EMS Si - Installing the EMS Si

INSTALLING THE EMS Si

There are 5 steps to install the ecobee EMS Si:

Step 1. Power Off HVAC Equipment

Step 2. Remove Existing Thermostat

Step 3. Install the EMS Si

Step 4. Connect the Wiring

Step 5. Power On HVAC Equipment

Step 1. Power Off HVAC Equipment

Before disconnecting the existing thermostat, or installing the EMS Si, disconnect the power to the heating and air conditioning equipment.

Step 2. Remove Existing Thermostat

Disconnect the wires to the existing thermostat and remove it from the wall (if you are installing the EMS Si in the same location).

Step 3. Install the EMS Si

The ideal location for the thermostat is approximately 5 ft (1.5 m) above floor level in the main living area.

Do not install the thermostat:

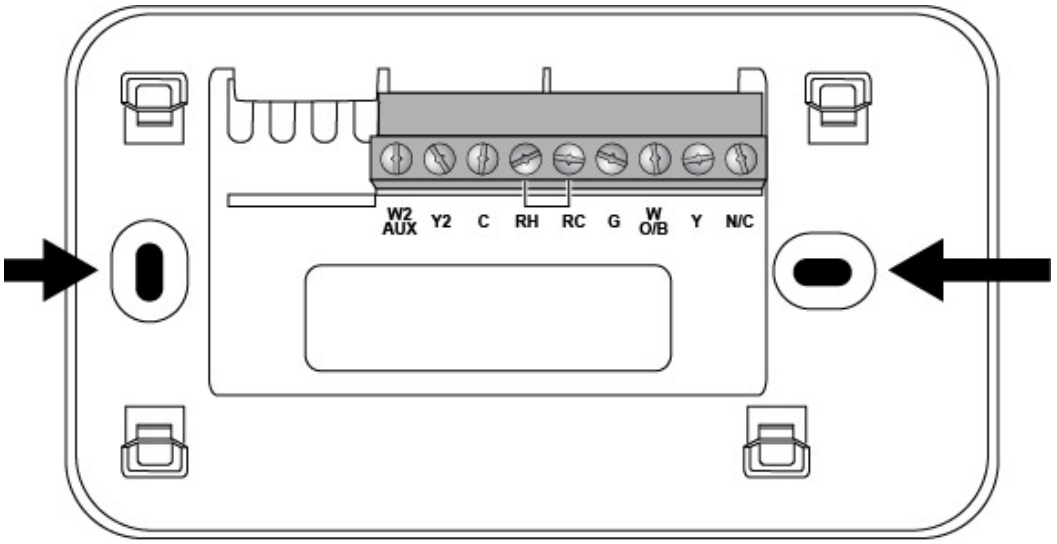
- Close to sources of heat such as incandescent lights
- Near supply heating/cooling sources
- In direct sunlight
- On exterior, non-insulated or poorly insulated walls
- In the kitchen or other areas of potentially high heat and/or humidity
- In an area that could restrict air flow

To install the thermostat:

1. Gently separate the backplate from the thermostat.

2. Place the thermostat backplate on the wall. Make sure that any existing wires can be inserted through the opening for the wiring.

3. Using the backplate as a template, mark the location of the mounting holes on the wall as shown below.



4. Move the backplate out of the way and make holes where indicated in step 3. The mounting holes can accommodate a #6 pan-head screw. It is recommended to use the included fasteners to ensure proper fitting of the front housing.

5. Use the included drywall plugs (or other suitable anchors) to ensure the thermostat can be mounted securely to the wall.

6. Fasten the backplate to the wall using the screws provided (or other suitable screws).

Step 4. Connect the Wiring

You need to use low-voltage cable to connect the thermostat to the HVAC equipment. Check the wiring diagrams on pages 10 to 19 for the number of wires required.

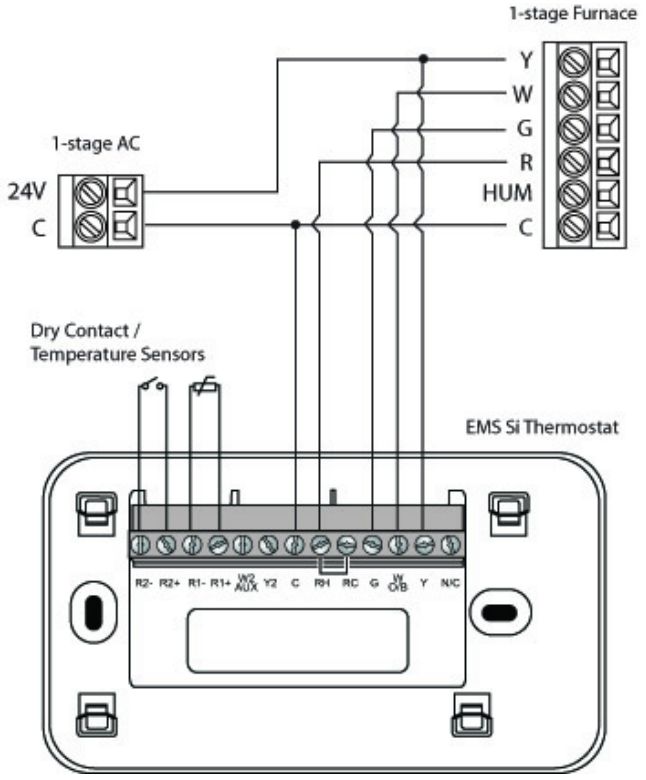
Note: There is a factory installed jumper between R/H and R/C. Ensure any unused wires do not have exposed bare copper conductors.

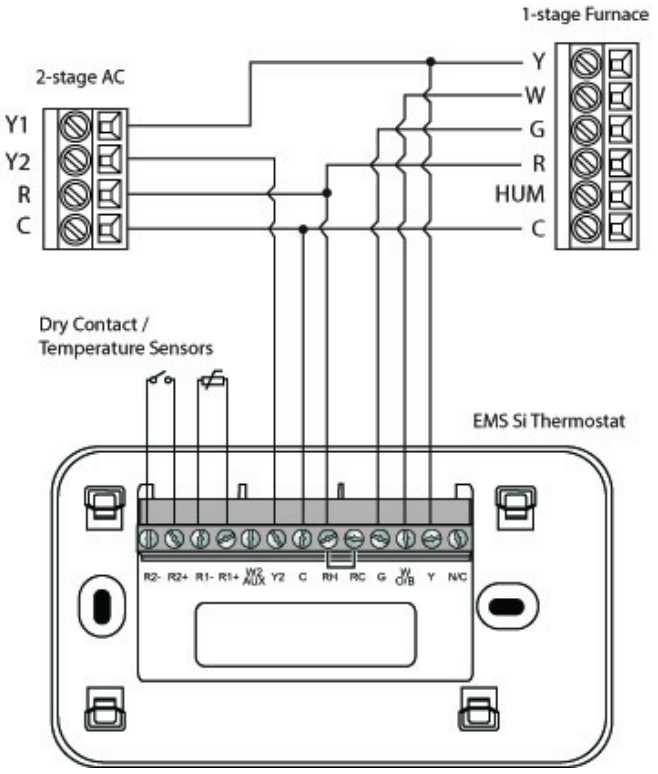
To connect the thermostat to the equipment:

1. Connect the wires as shown in the wiring diagrams.

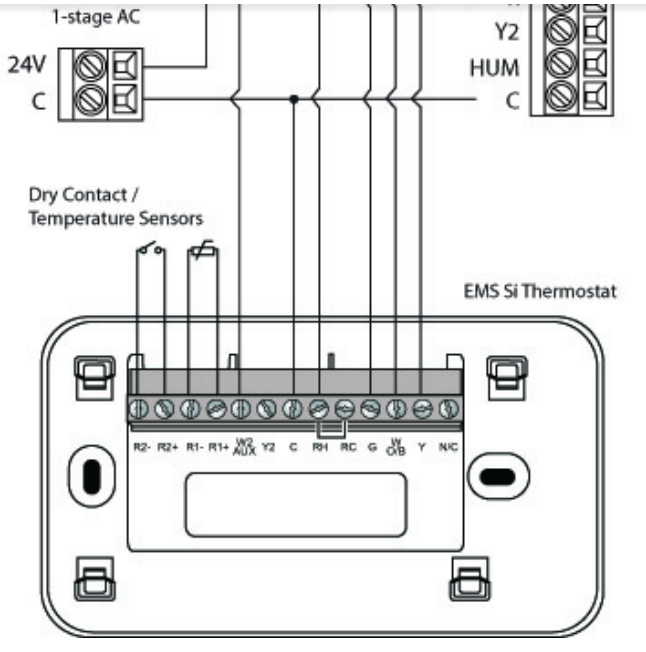
2. Attach the EMS Si to the backplate. Ensure that the pins on the thermostat align with the terminal block on the backplate.

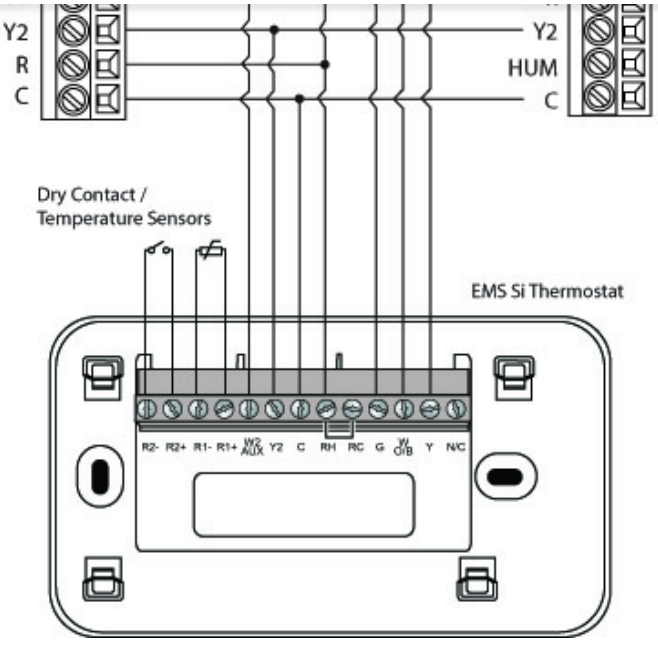
Conventional Systems



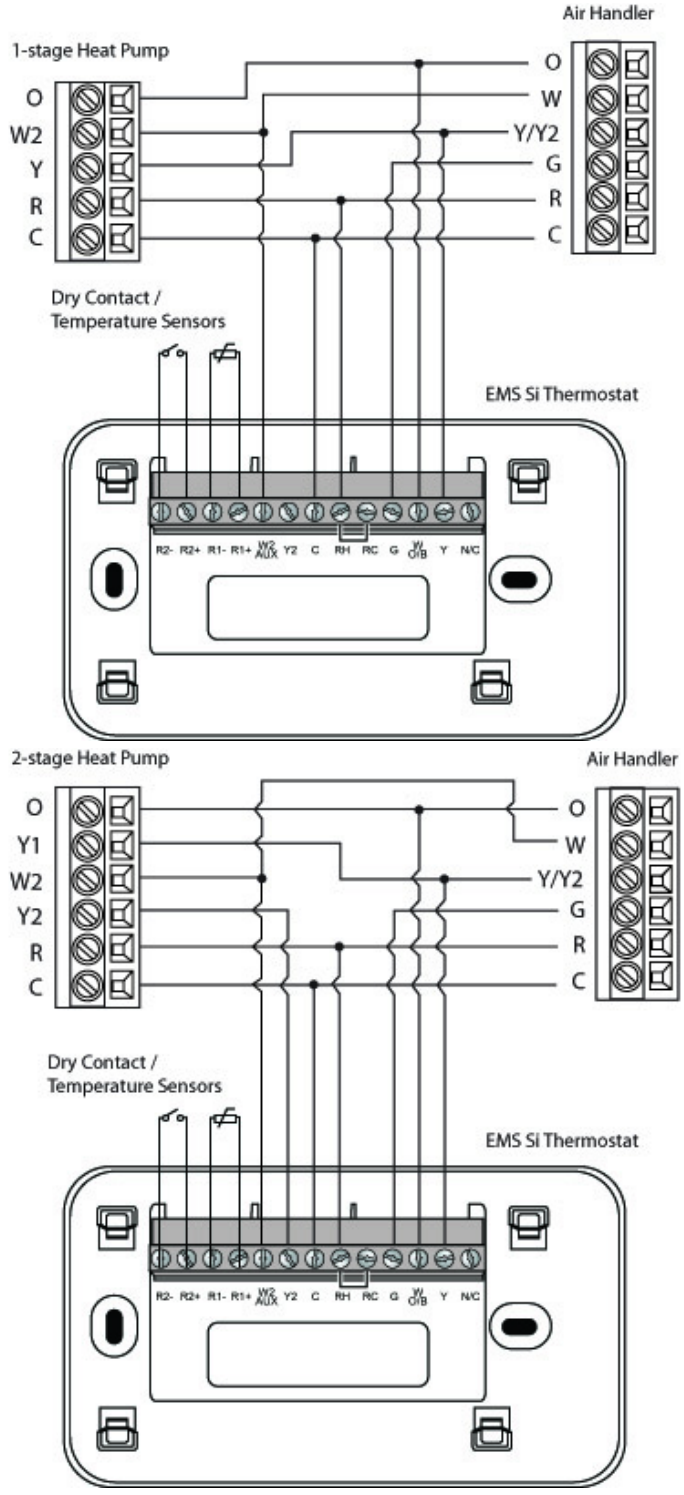


Commercial Thermostats

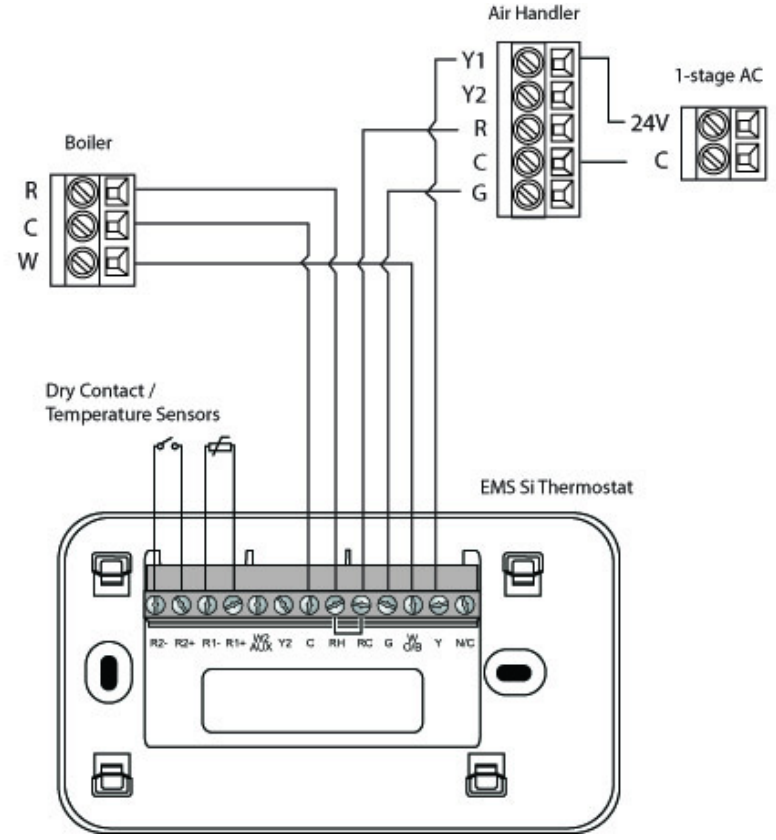


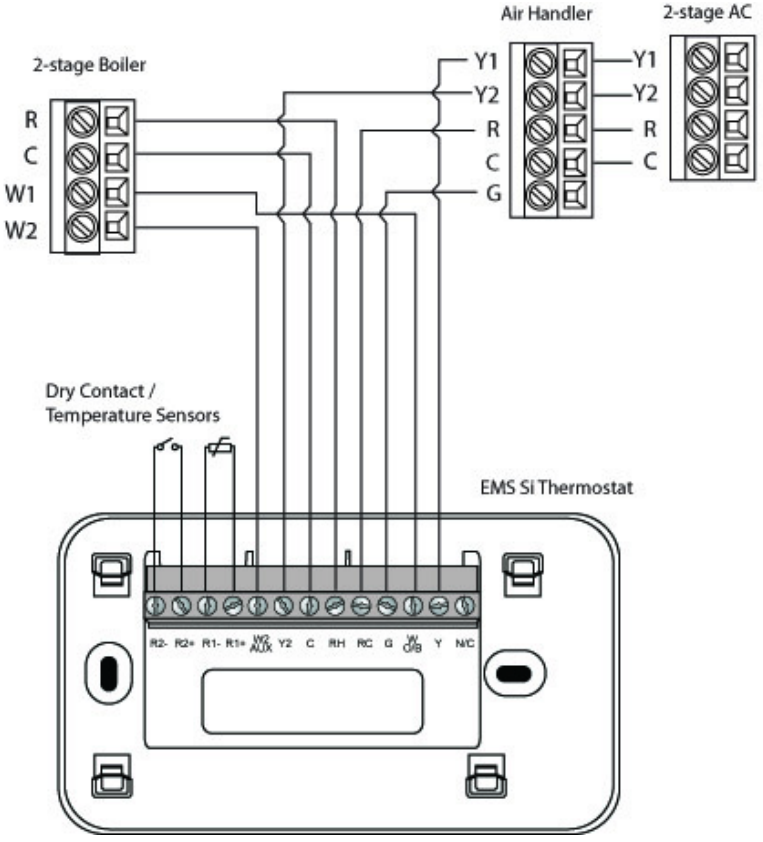


Heat Pump Systems



Boiler Systems





Step 5. Power On HVAC Equipment

After you've completed the wiring, you can apply power to the heating and air conditioning equipment. The EMS Si receives power from the equipment and will automatically power on.

NAVIGATING THE MENUS

The EMS Si has an easy-to-read color screen that displays all the information you need to configure the thermostat. Use the navigation buttons on the right to quickly change the temperature, access features, and configure settings.

Using the Navigation Buttons

The navigation buttons located on the right of the EMS Si let you select options and control the EMS Si.

▲ (*up)* On the Home screen, press ▲ to increase the temperature set point by 1°F (0.5°C). For menus, press ▲ to move up.

▼ *(down)* On the Home screen, press ▼ to decrease the temperature set point by 1°F (0.5°C). For menus, press ▼ to move down.

◄ (*left)* On the Home screen, if Auto mode is enabled, press ◄ to switch between heat and cool set points. For menus, press◄ to go back to the previous screen.

► *(right)* On the Home screen, if Auto mode is enabled, press ► to switch between heat and cool set points. For menus, press ► to choose the currently highlighted option.

OK On a menu screen, press *OK* to choose the currently highlighted option. If a configuration option is selected, pressing *OK* will keep its new value and return back to the previous screen.

MENU Pressing *MENU* displays a list of all available options. If a menu is currently displayed, pressing *MENU* will cancel any unsaved changes and return to the Home screen.

On a menu screen, press *BACK* to go back to the previous screen.

On-Screen Keyboard

If you need to type in any information, an on-screen keyboard will appear. To enter a letter or number, move to the character by pressing the arrow keys and then press *OK* to select it. To keep your changes, select Save

CONFIGURING THE HVAC SETTINGS

The first step after installing the EMS Si is to configure the settings for the various devices (such as a furnace or air conditioner) that are being connected.

Equipment

To configure the equipment settings:

From the Home screen, press *MENU*.

Select *Settings* ▶ *Installation Settings*. Select *Equipment*.

CONFIGURE THE DEVICES CONNECTED TO THE EMS SI.

THE EQUIPMENT SETTINGS LET YOU CONFIGURE THE DEVICES CONNECTED TO THE THERMOSTAT.

Heat Pump

This section lets you configure a heat pump with up to 2 heat/2 cool stages plus an auxiliary heat source.

Geothermal Heat pump Select Yes if you are using a geothermal heat pump. This helps the thermostat determine optimum performance and default settings. If you select No, the system will optimize the settings for an air-to-air heat pump.

OB energize on cool If you choose Yes, the reversing valve output (O/B terminal) will activate when there is a call for cooling. If you select No, the relay will activate when there is call for heat.

Min Cycle Off Time Configures the minimum compressor off time between cycles (240 to 900 seconds).

Min Outdoor Temp Disables the compressor when the outside air temperature reaches the configured minimum setting. This performs two functions. It prevents the compressor from running when the outdoor temperature is too low, thus resulting in damage to the compressor. You can also set this value to determine when you want the auxiliary heat (if installed) to engage to help meet the set temperature. The temperature range is adjustable from 0 to 65 °F (–17.8 to 18.3 °C) or can be completely disabled. Note: You need an internet connection for this feature to operate properly.

Allow HP with Aux Heat If you select Yes and there is a source of auxiliary heat, it will turn on in addition to the heat pump. The heat pump will be energized for the first 30 minutes. If, after 30 minutes, the set point has not been met, the auxiliary heat will be energized to assist the heat pump in meeting the load.

If you select No, the heat pump will be energized for up to 2 hours. If after 2 hours the set point has not been met, the thermostat will shutdown the heat pump and energize the auxiliary heat to meet the set point. This option should also be used for installation where the heat pump evaporator coil is upstream from the source of auxiliary heat.

This setting is only available the Comp to Aux Temp Delta and Comp to Aux Runtime settings are both set to Auto (default)

Furnace

Allows you to enable and configure up to a 2-stage conventional heat source. If you have selected a heat pump as your primary source, this feature allows you to configure the 1st stage of auxiliary heat connected to the system.

Furnace Type Allows you to configure the type of furnace. This helps the thermostat optimize its algorithms based on the type of fuel and typical characteristics of the chosen system. Choose the option that best represents the type of heating system installed.

Heat Fan Control Configures the furnace fan to be controlled by the EMS Si or the HVAC system during heat cycles. Normally the HVAC system controls the fan during heat cycles.

Air Conditioner

Configures up to 2 stages of air conditioning. If you require a second stage, you must enable the Y2 relay.

Thresholds

To configure threshold settings: From the Home screen, press *MENU*.

Select *Settings* ▶ *Installation Settings*. Select *Thresholds*.

Configure the temperature threshold settings.

This section configures the temperature and time thresholds associated with the heating and cooling equipment.

You must configure the Equipment settings before setting the thresholds. Only the applicable threshold settings will be displayed (i.e. if no air conditioner is configured, you will not see the options related to air conditioners).

Allow Auto Heat/Cool

Enabling this option allows the user to select auto change-over as a system mode.

Heat/Cool Min Delta

The minimum difference between the heat mode set temperature and the cool mode set temperature when the system mode is in auto change-over. The delta is adjustable from 2 to 10 °F (1.1 to 5.5 °C). The default value is 5 °F (2.8 °C).

Compressor Settings

Min Cycle Off Time Configures the compressor off time between cycles. This ensures the compressor does not short cycle (which could affect the operating life of the system). This time is adjustable from 240–900 seconds.

Min Outdoor Temp Configures the minimum outside air temperature at which the compressor will be disabled. This performs two functions. It prevents the compressor from running when the outdoor temperature is too low, thus resulting in damage to the compressor. You can also set this value to determine when you want the auxiliary heat (if installed) to engage to help meet the set temperature. The temperature range is adjustable from 0 to 65 °F (–17.8 to 18.3 °C) or can be completely disabled. Note: You need an internet connection for this feature to operate properly.

Aux Heat Settings

Max Outdoor Temperature Configures the maximum outdoor temperature threshold. Above this level, the auxiliary heat will not be activated. The temperature is adjustable from 0 to 80 °F (26.5 °C) in increments of 0.5°F (0.5°C). The default value is 70°F (21°C).

Common Heat/Cool Settings

Heat Differential Temp The minimum difference between the current temperature and set temperature before the system calls for heat. A smaller difference means shorter cycle times, whereas a larger difference results in longer cycle times. The temperature range is adjustable form 0 to 3 °F (-17.5 to 26.5 °C) in 0.5°F (0.5°C) increments.

Heat Dissipation Time The amount of time the fan will run after the heat set point has been reached and the call for heat has been turned off. Running the fan for a period of time allows for any heated air left in the ducts to circulate throughout the building. The time is adjustable from 0 to 900 seconds. The default value is 30 seconds.

Cool Differential Temp The minimum difference between the current temperature and set temperature before the system calls for cool. A smaller difference means shorter cycle times, whereas a larger difference results in longer cycle times. The temperature range is adjustable from 0 to 3 °F (0.3 to 1.7 °C) in 0.5°F (0.3°C) increments.

Cool Dissipation Time The amount of time the fan will run after the cool has been turned off. Running the fan for a period of time allows for any cooled air left in the ducts to circulate throughout the building. The time is adjustable from 0 to 900 seconds. The default value is 30 seconds.

Advanced Settings

These options customize how long each stage will run before the next stage turns on. You may also program when a particular stage is turned on based on the temperature delta between the set temperature and the current temperature.

Reverse Staging If enabled, the thermostat will cycle down from the higher stages so that as it approaches set point it will only be running in stage 1. The HVAC equipment will start in stage 1. As the stage 1 temperature delta is exceeded, the second stage will engage. Once the equipment has brought the current temperature back to within the heat or cool differential setting, stage 2 will disengage and stage 1 will remain running until the set point is meet.

Stage 2 Temp Delta The minimum difference between the current temperature and the set temperature that will activate the auxiliary heat (regardless if the maximum run time of the previous stage was reached). Options are Auto (default) and 1 to 10 °F (0.6 to 5.6 °C).

Stage 1 Max Runtime The maximum amount of time stage 1 will run before engaging the next stage. Options are Auto (default) and 10 to 120 minutes.

Comp to Aux Temp Delta The maximum amount of time this stage will run before engaging the next stage. Options are Auto (default) and 1 to 10 °F (0.6 to 5.6 °C).

Comp to Aux Runtime The minimum difference between the current temperature and the set temperature that will activate this stage (regardless if the maximum run time of the previous stage was reached). Options are Auto (default), Disabled, and 1 to 10 °F (0.6 to 5.6 °C).

Cool Min On Time Sets the minimum equipment run time in cool mode: 1 to 20 min (default is 5 min).

Heat Min On Time Sets the minimum equipment run time in heat mode: 1 to 20 min (default is 5 min).

Temp Correction

Lets you program an offset between the real temperature at thermostat and the displayed temperature. If you find that the temperature where the thermostat is located does not represent the room temperature, change the offset to compensate for the difference. The correct temperature is adjustable from +/- 10°F in 0.5°F (0.3°C) increments.

Installer Code

To prevent accidental modifications to the installation settings, you can enable a 4-digit installer code. This code is pre-programmed to 3262.

Test Equipment

To test the equipment:

From the Home screen, press *MENU*.

Select *Settings* ▶ *Installation Settings*. Select *Test Equipment*.

Select *OK*.

- TEST THE EQUIPMENT CONNECTED TO THE THERMOSTAT BY TURNING EACH COMPONENT ON AND OFF.

- THESE OPTIONS LET YOU TEST THE WIRING AND CONNECTIONS OF THE DEVICES CONNECTED TO THE THERMOSTAT BY TURNING THEM ON OR OFF.
- THE EQUIPMENT WILL TURN OFF WHEN YOU EXIT THE MENU.

Warning: Compressor protection and minimum run-time features are not enforced while in this mode.

Reset HVAC Equipment Settings

YOU CAN QUICKLY RESTORE ALL HVAC EQUIPMENT SETTINGS ON THE EMS SI BACK TO THEIR FACTORY DEFAULTS. ANY USER SETTING (NOT RELATED TO THE EQUIPMENT INSTALLED) WILL REMAIN UNCHANGED.<!--?XML:NAMESPACE PREFIX = "O" NS = "URN:SCHEMAS-MICROSOFT-COM:OFFICE:OFFICE" /-->

If you need to reset the entire thermostat back to its original factory default settings, including user settings and registration, select Reset All Settings instead.

To reset the EMS Si:

From the Home screen, press *MENU*.

Select *Settings* ▶ *Reset*. Select *HVAC Equipment Settings*.

Select *Yes*.

Performing a Hardware Reset

In rare circumstances, static electricity or power surges may interrupt the operation of the thermostat, forcing a hardware reset.

Rebooting the EMS Si

You can reboot the EMS Si by pressing the physical hardware reset button, located through an opening in the bottom left corner of the EMS Si. Rebooting will not alter programming or configuration options.

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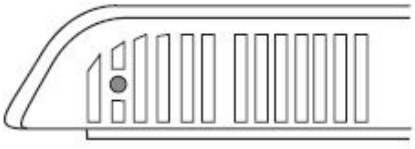

Reset button

Manual_EMSSi.pdf
2 MB

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✓ Yes × No

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Still need help? Our support team is waiting to help you. Get in touch.

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support@ecobee.com

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