SMART THERMOSTAT
Installation Manual

ecobee
green made easy

CONTENTS

PERFORMING A HARDWARE RESET

In rare circumstances, static electricity or power surges may interrupt the operation of the Smart Thermostat or Equipment Interface, forcing a hardware reset.

Resetting the Smart Thermostat
You can reset the Smart Thermostat by pressing the hardware reset button, located through an opening in the top left corner of the thermostat, as shown below.
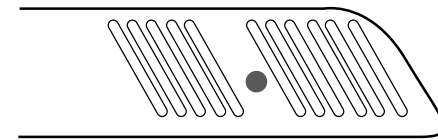
Reset button indicated insolid colour

Pressing the hardware reset button will not alter programming or configuration options.

Resetting the Equipment Interface
To reset the Equipment Interface, first remove the front cover to expose the reset switch (see below).
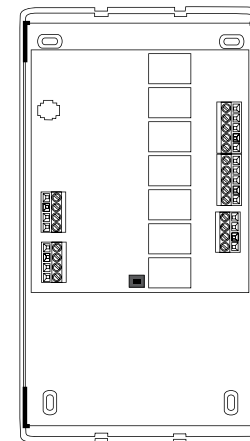
Reset swith indicated in solid colour

Press the button to reset the relays to their inactive state. They will turn on AFTER after the Smart Thermostat resends the required commands. This may take up to two minutes.

Temperature Alerts
The Smart Thermostat can generate alerts when the temperature in the home reaches a pre-programmed level. This protects the home from damage due to freezing and/or excessive heat.

If you program this option, an alert will display on the thermostat. If the user has an account on **www.ecobee.com**, an e-mail can be sent.

Low Temperature Alert - Select this item to set the temperature at which the Smart Thermostat will generate a Low Temperature Alert. The range can be:

- Off – no alert will be generated
- Set temperature range of 40 – 60°F (4.5 – 15.5°C)
- The default setting is 50°F (10°C).

High Temperature Alert - Select this item to set the temperature at which the Smart Thermostat will generate a High Temperature Alert message. The range can be:

- Off – no alert will be generated
- Set temperature range of 90 – 100°F (32 – 35°C).
- The default setting is Off.

Welcome

GETTING STARTED

Thank you for supporting ecobee, the Smart Thermostat that provides your customers with freedom and flexibility in managing their home environment.

The ecobee Smart Thermostat has been designed in partnership with HVAC technicians to ensure that the installation process is simple and efficient. This step-by-step Installation manual will walk you through all aspects of the installation process.

To ensure an on-going service relationship with your customers, please complete your company profile information in the Technician Information – Installer Settings section during installation.

The ecobee Team.

Technical support

Our technical support team is available to answer your questions at **1-877-9-ecobee**, or on the web at **www.ecobee.com/technician.**

Before you begin

This product is intended to be installed by trained, service professionals in all indoor residential environments.

This manual explains the procedures for installing the ecobee Smart Thermostat. Please read it carefully before beginning the installation.

For information on how to operate the ecobee Smart Thermostat, please see the ecobee User's Guide.

The ecobee Smart Thermostat consists of three parts
 (see images below):
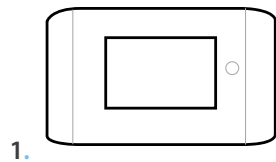
1. A Smart Thermostat to be mounted on the homeowner's wall.

1.

2. An Equipment Interface Module to be mounted in the homeowner's utility room that connects to the heating, cooling and ventilation equipment.
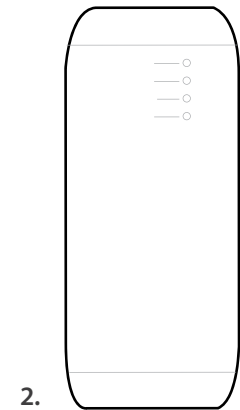
**3.** A 12-volt DC power adapter.

Before beginning the installation, please take a moment to ensure your package is complete. It should contain:

2.

- One ecobee Smart Thermostat
- One Equipment Interface Module
- One 120-volt AC – 12-volt DC plug-in power supply
- A Quick Start Guide
- A User Manual
- An Installation Manual

Caution: Disconnect electric power to the system before installing this product. Failure to do so could result in electric shock and/or equipment damage.

3.

Mercury Notice: This product does not contain mercury. If you are replacing a product that does contain mercury please contact your local waste management authority for disposal instructions. Do not discard the old product in the regular trash.
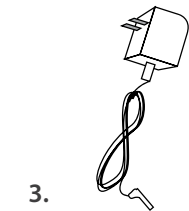
To configure reminder alerts:

From the Home Screen, press **More**.

Press **Settings** and Select **Reminders** from the list.

Configuring reminder alerts

The Reminders list displays reminders and alerts, described below. Use the scroll bar at the right of the list to see all settings.

Maintenance
The Maintenance reminder generates an alert telling the homeowner that regularly scheduled maintenance is required.

This alert, along with your contact information (if you programmed the information into the system) will be displayed on the touch screen. If the homeowner enrolls with **www.ecobee.com,** this reminder will also be e-mailed to them.

Select this item to turn the reminder on or off, to show the date of the last service and to set a reminder interval between 1 and 24 months.

Furnace Air filter
The Furnace Air Filter reminder generates an alert for cleaning or changing the furnace air filter.

Select this item to turn the reminder on or off, and to select the reminder interval (in hours or calendar months). This reminder also displays the date of the last filter change.

Humidity Filter
The Humidity Filter reminder generates an alert for cleaning or changing the humidity filter. Select this item to turn the reminder on or off, and to select the reminder interval (in hours or calendar months). This reminder also displays the date of the last filter change.

Note: If a humidifier or dehumidifier is not configured in Accessory Relays, this option will not be displayed.

Ventilator Filter
The Ventilator Filter reminder generates an alert for cleaning or changing the ventilator filter.

Select this list item to turn the reminder on or off, as well as select the reminder interval (hours or calendar months). This reminder also displays the date of the last filter change.

Note: If a ventilator is not configured in the Accessory Relays, this option will not be displayed

In any of the screens within this section, the equipment will turn off when you select Done.

Detectors

This section will allow you to configure the detector inputs on the Equipment Interface. This can be used to connect optional flood sensors, or other leak detection devices.

Once an input has been triggered it will generate an alert on the touch screen display as well as send an e-mail if the thermostat has been registered with a web portal. Each input can be configured as normally open, where a short circuit between the IN1+ and IN1 will activate the alert, or normally closed where an open circuit will activate the alert.

To activate any input, select the input and program a name. To deactivate the input simply delete the name.

View Wiring Diagram

This feature will allow you to view the terminal connections of the equipment interface as determined by the configuration options selected during this installation process.

Technician Info

This section will allow you to enter your contact information. This will be displayed to the homeowner in the Settings- About menu, or when any alert is shown on the touch screen. You can enter your;

- Company name
- Phone number
- E-mail address
- Website address

Reset Installation Settings

Selecting this option will restore all the installation settings back to the factory default. Any user setting (not related to the equipment installed) will remain unchanged.

Reset All Setting

Selecting this option will reset the entire Smart Thermostat system back to the original factory default settings.

HVAC System compatibility information

ecobee is designed to operate low-voltage heating and cooling systems. It is not designed for use with line-voltage or millivolt heating and cooling systems.

ecobee supports control of up to four heating stages and two cooling stages.

It also supports control of humidifiers, dehumidifiers, heat recovery ventilators and energy recovery ventilators.

Equipment Description

Gas/Oil/Electric conventional heating (up to three stages)	Yes
Heat pump with auxiliary heat (up to four stages)	Yes
Standard electric cooling (up to two stages)	Yes
Boilers	Yes
Central humidifier	Yes
Central dehumidifier	Yes
Heat Recovery Ventilator (HRV)	Yes
Energy Recovery Ventilator (ERV)	Yes
Sensors with dry contact outputs	Yes

Approvals

This product was designed and built in accordance to RoHS directive 2002/95/EC and contains no hazardous substances as defined by this directive.

The Smart Thermostat is pre-programmed to use EnergyStar ™ program settings.

Power supply meets EPA C.E.C Level IV and E.C CoC No Load power Consumption requirements. It is also safety approved to UL/cUL standards.

FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class B digital devices, 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 instruction manual, 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 more 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.

Warning: Changes or modifications not expressly approved by ecobee Inc. could void the user's authority to operate the equipment

To satisfy FCC/IC RF exposure safety requirements, a separation distance of 20 cm or more should be maintained between this device and persons. To ensure compliance, operations at closer than this distance is not allowed.

FCC ID: WR9EBSTAT   IC: 7981A-EBSTAT

Specifications

Temperature ranges
Set point: 50 – 95°F (10 – 35°C)
Display: 40 – 100°F (5 – 37°C)
Sensitivity: +/- 1°F (0.5°C)
Operating: 32 – 130°F (0 – 55°C)

Humidity Range
Set point: OFF to 50% R.H
Display: 0 - 90% R.H
Sensitivity: +/- 5% R.H.
Operating: 5 – 95% R.H

Dimensions
Smart Thermostat: 5.5"W x 3.25"H x 1"D (139.5mm H x 82.5mm W x 25mm D)
Equipment Interface: 4.6"W x 10"H x 1.3"D (118mm W x 254mm H x 32mm D)

Compressor Min Temp
The minimum outside temperature after which the system will not activate the compressor (the Smart Thermostat must be connected to the internet for this feature to function)

Max Heat Set Back
Sets the maximum set back temperature offset used when the Smart Thermostat determines the set backs

Heat Differential Temp
The minimum difference between the current temperature and set temperature

Heat Dissipation Time
The amount of time the fan will run after the heat has been turned off.

Max Cool Set Forward
Sets the maximum set forward temperature offset used with the Smart Thermostat determines the set forward

Cool Differential Temp
The minimum difference between the current temperature and the set temperature

Cool Dissipation Time
The amount of time the fan will run after the heat has been turned off.

Temp Correction
This will allow you to adjust the temperature displayed on the thermostat. The value selected here will be subtracted from the actual temperature sensor reading

For systems with more than one stage of heating or cooling, the Smart Thermostat will automatically determine when to turn on the next stages. It will use a combination of the difference in current temperature and set temperature and/or minimum run times of the various stages.

Test Equipment

This section will allow you to manually turn on and off the various equipment connected to the Equipment Interface in order to test the wiring and connections.

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

If more than 2 stages of heat or 1 stage of cooling is required, you must configure the Accessory relays to support the additional stages.

AC
Enables and configures an air conditioner

Accessory relays
Accessory relays are generic relays that can be configured to control the following

- 3rd stage heat
- Auxiliary 2 heat
- 2nd stage cool
- Humidifier
- Dehumidifier
- Ventilator

Note: The Smart Thermostat will automatically turn on the system fan whenever it turns on the ventilator relay

Each relay can be configured for any of these options but there can only be one of each connected per system. As you configure each relay, only the remaining options will be shown for the next relays.

- Relay ACC1- enables and configures accessory relay 1.
- Relay ACC2- enables and configures accessory relay 2.
- Relay ACC3- enables and configures accessory relay 3.

Thresholds

This section will allow you to configure the various temperature or time threshold associated with the heating and cooling equipment. You must configure the required equipment first before setting the thresholds and only the application thresholds will be shown (i.e. if no Air Conditioner is configured, you will not see the options related to air conditioners.)

Allow Auto Heat/Cool
Enable this option to allow the user to select Auto as a system mode.

Heat/Cool Min Delta
The minimum difference between the heat mode set temperature and the cool mode set temperature.

Compressor Min Time
Minimum amount of time the compressor will remain off between calls for heat/cool

Power
System Transformer – 120V 50/60Hz to 12V DC 1A, (included)
Battery – CR2032 – 3V lithium coin cell (included)

Wiring Specifications
Refer to this table to determine maximum wire lengths allowed:
Smart Thermostat to Equipment Interface

18 AWG	20 AWG	22 AWG
1250ft/380m	790ft/240m	500ft/150m

Equipment Interface to heating/air equipment

18 AWG	20 AWG	22 AWG
128ft/39m	80ft/24m	50ft/15m

Terminal description and Electrical Ratings

Terminal	Description	Voltage	Current
Y	1st stage cooling	30V AC	3A
W (O/B)	1st stage heating (or changeover)	30V AC	3A
G	Fan	30V AC	3A
W2(AUX)	2nd stage heating (or 1st auxiliary heat)	30V AC	3A
R/H	Heat transformer return	30V AC	3A
R/C	Cool transformer return	30V AC	3A
ACC1	1st accessory relay	30V AC	3A
ACC1r	1st accessory relay return	30V AC	3A
ACC2	2nd accessory relay	30V AC	3A
ACC2r	2nd accessory relay return	30V AC	3A
ACC3	3rd accessory relay	30V AC	3A
ACC3r	3rd accessory relay return	30V AC	3A
IN1 +	Input 1 +	Dry contact only	Dry contact only
IN1-	Input 1 -	Dry contact only	Dry contact only
IN2+	Input 2 +	Dry contact only	Dry contact only
IN2-	Input 2-	Dry contact only	Dry contact only
+12v	12V DC power to thermostat	8-14V DC	600mA
GND	GND to thermostat	-	-
D+	Data + communication line	-	-
D-	Data – communication line	-	-

Warranty

ecobee warrants that for a period of three (3) years from the date of purchase by the consumer, the product (excluding battery) shall be free of defects in materials and workmanship under normal use and service. During the warranty period, ecobee shall, at its option, repair or replace any defective products, at no charge for labour or materials. Any replacement and/or repaired device are warranted for the remainder of the original warranty or ninety (90) days, whichever is longer.

If the product is defective, call ecobee Customer Service at 1-877-9-ecobee. ecobee will make the determination whether a replacement product can be sent to you or whether the product should be returned to the following address: ecobee Customer Service, 333 Adelaide Street West, 6th Fl., Toronto, ON M5V 1R5, Canada.

This warranty does not cover removal or reinstallation costs and shall not apply if the damages were found to be caused by something other than defects in materials or workmanship, including without limitation, if the product:

- Was operated/stored in abnormal use or maintenance conditions;
- Is repaired, modified or altered, unless ecobee expressly authorizes such repair, modification or alteration in writing;
- Was subject to abuse, neglect, electrical fault, improper handling, accident or acts of nature;
- Was not installed by a licensed Heating Ventilating and Air Conditioning (HVAC) technician; or
- Was installed improperly.

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

ECOBEE'S RESPONSIBILITY FOR MALFUNCTIONS AND DEFECTS IN MATERIALS AND WORKMANSHIP IS LIMITED TO REPAIR AND REPLACEMENT AS SET FORTH IN THIS WARRANTY STATEMENT. ALL EXPRESS AND IMPLIED WARRANTIES FOR THE PRODUCT,

CONFIGURING THE INSTALLER SETTINGS

Installer Settings let you configure the settings related to the various devices (such as a furnace, air conditioner, humidifier, dehumidifier, or ventilator) that are connected to the Equipment Interface.

Installation Wizard

The Installation Wizard takes you step-by-step through a series of choices regarding the heating and cooling equipment intended to be connected to the Equipment Interface. Simply make the selections when prompted on the screen and press Next to advance to the next screen. Once completed you will be shown a diagram of the wiring connections as determined by the choices made during this wizard. You can press Back to go back and make any changes. Once you are satisfied with the setup press Done.

Equipment

In addition to the Installation Wizard, the equipment setting will allow you to manually configure the various devices that are connected to the Equipment Interface.

Heat Pump
Enables and configures the system for a heat pump, for either 1 or 2 stages.

O/B Energize on Cool if Yes, the reversing valve output (O/B terminal) will activate when there is a call for cooling. If you select NO, the relay will energize when there is call for heat.

Furnace
Enables and configures the heating system connected. This will allow you to configure:

- The type of furnace
- Number of Stages
- Heat Fan Control

Auxiliary Heat
Enabled and configures the auxiliary heat option only if a heat pump was selected in the first step. This will allow you to configure:

- The type of furnace
- Number of Stages
- Heat Fan Control

NAVIGATING THE SMART THERMOSTAT

Once the Smart Thermostat and Equipment Interface are powered up and working correctly, you can begin configuring the system.

The Smart Thermostat uses touch screen technology, so it's easy to navigate – just tap the icons, buttons and lists.

Note: To prevent damage to the touch screen, never use a sharp object such as a pen, to press the icons, buttons and lists.

When the screen shows a list setting an arrow on the right indicates more than two options to choose from.

If there is no arrow, then the list item only has two options. Toggle between options by pressing the list item.

In the various screens, you have three navigation choices:

Press Done to save changes and move to the next screen.

Press Cancel to go back to the previous screen without saving changes.

At any time press the ecobee button to cancel any action and return to the home screen

If you are required to enter data in the form of text, you will be presented with a keyboard

Pressing the Caps key will allow you to enter capital letters, and pressing the 123@ key will change the letters to numbers or commonly used symbols

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INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE THREE-YEAR DURATION OF THIS LIMITED WARRANTY. NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, WILL APPLY AFTER THE LIMITED WARRANTY PERIOD HAS EXPIRED. Some US states and Canadian provinces do not allow limitations on how long an implied warranty lasts, so this limitation may not apply to you.

ecobee neither assumes responsibility for nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

This warranty gives you specific rights, and you may also have other rights which vary from jurisdiction to jurisdiction. If you have any questions regarding this warranty, please write ecobee Customer Service, 333 Adelaide Street West, 6th Floor, Toronto, Ontario M5V 1R5, Canada.

INSTALLING THE SMART THERMOSTAT

There are five steps to installing the ecobee Smart Thermostat:

Step 1: Install the Equipment Interface.

Step 2: Wire the Equipment Interface.

Step 3: Install the Smart Thermostat.

Step 4: Connect the Smart Thermostat to the Equipment Interface.

Step 5: Power up both devices.

Installing the Equipment Interface

To install the Equipment interface:

1. In the homeowner's utility room or basement, select a suitable location either on a wall or on the cold air return plenum. Make sure that there is an electrical outlet within five feet of where you plan to mount the device.

   Note: Do not mount the device on the supply plenum or anywhere inside the heating or air conditioning equipment.

2. Remove the front cover of the Equipment Interface. Insert a flat-head screwdriver into one of the slots as shown below, and gently twist the screwdriver.
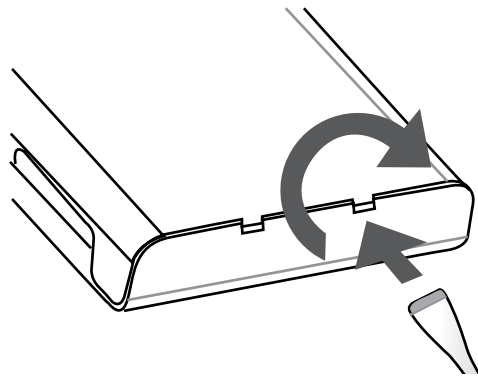
Insert a screwdriver into one of the two slots and twist gently

The LEDs operate as follows:

Power
This LED monitors the power supply of the Equipment Interface.

LED On	Power is connected to the Equipment Interface and is within the appropriate voltage range.
LED Off	Power is disconnected or has dropped below 9V.

System
This LED monitors the operation of the Equipment Interface and the connection between the W and Y terminals to their respective connections on the heating and cooling control board.

LED On	There is a fault with the Equipment Interface or the wiring to the heating or cooling equipment.
LED Off	The equipment is operational and there is connection to the heat and/or cool relay outputs (W or Y).

Line
This LED monitors the power supplied to the Smart Thermostat from the Equipment Interface.

LED ON	The voltage at the +12V and GND terminal has dropped below 7V.
LED Off	Adequate power is being supplied to the Smart Thermostat.

Communications
This LED monitors the communications between the Smart Thermostat and the Equipment Interface (i.e., the D+ and D- terminals).

LED On	The Equipment Interface and Smart Thermostat are not communicating to each other.
LED Off	The two devices are communicating properly.

Connecting power

Once you've completed the wiring of the Smart Thermostat and Equipment Interface, you can apply power to the Equipment Interface and restore power to the heating and air conditioning equipment.

To power up the ecobee Smart Thermostat and Equipment interface system, plug the power supply into a standard electrical outlet and plug the barrel connector into the Equipment Interface.
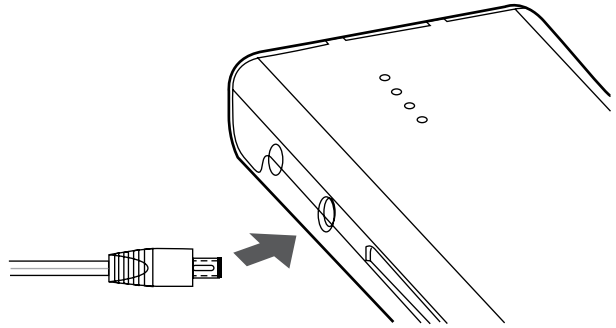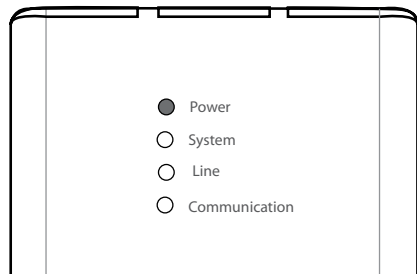

*Plug the adaptor into the equipment interface*

Equipment Interface Status LED

The Equipment Interface has four LEDs to display the status of the system.

If you've wired the system correctly, only the Power LED should be on.

○ Power
○ System
○ Line
○ Communication

Plug the adaptor into the equipment interface

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3. Place the back of the enclosure on the intended mounting surface and use it as a template to mark the location of the mounting holes, as shown below.
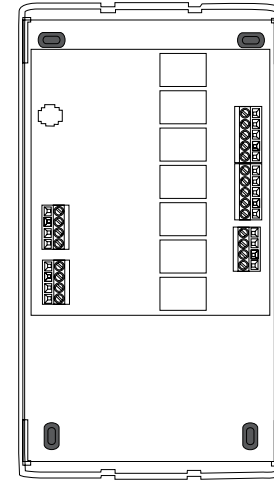
Mounting holes indicated with solid colour

4. Move the back of the enclosure out of the way and make the holes where indicated in step 3. The mounting holes can accommodate a #6 pan-head screw.

5. Use drywall plugs or other screw anchors (not included) to ensure the Equipment Interface can be mounted securely on the intended surface.

**6.** Fasten the backplate to the wall using the appropriate screws (not included).

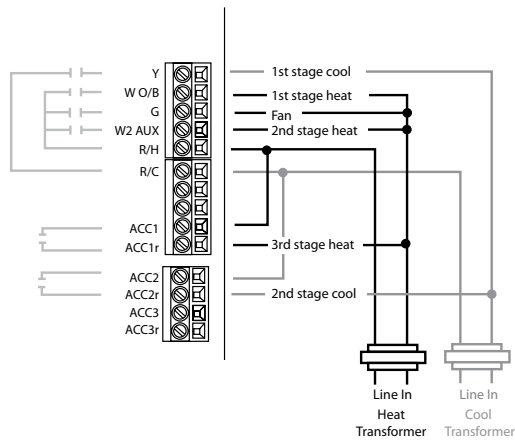### Wiring the Equipment Interface

To wire the Equipment Interface:

1. Disconnect the power to the heating and air conditioning equipment.

2. Disconnect the wires going to the existing thermostat.

3. Using the wiring diagrams below, connect the heating or air conditioning equipment to the Equipment Interface.

4. Do not apply power until you have installed and connected the Smart Thermostat. (see instructions below)

5. Do not install the front cover on the Equipment Interface at this point.

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Wiring diagrams

Below is the Equipment Interface Terminal Labels
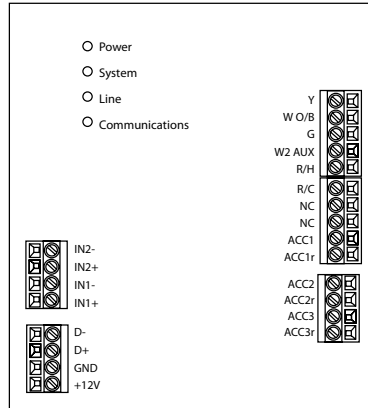
Conventional system with up to three-stage heating and two-stage cooling with one and two transformer configurations

Multi-stage heating & cooling with two transformers¹

[1] *Remove jumper between R/H and R/C*

Connecting the Smart Thermostat to the Equipment Interface

Only four wires are required to connect the Smart Thermostat to the Equipment Interface. If you are replacing a thermostat, you can use the existing wiring.

Note: Ensure that any unused wires do not have exposed bare copper.

Follow these steps to connect the thermostat to the Equipment Interface:

1. Connect the wires between the Smart Thermostat and Equipment Interface as shown below.

*configuration of wiring from Thermostat to Interface*
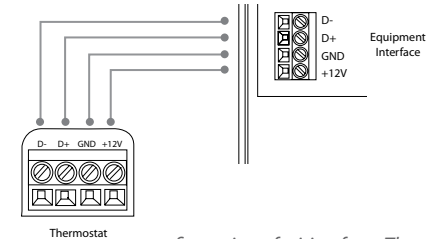
2. Once wiring is complete, insert the coin cell battery (included) into the holder. Ensure the (+) side of the battery is facing up.

3. Attach the front cover of the Smart Thermostat to the backplate. Ensure the four pins on the circuit board mate with the terminal block on the backplate as shown below.
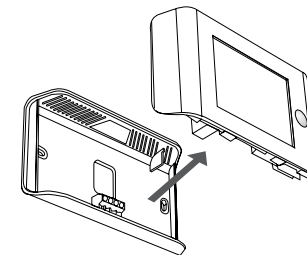
*Replace the front cover ensuring the pins meet the terminals*

4. If you haven't already done so, replace the front cover of the Equipment Interface.

**3.** Using the backplate as a template, mark the location of the mounting holes on the wall as shown below.
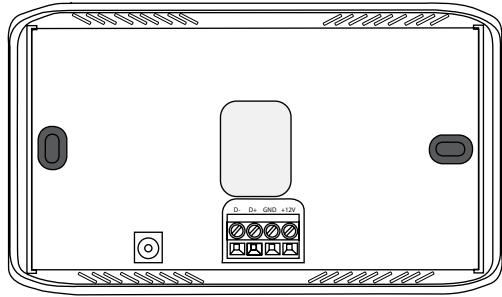
The solid colours indicate mounting holes

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.

5. Use drywall plugs or other screw anchors (not included) to ensure that the thermostat can be mounted securely to the wall.

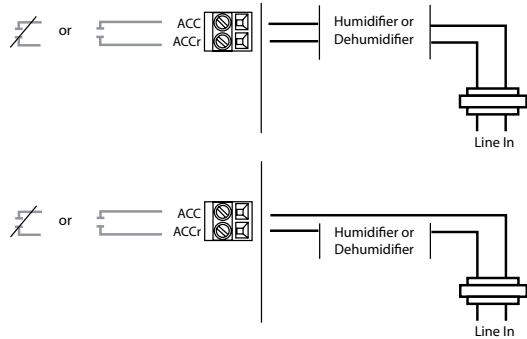**6.** Fasten the backplate to the wall using the appropriate screws (not included).
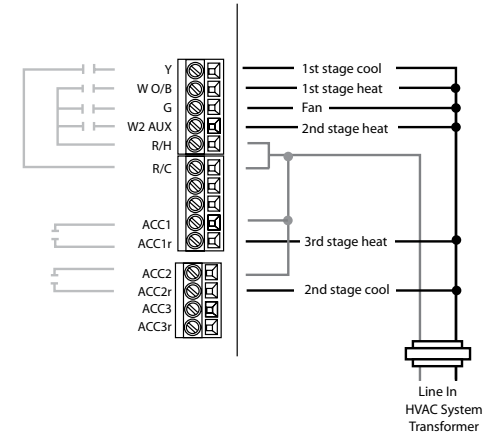
Multi-stage heating & cooling with one transformer[2]

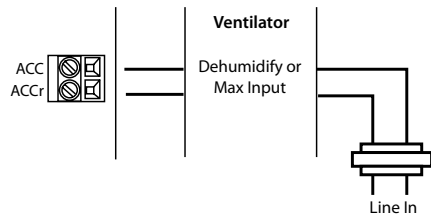Heat Pump system with up to four-stage heating and two-stage cooling
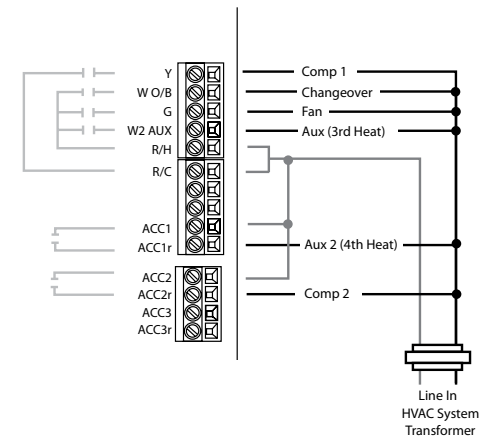
Multi-stage Heat pump heating & cooling with one transformer[2]

[2]Do not remove jumper between R/H and R/C

Powered & Non-Powered Accessories

Powered or Non-Powered Accessories

Ventilator Heat Recovery

Ventilator (Heat Recovery or Energy Recovery)
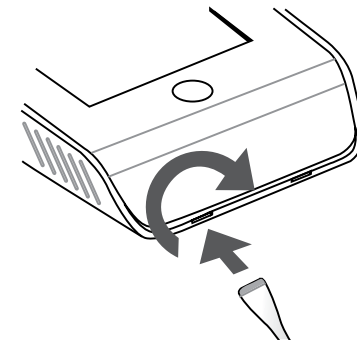
Installing the Smart Thermostat

The ideal location for the thermostat is approximately five feet above floor level in the main living area.

Do not install the thermostat:

- Close to sources of heat such as incandescent lights, television sets, or heating/cooling registers.
- 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, e.g., behind a door.

To install the Smart Thermostat:

1. Remove the front cover of the Smart Thermostat, insert a flat-head screwdriver into one of the slots as shown below and gently twist the screwdriver.

Insert screwdriver into one of two slots and twist gently

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