Automatic timed heating/cooling NTC digital temperature controller module, support Celsius and Fahrenheit dispaly, 40C~110C or -40F~110F

1. Description:

XY-ST10 is an automatic timed heating/cooling NTC digital temperature controller module. It can be widely used at smart home,Industrial control,Automatic irrigation,Indoor ventilation,Protection equipment. XY-ST10 adopts industrial-grade chip with high-precision NTC temperature sensor that can measuring-40℃~110℃ or -40℉~166℉.

2. Features:

1. Heating/cooling automatic control
2. Celsius and Fahrenheit switch display
3. Automatic control output status
4. Simultaneous temperature detection
5. Automatic recognition working mode
6. High and low temperature automatic alarm
7. Automatic data saving
8. High temperature measuring -40C~110C or -40F~116F
9. ABS standard size housing
10. 10A relay switch output
11. HD LCD Display Screen
12. Power saving mode
13. Programmable display temperature calibration

3. Parameters:

1. Working Voltage:DC 6V-30V
2. Control Type:Button
3. Sensor(Include):NTC 10K 3980B(2 meter)
4. Sensor(Support):DS18B20(Not Included)
5. Temperature Range:-40C~110C or -40F~110F
6. Temperature Control precision:0.1C/F
7. Output Type:Relay output(It can not output voltage)
8. Load: AC220V/DC30V 10A
9. Additional function:Buzzer Alarm
10. PCB Working Temperature range:-40℃~85℃
11. Working Humidity Range:5%-95%RH
12. Module Size:79*43*25mm

4. Functions:

1. **Setting Parameters**:
   1.1 Set work mode by Cooling mode and Heating mode.
   1.2 Set the Start-Temperature and Stop-Temperature.

2. **Heating Mode**:
   2.1 It works in Heating Mode if the Start-Temperature is less than the Stop-Temperature.
   2.2 Relay turn ON and heating equipment starts working if connect load when the Current Temperature is less than the Start-Temperature. LCD will display symbol ‘ON’.

2.3 Relay turn OFF and heating equipment stops working if connect load when Current Temperature is greater than the Stop-Temperature. Symbol 'ON' will disappear.

3. **Cooling Mode**:
   - **3.1** It works in Cooling Mode if the Start-Temperature is greater than the Stop-Temperature.
   - **3.2** Relay turn ON and cooling equipment starts working if connect load when the Current Temperature is greater than the Start-Temperature. LCD will display symbol 'ON'.
   - **3.3** Relay turn OFF and cooling equipment stops working if connect load when Current Temperature is less than the Stop-Temperature. Symbol 'ON' will disappear.
4. **Emergency Stop:**
   - **4.1** Relay turn OFF and display symbol ' ON 'keep flashing and load stop work if press emergency stop button.
   - **4.2** Press again to turn ON.

5. **Temperature Alarm**:
   - **5.1** Buzzer will alarm and press anyone button to stop alarm if turn ON this function.
   - **5.2** High Temperature Alarm OTP: Relay turn OFF and load stop work if Current Temperature is more than High Temperature Alarm Threshold.
   - **5.3** Low Temperature Alarm LTP: Relay turn OFF and load stop work if Current Temperature is less than Low Temperature Alarm Threshold.
6. **Delay Start Function dLy**:
   - **6.1** It means the load can allow the next heating or cooling after delay time T and the time unit is second if turn ON dLy function.
   - **6.2** Relay can not turn ON if the heating temperature is met at Heating mode during delay time Tif turn ON dLy function.
   - **6.3** Relay can not turn ON if the cooling temperature is met at Cooling mode during delay time Tif turn ON dLy function.
7. **Calibration Temperature OFE**:
   - **7.1** Current Temperature = Detect Temperature + Calibration Temperature.
   - **7.2** The system works for a long time, and there may be deviations, which can be corrected by this function.
8. **Buzzer Switch BEP:**
   - **8.1** Adjust volume for Buzzer.

5. Set Parameter Method:

1. Set Start-Temperature and Stop-Temperature Value:
   - **1.1 Enter Set Mode**: Press 'SET' button enter into set mode. Then the selected Start-TemperatureValue in the left or Stop-Temperature Value in the right will keep flashing.
   - **1.2 Set Work Mode**: The Work Mode does not need to be set, it will automatically select HeatingMode or Cooling Mode based on the values of Start-Temperature and Stop-Temperature.
   - **1.3 Set the Start-Temperature**: Set this value by default after Enter Set Mode.Then press 'UP' or 'DOWN' to change value.
   - **1.4 Set the Stop-Temperature**: Press 'SET' button again and then press 'UP' or 'DOWN' to change value.
   - **1.5 Save and Exit:** Keep press 'SET' about 2second to save parameters and exit set mode. It will also automatically save the parameters and exit the setting mode if there is no operation within 5 second.
2. Set System Parameter:

   2.1 **Enter Set System Mode**: Keep press 'SET' button 2second enter into set systemparameter mode.

   2.2 **Set High Temperature Alarm OTP:**

2.2.1 Symbol ‘OTP’ is displayed on the last line and flashing ‘----’ or High Temperature AlarmValue after enter set system mode.

2.2.2 Press ‘STOP’ button to turn ON or OFF high temperature alarm function. ‘----’ means turnOFF this function, otherwise turn ON this function.

2.2.3 Press press ‘UP’ or ‘DOWN’ to change value if turn ON this function.

2.3 **Set Low Temperature Alarm LTP**:

2.3.1 Press ‘SET’ button again and then symbol ‘LTP’ is displayed and flashing ‘----’ or LowTemperature Alarm Value.

2.3.2 Press ‘STOP’ button to turn ON or OFF low temperature alarm function. ‘----’ means turnOFF this function, otherwise turn ON this function.

2.3.3 Press press ‘UP’ or ‘DOWN’ to change value if turn ON this function.

2.4 **Set Delay Start Time dLy**:

2.4.1 Press ‘SET’ button again and then symbol ‘dLy’ is displayed and flashing ‘----’ or delay start time. The time unit is second.

2.4.2 Press ‘STOP’ button to turn ON or OFF high temperature alarm function. ‘----’ means turnOFF this function, otherwise turn ON this function.

2.4.3 Press press ‘UP’ or ‘DOWN’ to change value if turn ON this function.

2.5 **Calibration Display Temperature OFE**:

2.5.1 Press ‘SET’ button again and then symbol ‘OFE’ is displayed and flashing calibration temperature value.

2.5.2 Press press ‘UP’ or ‘DOWN’ to set calibration temperature value.

2.5.3 Its set range is -20 to 20. XY-ST10 Automatic Timed Heating/Cooling Temperature Controller

2.6 **ON/OFF Buzzer Alarm bEp**:

2.6.1 Press ‘SET’ button again and then symbol ‘bEp’ is displayed and flashing ‘On’ or ‘OFF’.

2.6.2 Press press ‘UP’ or ‘DOWN’ to turn ON or OFF this function.

2.7 **Switch Temperature Unit F-C**:

2.7.1 Press ‘SET’ button again and then symbol ‘F-C’ is displayed and flashing ‘-C-’ or ‘-F-’.

2.7.2 Press press ‘UP’ or ‘DOWN’ to change temperature unit.

2.7.3 Temperature displayed in degrees Fahrenheit ℉.

2.7.4 ‘-C-’ : Temperature displayed in degrees Celsius ℃.

2.8**. Note**:

2.8.1 The last two parameters ‘Add’ and ‘bRE’ no need to be set.

6. Application:

1. Control cabinet

2. Production workshop

3. Hatching aquaculture control

4. Tobacco industry

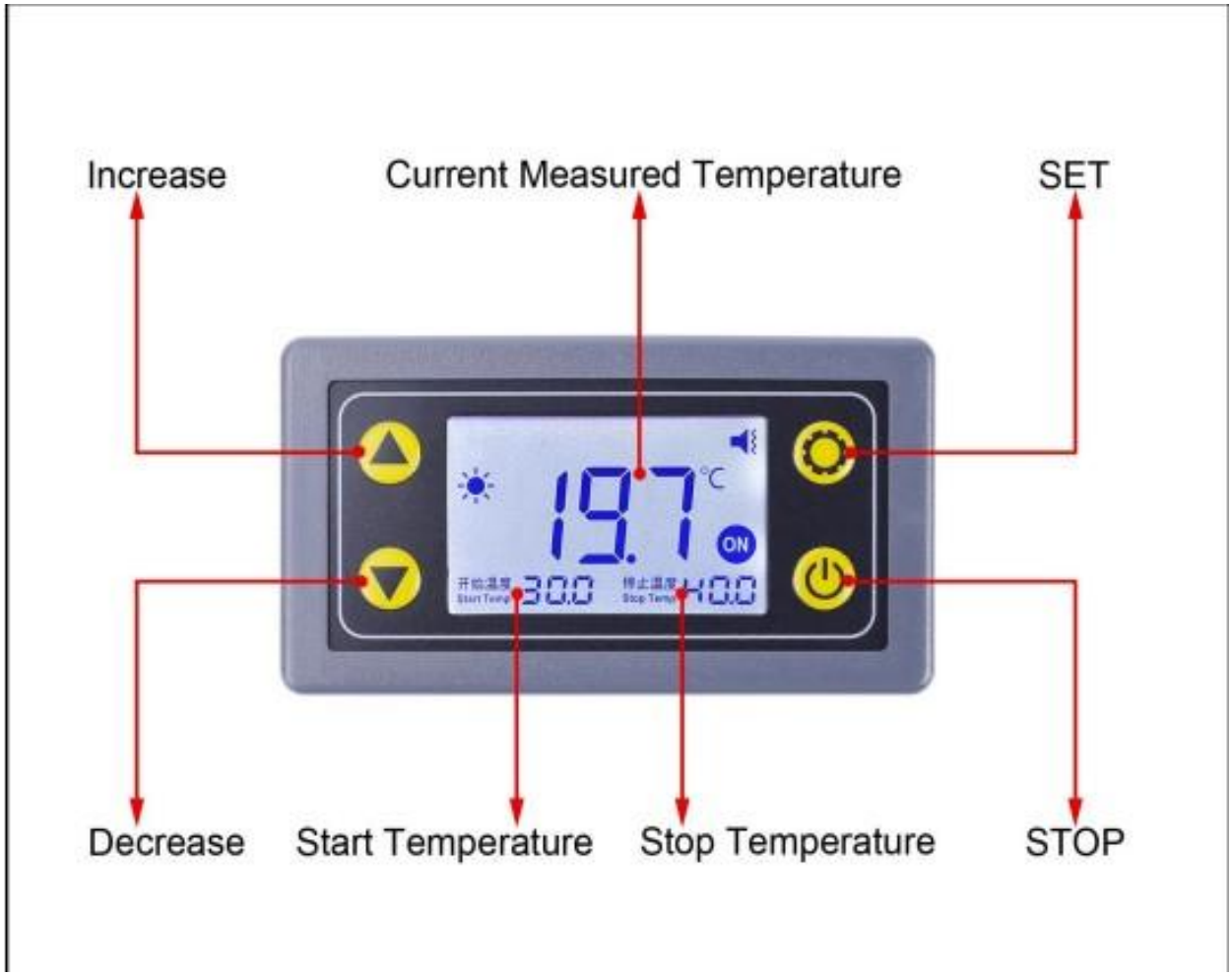
5. Printing house

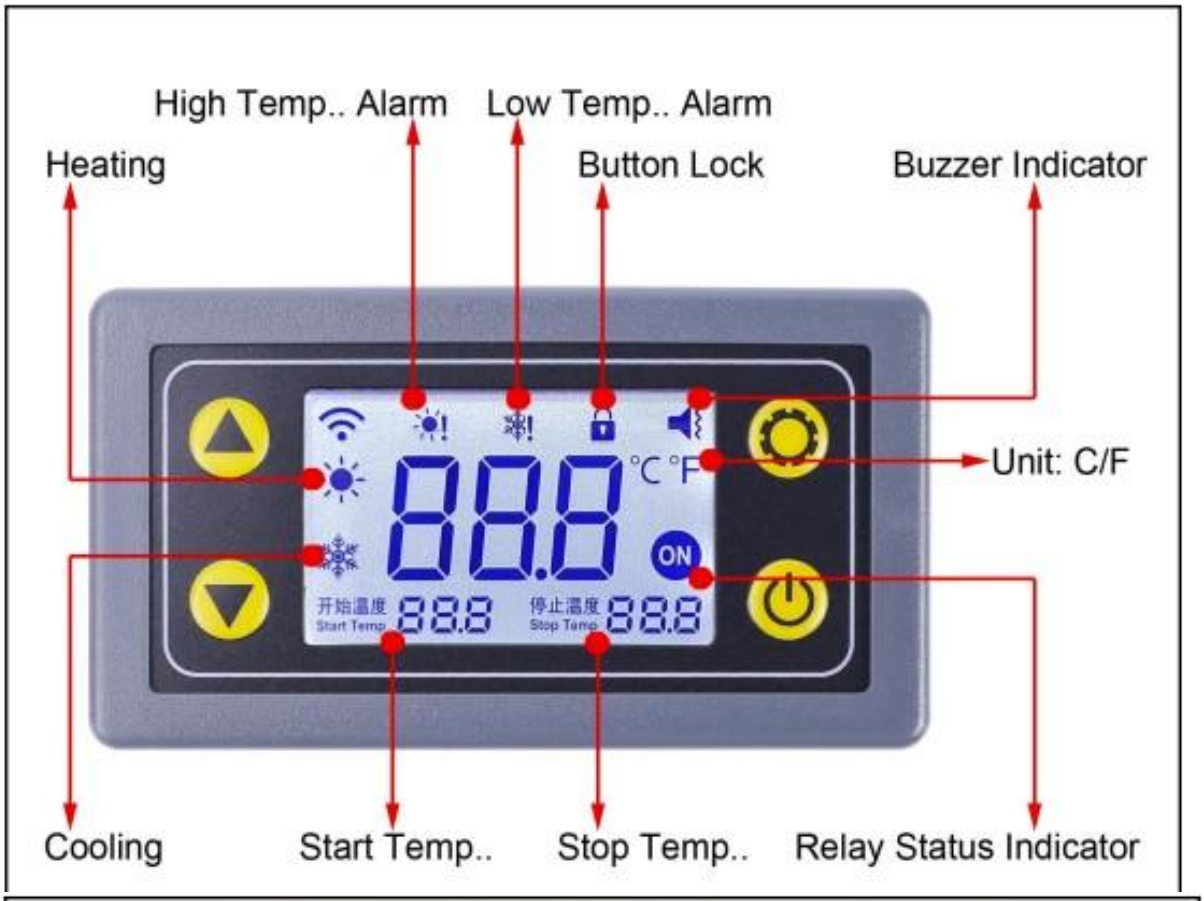
6. Aquarium temperature control

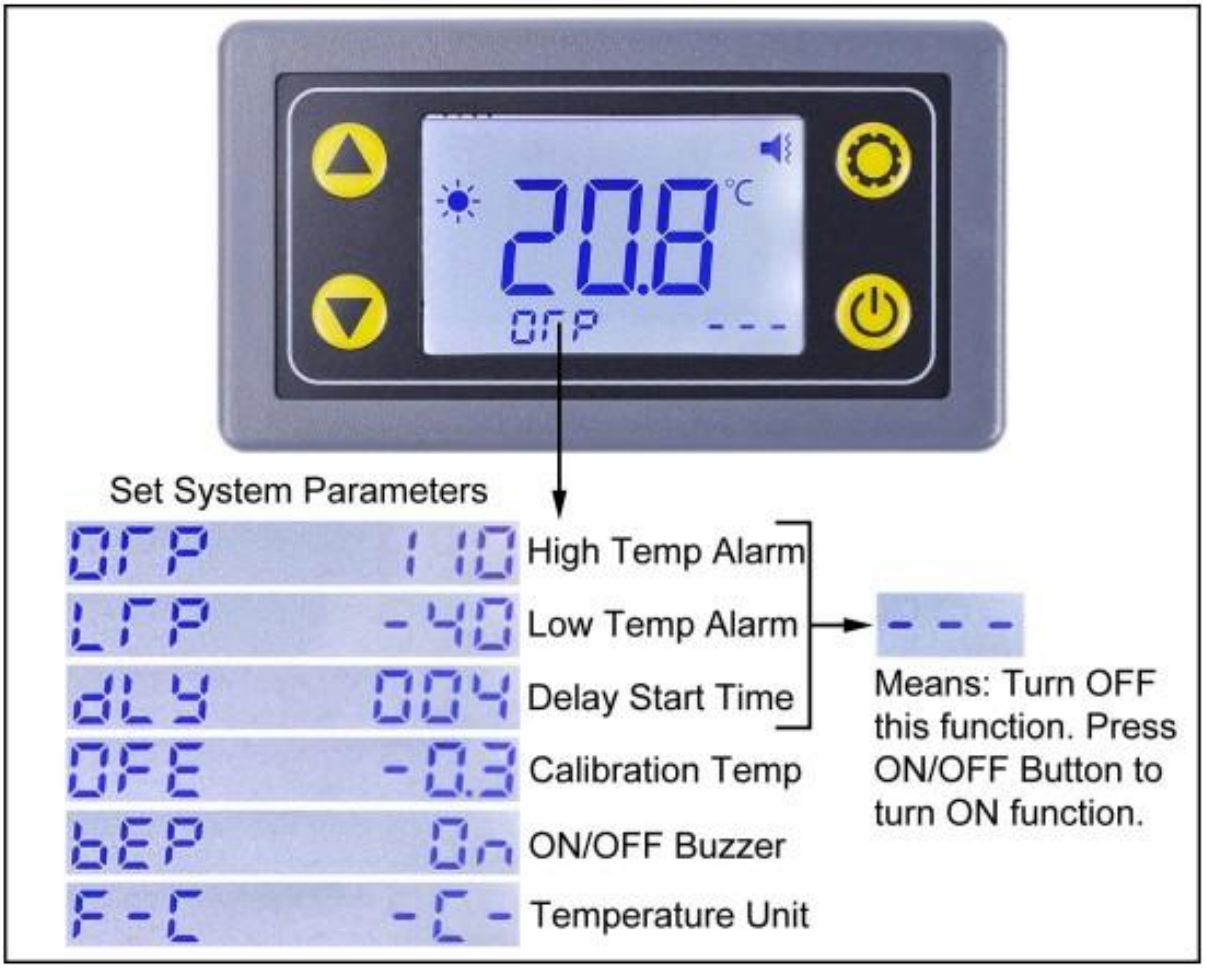
7. Wood fired boiler

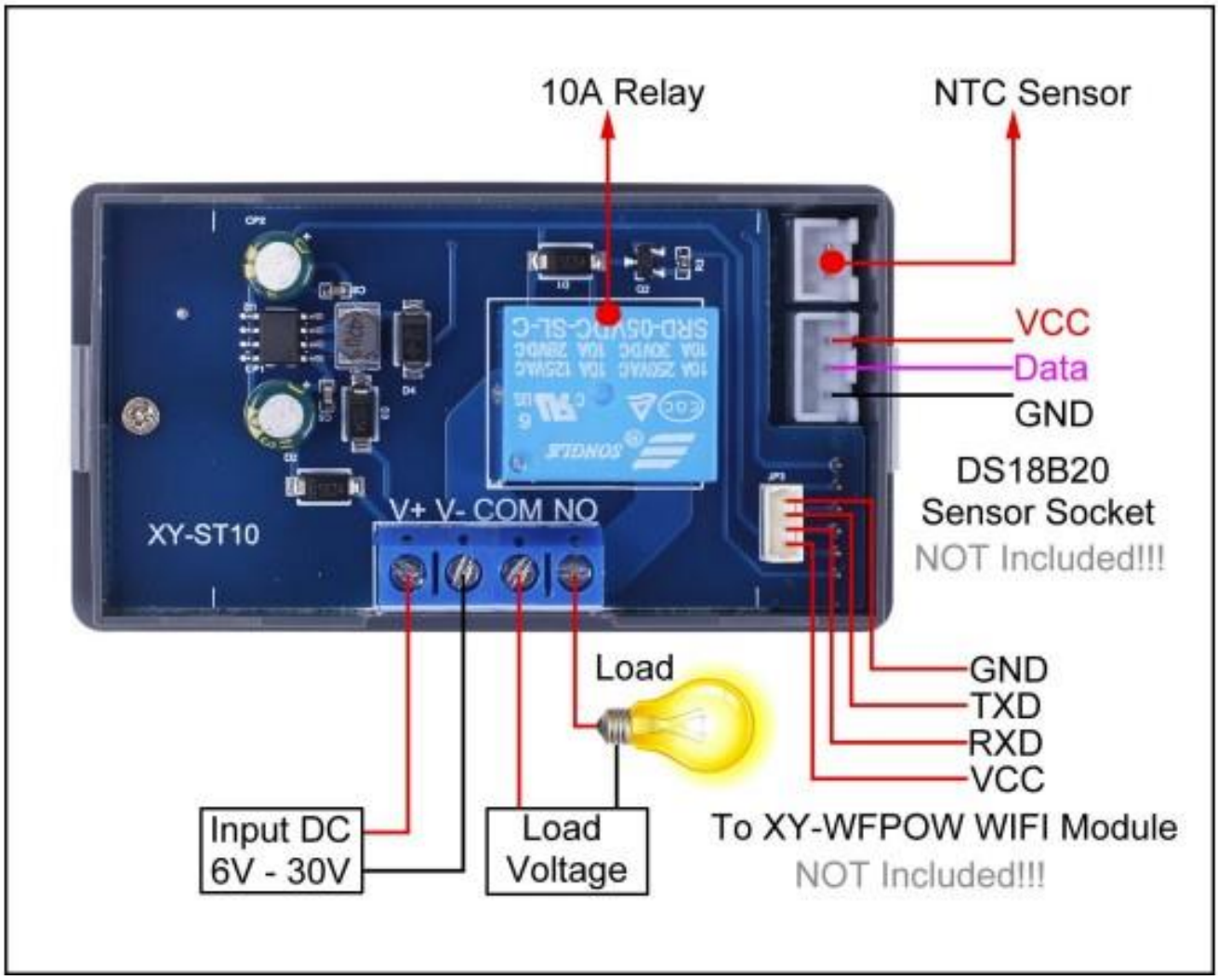
7.Note:

1. It is a relay output mode and cannot be used as a power module. It cannot output voltage. The loadneeds to be connected to a separate power supply.
2. Buzzer will alarm if no sensor was connected.
3. Please read use manual and description before use.




High Temp.. Alarm
Low Temp.. Alarm
Heating
Button Lock
Buzzer Indicator
Unit: C/F
Cooling
Start Temp..
Stop Temp..
Relay Status Indicator
88.8
°C °F
ON
开始温度
Start Temp
88.8
停止温度
Stop Temp
88.8


20.8
°C
orP
- - -
Set System Parameters
orP 110 High Temp Alarm
LrP -40 Low Temp Alarm
dLy 004 Delay Start Time
oFE -0.3 Calibration Temp
bEP On ON/OFF Buzzer
F-C -C- Temperature Unit
- - -
Means: Turn OFF this function. Press ON/OFF Button to turn ON function.


10A Relay
NTC Sensor
VCC
Data
GND
DS18B20
Sensor Socket
NOT Included!!!
XY-ST10
V+ V- COM NO
Load
GND
TXD
RXD
VCC
Input DC
6V - 30V
Load
Voltage
To XY-WFPOW WIFI Module
NOT Included!!!

Button Operation Instructions

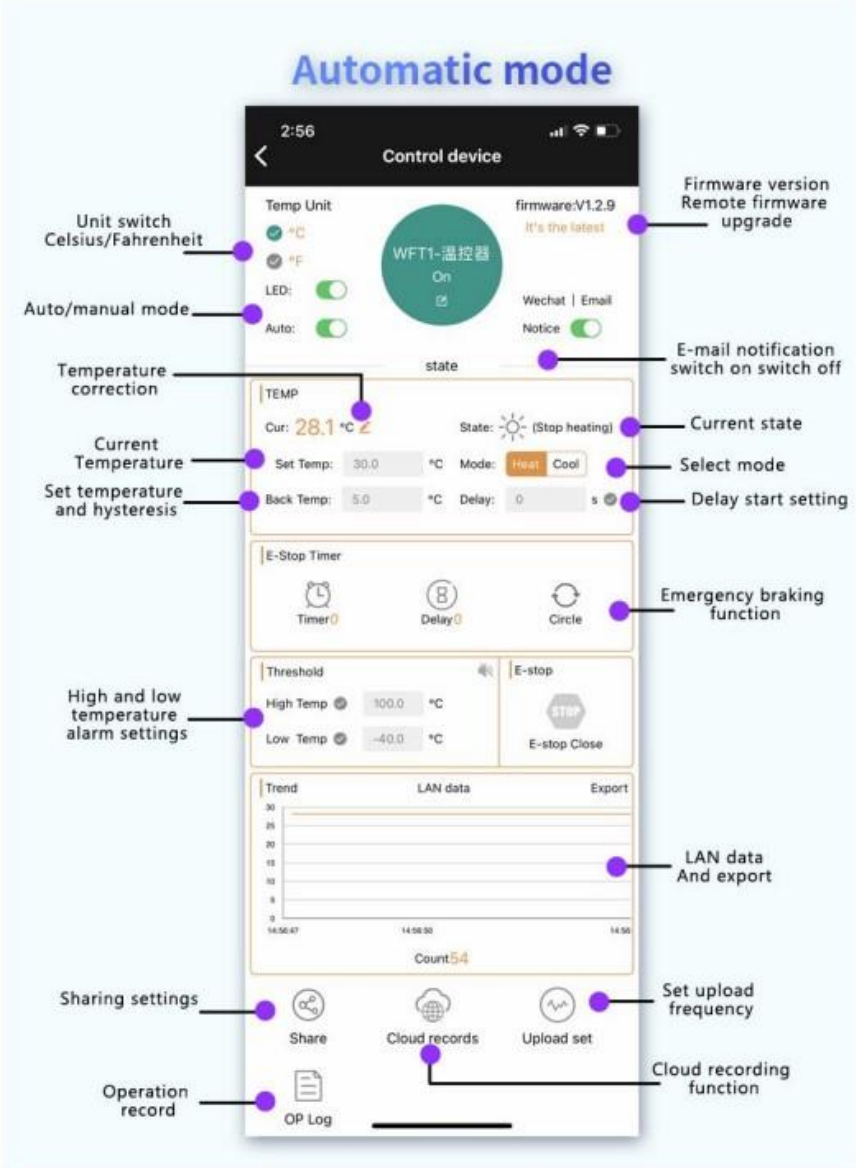
Interface / Button	Normal Display Interface	Set Start/Stop Temp	Set Parameter Interface
	Short press: Enter Set Start/Stop Temperature set interface. Long press: Enter Set System Parameter set interface.	Short press:Switch modified start or stop temperature value. Long press: Save value and exit.	Short press: Switch modified system parameters. Long press: Save and exit.
	Short press: None. Long press: None.	Short press:Increase parameter value Long press:Increase parameter value continuously/fastly.	Short press:Increase parameter value. Long press:Increase parameter value continuously/fastly.
	Short press: Turn ON or OFF screen blacklight. Long press: None.	Short press: Decrease parameter value. Long press: Decrease parameter value continuously/fastly.	Short press: Decrease parameter value. Long press: Decrease parameter value continuously/fastly.
	Short press: Turn ON or OFF emergency stop. Long press: Turn ON or OFF button lock.	Short press: None. Long press: None.	Short press: Turn ON/OFF function OTP,LTP,dLy. Note: '---' means turn OFF this function. Long press: None.

Sinilink app:

Android: https://play.google.com/store/apps/details?id=com.xydc&hl=en

IOS: https://apps.apple.com/us/app/%E6%AC%A3%E6%98%93%E8%81%94/id1446973616

2.Automatic mode description



2.1 Automatic mode function description

1） The 1) first selects the heating mode / cooling mode;

2) sets the temperature and return difference. If the delay start is required, set the delay start time

3) If high and low temperature alarm is required, set high and low temperature alarm threshold

2.2 Heating mode description

When the detection temperature (current temperature) ≤ sets temperature-return temperature, relay leads on and heating equipment starts working;

When the detection temperature (current temperature) ≥ sets the temperature, the relay is disconnected and the heating equipment stops working;

For example: set temperature 30℃ and return temperature 5℃; When the temperature is 20℃ ≤ 25℃ (30-5 = 25), the relay suction starts heating, when the temperature reaches 30℃ ≥ the set temperature is 30℃, the relay is disconnected and stops heating;

2.3 Refrigeration mode description

Detection temperature (current temperature) ≥ set temperature + return temperature, relay leads on and refrigeration equipment starts working; When the detection temperature (current temperature) ≤ sets the temperature, the relay is disconnected and the refrigeration equipment stops working,

For example: set temperature 30℃ and return temperature 5℃; When the temperature is 36℃ ≥ 35℃ (30 + 5 = 35), the relay suction starts refrigeration, when the temperature reaches 30℃ ≤ the set temperature is 30℃, the relay is disconnected and the cooling is stopped

2.4 Description of the time-delay startup function

How long is the delay (unit: seconds) after the first heating / cooling process will allow the next heating / cooling;

2.5 Temperature correction function

The system is working for a long time and may appear deviation. Through this function correction, the current temperature = measures the temperature + calibration value;

2.6 High-and low-temperature alarm

function buzzer on and off: on, the buzzer will sound after the alarm. After pressing the button, the buzzer stops sounding; High temperature alarm: After the high temperature alarm is opened, after the current temperature is higher than the high temperature alarm temperature, the relay is disconnected; 7 / 16

Low temperature alarm: After opening the low temperature alarm, after the current temperature is below the low temperature alarm temperature, the relay is disconnected;

2.7 Emergency braking function (Emergency stop function)

After the emergency stop, the relay will be disconnected in whatever state; after the emergency stop is closed, the relay returns to normal state;

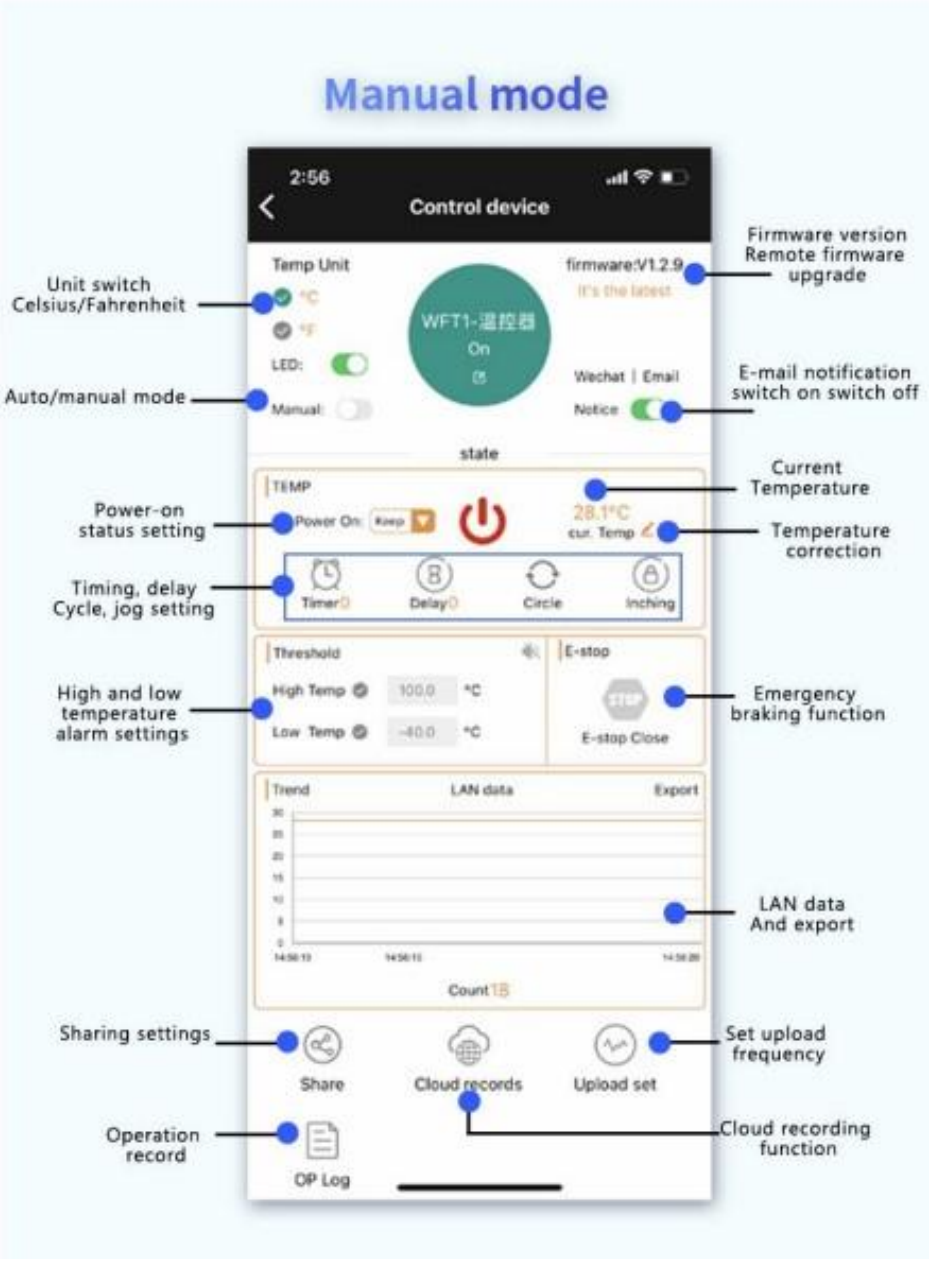
2.8 Whether the product can be run offline in automatic mode

In automatic mode, when the parameters are set, the product can run off the network offline, the parameter power loss is not lost.

2.9 The LAN data export function

A temperature data is transmitted on the LAN in 1 second. Click "Export",

3.Manual mode description



3.1 Manual mode function description

Timiming, delay, cycle and point can be set in manual mode;

3.2 Description of power status setting

Upper charging state-on: default suction of the relay after charging; Up state-off: the relay is switched off by default; Power up-hold: automatically restore the relay state after power up

3.3 Can the product be run offline in manual mode

In manual mode, the product can not run offline.。

3.4 Additional functional description in manual mode

Other features are the same as in automatic mode

4. Share the settings

Can be shared with others, that many people share a device, can control its functions

5.operation note

All operation records can be stored in the background, and the + timer + button + APP + heating and cooling mode to query the relay operation status;

6.Cloud recording and upload frequency

6.1 Set upload rate

Temperature data can be stored in the background, the frequency of log upload can be set for 1 second / bar (one default 5 minutes); the data can be inquired for any time period at will and retain data within 15 days at the maximum period; the cloud data export function can be added to make the next analysis of the temperature data;

6.2 Cloud data export

You can choose to export data for any period of time within 15 days and save it locally for later data processing and analysis;

7. Key button function and indicator light status

7.1 Keybutton function

Short press: On / off the relay in manual mode; In automatic mode, turn the emergency stop function on / off

Note: under the buzzer alarm state, briefly press the key to cancel the buzzer alarm, and do not perform other actions;

Press for 5 seconds: switch the pairing mode Touch/AP, to let the product into the pairing state;

7.2 Description of the indicator lamp function

Blue indicator lamp: the network status indicator lamp

1. is not connected to the router: bright 1S out of 0.1S so reciprocating;
2. link router but not connected: flash once, flash once so backwards;
3. Touch pairing mode: flash 4 times and then wait 1S so reciprocating;
4. AP pairing mode: blue light continuous flash;
5. networking success: the blue indicator light is always on; Green indicator lamp: touch on and emergency stop indicator lamp Turn on the emergency stop, and the green indicator light will flash; In manual mode, if the green indicator is on Red indicator lamp: relay status indicator lamp;

8. Mail notification function:

8.1 How to bind a mailbox

1. Open the APP into the device operation interface, the top left corner is the switch of the mail notification function; if the email notification is turned on, when the computer status sends the change will send the latest status and operation type of the computer in real time through the mailbox used to register the APP; Operation types are divided into five types: 1. Equipment power 2. Key operation 3. Timer operation 4.APP operation 5. Point operation operation; as shown in the figure below

8.2 Turn on the mailbox notification function for the device

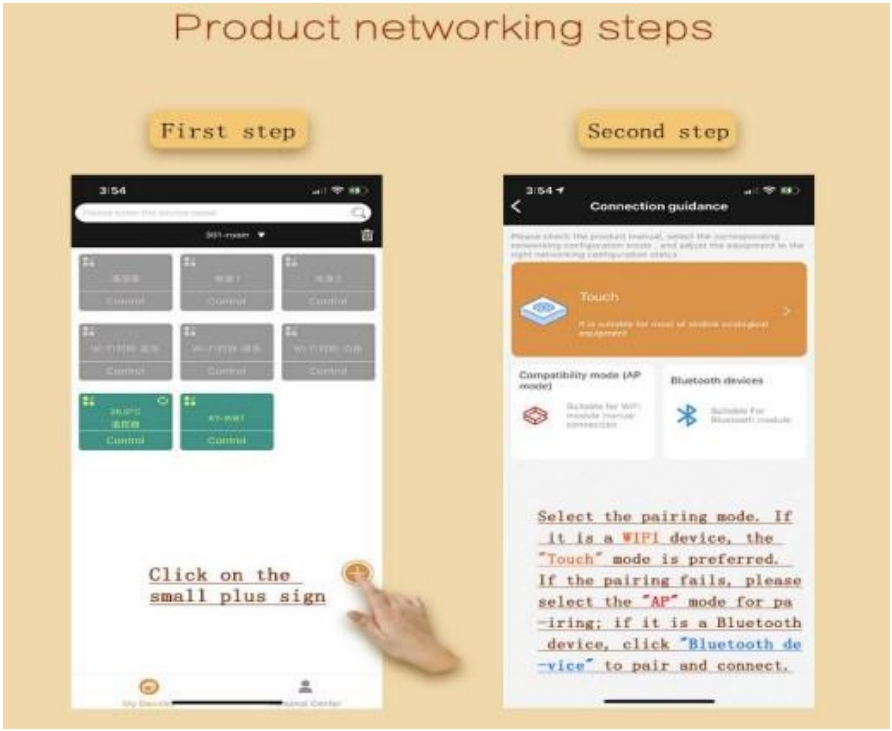
1. opens sinilink APP, to find the added thermostat device and enter the operation interface; There is a "WeChat | Mail Notification" switch in the top right corner of the 2., set to "open" to receive the email notification of the product;
   The 3. mailbox notification type
   High temperature and high high temperature alarm is lifted
   Too low temperature and low temperature alarm is discharged
   Sensor abnormal sensor abnormal abnormally
   Start the heating and stop the heating
   Start refrigeration and stop cooling

9.How to distribute the distribution network

9.1 TouchTouch mode

1. Press the product button for more than 5 seconds to let the product into the Touch pairing state (the blue lights flash 4 times quickly and extinguish 1S so reciprocating)

2. The APP operation is as shown below:



Third step

During the pairing process, the WIFI network must be 2.4G, and the 5G network cannot be paired. (If your WIFI router 2.4G and 5G are network merged, please reconfigure the router, separate it, and select 2.4G network.)

Fourth step

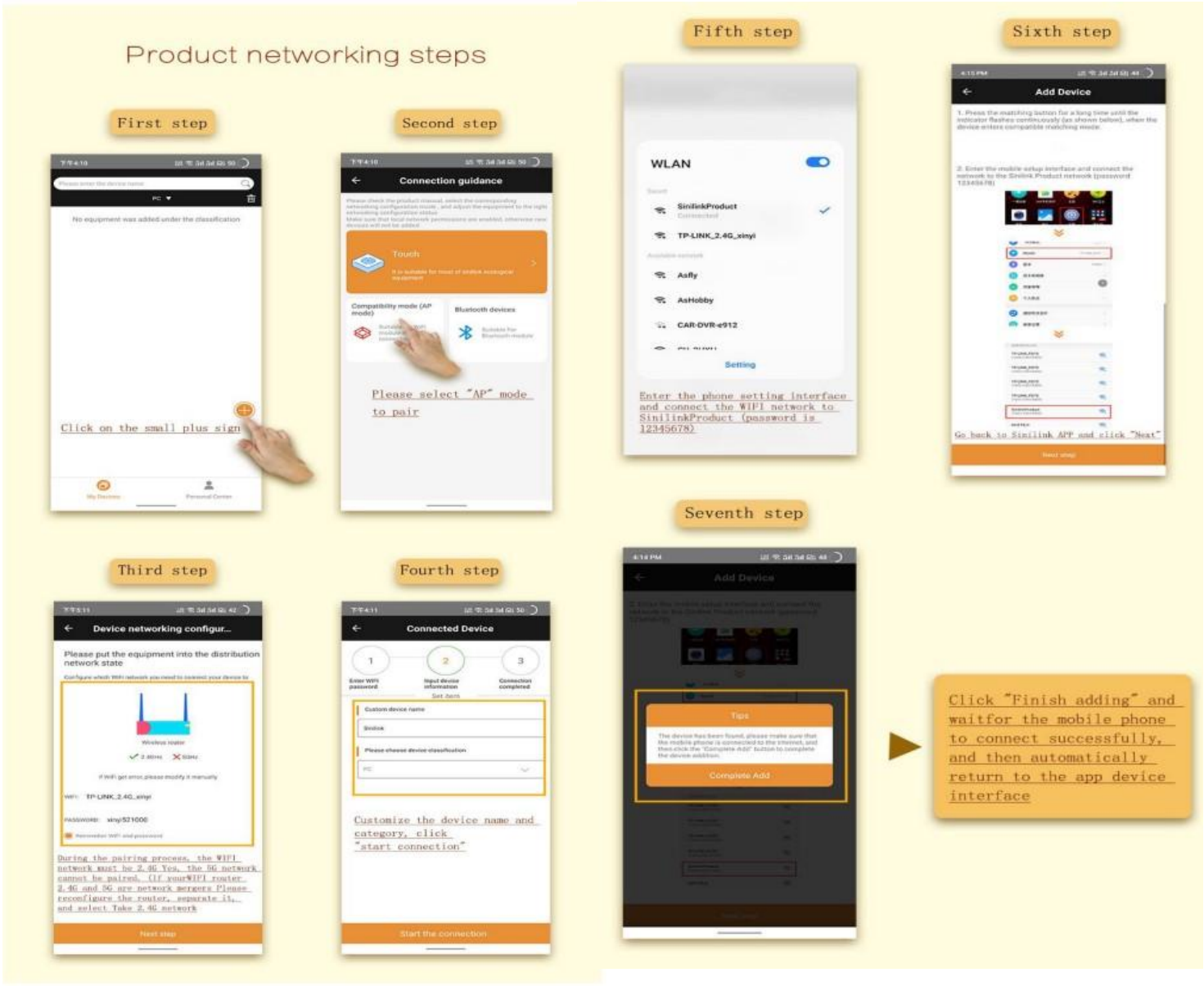
The product enters Touch by default after power-on Pairing mode.

Customize device name and classification.

Click "Start Connection".

9.2 AP model

Press the product button for more than 5 seconds to bring the product into the compatibility mode (AP mode) pairing state (the blue lights continuously flash



10.How to download a mobile APP

Scan the code to download APP, foreign customers please download in Google market, search for 'sinilink' download