

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

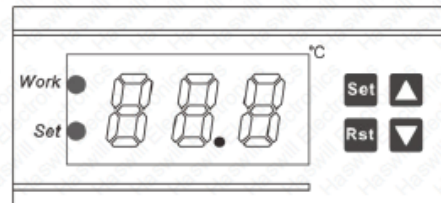
Input Power	220V AC $\pm 10\%$ 50/60HZ; (12/24/48/110V Option)
Maximum current	10A (Default) under 220V AC
Sensor	NTC, 25°C /10 K Ω , the sensor cable 200cm
Protection Class	IP65 to the front panel
Storage	-10°C ~ 60°C, RH<90%, without condensation
Measurable Range	-50°C ~ 120°C
Controllable Range	-50°C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

3. Interface & Operation

3.1.Front Panel & Icon

Under normal status

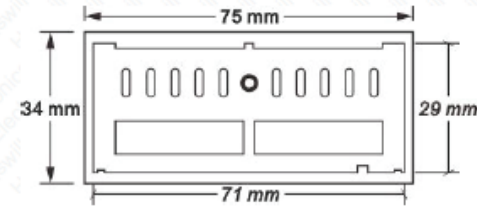
- When screen light, Hold the **Rst** key for 3s to turn off the controller;
- When the screen is dark, press the **Rst** key to light on the screen.



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

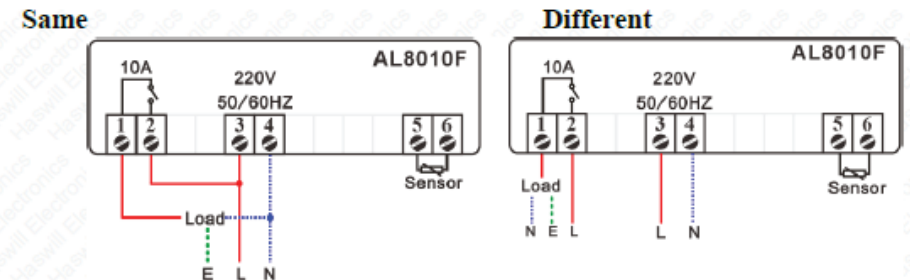
3.3.Dimensions & Installation



- 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).

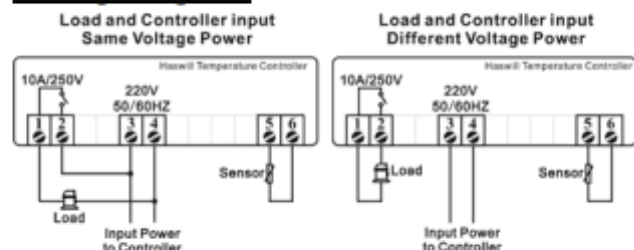
3.4.Wiring Diagram

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 $\pm 10\%$.
- Load Power $\leq \frac{\text{The voltage of load} * \text{Max current of Relay}}{\text{Factor}}$
 - 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
PL	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 **Rel** to save it.

7.3. When will the load working?

Firstly of all, the instant time passed the delay time (**PL**), 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 **Rel** 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	