User Manual of AL8010F Thermostat

Refrigeration or Heating Controller

(Version 21.08.04GEN)

AL8010F is a digital thermostat base on Set-point & Hysteresis to control the power supply status of connected loads; with just one Relay to wiring a refrigerator or a heater, the set-point temperature ranges from -50 to 120 °C.

1. Package

Controller	1PCS
Fasteners	2PCS
Sensor	1PCS
Manual	1PCS
Waterproof Cover	1PCS

2. Specification

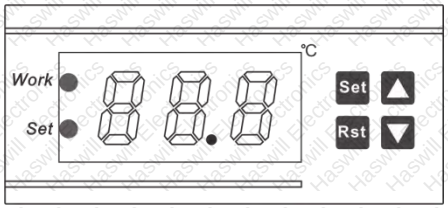
Input Power	220V AC ± 10% 50/60HZ; (12/24/48/110V Option)
Maximum current	10A (Default) under 220V AC
Sensor	NTC, 25°C /10 KΩ, the sensor cable 200cm
Protection Class	IP65 to the front panel
Storage	-10°C ~ 60°C, RH<90%, without condensation
Measurable Range	-50°C ~ 120°C
Controllable Range	-50°C ~ 120°C
Resolution	0~ 99.9°C is 0.1°C, other range 1°C
Accuracy:	± 1°C
Power Consumption	≤ 3W

3. Interface & Operation

3.1. Front Panel & Icon

Under normal status

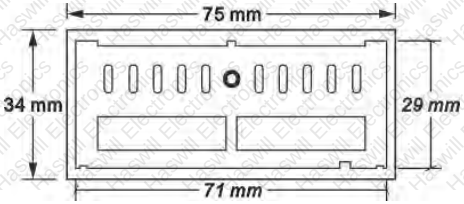
- When screen light, Hold the Rst key for 3s to turn off the controller;
- When the screen is dark, press the Rst key to light on the screen.



3.2. Indicator / Character in Display

Indicator	Meaning	On	Hide	Wink
Work	Working status of the load	Load Working	Stop	Delay
Set	Setting status	On Set	Non-setting	N/A

3.3. Dimensions & Installation



A. Suggested amount dimension: 71*29*85mm (W*H*D)

B. Detach the slide fasteners, put the controller into the hole, wiring follow the diagram

C. Install the fasteners and the waterproof cover.

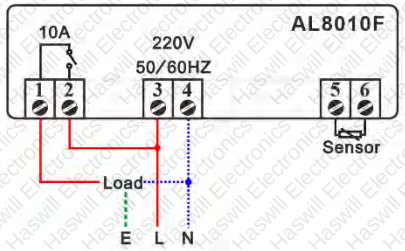
D. Please **avoid** installing in the below environments:

- 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 (e.g., the gas, smoke, or salt fog)
- Wireless electromagnetic interference or strong magnetic fields (near to transmitting antenna or switch board room).

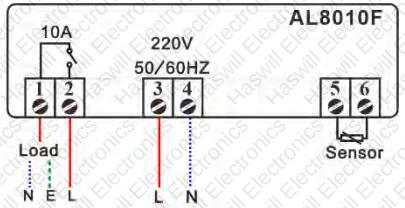
3.4. Wiring Diagram

The input power voltage of the load and the controller could be different.

Same



Different



A. 10K NTC sensor, need not distinguish + or – when wiring it.

B. The input voltage must be within the range of Marked Voltage ±10%.

C. 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 Incandescent lamps usually is 15.

4. Configurations

4.1. 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	-50	SP	-50	°C
HS	Upper Limit for SP	SP	120	120	°C
CA	Temperature Calibration	-5	+5	0	°C
Pt	Protection Delay Time for Refrigeration	0	10	1	Min

4.2. What is SP, and how to set it?

SP means Set Point, from SP - Hysteresis to SP + Hysteresis is the range user wish temperature keep around, once exceed this range the status of the load will be changed, Details of setting as follow

Step1 Assure power on, press the Set key, you will find display show a changeable value, **default SP = 10°C.**

Step2 Now press the ▲ or ▼ keys to get your aim value;

- Press and hold on the ▲ or ▼ is fast forward function;
- The step length is 1°C;
- The editable range between the lower (LS) and the higher (HS) limit.

Step3 Leave the device alone, it will save data automatically in 10s, or press Rst to save it.

4.3. When will the load works?

A. **In the heating mode (HC = H)**, the Relay will turn on the heater when

Measured Temperature Value ≤ SP – Temp. Hysteresis (d)

B. **In the refrigeration mode (HC = C)**, the Relay will turn on the compressor when

a) the time should be later than

the compressor last stops moment + Pt

b) Measured Temperature Value ≥ SP + Temp. Hysteresis (d)

4.4. How to correct measured temperature?

Exist gap/distance between the measured temperature and the actual temperature is very common, especially the first time you launch this controller; the gaps could be corrected by setting the value in CA = Real Temperature - Measured Temperature.

4.5. How to set other parameters?

Step1 Hold Set for 3s; it will appear the code HC.

Step2 Press ▲ or ▼ keys to select the code you want to update,

Step3 Press the Set to see the existing value and Press the ▲ or ▼ key to change the value;

Step4 Press the Rst key to back to the function menu list;

Repeat operation from Step 2 / 3 / 4 to adjust other parameters;

Step5 After configuring all values, **remember to press** the Rst key to save data and back to normal monitor status, in which you can check values (ref. 6.1).

Attention the modified value **will be saved automatically** and back to normal status if **without operation in 10 seconds.**

4.6. How to get Factory Reset?

In normal status, hold the ▲ and ▼ keys simultaneously for 8s; you will see the code "YES" which means success.

5. Error & Alarm

When alarming occurred, the error code in the display will not disappear until fixed all problems.

Code	Reason	Troubleshooting
---	Sensor error or open circuit	Ensure the sensor was installed firmly or replace a new sensor, display back to normal in 15 seconds once the problem is fixed.
HHH	Measured temperature > HS or sensor short circuit	Check the room temperature and then change the compressor/heater working status manually.
LLL	Measured temperature < LS	

6. 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

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