



Operating Guide

How to set the upper limit and lower limit of temperature?

Press the key of select to show the upper limit and lower limit of temperature, then use the key of “▲”or“▼” to change the set value.(The key of “▲”adds 0.1°C, and the key of“▼”minuses 0.1°C, press the keys and hold them over 0.5 seconds can increase and decrease rapidly). Notice that the controller can automatically ensure “upper limit temperature” is higher for 0.5°C than “lower limit temperature”.

How to set the defrosting cycle?

Press the key of select to show the “defrosting cycle”, then use the key of “▲”or“▼” to change the set value (The key of “▲” adds 1hour, and the key of “▼”minuses 1hour, press the keys and hold them over 0.5 seconds can increase and decrease rapidly) .The set range of defrosting cycle is 0~99hours, if set to 0 means not defrosting.

Notice: After the upper limit and lower limit of temperature and defrosting cycle has been set, The value can be only saved after exiting the state of setting. The value which has been set can not be saved if the power is off before exiting the state of setting.

How to shut off the function of auto defrosting?

If you don’t need the function of defrosting, you can set it to 0, here the prober can be used in other ways, for example, it can be used to detect the environment temperature around.

How to defrost manually?

Press the key of manual defrosting and hold it for 1 second, and then enter the state of defrosting. It will do nothing if you press the key of manual defrosting and leave it at once .The state of defrosting can be ended forcibly when you press the key of manual and hold it for 1 second again.

How to read the temperature of the temperature prober?

Press the key of down when it shows the current temperature, and it can show the temperature of the defrosting temperature prober .It will show the current temperature when release the key of down.

How to eliminate the sound of alarm?

Press any key when there is a sound of alarm.

How to deal with alarm?

The controller will lock the state of alarm during some time when the external alarm occurs, the light of alarm is flashing, if the statement happens, you must first find the cause of troubles according to the light of alarm (high pressure, low pressure or overload), then you can press the key of resume to relieve the state of alarm after eliminating the troubles.

✓ Advanced Operation

The controller can adjust some internal parameter to meet all kinds of need. These parameters are supplied for special technologist, and common users don’t need to know. Please don’t change the internal parameter of the controller casually, lest lead to the abnormality of the controller. The way to set the internal parameter is as below:

Use the code to enter the state of parameter setting, the code is “up-down-up-down-up-up-down”, press the key of up or down continuously in the state of showing current temperature, and it must be finished within 3 seconds, if the code is right, you can enter the state of parameter setting, here the nixietube shows “Fxx”, thereinto xx is a number, it means parameter code.

Use the key of up or down to select the parameter code, press the key of select to show the value of the parameter after you have selected one parameter, here you can use the key of up or down again to set the parameter, then press the key of select again to return the state of showing parameter code after finishing setting. (The parameter which has been changed can be only saved after returning to the state of “Fxx” by pressing the key of “select”)

Internal parameter code is as follows:

Sort	Code	Parameter Name	Range	Factory Setting	Unit	Remark
Temperature controlling	F19	Temperature revision	-5 -- +5	0	°C	Revise temperature bias
	Compressor	F21	Compressor halt protection time	0 -- 10	3	min
		F22	Compressor running frequency *	0 -- 10	0	-
Defrosting	F31	Defrosting cycle	0 -- 99	12	hour	0 means no defrosting
	F32	Defrosting stop temperature	5 -- 50	15	°C	
	F33	Time of defrosting finished	1 -- 99	30	min	
	F34	Dripping time	0 -- 99	5	min	
Fan	F41	Temperature of fan boots	-45 -- 45	-10	°C	
	F42	Fan start delay	0 -- 240	60	sec	
	F43	Fan stop delay	0 -- 240	0	sec	
Alarm	F51	External alarm lock time*	0 -- 240	60	min	Refer to the annotation 2
Testing	F99	Check	This function can attract all relays in turn, please don't use it when the controller is running!			
	F00	Exit				

*Annotation: 1. “Compressor running frequency” is used when temperature sensor is error. This function lets compressor run in the state of protecting. In this state, the cycle is 30 minutes, then compressor runs for F22*3 minutes, and stops for 30-(F22*3) minutes. For example, if the parameter of F22 is set to 3, then the compressor runs for 9 minutes, and stops for 21 minutes, and all that. If you don’t need this function, F22 can be set to 0.

2. “External alarm lock time” means that when outdoor alarm occurred, even if the outdoor alarm is removed, the controller will keep the state of alarm for a few time. Press the key “resume” can cleanup alarm forcibly.

❄ Operating Principle

Temperature Controlling

Temperature controlling is based on “Upper limit temperature” and “Lower limit temperature” .If “Upper limit temperature” is 20°C, “Lower limit temperature” is 18°C, when temperature prober (refrigerator sensor) apperceives that the temperature is higher than 20°C, compressor turns on, then if the temperature is lower than 18°C, compressor stops. Thus temperature can be controlled between 18°C and 20°C.

Compressor delay time

The controller contains a “compress halt calculagraph”, it begins to time when compressor stops, the program first check the calculagraph before booting the compressor next time, the program will immediately boot the compressor if the calculagraph reach 3 minutes ,if the calculagraph doesn’t reach 3 minutes ,it will boot later when the calculagraph reaches 3 minutes. In addition, the controller doesn’t turn on the compressor within 3 minutes after the power supply is on. (The introduction above is based on that the ”boot delay protection of compressor” is 3 minutes, this parameter can be set, if you don’t need delay, it can be set to 0.)

Auto Defrosting

The controller starts defrosting according to “defrosting cycle”. After defrosted, the controller can check the defrosting effect by defrosting temperature prober. If the temperature reaches the “Defrosting end temperature”, defrosting will stop. If the time is longer than “defrosting time”, Micro-controller will finish defrosting, and open the alarm of defrosting failure (the light of defrosting cycle is flashing).

Defrosting and dripping

NA1540

Intelligent Refrigeratory Controller

User Guide

Set a time of dripping, for example, 5 minutes, thus the compressor doesn't start to refrigerate again for 5 minutes after finishing defrosting, here the indicator light of defrosting will flash. Yet controller can not enter the state of dripping in two conditions: one is that finishing the defrosting manually, the other is the error of defrosting sensor.

☞ About Fan Controlling

Fan doesn't start immediately after cooling, controller can detect the evaporator temperature by defrosting temperature prober, fan will boot when evaporator temperature is lower than "Fan startup temperature". If the evaporator temperature doesn't lower for a long time after cooling, and over the time of "Fan startup delay", fan will run compulsively. If you want to start up the fan immediately, set the time of "Fan startup delay" to become 0. Fan also doesn't stop immediately after stopping refrigeration, it will delay for some time, the time can be set in the parameter of "Fan stop delay", if you don't need the function of delay, set the parameter to become 0.

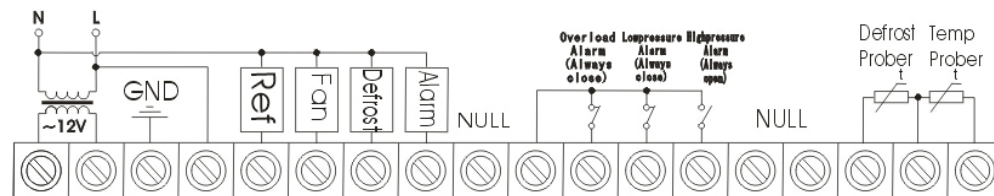
Main Function:

- ☞ Temperature Display
- ☞ High or Low Temperature Alarm
- ☞ Fan Delay Start
- ☞ Intelligent Defrosting controlling
- ☞ Dripping
- ☞ Compressor Start Delay Protection
- ☞ Temperature Prober Error Alarm
- ☞ Outdoor Alarm (high voltage, low voltage, over loading)
- ☞ Alarm Signal Output
- ☞ Temperature Controlling (Refrigeration)
- ☞ Fan Controlling
- ☞ Fan Delay Shutoff
- ☞ manual defrosting

Main Technique Index:

- ☞ Temperature Display Range: -50~125°C (Step 0.1°C)
- ☞ Defrosting Cycle: 0~99hours,adjustive
- ☞ Temperature Setting Range: -45~120°C, adjustable
- ☞ Power Supply: 9~12V AC
- ☞ Output Capacity: 2A/380V
- ☞ Drilling Size(mm): 106.3x165 (Height*width)

Wiring Diagram:



Notice:

1. Please place the temperature prober to air return of the air cooler, the prober of defrosting must be fixed on the muffler of the air cooler.
2. The earth terminal of the controller should be connected with the earth terminal of the electric cabinet reliably, be sure to connect the earth well.
3. Please use power supply transformer and temperature sensors with the controller which is supplied by our company.
4. Overload alarm and low pressure alarm must be shorted if not use, or the controller will enter the alarm state and can not run normally.