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 schedule your thermostat working hours so it will work based on your plan.

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

2 In the box
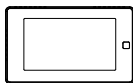
PCT513
Wi-Fi Touchscreen Thermostat

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, try to adjust the temperature in your old thermostat to double check if the system is off.

OFF

Breaker box   Switch
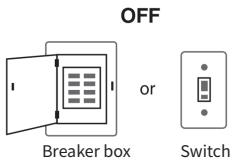
Step 2. Remove the old thermostat

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

Do not remove
the wallplate
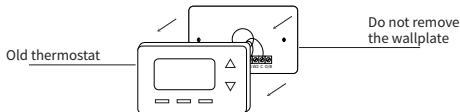
Old thermostat

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 compatibled with PCT513. If none of the above, then please proceed to the next step.
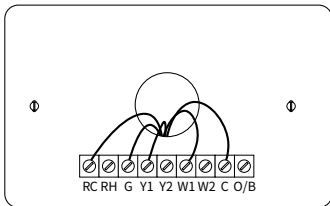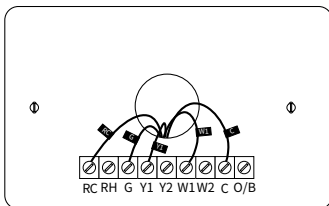

OR

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.
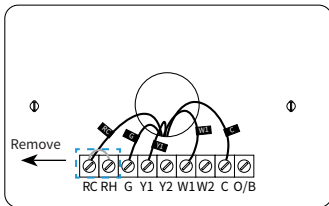
Step 5. Label the Wires with Tags

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.
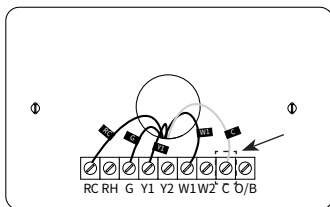
3-2 Connect wires

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, gently pull it out to ensure the wires will not fall back into the hole.
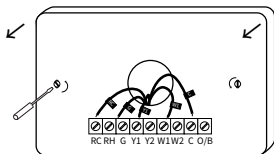
Step 2. Attach the base of PCT513 to the wall

Bundle and insert the wires through the hole of wall plate and the base of PCT513, then attach the base to the wall with the screws.
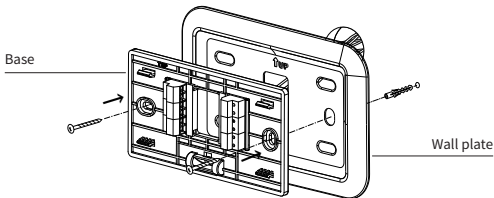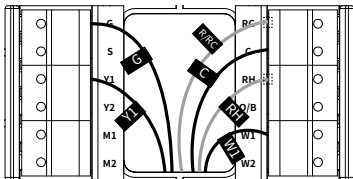
Step 3. Connect the wires

Connect wires to the 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.

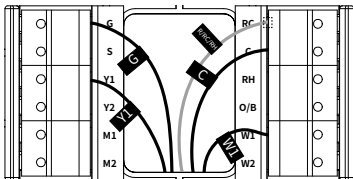Do you have more than one R wire (R, RC, and RH)?

YES:

R or RC wire into the RC terminal

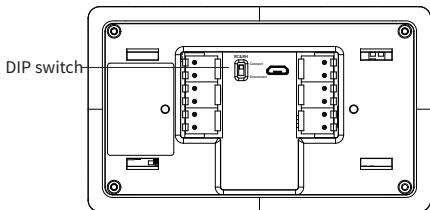RH wire into the RH terminal

NO:
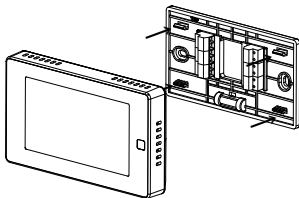
R, RC, or RH wire into the RC terminal

Step 4. DIP Switch

Adjust the DIP switch on the back of the thermostat to **'Disconnect'** if you have connected both the RC-wire and the RH-wire to the wallplate, otherwise, switch it to the **'Connect'** side.

DIP switch

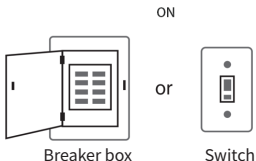## Step 5. Attach the PCT513 to the base

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.

| Breaker box | or | Switch |

When the power is successfully energized, the thermostat's screen will light up and go into wizard. You can complete the following configuration according to section 4.
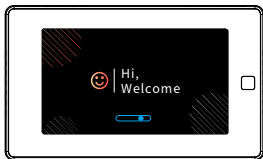
3-2-2 Install the thermostat without a C-wire (Optional)
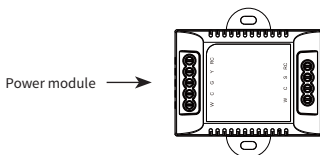
Power module

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)

RC RH G Y1 Y2 W1W2 C O/B

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

Description:

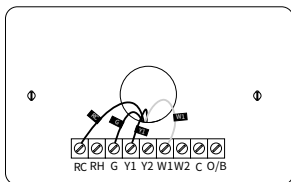The C-wire is used to provide power to the thermostat. If your system does not have "C" wire, you can use the power module to power your thermostat using the exiting wires.

To HVAC control board ⟵   ⟶ To thermostat

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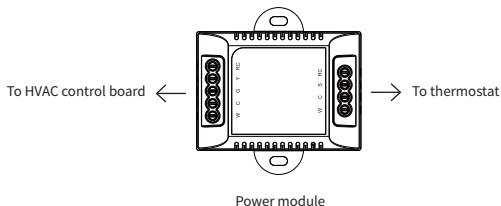
There are two sides with connections. One side (4 terminals) is for thermostat connections, the other side, pre-wired (5 terminals), is for the control board connections.

Step 1. Find the HVAC terminals

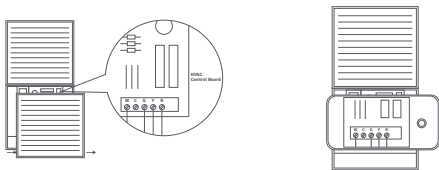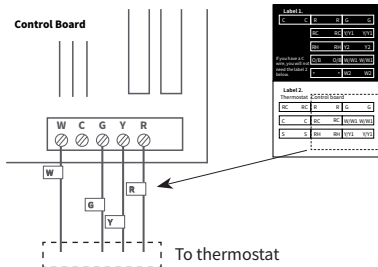Find the control board of your HVAC system. Open your HVAC system's cover and take a picture of the wires connected to the terminals of your old thermostat. You may need to reference this photo later.

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)**.

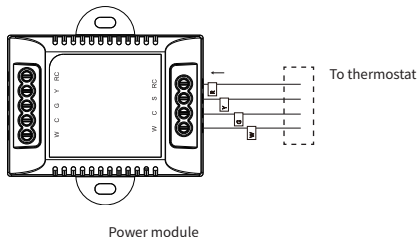To thermostat

Step 3. Disconnect the wires

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

To thermostat
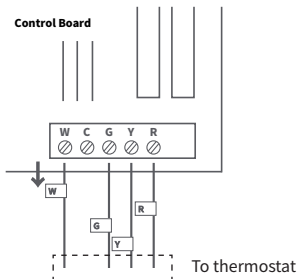
Step 4. Connect the wiring module

Reconnect them correspondingly to the 4 terminals side of the power module.

R→RC   W/W1→W   G→C   Y/Y1→S

To thermostat

Power module

Step 5. Connect the wires

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

HVAC Control Board

W C G Y R

To HVAC control board →

To thermostat
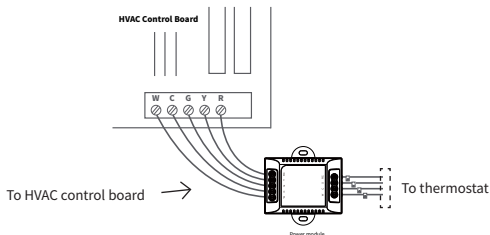
Power module

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.
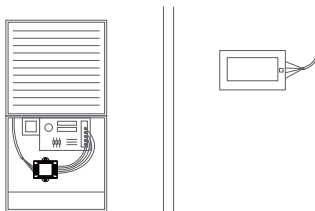
Step 7. Add new tags

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

R/RC/RH→ RC   G→ C   Y/Y1→ S
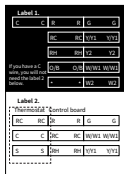
Step 8. Remove the wallplate

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

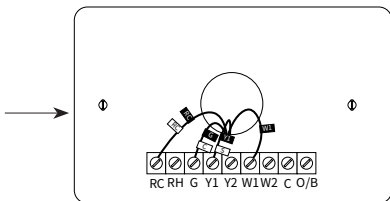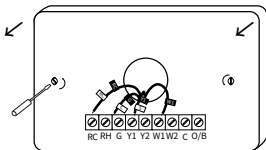## Step 9. Attach the base of PCT513 to the wall

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.

Base

Wall plate
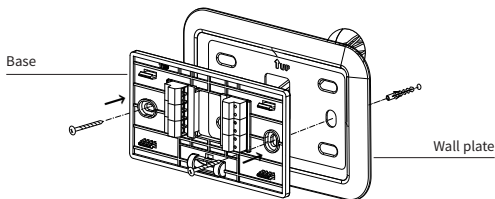
Step 10. Connect the wires

First, connect 3 wires as shown below：

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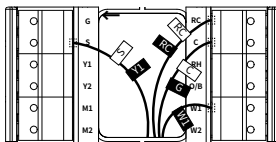
Then connect other wires to the corresponding terminal in the base. Take a picture of the wires when you finished. You may need to refer it for the wirings in the setup wizard later.

Step 11. DIP Switch

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

DIP switch
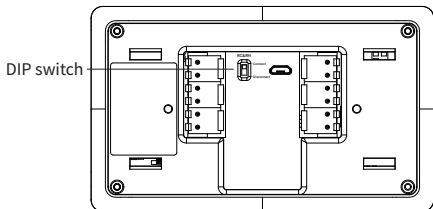
Step 12. Attach the PCT513 to the base

Gently press the PCT513 into the base until it clicks.
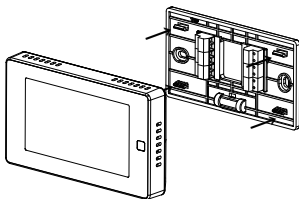
Step 13. Power on your system

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

ON

or

Breaker box   Switch
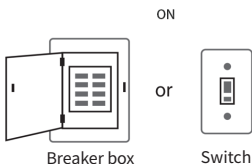
When the power is successfully energized, the thermostat's screen will light up and go into wizard. You can complete the following configuration according to section 4.
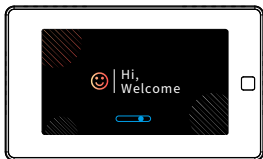
Wiring diagrams

Below are the wiring diagrams for common HVAC equipment.

Conventional heating and cooling system
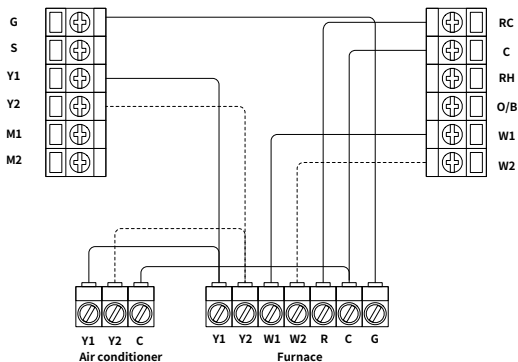
For dual heat and cooling system, if applicable.

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
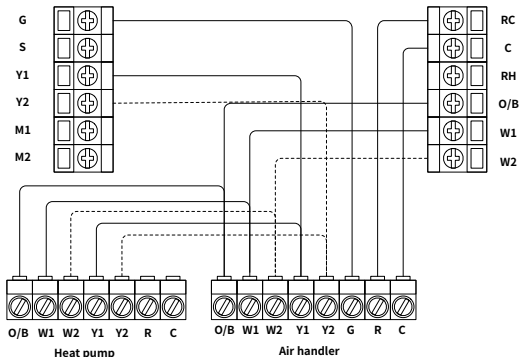
For dual heat and cooling system, if applicable.

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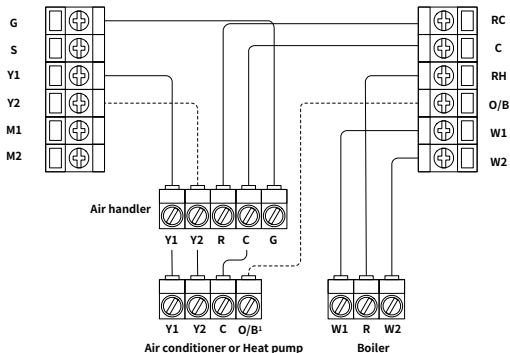
- - - - - - - - - - - - - - -   For dual heat and cooling system, if applicable.

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**

4.1 To get started, you will need:

- Connect your smart mobile phone to your home Wi-Fi network.
- A mobile phone with a **'SmartLife'** APP installed.

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

4.2 Configuration:

1. Click the Wi-Fi icon on the home screen to configure Wi-Fi.
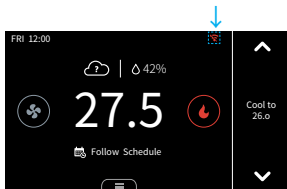
The LED status gives the following information of the thermostat:

LED status	What it means
Red LED	Rapidly blink: EZ mode
	Slowly blink: AP 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 Mode** (Default): To pair devices quickly. You can set all devices to this mode, and then add devices in batches on your phone.
- **AP Mode**: If there are many devices, while you only want to pair one device. You can refer to FAQ 6.4 to configure network in this mode.
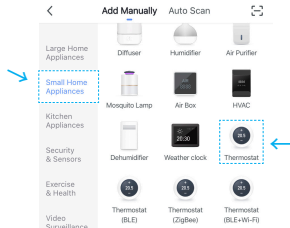

3. Open your APP.
4. Login with an existing account. If you are a new user, create an account first.
5. Please click the **'+'** button at the top right corner of the App to add devices.
6. Select **'Thermostat'** in **"Small Home Appliances"** list to add manually.

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

Select 2.4 GHz Wi-Fi Network and
enter password.

If your Wi-Fi is 5GHz, please set it to be 2.4GHz.
Common router setting method

🙂

😦

2.4GHz

5GHz

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

→ ⟳ Confirm indicator rapidly blink

Next

4%

Scan
devices.

Register
on Cloud.

Initialize
the device.
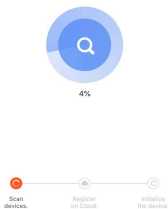
9. After successful connection, you can rename the thermostat and click **"Done"** to complete. (If failed, please go to **'Menu'** -> **'Settings'** -> **'Reset'** -> **'Reset All'** on device to reset the device and try again)

5 Meet Your Thermostat

5.1 Device Overview

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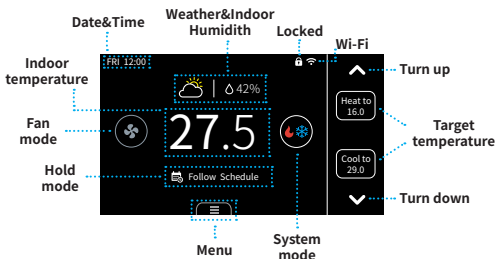
You can select the heating/cooling target temperature to adjust separately or press the up and down buttons to adjust it simultaneously.

System mode
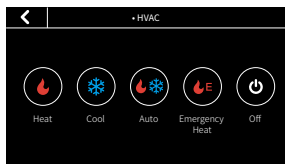
- **Heat:** Heating only

- **Cool:** Cooling only

- **Auto:** Automatic control of heating and cooling based on ambient

temperature

- **Emergency Heat:** This only works when the device connects Heat pump and W wire

- **Off:** Turn the system off

Fan mode
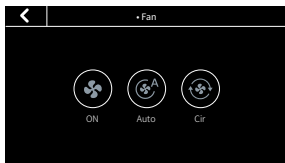
- **On:** Runs continuously

- **Auto:** Automatically adjust fan according to the system mode

- **Cir:** Runs at intervals to circulate air

Hold mode

There are three hold modes you can select
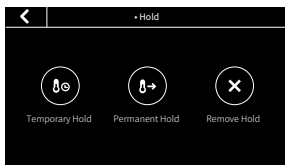
• Follow Schedule: Follow the settings of schedule to adjust the temperature. When you remove hold, the mode will turn to **'Follow Schedule'**

• Permanent Hold: Always hold the current target temperature even meet the schedule.

• Temporary Hold: Keep the current target temperature until the next scheduled activity begins. You can select this mode manually or adjusting the target temperature under **'Follow Schedule'** mode, it will turn to **'Temporary Hold'**
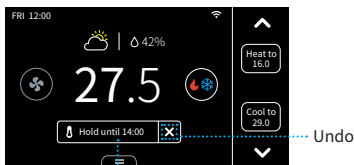
Hold temperature until next schedule

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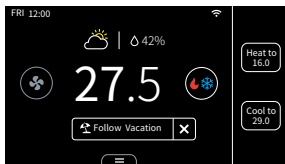
Note: When the thermostat is under this mode, you cannot manually change the target temperature. You can change the Hold/System mode manually, click "undo" or delete the vacation in menu to exit the vacation mode.

Display

Here are some changes on the screen and what those mean:

①
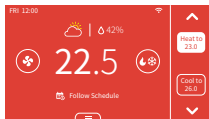
Red: Heating   Blue: Cooling

②
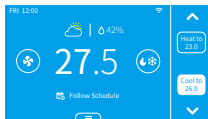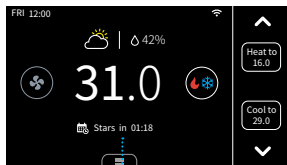
Compressor Protection Time

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

   Heat pump: heating, cooling Conventional: cooling

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

③

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

⚠ There may be a problem with the Cooling.

Done
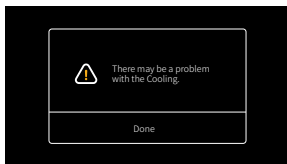
Unusual heating or cooling alert:
When the following occurs, this prompt appears on the thermostat
1. When your thermostat is cooling, the temperature in the room does not go down for a long time but instead temperature still raises.
2. When your thermostat is heating, the temperature in the room does not go up for a long time but instead the temperature still falls.

Menu
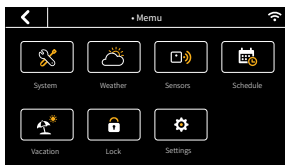
🛠️ System

- HVAC: Switch system mode (Heat/Cool/Auto/Emergency Heat/Off)

- Fan: Switch fan mode (ON/Auto/Cir)

⛅ Weather(Reserved)

(In development).

📱 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: Display Wi-Fi information. Configurate or reset Wi-Fi.

- 🌡️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

- ℃℉ Temp Unit: Celsius or Fahrenheit

- 🌡️ T/H Calibrate: 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 settings):

  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 to start frequently.

3. Compressor Min Outdoor Temp

When the outdoor temperature is below this temperature, the compressor will not be used.

4. 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 management

Location Information

Device

Connection Prompt

Device List

Add new device

Voice Control
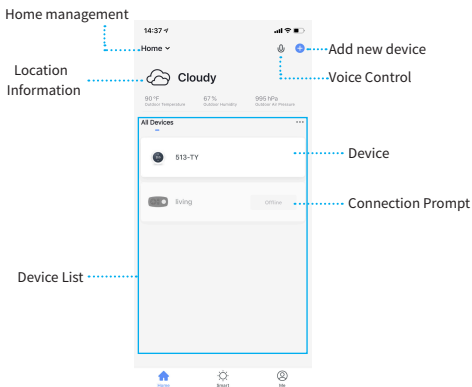
Home:

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

Indoor Humidity

Device management

Fan is working

Indoor temperature

Target temperature

System mode

Fan mode

Hold mode

Setting
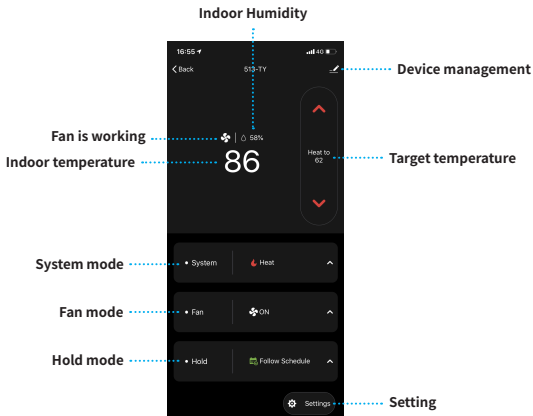
- **System mode:** Displays the current system mode. Tap it to switch the mode.

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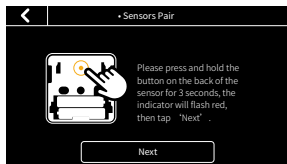
2. Remove the rear cover of the sensor.
3. Press and hold the button on the back of the sensor for 3 seconds until the
indicator on the front of the sensor flash red.
4. Wait for sensors to pair automatically. When the pairing is successful, the
sensor flashes green light for 3 times.

Now you can set the participation period of the sensor.
During this period, the thermostat will calculate the average temperature
of all the sensors in the occupied state as a reference and use it as the
indoor temperature on the main screen.
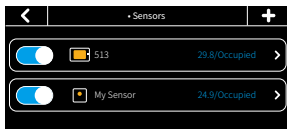
Tip: When you change the setting of sensor, the indoor temperature on the
main screen need update in 2 minutes. If there is no one in the room where
the sensor is located, that sensor will not participate in that calculation.

2. Wi-Fi configuration of the thermostat failed
- Confirm the device, mobile phone, and router are as close as possible.
- Please confirm the network is stable:
  Put the phone besides your device and make sure they are in the same network environment, try to open 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.
- Confirm the entered router password is correct.
- If it still does not work, it is recommended to change the router and try again.

3. Device offline
- Confirm whether the thermostat is powered on.
- Confirm whether the device or the network has been cut off. If so, please reconnect the network, it may need some time to recover. Please check the status 2 minutes later.
- Please confirm the network is stable:
  Put the phone besides your device and make sure they are in the same network environment, try to open a website to judge if the network can be used.
- Please confirm whether the home Wi-Fi network is normal, or whether the Wi-Fi name and password has been modified. If necessary, remove the device and add again.
- 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, wait for 5 minutes and observe 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.
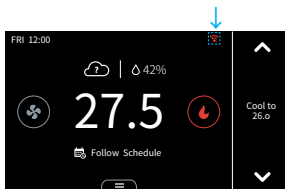
2. Select the AP mode. It may take a while to switch between the two modes.
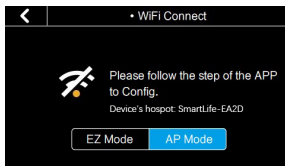
3. Open your APP.

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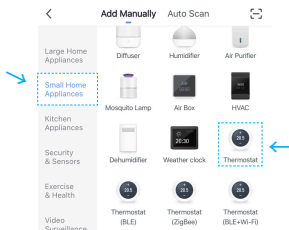
7. Enter your home Wi-Fi account and password (Only support 2.4Ghz Wi-Fi), then tap **"Next"** button.

Select 2.4 GHz Wi-Fi Network and
enter password.

If your Wi-Fi is 5GHz, please set it to be 2.4GHz.
Common router setting method

8. Switch the network configuration mode to AP mode at the upper right corner of the APP. Then confirm the indicator on your device is slowly blink, tap **"Next"**.
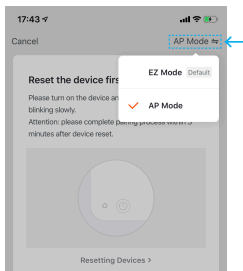
9. Place the router, mobile phone and thermostat as close as possible to waiting for connection. Confirm the indicator on your device is slowly blink, then tap **"Next"**.

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

Connect your mobile phone to the device's hotspot

1. Connect the phone to the hotspot shown below.

●●●● Carrier 令	下午2:48	● ✚ 100% ▬▬
‹ Settings	**Wi-Fi**	

Wi-Fi ⬤

✓ SmartLife-XXXX	令 ⓘ
✓ SL-XXXX	令 ⓘ

home	🔒 令 ⓘ
home2	🔒 令 ⓘ
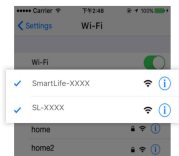
2. Go back to the app and continue to add devices.

Go to Connect

11. After the connection succeeds, you can rename the thermostat and click **"Done"** to complete the configuration. (If failed, please go to **'Menu'**-> **'Settings'**-> **'Reset'**-> **'Reset All'** on device to reset the device and try again)

6%

Scan devices. — Register on Cloud — Initialize the device.

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)
Advanced	• Setting temperature locally or remotely • Auto-changeover between heat and cool mode (System Auto) • Compressor protection time is available for select • Failure protection by cutting off all circuit relays • Smart warmup (Follow Schedule mode only) • Low temperature protection

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
Max. Load Current	• 1A
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

Warning：

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.

changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
NOTE: 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 or 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.
NOTE: This device and its antenna(s) must not be co-located or operation in conjunction with
any other antenna or transmitter

RF Exposure Statement

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum distance of 20Cm the radiator your body. This device and its antenna(s) must not be co-located or operation in conjunction with   any other antenna or transmitter