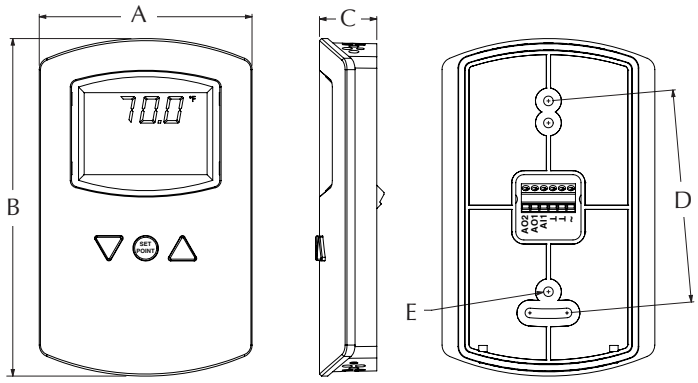
Installation and Operation Guide

Installation



A	B	C	D	E
3.25 in.	5.16 in.	0.88 in.	3.25 in.	0.15 in. diameter
83 mm	116 mm	22 mm	83 mm	3.81 mm diameter

NOTE: For specifications and other information, see the CTE-5202 Data Sheet.

NOTE: For detailed applications, cross-references, accessories, and other information, see the CTE-5202 Applications Guide.

Rough-in Preparation

For optimum temperature sensor performance, the thermostat must be mounted on an interior wall and away from heat sources, sunlight, windows, air vents, and air circulation obstructions (e.g., curtains, furniture).

If replacing an existing thermostat, label wires as needed for reference when removing the existing thermostat.

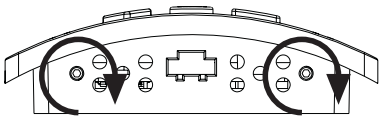
Complete rough-in wiring at each location prior to thermostat installation. Cable insulation must meet local building codes.

Mounting and Wiring

The thermostat must **NOT** be:

- Mounted on an exterior wall.
- Mounted on or near a large thermal mass (e.g., concrete block wall).
- Blocked from normal air circulation by obstructions.
- Exposed to heat sources (e.g., lights, computers, copiers, or coffee makers) or to sunlight (at **any** time of the day).
- Exposed to drafts from windows, diffusers, or returns.
- Exposed to air flow through the conduit (from leaks in plenum ducts)—put plumber's putty or similar material inside the conduit to block air flow.

1. If the thermostat is locked on the backplate, turn the two hex screws (in the **two outermost holes**) in the backplate **CLOCKWISE** until they (just) clear the cover. Swing the thermostat up and away from the backplate to remove it.



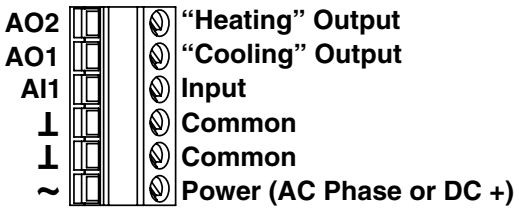
⚠ CAUTION

To prevent damage to the board, do not insert a screwdriver into any holes other than the two outermost holes. To prevent mounting screw heads from touching the circuit board in the thermostat, use only the mounting screws supplied by KMC Controls. Using other screws may damage the thermostat. Do not turn screws in farther than necessary to remove the cover.

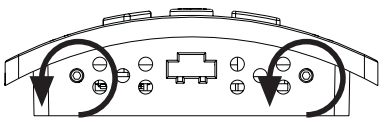
2. Route the cable through the backplate.

3. With the hex screws toward the floor, fasten the backplate to the outlet/handy box with the supplied screws. (The backplate mounts directly on **vertical** 2 x 4 inch boxes, but requires an HMO-1161/HMO-1161W wall plate for horizontal 2 x 4, 4 x 4, or other boxes.)
4. Connect the wires to the terminal block:
   - **"Heating"** output (REE-50xx reheat relay modules and heating valves) to **AO2** and ⊥ (Common)
   - **"Cooling"** output (VAV dampers and cooling valves) to **AO1** and ⊥ (Common)*
   - **Changeover** (temperature) sensor (Type III, 10K ohm thermistor) and/or standby/unoccupied **setback** contact to **AI1** and ⊥ (Common). (See *External Input (AI1) on page 4*.)
   - **24 VAC** transformer's neutral lead to ⊥ (Common) and phase lead to ~. Alternately, **14–35 VDC** can be used with **+ connected to ~ and – connected to ⊥ (Common)**.

***NOTE: For additional wiring details, cross-references sample applications, and examples of AO1 being used for *heating* instead of or in addition to *cooling*, see the CTE-5202 Applications Guide.**

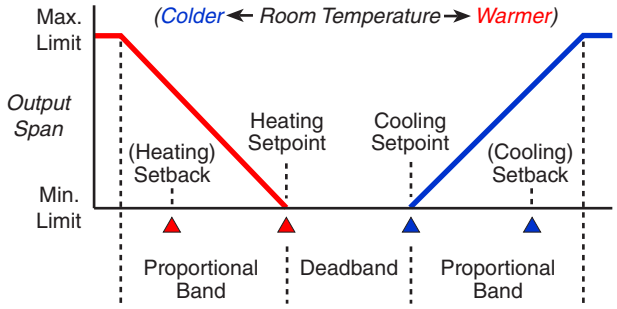


5. Place the top of the thermostat over the top of the mounting base and swing it down over the hex screw brackets. Be careful not to pinch the wiring.
6. Back the hex screws out of the backplate brackets **(counterclockwise)** until they engage the thermostat and hold it in place.



NOTE: For examples of applications, including replacing a CTE-510x with the CTE-5202, see the CSP-5001/5002 Applications Guide.

Operation



Change Setpoint

To change the setpoint:

1. Push the Setpoint button (or either Up/Down button) to display the current value.

NOTE: Sequences 2 and 3 have **two** setpoints indicated by "snowflake/cool" and "fire/heat" icons. When the Cooling setpoint is showing, pushing the Setpoint button will display the Heating setpoint.

2. Use the Up/Down buttons to change the value.
3. Press the Setpoint button again, and the thermostat will control at the new setpoint. (Alternately, after about 30 seconds of no activity, the display reverts back to displaying room temperature.)

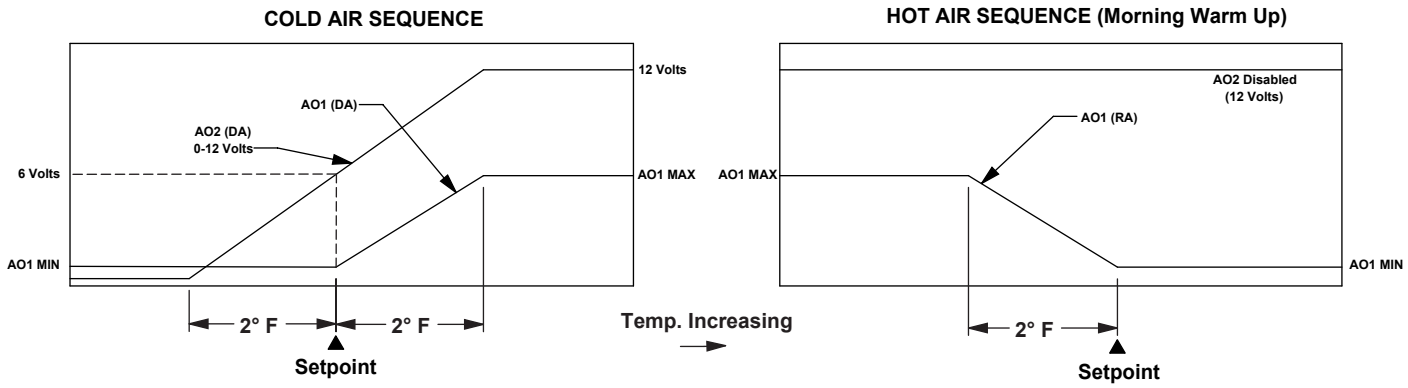
Change Configuration

Press and hold both the Up and Down arrows buttons for about ten seconds until the display starts flashing "LIMITS."

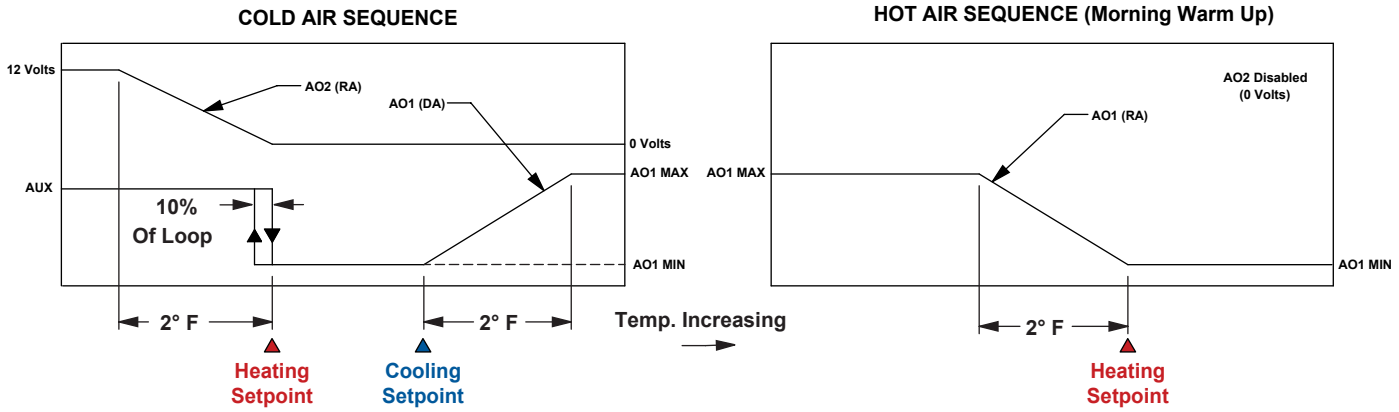
NOTE: When a menu is **flashing** (LIMITS, ADVANCE, SYSTEM, or EXIT), pressing Up or Down displays the next menu item and pressing Setpoint selects that menu. When a menu is **NOT flashing** (e.g., DEAD BD), pressing Up or Down changes the value and pressing Setpoint displays the next menu item.

To change any of the **limits (output span)** when "LIMITS" is flashing, press the Setpoint button until the desired limit (A01 MIN, A01 MAX, A01 AUX, A02 MIN, or A02 MAX) is flashing on the screen. (*Limits are adjustable from 0 to 12 VDC, with MIN = 0, MAX = 12, and AUX = 0 as defaults.*) Use the Up and Down buttons to change the desired values. (*If no Auxiliary Flow is desired, set A01 AUX to 0.*)

To change any of the **system or advanced features**, press the Up or Down button until the desired (flashing) ADVANCE or SYSTEM menu appears and then press the Setpoint button.



SEQUENCE # 1: SINGLE DUCT COOLING, FAN BOX (with REE-5002, REE-5017, or REE-5024)



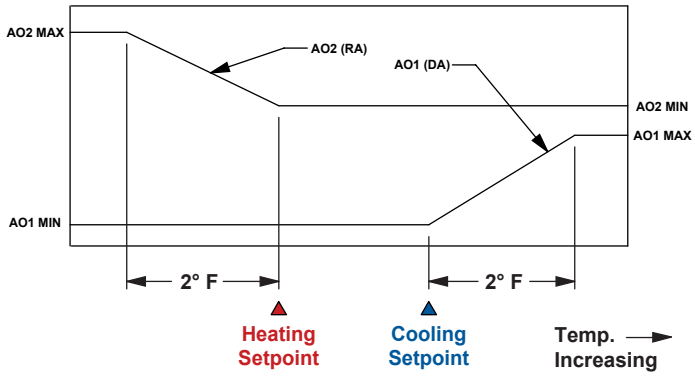
SEQUENCE # 2: SINGLE DUCT COOLING WITH REHEAT AND AUXILIARY FLOW

The ADVANCE menu enables changing (via the Up/Down buttons) the values of:

- DEAD BD—Deadband or "minimum setpoint differential" (*adjustable from 1 to 10° F, 2° F default*)
- SETBACK—Standby/unoccupied setback offset (*adjustable from 0 to 10° F, 2° F default*)—does not apply to morning warmup
- PROP BD—Loop proportional band (*adjustable from 1 to 10° F, 2° F default*)
- Rm OFST—Room temperature offset (*adjustable ±5° F, 0 default*)
- CNG OVR—changeover temperature (*adjustable from 55 to 85° F, 77° F default*)
- I TIME—Loop integral time (*adjustable from 0 to 60, 30 minutes default, 0 = cancel integral action*)

The SYSTEM menu enables changing:

- Sequence (SEQ1, SEQ2, or SEQ3)—see Sequences charts
- °F (ENGLISH) or °C (METRIC)
- BLANK—Display blanking (NO or YES)—when blanked, the temperature will display for no more than 30 seconds after a button is pushed



SEQUENCE # 3:
INDEPENDENT HEATING AND COOLING CONTROL
(Dual Duct VAV, Baseboard, Single Zone AHU)

When done, navigate to (flashing) Exit to save changes. **Letting the menu time-out (about 30 seconds) will not permanently save changes.**

NOTE: For additional details of sequence operations, see the CTE-5202 Applications Guide.

NOTE: **AO1** is typically used to control the **cooling** output (primary air damper or cooling valve), and **AO2** is used to control the **heating** output (VAV reheat or heating valve).

External Input (AI1)

Hot/Cold Air Changeover

For hot/cold air changeover on Sequence 1 or 2, connect a changeover (temperature) sensor to the AI1 input. The sensor should be a Type III thermistor (10K ohm @ 77° F), such as a KMC **STE-140x** duct sensor or **STE-1454/1455** strap-on sensor. (An internal 10K ohm pullup resistor is provided on AI1.)

Leave sensor off for continuous cold air mode.

Unoccupied/Standby Setback

Contact closure across AI1 and Common initiates the standby setback offset sequence, which causes the cooling setpoint to increase and the heating setpoint (in Sequence 2 or 3) to decrease by the amount of the setback offset. (This setback does not apply during the morning warm-up of Sequences 1 and 2.)

Maintenance

Remove dust as necessary from holes in top and bottom. Clean the display with soft, damp cloth and mild soap. Each component is designed for dependable, long-term reliability, and performance. Careful installation will also ensure long-term reliability and performance.

Accessories

HMO-1161	Wall plate, allows mounting to horizontal 2 x 4", 4 x 4", and other boxes, light almond
HMO-1161W	HMO-1161 in white
HPO-0044	Replacement cover hex screws
HPO-1161	Foam insulating gasket
REE-50xx	Electric relay modules for staging, fan control, and reheat
STE-140x	Duct temperature (Type III) sensors
STE-1454/1455	Strap-on temperature (Type III) sensors

Additional Resources

The latest support files are always available on the KMC Controls web site (**www.kmccontrols.com**).

NOTE: For specifications and other information, see the CTE-5202 Data Sheet.

NOTE: For detailed applications, cross-references, troubleshooting, accessories, and other information, see the CTE-5202 Applications Guide.

Important Notices

The material in this document is for information purposes only. **The contents and the product it describes are subject to change without notice.** KMC Controls, Inc. makes no representations or warranties with respect to this document. In no event shall KMC Controls, Inc. be liable for any damages, direct or incidental, arising out of or related to the use of this document.

KMC Controls, Inc.
19476 Industrial Drive
New Paris, IN 46553
574.831.5250
www.kmccontrols.com
info@kmccontrols.com