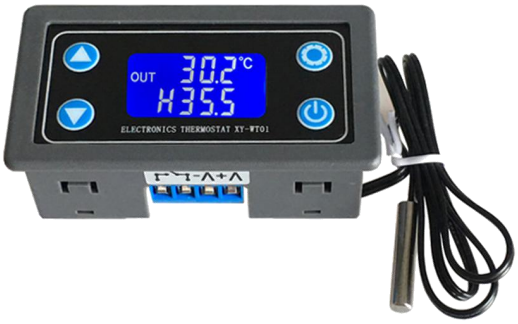
Icstation Digital Thermostat Temperature Controller

DC 6V-30V LCD Display NTC 10K B3950 Sensor Relay Module

1.Introduction:

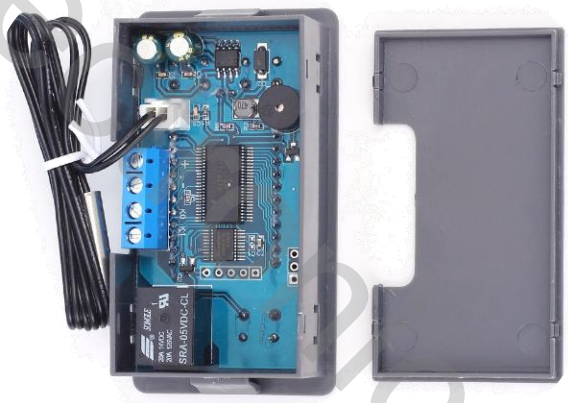


Icstation digital temperature controller module with clear LCD display, easy to use and powerful. It can be widely used at smart home, industrial control, automatic irrigation, indoor ventilation and protection equipment.

Such as self-made thermostatic control box, equipment cabinet, air conditioning system, temperature control protection, refrigerator, freezer, water heater, hosts, hatch control, fish tank, greenhouse and so forth.

Temperature control module with functions of power-down memory, emergency stop, real-time display temperature, save parameters automatically, high temperature buzzer alarm, work status indicator, independent of parameter and multiple parameters are displayed simultaneously. It supports UART Setting and Heating and Cooling work modes, high precision, user can connect module to computer, then read and set data on computer easily.

Caution: It is a relay output mode and cannot be used as a power module. It cannot output voltage. The load needs to be connected to a separate power supply.



2.Parameters:

1) Working Voltage: DC 6V-30V
2) Control Load Current: 10A (Max)
3) LCD Refresh Rate: 0.5 second
4) Temperature Sensor: NTC-10K B3950
5) Test Temperature: -50~110℃
6) Control Precision: 0.1℃
7) Sensor Length: 0.5 meter
8) Sensor Probe: 4x30mm/ 0.16”x1.2” Stainless Steel 9>.
Physical Dimension: 79x44x26mm/ 3.16”x1.76”x1.04” 10)
Operating Humidity: 5%~95%RH

3.Work Mode:

1) Heating mode.

Relay will turn ON and the heating device starts to work when Current Temperature Value is less than Setting Temperature Value - Return Temperature Value.

Relay will turn OFF and the heating device stops to work when Current Temperature Value is

more than Setting Temperature Value.

2) Cooling mode.

Relay will turn ON and the cooling device starts to work when Current Temperature Value is more than Setting Temperature Value + Return Temperature Value.

Relay will turn OFF and the cooling device stops to work when Current Temperature Value is less than Setting Temperature Value.

3) ON/OFF delayed start.

The system starts timing 'T' when a normal heating or cooling operation is completed. The system will begin the next round of heating or cooling only after 'T' > 'OPH'.

4) Temperature correction function (-10.0~10.0℃).

If the module works for a long time, there may be deviations. Corrected by this function. Actual Temperature Value = Current Temperature Value + Calibration Value.

5) Set high temperature alarm.

Module will turn on the sound and light alarm and relay will OFF at the same time when Current Temperature Value is more than Set Alarm Temperature Value.Any button to stop the sound and light alarm.

4.Additional Features:

1) Set or read data by UART.

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

2) Temperature real-time reporting.

The module transmits the detected temperature to the terminal through the UART at intervals of 1 s to facilitate data acquisition if the temperature reporting function is turned on.

3) Relay enable (default on).

If the relay enable is turned off, the relay remains off.

That is, the output state will never change, no matter what the measured temperature is.

4) Reset.

Press button 'STOP' and 'SET' for more than 3second at the same time to restore the factory settings.

5.Set Parameter:

Long press: keep press button for more than 3 seconds.

1) Set Working mode/Setting temperature/Return Temperature Value

1.1) Short press button 'SET' and enter the quick setting interface;

1.2) Switch the parameters that need to be set for Working mode/Setting temperature/Return Temperature Value by short press button 'SET'.

1.3) Modify the parameter value by button 'UP' or 'DOWN' after select parameter. Support short press/long press;

1.4) Exit the quick setting interface and save the parameters by long press button 'SET' for 3

seconds or continue 6S without any button operation.
Notice Please: The Return Temperature Value display in the first line where the Current Temperature Value display position.
The Setting Temperature Value display in the second line after 'H' or 'C'.

2) Set OPH/OFE/ALA
2.1) Long press button 'SET' and enter the parameter setting interface.
2.2) Switch the parameters that need to be set for OPH/OFE/ALA by short press button 'SET'.
2.3) Modify the parameter value by button 'UP' or 'DOWN' after select parameter. Support short press/long press;
2.4) Exit the parameter setting interface and save the parameters by long press button 'SET' for 3second or continue 6S without any button operation.
2.5) How to turn on the high temperature alarm 'ALA' (default off). Select 'ALA' interface, short press button 'STOP' to ON or OFF 'ALA'. Set high temperature value by button 'UP' or 'DOWN' if turn ON 'ALA'. If the high temperature alarm function is turned OFF, 'ALA' displays '----' as a reminder. LCD will display 'W' if turn ON 'ALA'.
2.6) How to enable delayed start 'OPH' (default off). Select 'OPH' interface, short press button 'STOP' to ON or OFF 'OPH'. Set delay time value by button 'UP' or 'DOWN' if turn ON 'OPH'. If the delayed star function is turned OFF, 'OPH' displays '----' as a reminder. LCD will display 'h' in last line and last bit if turn ON delayed start.

6.Use Steps:

1) Connect NTC sensor to Digital Temperature Controller;
2) Connect voltage to module;
3) Set parameters;
4) Remove input voltage;
5) Connect to load;
6) Connect voltage to module.

8.UART communication and parameter settings:

The system supports UART data upload and parameter setting functions (TTL level);
UART: 9600, 8, 1

1) start : Start temperature report
2) stop : Stop temperature report
3) read : Read setting parameters
4) on : Relay enable ON
5) off : Relay enable OFF
6) S: XXX : Setting temperature (-50~-01; 00.0~99.9; 100~110℃)
7) B: XX.X : Set Return Temperature Value (00.0~30.0℃)
8) OFE: XX.X : Temperature calibration (-10.0~10.0℃)
9) ALA: XX.X : Alarm temperature (-50.0~110.0℃)
10) OPH: XXXX : Delayed start time (0~9999 minutes)