

T834C Heating-Cooling Thermostat

Application

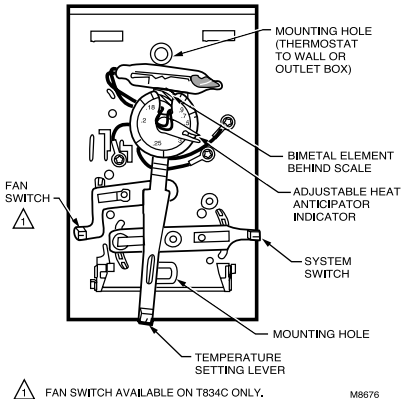
T834C Thermostats control 24 to 30 Vac single-stage heating-cooling systems. See Table 1 for specific models and applications. An spdt mercury switch makes R to W on a temperature fall for heating, and R to Y on a temperature rise for cooling. See Fig. 1.

TABLE 1—THERMOSTAT MODELS AND APPLICATIONS.

Model Number	Application	Switching		Heat Anticipator Range	Comments	See Fig.
		System	Fan			
T834C1137	For use in standard heating-cooling systems.	HEAT-OFF-COOL	ON-AUTO	0.18 to 1.0A	TRADELINE; Beige.	3
T834C1541	For use in gas- or oil-fired, or central electric heat ^a systems.				SUPER TRADELINE; Beige.	4
T834C2267	For use in gas- or oil-fired, single-stage heat pump or central electric heat ^a systems.				SUPER TRADELINE; Premier White. (Jumper included.)	5
T834C2309	For use in standard heating-cooling systems.			0.3 to 1.2A	TRADELINE; Beige.	3

^aIn electric heat applications without fan sequencers, jumper terminals 1 and 2 to control the fan from the thermostat during heating.

Fig. 1—Internal view of T834C.



Contact your local waste management authority for instructions regarding recycling and the proper disposal of this control, or of an old control containing mercury in a sealed tube.

If you have questions, call Honeywell Inc. at 1-800-468-1502.

Installation

WHEN INSTALLING THIS PRODUCT...

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the Instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these Instructions.



Recycling Notice

This control contains mercury in a sealed tube. Do not place control in the trash at the end of its useful life.

If this control is replacing a control that contains mercury in a sealed tube, do *not* place your old control in the trash.



CAUTION

Disconnect power supply before beginning installation to prevent electrical shock or equipment damage.

LOCATION

Locate the thermostat about 5 ft. [1.5 m] above the floor on an inside wall in an area with good air circulation at average temperature.

Do not mount the thermostat where it can be affected by:

- drafts or dead spots behind doors or in corners.
- hot or cold air from ducts.
- radiant heat from the sun, fireplaces, or appliances.
- unheated (uncooled) areas behind the thermostat, such as outside walls.

This thermostat is a precision instrument and was carefully adjusted at the factory. *Handle it carefully.*

MOUNTING AND WIRING

Disconnect power supply before beginning installation to prevent electrical shock or equipment damage.

All wiring must comply with local codes and ordinances.

The T834C can be mounted directly to a wall or vertical outlet box. Use Honeywell part no. 193121A (beige) or 202689A (gray) Mounting Plate Assembly (order separately) to mount on horizontal outlet box or cover marks left by old thermostat. If mounting plate assembly is used, review instructions provided with assembly before wiring and mounting thermostat. To wire and mount thermostat:

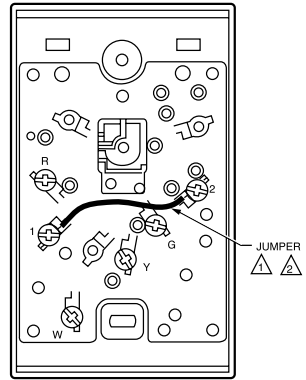
1. In replacement applications, check the existing thermostat wires for cracked or frayed insulation. Replace any wires in poor condition. If the wire is plastered into the wall, make a hole next to the wires and loosen the wires so that they can be pushed back into the wall later.

2. In new installations, run wiring (if necessary) to the thermostat location.

3. Set the adjustable heat anticipator indicator to match the current draw of the primary heating control or as recommended by the equipment manufacturer (see Heat Anticipator Setting).

4. Connect the wires to the terminals on the back of the thermostat. See Figs. 3-5 for internal schematic and typical hookup diagrams. If using electric heat-compatible thermostat in central electric heat applications, jumper terminals 1 and 2 to control fan operation from the thermostat during heating. See Fig. 2.

Fig. 2—Jumpering thermostat terminals to control fan operation.



⚠ IN ELECTRIC HEAT AND HEAT PUMP APPLICATIONS, JUMPER TERMINALS 1 AND 2 FOR AUTOMATIC FAN CONTROL IN HEATING AND COOLING.

⚠ IN GAS-AND OIL-FIRED APPLICATIONS, JUMPER TERMINALS 1 AND Y FOR AUTOMATIC FAN CONTROL IN COOLING.

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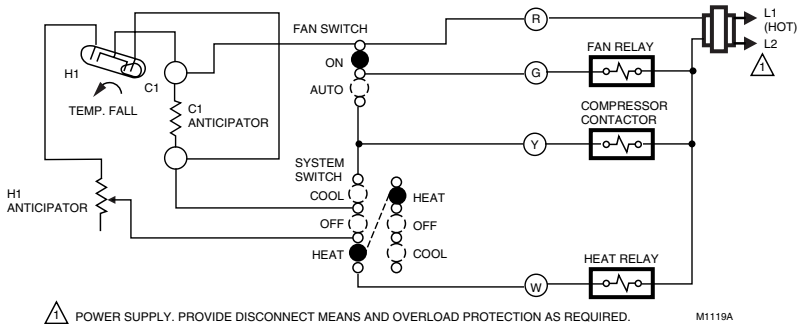
5. Remove thermostat cover by pulling outward on bottom edge until it snaps free of the thermostat base. Carefully remove and discard the foam plastic shipping insert. This insert protects the switch and bimetal assembly during shipping.

6. Push excess wire back through the hole and plug any opening with insulation to prevent drafts that may affect thermostat performance.

7. Fasten the thermostat to the wall or outlet box with a screw through the top mounting hole. Adjust the thermostat so that it is approximately level and fasten the second screw through the bottom mounting hole. Do not tighten.

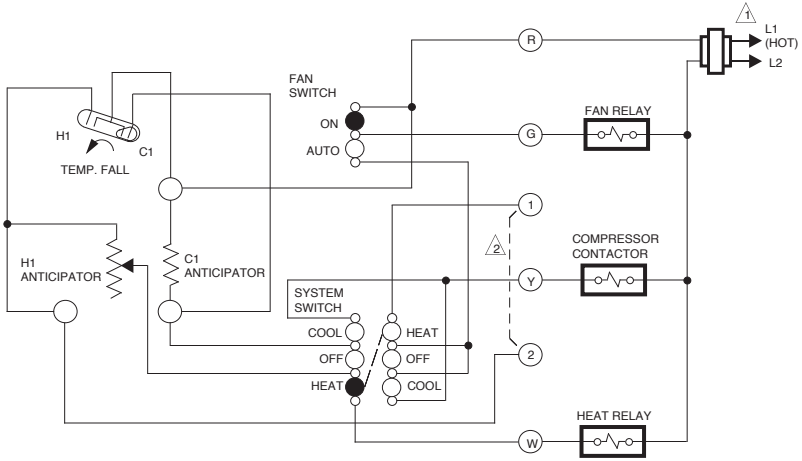
8. Exactly level the thermostat using a spirit level or plumb line. Tighten the mounting screws.

Fig. 3—Internal schematic and typical hookup for T834C1137 and T834C2308 in a standard heating-cooling system.



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Fig. 4—Internal schematic and typical hookup for T834C1541 in gas- or oil-fired, or central electric heat system.

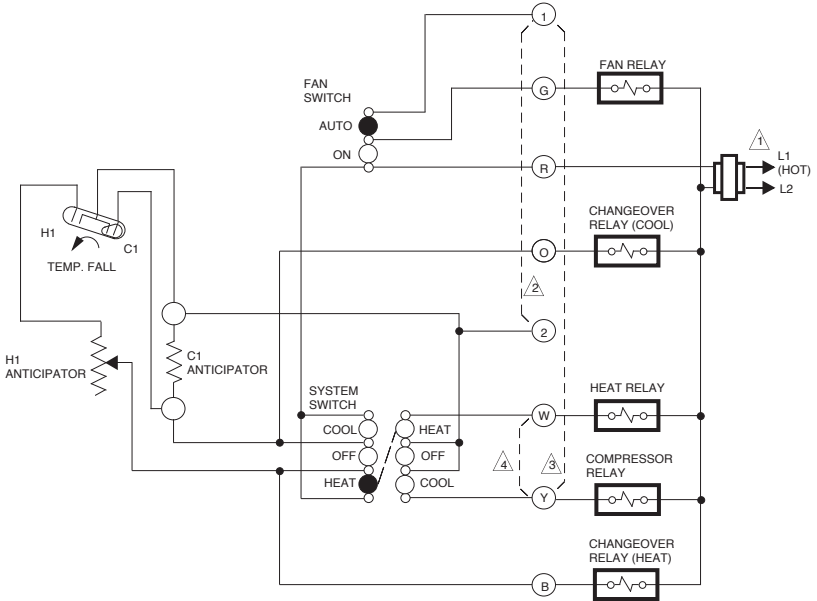


△ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

△ IN ELECTRIC HEAT OR SINGLE-STAGE HEAT PUMP APPLICATION, JUMPER 1 AND 2 FOR AUTO FAN IN HEATING AND COOLING.

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Fig. 5—Internal schematic and typical hookup for T834C2267 in gas- or oil-fired, single-stage heat pump or central electric heat system.



△ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

△ JUMPER 1-2 FOR AUTO FAN IN HEATING AND COOLING (ELECTRIC HEAT AND SINGLE STAGE HEAT PUMP SYSTEMS).

△ JUMPER 1-Y FOR AUTO FAN IN COOLING ONLY.

△ JUMPER W-Y FOR SINGLE-STAGE HEAT PUMP APPLICATIONS.

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9. Adjust temperature setting lever so mercury bulb is in horizontal position. See Fig. 1.

10. Carefully replace thermostat cover.

IMPORTANT: *An incorrectly leveled thermostat will cause the temperature control to deviate from setpoint.*

Setting and Adjustment

TEMPERATURE SETTING

Push the temperature setting lever to the desired control point on the temperature scale. The same lever controls both heating and cooling.

SYSTEM AND FAN SWITCHING

The T834C features SYSTEM and FAN switches for control of the heating-cooling and fan systems.

The SYSTEM switch controls system operation as follows:

HEAT: Heating system only operates.

OFF: Both heating and cooling control systems are disconnected.

COOL: Cooling system only operates.

The FAN switch controls fan operation as follows:

AUTO: For gas- or oil-fired systems, the fan operates in response to the thermostat in cooling; fan operates in response to the plenum fan control in heating. For single-stage heat pump and electric heat systems, the fan operates in response to the thermostat in both heating and cooling.

ON: The fan runs continuously.

To switch positions, use thumb and index finger to slide lever to desired position. Switch lever must stop directly over desired function indicator mark for proper circuit operation.

HEAT ANTICIPATOR SETTING

IMPORTANT: *The T834C Thermostat has an adjustable heat anticipator and equipment will cycle properly ONLY IF THE ANTICIPATOR IS ADJUSTED TO MATCH THE CURRENT DRAW OF THE ENTIRE SYSTEM or as recommended by the equipment manufacturer. Use this thermostat only on systems with current draws that fall within the range of the heat anticipator. Do not use this device on Powerpile (millivolt) Systems.*

A current rating is usually stamped in the nameplate of the primary control. Set the adjustable heat anticipator indicator to match the value given on the nameplate, except on thermostats used in systems as shown in Figs. 2-4. See Heat Anticipator Settings (Figs. 2-4).

If current rating is not available, proceed as follows to determine the rating:

1. Turn off power.
2. Wire thermostat, but do not mount it on the wall.
3. Connect ammeter between W wire and W terminal on the thermostat.
4. Prepare the system for operation.
5. Turn on power.
6. Turn system switch to heat.
7. Increase thermostat setpoint as necessary to get system operating.

8. With the system operating through the ammeter, wait one minute, then read the ammeter.

9. Turn the system switch to OFF, and turn off power.

10. Adjust the heat anticipator to match the reading on the ammeter.

11. Disconnect the ammeter, reconnect the W wire, and mount the thermostat. Continue with system checkout.

NOTE: The heat anticipator may require further adjustment for best performance. To lengthen burner-on time, move the indicator in the direction of the *longer* arrows—not more than a half scale marking at a time. To shorten burner-on time, move indicator in opposite direction.

HEAT ANTICIPATOR SETTINGS (Fig. 4 only) Heat Pump Systems (for about 3 cycles per hour)

Using 'B' Terminal

Set adjustable anticipator to 140 percent of combined current draw of compressor and fan relays.

Using 'O' Terminal

Set adjustable anticipator to maximum scale setting. Limit combined load current of compressor and fan relays to 0.8 amp, because cooling anticipator provides anticipation during heat cycle in this hookup.

Electric Systems (with auto fan in heating and cooling)

Set adjustable anticipator to combined current draw of heating and fan relays.

Gas- and Oil- Fired Systems (without auto fan in heating)

Set adjustable anticipator to current draw of heat relay or valve.

Checkout



CAUTION

Do not check operation by shorting across terminals of system controls. This will damage the heat anticipator.

IMPORTANT: *To assure accurate temperature control, do not touch or breathe on bimetal of thermometer.*

HEATING

With system switch set at HEAT and fan switch at AUTO, move the temperature setting lever about 10° F [6° C] above room temperature.

Gas- or oil-fired systems—heating should start; fan should start after a short delay.

Single-stage heat pump or central electric heat systems—both heating and fan should start immediately.

Move temperature setting lever 10° F [6° C] below room temperature.

Gas- or oil-fired systems—heating should shut off and fan should shut off after a short delay.

Single-stage heat pump or central electric heat systems—heating and fan should shut off immediately.

COOLING



CAUTION

Do not operate cooling if outdoor temperature is below 50° F [10° C]. Refer to manufacturer's recommendations.

NOTE: To prevent compressor short cycling, some manufacturers' equipment includes a minimum off-timer to provide a five-minute time delay before activating the compressor when the thermostat last turned the compressor off, or from when the system first received power. This delay protects the compressor.

With the system switch set at COOL and the fan switch set at AUTO, move the temperature setting lever about 10° F [6° C] below room temperature. Cooling and fan should start (see NOTE above). Move the temperature setting lever about 10° F [6° C] above room temperature. Cooling and fan should shut off.

FAN

With the system switch set at OFF, and the fan switch at ON, the fan should run continuously. Move the fan switch to AUTO. In gas- or oil-fired systems, fan operation is controlled by the thermostat in cooling and by the plenum fan control in heating. In single-stage heat pump and central electric heat systems, fan operation is controlled by the thermostat in both heating and cooling.

RECALIBRATION

These thermostats are calibrated at the factory and should not need recalibration. If the thermostat seems out of adjustment, first check for accurate leveling. To check calibration, proceed as follows.

1. Move the temperature setting lever to the left end (low end) of the temperature scale. System switch must be placed at OFF. Wait at least five minutes.
2. Remove the thermostat cover. Move the setting lever until the switch just makes contact. The mercury in the switch will drop to the left end of the tube.
3. Replace cover and wait five minutes for the cover and the thermostat to lose the heat it has gained from your hands. If the thermometer pointer and the setting lever indicator read approximately the same, no recalibration is needed.

If recalibration appears necessary, proceed as follows:



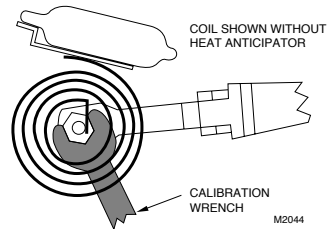
1. Place the temperature setting lever at the same setting as the thermometer. Remove cover.
2. Insert 104994A Calibration Wrench (order separately) onto the hex nut under the coil. See Fig. 6. Holding the setting lever so it does not move, turn the wrench clockwise  until the mercury drops to the right end of the tube. Remove wrench and replace cover.
3. To ensure accurate temperature control, do not touch or breathe on bimetal or thermometer.
4. Move the setting lever to a low setting. Wait at least five minutes for temperature to stabilize.
5. Slowly move the setting lever until it reads the same as the thermometer.
6. Remove cover. Holding the setting lever so it does not move, reinsert wrench and carefully turn counterclockwise  until the mercury drops to the left of the tube, but *no farther*.
7. Recheck calibration. Set the thermostat system switch for desired operation and replace cover.
8. Adjust temperature setting lever so mercury bulb is in position. See Fig. 1
9. Carefully replace thermostat cover.

Fig. 6—Recalibration procedure.



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