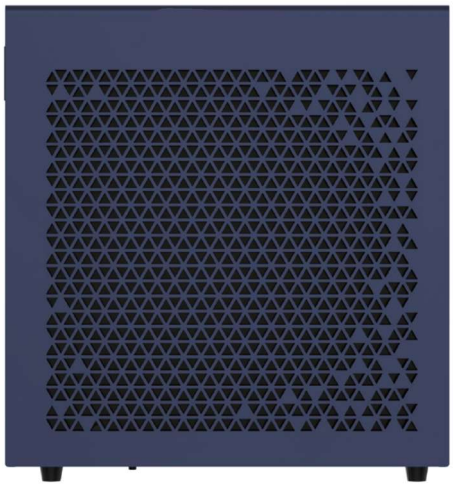
Installation & Operation Manual

Mini Inverter Heat Pump



Model: BYC-003TB1

BYC-004TB1

BYC-006TB1

Thank you very much for purchasing our product,please keep and read this manual carefully before you install heat pump.

Fluorinated greenhouse gas – (R32)

The device contains the fluorinated greenhouse gas (R32) which is required for the device to work.

Industrial designation	HFC-32
Common designation	R32
Global warming potential (GWP)	675

Further information can be found on the device itself or the Specifications.

⚠ WARNING!

Risk of fire and explosion through leaking finned heat exchanger!

The refrigerant circuit of the finned heat exchanger contains highly pressurised, easily flammable, odourless gas. Risk of fire and explosion in the event of uncontrolled gas leakage.

- Action of filling gas must be conducted by professional with R32 operating license.
- Keep the heat pump away from heat sources and naked flames.
- Do not drill into or scorch the heat pump.
- Do not use any objects apart from those permitted by the manufacturer to speed up the defrosting process.
- Immediately shut off the heat pump if you suspect a gas leakage.
- The refrigerant is odourless. Always keep ignition sources away from the installation site of the heat pump.
- Contact an authorized expert if you suspect a gas leakage.

⚠ WARNING!

Risk of electric shock!

A faulty electrical installation or a mains voltage that is too high can lead to electric shock.

- Have the installation, initial start-up and maintenance of the heat pump carried out by authorized technician only.
- Please always cut the power supply if you want to open the cabinet to reach inside the heat pump as there is high voltage electricity inside.
- Only start work on the heat pump after checking all safety regulations.
- Only connect the heat pump if the voltage from the power supply matches the voltage indicated on the rating plate.

- Do not operate the heat pump if there is visible damage or the cable is defective.
- Do not open the housing. Leave repairs to qualified specialists. Liability and warranty claims are excluded in the event of repairs carried out on your own, improper operation.
- Ensure that children do not insert any objects into the fan blade and heat pump.
- Ensure that the electrical system to which the heat pump is connected has an earth conductor.
- If the unit would be installed where is vulnerable to lightning stroke, lightning protection measurements must be carried out.

ATTENTION!

- The manufacturer declines any responsibility for the damage caused with the people,objects and of the errors due to the installation that disobey the manual guideline. Any use that is without conformity at the origin of its manufacturing will be regarded as dangerous.
- Please always keep the heat pump in the ventilation place and away from anything which could cause fire.
- Don’t weld the pipe if there is refrigerant inside machine. Please keep the machine out of the confined space when make gas filling by the authorized technician.
- Please always empty the water in heat pump during winter time or when the ambient temperature drops below 0□, or else the Titanium exchanger will be damaged because of being frozen, in such case, it will be out of warranty for this machine.

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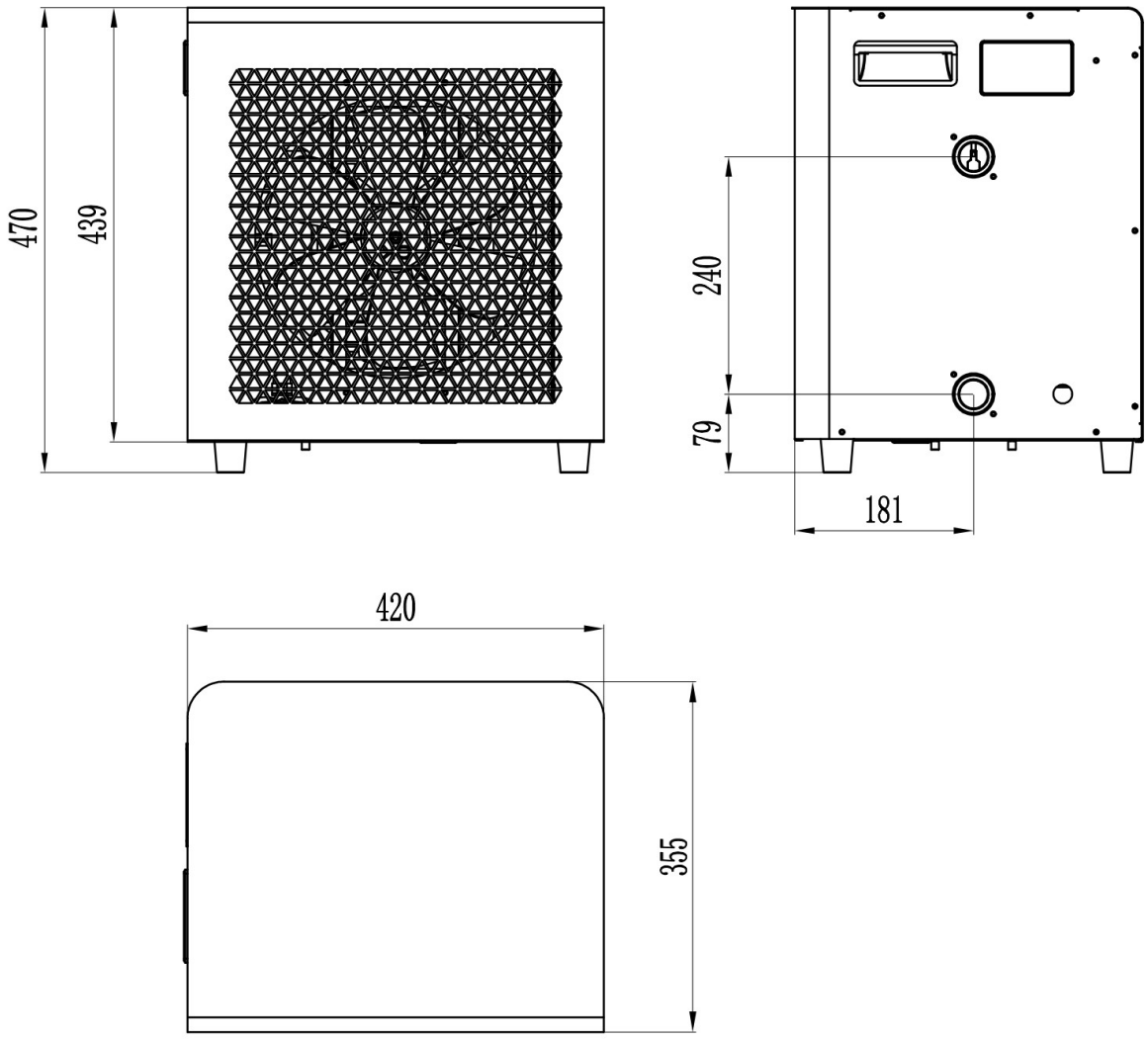
1. Specifications

1.1 Technical data pool heat pumps

Model No.	BYC-003TB1	BYC-004TB1	BYC-006TB1
Power Supply	230V~/50Hz	230V~/50Hz	230V~/50Hz
Heating Capacity at Air 26 □,Water 26 □ in,28 □ out Humidity 80%			
Heating Capacity（kW)	3.8~2.65	4.55~2.65	6.08~3.02
Power Input（kW)	0.73~0.38	0.92~0.38	1.14~0.33
COP	5.21~6.97	4.95~6.97	5.33~9.15
Heating Capacity at Air 15□,Water 26□ in,28 □ out Humidity 70%			
Heating Capacity（kW)	3.08~1.81	3.44~1.81	4.23~1.98
Power Input（kW)	0.83~0.37	1.02~0.37	1.04~0.36
COP	3.71~4.89	3.37~4.89	4.07~5.5
Max Power Input（kW)	1.28	1.28	1.36
Max Current(A)	5.6	5.6	6.0
Refrigerant	R32		
Heat Exchanger	Titanium		
Air Flow Direction	Horizotal		
Water Flow Volume（m3/h)	1.56	1.86	2.58
Net Dimensions(L*W*H)（mm）	420*360*490		
Package Dimensions(L*W*H)（mm）	475*430*510		
Working temperature range（□）	0～43		
Noise（dB)	46	48	50
Net Weight（kg）	23	23	26
Gross Weight（kg）	25	25	28
Compressor	MITSUBISHI		

Above data is subject to modification without prior notice.

2. Dimension (mm)



3.Installation and connection

Attention:

Please observe the following rules when installing the heat pump:

1. Any addition of chemicals must take place in the piping located **downstream** from the heat pump.
2. Always hold the heat pump upright. If the unit has been held at an angle, wait at least 24 hours before starting the heat pump.

3.1 Heat pump location

The unit will work properly in any desired location as long as the following three items are present:

1. Fresh air – 2. Electricity – 3. Swimming pool filters

The unit may be installed in virtually any **outdoor** location as long as the specified minimum distances to other objects are maintained. Please consult your installer for installation with an indoor pool.

ATTENTION: Never install the unit in a closed room with a limited air volume in which the air expelled from the unit will be reused, or close to shrubbery that could block the air inlet. Such locations impair the continuous supply of fresh air, resulting in reduced efficiency and possibly preventing sufficient heat output.

3.2 Initial operation

Note: In order to heat the water in the pool (or hot tub), the filter pump must be running to cause the water to circulate through the heat pump. The heat pump will not start up if the water is not circulating.

3.3 Electrical connection

Before connecting the unit, verify that the supply voltage matches the operating voltage of the heat pump again .

Attention:

The power supply must have a leakage protection device installed for your safety.

Model	BYC-004TB1	BYC-005TB1	BYC-006TB1
Power Supply	220~240 V/ 1/ 50 Hz		
Max Input Current (A)	5.6	5.6	6.0
Electric Leakage Protector (mA)	10	10	10
Power Cable (mm²)	3*1.5		

After all connections have been made and checked, carry out the following procedure:

1. Switch on the filter pump. Check for leaks and verify that water is flowing from and to the swimming pool.
2. Connect power to the heat pump and press the On/Off button  on the electronic control panel. The unit will start up after the time delay expires (see below).
3. After a few minutes, check whether the air blowing out of the unit is cooler.
4. When turn off the filter pump, the unit should also turn off automatically.

Depending on the initial temperature of the water in the swimming pool and the air

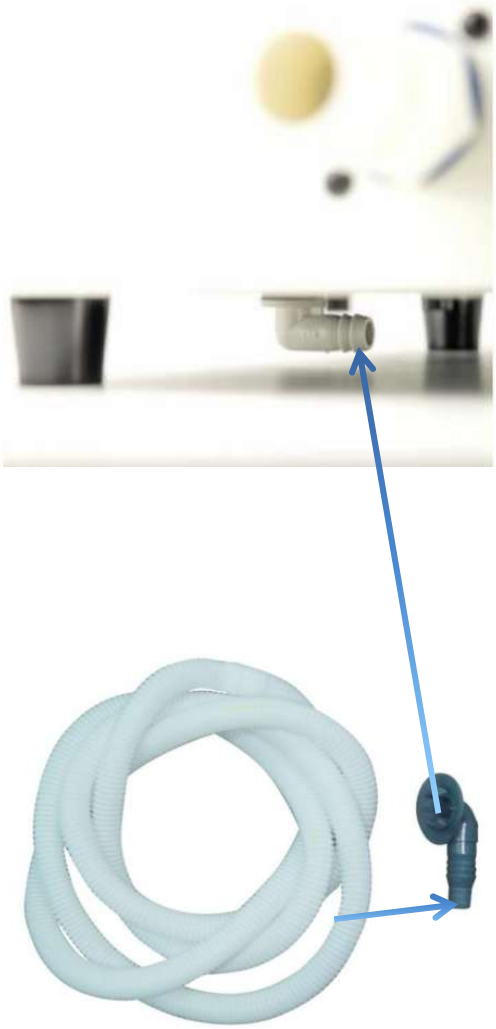
temperature, it may take some time to heat the water to the desired temperature. A good swimming pool cover can dramatically reduce the required length of time.

Time delay - The heat pump has a built-in 3-minute start-up delay to protect the circuitry and avoid excessive contact wear. The unit will restart automatically after this time delay expires.

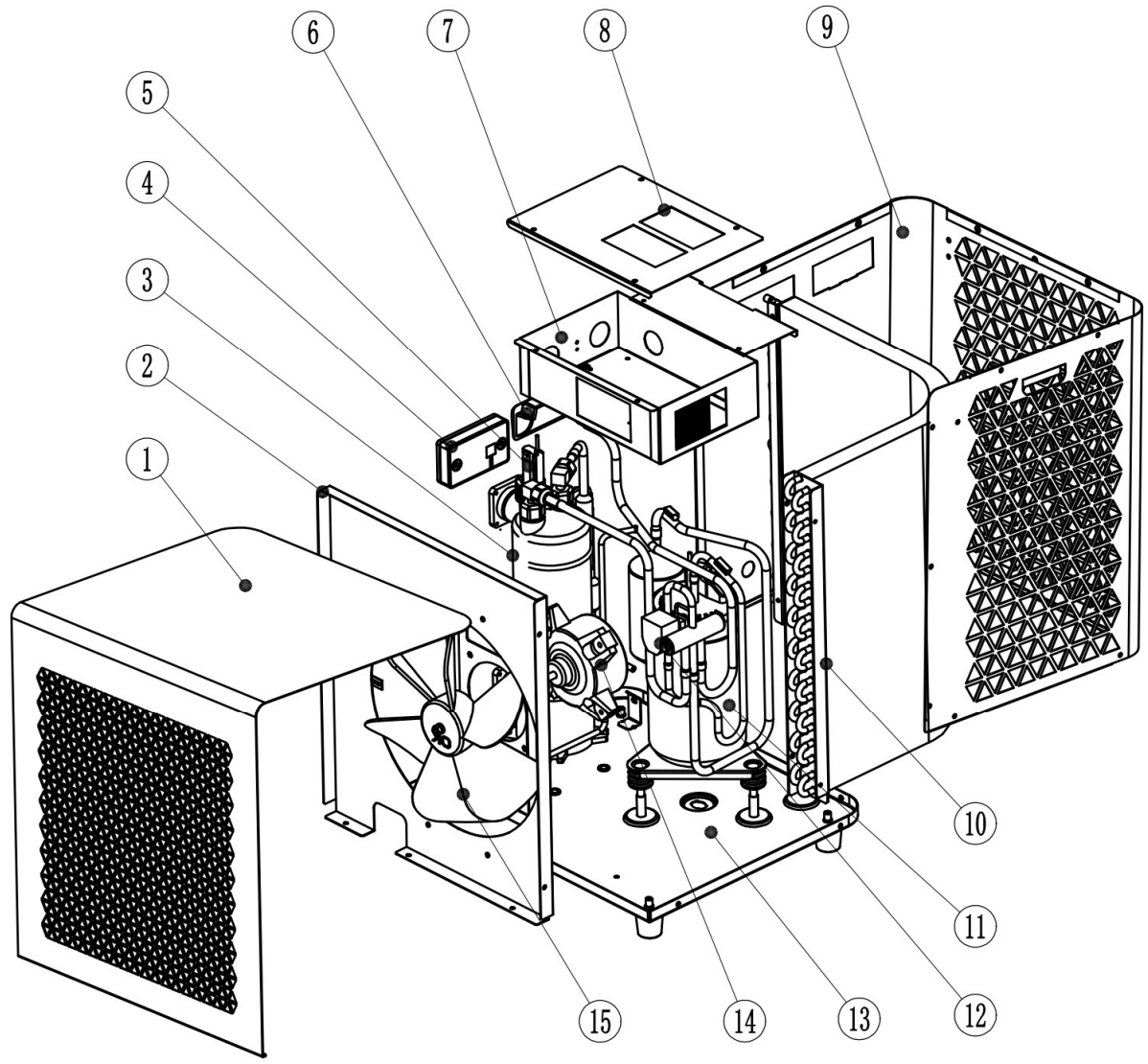
If first power on or additional power interruptions, the heat pump starts 10s later after pressing the On/Off button  .

3.4 Condensation

The air drawn into the heat pump is strongly cooled by the operation of the heat pump for heating the pool water, which may cause condensation on the fins of the evaporator. The amount of condensation may be as much as several litters per hour at high relative humidity. This is sometimes mistakenly regarded as a water leak.



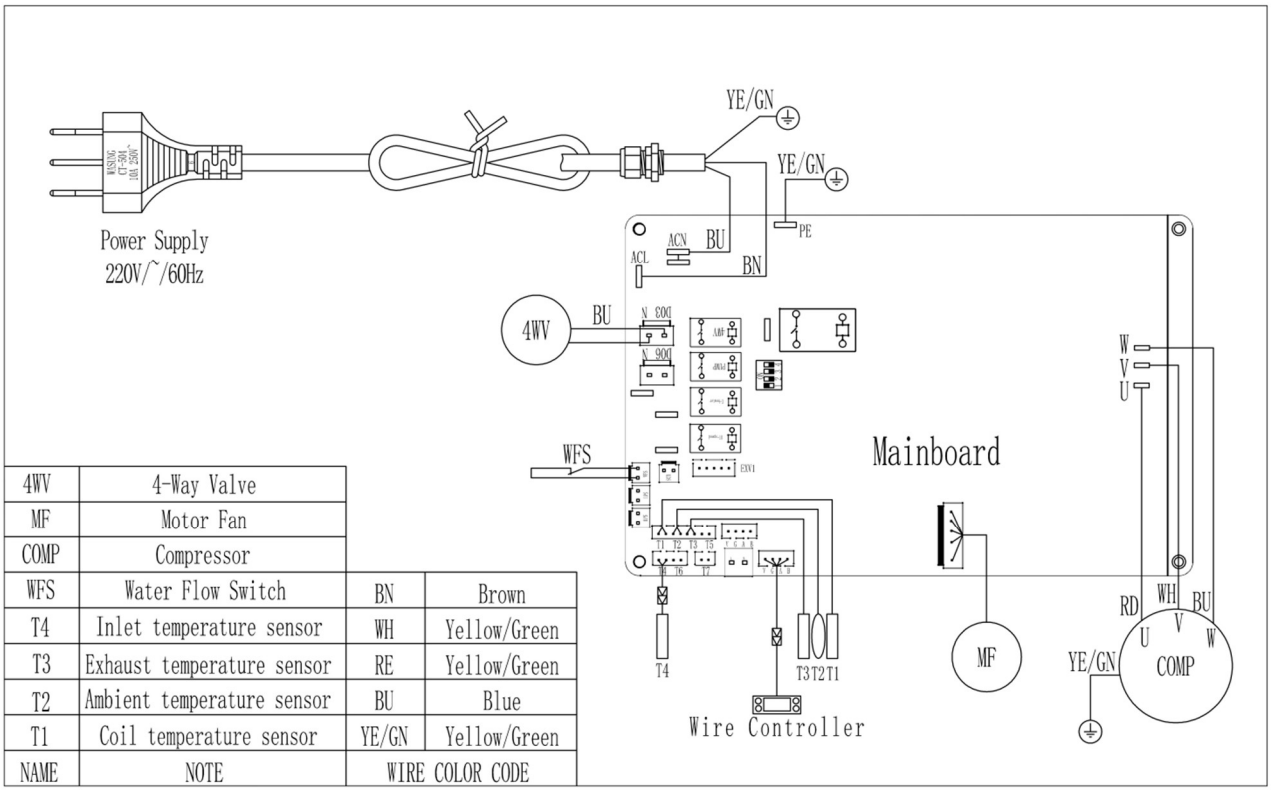
3.5 Exploded Drawing



1	Front Panel	6	Handle	11	Compressor
2	Middle Partition	7	Electrical Box	12	4-Way Valve Assembly
3	Titanium Tube Heat Exchanger	8	Electrical Box Cover	13	Chassis / Base Frame
4	Controller	9	Side Panel	14	Motor
5	Water Flow Switch	10	Evaporator	15	Fan Blade

4.Electrical wiring

4.1 Swimming pool heat pump wiring diagram



4WV	4-Way Valve		
MF	Motor Fan		
COMP	Compressor		
WFS	Water Flow Switch	BN	Brown
T4	Inlet temperature sensor	WH	Yellow/Green
T3	Exhaust temperature sensor	RE	Yellow/Green
T2	Ambient temperature sensor	BU	Blue
T1	Coil temperature sensor	YE/GN	Yellow/Green
NAME	NOTE	WIRE COLOR CODE	

NOTE:

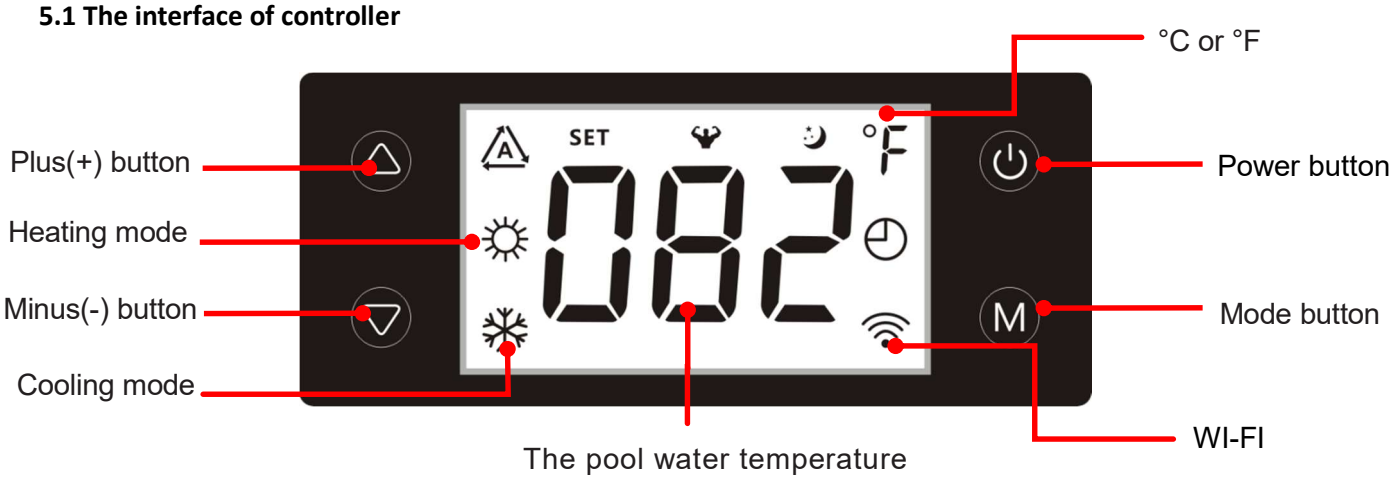
(1) Above electrical wiring diagram only for your reference, please subject machine posted the wiring diagram.

(2) The swimming pool heat pump must be connected ground wire well, although the unit heat exchanger is electrically isolated from the rest of the unit. Grounding the unit is still required to protect you against short circuits inside the unit. Bonding is also required.

Disconnect: A disconnect means (circuit breaker, fused or un-fused switch) should be located within sight of and readily accessible from the unit. This is common practice on commercial and residential heat pumps. It prevents remotely-energizing unattended equipment and permits turning off power at the unit while the unit is being serviced.

5. Display controller operation

5.1 The interface of controller



* When the heat pump is under Heating mode, will light on.

* When the heat pump is under Cooling mode, will light on.

* When the heat pump is under defrosting, will light on and will flash.

* When the heat pump is Power-off, the display shows 'OFF'.

* If there is WiFi function, when the WiFi connection is successful, will be light on.

Name/Icon	Function Description
Power Button	1. Press and hold for 1 second to turn the unit ON/OFF. 2. In query status, press briefly to return to the main interface. 3. In setting status, press briefly to return to the main interface. 4. The controller will automatically return to the main interface, turn off the screen and lock automatically after 60 seconds of inactivity. 5. On the main interface in locked status, press and hold for 3 seconds to unlock.
Mode Button	1. On the main interface, press and hold for 5 seconds to enter the parameter interface (no editing allowed). 2. In powered-on status, switch between Auto, Cooling, and Heating modes depending on the unit model. 3. In parameter query status, enter/save parameters.
Up Button	1. On the main interface in powered-on status, press to set the temperature. 2. On the main interface, press and hold for 3 seconds to enter query status.

	3. In query status, press briefly to switch the query sequence number. 4. In parameter setting status, press together with the Mode button to modify parameters. 5. Modify timer settings.
Down Button 	1. On the main interface in powered-on status, press to set the temperature/curve. 2. On the main interface, press and hold for 3 seconds to enter query and maintenance status. 3. In query status, press briefly to switch the query sequence number. 4. In parameter setting status, press together with the Mode button to modify parameters.5. Modify timer settings.
Power + Mode 	Redefined: Press and hold for 3 seconds to enter timer setting, the clock icon will light up.
Power + Up 	Press and hold for 5 seconds to enter manual smart network connection.
Power + Down 	Press and hold for 5 seconds to enter manual AP network connection.
Mode + Down 	On the powered-on main interface, press and hold for 5 seconds to force defrost ON/OFF. Within 5 minutes of power-on, on the powered-off main interface, press and hold for 10 seconds to enter/exit refrigerant charging mode.
Up + Down 	Press and hold for 3 seconds to switch between Celsius/Fahrenheit.

5.2 Query Table

Status Name	Display Code	Remarks
Refrigerant Cycle / Water Cycle	00	0 = Water Cycle; 1 = Refrigerant Cycle
Water Flow Switch	03	0 = Open; 1 = Closed
Coil Temperature Value	05	Actual measured value
Ambient Temperature Value	06	Actual measured value
Inlet Water Temperature Value	09	Display value = Actual measured value + Compensation value
Compressor	11	0 = Stopped; 1 = Running
4-Way Valve	12	0 = Stopped; 1 = Running
High-Speed Fan	13	0 = Stopped; 1 = Running
Compressor Running Cumulative Time Before Defrost	17	Actual measured value
Current Unit Tooling Value	19	Tooling 0

5.3 WIFI FUCTION

1. Press and hold for 5 seconds to enter manual smart network connection , buzzer beeps once and  flashes rapidly.

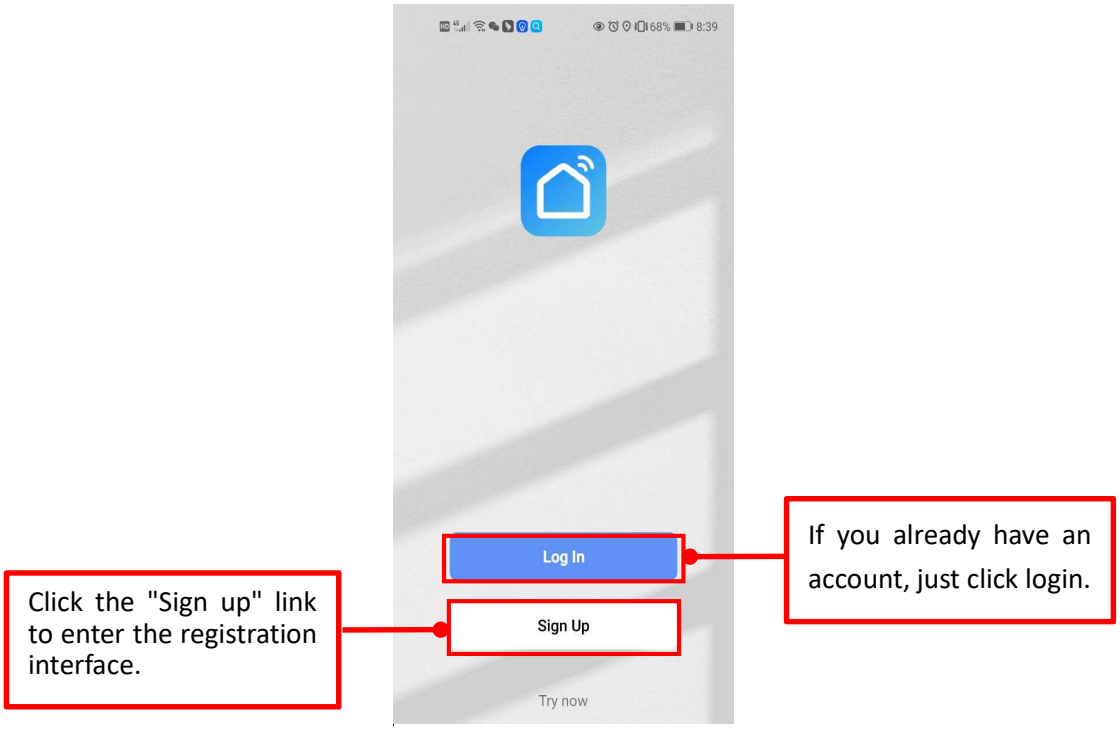
2Press and hold for 5 seconds to enter manual AP network connection , buzzer beeps once and  flashes slowly.

This device supports remote control via mobile phone.If you are using an Android system, simply scan the QR code below to download.If you are using an iOS system, please go to the App Store or Google Play Store, search for Smart Life, and download the application.

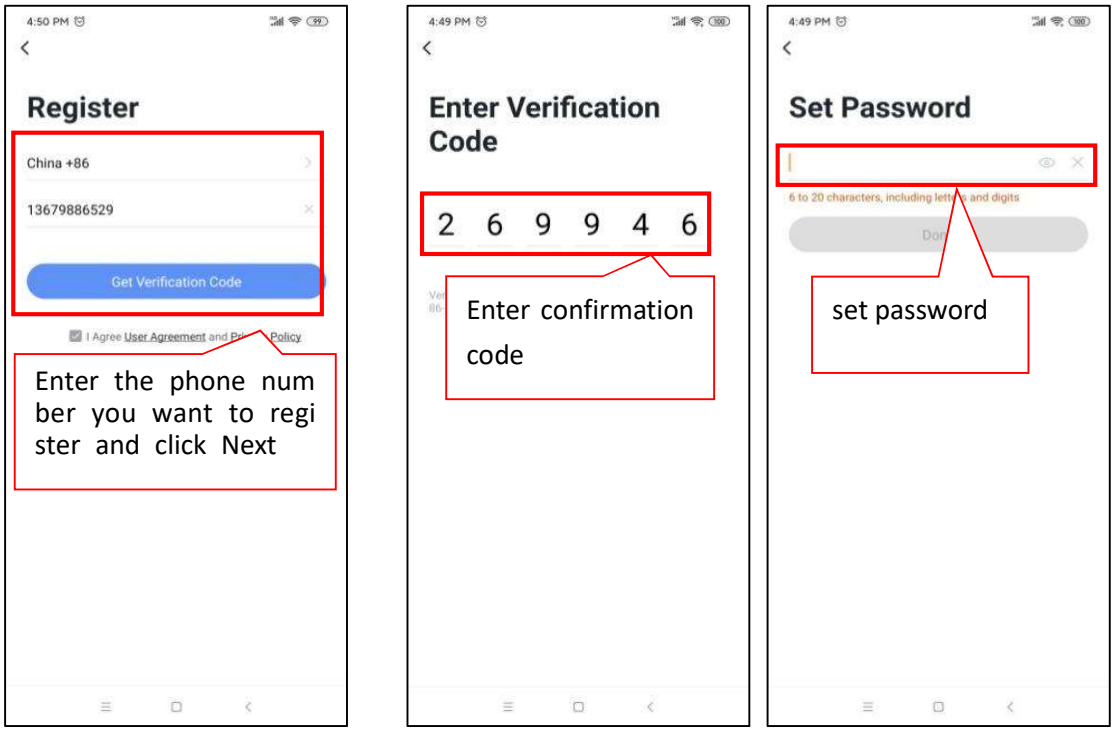


User registration

When using the "smart life" software for the first time, user registration is required.



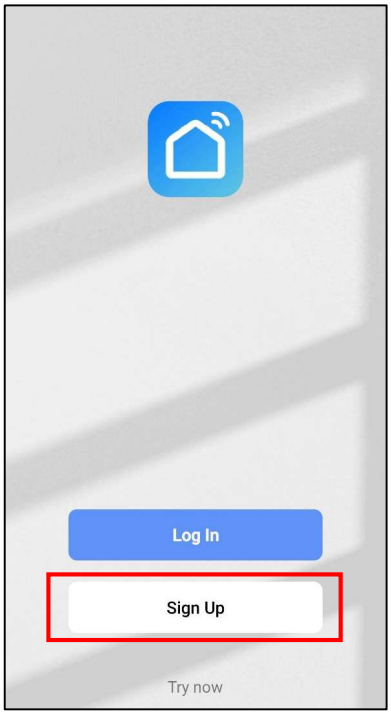
After entering the registration page, please follow the instructions on the page to register。

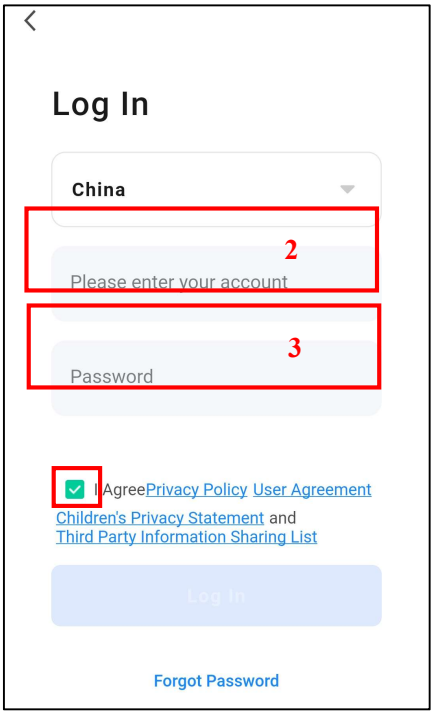


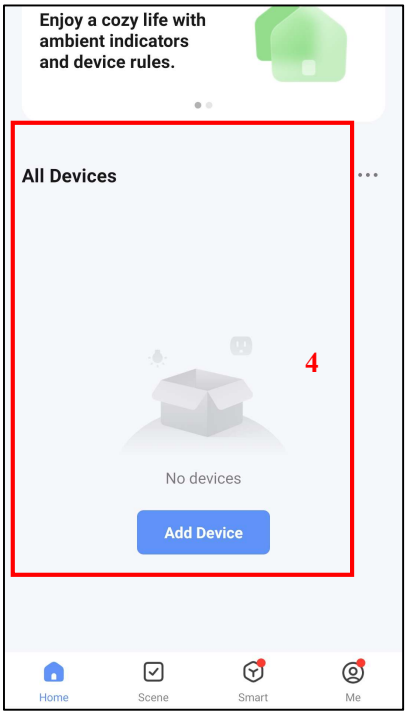
App Login

Users with an existing account can log in directly, following the sequence below:

Tap Login → 2. Enter your account → 3. Enter your password → 4. Enter the App's main interface.

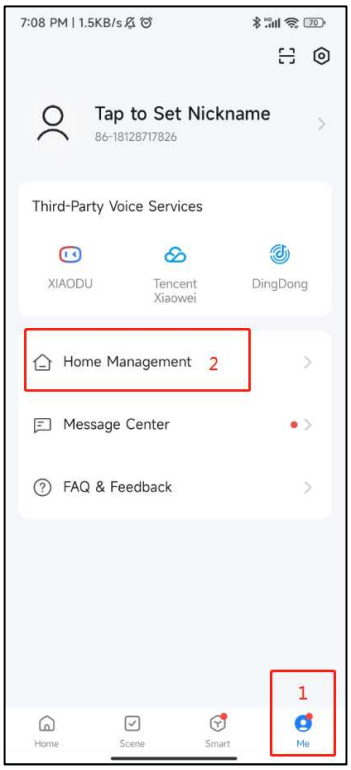


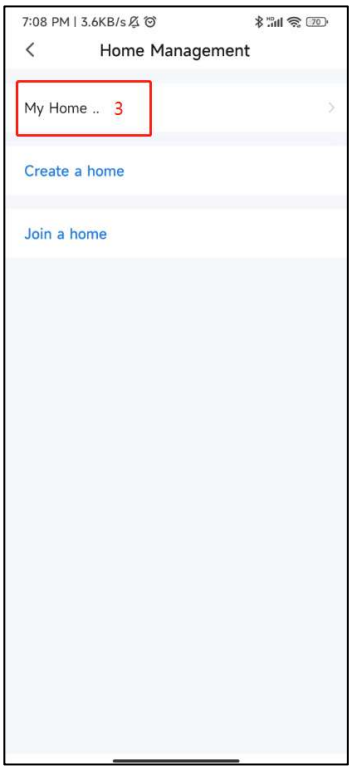


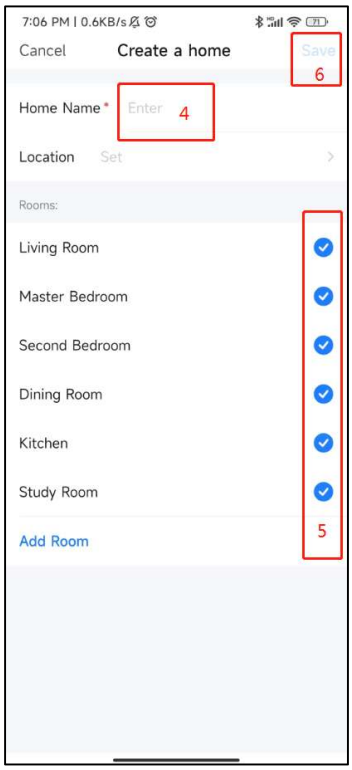


Pre-Login Setup

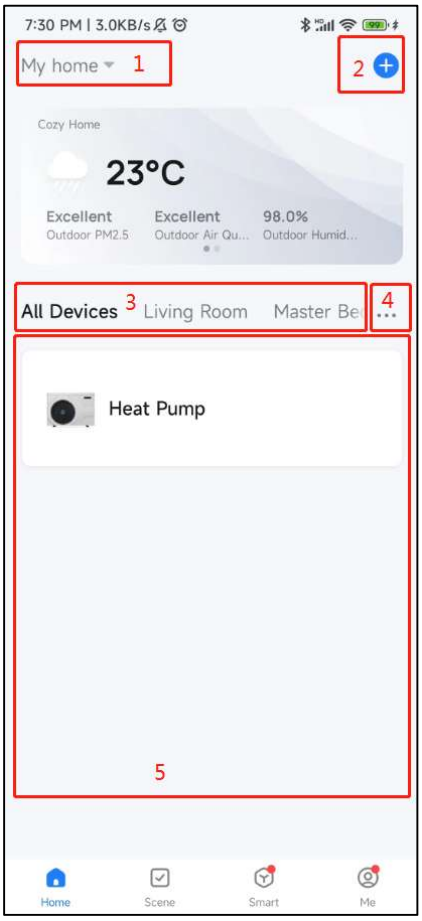
After completing registration, you need to create a home: Home Management → Set Home Name → Set Location → Add Rooms → Done, following the sequence shown in the figure below.







Smart Life App Main Interface:



- Tap the device name to enter the device's main control interface.

1. Home Name: Tap to enter Home Management.
2. Add Device: Tap to add a new smart device.
3. Added Rooms: Tap to view all devices added to that room.
4. Room Management: Tap to manage room settings.
5. Added Devices: Displays all devices bound to your account.

Wi-Fi Module Configuration Steps

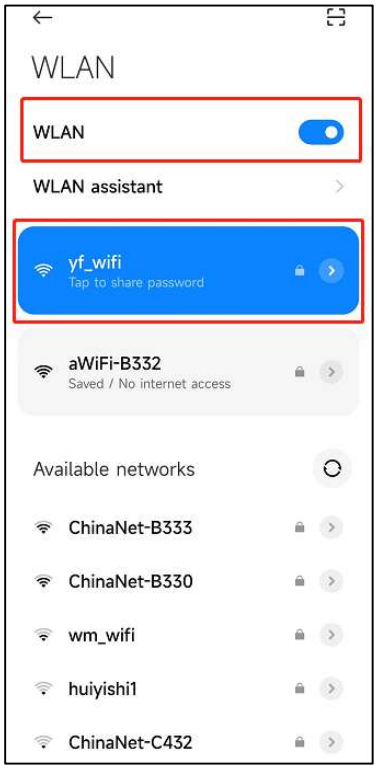
Method 1 (Smart Config Mode)

Step 1

When powered on for the first time, the device is ready for connection within the default 10 seconds. After 10 seconds, manual button operation is required to enter pairing mode. (10s is the delay for Wi-Fi to enter low-power mode.)Manually enter Smart Config Mode: Press and hold the [Power] and [Up] buttons for 3 seconds to enter Smart Config Mode. The [Wi-Fi] icon will flash rapidly, and you can start pairing on your phone.The device will exit pairing mode after 3 minutes, the [Wi-Fi] icon will stop flashing, and the Wi-Fi module will stop pairing. To re-pair, press and hold the [Power] and [Up] buttons for 3 seconds again.

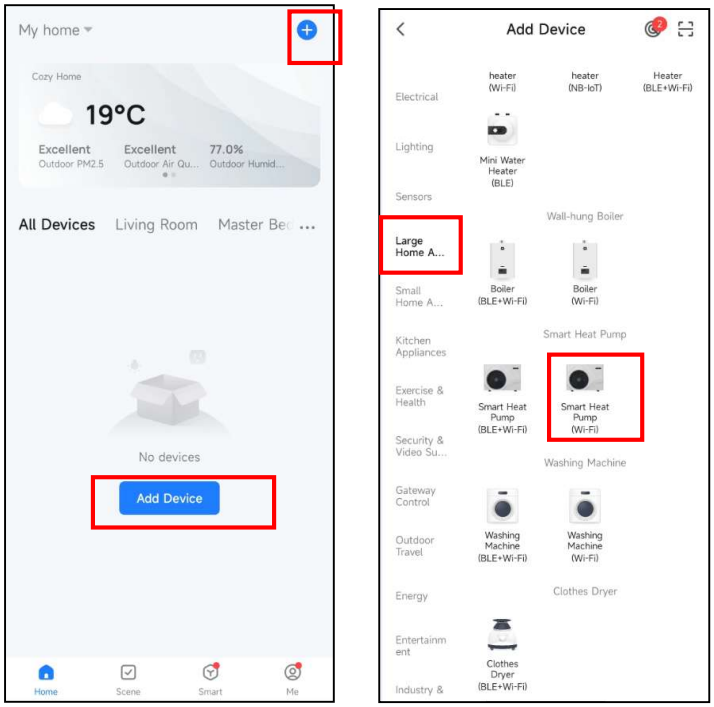
Step 2

Enable Wi-Fi on your phone and connect to a Wi-Fi hotspot that has a stable internet connection.As shown: Connect to the Wi-Fi hotspot yf_wifi.



Step 3

Open the Smart Life App, log in to the main interface, tap the "+" icon in the top-right corner (or Add Device on the interface) to add a device. Select Smart Heat Pump (Wi-Fi) under the Large Home Appliances category to enter the device addition interface.

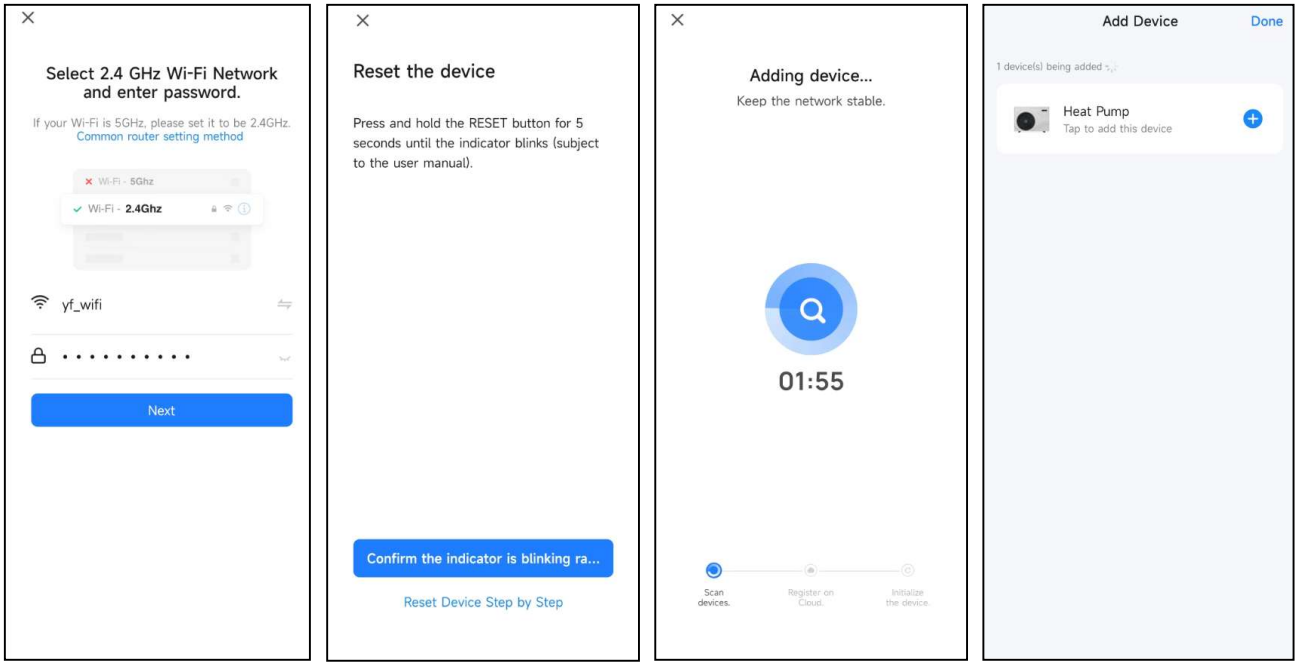


Step 4

After selecting Smart Heat Pump (Wi-Fi), you will enter the Wi-Fi connection interface. Enter the password of the Wi-Fi network your phone is connected to (must be the same network as your phone), then tap Next.

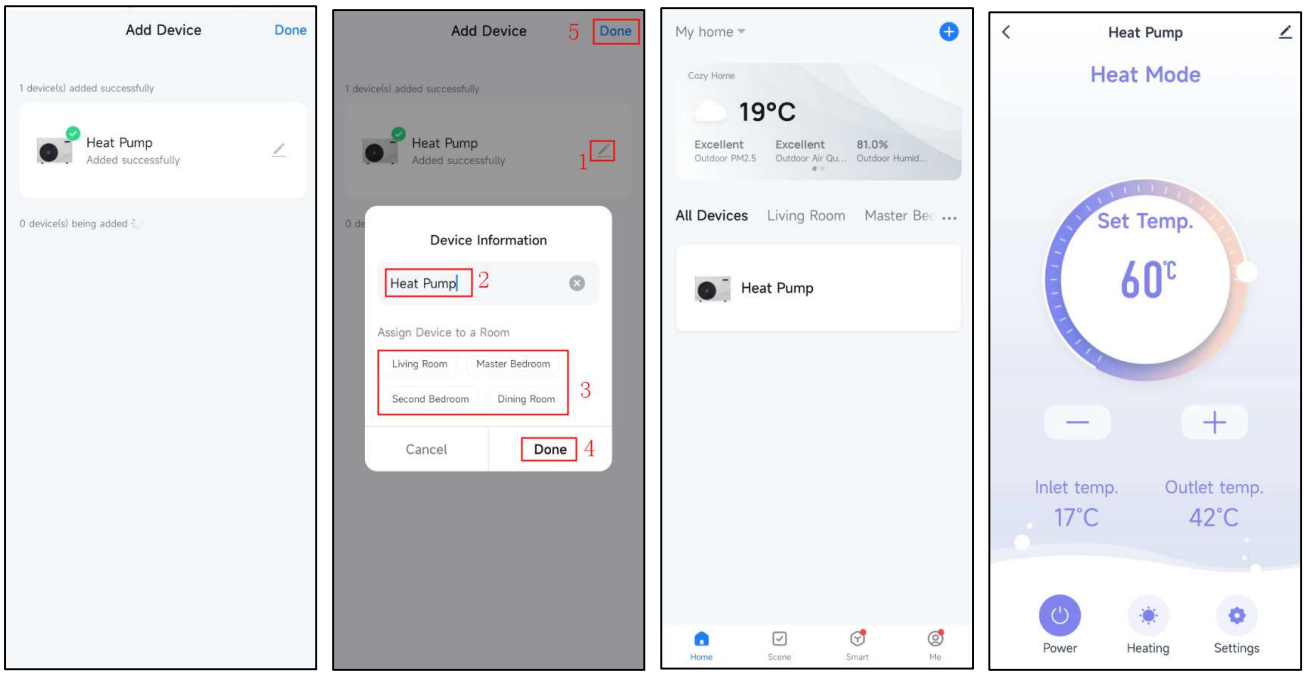
Confirm that the wired controller is in Smart Config Mode and the [Wi-Fi] icon is flashing rapidly, then tap Confirm indicator is flashing rapidly to start adding the device.

Note: When the wired controller's Wi-Fi module is connected to the Wi-Fi hotspot, the [Wi-Fi] icon will flash slowly.



Step 5

When the system prompts "Device added successfully", pairing is complete. On this interface, you can tap the icon to rename the device, select the installation location (Living Room, Master Bedroom, etc.), then tap Done to enter the device's main control interface directly.



Method 2 (AP Config Mode)

Step 1

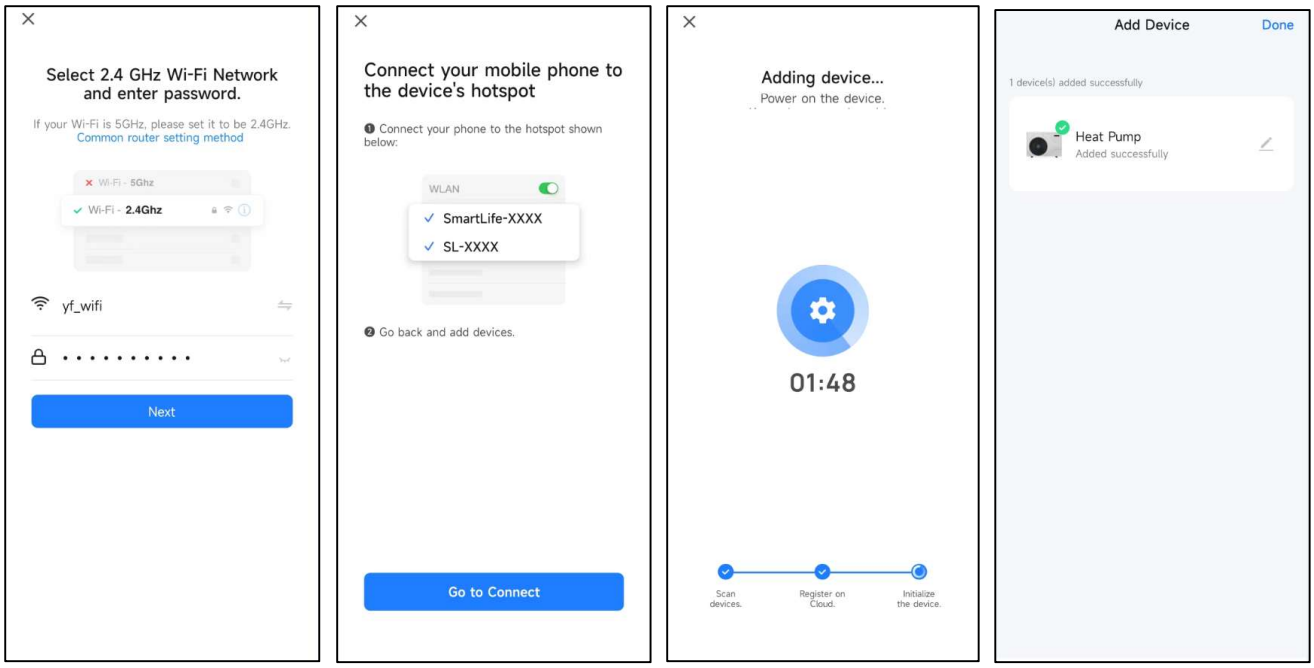
Press and hold the [Power] and [Down] buttons for 3 seconds to enter AP Config Mode. The [Wi-Fi] icon will flash, and you can start pairing on your phone.The device will exit pairing mode after 3 minutes, the [Wi-Fi] icon will stop flashing, and the Wi-Fi module will stop pairing. To re-enter pairing mode, press and hold the [Power] and [Down] buttons for 3 seconds again.

Step 2 & 3: Same as Smart Config Mode

Step 4

After selecting Smart Heat Pump (Wi-Fi), you will enter the Wi-Fi connection interface. Enter the password of the Wi-Fi network your phone is connected to (must be the same network as your phone), then tap Next. Confirm that the wired controller is in AP Config Mode and the [Wi-Fi] icon is flashing slowly, then tap Confirm indicator is flashing slowly. Next, connect your phone's Wi-Fi to the device's hotspot (as shown below). Confirm the hotspot connection is correct and tap Next to start connecting to the device: Search for device → Register to cloud → Device initialization complete.

Note: When the wired controller's Wi-Fi module is connected to the Wi-Fi hotspot, the [Wi-Fi] icon will flash slowly.

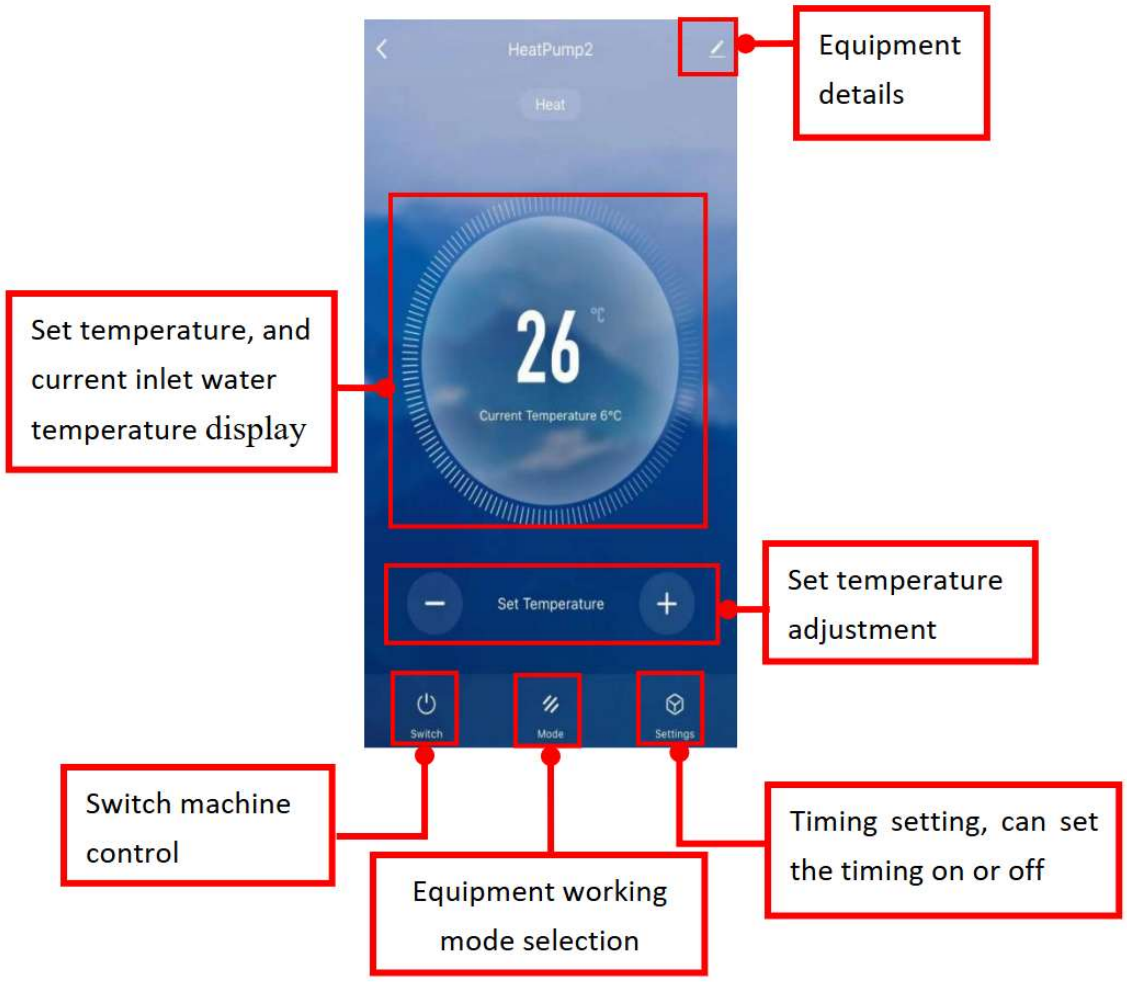


Step 5: Same as Smart Config Mode

Note: If the connection fails, manually re-enter AP Config Mode and repeat the steps above.

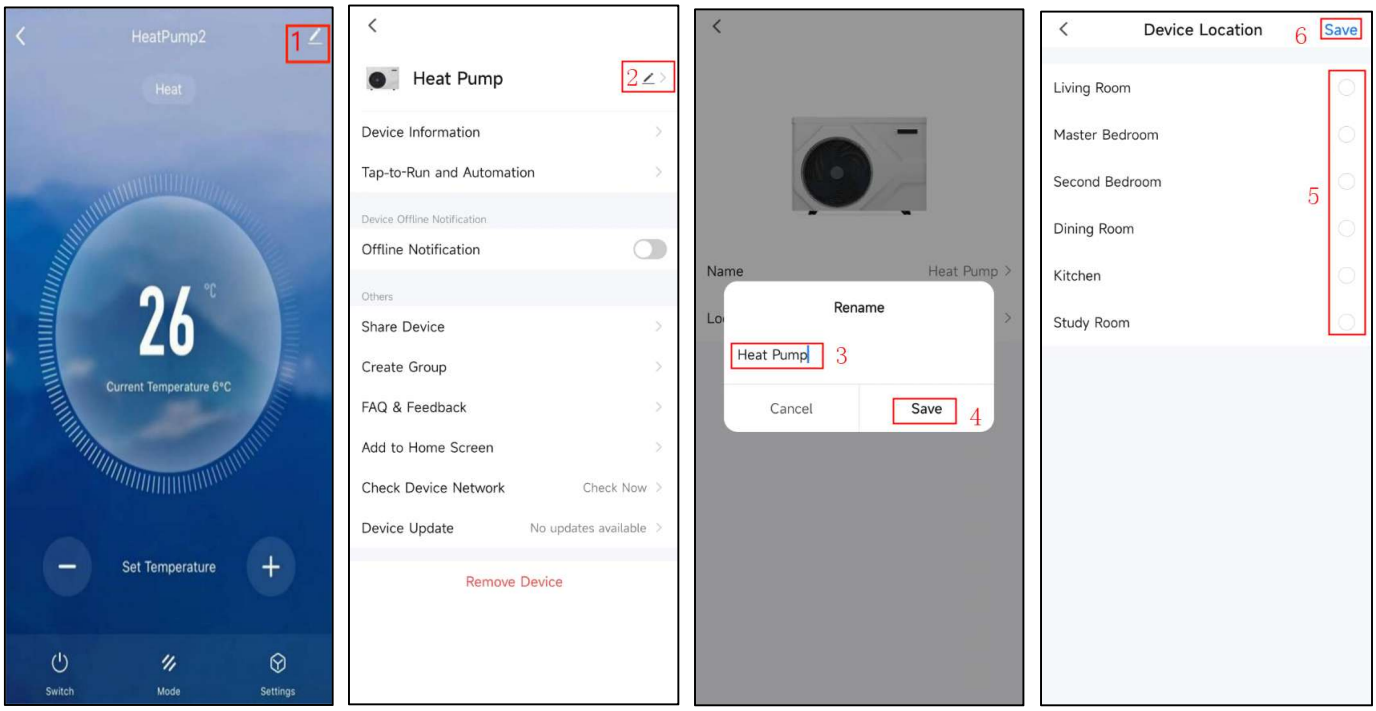
App Function Operations

After the device is successfully bound, you will enter the "Heat Pump" (device name, editable) operation page.On the Smart Life main interface, tap "Heat Pump" under "All Devices" to enter the "My Heat Pump" device operation page.

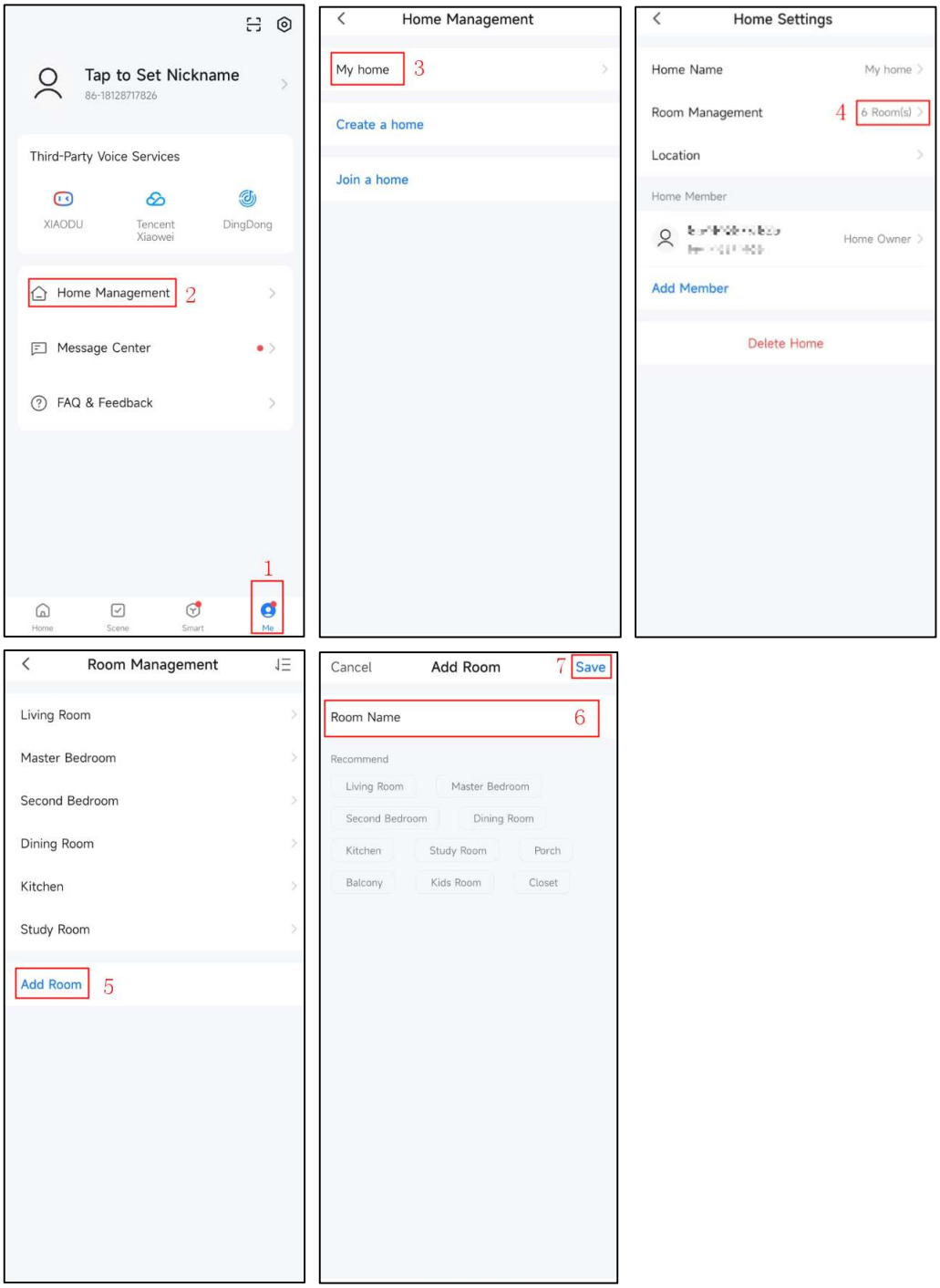


Rename Device & Modify Location

- Follow the sequence below to enter Device Details:Tap Name to rename the device.

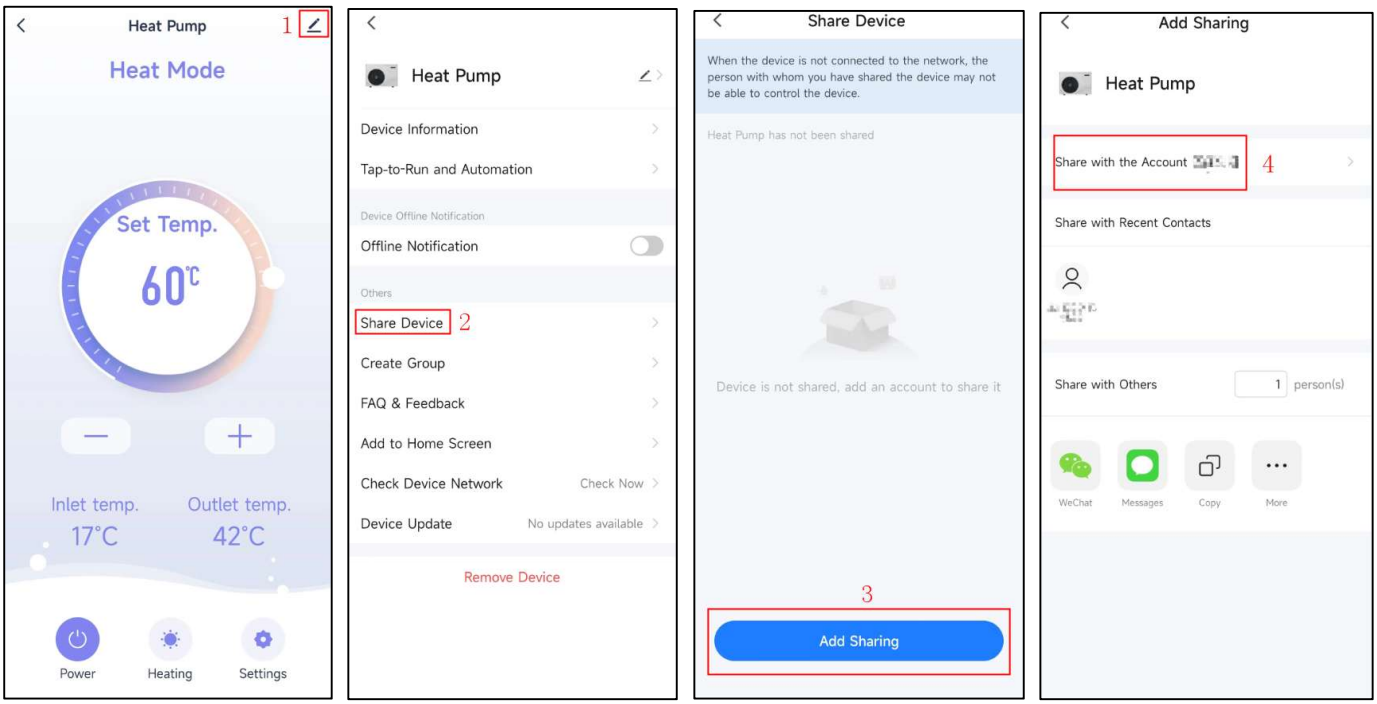


- Tap Location to modify the device's installation location.If the desired location is not listed, follow the numbered steps in the figure to add a new location.



Device Sharing

To share a bound device, the sharer follows the sequence below:

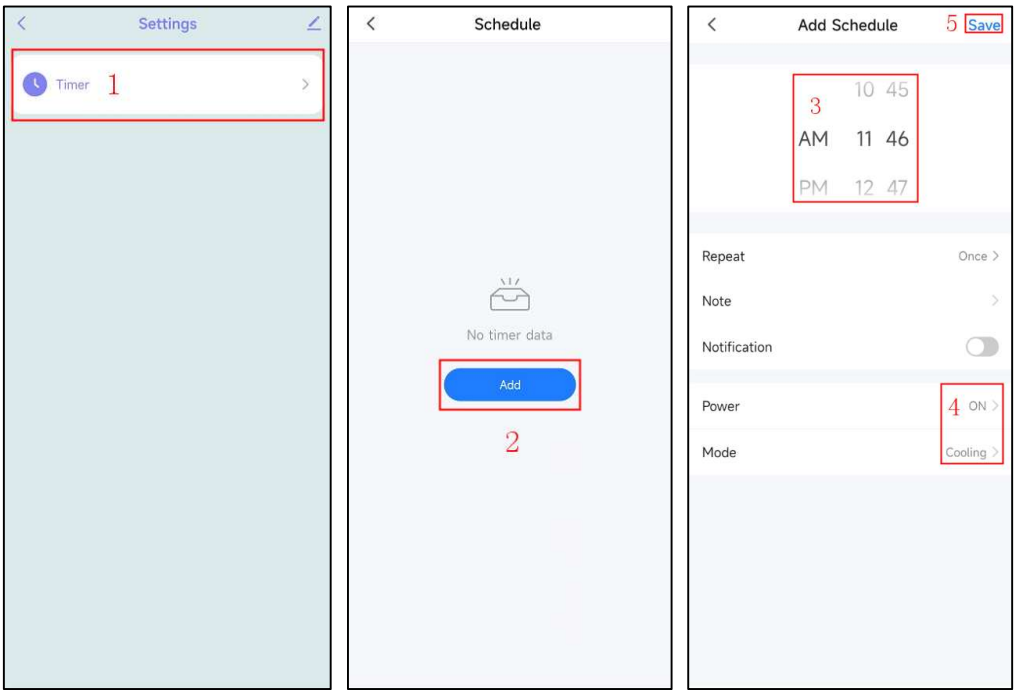


After successful sharing, the shared user will be added to the list.

To remove a shared user, long-press the selected user, the delete interface will pop up, tap Delete to confirm.

Timer Setting

On the device's main control interface, tap the [Settings] icon to enter function settings. Tap Timer to add a scheduled task.



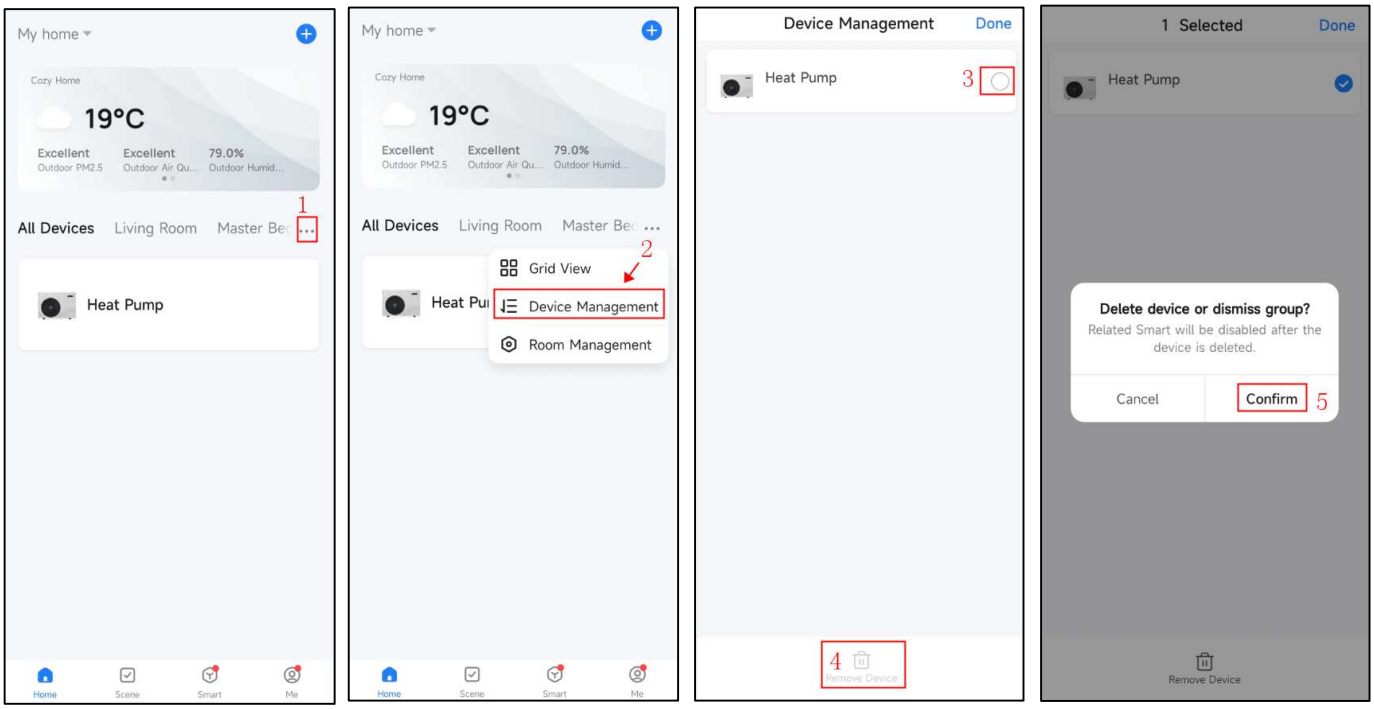
Device Removal

To remove a bound device via the controller:

- Press and hold the Power + Up buttons for 3 seconds: The device will be removed and re-enter Smart Config Mode, with the [Wi-Fi] icon flashing for 3 minutes. You can re-pair within 3 minutes; the device will exit pairing mode if not connected within 3 minutes.
- Press and hold the Down + Power buttons for 3 seconds: The device will be removed and re-enter AP Config Mode, with the [Wi-Fi] icon flashing for 3 minutes. You can re-pair within 3 minutes; the device will exit pairing mode after 3 minutes.

App Removal

On the device's main control interface, tap the [More] icon on the right, then tap Device Management to enter the management interface. Select the device to remove, tap Remove Device at the bottom, and confirm. Follow the sequence shown in the figure below.



6. Trouble shooting

6.1 Error code on the LED controller

Malfunction	Code	Reason	Solution
Water temperature sensor failure	E15	Water temperature sensor open circuit or short circuit.	1. Check the sensor wiring. 2.Replace the new water temperature sensor.
Piping temperature sensor failure	E16	Piping temperature sensor open circuit or short circuit.	1. Check the sensor wiring. 2.Replace the new piping temperature sensor.
Ambient temperature sensor failure	E21	Ambient temperature sensor open circuit or short circuit.	1. Check the sensor wiring. 2.Replace the new water temperature sensor.
Too low or too high ambient temperature protection	E44	1. Ambient temperature is out of operating range:0℃-43℃. 2. Controller failure.	1. Wait the ambient temperature rising to 2℃ or cooling down to 41℃ to restart. 2. Replace the new controller.
Water flow failure	E03	1. Insufficient or no water flow. 2. The wiring for water flow switch is in loose situation.	1. Check the water pump or water piping system. 2. Check the wiring or change a new water flow switch.

6.2 Other Malfunctions and Solutions (No display on LED wire controller)

Malfunctions	Observing	Reason	Solution
Heat pump is not running	LED wire controller no display.	No power supply.	Check cable and circuit breaker if it is connected.
	LED wire controller displays the actual water temperature.	1. Water temperature is reaching to setting value, HP under constant temperature status. 2. Heat pump just starts to run.	1. Verify water temperature setting. 2. Start up heat pump after a few minutes.
Short running	LED displays actual water temperature, no error code displays.	1. Fan NO running. 2. Air ventilation is not enough. 3. Refrigerant is not enough.	1. Check the cable connections between the motor and fan, if necessary, it should be replaced. 2. Check the location of heat pump unit and eliminate all obstacles to make good air ventilation. 3. Replace or repair the heat pump unit.
Water stains	Water stains on heat pump unit.	1. Concreting. 2. Water leakage.	1. No action. 2. Check the titanium heat exchanger carefully if it is any defect.

7. Maintenance

(1) You should check the water supply system regularly to avoid the air entering the system and occurrence of low water flow, because it would reduce the performance and reliability of HP unit.

(2) Clean your pools and filtration system regularly to avoid the damage of the unit as a result of the dirty of clogged filter.

(3) You should discharge the water from heat pump if it will stop running for a long time (especially during the winter season).

(4) In another way, you should check the unit is water fully before the unit start to run again.

(5) When the unit is running, there is all the time a little water discharge under the unit.