Motor Protector Series Operating Instruction (V1.0)
（NA704L、NA708L、NA712L）

Main Functions

☞ **Current display:** display three average current, press key to display A、B、C phase current respectively.

☞ **Underload protecting:** when three phase average current lower then setting current, circuit protects and load opens.

☞ **Overload protecting:** when three phase average current exceed rated current, circuit protects and load opens.

☞ **Deficient-phase protecting:** when testing deficient-phase or three phase current unbalance, circuit protects and load opens.

☞ **Auto reset:** when circuit protects and load opens, can set "reset automatically" degree and time, after some time, switch on load again, if circuit still has malfunction, try several times, then must reset manually.

¤ Main Technique Index

Current display range: 0～50A (NA704L),0～100A (NA708L),
0～120A (NA712L),precision ±2%

Rating current range:

Sort	Min(A)	Max(A)
NA704L	1.0	40.0
NA708L	2	80
NA712L	2	120

Underload protect action time: 0.5～30s (adjustable)

Overload protect action time: 0.5～30s (adjustable)

deficient-phase protect action time: 0.5～30s (adjustable)

Power supply: AC 220V±10%）

Operating environment: temperature -10℃～45℃， humidity≤85%.

Relay contact capability: 2A/250VAC (pure resistive load)

Executive standard: Q/320585 XYK 03

Operating Guide

The meaning of the LED：

LED	light	flash	
phase A	Display the current of phase A	-	A、B、C LED no light means display three phase average current
phase B	Display the current of phase B	-	
phase C	Display the current of phase C	-	
Alarm	Circuit protecting, Load opens	Circuit protects ever, but already reset automatically	

The meaning of the nixietube display：

In normal, controller displays three phase average current(unit: A), press "SEL（▼）", then display A、B、C phase current respectively. In the alarm state, it displays alarm code.

Alarm codes:

Code	Meaning	Explanation
OL.	overflow	Current exceed measure range（NA704L measure range 50A，NA708L measure range 100A, NA712L measure range 140A）
LAC	underload	Load current lower than setting current
OVL	overload	Load current exceed rated current
PHA	deficient-phase	Deficient-phase or three phase current unbalance

How to display A、B、C phase current?

Press "SEL（▼）"then display A、B、C phase current respectively, the correspond LED lights. If A、B、C three LED is unlighted, mean that controller display three average current.

How to reset from the alarm state?

When overload or deficient-phase protection occurs, alarm LED lights, and protection circuit activates, the load opens, finally the state of open locks. You can set "reset automatically" degree and time, after some time, switch on load again, if circuit still has malfunction, try several times, then must reset manually. In any time, if press "RST（▲）", reset from the alarm state.

How to set the parameter?

The Micro-controller can change the parameter, in order to fit different needs. Using the password can enter into the menu, password is “up down up down up up down”, according to this gradation, in normal temperature state ,press “▲” “▼” during 3 seconds, if the password is right, the screen displays “Fxx”, “xx” is two numbers, means parameter’s code.

Press “▲”or“▼”for choosing parameter’s code, press “▲”“▼” at the same time for confirming, then press “▲”or“▼”in order to changing the parameter, when the parameters have been adjusted ,press “▲” “▼”to confirm.(after adjusted the parameter ,press“▲” “▼” to return to “Fxx” synchronously, the adjusted parameter is saved.)

Another way is that press “▲”“▼” simultaneously at least 5 seconds, then also enter into parameter setting.

Parameter code is showing below:

Sort	Code	Parameter Name	Range	Factory Setting	Unit	Remark
Rating parameter	F10	NA704L Underload Current:: NA708L NA712L	1.0 – 40.0 2 – 80 2 – 120	1.0 2 2	A	
	F11	NA704L Rated Current:: NA708L NA712L	1.0 – 40.0 2 – 80 2 – 120	20.0 40 120	A	
	F12	Overload acts time	0.5 – 30.0	3.0	sec	
	F13	Deficient-phase acts time	0.5 – 30.0	2.0	sec	
	F14	Underload acts time	OFF 1 -- 30	OFF	min	OFFmeans no underload function
Reset automatically	F21	Reset automatically degree	0 -- 10	1	degree	0 means no “Auto Reset”
	F22	Reset automatically time	1 -- 60	5	min	
	F00	Exit the parameter setting	-			

❄ Basic Operating Principle

Current Testing

Through mutual inductor tests load current, the motor’s three phase wire must be through mutual inductor’s three holes.

Underload protection

when three phase average current lower then setting current (parameter F10), also reach the “Underload acts time” (parameter F14), circuit protects and load opens.

Overload protection

When three phase average current exceeds rated current (parameter F11), also reach the “Overload acts time” (parameter F12), circuit protects and load opens. In order to prevent the motor startup current, “Overload acts time” must be longer than motor startup time.

Deficient-phase protection

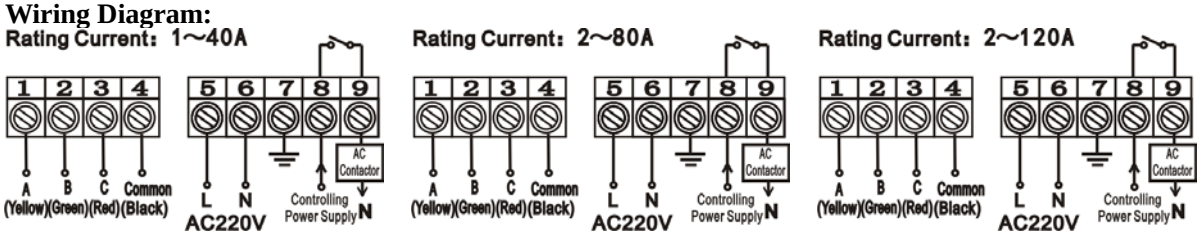
Testing the load current, When the maximum current of the three phase is double than the minimum, controller considers deficient-phase, circuit protects and load opens. But if the load current is less than 0.5A(NA704L)or 1A（NA708L/712L）, controller don’t test phase, in order to prevent the error action in the no load state.

“Deficient-phase acts time” can be adjustable through parameter F12.

Reset automatically

After circuit protects and load opens, controller can set reset automatically degree (parameter F21) and time (parameter F22).

Wiring Diagram:



NA704L **NA708L** **NA712L**

Notice：

1. **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.**
2. **Please use mutual inductor which are supplied by our company.**