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Wireless Digital Programmable Thermostats with Receivers

Owner's Manual

RAK348R1 – Receiver RAK364R1 – Receiver
RAK348T1 – Thermostat RAK364T1 – Thermostat

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Español

Para consultar una versión en español de este manual de instrucciones, visite nuestro sitio de internet ge.com.

Française

Pour une version française de ce manuel d'utilisation, veuillez visiter notre site web à l'adresse www.electromenagersge.ca



49-7574 06-07 JR

Important safety information.

! WARNING! *Always turn off power at the main power supply before installing or removing the thermostat receiver.*

GE IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS EQUIPMENT COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

- *Do not use air conditioning when the outdoor temperature is below 50 degrees; this can damage your A/C system and cause personal injuries.*
- *Use this thermostat only as described in this manual.*

Specifications.

Electrical ratings: • Thermostat: DC Power 3.0 VDC (4 "AA" batteries included); 40 mA
• Receiver: 24 VAC (18–30 VAC); 25 mA

Operating temperature range: 40°F–99°F (4°C–37°C)

Temperature set range

Heat mode: 50°F (10°C)–85°F (29°C)

Cool mode: 64°F (18°C)–99°F (37°C)

Accuracy: ± 1°F (± 0.5°C)

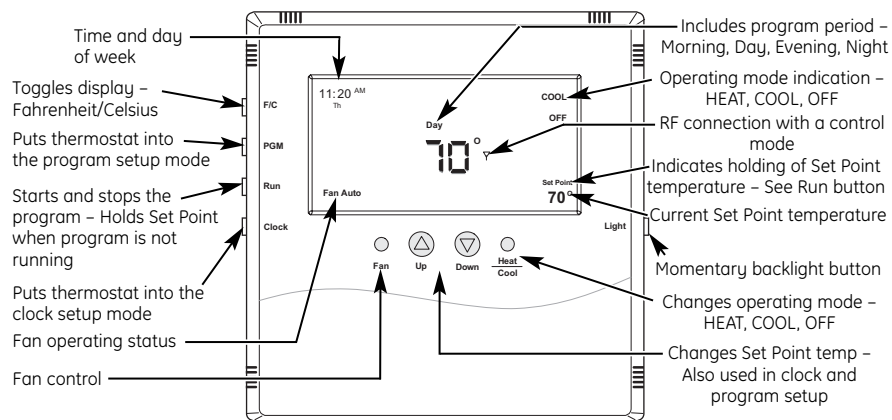
System configurations: 2-stage heat (heat pump/resistance heat); 1-stage heat (resistance heat); 1-stage cool

Timing: Anti-short cycle: 3 minutes (minimum compressor run time/off time)

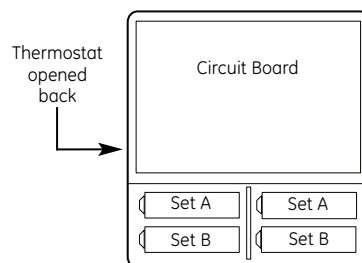
Terminals: R, GL, GH, B, Y, W, C

INTRODUCTION OVERVIEW

THERMOSTAT CONTROL – Front



THERMOSTAT CONTROL – Back



Thermostat will operate on either Set A, Set B or both. When changing, replace with all new batteries. Never use a mix of old and new. *Battery orientation is critical.*


Heating and cooling programs are held in memory. If the batteries are removed or depleted, the thermostat and receiver(s) will remain linked but the programming information and the clock will need to be reset.

Introduction.

This two-part wireless thermostat system is designed to provide precision temperature control without the installation headaches and expense of wiring. Powered by four AA batteries, the thermostat will operate for approximately 1 year, and can be mounted in any suitable location that will ensure good temperature control. A large LCD display provides the user with current space temperature, set point temperature, time, program interval and other system status information. The second part of the system is the receiver. The receiver interfaces with the desired HVAC equipment and communicates with its thermostat using unlicensed 900MHz radio frequency energy. At the time of installation, the thermostat is linked to one or more receivers. A thermostat and receiver that have been linked will not interfere with or be affected by any other thermostat or receiver in adjacent rooms, apartments or neighboring homes.

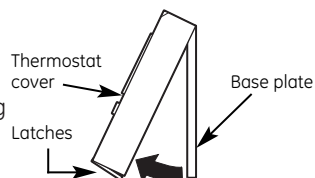
Batteries.

Installing/Changing

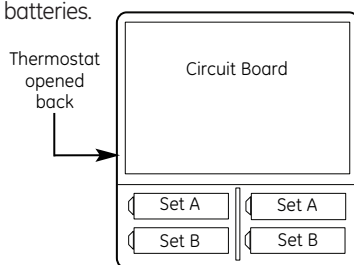
A low battery icon  will light on the thermostat display when the batteries are within a week or two of being exhausted. The thermostat is designed to use standard AA-size 1.5 volt batteries. If the batteries are depleted, the heating/cooling system will go to the OFF state.

Replacing Batteries

To open the thermostat, remove the security screw (#2 Phillips or #2 security screw). Using both hands, press the two push-tabs on the bottom of the thermostat housing with your thumbs, while pulling the front of the thermostat away from the base.



The thermostat operates with 4 AA batteries. Batteries are paired, one set on top of the other.



Thermostat will operate on either Set A, Set B or both. When changing, replace with all new batteries. Never use a mix of old and new.

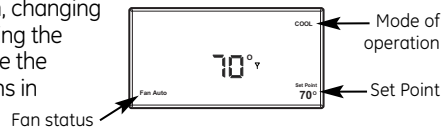
Battery orientation is critical.

Buttons.

A four-button cluster is located on the front of the thermostat.



These buttons are used in adjusting fan operation, changing the set point temperature up or down and changing the operating mode of the thermostat. To the right are the display items that are changed by the four buttons in normal operation.



Note that the **UP**, **DOWN** and **HEAT/COOL**

buttons are also used in setting the clock and programming the thermostat and linking to receiver(s). This will be covered in the following sections of the manual.

The four buttons located on the left side of the thermostat control the display of the temperature in either Fahrenheit or Celsius, programming and clock set up. These buttons also allow manual or program control.

- **F/C** – Toggles between the Fahrenheit and Celsius displays
- **Program set-up button**
- **Run** – Sets the program or manual mode of operation
- **Clock set-up button**

Backlight.

A single button on the right side of the thermostat activates the display backlight. The backlight will illuminate the display after the last button is pressed. Backlighting takes significant energy from the batteries and should be used sparingly. Frequent use of the backlight function will noticeably reduce battery life.

Setting the clock.

In all set-up modes, the thermostat will flash the display item you are about to change. The **UP** and **DOWN** buttons change settings, the **HEAT/COOL** button is used to move to the next item. To set the clock, you will use the buttons marked **CLOCK**, **UP**, **DOWN** and **HEAT/COOL**.

Step One

Press the **CLOCK** button. The hour digits will flash. Press the **UP** or **DOWN** button to change the hour. Note that **AM/PM** will change as you roll the hour past **12**. Be sure to set the hour properly for **AM** or **PM**. Press the **HEAT/COOL** button to keep the hour you have just set and to move to minutes.

Step Two

The Minute digits will now be blinking. Press the **UP** or **DOWN** button to change to the desired minute. When the correct minute is flashing, press **HEAT/COOL**.

Step Three

One of the seven day icons (Mo, Tu, We, Th, Fr, Sa, Su) will now flash. Press **UP** or **DOWN** until the correct day icon is flashing. When the correct day is flashing, press **HEAT/COOL**.

Step Four

Press the **CLOCK** button to keep all clock changes you have made and resume normal operation.

Thermostat programming.

The thermostat provides four program periods: Morning, Day, Evening and Night. A time and temperature can be set for each period. Upon initial power up, the thermostat loads time and temperature program default parameters for weekday and weekend days of the week.

Default settings are:

WEEKDAY DEFAULT PROGRAM TIMES AND TEMPERATURES			
Period	Time	Heat	Cool
MORNING	6:00 AM	70°	75°
DAY	8:00 AM	62°	83°
EVENING	6:00 PM	70°	75°
NIGHT	10:00 PM	62°	78°

WEEKEND DEFAULT PROGRAM TIMES AND TEMPERATURES			
Period	Time	Heat	Cool
MORNING	8:00 AM	70°	75°
DAY	10:00 AM	62°	83°
EVENING	6:00 PM	70°	75°
NIGHT	11:00 PM	62°	78°

Separate heating and cooling programs can be entered. The mode the thermostat is in is displayed in the upper right side of the LCD screen. The mode the thermostat is in when the **PROGRAM** button is pressed is the mode that will be controlled by that program. If in the **COOL** mode, the program entered will be stored as the program for cooling.

To program the thermostat, you will use the **PROGRAM**, **HEAT/COOL**, **UP** and **DOWN** buttons.

Thermostat programming (cont.).

Step One

Press the **PROGRAM** button to put the thermostat into the programming mode. The display will blink all of the day-of-the-week icons. Pressing the **UP** or **DOWN** button will toggle between the weekday icons and the weekend icons. Ensure the display is blinking the one you want to program. Press **HEAT/COOL**.

Step Two

Next, the morning period will blink. Use the **UP** or **DOWN** button to toggle through Morning, Day, Evening or Night, stopping at the period you want to program. Press **HEAT/COOL**.

Step Three

Next, the hour of the day will blink. This is the starting hour of the period you have selected. Use the **UP** or **DOWN** button to change the selected hour start time. Press **HEAT/COOL**.

Step Four

The minute of the day will blink next. This is the starting minute in the hour. Use the **UP** or **DOWN** button to change the minute digits to the desired setting. (Note that minutes change in five-minute increments.) Press **HEAT/COOL**.

Step Five

The desired set point will now be blinking. This is the temperature you want the thermostat to go to at the time of day you have selected. Press the **UP** or **DOWN** button to change to the desired set point temperature. Press **HEAT/COOL**.

This completes the programming of the first period of the day.

Step Six

If you started with the Morning time period, the next period, Day, will now be blinking. Follow steps two, three, four and five for each period you wish to program.

Navigating.

You can quickly step through to a specific item you want to change by pressing the **HEAT/COOL** button until the item you want to change is flashing. When the item you want to change is flashing, use the **UP** or **DOWN** button to make your change.

Exiting program mode.

Pressing the **PROGRAM** button at any time will exit you out of the programming mode, save your changes to memory and return you to normal thermostat operation.

Run button – program/manual operation.

The **RUN** button toggles the thermostat between program operating mode and manual operating mode. When in the program mode, your thermostat responds to the times and temperatures programmed.

Program Mode

One of the four periods, in this case “Day,” is displayed, letting you know which period of the day it is in.

Changing temperature while running a program.

You can always change the temperature up or down while a program is running. However, when the program moves to the next period, the programmed set point temperature for that period will start. For instance, assume the current program period is Evening, with a programmed temperature of 70° and the next period, Night, is programmed for 65°, scheduled to start at 11 pm. If during the Evening time period you want it warmer, press the **UP** button and raise the temperature above 70°. The thermostat will hold that temperature until the next programmed period comes around, at which point the temperature will adjust to what is programmed. In this case, the Night period is set for 11 pm and 65°.



Manual Mode

When in the manual mode, there will be no time period displayed. Instead, the word “Hold” will be displayed above the Set Point temperature, indicating the thermostat is holding that temperature.

Adjust to the desired temperature, using the **UP** and **DOWN** buttons, and the thermostat will maintain the temperature you set until you manually change it again.



Installing or removing receiver.

The thermostat and receiver will not operate as a system until they are linked together through the installation process. The linking process binds one or more receivers to a thermostat so that they will communicate with each other as a control system. Up to eight (8) receivers can be linked to a single thermostat. Until linked, a control receiver will not operate. Once linked, a control receiver will only respond to its specific thermostat.

Link the Thermostat to the Receiver

A thermostat and receiver that have been linked will not interfere with or be affected by any other thermostat or receiver in adjacent rooms, apartments or neighboring homes. Linking information is stored in memory—It is not necessary to re-link a thermostat and receiver if the thermostat batteries are removed or after a power outage.

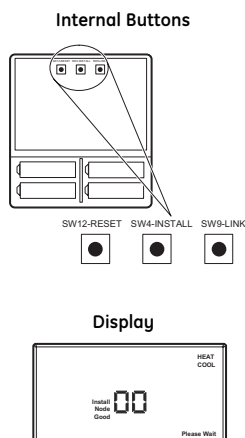
If multiple installation teams are installing and linking thermostats at the same time, coordinate the activity to avoid the possibility of installers simultaneously attempting to perform the linking process. Because this is an RF system, installers in nearby rooms/areas where it is possible RF overlap could exist run the risk of interfering with each other. Installation and linking activity going on around a system already installed will not interfere with it.

Installing or removing receiver (cont.).

A. Press the **SW4-INSTALL** button inside the thermostat. Press the **HEAT/COOL** button on the front of the thermostat to select your choice. Press the **UP** button to set the receiver number (0-7) and press the **HEAT/COOL** button to set the receiver.

B. Press the **SW9-LINK** button inside the thermostat. Within 5 seconds, press the **RESET/LINK** button (PB3) on the receiver. The "Good" message will appear if linked. The "Bad" message will appear if not linked.

C. Press the **SW4-INSTALL** button to close the installation session.



PB1-NETWORK

Used to uninstall the thermostat from receiver(s) it has been linked to.

SW12-RESET

Master Reset – Returns thermostat to all factory defaults.

SW4-INSTALL

Starts an installation session.

SW9-LINK

Used to link the thermostat to control receiver(s).

NOTE: The display always blinks the item that is active and can be changed.

Uninstalling a Receiver

Unlike installing a receiver, the procedure to remove will uninstall all receivers installed to the thermostat at once. You cannot remove a single receiver at a time.

Step One

Press the **SW4-INSTALL** button inside the thermostat. The "Install" icon will flash. Press the **UP** button to get the "Remove" choice and press the **HEAT/COOL** button to select. The "Heat" and/or "Cool" icons will be displayed and all display items will be on steady; nothing will be flashing.

Step Two

Press the **SW9-LINK** button on the back of the thermostat printed circuit board. Within 5 seconds, activate a Link Service Request on the receiver. When the **SW9-LINK** button is pressed, the thermostat will display the "Please Wait" message in the bottom right corner of the LCD while it searches for a receiver. Once the thermostat finds its installed receiver(s), linking information is removed from the receivers and the thermostat, the "Please Wait" message is extinguished and a "Good" message will appear.

Installing or removing receiver (cont.).

Thermostat Installation Reset

If there is difficulty installing a receiver, perform the following:

Step One

Press the **SW4-INSTALL** button inside the thermostat. The "Install" icon will flash. You only need to begin the installation session to perform this reset.

Step Two

Press and hold the **PB1-NETWORK** button on the inside of the thermostat board for approximately 2 seconds.

No response is displayed. All previous installation records will be wiped from thermostat memory. You can continue from this point with the installation procedure. The **PB1-NETWORK** button will only reset the thermostat installation data base if the thermostat is already in an Installation Session (**SW4-INSTALL** button has been pressed). Otherwise, the **PB1-NETWORK** button will have no effect.

Frequently asked questions.

"Where should I locate my thermostat?"

For best results, the thermostat should be located approximately five feet above the floor on an inside wall in an area with good air circulation. A thermostat should not be located where air is stagnating, such as behind doors, in corners or under cabinets. Hot or cold drafts from air ducts and windows should be avoided. Avoid direct heat from the sun, lighting fixtures, appliances, fireplaces, etc.

"What does the antenna symbol on the display mean?"

The thermostat displays the antenna symbol as indication that it is communicating with its receiver(s). If, after several tries, communication is not established, the antenna symbol will go out.

"What do I do if the antenna symbol is no longer displayed?"

Check power to the HVAC equipment in which the receiver is installed. With power restored, force the thermostat to talk to the receiver(s) by pushing the **FAN** button or running the set point temperature above or below the room temperature (above in heating, below in cooling). The thermostat will also automatically try to communicate within a maximum of ten minutes from the last attempt. If communication is successful, the antenna icon will turn back on. Coincidental RF interference could cause a temporary loss of communication. In virtually all such cases, the interference is temporary. The thermostat will attempt to re-establish communication with its receiver(s) within a maximum of ten minutes.

"Can I run multiple heating or cooling loads such as electric baseboard heating and a window air conditioner with one thermostat?"

Yes. In fact, one thermostat can control up to eight (8) different receivers.

"Can I use another thermostat without interference?"

Yes. This wireless thermostat and its receiver(s) will talk between themselves, but will never respond to or control another thermostat in adjacent rooms, apartments or neighboring homes.

"When my a/c turns off, why can't I immediately make it run again?"

This is normal. What you are experiencing is called an anti short-cycle delay. Because of high pressure in the system, it is not a good idea to start your air conditioner immediately after it has just shut down. The thermostat automatically prevents this from happening by imposing a delay of approximately 3 minutes.

Frequently asked questions (cont.).

"I just installed the thermostat and the antenna symbol goes on and off. What should I do?"

A weak RF signal between the thermostat and one or more receivers is the cause. The further away the thermostat and receiver are from each other, the weaker the signal. Distance and/or something shielding or blocking the RF signal is the likely cause. Distance is typically not a problem. The most common cause for this is an object acting as a shield, such as sheet metal. Changing the position of the receiver or thermostat or both may be required. In rare cases where the receiver cannot be repositioned or where it is completely enclosed in a sheet metal control box, a small section of sheet metal may need to be removed and, if necessary, replaced with plastic or other nonmetallic material.

NOTE: Always seek out competent professional electrical and HVAC contractors when working with your heating and cooling system and the electrical wiring in your home or commercial property. Always consult with an HVAC contractor and/or original equipment manufacturer before modifying any equipment.


"The display on the thermostat is blank. What happened?"

A blank display indicates that your batteries are depleted. When the "Low Battery" icon comes on, there is only 1 or 2 weeks of battery life remaining. (See the "BATTERIES – Installing/Changing" section of this manual for information on how to change the batteries.) We recommend that when you change batteries, always use batteries that you know are fresh. Use four (4) new high-quality AA batteries. If you are using the wireless thermostat to control a heating system, we recommend as a general practice putting fresh batteries in at the start of the heating season.

"If I am away for an extended time such as a vacation, how do I set the thermostat so my system does not run excessively?"

You have a couple choices. The first is to press the **HEAT/COOL** button on the thermostat until the display reads "OFF." (Particularly during the heating season, we do not recommend going to the "OFF" mode.) The second option is to put your thermostat in manual mode by pressing the **RUN** button. You know that you are in the manual mode because none of the period icons, Morning, Day, Evening or Night will be displayed. The "Hold" icon located above the Set Point temperature will be displayed. Next, adjust the set point temperature to minimize system operation. For example, you could adjust to a Set Point of 85° in cooling or 65° in heating, keeping in mind what your temperature selection could affect, such as plants and animals that stay in your home while you are away. During the cooling season, consider humidity, as well as indoor temperature. When your air conditioner runs, it not only cools the air, it also removes moisture, lowering humidity. High humidity can encourage mold growth.

Troubleshooting tips.

Problem	Solution
No display	Make sure batteries are fresh and installed correctly. See the "Batteries" section in this manual.
System fan does not come on properly	Verify that wiring is correct.
Program schedule activates at the wrong time	Check time (AM/PM) set on thermostat (see <i>Programming</i>).
Thermostat does not follow program	Verify that it is in Program mode; check time (AM/PM); check if in Manual Mode ("Hold Set Point" and temperature are in the display).
Fan runs continuously	Check Fan Auto/On switch. If set to Fan 1 or Fan 2 position, fan will run continuously.
Room temperature is not correct	If a wired thermostat was removed, make sure that the hole in the wall was sealed with nonflammable insulation or putty, or use a wall plate obtained from a local hardware or home building store.
Compressor doesn't run or turn on immediately when changing function or setting	There is a protective time delay (approximately 3 minutes) to prevent tripping of the compressor overload. For this reason, the unit may not start normal cooling or heating for 3 minutes after it is turned back on.
 displays on screen	Replace batteries with 4 fresh "AA" alkaline batteries.
Time in display is not correct	Set clock/time.

Thermostat Warranty.

Staple your receipt here.
Proof of the original purchase date
is needed to validate the warranty.

For The Period Of: GE Will Replace:

One Year Limited
From the date of the
original purchase

Full Replacement of the thermostat which fails due to a defect in materials or workmanship.

What GE Will Not Cover:

- Service trips to your location.
- Improper installation. If you have an installation problem, contact your installer. You are responsible for providing adequate electrical connections to the product.
- Failure of the product resulting from modifications to the product or due to unreasonable use, including failure to provide reasonable and necessary maintenance.
- In commercial locations, labor necessary to move the unit, after it has been initially installed, to a location where it is accessible for service by an individual technician; or, if the instructions included in this manual have been disregarded.
- Replacement of location fuses or the resetting of circuit breakers.
- Batteries.
- Damage to the product caused by improper power supply voltage, accident, fire, floods or acts of God.
- Incidental or consequential damage caused by possible defects with this thermostat.

EXCLUSION OF IMPLIED WARRANTIES—Your sole and exclusive remedy is product exchange as provided in this Limited Warranty. Any implied warranties, including the implied warranties of merchantability or fitness for a particular purpose, are limited to one year or the shortest period allowed by law.

This warranty is extended to the original purchaser and any succeeding owner for products purchased for use within the USA and Canada. In Alaska, the warranty excludes the cost of shipping or service calls to your site.

Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state or province to province. To know what your legal rights are, consult your local, state or provincial consumer affairs office or your state's Attorney General.

Warrantor: General Electric Company, Louisville, KY 40225

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