

## XY-TR01 Temperature and Humidity Controller



### Product Features:

Product functions are mainly classified into two categories: temperature function and humidity function.

### The temperature function is as follows:

#### 1. Automatic recognition of working mode:

The system automatically recognizes the working mode according to the starting temperature/stop temperature;

Start temperature > stop temperature, cooling mode 'C'; start temperature < stop temperature, heating mode 'H';

#### 2. Cooling mode:

When the temperature  $\geq$  start temperature is detected, the relay is turned on, the red indicator light is on, and the refrigeration device starts to work;

When the temperature is detected  $\leq$  stop temperature, the relay is turned off, the red indicator light is off, and the refrigeration equipment stops working;

### **3. Heating mode:**

When the detection temperature  $\leq$  start temperature, the relay is turned on, the red indicator light is on, and the heating device starts to work;

When detecting temperature  $\geq$  stop temperature, the relay is turned off, the red indicator light is off, and the heating device stops working.

### **4. Temperature correction function OFE (-10.0~10.0 ° C):**

The system works for a long time, there may be deviations, and this function is corrected.

Actual temperature = measured temperature + calibration value;

### **How to set the start/stop temperature:**

1. In the running interface, press and hold the 'TM+' button for more than 3 seconds to enter the startup temperature setting interface. The test can modify the parameters through the TM+TM-key. After the parameters are modified, wait for 6s to automatically exit and save.

2. In the running interface, press and hold the 'TM-' button for more than 3 seconds to enter the stop temperature setting interface. The test can modify the parameters through the TM+TM-key. After the parameters are modified, wait for 6s to automatically exit and save.

## **The humidity function is as follows:**

### **1. Automatic recognition of working mode:**

The system automatically recognizes the working mode according to the starting humidity/stop temperature;

Start humidity  $>$  stop humidity, dehumidification mode 'd'; start humidity  $<$  stop humidity, humidification mode 'E';

### **2. Dehumidification mode:**

When the humidity is detected  $\geq$  start humidity, the relay is turned on, the green indicator light is on, and the dehumidification device starts to work;

When detecting humidity  $\leq$  stop humidity, the relay is turned off, the green indicator light is off, and the dehumidification device stops working;

### **3. Humidification mode:**

When the humidity is detected  $\leq$  start humidity, the relay is turned on, the green indicator light is on, and the humidifying device starts to work;

When detecting humidity  $\geq$  stop humidity, the relay is off, the green indicator is off, and the humidification device stops working.

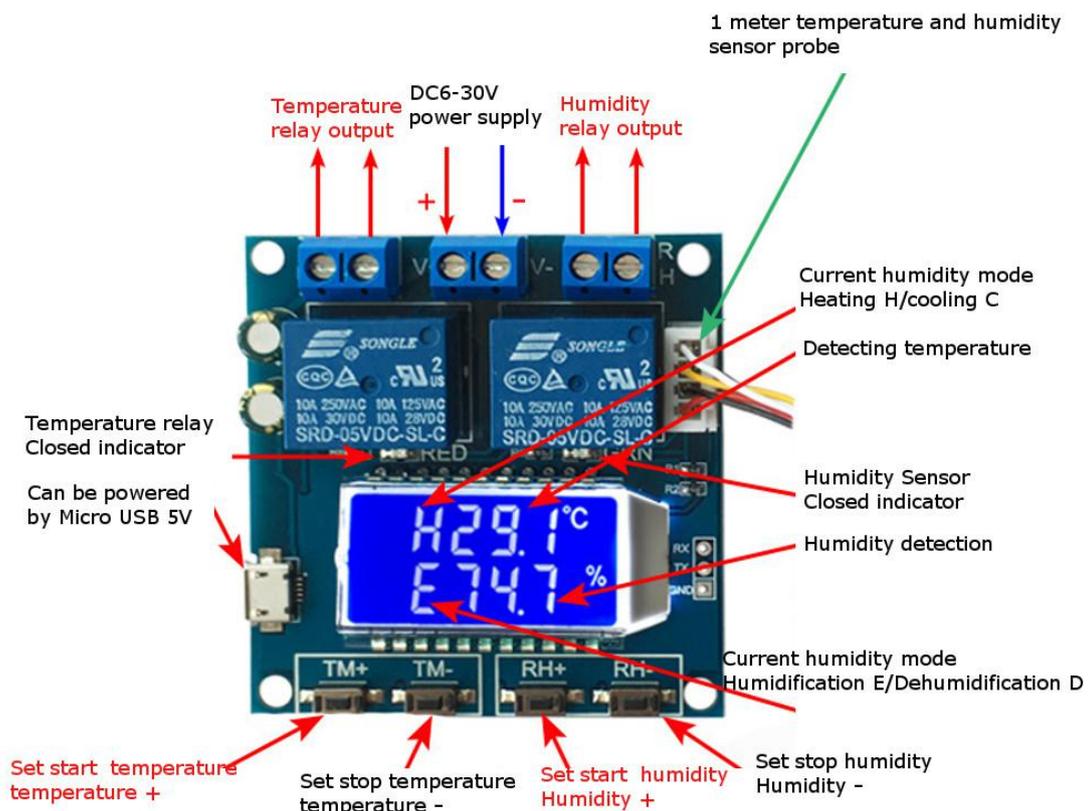
### **4. Humidity correction function RH (-10.0 ~ 10.0 ° C):**

The system works for a long time, there may be deviations, and this function is corrected.

Actual humidity = measured humidity + calibration value;

### **How to set the start/stop humidity:**

1. In the operation interface, press and hold the ‘RH+’ button for more than 3 seconds to enter the startup temperature setting interface. The test can modify the parameters through the RH+RH-key. After the parameters are modified, wait for 6s to automatically exit and save.
2. In the operation interface, press and hold the ‘RH-’ button for more than 3 seconds to enter the stop temperature setting interface. The test can modify the parameters through the RH+RH-key. After the parameters are modified, wait for 6s to automatically exit and save.



## Operation interface description:

The working mode shows that when the parameters such as start temperature/humidity, stop temperature/humidity, etc. are completed, the current mode ("H/C", "E/d") is displayed synchronously in front of the temperature/humidity;

Any one of the relays is turned on, and the upper left corner of the interface displays “OUT” .

If the temperature relay is turned on, the temperature operation mode “H/C” is flashing to

indicate the reminder;

If the humidity relay is turned on, the humidity working mode “E/d” will flash to indicate the reminder;



The interface displays OUT when any of the relays is turned on.

### Other functions:

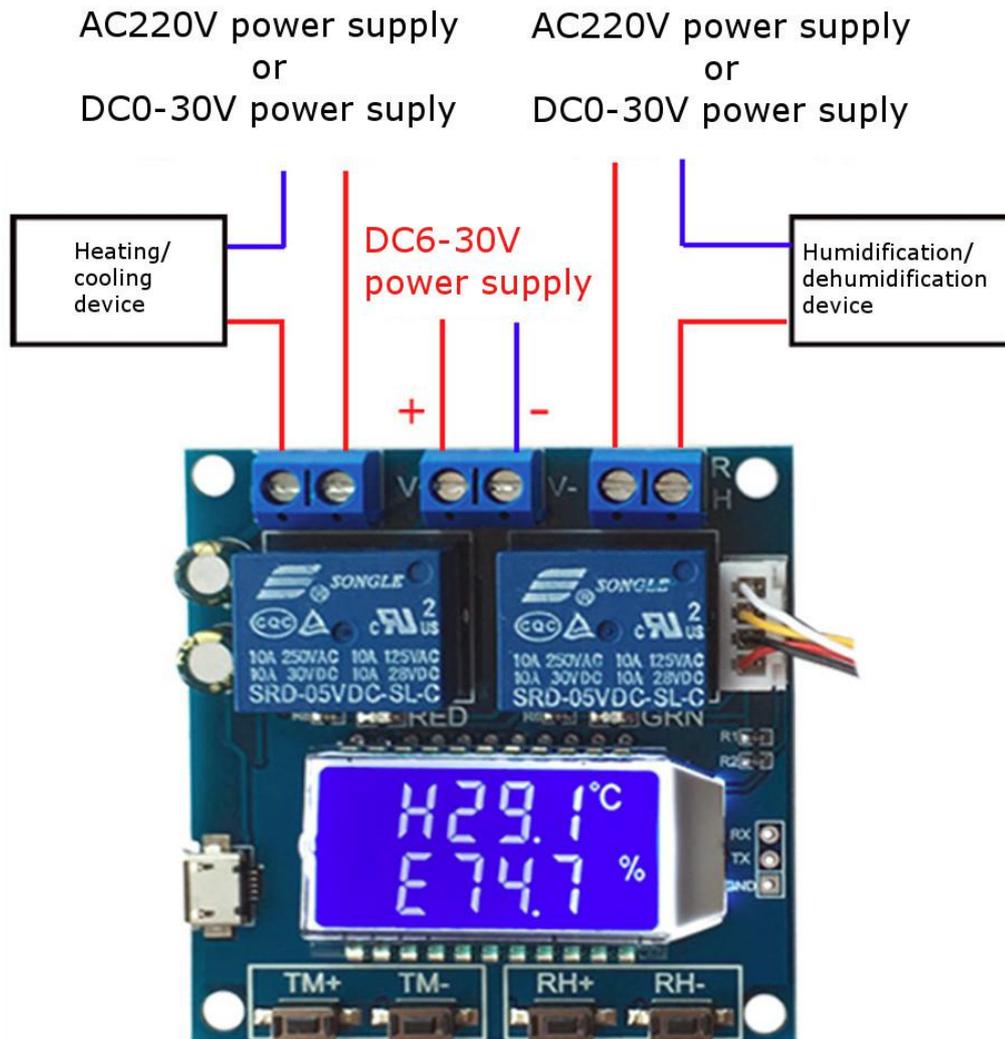
1. Parameter remote read/set:

The parameters such as start temperature/humidity, stop temperature/humidity, temperature/humidity correction, etc. can be set through the UART;

2. Temperature/humidity real-time reporting:

If the temperature/humidity reporting function is turned on, the product will detect the temperature/humidity and the state of the relay at 1 s intervals, and transmit it to the terminal through the UART to facilitate data acquisition;

3. Relay enable (default on): If the relay is turned off, the relay remains in the off state;



### How to modify the temperature/humidity correction value:

1. In the operation interface, double-click the "TM+" button to enter the correction value setting interface; the downlink display correction value type, the upper display specific value; (OFE: temperature correction value RH: humidity correction value)
2. At this time, press the 'TM-' button to switch the parameters to be modified, and use the RH+RH- button to modify the specific value; support long press and short press;
3. After the parameters have been modified, double-click the 'TM+' button to exit the correction value setting interface and save the data;

### How to turn on/off the relay enable switch:

In the running interface, short press the 'TM-' button to turn the temperature relay enable or disable (on: turn OFF: off). After returning to the running interface, if the temperature relay is off, the temperature symbol "° C" flashes. To remind you.

In the running interface, short press the 'RH-' button to turn the humidity relay enable or disable (on: turn OFF: off). After returning to the running interface, if the humidity relay is off, the humidity symbol "%" flashes to Reminder.

Serial port control (microcontroller TTL level communication)

Communication standard: 9600bps

Data bits: 8

Stop position: 1

Check digit: none

Flow control: none

| Serial command | Description                              |
|----------------|--|
| start          | Start temperature report                 |
| stop           | Stop temperature report                  |
| read           | Read setting parameters                  |
| T:ON           | Temperature relay enable                 |
| T:OFF          | Temperature relay enable off             |
| H:ON           | Humidity relay enabled to open           |
| H:OFF          | Humidity relay enable off                |
| TS:XX.X        | Set the startup temperature (-20.0~60.0) |
| TP:XX.X        | Set stop temperature (-20.0~60.0)        |
| HS:XX.X        | Set the startup humidity (00.0~_0)       |
| HP:XX.X        | Set the stop humidity (00.0~100.0)       |
| TC:XX.X        | Set temperature calibration (-10.0~10.0) |
| HC:XX.X        | Set humidity calibration (-10.0~10.0)    |

### Temperature and humidity data upload format description:

Temperature format: operating mode (H/C), temperature value, temperature relay status;

Humidity format: working mode (E/D), humidity value, humidity relay status;

H, 20.5 ° C, CL: heating mode, current temperature 20.5 degrees, temperature relay off state;

D, 50.4%, OP: dehumidification working mode, current humidity 50.4%, humidity relay pull-in state;