# ➢ Main Function and Control Logic

The controller is a milk jar special controller, and it controls a compressor and a Agitator. It contains four external alarm (Agitator, compressor, high pressure, low pressure), and it also contains a forcible refrigerating switch and a manual beating switch.

- 1. **Temperature controlling:** It begins to refrigerate when the temperature in the milk jar is higher than the "temperature upper limit", and stops refrigerating when the temperature is below "temperature lower limit".
- 2. **Compressor:** When refrigerating, the controller first turns on the Agitator, and turns on the compressor after 30 seconds. In addition, the compressor has the function of delay protection, the controller will start again after stopping for above 3 minutes (The delay time can be set).
- 3. **Agitator:** The Agitator is always running when refrigerating, and the Agitator will not stop until reaching the "beating time". When not in the refrigerating state, the Agitator will run according to the "beating alternation" and the "beating time".
- 4. Alarm: Alarm signal is a contact which is always closed, the alarm occurs when the contact open. When the Agitator is in the alarm state, the controller stops refrigerating and beating; when "Compressor", "High pressure" and "Low pressure" is in the alarm state, the controller stops the compressor and the Agitator is not impacted. After the alarm signal is withdrawn, the alarm state is still locked for some time, you can press any key to resume.
- 5. **Forcible refrigerating switch:** When the temperature is between "temperature upper limit" and "temperature lower limit", the system may be or not be refrigerating, press the forcible key can start refrigerating forcibly.
- 6. **Manual beating switch:** In the non-refrigerating state, press the key "▲" and hold it for 2 seconds, and the Agitator can be turned on or off. After the Agitator was turned on or off, the Agitator will still start or stop periodically according to the "beating alternation" and "beating time" which have been set. In refrigerating state, the Agitator is always running, and the key of manual beating switch can do nothing.

### ➢ Technique Index

- Temperature display range: -50~125°C, (step 0.1°C)
- ▷ Temperature setting range: -45~120°C
- ▶ Power supply: 12V AC (Use the transformer with the controller, primary voltage, 220V±10% or 380V±10%)
- ∂ **Operation Environment:** temperature -10 °C ~45 °C, humidity≤85%.
- D Relay contact capability: 1A/380VAC (Pure resistive load)
- **Temperature sensor:** NTC R25=5k $\Omega$ , B (25/50) =3470K
- Descutive standard: Q/320585 XYK 01-2004 (NA1620-CTAX)

## Departing Guide

### 1. Basic Setting

Press the "sel" key, and you can set four parameters: "Temperature upper limit", "Temperature lower limit", "Beating alternation", "Beating time", and then use the " $\checkmark$ " and " $\checkmark$ " to change the setting value (" $\bigstar$ "adds 0.1°C, " $\checkmark$ "minuses 0.1°C, press and hold them over 0.5 seconds can add or minus rapidly).

### 2. Alarm Processing

The controller makes the alarm indicator light flash or display the alarm code on the nixietube when alarm occurs, and first you can look for error causation according to these indications, after removing the error, some alarms can resume automatically, but some are locked, and you can press any to eliminate. Please refer to the table below:

Alarm Name	Alarm Code	Causation	Resume Way
Agitator alarm	Indicator light	Agitator alarm signal open	Press any key
Compressor alarm	Indicator light	Compressor alarm signal open	Press any key
High pressure alarm	Indicator light	High pressure alarm signal open	Press any key
Low pressure alarm	Indicator light	Low pressure alarm signal open	Press any key
Temp sensor short	EE	Temp sensor short	Auto
Temp sensor open	-EE	Temp sensor open	Auto

# ✓ 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"  $\bigstar$  ","  $\bigstar$  " 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 " $\checkmark$ " or " $\checkmark$ " to select the parameter code, Pressing the "sel" key can make it to show the value of the parameter after select the parameter, here you use"  $\checkmark$ " or " $\checkmark$ " to set the parameter, then press the "sel" 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 "sel" key) Internal parameter code is as follows:

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		
Alarm	F51	External alarm locked time*	0 - 240	60	min	Refer to the annotation	
Testing	F99	Check	This function can attract all relays in turn, and please don't use it when the controller is running!				
	F00	Exit					

\*Annotation: "External alarm locked time" means that when the external alarm occurs, even if the external alarm signal has been repealed, the controller will maintain the alarm state for some time, you can eliminate the alarm forcibly by pressing any key.

#### Wiring Diagram:



Notice:

- 1. Please short the corresponding ends if you don't use the signal of the hydraulic pressure, or the compressor can not start normally.
- 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 transformers and sensors which are supplied by our company.