

User Manual of STC-2302 Thermostat

Refrigeration & Defrosting Controller

(Version 21.08.04GEN)

STC-2302 is a digital temperature controller with one sensor, **two output relays**, and six touch-sensitive keys; it controls the **refrigeration & defrosting** unit.

1. Package

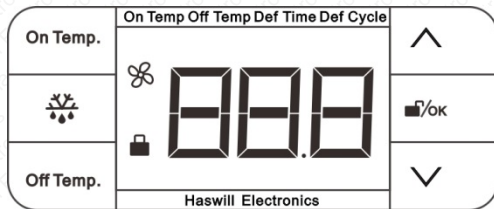
Controller: 1PCS Sensor: 1PCS Clips: 2PCS Manual: 1 PCS

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
 Temp. Range Measurable: -40°C ~ 99°C; Controllable: -40°C ~ 85°C
 Resolution & Accuracy 0.1°C; ± 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 **BB.B**;
- 3) The  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	Compressor status	Working	Stop	Delay	N/A
On Temp	Compressor Startup Temp.	Editable	Locked	N/A	N/A
Off Temp	Compressor Stop Temp.	Editable	Locked	N/A	N/A
Def	Defrosting status	Working	Stop	Delay	Water dripping
Def Time	Defrosting Lasting Time	Editable	Locked	N/A	N/A
Def Cycle	Defrosting Cycle / Interval Time	Editable	Locked	N/A	N/A

3.3. Operation





A. Under Normal Locked Status

- a) **Unlock all keys:** Hold the  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 "rE5", now release the  key and touch the  key **in 3s**, to restore the default factory setting, the screen will
 - Shows "yE5" once succeed;
 - Shows "Errr" if failed; please power it on again before try.

B. Under Editable Unlock Status

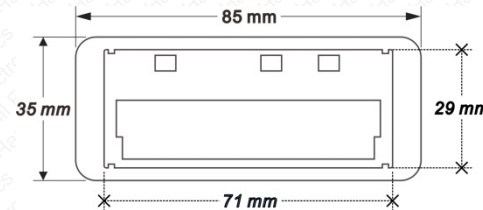
- a) **[On Temp] Key:** touch this to check/edit the existing refrigeration start temperature (max 85.0°C), the character "On Temp" lighting;
- b) **[Off Temp] Key:** touch this to check/edit the existing refrigeration stop temperature (Min -40.0°C), the character "Off Temp" lighting;
- c)  **Key:** hold this for 3s to change the status to forced-defrosting manually.
- d) Enter into The **Function Menu List:** Hold the  key for 3s until seeing F 1.

Tip: In above a), b), d)

- Touch the  key or the  key to change (hold this key to accelerate speed), and then tap  to save new data and back to normal status;
- It will autosaves the new value and back to normal status if without operation in 30 s, or hold the  key for 3 s to saving data and quit.
- There must be at least a 1.0 °C gap between the Load Turn-On Temperature and the Load Turn-Off Temperature.

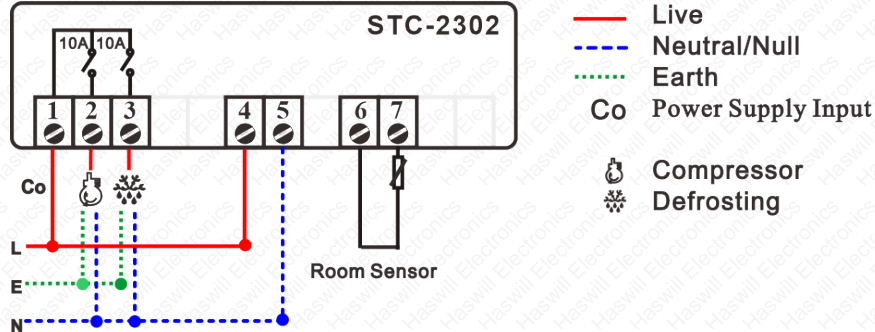
- C. **Check the Defrosting Temp.:** hold the  key for 3s to check no matter locked or not.

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 [M/OK] key for 3s to check the function Menu List.

Code	Function	Min	Max	Default	Unit	
F1	Defrosting Lasting Time	1	120	30	Min	
F2	Defrosting Cycle / Interval Time	0	120	6	Hour	
F3	Defrosting Cycle / Interval Time Count Mode	0	1	1	°C	
	0					The sum working time of the controller
	1					The sum working time of the compressor
F4	Water dripping Time	0	120	3	Min	
F5	Defrosting by, 0=Electric-Thermal, 1= Hot Gas	0	1	0	Min	
F9	Compressor Startup Protection / Delay time	0	10	0	°C	
F10	Alarm Delay time for this unit 1ST-time power on	0.1	24.0	2.0	Hour	
F11	Over-Temperature Value to Trigger Alarm (ref. 5)	0	50.0	5.0	°C	
F12	Alarm Delay time after time pass F10	0	120	10	Min	
F13	Temp. Calibration = Real Temp.-Measured Temp.	-10.0	10.0	0.0	°C	

4.2. When will the Defrosting Start/Stop?

- A. $F2 = 0$, the defrosting function was disabled, then F1, F3, F4, F5 are all useless;
- B. $F2 \neq 0$
- Auto defrosting starts ask the instant time passed the F2;
 - Forced-defrosting starts by hold the [M/OK] Key for 3s;
 - Defrosting stops once instant time passed the defrosting lasting time F1, and then enter the next step dripping water time; compressor will not start up before dripping time over.

4.3. When will the Compressor Starts/Stop?

- A. According to the defrosting type, the working condition of the compressor is as follows
- A. $F5 = 0$, Defrost by Electric-Thermal, need to reach all below conditions
- 1) The time should be later than the compressor last stops moment + the compressor delay time F9;
 - 2) Room Sensor Temperature \geq On Temp. (Ref. 3.3-B-a)
- B. $F5 = 1$, Defrost by Hot Gas from the compressor reversal, requires
- 1) The time should be later than The compressor's last stops moment + 3 min (fixed) compressor delay time before compressor reversal to provide hot gas for defrosting.
 - 2) Once defrosting time is over, pass the 2min delay time (fixed) before the compressor running to provide cold air for refrigerating.
- B. The compressor will stop once it reaches any below conditions:
- Room Sensor Temperature \leq Off Temp (Ref. 3.3-B-b)
 - Electric-Thermal defrosting start
 - Hot gas defrosting is over
- C. Once alarming with error code "E1", the compressor will loop working 15m + stop 30min.

5. Error & Alarm

When an alarm occurs, the buzzer is screaming, and the display shows an error code; tap 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.
HR	Room Temperature \geq On Temp + F11	Check the room temperature, then change the compressor / defrosting device's working status manually if necessary.
LR	Room Temperature \leq 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.

Haswill Electronics

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