User Manual of STC-2301 Thermostat

Refrigeration or Heating Temperature Controller

(Version 21.04.04GEN)

With touch-sensitive keys, STC-2301 is a digital temperature controller with 1 output relay to connect and control a Refrigerator or a heater by the preset temperature, time, and other parameters.

1. Package

Controller: 1PCS   Sensor: 1PCS   Fasteners: 2PCS   Manual:1 PCS

2. Specification

Input Power	220V AC ± 10% 50/60HZ; (12/24/48/110V Option)
Maximum current	10A (Default) under 220V AC
Sensor	NTC, 25°C /10 KΩ, the sensor cable 200cm
Protection Class	IP65 to the front panel
Storage	-10°C ~ 60°C, RH < 90%, without condensation
Working	-5°C ~ 60°C, RH < 80%, without condensation
Measurable Range	-40°C ~ 99°C; Controllable Range: -40°C ~ 85°C
Resolution	0.1°C
Accuracy	± 1°C from -40°C to +50°C; ± 2°C in other range
Power Consumption	≤ 5W

3. Interface & Operation

3.1. Front Panel
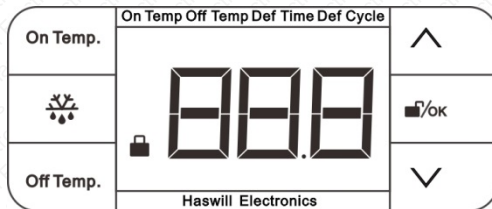
Under normal status, the screen shows:

1) English characters on top;
2) Instant room temperature in 88.8;
3) The 🔒 icon lighting means keys were locked.

3.2. Indicator / Character in Display

Indicator / Light	Meaning	On	Hide	Wink	Fast Wink
🔒	Keys Locker	Locked	Unlocked	N/A	N/A
On	Load status	Working	Stop	Delay	N/A
On Temp	Load Startup Temp.	Editable	Locked	N/A	N/A
Off Temp	Load Stops Temp.	Editable	Locked	N/A	N/A
Def					
Def Time			N/A		
Def Cycle					

3.3. Operation

A. Under Normal Locked Status

a) **Unlock all keys:** Hold the [■/OK] key for 1s to unlock. The 🔒 icon in the left bottom of the screen will dim; it will auto-lock again if without operation in the 30s.

b) **Restore Factory Setting:** hold the [∧] key for 10s, the screen will show "rES"; Now release the [∧] key and touch the [■/OK] key **in 3s**, to restore the default factory setting, the screen will
- Show "YES" once succeed;
- Show "Err" if failed; you must power it on again before trying.

B. Under Editable Unlock Status

a) **[On Temp] Key:** touch this to check/edit the existing Temperature for Load Turn-on, the character "On Temp" lighting;

b) **[Off Temp] Key.:** touch this to check/edit the existing Temperature for Load Turn-off, the character "Off Temp" lighting;

c) Enter into The **Function Menu List:** Hold the [■/OK] key for 3s until seeing $F9$.

Tip: In above a), b), c)
- Touch the [∨] key or the [∧] key to change the value (hold the key to faster speed), and then press the [■/OK] to save new data and back to F code;
- It will autosave new value and back to normal status if without operation in 30 s; or hold the [■/OK] key for 3s to saving data and quit.
- There must be a 1.0 ℃ gap between the Temperature for Load Turn On and the Temperature for Load Turn-off.

C. [❄] key: useless in this controller.

3.4. Dimensions & Installation
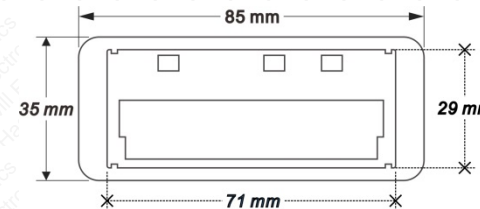
A. Suggested amount dimension: 71*29*72 (W*H*D)
B. Detach the slide fasteners, put the controller into a hole, wiring follow the diagram
C. Install the fasteners, and install the waterproof cover.
D. Please **avoid** installing in the below environments:
- Relative humidity > 85%, have condensation
- The places that temperature <-5°C or >60°C;
- The places that have inflammable and explosives;
- Strong vibration or struck
- Exposed to the continuous water mist spraying or the dust;
- Exposure to corrosive and pollution gas (for example, the gas, smoke, or salt fog that contain sulfur or ammonia;
- Wireless electromagnetic interference or strong magnetic fields.

3.5. Wiring Diagram
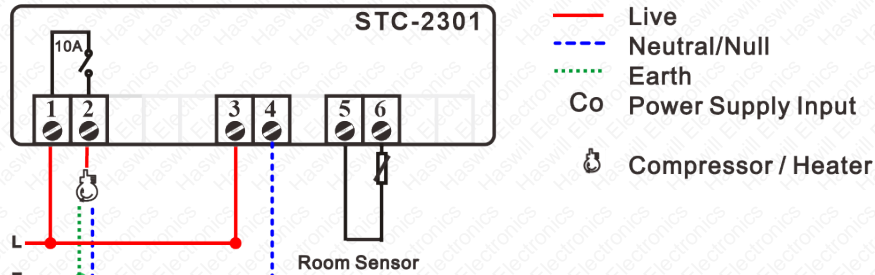
4. Configurations

4.1. Code and Function Menu

Hold the [■/OK] key for 3s to see the function Menu List.

Code	Function	Min	Max	Default	Unit
F9	Delay Time only for Compressor	0	10	0	Min
F10	Room Over-Temp Alarm Delay Time Only for the controller 1st time power on	0.1	24.0	2.0	Hour
F11	Room Over-Temp Alarm Value	0	50.0	5.0	°C
F12	Room Over-Temp Alarm Delay Time after F10	0	120	10	Min
F13	Temp. Calibration = Real Temp.-Measured Temp.	-10.0	10.0	0.0	°C
F14	0: Refrigeration Mode; 1: Heating Mode	0	1	0	N/A

4.2. When will the Load start/stop work?

A. The default mode is **refrigeration (F14 = 0)**, the default On Temp. is 10 °C, and the default Off Temp is -10 °C.
1) need to reach all below conditions to **start** the refrigerator
   - The time passed the compressor delay time F9 (Default = 0)
   - Room Sensor Temperature ≥ On Temp. (Ref. 3.3-B-a)
2) the compressor stops working once
   - Room Sensor Temperature ≤ Off Temp (Ref. 3.3-B-b)
3) Once alarming with error code "E1", the compressor will loop working 15m + stop 30min.

B. But if it is the **heating** mode (F14 = 1), the default On Temp is -10 °C, and the default Off Temp is 10°C
1) the heater starts working once
   Room Sensor Temperature ≤ On Temp (Ref. 3.3-B-a)
2) the heater stops working once
   Room Sensor Temperature ≥ Off Temp (Ref. 3.3-B-b)

C. After changing the F14 value, the On Temp and the Off Temp will auto change when touching the **[On Temp] Key** or the **[Off Temp] Key**.

5. Error & Alarm

When an alarm occurs, the buzzer is screaming, and the display shows an error code; press any key to stop the screaming, but the error code will not disappear until all problems are fixed.

Code	Reason	Troubleshooting
E1	Sensor error	Ensure the sensor was installed firmly or replace a new sensor; the Alarm will disappear in 15s once the problem is fixed.
HA	Room Temperature ≥ On Temp + F11	Check the room temperature, then change the load working status manually if necessary.
LA	Room Temperature ≤ Off Temp - F11	

6. Environmental Information

The package's material is 100% recyclable. Just dispose of it through specialized recyclers.

The electro components can be recycled if it is disassembled for specialized companies. Please do not burn or throw the controllers in domestic garbage. Observe the respective law in your region concerning the environmentally responsible manner of disposing of its devices.