# NA210 User Guide

## ☞ Main Function and Technique Index

Main Function：

 The controller is a single refrigeration controller, and it contains temperature display, temperature controlling, compressor delay time, temperature sensor error alarm and other functions.

Main Technique Index：

 ☞ **Temperature display range:** -50～125°C（The step between -9.9 and 99.9°C is 0.1°C，else 1°C）

 ☞ **Temperature setting range:** -45～120°C（The step between -9.9 and 99.9°C is 0.1°C，else 1°C）

 ☞ **Power Supply：** AC 220V±10% or 380V±10% 50Hz （Refer to the wiring diagram）

 ☞ **Operating Environment：** temperature -10℃～45℃，humidity≤85%.

 ☞ **Relay contact capability：** 2A/380VAC(pure resistive load)

 ☞ **Temperature Sensor：** NTC R25=5kΩ,B(25/50)=3470K

 ☞ **Executive Standard：** Q/320585 XYK 01-2004 (NA210-CT)

▣ Operating Guide

☝ *What's the meaning of the index lights on the panel?*

 The function of the lights on the panel is showing below:

LED	light	flash
Current Temperature	Showing current temperature	-
Temperature upper limit	Set upper limit temperature(not revised)	Set upper limit temperature (has been revised)
Temperature lower limit	Set lower limit temperature (not revised)	Set lower limit temperature (has been revised)
Refrigeration	Refrigerating	The state of compressor boot delay protection

☝ *The meaning of the nixietube display*

 The nixietube usually shows temperature, if it shows "EE", it means the temperature sensor is short, and "-EE" means the temperature sensor is open.

☝ *How to set the upper limit and lower limit temperature?*

 Press the key "set" and hold it for at least 2 seconds, the controller displays the "temperature upper limit", and the LED of "temperature upper limit" lights, then using the key "▲" and "▼" can adjust the parameter. After setting, press the key "set", then enter the state of "temperature lower limit", using the key "▲" and "▼" can adjust the parameter, press the key "set" again, then exit the state of setting parameter. （the key"▲"adds 0.1°C, the key"▼"minuses 0.1°C, press and hold it over 0.5 seconds can add or minus rapidly）

Notice：1. In the state of temperature setting，it will exit the state of setting if no one presses the key within 30 seconds.

 2. 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.

✓ Advanced Operation

 The controller can adjust some internal parameter to meet all kinds of need. The parameter is 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 abnormity 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"▲","▼" 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"，there into xx is a number，it means parameter code.

 Use "▲" or "▼" to select the parameter code，Pressing the "set" key can make it to show the value of the parameter after select the parameter, here you use"▲" or "▼" to set the parameter, then press the "set" key to return to the state of showing parameter code after finishing setting.（**Notice：The parameter which has been changed can be only saved after returning to the state of "Fxx" by pressing the "set" key**）

 Internal parameter code is showing below:

Sort	Code	Parameter Name	Range	Factory Setting	Unit	Remark
Temperature	F19	Temperature revision	-5 -- +5	0	°C	Revise the sensor bias
Compressor	F21	Compressor delay time	0 -- 10	3	min	
Testing	F99	Check	**This function can attract all relays in turn, and please don't use it when the controller is running!**			
	F00	Exit				

❄ Basic Operation principle

✍ *Temperature controlling*

Temperature controlling can be set according to "upper limit" and "lower limit" .If "upper limit temperature" is 20°C, "lower limit temperature" is 18°C, temperature sensor (refrigerator sensor) apperceives the temperature is higher than 20°C, the compressor runs, then the temperature is lower than 18°C, the compressor stops. Thus temperature can be controlled between 18°C and 20°C.

✍ *Compressor delay time*

The controller contains a "compressor halt calculagraph", and it begins to time when compressor stops, the program first check the calculagraph before starting the compressor next time, the program will immediately start the compressor if the calculagraph reach 3 minutes ,if the calculagraph doesn't reach 3 minutes ,it will start again when the calculagraph reaches 3 minutes. Thus you can ensure that the boot alternation is over 3 minutes after halt, so it can prevent to breaking the compressor as a result of frequent boot.

In addition, the controller doesn't boot the compressor within 3 minutes after turning on the power supply, thus the compressor can also be protected in the state of power cut and then power on. （*Annotation：The time of boot delay protection can be adjusted, it sets to 3 minutes above.）

Notice：
1. **Please place the temperature sensor at the place of air return 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 the temperature sensors which are supplied by our company.**