

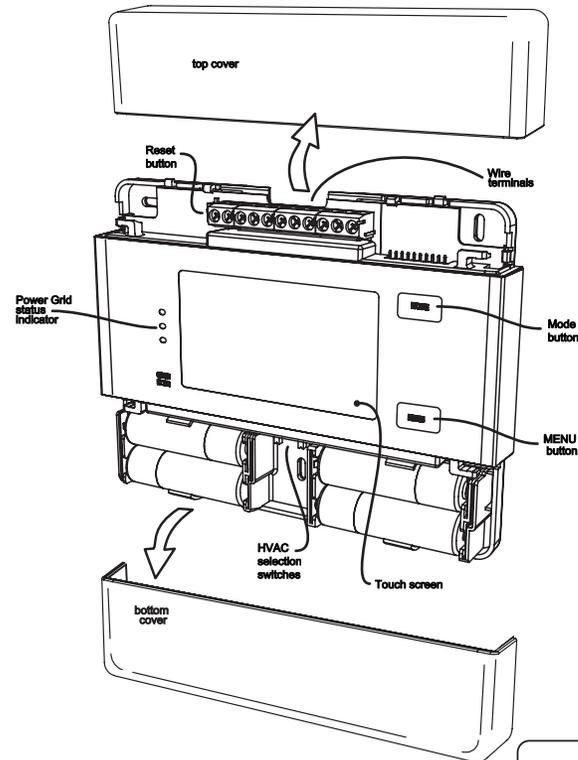
Operation Guide CT101

Radio Thermostat

Radio Thermostat Company of America

The CT101 communicating Z-Wave thermostat operates via a high-quality, easy-to-use touch screen. To set or adjust your CT101, simply touch your finger firmly to the screen. The screen will automatically light up and you will hear a “beep.” Do not use a sharp or metallic device; it will scratch the screen.

Statement of use: 100% Compatible with all popular residential HVAC systems; 24VAC single, two stage conventional heating systems (gas/oil/electric), heat pumps with up to two stages of heat and two stage auxiliary heat(electric or fossil), zoned forced air and zoned hot water (2 or 3 wire), millivolt systems (with a 12-24 AC or DC source), one or two stage cooling, and hybrid systems.



To pair with a Z-Wave system please follow instructions below

Your new thermostat needs to be paired to a Z-Wave system to get full benefit. Follow the instructions below depending on whether this is an upgrade to an existing system, or you are installing your thermostat as part of a new Z-Wave system.

Adding your CT101 Thermostat to an existing Z-Wave system:

1. Log into your Z-Wave dashboard and select the 'devices' admin.
2. Select 'add devices'
3. Follow the on screen instructions to add the CT101 to your network.

Adding your CT101 to a new Z-Wave system:

1. Follow the installation guide that was supplied with your Z-Wave hub.
2. The onscreen installation process will ask which devices you have.
Make sure that the Thermostat is selected.
3. The instructions will describe the steps to add your CT101 [Thermostat device].

Once your thermostat has been paired successfully with your Z-Wave system, programming is simple. Just use the thermostat app and adjust your settings. There is no need to manually program your thermostat when paired with a Z-Wave system.

Please note that your thermostat will function as a normal programmable thermostat should you ever lose Z-Wave connectivity.

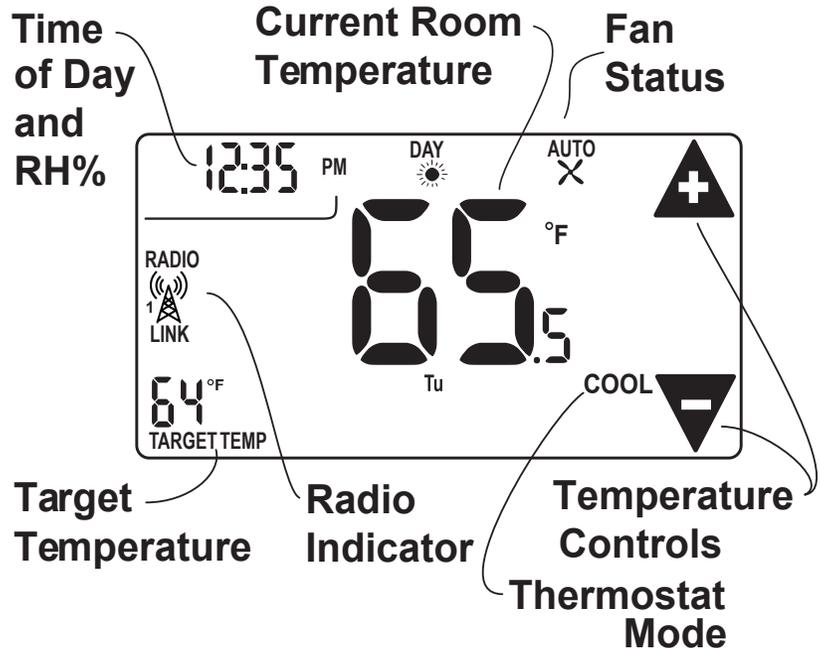
Control Screens

HOME Screen

Before you operate the CT101 please get familiar with these basic control screens. All the CT101 functions are accessed through these screens: HOME, MENU, and MANUAL. The CT101 touch screen technology allows you to select (by touching) an item and change it using the +/- arrows or the time arrows.

The **HOME** screen is displayed when the unit is operating. Touching the HOME icon  on another screen will always return you to this screen.

To set a Mode:
Press the mode button on the front. The CT101 will step through the modes HEAT, OFF, COOL, OFF, AUTO, OFF in order.



MENU Screen

The **MENU** screen is the gateway to many functions or settings of the CT101. It is displayed when you press the MENU button. [See page 10 for details]

Set Time
Touch this area to set the time of day. Left arrow goes back, right arrow goes forward.

Filter timer
RADIO icon
Shows radio status and connection

Differential to set
for 2nd Stage start.

Temperature
Swing set

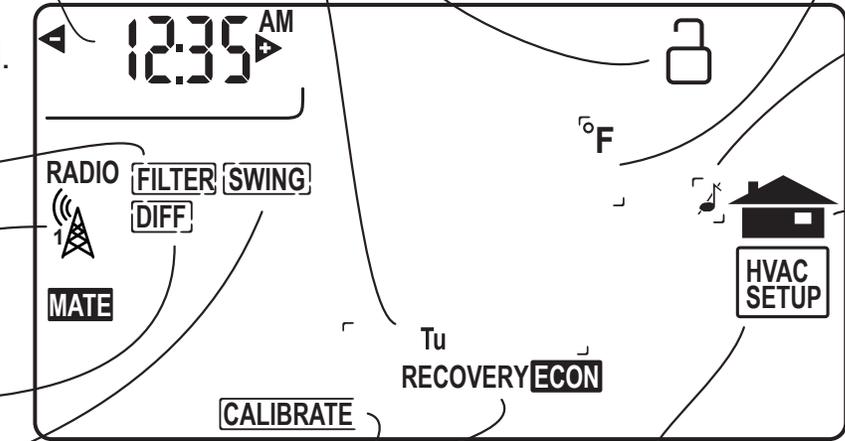
DAY of the week set

Lock Program
Touch for 5 sec to lock or unlock.

Set °C -°F
Touch this to set temp display units

Chirp set
Touch this to turn the audible chirp on and off

Return to **HOME** screen.



Calibration control
Use this to calibrate your LCD display match to another thermometer

RECOVERY
FAST or ECON for multi-stage systems.

HVAC SETUP
Touch this in OFF mode to configure the unit to work with your HVAC system.

For manual programming please see below

PROGRAM Screen The stand alone **PROGRAM** screen sets the CT101 control for your home HVAC system without using a Z-Wave system.

Set Time Slot

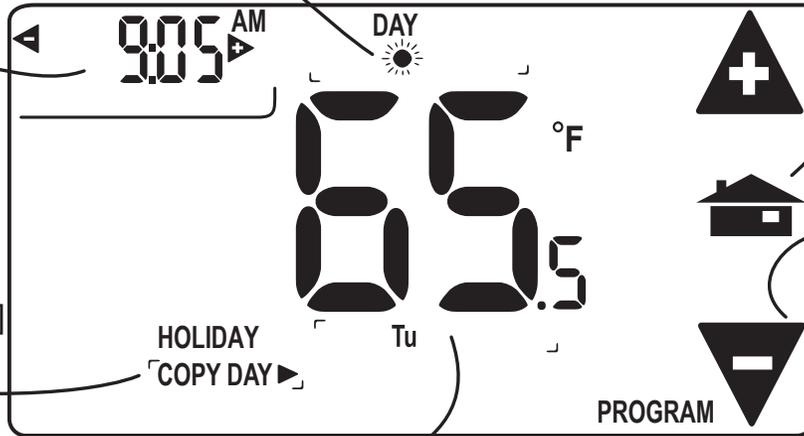
Touch this area to set the Time Slot you want to program.

Set Program Time

Touch this area to set the time of day you want each time period to start. Left arrow goes back, right arrow goes forward. [Touch and hold for fast set.]

Copy

Touch this area to copy current day's program to the next day.

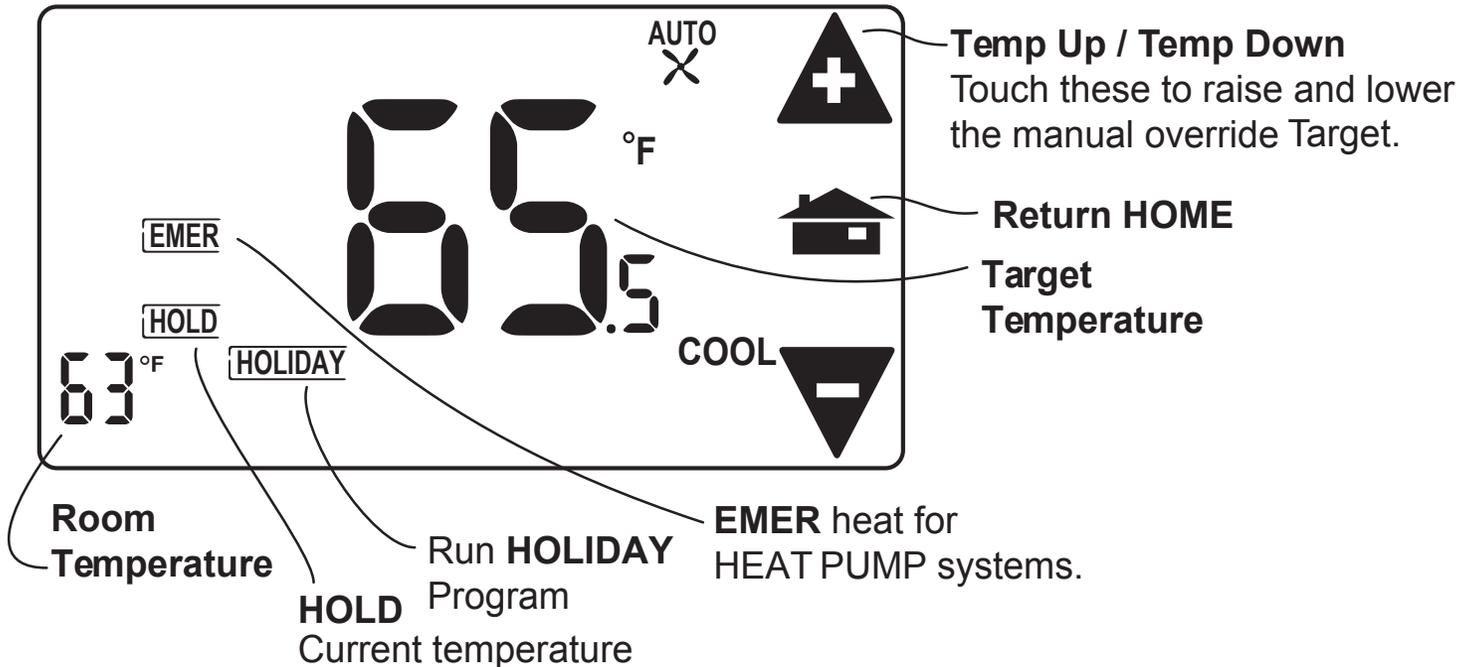


Return HOME When programming is complete touch this to run your program and return to the HOME screen.

Set Program Day Touch this area to set the day of the week you want to program.

Temp Up / Temp Down Touch these to raise and lower each Target Temp. [Touch and hold for fast set.]

MANUAL Screen The **Manual Screen** control screen is where you can make temporary changes to your CT101's operation. From the HOME screen, touch the main temperature display to use this screen. [See page 13 for details]



Initial Settings

Press **MENU** to access the following commands (from HOME screen).

Set time of day

Touch the Time of Day arrows to move the time selection forward or backward until it displays the current time. Touch and hold for faster setting.



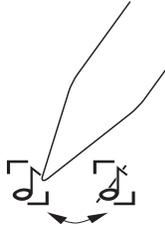
Set °F-°C display

Touch the °F and it will toggle to °C.



Set audible chirp

Touch the musical note icon to select the chirp or no chirp.



Return **HOME** by touching the home icon.

Run pre-set Program

The CT101 comes pre-programmed with an EPA approved program. This program is recommended by the EPA for energy efficiency. We strongly recommend that you Auto-Run this program for one week, and see if it works for you. If it does not fit your needs you can always input a custom program. To run the EPA program, set the mode switch to HEAT or COOL.

Press the MENU button and use the arrows by the time display to set the time.

Touch the DAY area and advance it to select the present day.

Touch HOME. The unit is now running the program.

EPA	MORN	DAY	EVEN	NIGHT		MORN	DAY	EVEN	NIGHT
HEAT	6:00am	8:00am	6:00pm	10:00pm	COOL	6:00am	8:00am	6:00pm	10:00pm
All Days	70°F	62°F	70°	62°F	All Days	78°F	85°F	78°F	82°F

TO CHANGE THE PROGRAM:

Make sure the CT101 mode is set to either HEAT or COOL, then press the **PROGRAM** button. This puts you at the **PROGRAM** screen [see page 4]. The programmed start time is displayed in the upper left. The TIME SLOT icon indicates the active TIME SLOT in the default program [MORN, DAY, EVEN, NITE]. The programmed Target Temperature is shown on main display.

The HEAT program and the COOL program are separate.

PROGRAM cont.

Select the **day** you want to program.

The day of the week starts at SU - Sunday and can be advanced to the day you want to program.

Touch the day of the week area to cycle through the days of the week to the desired day.

Select the **time slot** (period) you want to program (MORN, DAY, EVEN, NITE).

Touch the time slot area to cycle through to the desired period.

Select the desired **start time** of that time slot.

Touch the time arrows to select the desired period's starting time. Hold arrow down for fast time scrolling.

Select the desired **target temperature** for that time slot.

Touch the +/- arrows to select the desired period's temperature.

To **COPY** one day's programming to the next day, touch COPY DAY once. The information for the current day will be copied to the next day which will appear on the screen. Holding down COPY for over 3 seconds will copy to all 7 days.

Touch  to return to the Home screen.

MENU Screen Functions

Press MENU to bring up MENU screen.

TIME of DAY

Touch the left (down) or right (up) arrows next to the time display to set the current time (1 minute per touch). Touch and hold the arrow for fast time set (15 minute jumps).

SWING (HVAC cycling rate) This feature allows you to set the desired variance in temperature between the CT101 setting and the room temperature required before the heating or cooling system will turn on—Swing range: 0.5 to 4.0F (.25 to 2C). For example, if SWING is set to 2.0° F and the CT101 is set to 70°F Target Temperature, the heat cycle will start when room temperature drops to 68°F. Similarly, the cooling system will start when the room temperature increases to 72°F. The HVAC then runs and will shut off at the Target Temperature.

To set **SWING**:

Touch SWING.

Touch the left/right arrows to set the SWING from 0.5° to 2.0°F.

The HVAC will run more frequently at .5°F and less at 2°F. Default is 1°F.

Touch  to return to the MENU screen.



Chirp set - Touch this to turn the audible chirp sound on or off.

°F
°C

Set - Touch this to switch the temperature display scale from °F to °C .

 **LOCK** (The CT101 has 2 lock modes)

Touch  icon for 5 seconds; the unit will go into the PARTIAL lock mode. The user can temporarily override the CT101 target with the +/- buttons only. (1 bar)

For FULL lock : Touch the  (1 bar) icon again for 5 seconds to go to full lock. No changes can be made in full lock  (2 bars). Once locked, the CT101 will respond just to **MENU**.

To UNLOCK , Press MENU.

Touch and hold  icon for 5 seconds for 2 bars (if not there already).

Then touch and hold the  icon for another 5 seconds. Each 5 second touch and hold must be separate.

Touch  to return to the Home screen.

CALIBRATE

Your thermostat was accurately calibrated at the factory to $\pm 1^{\circ}$ F of actual ambient temperature. You do have the option, however, to change the display temperature to match that of a previous thermostat, or to match another thermostat already in your home. The range of change is from -6° F to $+6^{\circ}$ F or -3° C to $+3^{\circ}$ C.

To change your Thermostat Calibration, touch **MENU** and then touch **CALIBRATE**.

Use the + / - to adjust the displayed temperature up or down, as desired.

The DELTA FACTOR that appears on the screen will also automatically increase or decrease for each 0.5° (F or C) adjustment so you can see your change. The large display will show the modified temperature reading that will be displayed on the HOME screen and used as the new room temperature.

Touch  to return to the Home screen.

DIFF (Used for multiple stage systems only, not on screen for single stage)

The differential is the number of degrees between the room temperature and the Target Temperature at which the 2nd stage will be used. Default is 2° F , range is 2° F to 6° F (1° - 3° C).

Touch MENU and then DIFF. Use the arrows to set the DIFF.

Recommend 2° F for very cold climates and the 4° F for warm climates.

MANUAL Screen Functions

The CT101 has 2 manual override commands. The manual screen is accessed by touching the large current temperature display in the middle of the HOME screen.

IMPORTANT: The Mode must be in HEAT or COOL to access the manual screen.

TEMPERATURE Touch the +/- arrows to select your desired Target Temperature. Touch HOME to return to operation.

EMER (in HEAT PUMP type)

If you set your CT101 for HEAT PUMP with auxiliary heat, EMER function is available on the MANUAL screen. If you touch EMER, it displays EMER|ON. Your HEAT PUMP is disabled and auxiliary heat is your sole source of heat. This manual override stays active until you toggle EMER off. Auxiliary heat is more expensive than the heat pump so use EMER only if the heat pump cannot keep up or is defective.

Other Functions

MODE Button

The mode button sets the CT101 to HEAT, COOL, AUTO, or OFF modes. Press it once to step to the next mode. If the CT101 is in OFF and you want to return to the mode you were previously in, touch the OFF indicator on screen.

FAN Button

The fan control is normally in AUTO mode, meaning that the fan operates automatically with the HVAC system and the thermostat. When the fan button is pressed the fan goes ON; the fan will run continuously in this manual override until switched back to AUTO by pressing the FAN button again.

[NOTE: Fan **ON** function is available in the OFF mode to allow simple ventilating.]

RESET button The RESET button re-boots the CT101 processor. It does not effect the target temperatures that have been stored in permanent memory.

Compressor Protection The CT101 has a minimum cycle time of 4 minutes to protect your compressor in cool and in heat pump (if you have one). The Home screen will show a hour glass and “Please Wait...” during this time and the compressor will not come on until the 4 minute delay is over.

Communicating Thermostat

The CT101 has a built in Z-Wave radio. This allows your thermostat to communicate with a Z-Wave system.



Removing your CT101 from the Z-Wave system:

1. From your Z-Wave admin software Dashboard or hub.
2. Click on 'Devices'
3. Locate the device you wish to remove
4. Click 'Manage' button alongside this device
5. Click 'Remove device'
6. Follow the online instructions to remove the device

Z-Wave and Battery Power

When your thermostat is running on battery power, the Z-Wave radio will turn off to help conserve battery life. The CT101 Z-Wave radio module supports Z-Wave beaming, which allows other devices in the network to wake up the Z-Wave module and accept commands, and then go back to sleep. The node type is fixed during network inclusion. If C-Wire is not present and the thermostat is battery powered during network inclusion, the thermostat will remain a frequent listening routing slave (FLiRS) node until the thermostat is removed from the network via network exclusion.

Z-Wave and C-Wire Power

When your thermostat is running on C-Wire power, the Z-Wave radio will stay on and actively help in routing messages within the z-wave network. The node type is fixed during network inclusion. If C-Wire is present and powered during network inclusion, the thermostat will remain an always listening node until the thermostat is removed from the network via network exclusion.



Caution

HVAC Setup and Z-Wave

Do not change the HVAC setup or HVAC selection switches if the thermostat is included to Z-Wave network. The HVAC system must be changed, first REMOVE the thermostat from the network, change the HVAC setup, and INCLUDE the thermostat to the network.