User Manual of STC-100A Thermostat

Refrigeration or Heating Controller

(Version 21.08.04GEN)

STC-100A is a set-point & Hysteresis based thermostat, with just 1 relay to wire and control a heater or a cooler. The set-point temperature ranges from -40 to 99 °C.

1. Package

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

2. Specification

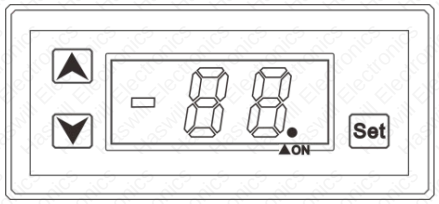
Input Power	220V AC ± 10% 50/60HZ; (12/24/48/110V Option)
Maximum current	10A (Default)
Sensor	NTC, 25°C /10 KΩ, the sensor cable 200cm
Protection Class	IP65 to the front panel
Storage	-10°C ~ 60°C, RH < 90%, without condensation
Measuring Range:	-40°C ~ +99°C
Controlling Range:	-40°C ~ +99°C
Resolution:	1°C
Accuracy:	± 1°C from -40°C to +50°C; ± 2°C in other range
Power Consumption:	≤ 3W

3. Environmental Information

Recyclable

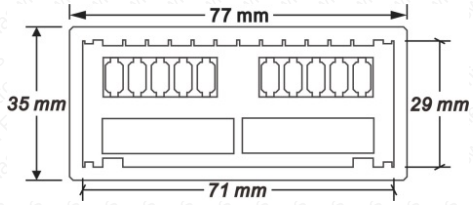
The packing material is 100% recyclable. Just dispose of it through specialized recyclers.
The electro components can be recycled if it is disassembled for specialized companies.
Please do not burn or throw the controllers in domestic garbage. Observe the respective law in your region concerning the environmentally responsible manner of disposing of its devices.

4. Front Panel & Icon



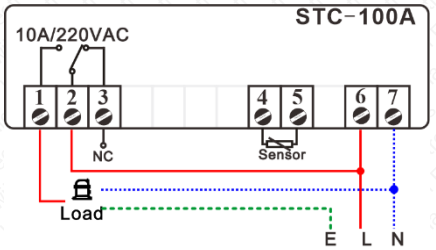
Indicator	Meaning	On	Hide	Wink
ON	Loads Status	Working	Stop	Delay

4.1. Dimensions & Installation



A. Suggested amount dimension: 71*29*55+ mm (W*H*D)
B. Detach the slide fasteners, put the controller into the hole, wiring it;
C. Install the fasteners, and install the waterproof cover
D. Please **avoid** installing in the below environments:
- Relative humidity > 90%, have condensation;
- The places that temperature <-10°C or >60°C;
- The places that have inflammable and explosives;
- Strong vibration or struck;
- Exposed to the continuous water mist spraying;
- Exposed to 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 (near to transmitting antenna or switch board room);

4.2. Wiring Diagram



A. 10K NTC sensor, Need not to distingue ish the + or – when wiring.
B. The input voltage must be within the range of marked voltage ±10%.
C. Suggest Load Power ≤ $\frac{\text{The voltage of Load} * \text{Max current of Relay}}{\text{Factor}}$
- The factor for Inductive Load like compressor, heating pump, usually be 5~8;
- The factor for Resistive Load like Electric heating rod, Electric blanket usually is 1.5~2;
- The factor for an Incandescent lamp usually is 15.

5. Configurations

5.1. Code and Function Menu

Code	Function	Min	Max	Default	Unit
HC	Refrigeration or Heating Mode	C	H	C	
d	Temperature Hysteresis / Return Difference	1	15	5	°C
LS	Lower Limit for SP Setting	-40	SP	-40	°C
HS	Upper Limit for SP Setting	SP	99	70	°C
CA	Temperature Calibration = Real Temp. - Measured Temp.	-7	7	0	°C
Pt	Compressor Delay Time / Protection time	0	7	1	Min

5.2. How to set the ideal temperature range?

- SP means the Temperature Set Point; it is the lower limits in this controller;
- SP + Hysteresis are the upper limits (Hysteresis is a unidirectional parameter here).

From SP to SP + Hysteresis is the range user wish temperature keep around, once exceed this range the status of the Load will be changed, follow below steps to set it:

a) Press the Set key, shows the SP (Temperature Setpoint Value);
b) Press ▲ and ▼ keys to change SP which LS and HS limited;
c) It will back to normal status in 4s if without operation.

5.3. How to set the Parameters?

Step1 Hold the Set key for 4s to enter the function code interface; you will see HC;

Step2 Now press the ▲ or ▼ key to select the code you want to update;

Step3 Press the Set to see the existing value;
Hold the Set key and do not lease it, press the ▲ or ▼ keys to change data;

Step4 Release all keys, and then press the ▲ or ▼ key to the following code;
Repeat operation from Steps 3 / 4 to adjust other parameters;

Step5 All new data will be auto-saved, and it will back to normal status in 4s if without operation. (Without the function of pressing some key to back to regular status.)

5.4. When will the Load Start/Stop work?

Mode	HC	Load Works	Load Stops
Refrigeration	C	Room Sensor Temp. > SP + Hysteresis and The period passed delay time Pt	Room Sensor Temp. ≤ SP
Heating	H	Room Sensor Temp. ≤ SP and The period passed delay time Pt	Room Sensor Temp. ≥ SP + Hysteresis

- The Load will loop work 15mins then stop 15 minutes if found sensor error;
- The time delay function is the same, no matter in Refrigeration or Heating mode.
- The period is from the Load's last stops moment to the instant time; in other words, the time should be later than
  The compressor's last stops moment + delay time.

6. Error & Alarm

- Without a buzzer inside;
- The error code on display will not disappear until all the failures are resolved.

Code	Reason	Troubleshooting
E1	The memory unit is broken	Press the Set key to restoring the factory reset
EE	Sensor error	Ensure the sensor was installed firmly or replace a new sensor, the buzzer will shut down in 10s once the problem be fixed
HH	Sensor temperature > 99°C	Check the room temperature and the status of loads
LL	Sensor temperature < -40°C	

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