



CTC-1621, 1622

Two-Pipe Pneumatic, Room Thermostat

Direct and Reverse Acting

Description

The CTC-1621 and 1622 thermostats are designed for proportional control of pneumatic valve and damper actuators in HVAC systems. They utilize a highly sensitive bimetal element with feedback and a pilot bleed relay for accuracy and stability.

Models are available with with direct or reverse proportional action. The CTC's throttling range is factory set and is field adjustable. Setpoints are adjusted using sliders which can be locked or limited using setpoint stops (HFO-0027).

The unit is pictured *with* optional cover and scale plate. These items may be ordered separately or in a value package (CTC-162X-103) that includes the most commonly ordered accessories.



Features

- ◆ Sensitive bimetal element and pilot bleed relay provide consistent, accurate feedback
- ◆ Direct or reverse acting, proportional control of valve or damper actuators
- ◆ Field adjustable throttling range

Models

CTC-1621	Direct acting
CTC-1621-103	Direct acting, Value Package
CTC-1622	Reverse acting
CTC-1622-103	Reverse acting, Value Package

Accessories

HFO-0027	Setpoint stops
HFO-0028	Tubing kit; 3/32" ID
HMO-5023	Drywall mounting kit
HMO-5024	2" x 4" almond backplate w/ alum. trim
HMO-5026	2" x 4" white backplate w/ alum. trim
HMO-5030	2" x 4" almond backplate w/ matching trim
HMO-5031	2" x 4" white backplate w/ matching trim

HPO-0047-10	°F Horizontal scale plate
HPO-0048-10	°F Vertical scale plate
HPO-0049-11	°C Horizontal scale plate
HPO-0050-11	°C Vertical scale plate
HPO-1320	Label strip

ABS COVERS

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

METAL COVERS

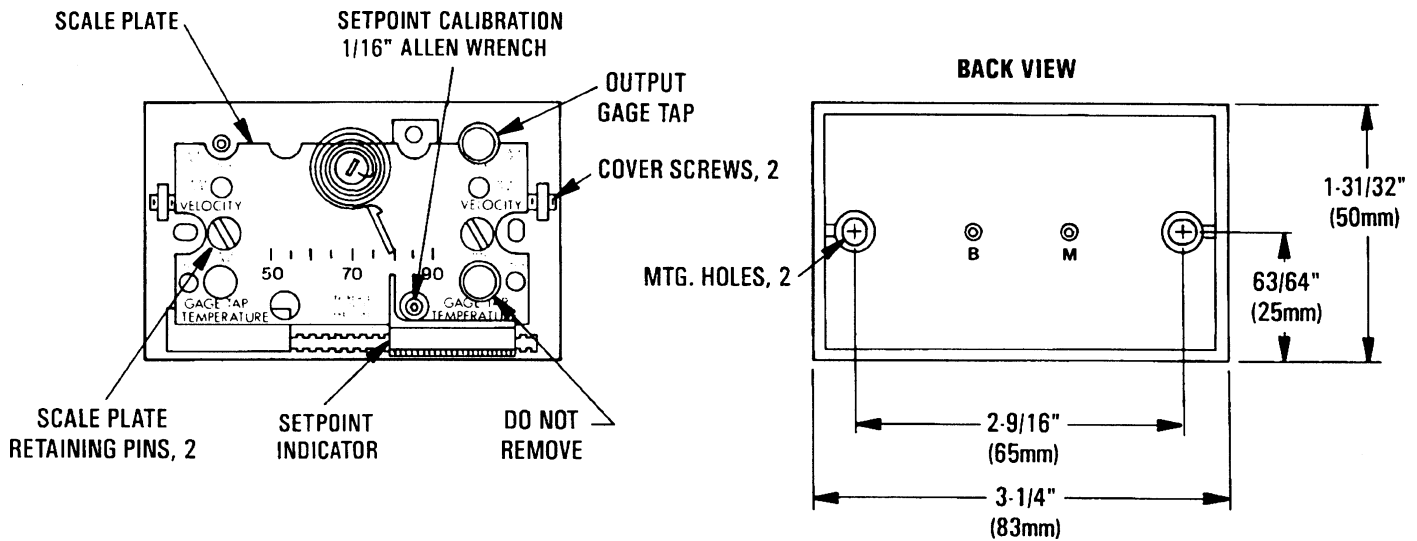
HPO-1503	Blank; brushed aluminum finish
HPO-1504	Blank; painted white
HPO-1505	Blank; brushed brass finish
HPO-1506	Blank; painted almond
HPO-1513	Window; brushed aluminum finish
HPO-1514	Window; painted white
HPO-1515	Window; brushed brass finish
HPO-1516	Window; painted almond

UNIVERSAL UPGRADE KITS

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

Details

All dimensions in inches (mm).



!CAUTION

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

Specifications

Setpoint Range 55° to 85° F (13° to 29°), adjustable via slider; adjuster may be concealed and locked or limited

Throttling Range 3° to 12° F (1.7° to 6.7° C) factory set @ 3° F, field adjustable up to 12° F

Calibration 9 psig (62 kPa) branch pressure

Air

Supply Pressure 20 psig (138 kPa);
30 psig (207 kPa) maximum

Capacity 200 scim (55 mL/s)

Consumption 20 scim (5.5 mL/s)

Material Black ABS

Weight 3 oz. (85 grams)

Temperature Limits

Operating 40° to 120° F (4° to 49° C)

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

KMC Controls, Inc.

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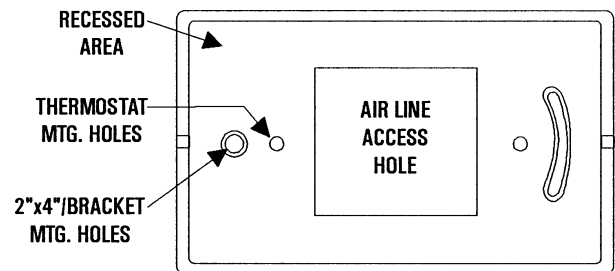
Installation Guide

Mounting

Mount the CTC-1611 and CTC-1612 thermostats away from excessive drafts and direct sunlight. Choose the location best suited for measuring the average room temperature. Units may be mounted horizontally or vertically to either a 2" x 4" electrical box or a hollow wall.

Electrical Box Mounting

1. Attach HMO-5024 or 5026 backplate to the box with the two 6-32 screws supplied.
2. Level the box using the slot in the backplate.
3. Fit the aluminum plate into the recess.
4. Pass the 3/32" ID tubing through access hole.
5. Make connections per "Connections".
6. Mount thermostat to backplate with two 6-20 x 2" screws supplied with thermostat.



Hollow Wall Mounting - Thermostats may be directly mounted on walls up to 5/8" with the HMO-5023 kit.

1. Using the template, printed on the package, make a 2-11/16" x 1-1/2" cutout.
2. Loosely mount the bracket to the thermostat with two 6-32 x 2" screws supplied.
3. Make all connections per the "Connections" section.
4. Insert the bracket diagonally through the wall.
5. Center thermostat and tighten screws.

Scale Plate -All adjustments must be made with the scale plate removed. Complete adjustments before installing the scale plate.

1. Remove all gauge tap rubber cap(s).
2. Slide plate under the setpoint indicator(s).
3. Insert retaining pins (two supplied), twisting to lock into place.
4. Replace gauge tap cap(s).

Mounting Continued

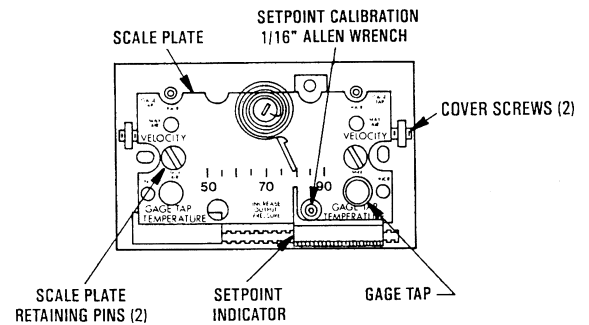
Setpoint Options - If setpoint indicators are not needed, simply snip off the indicator(s) with wire cutters. Limit or lock the range of the setpoint (s) by installing setpoint stops (HFO-0027) in the slider track.

Covers are available in 2 styles:

- ◆ **Window** versions include a symbol-coded label strip (HPO-1320) for setpoint indication. Apply the label in the recessed area underneath window.
- ◆ **Blank covers** require the removal of the setpoint thumb adjusters. Insert a small screwdriver in the slot between the thumb adjuster and the cam and pry apart. Discard adjuster.

To install cover:

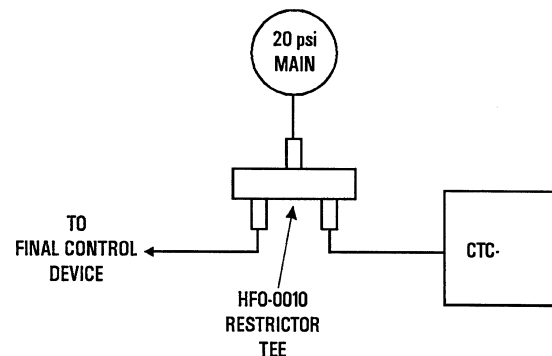
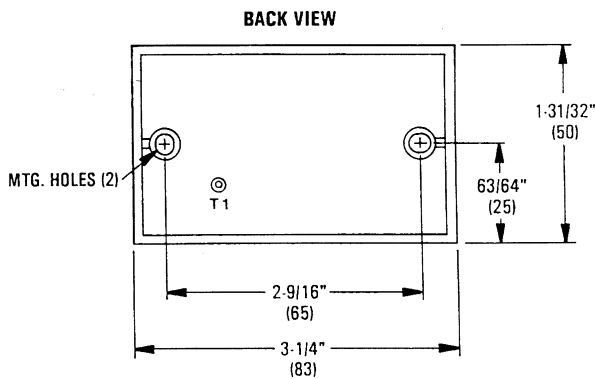
1. Check that the unit is mounted securely and all gauge tap cap(s) or accessories are installed.
2. Slide cover over base.
3. Using a 1/16" hex wrench, turn both cover mounting screws on the thermostat base CCW (outward) until cover is secured.



Connections

The CTC-1611, 1612 use 3/32" I.D. Tygothane tubing (HFO-0028) for all connections. An in-line, 14.4 scim, restrictor Tee (HFO-0010) is also required. Both items may be ordered separately.

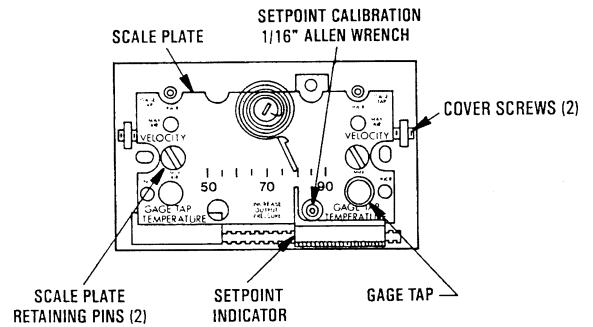
1. Insert Restrictor Tee into Tubing.
2. Connect the Restrictor "Tee" to Port "T1".
3. Connect open side of "Tee" with tubing to the final device actuator, DA unit for CTC-1611, RA unit for CTC-1612



Adjustments and Calibration

These thermostats are factory calibrated and do not require further calibration. Should it be necessary to change calibration:

1. Remove the cover and gauge tap rubber cap.
2. Install a gauge on the gauge tap using 3/32" ID tube.
3. Measure the ambient temperature with an accurate thermometer
4. Move the setpoint slider to the measured ambient temperature.
5. Use a 1/16" hex wrench and turn the calibration adjustment until the test gauge indicates the desired pressure. (Clockwise rotation decreases the output pressure.)
6. Replace the gauge tap rubber cap after calibrating.
7. Place the setpoint slider to the desired temperature and replace cover.



Throttling Range

Throttling range is the temperature required to change the thermostat output pressure from 3–15 psig. All CTC-1600 series thermostats are factory set for a 3° F throttling range. The approximate throttling range setting is stamped on each lever in both °F and °C. If it is necessary to change this setting, reverify calibration after adjustment.

1. Remove scale plate.
2. Slide the black "TR" adjuster to appropriate value/location.

NOTE: The hole in the "TR" adjuster fits a 1/16" hex wrench. Gently rotate the adjuster back and forth while sliding. *Do not turn excessively!*

3. Rotate back to a "square" position after adjustment.
4. Replace scale plate (see "Mounting").

Maintenance

No routine maintenance is required.

Care should be taken to keep the unit clean from dust during installation.

Each component is designed for dependable, long term reliability and performance.

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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

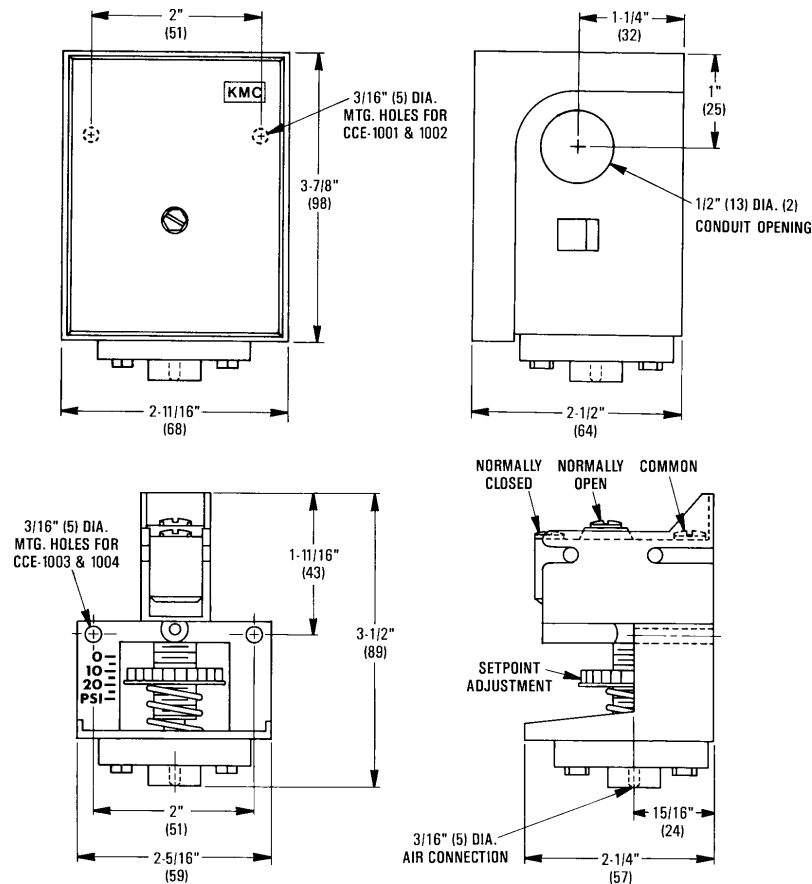
CCE-1001	SPDT, with case and cover
CCE-1002	DPDT, with case and cover
CCE-1003	SPDT, without case and cover
CCE-1004	DPDT, without case and cover

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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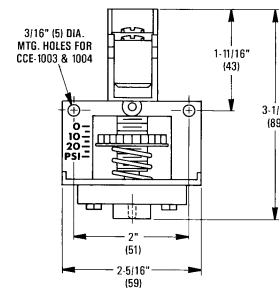
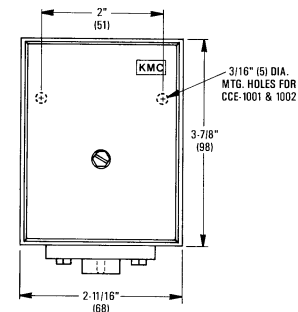
www.kmcccontrols.com

Installation Guide

Mounting

The CCE-1000 Series are not position sensitive and may be mounted in any orientation. The CCE-1001 and 1002 are shipped with a case and cover. Remove the cover before mounting the switch.

1. Locate the two 3/16" (5 mm) diameter mounting holes.
 - a. CCE-1001 and CCE-1002 mounting holes are in the case's upper back.
 - b. CCE-1003 and CCE-1004 use the two holes in the upper corners
2. Using self-threading screws, mount the switch to the surface.



Connections

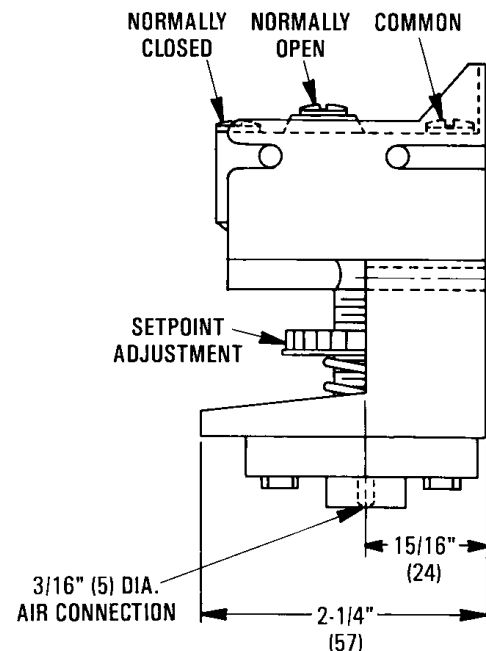
Electrical

For models CCE-1003/1004 skip step one and proceed to step two.

1. Connect conduit through one of the two 1/2" (13 mm) diameter knockouts. One snap-in plug is provided
2. Electrical connections are made to 8-32 UNC binding head combination terminal screw and cup washer terminals
 - a. Connect to the Common "C" and Normally Open "N.O." terminals if a fall in signal should break the circuit.
 - b. Connect to the Common "C" and Normally Closed "N.C." terminal if a fall in signal should make a circuit.

Air Supply

1. Using 1/4" (6 mm) O.D. polyethylene tubing, connect the main air supply to the 3/16" (5 mm) inlet in the bottom of the unit.
2. Provide unit with clean, dry control air
3. Limit the main air supply to 30 psig (207 kPa) max.



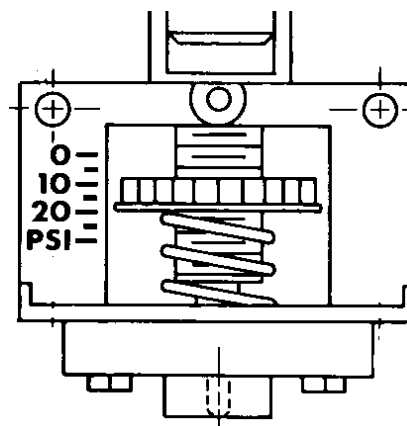
Adjustments and Calibration

1. Choose a setpoint between 2–25 psi (14–172 Kpa).

NOTE: The units have a 2 psi fixed differential

2. Turn the setpoint adjustment wheel until the bottom of the wheel lines up with the signal pressure listed on the front of the switch.
3. Replace cover on models CCE-1001/1002

NOTE: A gauge may be installed before completing step 2 to calibrate the unit to an actual signal pressure.



Maintenance

No routine maintenance is required.

Each component is designed and manufactured for reliability and performance. Careful installation and use will ensure long term dependability.

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