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Honeywell

System Installation Guide

TL9160 Wireless Thermostat Kit

With Equipment Interface Module

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Installation guide for:

- Wireless equipment interface module
- TL9160 wireless thermostat
- Wireless remote control
- Wireless outdoor air sensor

IMPORTANT INSTRUCTIONS

ELECTRICAL HAZARD

Can cause electrical shock or equipment damage. **Disconnect power before beginning installation**.

Must be installed by a trained, experienced technician. Read these instructions carefully. Failure to follow these instructions can damage the product or cause a hazardous condition.

Need Help?

For assistance with this product please visit **http://customer.honeywell.com** or call Honeywell Customer Care toll-free at **1-800-468-1502**.

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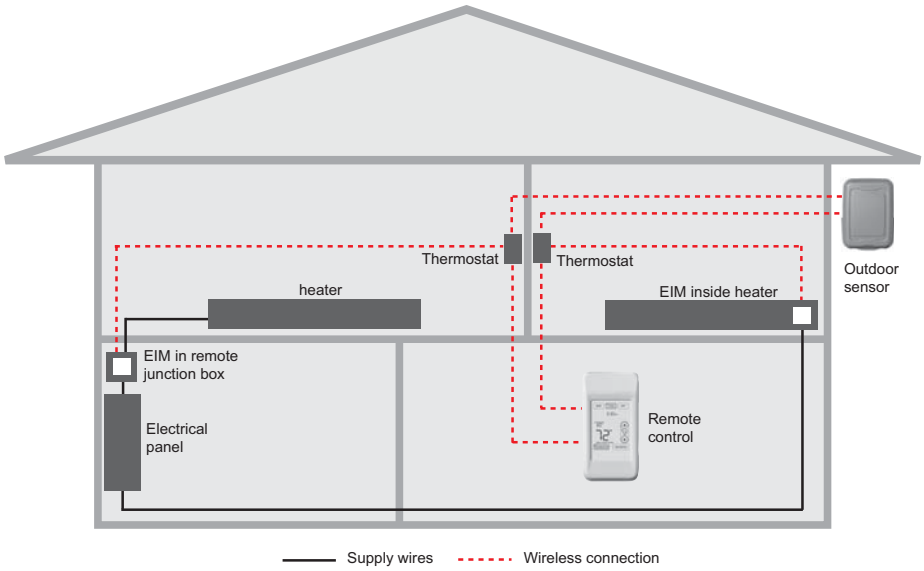
System installation at a glance

The equipment interface module (EIM) allows you to control a baseboard heater, a convector or a fan-forced heater in 120-volt or 240-volt application from a TL9160 wireless thermostat



Installation procedure

❶ Install the equipment interface module (EIM)..... Pages 3 - 5
❷ Install batteries in wireless devices..... Page 6
❸ Link all devices to wireless network..... Pages 6 - 9
❹ Exit wireless setup..... Page 10
❺ Customize thermostat (installer setup)..... Pages 10 - 17
❻ Mount thermostat and outdoor sensor..... Page 18

For error codes, see page 19.
To verify the signal strength, see page 20.
To replace a wireless device, see page 20.
For specifications and replacement parts, see page 22.

SAVE THESE INSTRUCTIONS

1 Install the Equipment Interface Module (EIM)

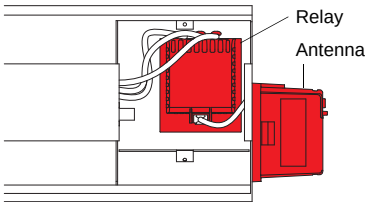
Determine the location

The equipment interface module (EIM) consists of a relay and an antenna. They can be installed either in the wiring compartment of the baseboard heater or in a 4”x4” junction box.

***NOTE**: Install EIMs at a minimum distance of 2 feet (0.6 m) of each other. This minimum distance still applies even if the EIMs are on opposite sides of a wall.*

- **Installing the EIM in the baseboard heater**

  You can install the EIM in the wiring compartment of the heater if you have any of the heaters listed in the following table:

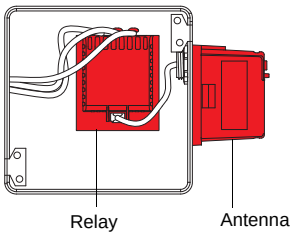


Manufacturer / brand	Series
Cadet	F
Global Commander	CCB
King Electrical	K, CB, KP, M
Marley	2500, BKOC, QMKC
Ouellet	ODBA, ODI, ODIA, OFM, OPR
Stelpro	CBB, N, SCA, SCAS
TPI	2900C, 2900S, 3700, 3900
NOTE: The product has been tested for compatibility with the heaters listed above. If your heater is not in the list, install the EIM on an electrical box or replace it with one listed.	

- **Install the EIM in a 4”x4” electrical box**

  Install the EIM in a 4”x4” electrical box:
  - if you have a convector or fan-forced heater.
  - if you cannot install or do not wish to install the EIM in the wiring compartment of the heater.

  ***NOTE**: The electrical box can be installed anywhere in the house; for example, near the main electrical panel.*



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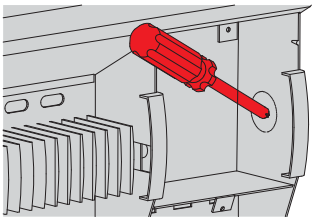
Installation in the heater

ELECTRICAL HAZARD

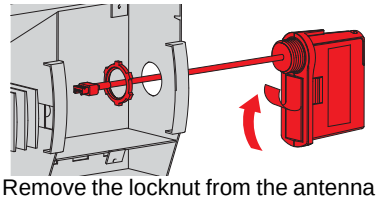
Can cause electrical shock or equipment damage. **Disconnect AC power before beginning installation**.

Wiring must comply with local electrical codes. Use special CO/ALR solderless connectors if supply wires are made of aluminum.

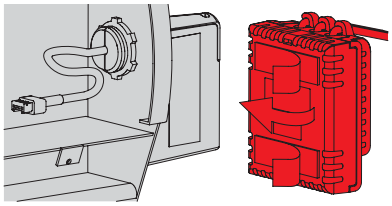
***NOTE**: First, disconnect the heater wires from the supply wires. If the heater has a built-in thermostat, remove it.*



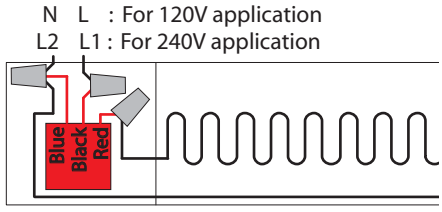
1) Remove the knockout on the side of the heater.



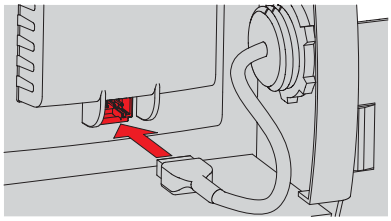
2) Remove the locknut from the antenna and peel off the adhesive backing. Feed the antenna wires through the knockout and install the antenna vertically as shown. Put the locknut and tighten.



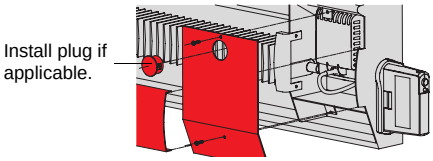
3) Peel off the adhesive backing of the relay and stick the relay on the back panel inside the wiring compartment with the relay wires directed upwards.



4) Connect the heater wires and the supply wires to the relay wires as shown.



5) Insert the antenna plug into the relay receptacle until you hear a click.



6) Put the heater cover back. (If a built-in thermostat was removed, install one of the supplied plugs to cover the hole on the existing cover.) Apply power to the heater. **Do not install the antenna cover yet**.

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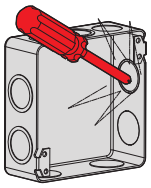
Installation in a 4”x4” junction box

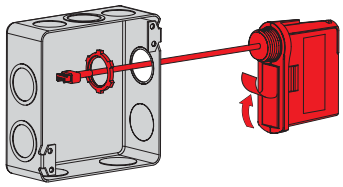
ELECTRICAL HAZARD

Can cause electrical shock or equipment damage. **Disconnect AC power before beginning installation**.

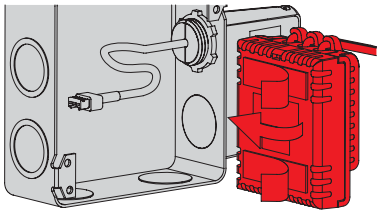
Wiring must comply with local electrical codes. Use special CO/ALR solderless connectors if the supply wires are made of aluminum.



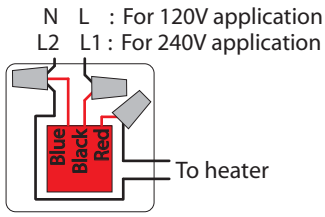
1) Mount the junction box on the wall. Punch out a knockout on the side of the electrical box where the AC wires come in. Punch out another one or two knockouts for the heater and supply wires. Install strain relief bushings.



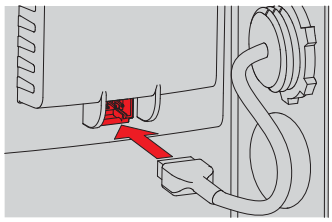
2) Remove the locknut from the antenna and peel off the adhesive backing. Feed the antenna wires through a knockout and mount the antenna vertically as shown. Put the locknut and tighten.



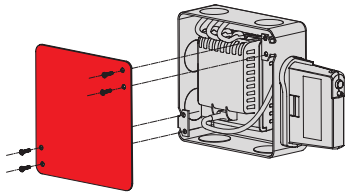
3) Peel off the adhesive backing of the relay module and stick the relay inside the electrical box with the relay wires directed upwards (as shown).



4) Feed the supply wires and heater wires through a knockout and connect them to the relay module.



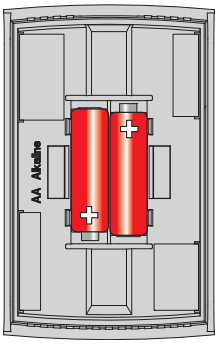
5) Insert the antenna plug in the relay receptacle until you hear a click.



6) Install a cover plate and apply power to the heater. **Do not put the antenna cover back yet**.

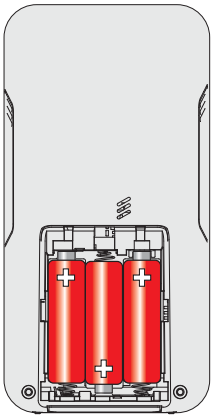
2 Install batteries in wireless devices

Thermostat



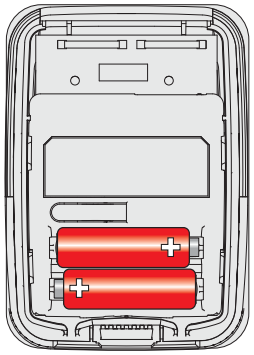
Install 2 AA alkaline batteries

Remote control



Install 3 AA alkaline batteries

Outdoor air sensor



Install 2 AA lithium batteries

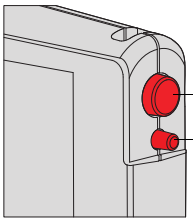
3 Link all devices to wireless network

Start wireless setup

Press the **CONNECT** button on the antenna to place it in wireless setup. When the amber light changes to a green flashing light, you can begin to link devices to the wireless network (see pages 7-10).

***NOTE 1**: If the amber light changes to a red light instead, there is another EIM currently in wireless setup. Press the **CONNECT** button on the other EIM to exit its wireless setup.*

***NOTE 2**: If the green flashing light disappears (after a delay of 15 minutes) before you have time to link all your devices, press the **CONNECT** button again.*

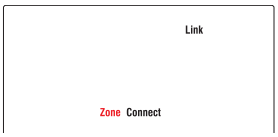
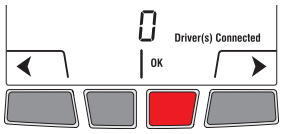
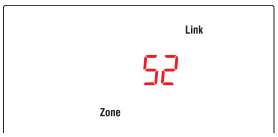
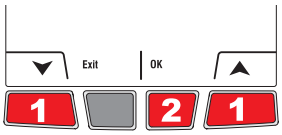
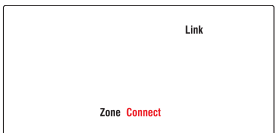
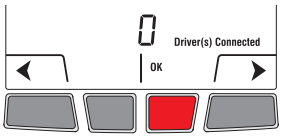
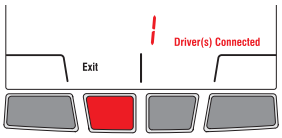


* Flashing green: Ready for connection
Steady green: Connection established
Steady red: Connection failure

Link thermostat and EIM to wireless network

Perform the following steps on the thermostat:

***NOTE**: You can skip step 2 if you do not have a wireless remote control or do not have more than one wireless thermostat in your house.*

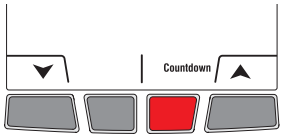
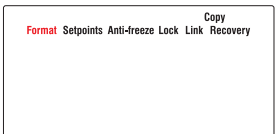
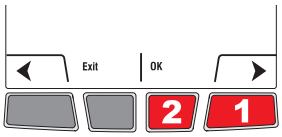
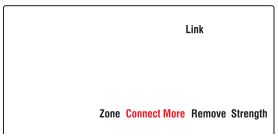
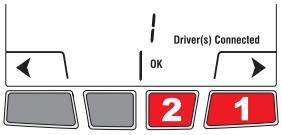
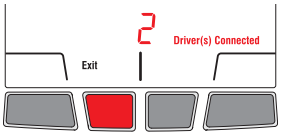
#	Display	Button	Step
1)			The **Link** menu appears when you connect the thermostat to wireless network for the first time. Press **OK** to select **Zone**.
2)			Press ▲ or ▼ to change the zone name (see page 15) and press **OK**.
3)			Press **OK** to select **Connect**.
4)			**DONE** confirms the connection is successful. Press **Exit** once to link another EIM (see page 8) or 3 times to return to home screen.

Link additional EIM to wireless network (if applicable)

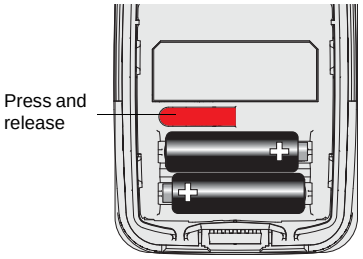
***NOTE**: Perform steps 1 to 6 for each additional EIM. You can link a maximum of 8 EIMs to the wireless neywork.*

1) If the green light on the EIM that was last linked is still flashing, press its **CONNECT** button. The green light will become steady.

2) Press the **CONNECT** button on the next EIM you wish to link and wait for its green flashing light.
NOTE: Skip steps 3 and 4 if the **Link** menu is still displayed on the thermostat (as shown in step 5).

#	Display	Button	Step
3)			Press and hold the right center button for 5 secs.
4)			From the installer's setup menu, press ▶ to select **Link** and press **OK**.
5)			If necessary, press ▶ to select **Connect More** and press **OK**.
6)			**DONE** appears to confirm the connection is successful. Press **Exit** and go back to step 1 once to link another EIM or 3 times to return to home screen.

Link outdoor sensor to wireless network (if applicable)

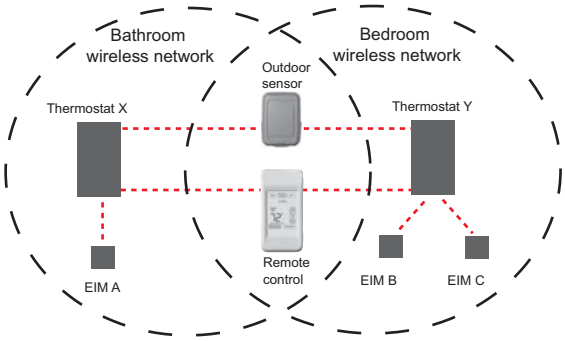


1) Make sure the green light on the EIM is flashing; this indicates the wireless setup is still active. If not, activate the wireless setup (see page 6).
***NOTE**: If you have more than one wireless thermostat, make sure to activate the wireless setup from an EIM connected to the same network as the thermostat. For example, to display the outdoor temperature on thermostat Y, you can activate the wireless setup from either EIM B or C, not A.*

2) Press the **CONNECT** button on the back of the sensor.

3) After 15 seconds, check if the thermostat is displaying a value for the outdoor temperature reading.

***NOTE**: If you have more than one wireless thermostat, repeat steps 1 and 3 for each thermostat.*



Link remote control to wireless network (if applicable)

1) Make sure the green light on the EIM is flashing, which indicates the wireless setup is still active. If not, activate the wireless setup (see page 6).

***NOTE**: If you have more than one wireless thermostat, make sure to activate the wireless setup from an EIM connected to the same network as the thermostat. For example, to link the remote control to thermostat Y, you can activate the wireless setup from either EIM B or C, not A.*

2) Refer to the remote control guide for connection to the wireless network.

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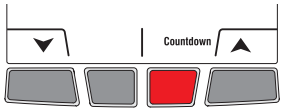
4 Exit wireless setup

1) Press the **CONNECT** button at the EIM. The green flashing light on the antenna will change to a steady green light.
***NOTE**: If you do not press the **CONNECT** button, the EIM will automatically exit wireless setup after 15 minutes of inactivity.*

2) Put the cover back on the antenna module.

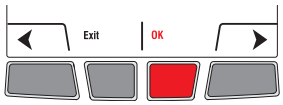
5 Customize the thermostat

Hidden installer's setup menu button



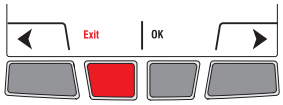
- To display the installer's setup menu from the home screen, press and hold the right center button for 5 secs.

OK button



- Press **OK** to accept the setting on the screen and move to the next parameter or menu.
  ***NOTE**: Pressing **OK** saves the new setting or confirms you accept the current setting.*

Exit button



- Press **Exit** to return to the previous menu or to the home screen.
  ***NOTE**: If you press **Exit** right after changing a setting, the new setting will not be saved. Make sure you press **OK** to save the new setting before you press **Exit**.*

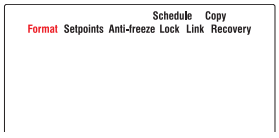
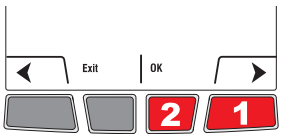
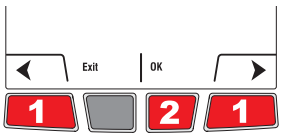
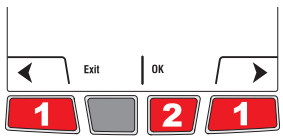
Default settings

Parameter	Choices	Default setting	To modify, see
Temperature unit	°C / °F	°F	Page 11
Time format	12h / 24h	12h	Page 11
Minimum setpoint		41°F (5°C)	Page 12
Maximum setpoint		86°F (30°C)	Page 12
Anti-freeze	On / Off	On	Page 13
Lock	None / Partial / All	None	Pages 13-14
Zone	1, ..., 57	52	Pages 14-15
Adaptive Intelligent Recovery	On / Off	On	Page 16
Schedule	On / Off	On	Page 17

***NOTE**: To set the date & time, the schedule and the automatic daylight savings, refer to User's Guide.*

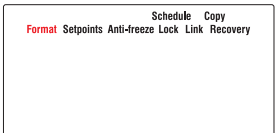
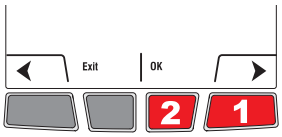
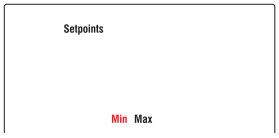
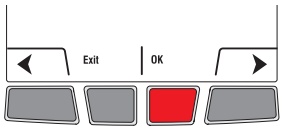
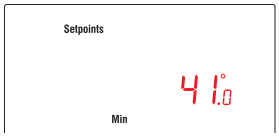
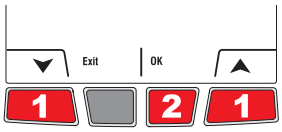
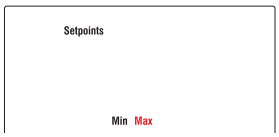
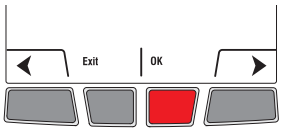
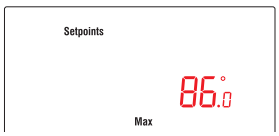
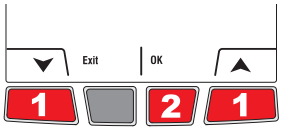
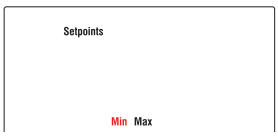
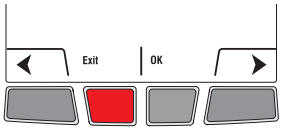
Temperature unit / Time format

Follow this procedure to select the temperature unit (°C or °F) and time format (12h or 24h).
***NOTE**: The time format selection is available only if the thermostat is in programmable mode.*

#	Display	Button	Step
1)			From the installer's setup menu, press **OK** to select the **Format** menu.
2)			If necessary, press ◀ or ▶ to change the temperature unit. Press **OK**.
3)			If necessary, press ◀ or ▶ to change the time format. Press **OK**.

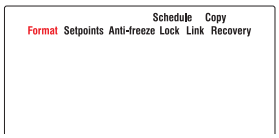
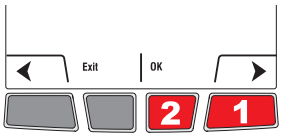
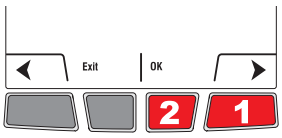
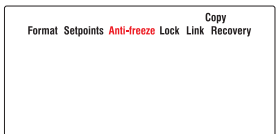
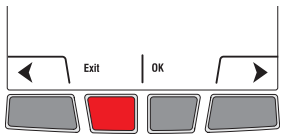
Minimum and maximum setpoints

Follow this procedure to set the minimum and maximum setpoint temperature.

#	Display	Button	Step
1)			From the installer's setup menu, press ▶ to select **Setpoints** and press **OK**.
2)			Press **OK** to select **Min**.
3)			If necessary, press ▲ or ▼ to change the minimum setpoint. Press **OK**.
4)			Press **OK** to select **Max**.
5)			If necessary, press ▲ or ▼ to change the maximum setpoint. Press **OK**. (Pressing **Exit** will cancel the change.)
6)			Press **Exit** once to return to installer's setup menu or twice to return to home screen.

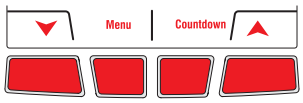
Anti-freeze

When this function is on, the EIM will maintain the room temperature at 55°F (13°C) if it loses communication with the thermostat or if the thermostat sensor is defective. The protection automatically turns on when the EIM is linked to the thermostat. **Leave the protection on** unless the EIM is installed in a junction box in a separate room from the heater. To turn off the protection, proceed as follows:

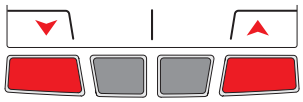
#	Display	Button	Step
1)			From the installer's setup menu, press ▶ as needed to select **Anti-Freeze** and press **OK**.
2)			Press ◀ or ▶ to set to **OFF**. Press **OK**.
3)			Press **Exit** once to return to installer's setup menu or twice to return to home screen.

Lock

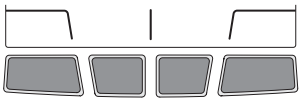
By default, the setting lock is disabled.



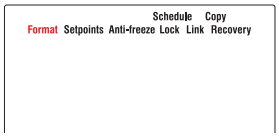
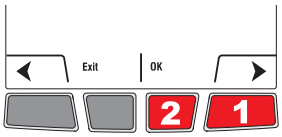
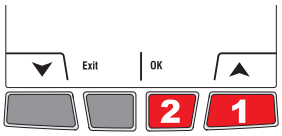
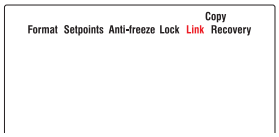
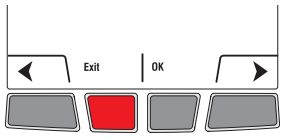
If you leave at **None**, you have full access to all thermostat settings.



If you select **Part** (Partial), you can change the room temperature only.

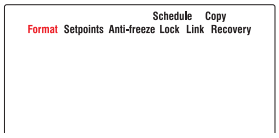
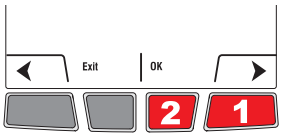
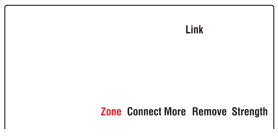
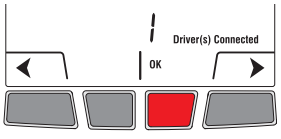


If you select **All**, no button is available. You cannot change any setting except for the installer's setup menu.

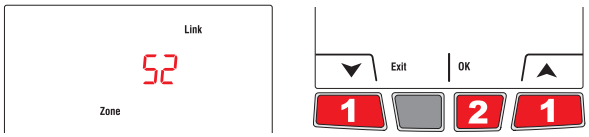
#	Display	Button	Step
1)			From the installer's setup menu, press ▶ to select **Lock** and press **OK**.
2)			Press ▲ or ▼ to select **All**, **Part** (partial) or **None**. Press **OK**.
3)			Press **Exit** once to return to installer's setup menu or twice to return to home screen.

Zone

The zone name is used to identify the thermostat on the wireless remote control. By default, the zone name of the thermostat is **Thermostat** (zone 52). If you have a wireless remote control and several wireless thermostats, change the zone name of the thermostat to identify it from the other thermostats. For example, if the thermostat is in the living room, set the zone to **31**.

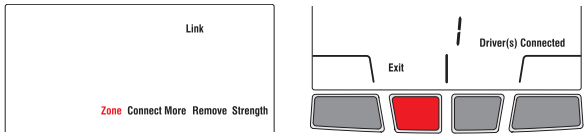
#	Display	Button	Step
1)			From the installer's setup menu, press ▶ to select **Link** and press **OK**.
2)			Press **OK** to select **Zone**.

3)



Press ▲ or ▼ to set the value. Press **OK**.

4)

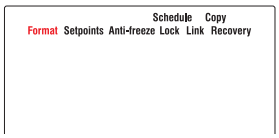
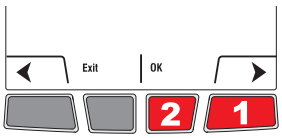
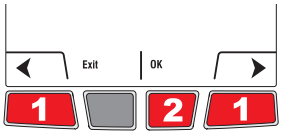
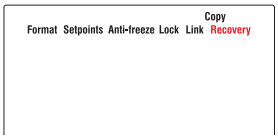
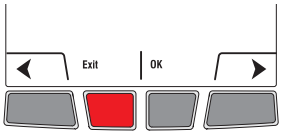


Press **Exit** once to return to installer's setup menu or twice to return to home screen.

Zone	Name	Zone	Name	Zone	Name	Zone	Name
1	Basement	16	Exercise Room	30	Library	44	Porch
2	Bathroom	17	Family Room	31	Living Room	45	Rec Room
3	Bathroom 1	18	Fireplace	32	Lower Level	46	Sewing Room
4	Bathroom 2	19	Foyer	33	Master Bath	47	Spa
5	Bathroom 3	20	Game Room	34	Master Bed	48	Storage Room
6	Bedroom	21	Garage	35	Media Room	49	Studio
7	Bedroom 1	22	Great Room	36	Music Room	50	Sun Room
8	Bedroom 2	23	Guest Room	37	Nursery	51	Theater
9	Bedroom 3	24	Gym	38	Office	52	Thermostat
10	Bedroom 4	25	Kid's Room	39	Office 1	53	Upper Level
11	Boat House	26	Kitchen	40	Office 2	54	Utility Room
12	Bonus Room	27	Kitchen 1	41	Pantry	55	Walk In Closet
13	Computer Room	28	Kitchen 2	42	Play Room	56	Wine Cellar
14	Den	29	Laundry Room	43	Pool Room	57	Workshop
15	Dining Room						

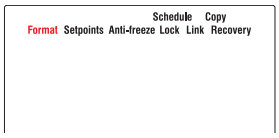
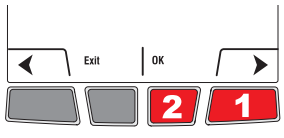
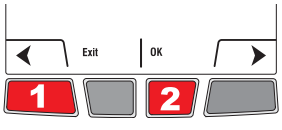
Adaptive Intelligent Recovery

Available only if you use the thermostat in programmable mode.
When Adaptive Intelligent Recovery is on, the thermostat "learns" how long your heater takes to reach the set temperature. The thermostat will then determine when to activate heating so the desired temperature is attained at the desired time. The thermostat re-assesses the heating start time daily based on the previous day's performance. When Adaptive Intelligent Recovery is off, heating starts at the set time.

#	Display	Button	Step
1)			From the installer's setup menu, press ▶ to select **Recovery** and press **OK**.
2)			Press ◀ or ▶ to select **Off** and press **OK**.
3)			Press **Exit** to return to home menu.

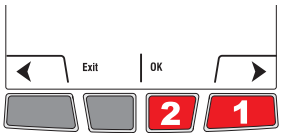
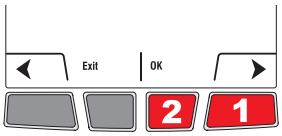
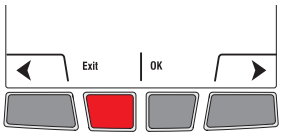
Schedule

The thermostat is factory-set as a 7-day programmable thermostat. To set it as a non-programmable thermostat, proceed as follows:

#	Display	Button	Step
1)			From the installer's setup menu, press ▶ to select **Schedule** and press **OK**.
2)			Press ◀ or ▶ to select **Off** and press **OK**.

Copy

Use this function to copy the configuration settings, the schedule settings or both to the other wireless thermostats if you have several wireless thermostats in your house. This function is available only if the thermostat is connected either to a remote control or to an outdoor sensor. The parameters are copied to the other thermostats that are also connected to the remote control or to the outdoor sensor.

#	Display	Button	Step
1)	Schedule Copy Format Setpoints Anti-freeze Lock Link Recovery		From the installer's setup menu, press ▶ as needed to select **Copy** and press **OK**.
2)	Copy Schedule Configuration		Press ◀ or ▶ to select **Schedule**, **Configuration** or both (**Schedule Configuration**). Press **OK**.
3)	Copy Format Setpoints Anti-freeze Lock Link Recovery		**Wait** may appear for several minutes. When the installer's setup menu appears, press **Exit** to return to home menu.

System test

1) Set the temperature above the room ambient temperature.
2. Wait for **Heat On** to display on the thermostat.
3. Verify if the heater can become hot .
4. Press **Cancel**.

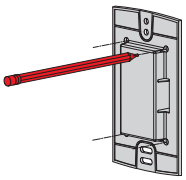
6 Mount thermostat and outdoor sensor

Follow the guidelines below when mounting the thermostat:

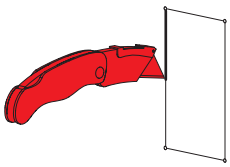
- Do NOT install the thermostat in an area where it can be exposed to water or rain.
- Avoid locations where there are air drafts (top of staircase, air outlet), dead air spots (behind a door), direct sunlight or concealed chimney or stove pipes.
- For a new installation, choose a location about 1.5 m (5 ft.) above the floor.
- Install the thermostat on an inside wall facing the heater.
- Keep the thermostat's top and bottom air vents (openings) clean and unobstructed at all times.

Two mounting plates are provided for mounting the thermostat on the wall or on a junction box.

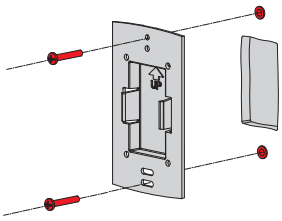
1) Recessed mounting on a wall



1a) Mark the four corners and join them to create a rectangular outline.

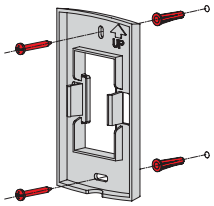


1b) Cut along the outline to create an opening in the wall.



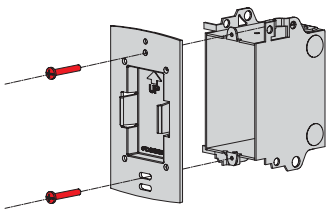
1c) Secure the mounting plate to the wall using provided wall anchors and screws.

1) Mounting on a wall



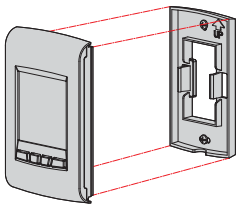
Secure the mounting plate to the wall using provided wall anchors and screws.

1) Mounting on a junction box



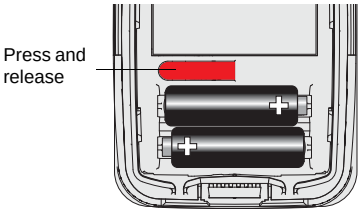
Secure the mounting plate to a junction box using provided mechanical screws. ***Use the mounting plate that has no center opening***.

2) Installing faceplate

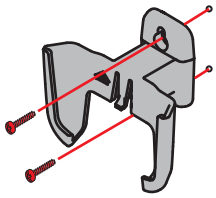


Complete the thermostat installation by pressing the faceplate against the mounting plate.

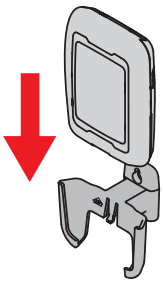
3) Install the outdoor sensor (optional)



Hold sensor where you intend to install it and press the **CONNECT** button. If sensor is communicating with the thermostat, the latter will display the outdoor temperature.



Mount the sensor vertically on an exterior wall, at least 6 inches below any overhang. Choose a location protected from direct sunlight.



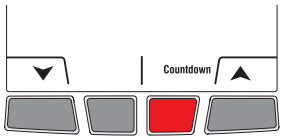
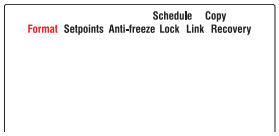
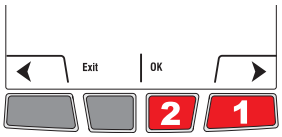
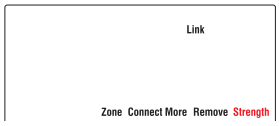
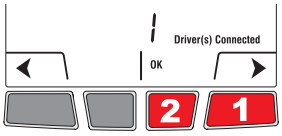
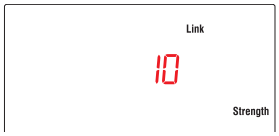
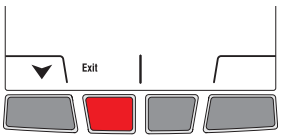
Place sensor securely in bracket, facing away from wall.

Error codes

Display	Description
LO	The indoor temperature is below 0°C (32°F).
HI	The indoor temperature is above 60°C (140°F).
- -	The temperature reading is currently unavailable or the sensor is defective.
E27	If the error does not clear after 15 seconds, the thermostat is defective and must be replaced.
E128	Call customer assistance. The wireless network setup must be redone.
E129	Attempting to connect incompatible wireless devices.
E130	Invalid address. Call customer assistance.
E134	Low signal strength. Move wireless device to a different location and try again.
E137	Maximum number of devices is exceeded.
E138	Make sure Connected light on EIM is flashing and you are 2+ feet away from EIM.
E152	Incorrect order

Verifying the signal strength between the EIM and the thermostat

***NOTE**: If you have several EIMs linked to the thermostat, the displayed value is between the thermostat and the first linked EIM. The signal strength ranges from 0 (no signal) to 10 (strongest).*

#	Display	Button	Step
1)			From the home screen, press and hold the right center button for 5 secs.
2)			Press ▶ to select **Link** and press **OK**.
3)			Press ▶ to select **Strength** and press **OK**.
5)			The signal strength is displayed. Press **Exit** once to return to installer's setup menu or twice to return to home screen.

Replacing wireless devices

Thermostat

To replace the thermostat, install batteries in the new thermostat (see page 6) and link it to the wireless network (see page 6). To customize the thermostat, see page 10.

***NOTE**: If you have more than one EIM in the wireless network, you can link the thermostat from any of the EIMs.*

Remote control or outdoor sensor

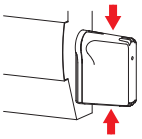
To replace the remote control or the outdoor sensor, install batteries in the new device (see page 6) and link it to the wireless network (see page 9).

***NOTE 1**: If you have more than one EIM in the wireless network, you can link the wireless device from any of the EIMs.*
***NOTE 2**: If you have more than one wireless thermostat, link the remote control or the outdoor sensor to the wireless network of each wireless thermostat.*

Equipment interface module (EIM)
To replace an EIM, undo the current network and create a new one as follows:

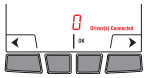
***NOTE**: Skip steps 1 and 2 if you have only one EIM in the wireless network.*

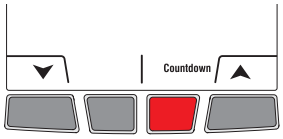
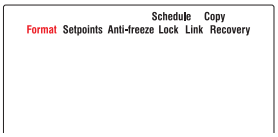
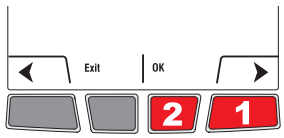
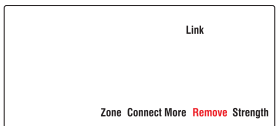
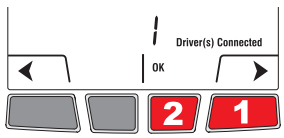
1) Remove the antenna cover from each EIM in the network: place one finger on the top and another finger on the bottom (as shown by red arrows), squeeze the cover and pull it out.



2) Press, for 10 seconds, the **CONNECT** button on any EIM that has a green light. Repeat this step until the green light on every EIM in the network is off.

3) If the thermostat displays **0 device connected** as shown on the right, go to step 7. Otherwise proceed with steps 4 to 6.



#	Display	Button	Step
4)			From the home screen, press and hold the right center button for 5 secs.
5)			Press ▶ to select **Link** and press **OK**.
6)			Press ▶ to select **Remove** and press **OK**. The thermostat will display **0 device connected**.

7) If you have a remote control, remove its link from the wireless network. (This will also remove the remote control link to any other wireless network.)
8) Remove the defective EIM and install a new one (see pages 3 - 5).
9) Create a wireless network and link all wireless devices (EIM, thermostat, outdoor sensor and remote control). See pages 6 to 10.

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Specifications & replacement parts

Thermostat

Temperature setpoint range:	41°F - 86°F (5°C - 30°C)
Temperature setpoint resolution:	1°F (0.5°C)
Temperature display range:	32°F - 104°F (0°C - 40°C)
Temperature display resolution:	1°F/ 0.5°C standard
Heating cycle rate:	15 minutes
Programming:	5-2 days, 7 days, 1 day or Non-Programmable

Operating Ambient Temperature

Thermostat:	32°F - 122°F (0°C - 50°C)
Remote control:	32°F - 120°F (0°C - 48.9°C)
EIM (relay):	-4°F - 158°F (-20°C - 70°C)
EIM (antenna):	-4°F - 158°F (-20°C - 70°C)
Outdoor air sensor:	-40°F - 140°F (-40°C - 60°C)

Operating Relative Humidity

Thermostat:	5% - 90% (non-condensing)
Remote control:	5% - 90% (non-condensing)
EIM (relay):	5% - 95% (non-condensing)
EIM (antenna):	5% - 95% (non-condensing)
Outdoor air sensor:	0% - 100% (condensing)

Physical Dimensions (height, width, depth)

Thermostat:	5.13 x 3.22 x 1.14 inches (130 x 82 x 29 mm)
EIM (relay):	3.03 x 2.49 x 1.28 inches (73 x 63 x 29 mm)
EIM (antenna):	2.89 x 2.63 x 1.16 inches (71 x 62 x 33 mm)
Outdoor air sensor:	5.00 x 3.50 x 1.68 inches (127 x 89 x 43 mm)

Electrical Ratings (EIM)

Supply:	120/208/240 VAC, 50/60 Hz
Minimum load:	0.4 A (resistive only)
Maximum load:	12.5 A (resistive only)

Accessories & Replacement Parts

Item	Part Number
Equipment Interface Module (EIM)	TLM1110R1000
Remote control	REM5000R1001
Outdoor air sensor	C7089R1013
Antenna cover (white)	50055751-002
Antenna cover (almond)	50055751-004

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Regulatory information

FCC Compliance Statement (Part 15.19) (USA only)
This device 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 undesired operation.

FCC Warning (Part 15.21) (USA only)
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Interference Statement (Part 15.105 (b)) (USA only)
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

EIM, thermostats and outdoor sensor
To comply with FCC and Industry Canada RF exposure limits for general population/ uncontrolled exposure, the antenna(s) used for these transmitters must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Remote control
This portable transmitter with its antenna complies with FCC and Industry Canada RF exposure limits for general population/uncontrolled exposure. This device must not be co-located or operating in conjunction with any other antenna or transmitter.

Section 7.1.3 of RSS-GEN
Operation is subject to the following two conditions:

1) This device may not cause interference, and

2) This device must accept any interference, including interference that may cause undesired operation of the device.

Section 7.1.2 of RSS-GEN
Under Industry Canada regulations, this radio transmitter may only operate using an antenna of type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that necessary for successful communication.

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