

CT500 Electronic Thermostat

OWNER'S GUIDE



Non-programmable Heat and/or Cool Low Voltage (20 to 30 Vac) Thermostat and Wallplate Model CT500

Congratulations on purchasing your new thermostat!
More than 100 years of engineering expertise enabled
this thermostat to provide you with a more comfortable
and convenient living environment.

Direct any questions about this thermostat to the
Honeywell Customer Relations Center at
www.honeywell.com/yourhome or 1-800-468-1502,
Monday - Friday, 7:00 am - 5:30 pm, Central time.



MERCURY NOTICE

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

Contact your local waste management authority
for instructions regarding recycling and the
proper disposal of an old control. If you have
questions, call Honeywell at 1-800-458-1502.

1 PREPARE FOR INSTALLATION

- ❑ Check Table 1 to be sure this thermostat is compatible
with your system. If not, return it to the retailer. For
more information, call Honeywell at 1-800-468-1502.
- ❑ Acquire tool and items as needed. See Fig. 1.

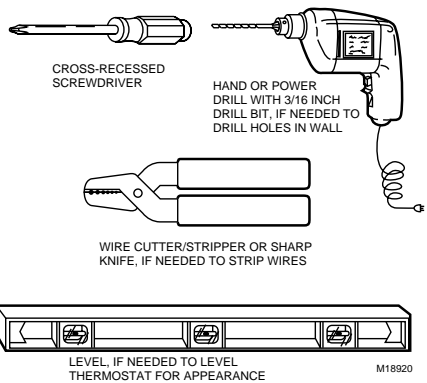


Fig. 1. Required installation tools and supplies.



Table 1. System Compatibility

System Type	Compatible with CT500
Gas — Standing Pilot	Yes ^a
Gas — Electronic Ignition	Yes
Gas-Fired Boilers	Yes ^{a,b}
Gas — Millivolt	No
Oil-Fired Boilers	Yes ^b
Oil-Fired Furnace	Yes
Electric Furnace	No
Electric Air Conditioning	Yes
Baseboard Electric (120/240 Line Volt)	No
Heat Pumps/Multistage Equipment	No

Not compatible with any 120/240 volt circuit.

Not compatible with 2-wire White-Rodgers no. 1361 zone valves.

^aNot compatible with millivolt systems.

^bCompatible with 2-wire Honeywell zone valves. Isolating relay required for 3-wire thermostat zone valves.

2 REMOVE OLD THERMOSTAT

- Test to be sure your heating and air conditioning systems (where applicable) are working correctly. If either does not work, contact your local heating/air conditioning dealer. To avoid compressor damage, do not operate the cooling system when outdoor temperature is below 50°F (10°C).

CAUTION

Be careful when handling wires during installation.

Damage to heating/cooling system possible.
Disconnect power at furnace or at main breaker/fuse box before starting operation.

- Carefully unpack your new thermostat, wallplate, and decorator cover plate; save package of screws, instructions and receipt.
- Remove the cover from the old thermostat. If it does not snap off when pulled firmly from the bottom, check for a screw used to lock on the cover.
- Loosen screws holding the thermostat to the subbase, wallplate and wall, and lift away.
- Disconnect wires from old thermostat or subbase. As you disconnect each wire, use wire labels to identify the old terminal designation. If there are only two wires, they do not need labeling. Wrap wires around a pencil to keep them from falling back into the wall as shown in Fig. 2.

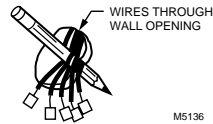


Fig. 2. Wrapping wires around pencil.

Replacing Clock With C or C1 Clock Terminals

If you are replacing a Honeywell Chronotherm® Thermostat, you may find one or two wires that go to the C or C1 clock terminals on the Chronotherm® Thermostat wiring wallplate. Do not allow them to touch, or you can damage your transformer. Disconnect the wires and wrap them separately using electrical tape; do not wrap them together. Place the wires to avoid interfering with the new thermostat operation. Record the colors and terminal designation labels of the remaining wires.

Six or More Wires

If there are six or more wires connected to the thermostat (excluding clock wires attached to terminals), you probably have a variation of a multistage heat pump or other multistage system. The thermostat is not compatible with such systems, so return the product to your retailer. For information about which programmable thermostats work with your system, call the Honeywell Customer Relations Center at 1-800-468-1502.

Three Thermostat Wires

If you have three wires for heating only and can operate the fan using the Fan On switch, this thermostat works with your system. However, some hot water (zoned) heating systems have three thermostat wires. The thermostat works only if you install an isolating relay on these systems. For details, contact your local heating and/or air conditioning contractor.

3 MOUNT WALLPLATE

IMPORTANT

Level for appearance only. The thermostat functions normally, even when not mounted level.

- Position the decorator cover plate and wallplate on the wall. Level the wallplate for appearance, if desired. Use a pencil to mark the two mounting holes that best fit the application. See Fig. 3

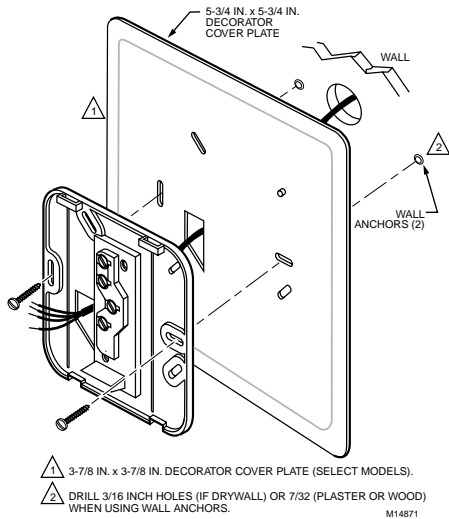


Fig. 3. Mounting decorator cover plate and wallplate to the wall.

- Remove the decorator cover plate and wallplate from the wall, and drill two 3/16-in. holes in the wall (if drywall). For firmer wall material such as plaster or wood, drill 7/32-in. holes. Gently tap provided anchors into the drilled holes until flush with the wall.
- Reposition the decorator cover plate and wallplate, pulling wires through the wiring opening. Loosely insert the mounting screws into the holes.
- Level for appearance only; the thermostat functions correctly, even when not level. Tighten the mounting screws.

4 WIRE WALLPLATE TERMINALS

The CT500 Thermostat is powered through the heating/cooling system and is adaptable to most 4-wire, 18 to 30 Vac heating-cooling systems. Refer to Fig. 4 and 5 for typical system wiring diagrams.

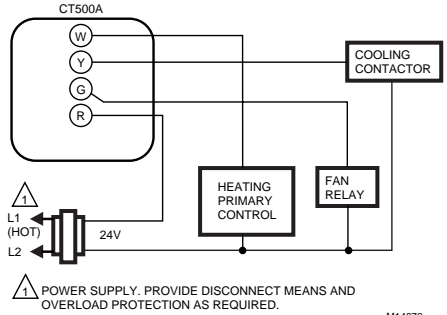


Fig. 4. CT500 wiring diagram, 4-wire heat/cool system.

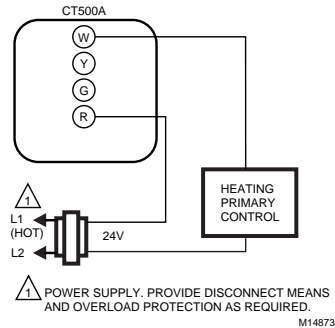


Fig. 5. CT500 wiring diagram, 2-wire, heat-only system.

IMPORTANT

Use 18-gauge maximum wire to wire the thermostat.

All wiring must comply with local electrical codes and ordinances. If unsure about household wiring procedures, call your local heating and air conditioning contractor.

Refer to the wiring labels you placed on the wires when you removed your old thermostat.

- Match the letter of your old thermostat wire with the terminal of the corresponding letter on your new thermostat. See Fig. 6.

NOTE: To ensure correct mounting of the thermostat, restrict all wiring to the left side of the terminals.

- Loosen the terminal screws and slip each wire beneath its matching terminal. The shape of the terminals permit insertion of straight or wraparound connections. See Fig. 7. Tighten the terminals.
- Plug the hole in the wall with insulation to help prevent drafts from adversely affecting thermostat operation.

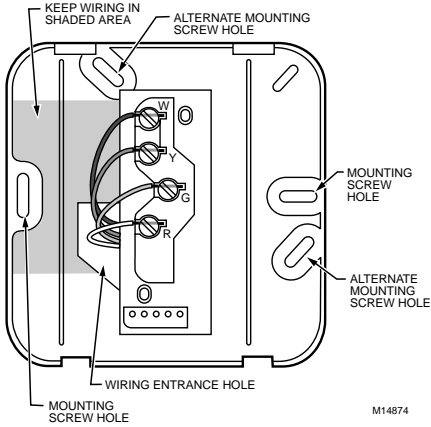


Fig. 6. CT500 wallplate wiring connections.

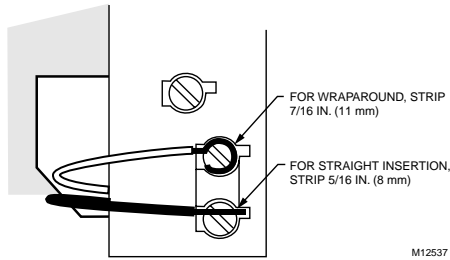


Fig. 7. CT500 methods for wiring connection.

5 MOUNT THERMOSTAT TO WALLPLATE

- Align the tab and connector pins at the top of the thermostat with the wallplate. See Fig. 8.

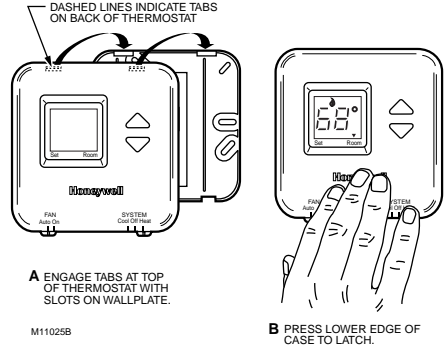


Fig. 8. Mounting thermostat to wallplate.

- Press the thermostat straight onto the wallplate to latch.

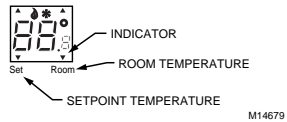
NOTE: To remove the thermostat from the wallplate, grasp the thermostat on both sides and pull it straight out.

- Restore power to the heating/cooling system.

6 OPERATE YOUR THERMOSTAT

Display Temperature Setting

- a. Press **▼** or **▲** once to display present temperature setting.
- b. The temperature setpoint and the room temperature are shown separately on the digital display. The **▼** indicator points to **Set** when the temperature setpoint is displayed and to **Room** when the room temperature is displayed.



7 SET FAN AND SYSTEM SWITCHES

Manually control fan and system settings using the switches located at the bottom of the thermostat case. See Fig. 9 for switch locations.

Cooling System

CAUTION

Compressor Damage Hazard.
Operating at too low of an outdoor temperature can cause compressor damage.
 Do not operate cooling system when outdoor temperature is below 50°F (10°C).

IMPORTANT

Temporary protection delay protects compressor; the thermostat allows the compressor to remain off for five minutes before restarting.

- Slide the System switch to Cool and the Fan switch to Auto.
- Press the ▼ key to lower the temperature setting several degrees below the room temperature to start the cooling equipment.
- Press the ▲ key to raise the temperature setting above the room temperature. The cooling equipment should shut down.

Fan

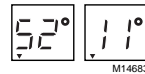
- Slide the System switch to Off and the Fan switch to On. The fan should run continuously if the G terminal is connected.

9 CUSTOMIZE YOUR THERMOSTAT

The following instructions provide the information necessary to change the heating cycle rate to match your heating equipment and choose Fahrenheit (F°) or Celsius (°C).

To exit at any time, press ▼ key until End is displayed.

1. Enter Installer Setup
 - a. Slide System switch to Off position
 - b. Use the ▼ or ▲ keys to set the temperature setpoint to 52°F (11°C).



2. Press the ▲ and ▼ keys simultaneously for more than one second to light all segments on the display and to enter installer setup mode. When the keys are released, a two-digit software revision code is displayed.



3. Press the ▲ key. Factory information is displayed. A typical example is shown, but information displayed varies by model. This information is for factory use only.

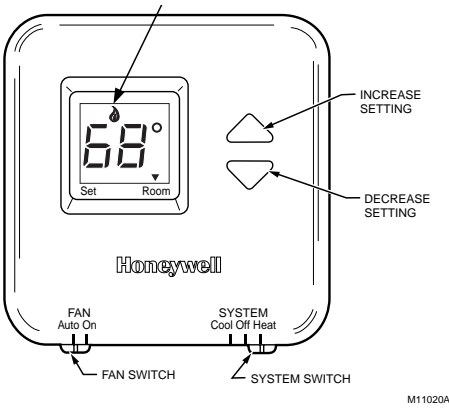


Fig. 9. CT500 temperature display and System/Fan switches.

Fan Switch

- The Fan switch settings are:
 On: The fan runs continuously. Use for improved air circulation. (Recommended position with whole-house air cleaners.)
 Auto: Normal setting for most homes. In cooling, the fan starts and stops with the cooling equipment. In heating, the fan is controlled directly by the heating equipment and starts a few minutes after the heating equipment turns on.

Slide the switch on the thermostat to the desired fan setting.

System Switch

- The System switch settings control thermostat operation as follows:
 Cool: The thermostat controls the cooling system.
 Off: Both heating and cooling are off.
 Heat: The thermostat controls the heating system.
- Slide the System switch on the thermostat to the desired system setting.

8 CHECK OPERATION AFTER INSTALLATION/PROGRAMMING

Heating System

- Slide the System switch to Heat and the Fan switch to Auto.
- Press and hold the ▲ key to raise the temperature several degrees above the room temperature to start the heating equipment.
- Press the ▼ key to lower the temperature setting below the room temperature. The heating equipment should stop.

4. Press the ▲ key again to display °C or °F.



5. Press the ▼ key to change the °C or °F indication.



6. Press the ▲ key to display the heat cycle rate of 1, 3, 4, 5, 6, 9, or 12. To change the heat cycle rate, press the ▼ key to scroll between 1, 3, 4, 5, 6, 9, or 12. Stop scrolling when the desired rate is displayed. See Table 2 for the cycle rate options and the corresponding system equipment.



Table 2. Heating Cycle Rates.

System	Cycles per hour
Steam, gravity	1
Hot water heat, condensing gas furnace ^a	3
Special applications - do not use	4
Special applications - do not use	5
Gas or oil forced air	6 (factory preset)
Electric heat	9
Factory function — do not use.	12

^aHigh-efficiency furnace.

7. Press the ▲ key to display heating/cooling temperature control default.



8. Press the ▼ key again to change heating/cooling temperature control to C1 or C3.

C1 = Standard heating/cooling temperature control.
C3 = Aggressive heating/cooling temperature control (can cause room temperature to overshoot the setpoint).

9. Press the ▲ key again. Factory information (varies by model) is shown.



10. Press the ▲ key to save all changes, exit installer setup mode and return to normal operation.

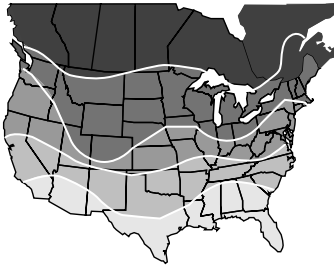
NOTE: After exiting installer setup mode, slide the System switch to the desired position and change the setpoint to the desired room temperature.

10 TROUBLESHOOTING

See Table 3 to troubleshoot your thermostat.

Table 3. Troubleshooting Your Thermostat.

Symptom	Possible Cause	Corrective Action
Heating/cooling equipment does not operate.	No power to the thermostat.	Check power to heating/cooling equipment: — On/Off switch. — Fuse or circuit breaker. — Loose 24V connection: at thermostat; at furnace/air conditioner. — Incorrect wiring; check appropriate wiring diagram.
	System switch on thermostat not in correct position.	Reset System switch.
	Thermostat minimum-off times operating for cooling.	Wait five minutes.
	Incorrect wiring.	Check wiring.
	Heating/cooling equipment not operating.	Consult equipment manufacturer instructions.
Partial display.	Thermostat not operating.	Replace thermostat.
	Remained in customize mode.	See Customize Your Thermostat section to exit this mode.
No display.	No power to thermostat.	Check power to thermostat.
	Thermostat mounted incorrectly on wallplate.	See Mount Thermostat to Wallplate section.
Temperature display is incorrect.	Thermostat is configured for °F or °C.	Reconfigure the display. See Customize Your Thermostat section for instructions to change the display.
Cannot change temperature setting.	The upper or lower temperature limits were reached.	Check the temperature setpoints; temperature setting range is 40°F (4°C) to 99°F (37°C).
Snowflake is flashing.	Cooling equipment turns on after delay.	Wait approximately five minutes after the indicator starts flashing and then check the registers.
System on indicator (flame=heat) is displayed, but no warm air is coming from the registers.	Heating equipment turns on the fan when the furnace has warmed up to a setpoint.	Wait a minute after seeing the on indicator and then check the registers. If still no heat is coming from the registers, call your local heating and/or cooling contractor.



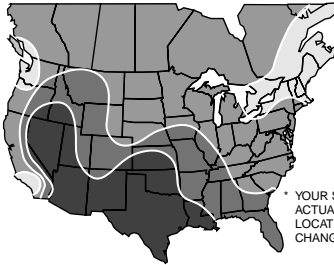
PERCENT OF HEATING COSTS YOU CAN SAVE

SAVINGS FOR ONCE-A-DAY 10°F (5°C) DECREASE*

- 6 TO 8%
- 9 TO 11%
- 12 TO 13%
- 14 TO 15%
- 16 TO 18%



HEAT



PERCENT OF COOLING COSTS YOU CAN SAVE

SAVINGS FOR ONCE-A-DAY 10°F (5°C) INCREASE*

- 7 TO 9%
- 10 TO 11%
- 12 TO 14%
- 14 TO 19%



COOL

* YOUR SAVINGS DEPENDS ON HOME SIZE AND ACTUAL HEAT LOSS OR GAIN, GEOGRAPHIC LOCATION, FREQUENCY OF TEMPERATURES CHANGE, AND RANGE IN DEGREES OF CHANGE.

M12545

Limited One-Year Warranty

Honeywell warrants this product, excluding battery, to be free from defects in the workmanship or materials, under normal use and service, for a period of one (1) year from the date of purchase by the consumer. If, at any time during the warranty period, the product is defective or malfunctions, Honeywell shall repair or replace it (at Honeywell's option) within a reasonable period of time.

If the product is defective,

- (i) return it, with a bill of sale or other dated proof of purchase, to the retailer from which you purchased it, or
- (ii) package it carefully, along with proof of purchase (including date of purchase) and a short description of the malfunction, and mail it, postage prepaid, to the following address:

Honeywell Return Goods
 Dock 4, MN10-3860
 1885 Douglas Dr N
 Golden Valley, MN 55422

Canada: Honeywell Limited/Honeywell Limitée
 Product Services ON15
 35 Dynamic Dr
 Scarborough, Ontario M1V4Z9

This warranty does not cover removal or reinstallation costs. This warranty shall not apply if it is shown by Honeywell that the defect or malfunction was caused by damage which occurred while the product was in the possession of a consumer.

Honeywell's sole responsibility shall be to repair or replace the product within the terms stated above. HONEYWELL SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE OF ANY KIND, INCLUDING ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING, DIRECTLY OR INDIRECTLY, FROM ANY BREACH OF ANY WARRANTY, EXPRESS OR IMPLIED, OR ANY OTHER FAILURE OF THIS PRODUCT. Some states do not allow the exclusion or limitation of incidental or consequential damages, so this limitation may not apply to you.

THIS WARRANTY IS THE ONLY EXPRESS WARRANTY HONEYWELL MAKES ON THIS PRODUCT. THE DURATION OF ANY IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IS HEREBY LIMITED TO THE ONE YEAR DURATION OF THIS WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

If you have any questions concerning this warranty, please write our Customer Relations Center, or call 1-800-468-1502, Monday-Friday, 7:00 a.m to 5:30 p.m, Central time. In Canada, write Retail Products ON15-02H, Honeywell Limited/Honeywell Limitée, 35 Dynamic Dr, Scarborough, Ontario M1V4Z9.

Honeywell

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