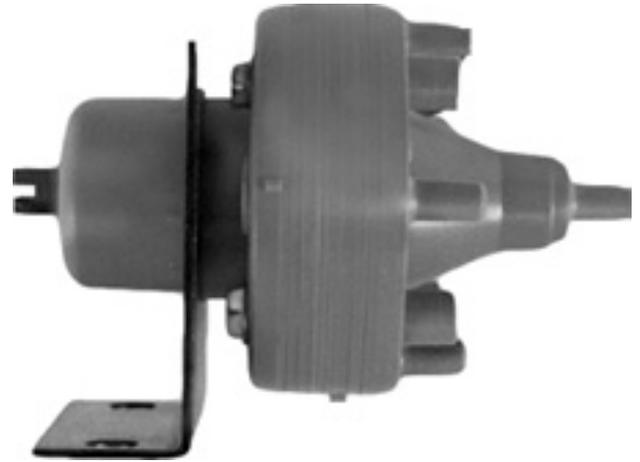
RCC-1505 and 1506 are addition relays. They add two input signals together into one signal. This combined signal can have a maximum pressure of 30 psig (207 kPa). These models are used in systems where the output signal to a controlled device must be the sum of signals from two separate sources.

RCC-1507 and 1508 are subtraction relays. They subtract one signal from another. They are intended for use where the output signal to the controlled device must be the difference between two source signals.

All models feature a +/- 15 psig (103 kPa) bias adjustment to retard or advance the output. Additionally, their small size and light weight make them suitable for in-line mounting in any position.

## **Features**

- ◆ Addition or subtraction of input signals up to 30 psig (207 kPa) maximum
- ◆ A +/- 15 psig (103 kPa) bias adjustment retards or advances output
- ◆ Suitable for in-line mounting

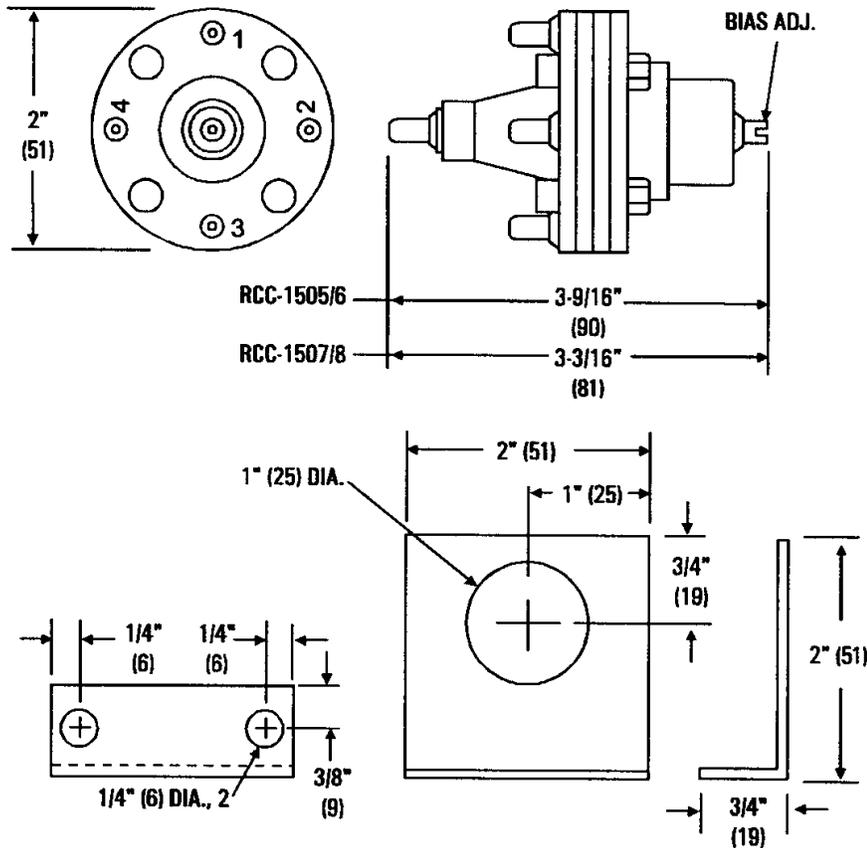


## **Models**

RCC-1505	Addition; in-line
RCC-1506	Addition; with bracket
RCC-1507	Subtraction; in-line
RCC-1508	Subtraction; with bracket

## Details

All dimensions in inches (mm).



## Specifications

**Supply Pressure** 30 psig (207 kPa) maximum

**Air Consumption** 14.4 scim (3.9 mL/s)

**Air Capacity** 1728 scim (472 mL/s)  
@ 20 psig (138 kPa)

**Connection** 3/16" (5 mm) nipple for 1/4" (6 mm) OD polyethylene tubing

### Factory Settings

RCC-1505/1506 Port 1 = Port 2 + Port 3 (will not exceed main air pressure)

RCC-1507/1508 Port 1 = Port 2 - Port 3

**Material** ABS, UL Flame Class 94 HB

**Weight**  
1505: 2-1/2 oz. (71 grams)  
1506: 3-3/4 oz. (106 grams)  
1507: 2-1/4 oz. (64 grams)  
1508: 3-1/2 oz. (99 grams)

### Temperature Limits

Operating 40° to 120° F (4° to 49° C)

Shipping -40° to 140° F (-40° to 60° C)

## !CAUTION

Pneumatic devices **MUST** operate with **CLEAN, DRY**, control air. Any other medium will result in the device's eventual failure.

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### Description

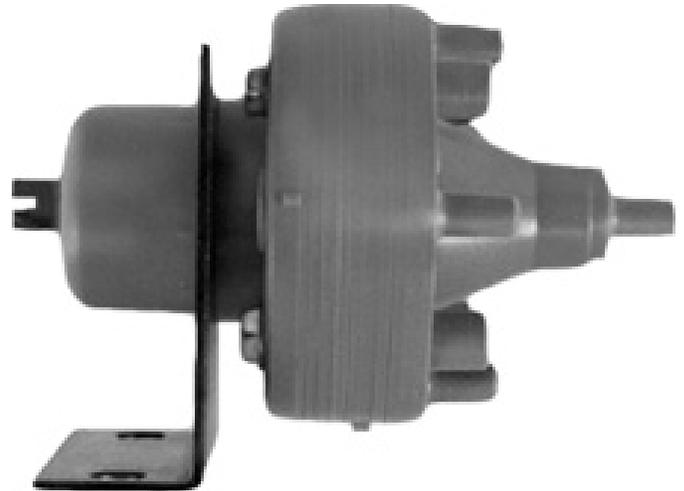
The KMC RCC-1509, 1510, 1515 and 1516 relays are proportional main valve capacity booster devices. They are designed to amplify control air volume in pneumatic control circuits.

The RCC models minimize system transmission lag when used with a proportional controller operating several diaphragm valves or actuators. RCC-1515 and 1516 feature a +/- 15 psig bias adjustment to advance or retard output.

Models RCC-1509 and 1515 are intended for in-line mounting while a bracket is used to mount models RCC-1510 and 1516.

### Features

- ◆ Minimize transmission lag when used with a proportional controller
- ◆ A +/- 15 psig (103 kPa) bias adjustment (available on RCC-1515 and 1516) advances or retards output
- ◆ Available for bracket, or in-line, mounting

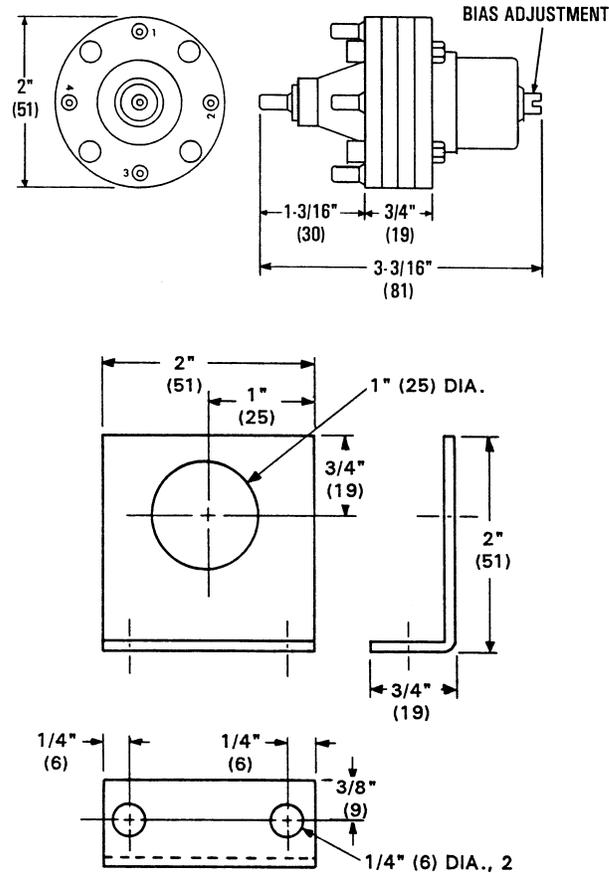


### Models

RCC-1509	Booster w/o bias; in-line mount
RCC-1510	Booster w/o bias; with bracket
RCC-1515	Booster with bias; in-line mount
RCC-1516	Booster with bias; with bracket

## Details

All dimensions in inches (mm).



## Specifications

<b>Supply Pressure</b>	30 psig (207 kPa) maximum
<b>Air Consumption</b>	14.4 scim (3.93 mL/s)
<b>Air Capacity</b>	1728 scim (473 mL/s) @ 20 psig (138 kPa)
<b>Connection</b>	3/16" (5 mm) nipple for 1/4" (6 mm) OD polyethylene tubing
<b>Factory Settings</b>	Zero bias
<b>Bias Adjustment</b>	+/- 15 psig (103 kPa)
<b>Material</b>	ABS, UL Flame Class 94 HB
<b>Weight</b>	
1509/1515	2-1/4 oz. (64 grams)
1510/1516	3-1/2 oz. (99 grams)
<b>Temperature Limits</b>	
Operating	40° to 120° F (4° to 29° C)
Shipping	-40° to 140° F (-40° to 60° C)

## !CAUTION

Pneumatic devices **MUST** operate with **CLEAN, DRY**, control air. Any other medium will result in the device's eventual failure.

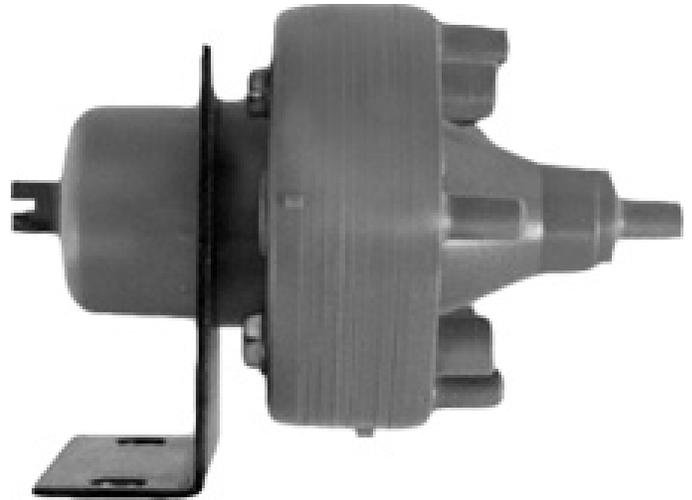
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### **Description**

KMC RCC-1511 and 1512 are main valve capacity ratio relays designed to provide an output signal proportional to an input. Applications include pneumatic control circuits where the final control device must be controlled by a signal that is proportionally different from the source signal.

RCC-1511/12 relays react to each 1 psi input change with a 2 psi change to the output signal. A +/- 7.5 psi (52 kPa) bias adjustment is provided. The units are factory set for 9 psi out with 9 psi in with no bias.

The relays compact size and light weight make them suitable for in-line mounting in any position.



### **Features**

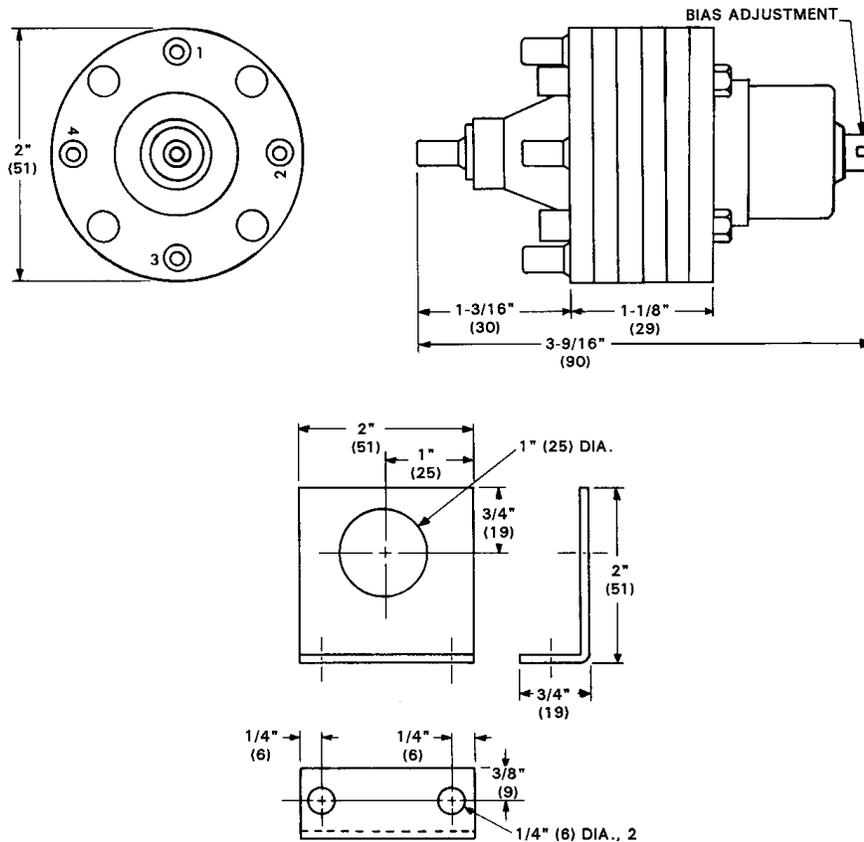
- ◆ Proportional 1 to 2 input to output change
- ◆ A +/- 7.5 psig (52 kPa) bias adjustment
- ◆ Models are available for bracket or in-line mounting

### **Models**

RCC-1511	in-line mount
RCC-1512	with mounting bracket

## Details

All dimensions in inches (mm).



## Specifications

<b>Supply Pressure</b>	30 psig (207 kPa) maximum
<b>Air Consumption</b>	14.4 scim (3.93 mL/s)
<b>Air Capacity</b>	1728 scim (472 mL/s) @ 20 psig (138 kPa)
<b>Connection</b>	3/16" (5mm) nipple for 1/4" (6 mm) O.D. polyethylene tubing
<b>Factory Settings</b>	9 psig in (62 kPa) 9 psig out
<b>Material</b>	ABS, UL Flame Class 94 HB
<b>Weight</b>	1511 2-1/2 oz. (71 grams) 1512 3-3/4 oz. (106 grams)
<b>Temperature Limits</b>	
Operating	40° to 120° F (4° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)

## !CAUTION

Pneumatic devices **MUST** operate with **CLEAN, DRY**, control air. Any other medium will result in the device's eventual failure.

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[www.kmcccontrols.com](http://www.kmcccontrols.com)

### **Description**

KMC RCC-1513 and RCC-1514 averaging relays are proportional devices designed to average two signals in pneumatic control circuits. They are used where the output signal to the controlled device must be the average of two different source signals. Additionally, air output volume is amplified, minimizing system lag.

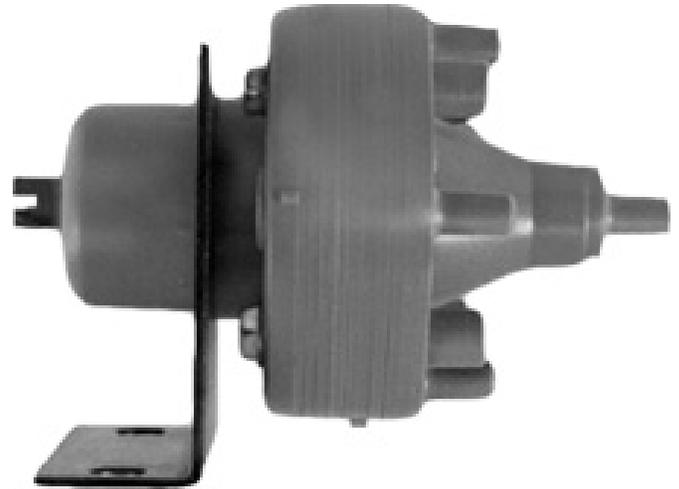
The RCC-1513 and 1514's compact size and light weight make them suitable for in-line or bracket mounting in any position.

### **Features**

- ◆ Proportional averaging of two input signals into one output signal
- ◆ Air volume is amplified minimizing system lag
- ◆ Models are available for bracket or in-line mounting

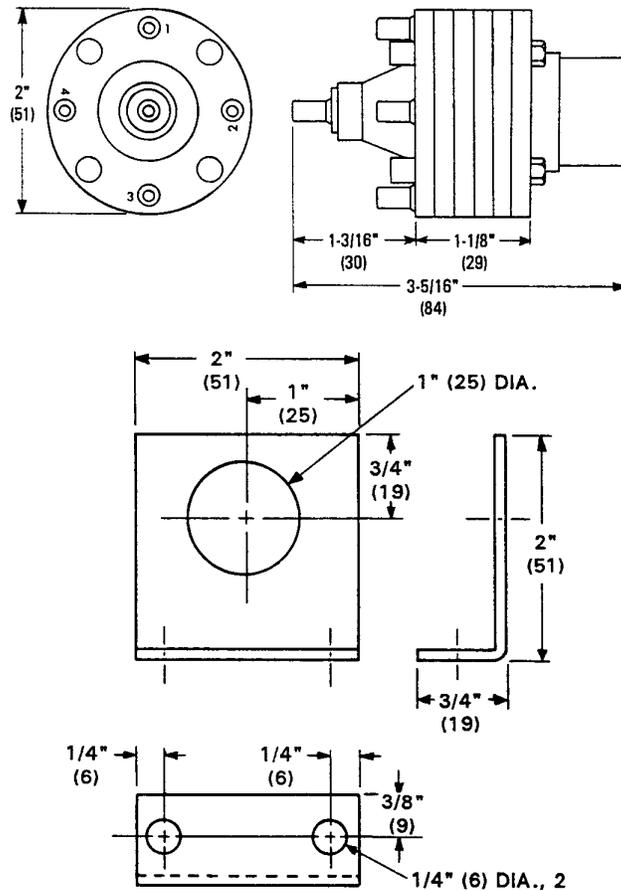
### **Models**

RCC-1513	in-line mount
RCC-1514	with mounting bracket



## Details

All dimensions in inches (mm).



## Specifications

<b>Supply Pressure</b>	30 psig (207 kPa) maximum
<b>Air Consumption</b>	14.4 scim (3.93 mL/s)
<b>Air Capacity</b>	1728 scim (472 mL/s) @ 20 psig (138 kPa)
<b>Connection</b>	3/16" (5 mm) nipple for 1/4" (6 mm) O.D. polyethylene tubing
<b>Factory Settings</b>	Proportional; average of two inputs may not exceed main air pressure
<b>Material</b>	ABS, UL Flame Class 94HB
<b>Weight</b>	1513 2-1/2 oz. (71 grams) 1514 3-3/4 oz. (106 grams)
<b>Temperature Limits</b>	
Operating	40° to 120° F (4° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)

## !CAUTION

Pneumatic devices **MUST** operate with **CLEAN, DRY**, control air. Any other medium will result in the device's eventual failure.

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[www.kmcccontrols.com](http://www.kmcccontrols.com)

### Description

The KMC SSS-1000 sensors are designed to sense differential pressure in the inlet section of variable air volume terminal units and fan terminal units. They can also be used to sense differential pressure at other locations in the main, or branch, duct systems.

The "H" port senses total pressure and the "L" port senses static pressure. The difference between these signals is the differential, or velocity pressure.

Models offer up to four sensing points and lengths of 3-5/32" to 9-29/32" to accommodate box size diameters of 4" to 16".

### Applications

The SSS-1000 Series sensors are typically used in conjunction with the CSC-1000, 2000, and 3000 series of VAV terminal controllers for individual zone control in HVAC systems.

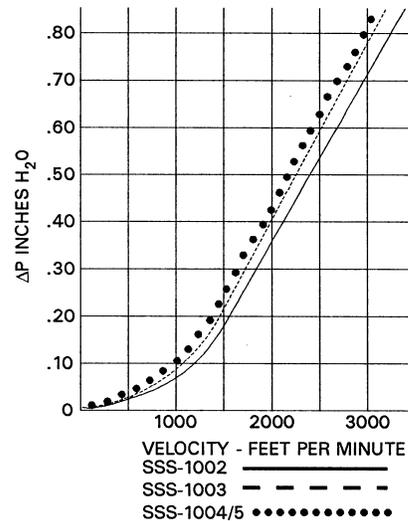
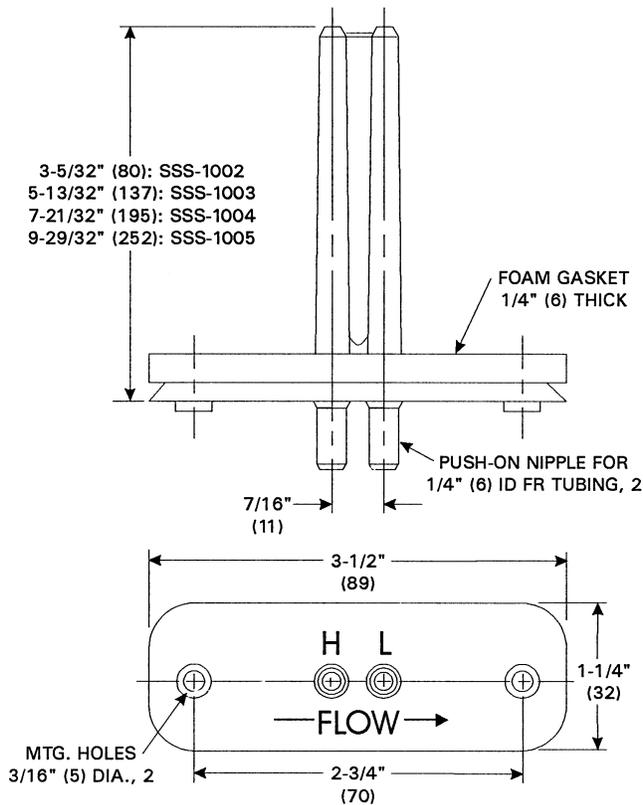


### Models

SSS-1002	One sensing point; 3-5/32" (80 mm) length
SSS-1003	Two sensing points; 5-13/32" (137 mm) length
SSS-1004	Three sensing points; 7-21/32" (195 mm) length
SSS-1005	Four sensing points; 9-29/32" (252 mm) length

## Details

All dimensions in inches (mm).



## Specifications

<b>Material</b>	Light almond ABS/ Polycarbonate (UL94-5V)
<b>Mounting</b>	Integral flange with gasket
<b>Connection</b>	1/4" (6 mm) nipple for 3/8" (10 mm) O.D. polyethylene tubing
<b>Weight</b>	1 oz. (28 grams)
<b>Temperature Limits</b>	
Operating	40° to 120° F (4° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)

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### **Description**

The KMC TPC-1002 and 1003 are one-pipe pneumatic differential pressure transmitters. They transmit a fixed 3 to 15 psi (21 to 103 kPa) signal which is fully proportional to the monitored differential pressure.

All models require a restricted control air source. KMC recommends using an HFO-0010 restrictor "T" (ordered separately). Input medium to the sensing connection may be water, steam, air or oil. The TPCs phosphor-bronze bellows and stainless steel mechanism ensure accuracy even in rugged conditions.



### **Features**

- ◆ Fully proportional 3 to 15 psi (21 to 103 kPa) signal
- ◆ Use water, steam, air or oil as an input medium
- ◆ Rugged construction ensures accuracy

### **Applications**

The output signal can be used as an input for receiver controllers, or supplied to receiver gauges for visual monitoring of system conditions.

### **Models**

TPC-1002	Differential Pressure; 0 to 50 psi (0 to 345 kPa)
TPC-1003	Differential Pressure; 0 to 100 psi (0 to 689 kPa)

### **Accessories**

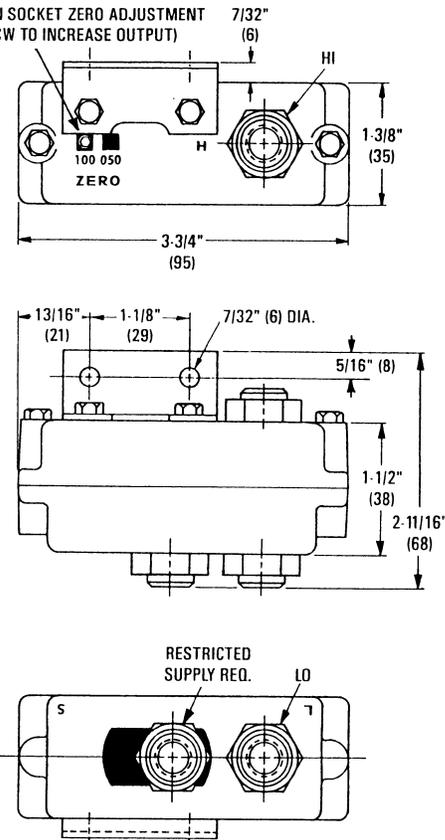
HFO-0010	Restrictor "T"
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## Details

All dimensions in inches (mm)

### TPC-1002, 1003

3/32" ALLEN SOCKET ZERO ADJUSTMENT  
(TURN CW TO INCREASE OUTPUT)



ALL PIPING CONNECTIONS 1/8" NPT

## Specifications

<b>Action</b>	Direct acting, proportional
<b>Output Pressure</b>	3 to 15 psig (21 to 103 kPa)
<b>Supply Pressure</b>	20 psig (138 kPa) supplied through a restrictor (HFO-0010 ordered separately) 30 psig (207 kPa) max.
<b>Air Consumption</b>	14.4 scim (3.93 mL/s)
<b>Air Connections</b>	1/8" FPT
<b>Maximum <math>\Delta P^*</math></b>	
TPC-1002	85 psi (586 kPa)
TPC-1003	150 psi (1034 kPa)

\* Do not exceed 300 psi (2068 kPa) input pressure.

<b>Material</b>	Zinc case, brass and stainless steel mechanism
<b>Weight</b>	1.1 lbs. (0.5 kg)

### Temperature Limits

Operating	40° to 120° F (4° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)

## !CAUTION

Pneumatic devices MUST operate with CLEAN, DRY, control air.

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#### Description

The KMC TSC-2000 series are one-pipe pneumatic devices designed to transmit a fully proportional, fixed span 3 to 15 psig (20 to 103 kPa) output signal.

With five different ranges available, the output signal can be used as an input for receiver-controllers or receiver gauges for visual indication of system conditions.

The TSC-2000 series requires a restricted input air supply. An HFO-0010 restrictor T is available separately. The units must be mounted with the control air port pointing down.

#### Features

- ◆ Fully proportional 3 to 15 psi (21 to 103 kPa) signal
- ◆ Five selectable output signal ranges
- ◆ Works with receiver controllers or receiver gauges.

#### Applications

Typical uses include sensing and transmitting static pressure drop across filters, fans or any two reference points or velocity pressure differentials.



#### Models

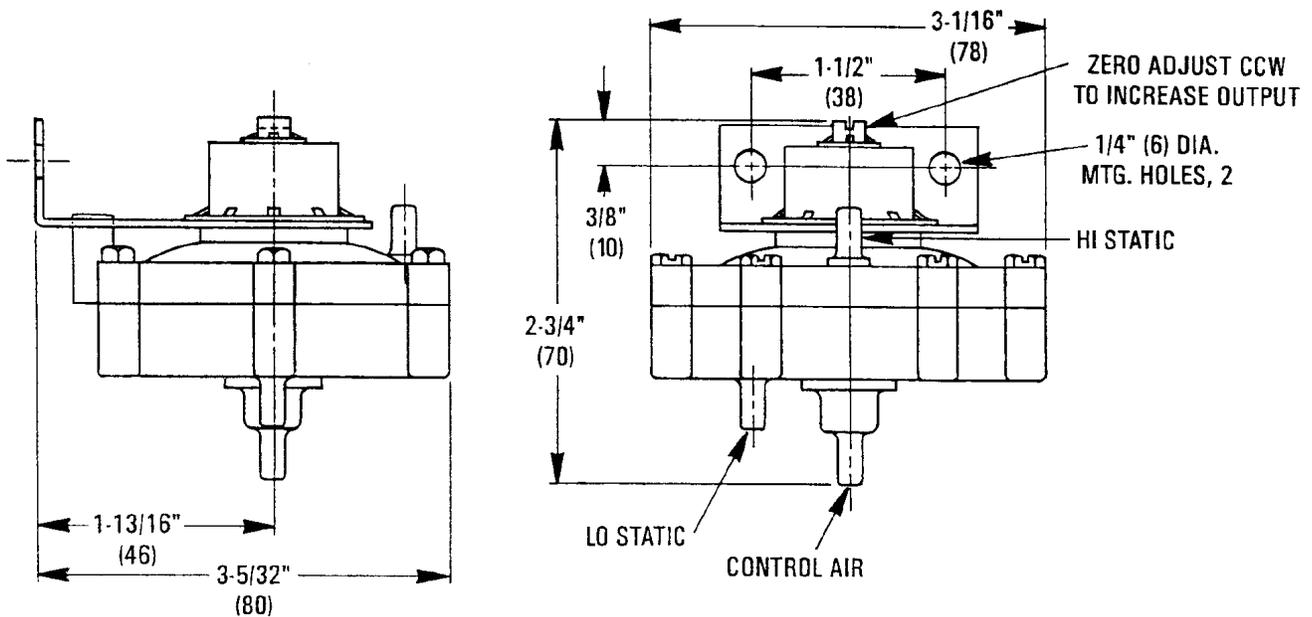
TSC-2001	0" to 0.5" WC (0 to 0.12 kPa)
TSC-2002	0" to 1" WC (0 to 0.25 kPa)
TSC-2003	0" to 2" WC (0 to 0.5 kPa)
TSC-2004	0" to 4" WC (0 to 1.0 kPa)
TSC-2005	-0.5" to 0.5" WC (-0.12 to 0.12 kPa)

#### Accessories

HFO-0010	Restrictor Tee
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## Details

All dimensions in inches (mm).



## Specifications

<b>Action</b>	Direct acting
<b>Output</b>	3 to 15 psig (20 to 103 kPa)
<b>Supply Pressure</b>	20 psig (138 kPa) supplied through a filtered restrictor sold separately (HFO-0010) 30 psig (207 kPa) max.
<b>Air Consumption</b>	14.4 scim (3.93 mL/s)
<b>Air Connections</b>	3/16" (5 mm) fittings for 1/4" (6 mm) O.D. polyethylene tubing
<b>Material</b>	Beige ABS, UL Flame Class 94HB
<b>Weight</b>	4 oz. (113 grams)
<b>Temperature Limits</b>	
Operating	40° to 120° F (4° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)

## !CAUTION

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### Description

The KMC TTC-1000 Series are designed to sense air, or fluid temperatures and transmit a fixed span, 3 to 15 psig (21 to 103 kPa) signal to a controlling or indicating device. These include receiver controllers, receiver gauges, relays and pressure switches.

The TTC-1000 series have rigid stems and may be mounted directly into an airstream, or into a well for water and steam applications. These one-pipe transmitters require a restrictor "T" (HFO-0022 or HFO-0023) and a constant air source.

Models are available in several temperature ranges to meet most control system requirements. A copper element provides dependable, accurate signals.

### Features

- ◆ Fully proportional, fixed span, 3 to 15 psi (21 to 103 kPa) signal
- ◆ Mounts directly into airstreams or wells for water and steam applications.
- ◆ Available in 4 different temperature ranges

### Applications

The TTC-1000s are typically used with receiver controllers, receiver gauges, relays and pressure switches.

### Models

TTC-1003	0° to 100° F (-18° to 38° C)
TTC-1004	50° to 150° F (10° to 66° C)
TTC-1005	50° to 100° F (10° to 38° C)
TTC-1006	40° to 240° F (4° to 116° C)

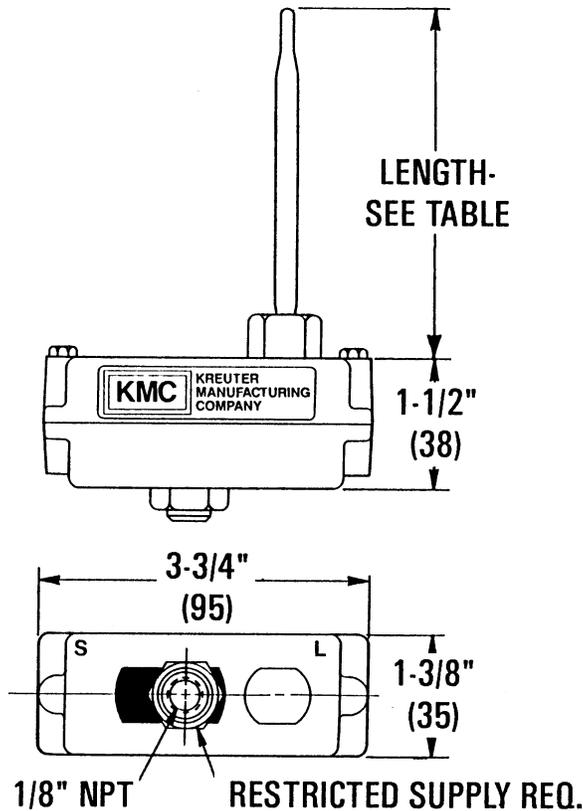


### Accessories

HFO-0022	Restrictor T for polyethylene tubing
HFO-0023	Restrictor T for copper or polyethylene tubing
HMO-4503	Brass well; 3/8"-18 MPT x 11-1/16" (28 cm long)
HMO-4504	Duct Mounting Bracket
HMO-4515	Stainless steel well; 3/8"-18 MPT x 11-1/16" (28 cm long)

## Details

All dimensions in inches (mm).



MODEL	LENGTH
TTC-1003	6" (152)
TTC-1004	6" (152)
TTC-1005	8" (203)
TTC-1006	4" (101)

## Specifications

<b>Action</b>	Direct acting, proportional
<b>Output Pressure</b>	3 to 15 psig (21 to 103 kPa)
<b>Supply Pressure</b>	20 psig (138 kPa) supplied through a 28.8 scim (7.87 mL/s) restrictor (HFO-0022 or 0023) ordered separately 30 psig (207 kPa) max.
<b>Air Consumption</b>	28.8 scim (7.87 mL/s)
<b>Air Connections</b>	1/8" FPT
<b>Material</b>	Zinc case, brass and stainless steel mechanism, copper element
<b>Weight</b>	1.5 lbs (.68 kg)
<b>Temperature Limits</b>	
Operating	40° to 120° F (4° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)

### !CAUTION

Pneumatic devices MUST operate with CLEAN, DRY, control air. Any other medium will result in the device's eventual failure.

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### **Description**

The KMC TTC-1507 is designed to sense outside air temperatures and transmit a fixed span 3 to 15 psig signal to controlling and indicating devices.

The TTC-1507 may be mounted directly in an airstream, or the sensing bulb may be fed through an outside wall. The remote bulb uses a stainless steel mechanism and copper element to ensure accuracy and dependability over a -40° to 160° F (-40° to 71° C) range.

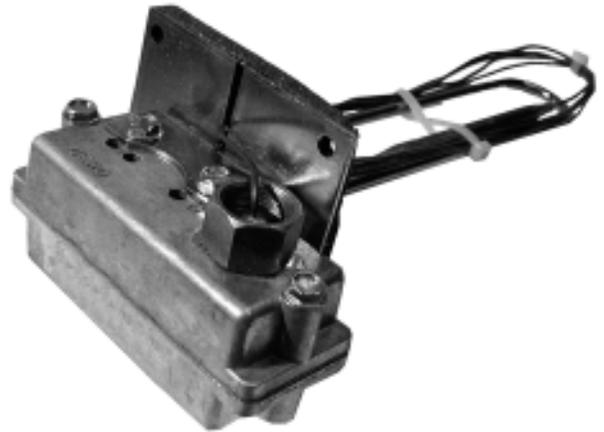
The TTC-1507 is a one-pipe transmitter and requires a restrictor tee (HFO-0022 or HFO-0023) and a constant air source for proper operation.

### **Features**

- ◆ Fully proportional 3 to 15 psi (21 to 103 kPa) signal
- ◆ Inserts directly into an airstream or can be serpentine across.
- ◆ Uses a stainless steel mechanism and copper element to ensure accuracy and dependability

### **Applications**

Typical uses include transmitting signals to receiver controllers, gauges, relays and pressure switches.

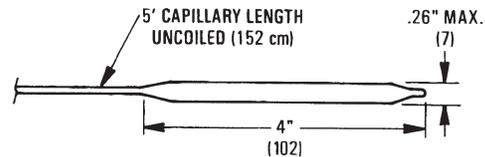
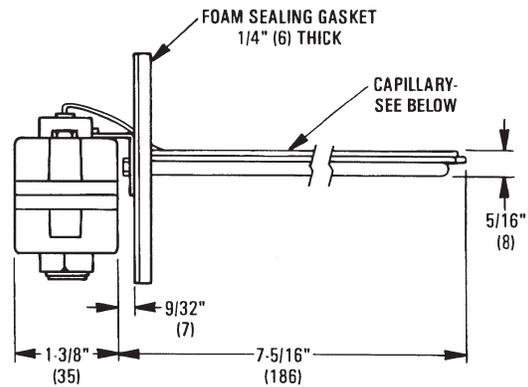
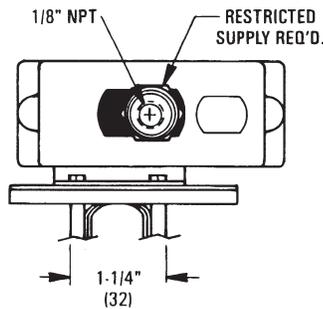
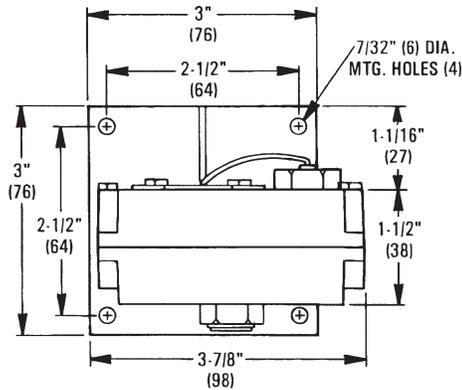


### **Accessories**

HFO-0022	Restrictor T for polyethylene tubing
HFO-0023	Restrictor T for copper or polyethylene tubing

## Details

All dimensions in inches (mm)



## Specifications

<b>Action</b>	Direct acting, proportional
<b>Sensor Range</b>	-40° to 160° F (-40° to 71° C)
<b>Output Pressure</b>	3 to 15 psig (21 to 103 kPa)
<b>Supply Pressure</b>	20 psig (138 kPa) supplied through a restrictor HFO-0022 or HFO-0023, 30 psig (207 kPa) max.
<b>Air Consumption</b>	28.8 scim (7.87 mL/s)
<b>Air Connections</b>	1/8" FPT
<b>Material</b>	Zinc case, brass and stainless steel mechanism, copper element
<b>Weight</b>	1.5 lbs (.68 kg)
<b>Temperature Limits</b>	
Operating	-40° to 160° F (-40° to 71° C)
Shipping	-40° to 140° F (-40° to 60° C)

## !CAUTION

Pneumatic devices **MUST** operate with **CLEAN, DRY**, control air. Any other medium will result in the device's eventual failure.

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## Description

KMC TTC-2003, 2004 and 2005 are designed measure room temperature and transmit a fixed span 3-15 psig signal to controlling and indicating devices.

The TTC-2003, 2004, and 2005 devices feature a copper averaging element. The element may be inserted into the air stream in a direct or serpentine fashion. Capillary clips (HMO-4523) should be used to support a serpentine element across the air stream.

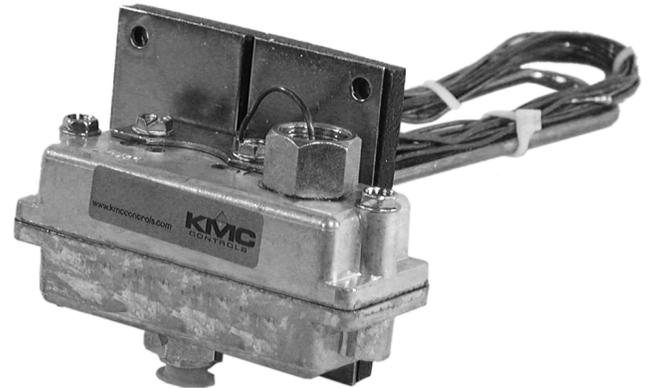
The transmitters require a restrictor T (HFO-0022 or HFO-0023) and a constant air source for proper operation.

## Features

- ◆ Fully proportional 3 to 15 psi (21 to 103 kPa) signal
- ◆ Three temperature ranges and element lengths
- ◆ Insert directly into an air stream or serpentine across
- ◆ Uses a stainless steel mechanism and copper element to ensure accurate and dependability

## Applications

Typical uses include receiver controllers and gauges, relays and pressure switches.



## Models

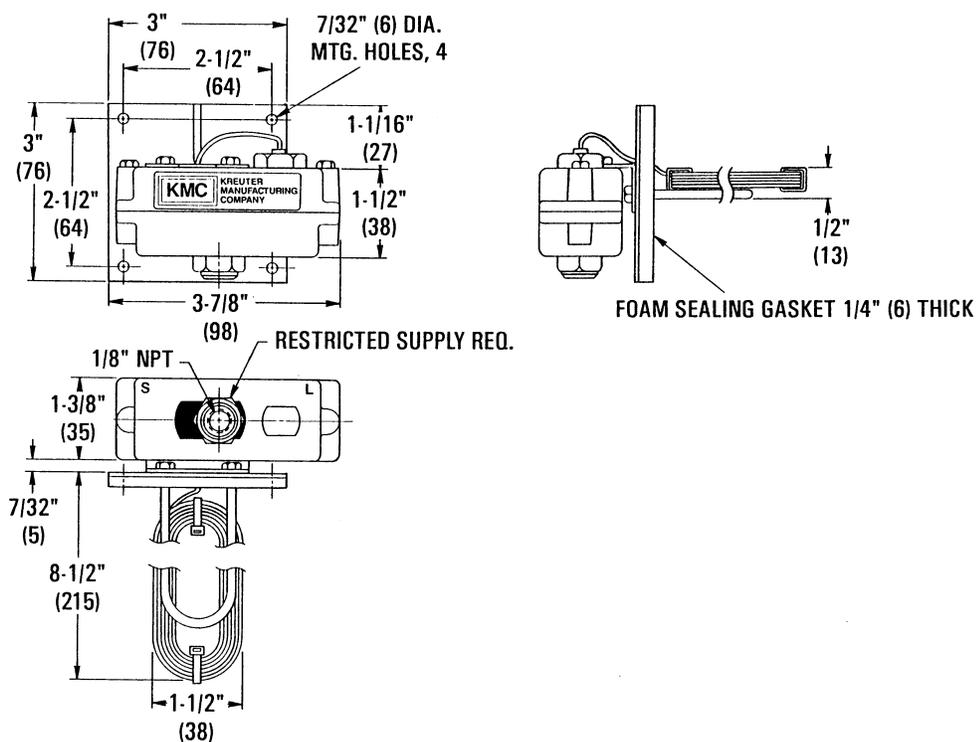
TTC-2003	0° to 100° F (-18° to 38° C) range, element is 17 feet long (5.18 m)
TTC-2004	50° to 150° F (10° to 66° C) range, element is 20 feet long (6.09 m)
TTC-2005	50° to 100° F (10° to 38° C) range, element is 23 feet long (7.01 m)

## Accessories

HFO-0022	Restrictor T for polyethylene tubing
HFO-0023	Restrictor T for copper or polyethylene tubing
HMO-4523	Capillary mounting clips

## Details

All dimensions in inches (mm)



## Specifications

<b>Action</b>	Direct acting, proportional
<b>Range</b>	-40° to 160° F (-40° to 71° C)
<b>Output Pressure</b>	3 to 15 psig (21 to 103.5 kPa)
<b>Supply Pressure</b>	20 psig (138 kPa) supplied through a 8.8 scim (7.87 mL/s) restrictor (HFO-0022 or HFO-0023) 30 psig (207 kPa) max.
<b>Air Consumption</b>	28.8 scim (7.87 mL/s)
<b>Air Connections</b>	1/8" FPT
<b>Material</b>	Zinc case, brass and stainless steel mechanism, copper element
<b>Weight</b>	1.5 lbs (.68 kg)
<b>Temperature Limits</b>	
Operating	40° to 120° F (4° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)

## !CAUTION

Pneumatic devices MUST operate with CLEAN, DRY, control air. Any other medium will result in the device's eventual failure.

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### Description

KMC TTC-3001 is designed to measure room temperature and transmit a proportional pneumatic signal to a receiver gage and/or a receiver-controller. It will transmit a 3 to 15 psig signal over a 50° to 100°F (10° to 38° C) span. The unit is factory calibrated.

A highly sensitive bimetal element with feedback is utilized for accuracy and stability. An external restrictor tee (HFO-0010) in the supply line is required.

The TTC-3001 is designed to mount directly to a flat surface or in a 2" x 4" handy box. A variety of covers, backplates and scale plates are available to meet most installation requirements.

### Features

- ◆ Fully proportional 3 to 15 psi (21 to 103 kPa) signal over 50° to 100° F span.
- ◆ Sensitive bimetal element provides accuracy and stability.
- ◆ Mounts on a flat surface or in a 2" x 4" handy box.

### Accessories

HFO-0010	14.4 scim restrictor tee
HFO-0028	Tubing kit
HMO-5023	Drywall mounting kit
HMO-5024	2" x 4" almond backplate w/ aluminum trim
HMO-5026	2" x 4" white backplate w/ aluminum trim
HMO-5030	2" x 4" almond backplate w/ matching trim
HMO-5031	2" x 4" white backplate w/ matching trim

#### SCALE PLATES

HPO-0047	°F Horizontal scale plate
HPO-0048	°F Vertical scale plate
HPO-0049	°C Horizontal scale plate
HPO-0050	°C Vertical scale plate



Shown with optional cover

#### ABS COVERS (UL Flame Class 94HB)

HPO-1501	Blank; almond color
HPO-1502	Blank; white color
HPO-1511	Window; almond color
HPO-1512	Window; white color

#### METAL COVERS

HPO-1503	Blank; brushed aluminum finish
HPO-1504	Blank; painted white
HPO-1505	Blank; brushed brass finish
HPO-1506	Blank; painted almond
HPO-1513	Window; brushed aluminum finish
HPO-1514	Window; painted white
HPO-1515	Window; brushed brass finish
HPO-1516	Window; painted almond

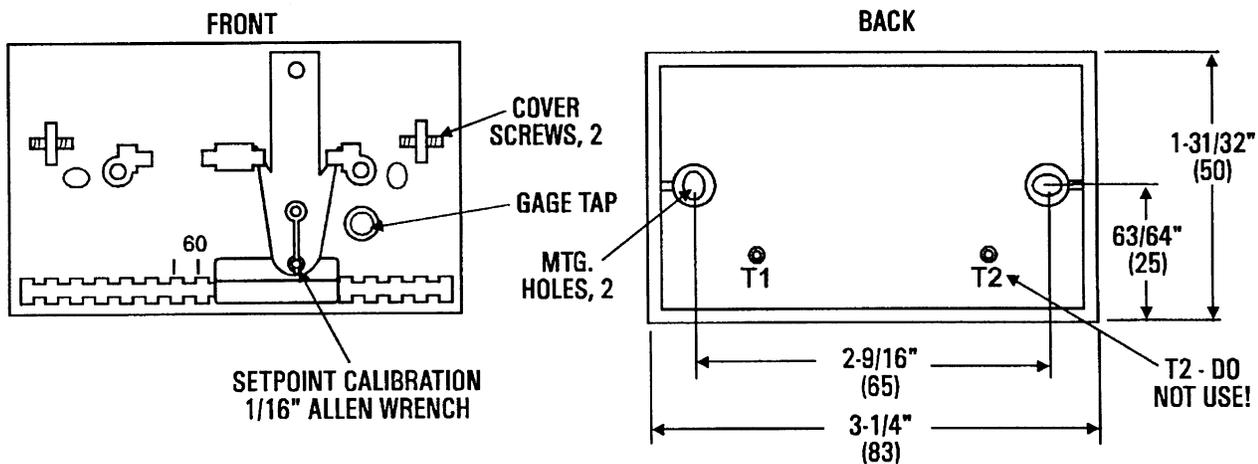
#### UNIVERSAL UPGRADE KITS

HMO-5500	Almond, for competitive brands
HMO-5501	White, for competitive brands.

## Details

All dimensions in inches (mm).

SCALE PLATES AND COVERS SOLD SEPARATELY



## Specifications

<b>Action</b>	Direct acting, proportional
<b>Temperature Range</b>	-50° to 100° F (10° to 38° C)
<b>Output Pressure</b>	3 to 15 psig (21 to 103 kPa)
<b>Supply Pressure</b>	20 psig (138 kPa) supplied through a 14.4 scim (4 mL/s) restrictor (HFO-0011) ordered separately 30 psig (207 kPa) max.
<b>Material</b>	Black ABS, UL Flame Class 94 HB
<b>Weight</b>	3 oz (85 grams)
<b>Temperature Limits</b>	
Operating	40° to 120° F (4° to 49° C)
Shipping	-40° to 140° F (-40° to 60° C)

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