NA610 User Guide (V2.00)

Main Function and Technique Index

The controller is a general temperature controller, refrigeration/heat mode can be set, and it has several functions: compressor start delay protection, temperature range can be limited, temperature adjustment, temperature sensor error alarm. one external alarm, it can be set to 5 modes: always open, always open locked, always closed, always closed locked or forbidden. You can set a password for advanced menu, and can set a probation time, the controller will stop when the running time is over the probation time. Main technique index is as follows:

- **Temperature display range:** -50～150°C（The step between -9.9 and 99.9°C is 0.1°C，else 1°C)
- **Temperature setting range:** -45～145°C（The range can be set)
- **Power supply:** 220V±10% or 380V±10% (Refer to the wiring diagram)
- **Operation Environment:** temperature -20℃～50℃, humidity≤85%.
- **Relay contact capability:** 2A/250VAC (pure resistive load)
- **Temperature sensor:** NTC R25=5kΩ, B (25/50) =3470K
- **Executive standard:** Q/320585 XYK 01 (NA610-CHTA)

Operation Guide

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

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

Indicator light	Indicator light name	Light	Flash
	Temperature setting	In the state of temperature setting	-
	Refrigeration	Refrigerating	Ready to refrigerate, in the state of compressor state delay protection
	Heat	Heating	Ready to heat, in the state of compressor state delay protection
	Not use	-	-

The meaning of the nixietube display:

The nixietube usually shows temperature, if it shows "SHr", it means the temperature sensor is short, and "OPE" means the temperature sensor is open.The temperature and the alarm code (Axx) will show alternately when in the alarm state.

The code is showing below:

Code	signification	Explanation
A11	External Alarm	External alarm input, refer to the internal parameter code "F50"
A21	Temp sensor error	Open or short (showing "SHr" or "OPE")
A99	Probation time ends	If you have set the probation time F87, the alarm occurs when the accumulative running time is over probation time, and the controller can not work.

How to set the temperature

In the state of displaying current temperature, press the keys "▲" and "▼" at the same time，indicator light lights, then enter the state of temperature setting，here the nixietube shows the temperature of setting, then use the key "▲" or key "▼" to change the value of setting（"▲"adds 0.1°C，"▼"minuses 0.1°C，press and hold them over 0.5 seconds can add or minus rapidly）.Press both keys at the same time or without any operation for 5 seconds to exit the state of setting (The temperature range is limited by F13 and F14, please refer to the advanced operation).

Basic Operation principle

Temperature controlling

The controller has 2 temperature controlling mode: Refrigeration and Heat(F29).Temperature controlling point is controlled by "setting temperature (F11, or press the both keys to set)" and "temperature difference(F12)".In refrigeration mode, the controller begins to refrigerate when the temperature of the temperature sensor is over "setting temperature ＋ temperature difference", and it stops refrigerating when the temperature is under "setting temperature － temperature difference"; In heat mode, the controller begins to heat when the temperature of the temperature sensor is under "setting temperature － temperature difference", and it stops heating when the temperature is over "setting temperature ＋ temperature difference"

Compressor delay time

The compressor delay time is set by F21, for example, 3 minutes. The controller contains a "compressor

halt calculagraph", and 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 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.

External alarm

The controller can connect a switching value as external alarm source (Pin 4, 5), when the external alarm occurs, the controller stops, displays the alarm code "A11" and generates alarm output. External alarm signal has 5 modes (F50):

0: without external alarm
1: always open, unlocked
2: always open, locked
3: always closed, unlocked
4: always closed, locked

"Always open" means in normal state, external alarm signal is open, if closed, the controller will give an alarm; "Always closed" is on the contrary. "Locked" means that when external alarm signal becomes normal, the controller is still in the alarm state, and it needs to press any key to resume.

Probation time

A probation time can be set (F87), the controller can add up the running time after power is on, if the accumulative running time is over the probation time, the controller will stop and display the alarm code A99, if you want to eliminate the limit of probation time, set the F87 to "OFF", also you can use the F86 to clear the accumulative running time, and you can try to use it again. The parameter F85 can be used to examine the accumulative running time of the controller (hour).

Password

In order to prevent irrespective persons from changing the parameters, you can set a password (F80), and if you have set a password, the controller will hint you to enter the password after you press the key "M" for 5 seconds, you must enter the correct password, and then you can set the parameters. If you don't need the password, you can set F80 to "OFF". Notice that you must remember the password, and if you forget the password, you can not enter the set state.

✓ Advanced Operation

Press the key "▲" for 5 seconds to enter the state of parameter setting, and if you have set the password, the LED display the "PAS" to hint you to enter the password, you can use the key "▲" to change number and use the key "▼" to shift. If the password is correct, the LED will display the parameter code, use "▲" or "▼" to select the parameter code，and the press the key "▲" and "▼" at the same time to display the parameter valve, here you can use the key "▲" and "▼" to set the parameter (pressing the key and not release can add or minus rapidly),then press the both keys at the same time to return to the state of showing parameter code after finishing setting.

Internal parameter code is showing below:

Sort	Code	Parameter Name	Range	Factory setting	Unit	Remark
Temperature	F11	Setting temperature	F14 – F13	0	℃	The setting range is limited by F13 and F14
	F12	Temperature difference	0.1 – 20	1.0	℃	Control the temperature difference, please refer to the temperature controlling
	F13	Max setting temperature	-45 - 145	145	℃	Notice: the controller will follow the rule of F14<F11<F13 forcibly, if you find out that one parameter can not be adjusted, it is because the parameter is limited by other parameters, you must first adjust other parameters
	F14	Min setting temperature	-45 – 145	-45	℃	
	F19	Temp sensor adjustment	-20.0 – 20.0	0.0	℃	Adjust the temperature sensor bias
Compressor	F21	Compressor delay time	0 -- 10	3	min	
	F29	Compressor controlling mode (temp controlling mode)	C/H	C	-	C: refrigeration mode H: Heat mode

Alarm	F50	External alarm mode	0 -- 4	0	-	0: without external alarm 1: always open, unlocked 2: always open, locked 3: always closed, unlocked 4: always closed, locked
System setting	F80	Password	OFF 001 -- 999	OFF	-	OFF means no password 000 means clearing password
	F85	Display accumulative running time	-	-	hour	
	F86	Accumulative running time reset	-	-	-	
	F87	Probation time	OFF 1 -- 999	OFF	hour	The controller will stop if the accumulative time is over probation time, and show the alarm code "A99". OFF means no probation time
Testing	F98	Reserved				
	F99	Test self	**This function can attract all relays in turn, and please don't use it when the controller is running!**			
	End	Exit				

Wiring Diagram: