

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

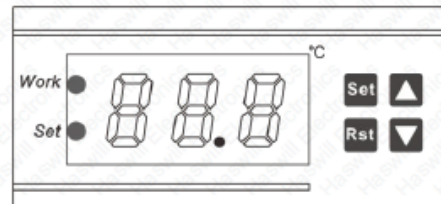
Input Power	220V AC ± 10% 50/60HZ; (12/24/48/110V Option)
Maximum current	10A (Default) under 220V AC
Sensor	NTC, 25°C /10 KΩ, the sensor cable 200cm
Protection Class	IP65 to the front panel
Storage	-10°C ~ 60°C, RH<90%, without condensation
Measurable Range	-50°C ~ 120°C
Controllable Range	-50°C ~ 120°C
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

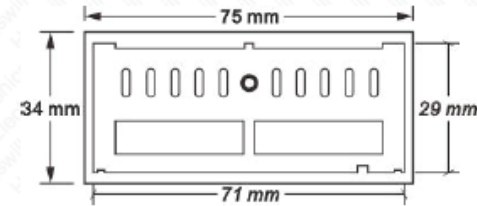
- When screen light, Hold the **Rst** key for 3s to turn off the controller;
- When the screen is dark, press the **Rst** key to light on the screen.



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

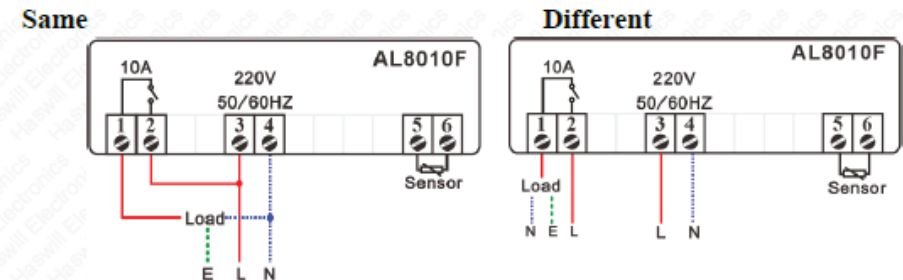
3.3. Dimensions & Installation



- Suggested amount dimension: 71*29*85mm (W*H*D)
- Detach the slide fasteners, put the controller into the hole, wiring follow the diagram
- Install the fasteners and the waterproof cover.
- 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).

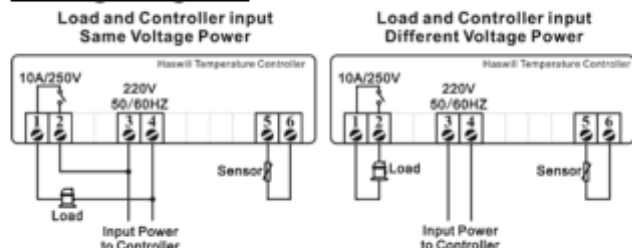
3.4. Wiring Diagram

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



- 10K NTC sensor, need not distinguish + or - when wiring it.
- The input voltage must be within the range of Marked Voltage ±10%.
- 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.

6.3. Wiring Diagram



- 10K NTC sensor, Need not to distinguish + or - when wiring it.
- The input voltage must within the voltage value marked in diagram $\pm 10\%$ value.
- Load Power $\leq \frac{\text{Voltage of load} \times \text{Max current of Relay}}{\text{Factor}}$
 - The factor for Inductive Load like compressor, heating pump, usually be 5~8;
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7. Configurations

7.1. Code and Function Menu

Code	Function	Min	Max	Default	Step
HC	Heating or Cooling	C	H	C	
d	Return Difference (°C)	1	15	5	1
LS	Lowest set Limit (°C)	-50	ATV	-50	1
HS	Highest Limit (°C)	ATV	120	120	1
CA	Temperature Calibration (°C)	-5	+5	0	1
PE	Delay Time (Min)	0	10	1	1

7.2. What is ATV and how to set it?

ATV means Aim Temperature Value which is the ideal temperature you wish to reach, once exceed this value (if difference value = 0) the status of load will be changed, Details of setting as follow

- Assure power on, Press and release **Set** key once times you will find display blink a data which is changeable.
- Now press the **▲** or **▼** keys to get you aim value;
 - press and hold on the **▲** or **▼** is fast forward function;
 - the steps length is 0.1°C;
 - The editable range between lower (**LS**) and higher (**HS**) limit.
 - The buzzer will scream once Room Temperature < **LS**, or Room Temperature > **HS**, Press any key to stop screaming if you want to.
- Waiting for 10s the device will save data automatically or press **Res** to save it.

7.3. When will the load working?

Firstly of all, the instant time passed the delay time (**PE**), and then matches one of the following

- In heating mode (HC = C)**, the relay will turn on heater when Measured Temperature Value \leq ATV - Temp. Differential (**d**)
- In cooling mode (HC = H)**, the relay will turn on cooler Measured Temperature Value \geq ATV + Temp. Differential (**d**)

7.4. How to correct measured temperature if found it not right?

Exist gap/distance between the measured temperature and the real temperature is normal especially the first time launch this controller; the gaps could be corrected by setting the value in **CA**, and please follows the formula: **CA** = Real Temperature - Measured Temperature.

7.5. How to set other parameters?

- Press **Set** and hold on until appears the code **HC** (nearly 3s).
- Now press the **▲** or **▼** keys to select the code you want to update;
- Press **Set** and release to see exist value; then press the **▲** or **▼** to get your aim value;
- Press **Set** key to memorize the configured value and return to the menu.
Repeat operation from Step 2 / 3 / 4 to adjust other parameters;
- Press **Res** to save data and quit from setting mode back to normal monitor status. r let it alone, the modified value will be saved automatically if without operation in 10s

7.6. How to get Factory Reset?

In normal status, press **▲** and **▼** keys in same time, do not release them until screen shows **YS** which means success, nearly 3s.

8. Error & Alarm

When alarm occur, if the readout flash --- and buzzer sounds,

- Press any key to stop buzz scream;
- Check the room temperature and then change the compressor / heater working status manually if necessary,
- fix or replace the sensor; after that screen will back to normal state
- And other code please, reference below content to fix problem.

Code	Reason	Troubleshooting
HHH	Measured temperature > HS	Check the room temperature and then change the compressor / heater working status manually if necessary.
LLL	Measured temperature < LS	