Automatic Cleaner Specification
-NA35X4 milk container
（V1.0）

Function and Condition
Function：

☞ **Temp Control**：Temp display、Temp Control

☞ **Abnormal Temp Alarm**：Set temp threshold and delay time.

☞ **Circuit Protection**：When happening phase loss or phase error or current imbalance,it can disconnect the load.

☞ **OverLoad Protection Of Compressors**：Display three phases current of compressor；When average current of compressor is more than current threshold,it can disconnect the load.

☞ **RS485 communication**：Display can communication with controller by RS485。

☞ **three modes**：refrigeration mode、wash mode、mixingmilk mode.

time of displaying is set(default 30s)。Parameter password is set(default 111).

Refrigeration mode：In this mode two compressors,a mixer, two oil return valves,two solenoid valves can work.The number of compressors is set.

control logic：

1、**Temp Control**：When temp is up to limit value，it will refrigerate.When Reaching downlimit value, compressors stop。If temp is over limit value,it will alarm for 50 second。

2、**Compressors**：When refrigerating，the dasher begin to work for 30 second,After then,following with compressors. You can set a compressor or two compressors to work.If two compressors work,it must have the rule which t the other compressor starts to work until one compressor works for one minute.And the compressors have self-Protection function which time must be over 3 minute(Parameter) between two start.

3、**Dasher**：When refrigerating,the dasher is always working.When Compressors stop working,the dasher will continue until running time is out.On the standby state,the dasher works according to interval time and running time

4、**oil return valves**: Only on the standby state,The controller open oil return valves after the compressor working for a period of time(Parameter). Working time of oil return valves can be set.

5、**solenoid valves**：solenoid valve1 open after compressor1 starting, solenoid valve1 close before compressor1 stoping.So solenoid valve2 is.

6、**Circuit Protection**：When happening phase loss or phase error or current imbalance, compressors ,dasher and milk pump stop working and it begin to alarm.

7、**External Alarm**：External alarm happen by Input signal which has 5 mode set by parameters.

8、In refrigeration mode ,it keep the "start" button for a period of time.You can open or close compressors,mixer, solenoid valves by manual(Display can set). By pressing short the "start" button,it quits manual mode.

9、Chosing refrigeration mode on dispay, it dispalys compressor and mixer current.

Washing Mode：Circulating Pump、three valves(cold water valve,hot water valve,drain valve)、two pumps(acid pump、alkali pump).

control logic：

1、In this mode，Compressors must stop。

2、It converts to washing mode by press the "function" button。

3、It keep the "start" button for a period of time.it begin to wash. By pressing short the "start" button,it converts between start and stop. Chosing Washing mode on dispay,you can see two pages by the right or left button.One of pages can set washing output by maunal,the other displays washing state.

4、**Washing Step：**

A The First Step Of Washing：

a) Cold water valve and hot water valve open.According to setting time(parameters), Cold water valve and hot water valve close.

b) Then starting circulating pump，After a period of time(parameter), circulating pump stop and drain valve open.If drain time(parameters) is out,drain valve close.

B Acid Washing：

a) Acid pump begins to work and hot water valve open.If time(parameter) is out, Acid pump stops and hot water valve close.

b) Then starting circulating pump，After a period of time(parameter), circulating pump stop and drain valve open.If drain time(parameters) is out,drain valve close.

C The Second Step Of Washing：

The same of the first step of washing

D Alkali Washing：

a) Alkali pump begins to work and hot water valve open.If time(parameter) is out, Acid pump stops and hot water valve close.

b) Then starting circulating pump，After a period of time(parameter), circulating pump stop and drain valve open.If drain time(parameters) is out,drain valve close.

E The Third Step Of Washing

The same of the first step of washing

5、Configuration

(1)Washing Mode(parameter)：1、(ABCDE)；2、(ABC)3、（ADE）4、（A）5、（ADEABCADE）

(2)Level Control Mode：1、Level signal+time（If it has Input signal,it will stop washing.If level is normal,it will begin to wash until washing time is out.This input has three ways which is normal open,normal close and not used.2、time(When washing time is out,it stops washing)

(3)If temp of water is over limit value,it will alarm for 30 minutes.But washing go on.

(4)In order to speed up for drian, Circulating Pump will open when drain valve open for 15 seconds.This function can be set by parameter.Opening time of Circulating Pump is set by parameter.

(5)Display is bright on washing mode.

(6)Parameters of washing can be set on general parameters of display.

Mixingmilk Mode：

1、It converts to mixingmilk mode by press the "function" button。It keep the "start" button for a period of time.it begin to mix milk.By pressing short the "start" button,it converts between start and stop. Chosing mixingmilk mode on dispay,you can see mixingmilk state.

2、It also has level mode and time mode.On level mode,When level is low for a perid of time(Parameter),it stops mixing milk. This input has three ways which is normal open,normal close and not used.

3、On time mode,If time is out, it stops mixing milk.

4、It can display mixing milk state.

Pressing：

1、Function Button（It can converts by refrigeration mode、wash mode、mixingmilk mode）

2、Start/Stop Button，it converts between start and stop on these mode.

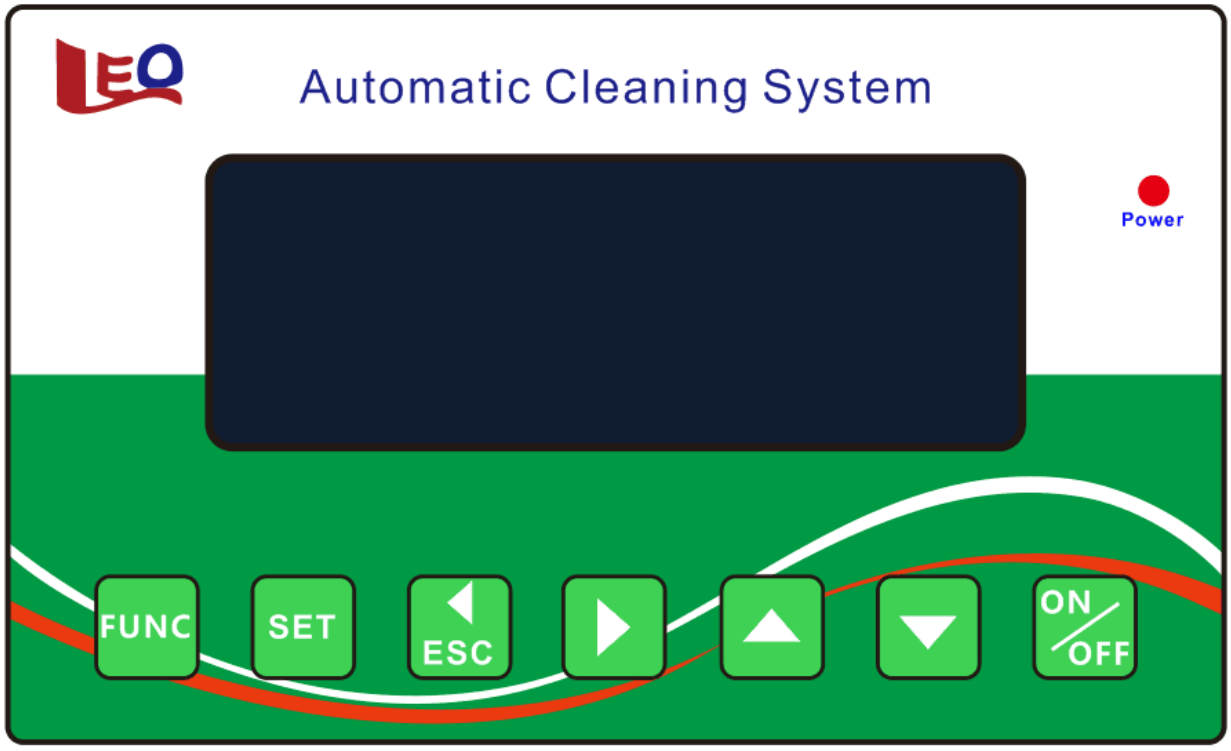
Annotion：You can press the left button on display,it returns to last page.

Condition：

Temp Display Range ： -25～125°C
Temp Set Range ： -20～120°C
Current Display Range ： Compressor：0～80A，Precision±0.5A
Current set Range ： Compressor：1～80A
Supply Voltage ： DC12V 15W or AC220 14V Transformer
Environment ： Temp-10℃～50℃，Humidity≤85%，No Corrosion。
Output ： 8A/250VAC
Temp Sensor ： NTC R25=5kΩ,B(25/50)=3470K
Standard ： Q/320585 XYK 01

Operation

Dispaly Board：



Alarm explaination：

It can display contents and alarm numbers.

Contents：

Display Content	Motion	Recovery	Explaination
Temp Sensor①Error	Stop Compressor	Shut down	Sensor is short or open（display “SHr”or“OPE”）。
Temp① over limit value	Alarm	Self	
Temp① under limit value	Stop Compressor	Self	
Compressor①current unbalance	Stop Compressor	Shut down	
Compressor①OverLoad	Stop Compressor	Shut down	When one of phases current of compressor is more than current threshold,it can disconnect the load and alarm.
Compressor②current unbalance	Stop Compressor	Shut down	

Compressor②OverLoad	Stop Compressor	Shut down	When one of phases current of compressor is more than current threshold,it can disconnect the load and alarm.
External alarm①	Stop refrigating	Shut down	On refrigation mode
External alarm②	Stop washing	Shut down	On washing mode
Level Input signal abnormal	Stop washing	Self	On washing mode
phase loss	Stop working	Self	
phase error	Stop working	Self	
Service time out	Stop working	Self	

☝ ***Display alarm***

It has Number ① or Number ② on display board,it has compressor① or compressor② alrams

☝ ***Alarm numbers***

On refrigation mode display,you can see alarm items by pressing“▼”button or“▲”button.

☝ ***Compressor current***

On refrigation mode display,you can see currentitems by pressing left button or right button.

✓ Parameters

Password of advanced parameter is 111.

Items：

type	code	name	range	default	unit	backup
Temp	1-1	Temp①upper limit	-19～120	5	℃	
	1-2	Temp①lower limit	-20～119	3	℃	
	1-3	Higher Temp①	-19～120	7	℃	
	1-4	Lower Temp①	-20～119	1	℃	
	1-5	Temp①amendment	0～20	0	℃	
	1-6	Delay time of temp upper limit	0-20	0	min	
Compressor	2-1	Interval time of starting up	0～10	3	min	
	2-2	Number of compressors	1-2	2		
	2-3	compressor①overload	OFF，0.1～80	12	A	OFF：cancel overload protect
	2-4	compressor①current balance	OFF，0.1～100	20	%	OFF：cancel current balance protect
	2-5	compressor②overload	OFF，1～80	12	A	OFF：cancel overload protect
	2-6	compressor②current balance	OFF，1～100	20	%	OFF：cancel current balance protect
Dasher	3-1	Interval time	1 – 100	30	min	
	3-2	Dasher time	1 – 100	5	min	
oil return valves	4-1	Interval time	20 – 100	20	hour	Cumulative time
	4-2	oil return time	0 – 5	5	min	0:cancel return oil
solenoid valves	5-1	open time (after compressor opening)1	0 – 60	5	sec	
	5-2	close time (before compressor closing)1	0 – 60	5	sec	
	5-3	open time (after compressor opening)2	0 – 60	5	sec	
	5-4	close time (before compressor closing)2	0 – 60	5	sec	

Input signal	6-1	External alarm signal①	0 - 4	4	-	0 ： not used 1 ： normal open，unlock 2 ： normal open，lock 3 ： normal close，unlock 4 ： normal close，lock
	6-2	External alarm signal②	0 - 4	4	-	0 ： not used 1 ： normal open，unlock 2 ： normal open，lock 3 ： normal close，unlock 4 ： normal close，lock
Washing	7-1	Running time of circulating pump	1 – 100	5	min	Be set on every washing step
	7-2	Running time of open Alkali valve	1 – 100	5	min	Be set on every washing step
	7-3	Running time of opening Acid valve	1 – 100	5	分钟	Be set on every washing step
	7-4	Running time of opening hot water valve	1 – 100	5	分钟	Be set on every washing step
	7-5	Running time of opening cold water valve	1 – 100	5	分钟	Be set on every washing step
	7-6	Running time of opening drain water valve	1 – 100	5	分钟	Be set on every washing step
	7-7	Running time of circulating pump in active draining	1~6000	90	秒	Be set on every washing step
	7-8	Washing control ways	1-2	1		1：level+time， 2：time；
	7-9	Washing mode	1-4	1		1: ABCDE 2：ABC 3：ADE 4：A 5、ADEABCADE
	7-10	Level input signal ways	0 - 2	2	-	0 ： not used 1 ： normal open 2 ： normal clse
	7-11	Water temp	-20~120	40	℃	
	7-12	active draining function	0~1	0		0 ： close 1 ： open
Milk pump	8-1	Level input signal ways	0~2	0		0 ： not used 1 ： normal open 2 ： normal clse
	8-2	Delay time of low level	0~200	2	sec	
	8-3	Runing time	0~40	15	min	
system	9-1	Device adress	1～255	1	-	remote
	9-2	password	off，1～999	0	-	
	9-3	Circuit Protection function	open/close	close		
	9-4	Runing time of compressor		-	day	

	9-5	Reset runing time of compressor	Yes/No	-		
	9-6	Service time	off，1～999	-	day	
	9-7	Save Circuit Protection function after shutdown	open/close	open		
	9-8	version				
	9-11	Recover factory	Yes/No			
	9-13	Working mode	1-3	1		1：refrigation mode 2：washing mode 3:mixingmilk mode
	9-14	Bright screen	0~600	30	sec	

❄ Principle

temp control

Refrigation state is decided on temp.When temp is over uplimit,it begin to refrigate.It stop refrigating until temp reach to downlimit.

Temp over or under limit value alarm

When temp is over Higher Temp value(parameter) and last for a period of time,it alarms.When temp recovers to normal temp,alarm gets off.

When temp is under lower Temp value(parameter) and last for a period of time,it alarms and stop refrigating.When temp recovers to normal temp,alarm gets off.

Interval time of starting up

The default is 3 minutes. The other compressor starts to work until one compressor works for one minute.And the compressors have self-Protection function which time must be over 3 minute(Parameter) between two start.

Current detection

It detectes current by a transformer.Three phase lines go through ostioles of current transformer.This function can be close.

Formula：(Maxcurrent - Averagecurrent）/ Averagecurrent。

OverLoad Protection

When average current is more than current threshold and last for a period of time,it can disconnect the load.Time of OverLoad is more than startup.

Circuit Protection

When happening phase loss or phase error or current imbalance,it can disconnect the load.

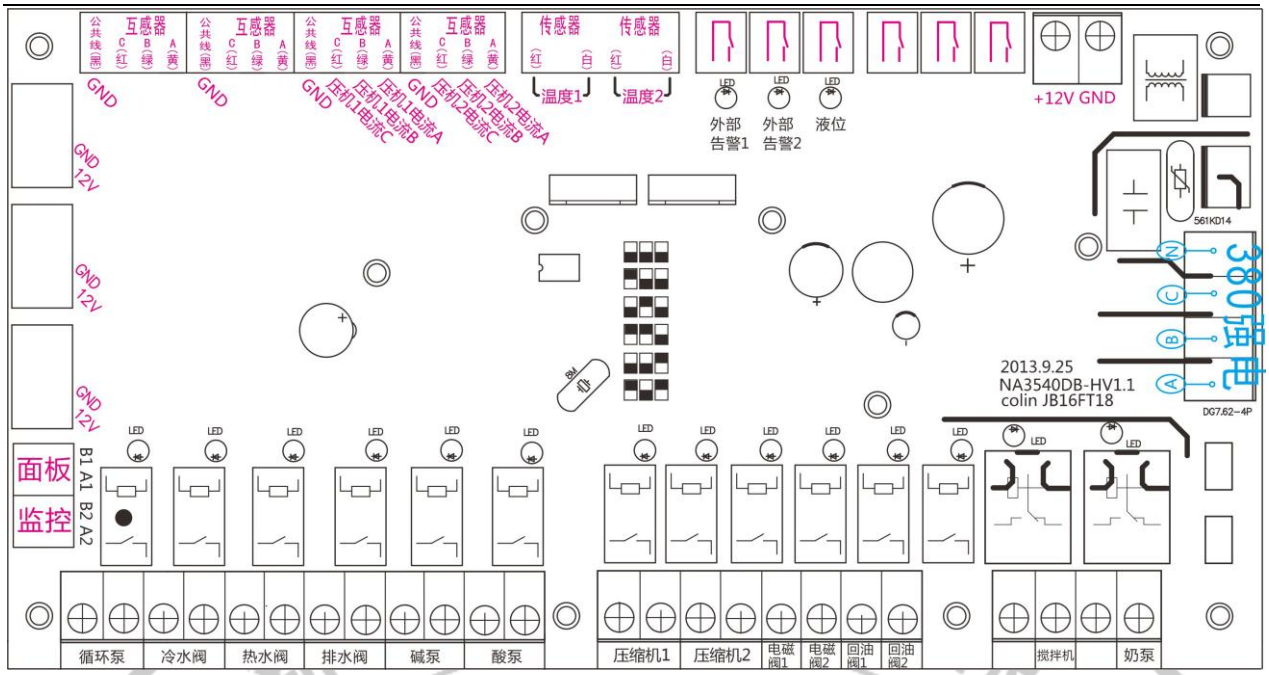
Service time

Service time can be set. Contoller's work time is more than service time, The contoller stops working and alarm.You can clear working time and close this function.

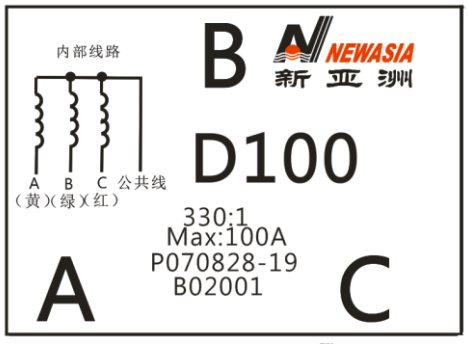
Password protection

Parameter password is set(default 111).And you can set off. Do not forget password.

Wiring diagram：



Mutual Inductor：



A,B,C,public line and these on controller link together.

notes：

1、Please use sensors of xinya company.

2、Please use twisted-pair of RS485.

3、A1B1 of RS485 on controller link with A1B1 of RS485 on display board. Display board has 9~15V power supply.（AC/DC is ok）.

5、Red part on controller must not link with high voltage.