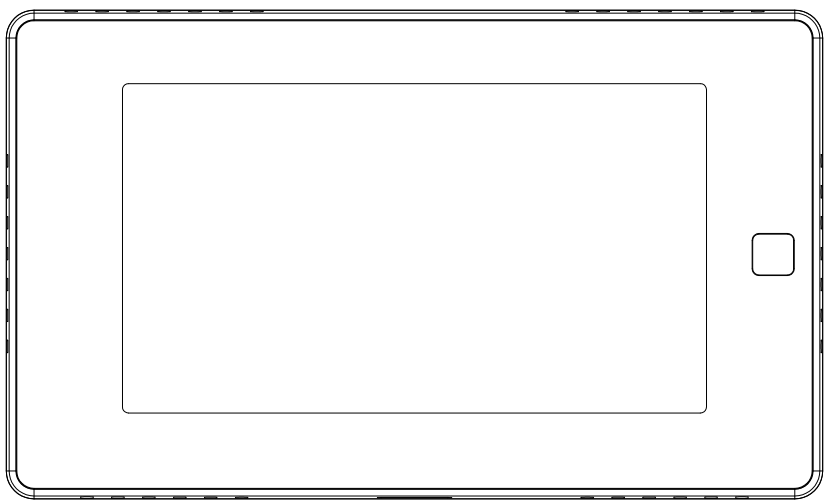


PCT513-TY
Wi-Fi Touchscreen Thermostat

Quick Start Guide

Safety Handling

WARNING: Failure to follow these safety notices could result in fire, electric shock, other injuries, or damage to the Thermostat and other property. Read all the safety notices below before using the Thermostat.

- Avoid high humidity or extreme temperatures.
- Avoid long exposure to direct sunlight or strong ultraviolet light.
- Do not drop or expose the unit to intense vibration.
- Do not disassemble or try to repair the unit on your own.
- Do not expose the unit or its accessories to flammable liquids, gases or other explosives.

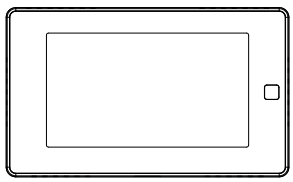
Overview of this guide

1 Welcome

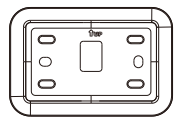
The Wi-Fi Touchscreen thermostat makes it easier and smarter to control your household temperature. With the help of zone sensors, you can balance hot or cold spots throughout the home to achieve best comfort. You can also schedule your thermostat working hours to match your plans.

This guide will provide you with an overview of the product and will help you understand how to use it.

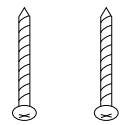
2 In the box



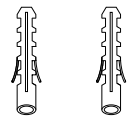
PCT513
Wi-Fi Touchscreen Thermostat



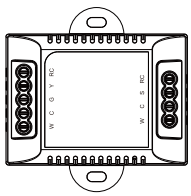
Wall Plate



2*Screws

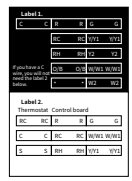


2*Drywall plugs

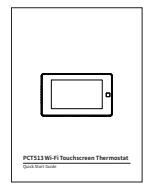


Power module SWB511
(optional)

Remote Zone Sensor
(optional)



Wire Tags



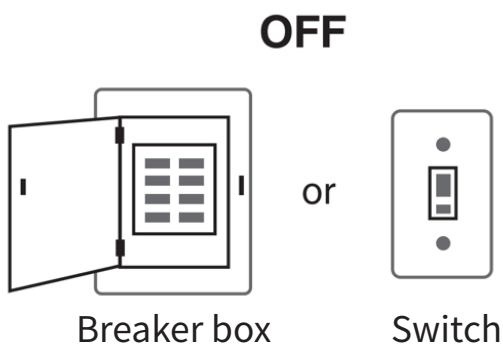
User guide

3 Installation Guide

3-1 Removing your old thermostat

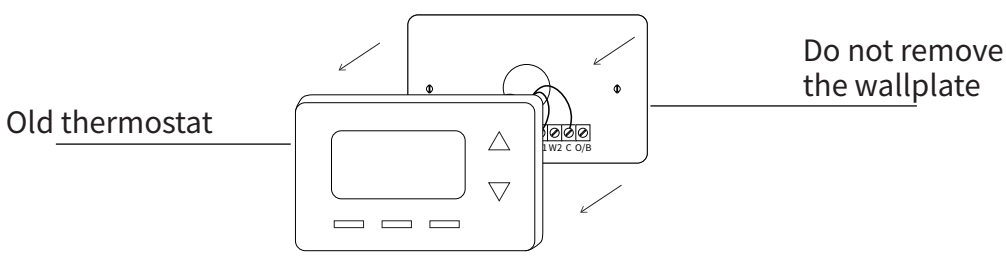
Step 1. Switch off your HVAC system

Before you start, please switch off your HVAC system to protect you and avoid blowing a fuse. Wait a few minutes, then try to adjust the temperature in your old thermostat to double check if the system is off.



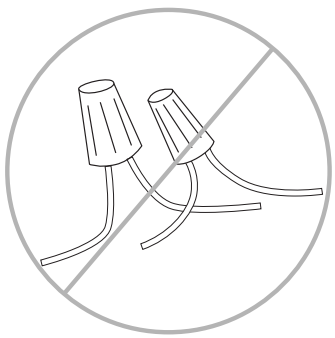
Step 2. Remove the old thermostat

Remove the old thermostat from the wall, keep the wallplate with wires.

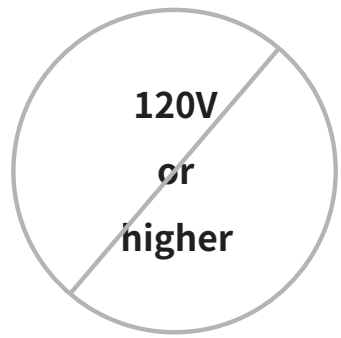


Step 3. Compatibility Check

If you find a thick wire with wire nuts on the backplate of the old thermostat, or if the voltage of your old system is 120v or higher, it will not be compatible with PCT513. If none of the above, then please proceed to the next step.

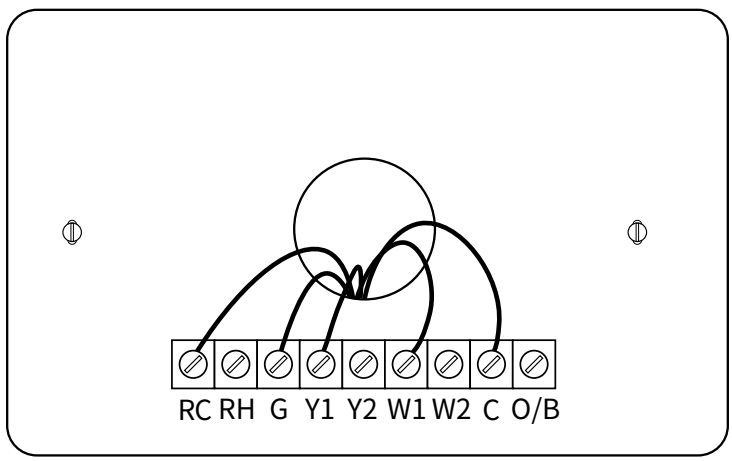


OR



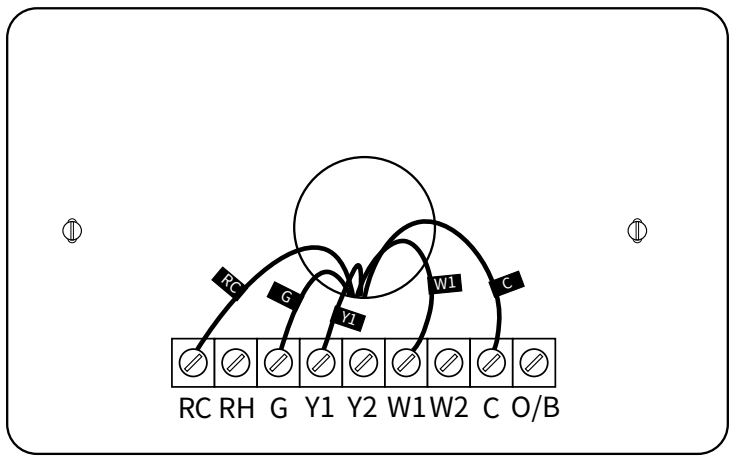
Step 4. Take a photo

Take a picture of the wires connected to the terminal of your old thermostat. You may need to reference this photo later.

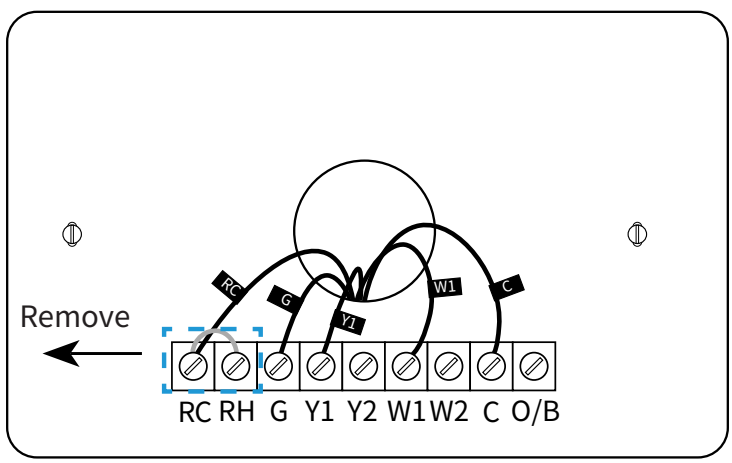


Step 5. Label the Wires with Tags

Label each wire on the wallplate with the tags **(label 1)** provided. Then carefully disconnect the wires.



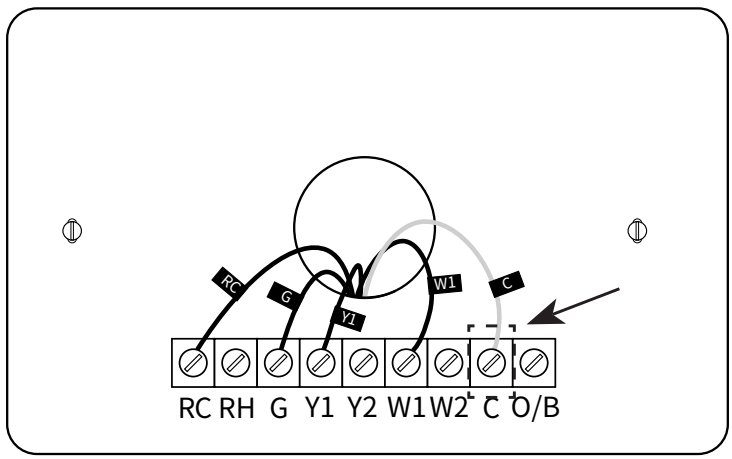
Note: If there are any jumper wires between **Rh, Rc, or R** terminals, do not label them. PCT513 does not need jumpers. Remove them and save along with your old thermostat.



3-2 Connect wires

Do you have a C wire connected to your old thermostat?

YES → 3-2-1 **NO → 3-2-2**



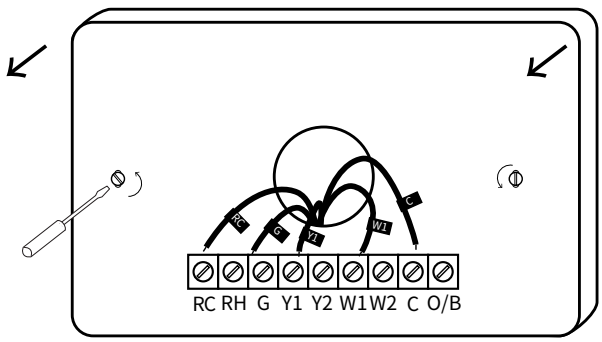
Terminal designation:

Terminals	What it means
RC	24VAC primary for cooling
RH	24VAC primary for heating
C	24VAC common
W1	1st stage Primary heating relay / Aux heat
W2	2nd stage Secondary heating relay / Aux heat
Y1	1st stage Primary compressor contactor
Y2	2nd stage Secondary compressor contactor
G	Fan relay
O/B	Changeover valve for heat pumps
S	Optional wiring module terminal to combine Y and G, while reserve an extra in-wall wire to power on the thermostat

3-2-1 Install the thermostat with a C-wire

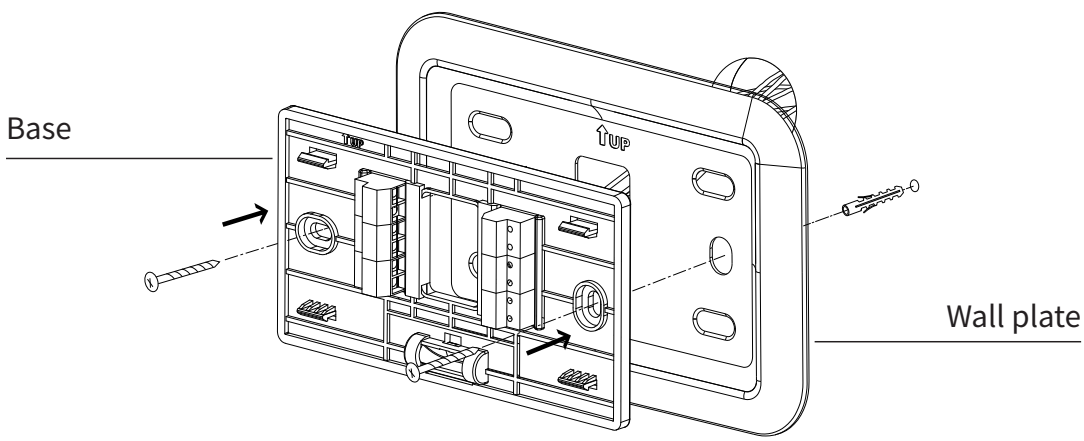
Step 1. Remove the wallplate

Unscrew the wallplate from the wall and gently pull it out to ensure the wires do not fall back into the hole.



Step 2. Attach the base of PCT513 to the wall

Bundle and insert the wires through the hole of the wall plate and the base of PCT513, then attach the base to the wall with the screws.

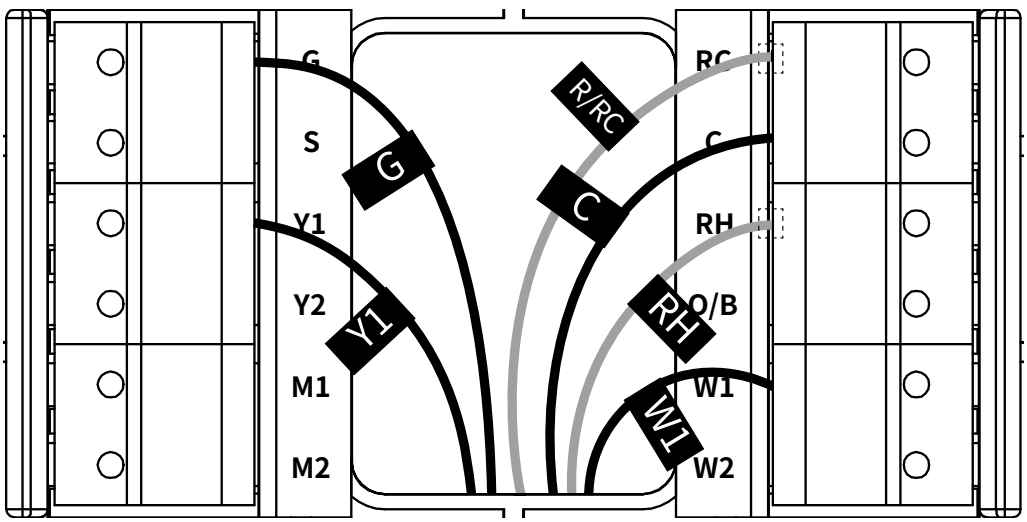


Step 3. Connect the wires

Connect wires to the base:

Connect the R or RC wire into the RC terminal

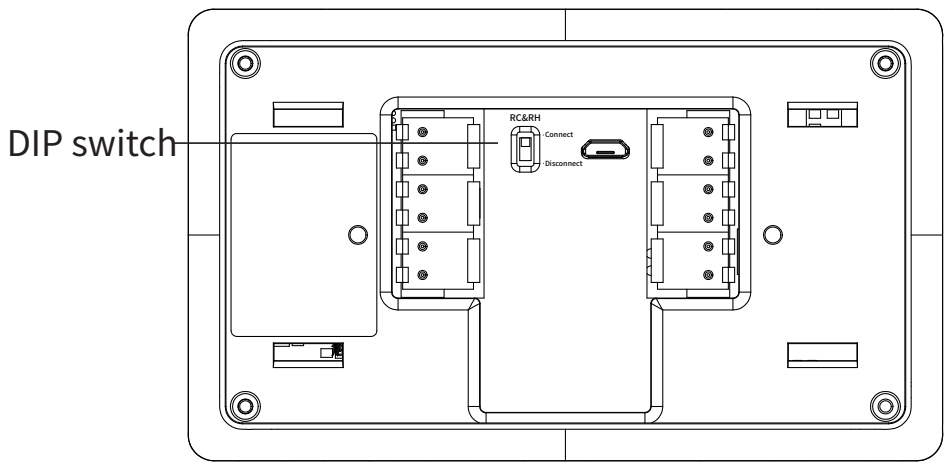
Connect other wires to the corresponding terminals



Take a picture of the wires when you are finished. You may need to refer it for the wirings in the setup wizard later.

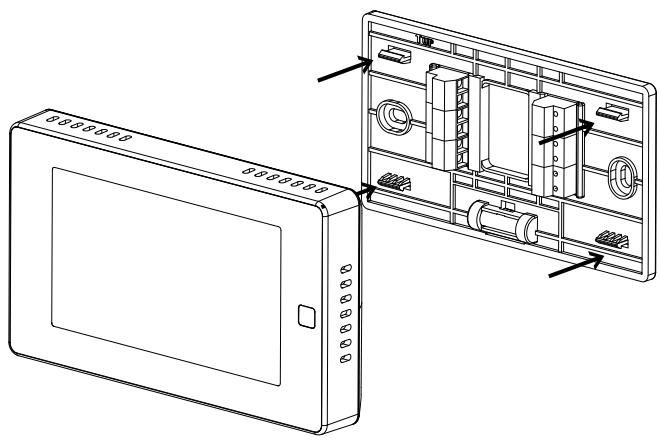
Step 4. DIP Switch

If you have connected both the RC-wire and the RH-wire to the wallplate, adjust the DIP switch on the back of the thermostat to **'Disconnect'**. Otherwise, switch it to **'Connect'**.



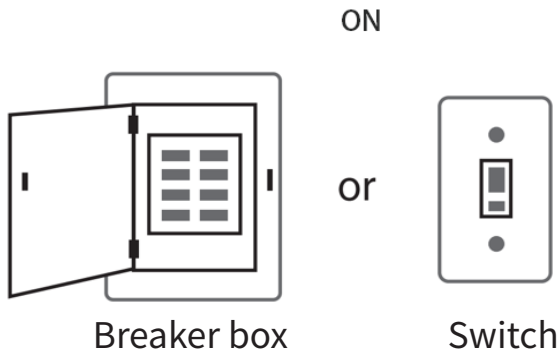
Step 5. Attach the PCT513 to the base

Gently press the PCT513 into the base until it clicks.

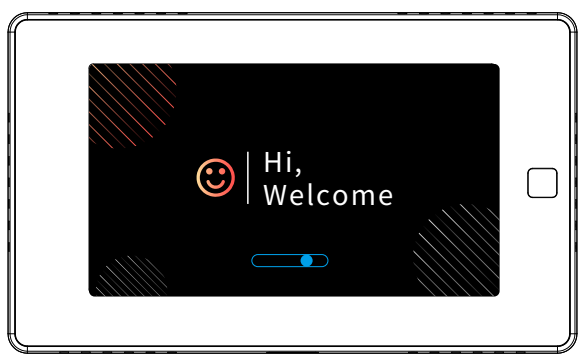


Step 6. Power on your system

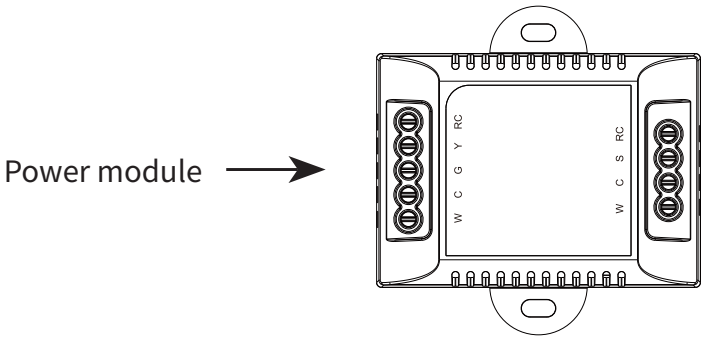
Congratulation! The installation is finished. Please power on your HVAC system.



Once powered up, the thermostat's screen will light up and display the setup wizard. You can complete the following configuration according to section 4.



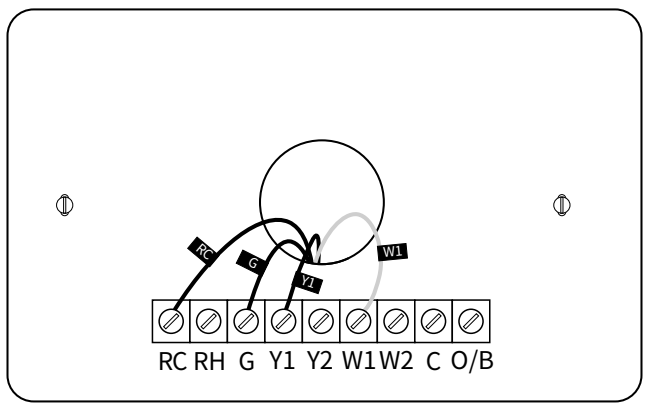
3-2-2 Install the thermostat without a C-wire (Optional)



Power module requires your system to have the following wires:

4 wires: W/W1, Y/Y1, G, and R (or Rc or Rh)

or 3 wires: Y/Y1, G, and R (or Rc or Rh)

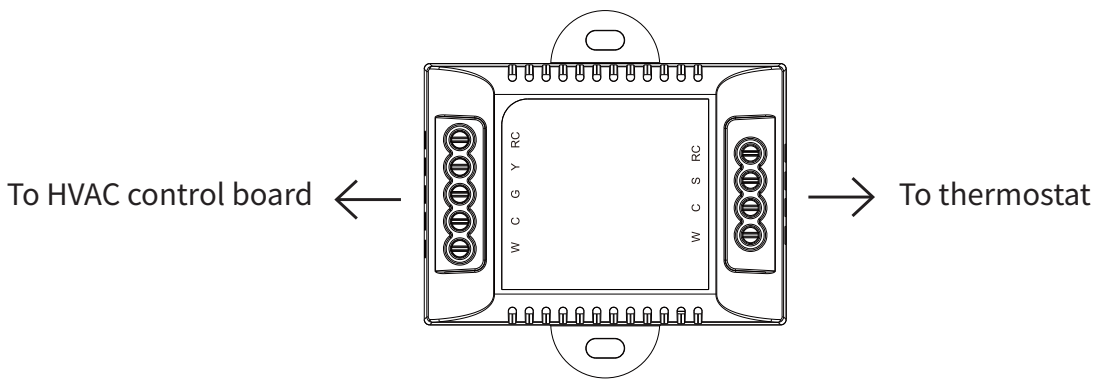


If you do not have these wires, your system may not be compatible with the power module.

Description:

The C-wire is used to provide power to the thermostat. If your system does not have the "C" wire, you can use the power module to power your thermostat using the existing wires.

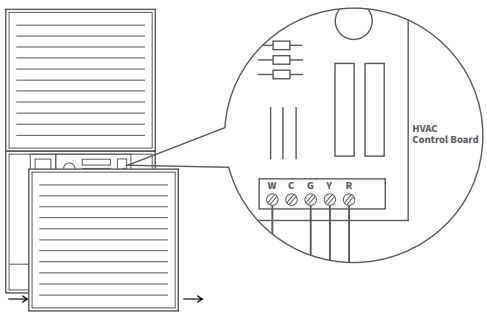
There are two sides with connections. One side (4 terminals) is for thermostat connections, the other side, pre-wired (5 terminals), is for the control board connections.

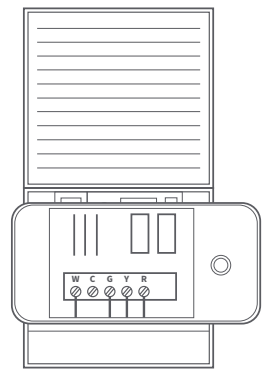


Power module

Step 1. Find the HVAC terminals

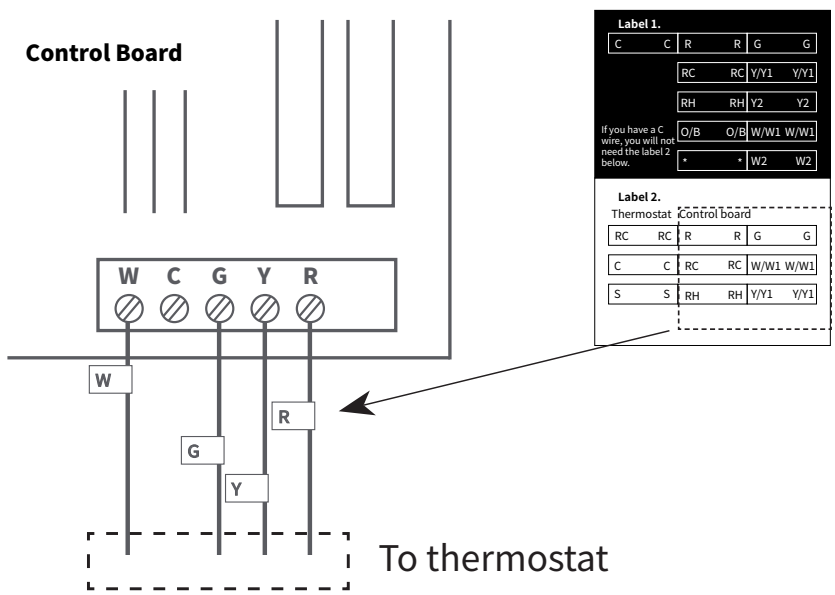
Find the control board of your HVAC system. Open your HVAC system's cover and take a picture of the wires connected to the terminals of your old thermostat. You may need to reference this photo later.





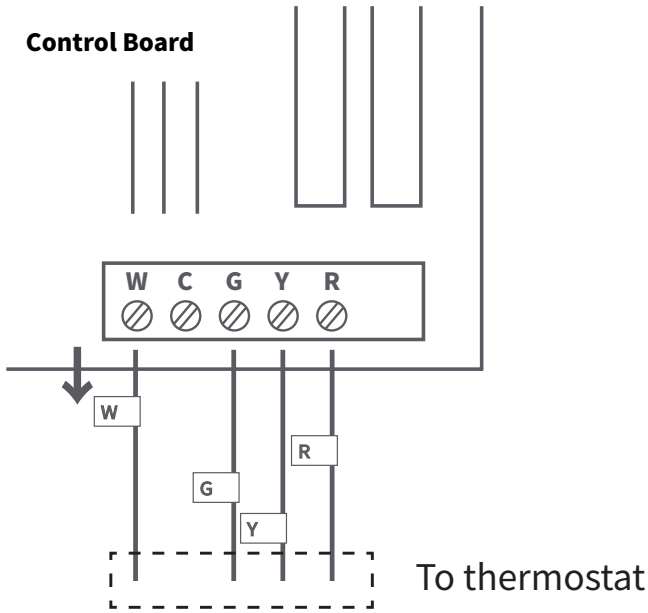
Step 2. Label the wires

Label only the wires from the control board to your old thermostat with the tags provided **(label 2 control board)**.



Step 3. Disconnect the wires

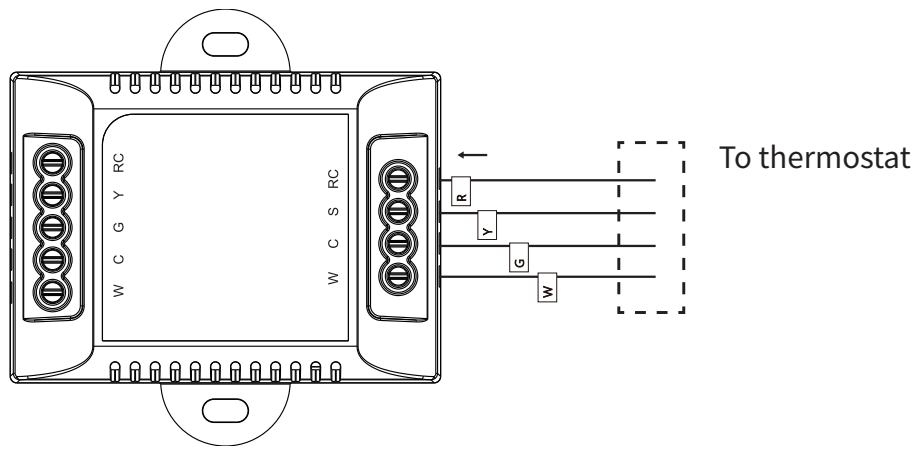
Disconnect the W/W1, G, Y/Y1, R wires from the control board.



Step 4. Connect the wiring module

Reconnect these wires to the 4-terminal side of the power module. The wires and corresponding terminals are shown below.

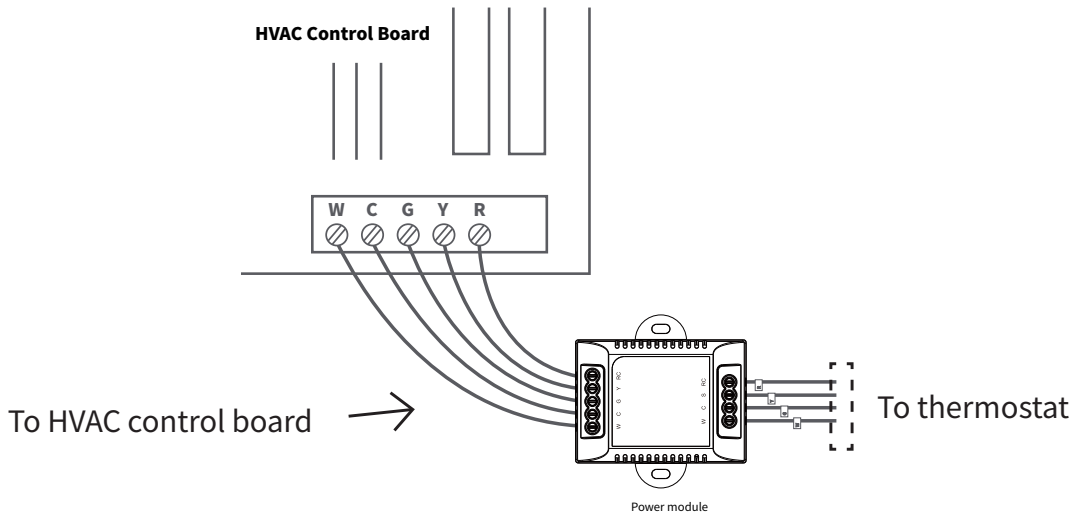
R→RC W/W1→W G→C Y/Y1→S



Power module

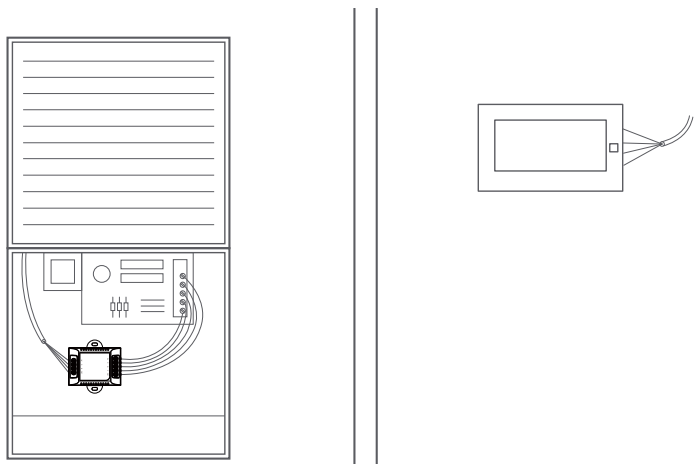
Step 5. Connect the wires

Generally, the control board will have W, C, G, Y and R terminals. Connect the pre-wired side of the power module (5 terminals) to the corresponding terminals on the HVAC control board.



Step 6. Position the wiring module

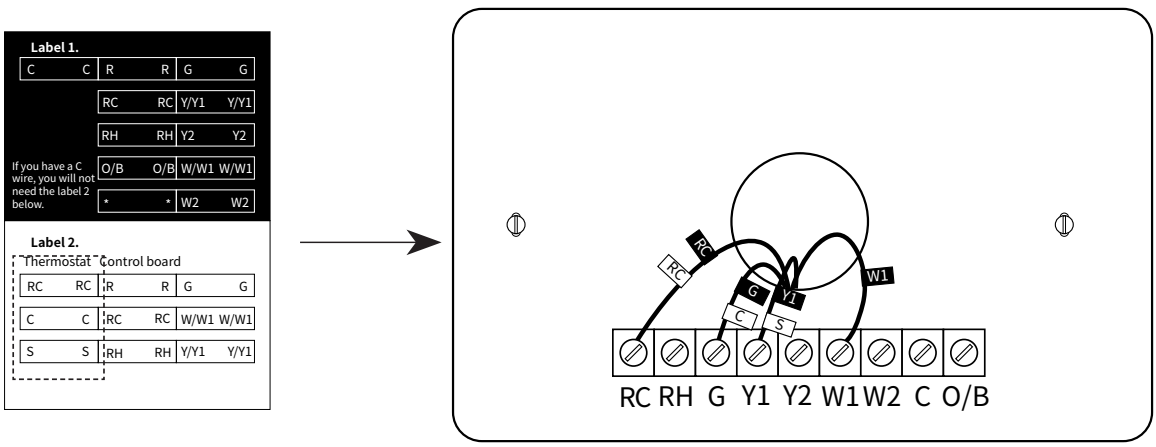
The power module should be installed between your thermostat wiring and your control board. Install it at the right position then close the HVAC cover panel securely and return to your thermostat.



Step 7. Add new tags

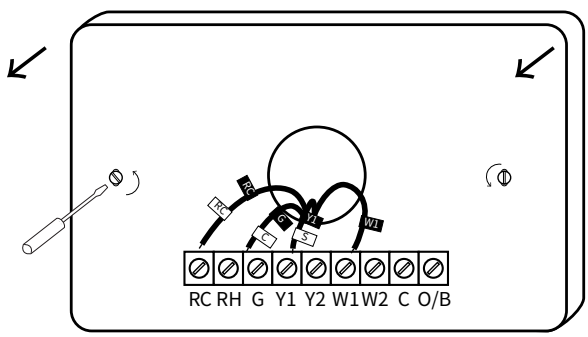
Add new tags to the following tags to simplify your wiring:

R/RC/RH→ RC　　G→ C　　Y/Y1→ S



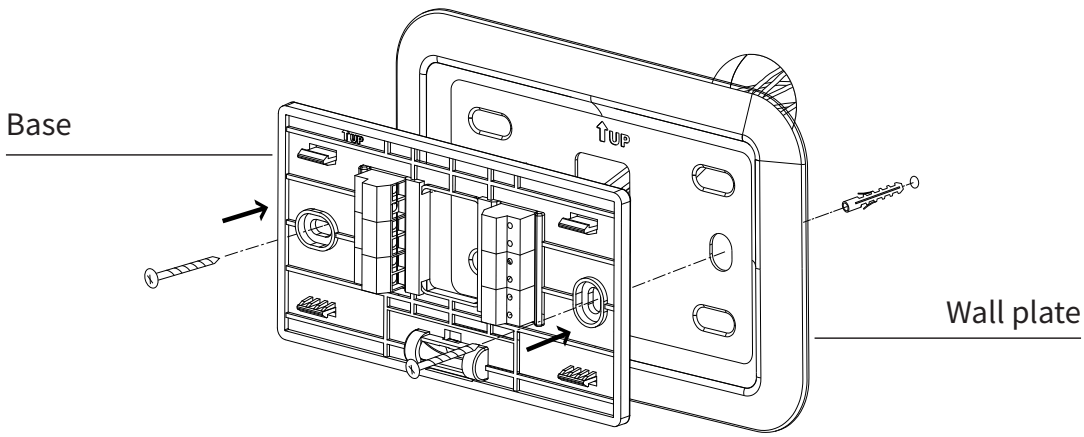
Step 8. Remove the wallplate

Unscrew the wallplate from the wall, gently pull it out and ensure the wires will not fall back into the hole.



Step 9. Attach the base of PCT513 to the wall

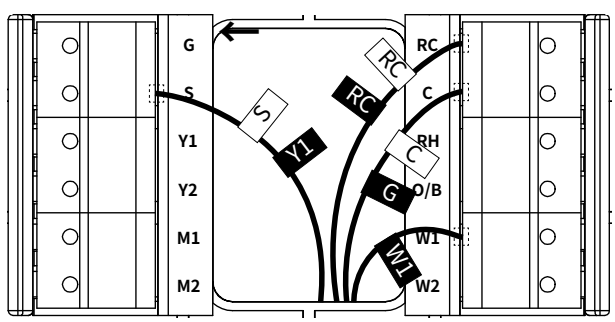
Bundle and insert the wires through the hole of wall plate and the base of PCT513, then attach the base to the wall with the screws.



Step 10. Connect the wires

First, connect 3 wires as shown below:

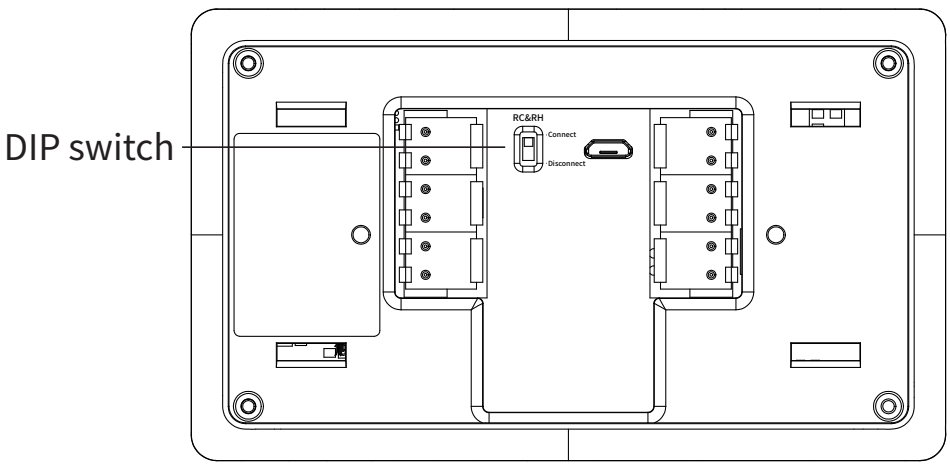
RC, C, S



Then connect other wires to the corresponding terminal in the base. Take a picture of the wires when you finished. You may need to refer it for the wirings in the setup wizard later.

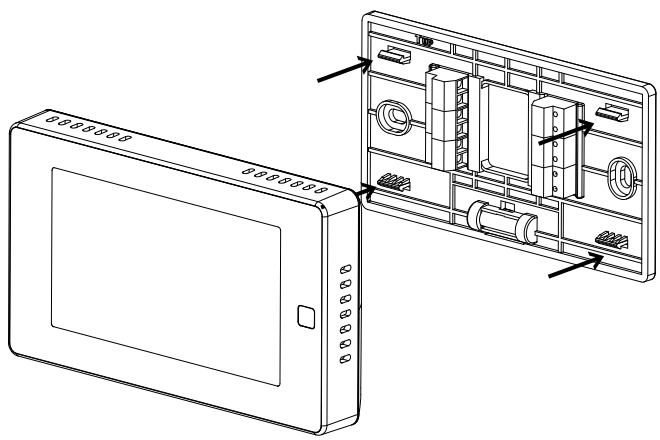
Step 11. DIP Switch

Adjust the DIP switch on the back of the thermostat to the **'Connect'** side.



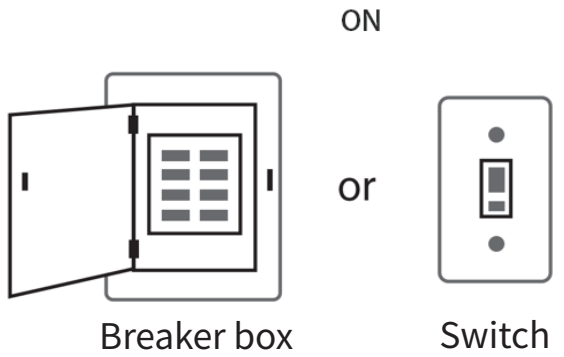
Step 12. Attach the PCT513 to the base

Gently press the PCT513 into the base until it clicks.

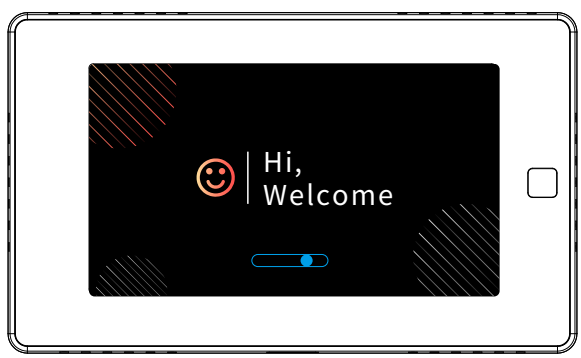


Step 13. Power on your system

Congratulation! The installation is finished. Please power on your HVAC system.



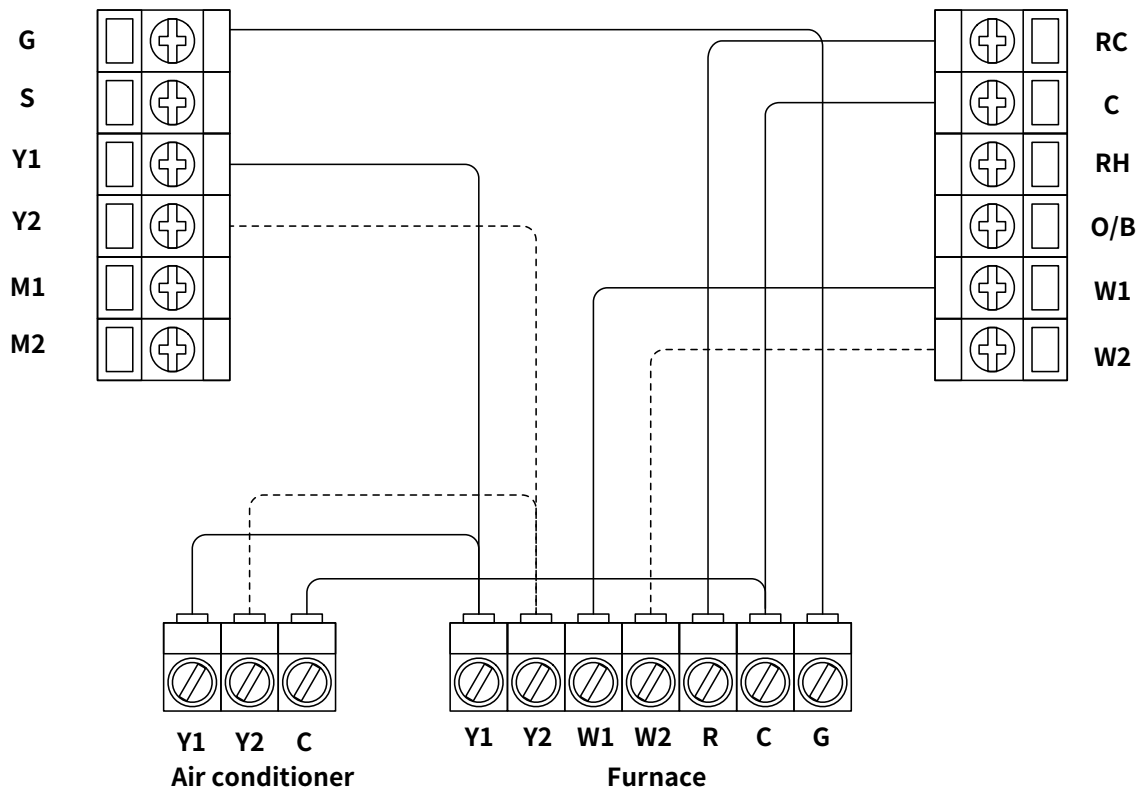
Once powered up, the thermostat's screen will light up and display the setup wizard. You can complete the following configuration according to section 4.



Wiring diagrams

Below are the wiring diagrams for common HVAC equipment.

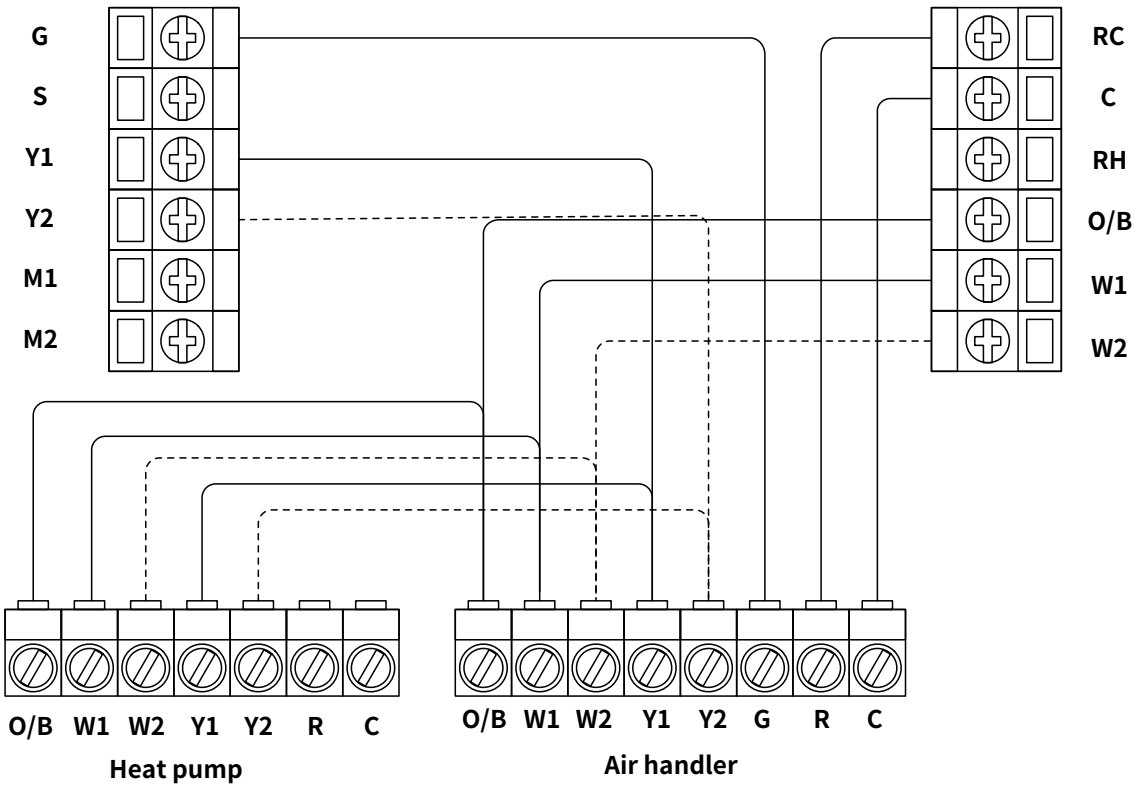
Conventional heating and cooling system



- - - - - - - - - - - - - - - For dual heat and cooling system, if applicable.

Remove the jumper between Rh, Rc, or R terminals, adjust the DIP switch on the back of the thermostat to **'Disconnect'** if you have connected both RC-wire and RH-wire to the wallplate, otherwise switch it to the **'Connect'** side.

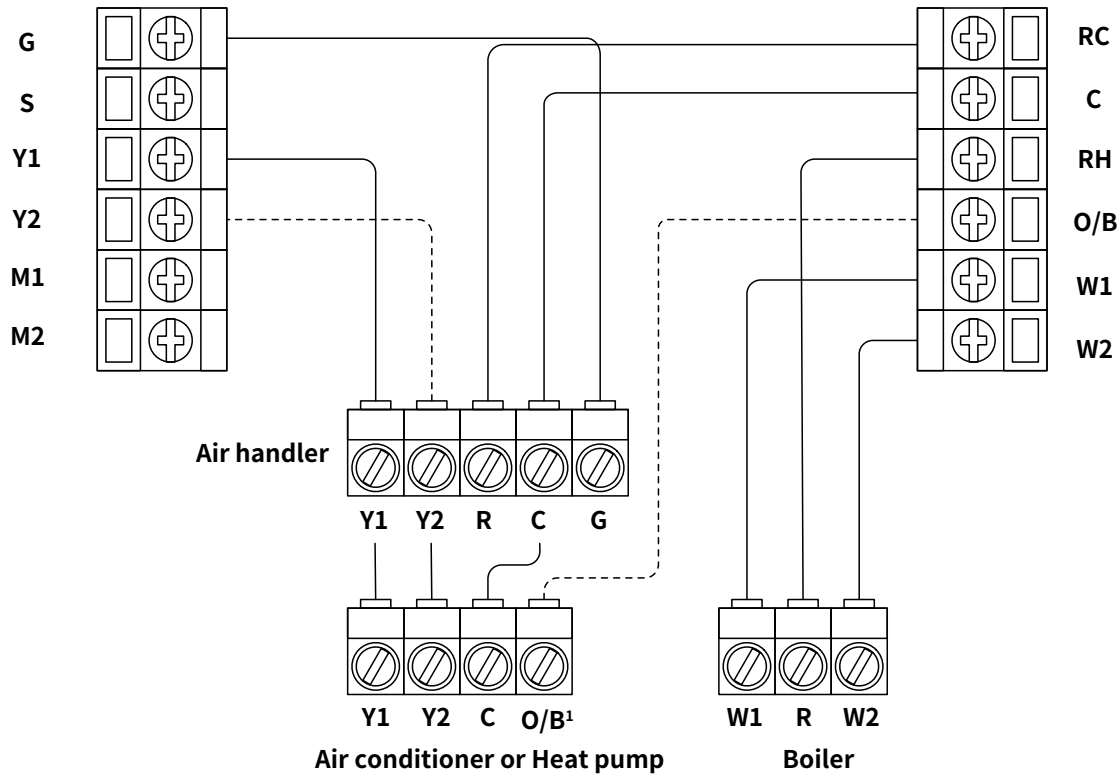
Heat pump (air or geothermal) with auxiliary heat



- - - - - - - - - - - - - - - For dual heat and cooling system, if applicable.

Remove the jumper between Rh, Rc, or R terminals, adjust the DIP switch on the back of the thermostat to **'Disconnect'** if you have connected both RC-wire and RH-wire to the wallplate, otherwise switch it to the **'Connect'** side.

Boiler or radiant system with air handler and conventional cooling or heat pump



- - - - - - - - - - - - - - - For dual heat and cooling system, if applicable.

1 For heat pump only.

Remove the jumper between Rh, Rc, or R terminals, adjust the DIP switch on the back of the thermostat to **'Disconnect'** if you have connected both RC-wire and RH-wire to the wallplate, otherwise switch it to the **'Connect'** side.

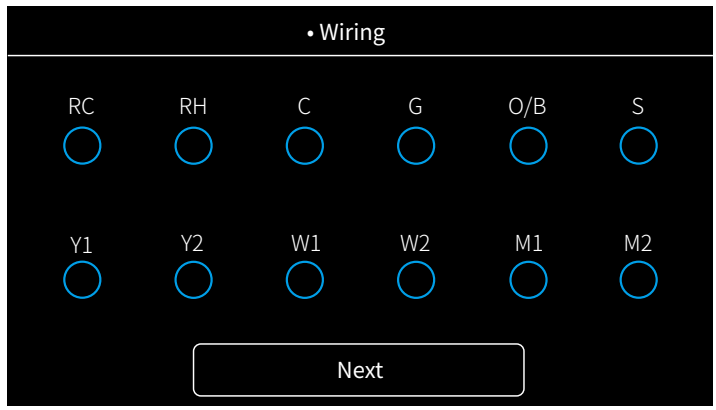
Congratulations,
you have completed the wiring!

To complete your setup, follow the instructions on the configuration guide below.

In here you will find:
— App and device user guide
— Meet your thermostat
— FAQ

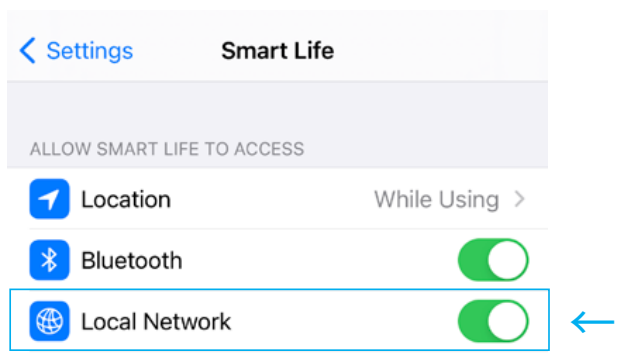
4 Get started

Follow the wizard first to complete the thermostat setup based on your HVAC system.



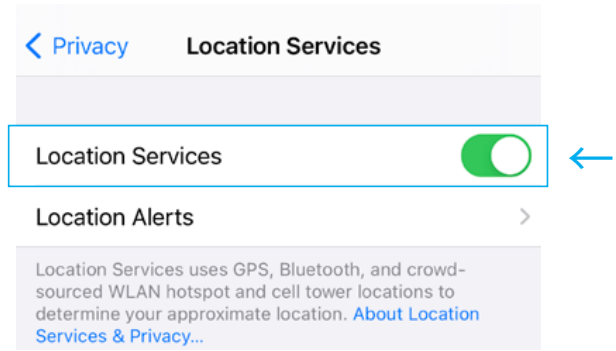
4.1 To get started, you will need:

- Connect your phone to the Wi-Fi network.
- A mobile phone with a **'SmartLife'** APP installed.
- If you have already upgrate the iOS system to 14, you need to enable the "Local network" of **'SmartLife'** App.

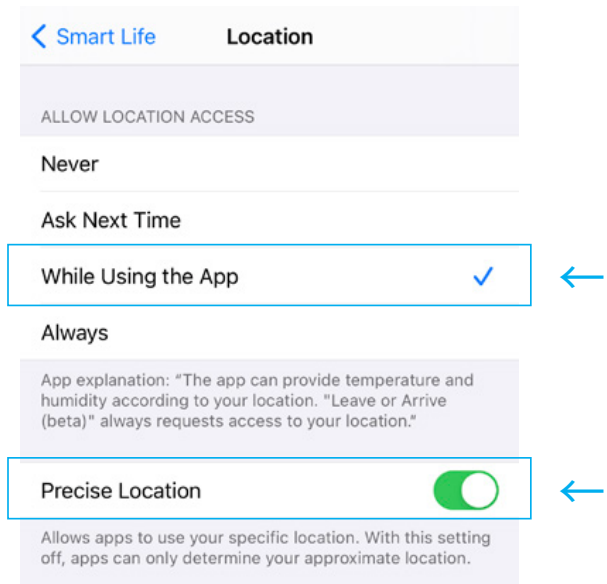


• Confirm that both the location permission of phone system and **'SmartLife'** App are enabled.

Phone system

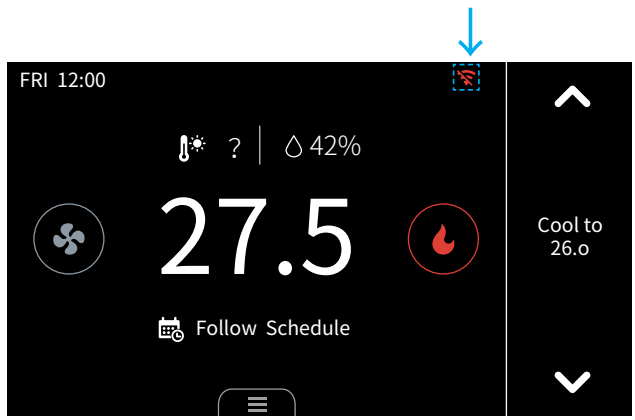


SmartLife



4.2 Configuration:

1. Click the Wi-Fi icon on the home screen to configure Wi-Fi.



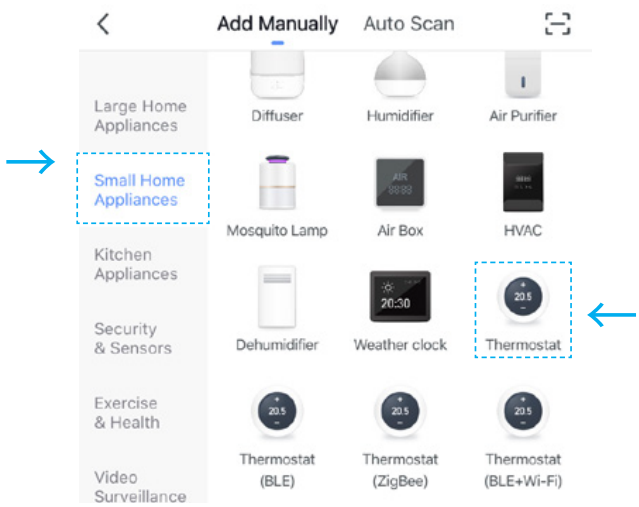
The LED status gives the following information of the thermostat:

LED status	What it means
Red LED	Rapidly blink: EZ pair mode
	Slowly blink: AP pair mode
No light	Device has connected with router
Red LED solid on	Device can not connect with router

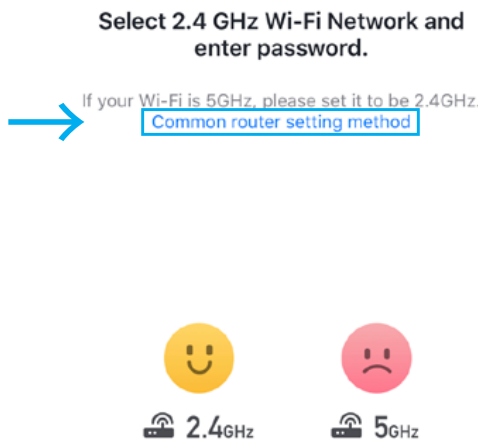
2. Select the network configuration mode. It may take a while to switch between the two modes.

- **EZ pair mode** (Default): Quick pair devices. You can set all devices to this mode, and then add devices in batches on your phone.
- **AP pair mode**: If you would like to pair one specific device during many devices. Please refer to FAQ 6.4 to configure network in this mode.

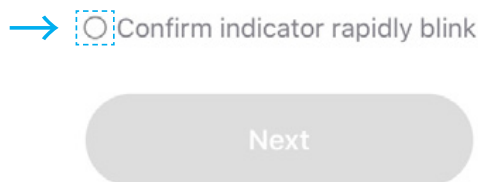
3. Open your APP.
4. Login with an existing account. If you are a new user, create an account first.
5. Please click the **'+'** button at the top right corner of the App to add devices.
6. Select **'Thermostat'** in **"Small Home Appliances"** list to add manually.



7. Enter your home Wi-Fi account and password. If your router supports both 2.4Ghz and 5Ghz, please add device under 2.4G Wi-Fi channel. You can follow the following step on the App to configure the router. After that, tap **"Next"** button to continue to configure the Wi-Fi.



8. Place the router, mobile phone and thermostat as close as possible. Confirm the indicator on your device is rapidly blink, then tap **"Next"** to wait for connection.

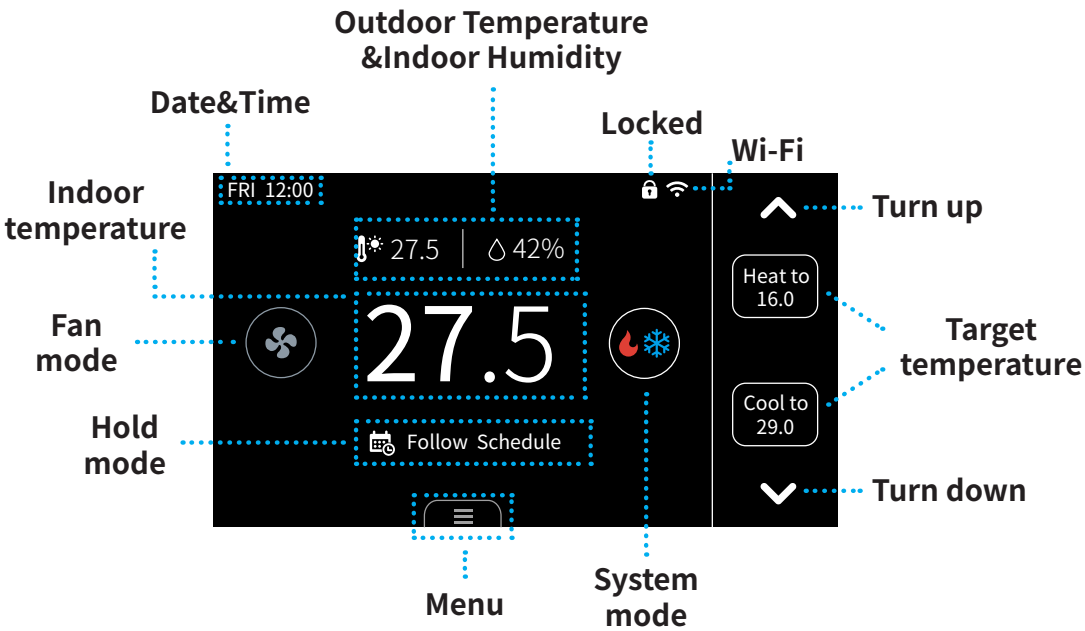


9. After the connection succeeds, you can rename the thermostat and click **"Done"** to complete. (If failed, please If failed, please refer to FAQ2 to troubleshoot)

5 Meet Your Thermostat

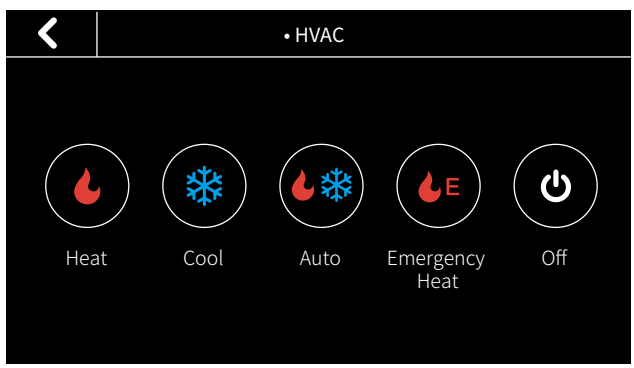
5.1 Device Overview

Main page



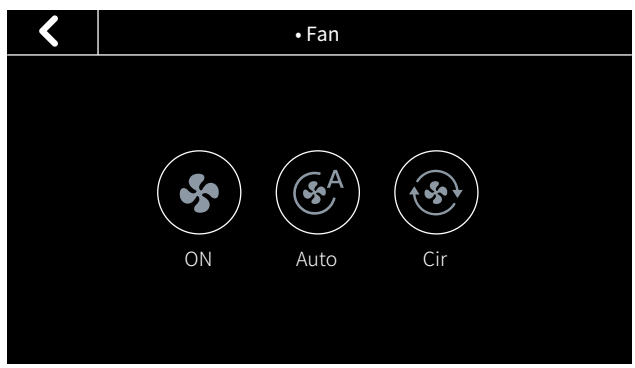
You can select the heating/cooling target temperature to adjust separately or press the up and down buttons to adjust it simultaneously.

System mode



- **Heat:** Heating only
- **Cool:** Cooling only
- **Auto:** Automatic control of heating and cooling based on ambient temperature
- **Emergency Heat:** In this mode the thermostat will only call backup system
- **Off:** Turn the HVAC system off

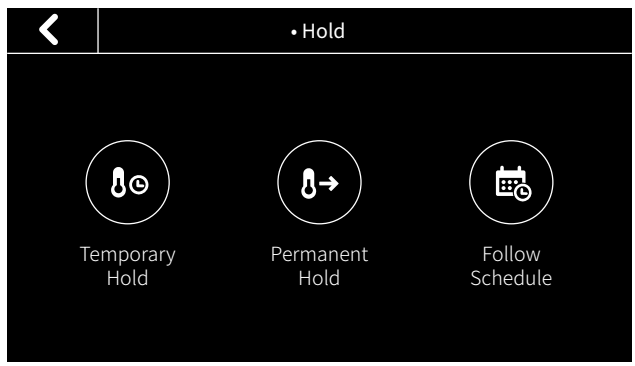
Fan mode



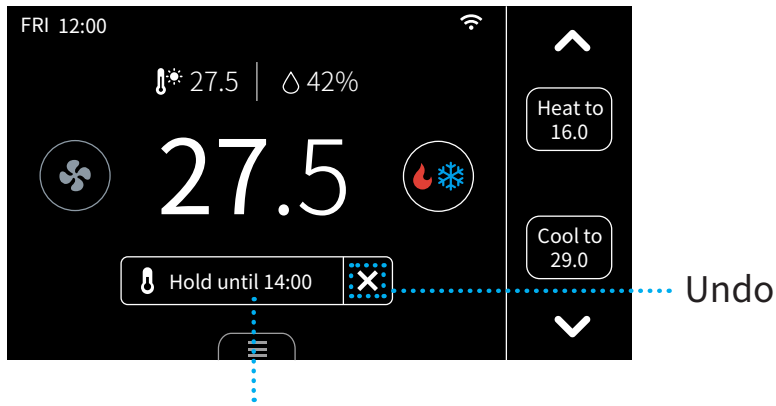
- **On:** Runs continuously
- **Auto:** Automatically adjust the running time of the fan according to the system
- **Cir:** Runs at intervals to circulate indoor air

Hold mode

There are three hold modes that you can select

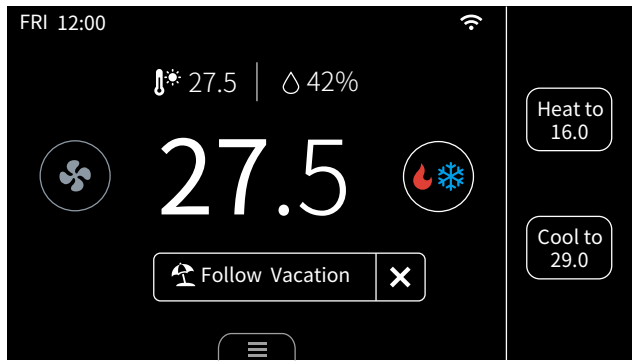


- **Temporary Hold:** Keep the current target temperature until the next scheduled activity begins.
- **Permanent Hold:** Always hold the current target temperature. It will override the current schedule settings.
- **Follow Schedule:** Follows the settings of schedule table to adjust the indoor temperature.



Vacation mode

You can set the vacation mode in **'Menu'->'Vacation'**. Set the time of departure and return, as well as the highest and lowest temperatures during this period. The thermostat will automatically hold this temperature range.



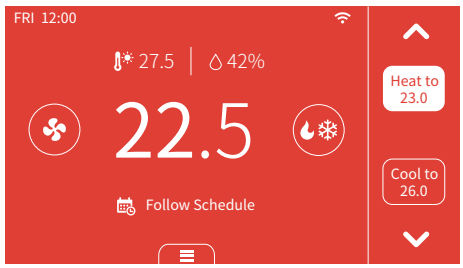
Note: When the thermostat is under this mode, you cannot manually change the target temperature. You can change the Hold/System mode manually, click "undo" or delete the vacation in menu to exit vacation mode.

Display

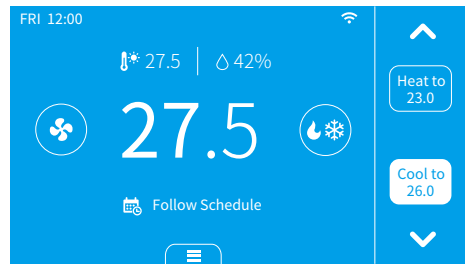
Below are the meanings of various display changes and alerts:

① Heating or cooling state

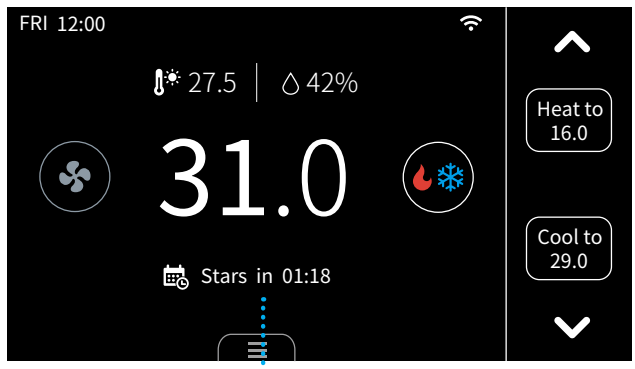
Red: Heating



Blue: Cooling



② Compressor protection



Compressor Protection Time

When you turn on the compressor frequently, there will be a time countdown to protect the compressor. This will occur in the following cases:

Heat pump: heating, cooling Conventional: cooling

You can set the time countdown in **'Menu' ->'Installation' ->'Advanced' ->'Compressor Protect Time'**

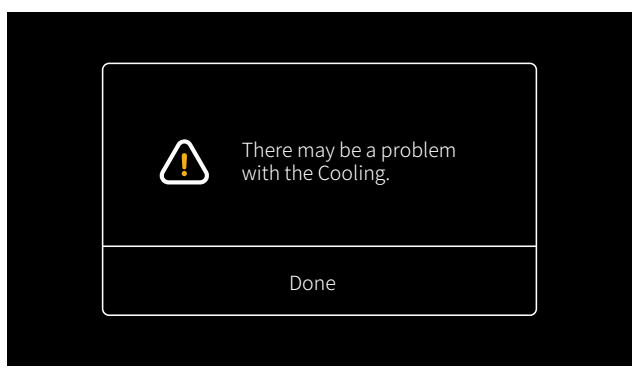
③ System or network alerts

When the outdoor temperature is below the 'Compressor Min Outdoor Temp' you set, the icon on system mode will display ! and the compressor will be turned off automatically.

When the outdoor temperature is higher than the 'AUX Heat Max Outdoor Temp' you set, the icon on system mode will display ⊘ and the AUX Heat will be turned off automatically.

The thermostat is connected to the router, but the router is not connected to the network

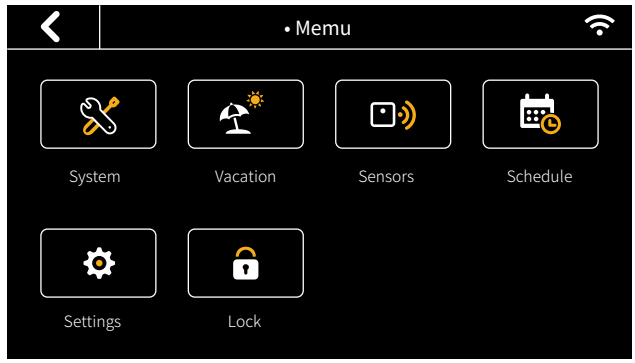
④ Unusual heating or cooling alerts



The prompt shown in the picture will appear on the thermostat in the following cases:

1. When your HVAC system is cooling, but the indoor temperature does not fall down for a long time and instead, temperature still raises.
2. When your HVAC system is heating, the indoor temperature does not increase for a long time and instead, the temperature still falls.
3. The indoor temperature drops more than 4.8 degrees within 2h.

Menu



System

- HVAC: Switch system mode (Heat/Cool/Auto/Emergency Heat/Off)
- Fan: Switch fan mode (ON/Auto/Cir)

Sensors

Add multi sensors to balance the current temperature throughout the home.

Schedule

Set Schedule to change the temperature automatically.

Vacation

Set vacation to change the temperature automatically.

Lock

Multi-level keypad lockout to avoid others tampering with the settings. After locking, the corresponding functions are not available and the corresponding settings icon will go dim. An icon of a small lock will appear on top of main page.

Settings

- Date &Time: Set time format. You can also set the time manually when the device is not configured with a network.
- Fan Run Time: Set minimum fan run time in **'Cir'** mode
- Wi-Fi: Configurate and display Wi-Fi information
- A Smart Warm-up: When smart warm-up is enabled, your thermostat automatically calculates when to turn on heating or cooling so your home will reach a scheduled temperature on time. This only works in **'Follow Schedule'** mode.
- Screen: Adjust screen brightness on active/standby/sleep and standby time
- °C °F Temp Unit: Celsius or Fahrenheit
- T/H Correction: Adjust the accuracy of temperature and humidity to match your environment
- Installation:

  Equipment: Reconfigure your wiring setting on thermostat

Advanced (Different wiring configurations will display different):

1. Heat/Cool Dissipation Time

When the heating/cooling stops, the fan shuts off with a delay.

2. Compressor Protect Time

A time countdown to protect compressor when starting frequently.

3. Compressor Min Outdoor Temp

When the outdoor temperature is below this temperature, the compressor will not be used. If you have auxiliary heating, it will use aux heat to heat your home.

4. Compressor/(Aux) Heat Min On Time

Compressor/(Aux) Heat min on time during heating/cooling cycles.

5. Compressor/(Aux) Heat Stage 2 Temperature Delta

When the difference between the indoor temperature and the target temperature reaches this value, the second stage is automatically turned on.

6. Compressor/(Aux) Heat Stage 1 Max Runtime

If the first stage fails to reach the target temperature after this time, the second stage will be automatically turned on.

7. Aux Heat Max Outdoor Temp

Auxiliary heat is turned on only when the outdoor temperature is below this value.

Equipment Test: Test whether the corresponding function of the equipment can run normally as required

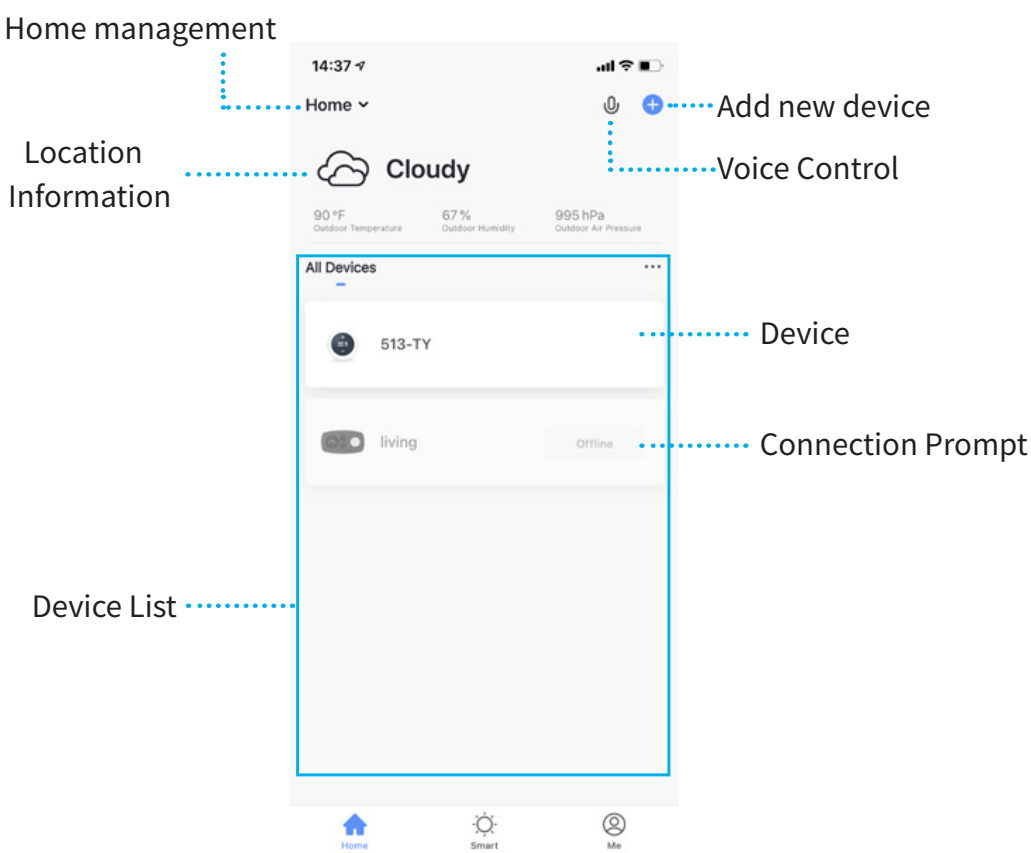
- Filter: Filter change reminder
- Reset:

  Reset setting

  Reset schedule (Reset system schedule and clear vacation)

  Reset all (reset the thermostat to default factory setting)
- About: Show device information

5.2 App Overview:



Home:

1. Device list

You can check the added device, tap one to enter control page. You can drop it down to refresh the list.

2. Location information

Information about your local weather conditions

3. Home management

Add or delete home and manage home names, rooms, locations, and members

4. Room management

Manage room. You can create rooms and assign devices to each room

5. Voice control (In development)

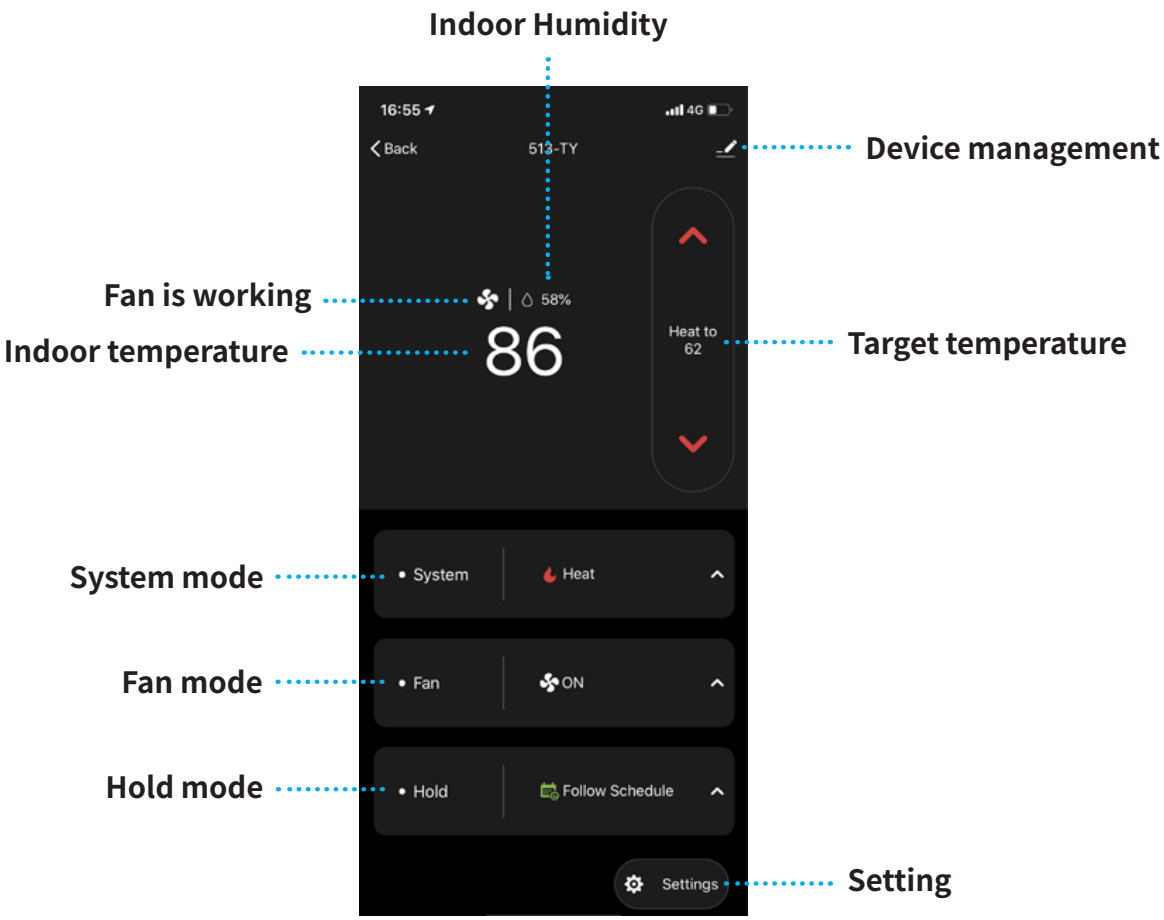
6. Connection Prompt

The prompt show up when the App can't connect to the thermostat. You can troubleshoot the problem according to the FAQ 6.3.

Smart: Create smart scene or automation to achive some function. Such as geofence, it will switch device automatically based on my geographic location. You can also use this function to link with other Tuya devices.

Me: App settings and FAQ about the app

Control page

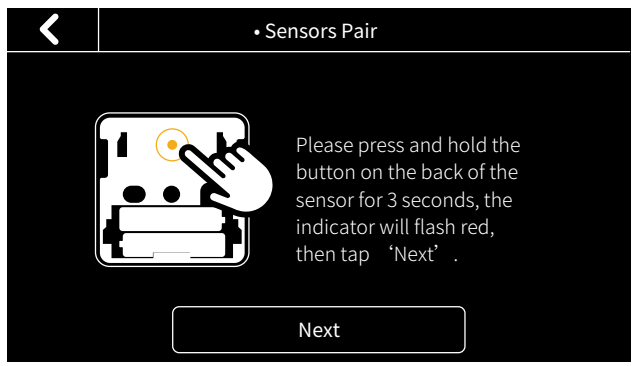


- **System mode:** Displays the current system mode. Tap it to switch the mode.
- **Fan mode:** Displays the current fan mode. Tap it to switch the mode.
- **Hold mode:** Displays the current hold mode. Tap it to switch the mode.
- **Device management:** You can remove device, change device name, update firmware or share device.
- **Target temperature:** Turn up/down the target temperature.
- **Setting:** You can edit the setting of device, such as schedule, vacation, fan run time, sensors, temperature unit.

6 FAQ

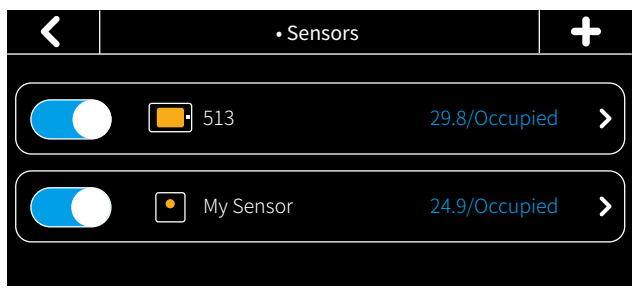
1.How to pair the thermostat with Remote Zone Sensors?

1. Click the **'+'** button at the top right of the interface in **'Menu' -> 'Sensors'** on the thermostat and tap **'Next'.**



2. Remove the rear cover of the sensor.
3. Press and hold the button on the back of the sensor for 3 seconds until the indicator on the front of the sensor flashes red.
4. Wait for sensors to pair automatically. When the pairing is successful, the sensor flashes green 3 times.

Now you can set the participation period of the sensor. During this period, the thermostat will take the average temperature of all the sensors that recently detected motion as the indoor temperature on the main screen.



Tip: During sleep time, the sensor enabled during this period doesn't care about occupancy; it will always participate in the calculation of the average temperature. When you change the setting of sensor, the indoor temperature on the main screen will update in 2 minutes.

2. Wi-Fi configuration of the thermostat failed

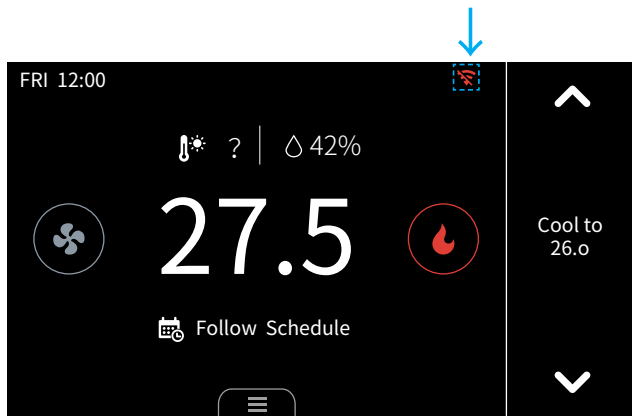
- Confirm the entered router password is correct.
- Please confirm the network is stable. Put the phone besides your thermostat and make sure they are in the same network environment. Try opening a website to judge if the network can be used.
- Confirm adding device is under 2.4G WI-FI channel. If 2.4G and 5G WIFI use the same name, it is recommended to change to a different name.
- Ensure that the DHCP service is enabled for the router. If not, the IP address will be occupied.
- If it still does not work, it is recommended to change the router and try again.

3. Device offline

- Confirm that the thermostat is powered on.
- Confirm whether the device or the network has been cut off. If so, Please check the status 2 minutes later. It may need some time to recover.
- Please confirm whether the home Wi-Fi network is normal, or whether the Wi-Fi name and password has been modified.
- If the network is normal, but the device is still offline, please check if there are too many Wi-Fi connections. Please try to restart the router and wait for 5 minutes, then check the status of the device.
- If there still have problems after the above checking, it is recommended to remove the device or change the router to add it again.

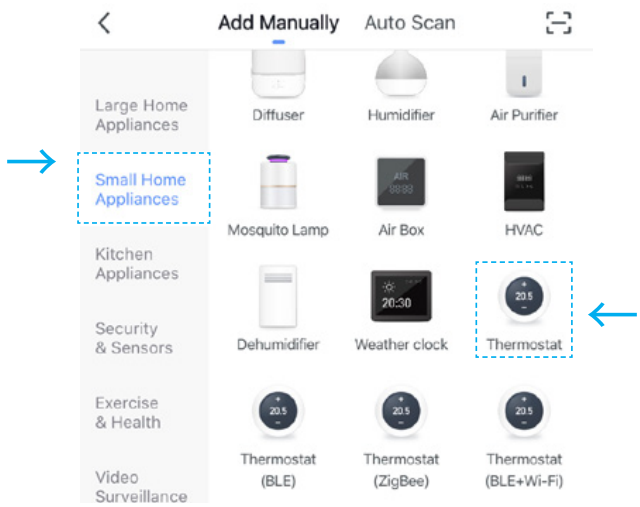
4. Configure the network in AP mode

1. Click the Wi-Fi icon on the home screen to configure Wi-Fi.

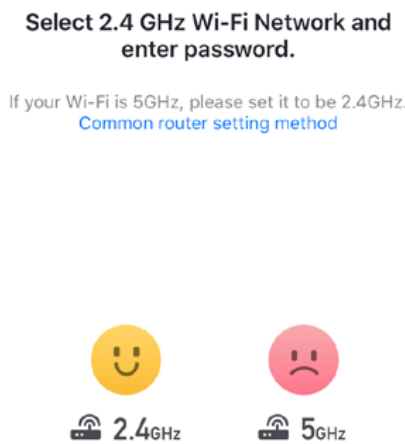


2. Select the AP mode. It may take a while to switch between the two modes.

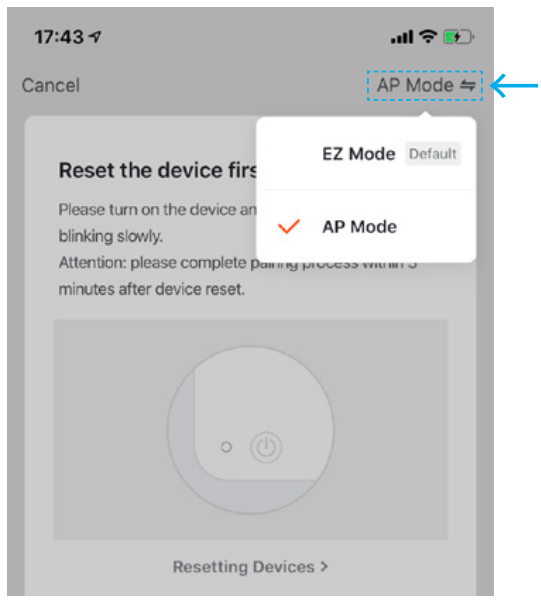
3. Open your APP.
4. Login with an existing account. If you are a new user, create an account first.
5. Please click the **'+'** button at the top right corner of the App to add devices.
6. Select **'Thermostat'** in **"Small Home Appliances"** list to add manually.



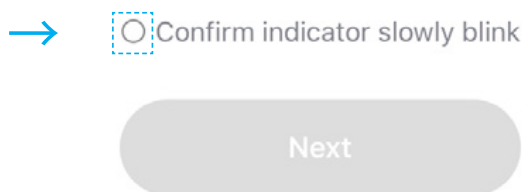
7. Enter your home Wi-Fi account and password (Only support 2.4Ghz Wi-Fi), then tap **"Next"** button.



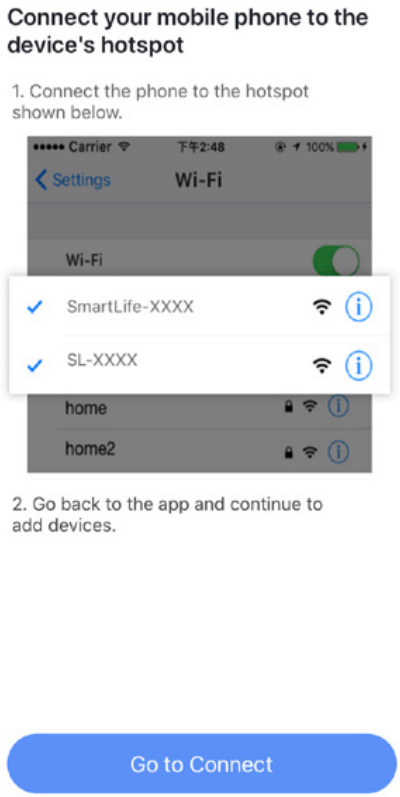
8. Switch the network configuration mode to AP mode at the upper right corner of the APP.



9. Place the router, mobile phone and thermostat as close as possible. Confirm the indicator on your device is slowly blink, then tap **"Next"** to wait for connection.

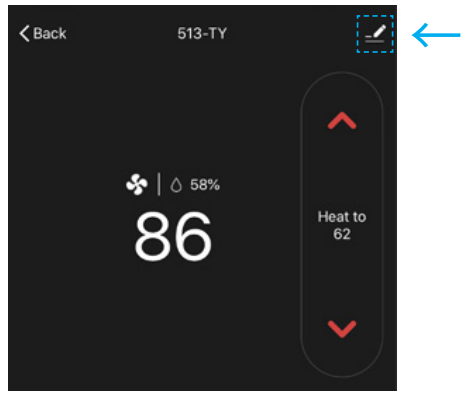


10. Find and connect the device's hotspot in the Wi-Fi list.

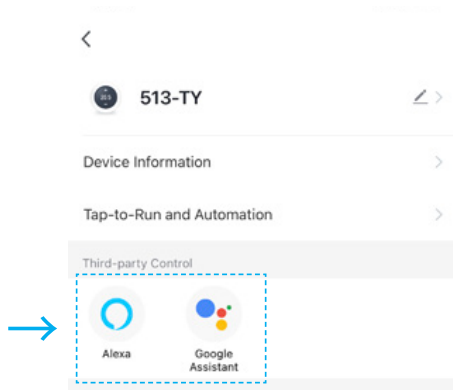


11. After the connection succeeds, you can rename the thermostat and click **"Done"** to complete the configuration. (If failed, please refer to FAQ2 to troubleshoot)

5.Enable voice control



Tap **''Device management''** at the top right of the control page, then link your Alexa/Google account.



Voice Support:

1. Ask about the current temperature in Heat/Cool/Auto mode.
"Alexa/OK Google, what's the temperature of [thermostat name]"
"Alexa/OK Google, what's the [thermostat name] temperature?"
"Alexa/OK Google, ask [thermostat name] the temperature"

2. Change the temperature in Heat/Cool/Auto mode.
"Alexa/OK Google, set [thermostat name] to [target temperature]"

"Alexa/OK Google, raise/lower the thermostat temperature by [number]"
"Alexa/OK Google, raise/lower the [thermostat name] temperature by [number]"
"Alexa/OK Google, increase/decrease the [thermostat name] temperature"
"Alexa/OK Google, increase/decrease [thermostat name] by [number]"
"Alexa/OK Google, make it cooler in [thermostat name]"
"Alexa/OK Google, make it warmer in [thermostat name]"

Note: If you change the temperature by voice on auto mode. It will maintain 3 degrees difference and keep the new temperature as the mid-point.

For example:

- Thermostat is currently set to 17 degrees for heating and 30 degrees for cooling.
- You ask Alexa/Google to set the thermostat to 26 degrees.
- It will turn to 24.5 degrees for heating and 27.5 degrees for cooling, using the 26 degrees as the mid point and maintaining 3 degrees difference between the heating and cooling target temperature.

3. Change System Mode

"Alexa/OK Google, set [thermostat name] to Heat/Cool/Auto mode"
"Alexa/OK Google, switch [thermostat name] to Heat/Cool/Auto mode"
"Alexa/OK Google, switch to Heat/Cool/Auto mode in the [thermostat name]"

Technical specifications

Thermostat:

Compatibility	
Compatible systems	• Conventional: 2-stage heating and 2-stage cooling HVAC systems • Heat Pump: 2-stage heating, 2-stage cooling, 2-aux heating • Supports natural gas, electric, hot water, steam or gravity, gas fireplaces (24 Volts), oil heat sources • Supports heat pump, dual fuel
HVAC Control Functions	
System Mode	• Heat, Cool, Auto, Off • Emergency Heat (Heat Pump only)
Fan Mode	• On, Auto, Circle(adjustable)
Wireless Connectivity	
Wi-Fi	• 802.11 B/G/N20/N40 @ 2.4GHz
Radio	• 915MHZ
Physical Specifications	
LCD Screen	• 4.3-inch color touch screen
PIR Sensor	• Sensing Distance 3m, Angle 70°

Electrical Rating	• 24 VAC, 1A Carry; 5A Surge 50/60 Hz
Operating Environment	• 0~ 50° C, 32 ~122° F • Humidity range: 5%~95%
Storage Temperature	• -30 ~ 60° C , -22° F ~ 140° F
Wiring	• 18 AWG, Requires both R and C wires from the HVAC System
Dimensions	• 131(L) × 78 (W)× 29.2(H) mm
Mounting Type	• Wall Mounting

Remote Zone Sensor:

Battery	• DC 3V (2*AAA batteries)
Radio	• 915MHZ
LED	• 2-color LED (Red, Green)
PIR	• Detect occupancy • Sensing Distance 5m, Angle 120°
Operating Environment	• 0~ 50° C, 32 ~122° F (Indoor only) • Humidity range: 5%~95%
Dimension	• 62(L) × 62 (W)× 15.5(H) mm
Mounting Type	• Tabletop stand or Wall mounting