NO:2020.09

CHINT ELECTRICS

NJBK6 Series
Motor Protector

User Instruction

Standard: IEC/EN 60947-4-1

⚠ Safety Warning

1. Only professional technicians are allowed for installation and maintenance.
2. Installation in any damp, condensed-phase environment with inflammable and explosive gas is forbidden.
3. When the product is being installed or maintained, the power must be switched off.
4. You are prohibited from touching the conductive part when the product is operating.
5. The product shall be stored, installed and used in accordance with the rated control power supply voltage and specified conditions indicated in the user instructions.

1 Use Purpose

NJBK6-36 motor protector (hereinafter referred to as the protector) is applicable to the protection of overload, loss of phase, three-phase current unbalance and blocking of none-stop or intermittent duty AC motors with AC frequency 50Hz, rated insulation voltage below 690V and rated operating current 1A~36A.

2 Key Technical Parameters

Table 1 Ambient Conditions

Normal use conditions	Ambient temp.: -5℃~+40℃; average value within 24h not exceeding +35℃; altitude not exceeding 2000m.
Atmospheric conditions	RH shall not exceed 50% when maximum temperature is +40℃; in case of lower temperature, higher RH is allowed. Measures should be taken against occasional condensation due to temperature change.
Installation category	Ⅲ
Transport and storage conditions	-25℃~+55℃

Table 2 Product Specifications and Main Technical Parameters

Model	NJBK6-36/3	NJBK6-36/9	NJBK6-36/24	NJBK6-36/36
Setting current (A)	3	9	24	36
Current setting range (A)	1~3	3~9	8~24	12~36
Motor power (kW)	0.5~1.5	1.5~4.5	4~12	6~18
Installation method	Plug installation (supported by a contactor of specified model)			
Setting method	Knob			
Display method	Indicator (green light is on in normal operation; red light is on in phase loss; red light is on in overload)			
Protection function	Protection of overload, loss of phase, three-phase current unbalance and blocking			
Number of contacts	1 group of change-over			

Table 3 Main Circuit Technical Parameters

No.	Product Model	NJBK6-36/3	NJBK6-36/9	NJBK6-36/24	NJBK6-36/36
1	Rated insulation voltage (V)	690			
2	Rated control supply voltage Us (V), frequency (Hz)	AC220V、AC240V、AC380V，50Hz			
3	Allowable fluctuation range of rated control power supply voltage	85%Us~110%Us			
4	Rated impulse withstand voltage Uimp (kV)	4			
5	Rated conditional short-circuit current (kA)	3			
6	CPD type	Type 2			
7	SCPD model	NT00-4	NT00-10	NT00-25	NT00-40
8	Contactor model	CJX2-25/NC1-25			CJX2-32/NC1-32
9	Enclosure protection class (if applicable)	IP20			
10	Size of terminal tightening screw (or nut)	M3			
11	Torque of terminal tightening screw (N·m)	0.5			
12	Pollution class	Class 3			
13	Rated duty	8h duty or non-stop duty			
14	Electromagnetic environment	B			

Table 4 Auxiliary Circuit Technical Parameters

No.	Product model	NJBK6-36/3, NJBK6-36/9, NJBK6-36/24, NJBK6-36/36	
1	Rated insulation voltage (V)	380	
2	Rated impulse withstand voltage Uimp (kV)	2.5	
3	Agreed free air heating current Ith (A)	5	
4	Rated operating voltage Ue(V)	240V	380V
5	Use type under rated operating voltage and rated operating current Ie(A)	AC-15	
		1.5	0.95
6	SCPD model	6A Gg	

2.1 Motion characteristic

2.1.1 See Table 5 for the motion characteristic of overload protection

Table 5 Motion Characteristic of Overload Protection

No.	Setting current multiple	Motion time	Starting condition	Ambient air temperature (℃)
1	1.05	No motion within 2h	Cold	+20
2	1.2	Motion within 2h	Thermal	
3	1.5	Motion within 2min		
4	7.2	2s < Tp≤10s	Cold	

2.1.2 Motion characteristic of phase loss protection: When any one of the three-phase currents of the main circuit is open, the protector motions for 3s, with a relative error of ± 20%.

2.1.3 Motion characteristic of three-phase unbalance protection: When the three-phase current of the main circuit conforms to the following formula, the protector motions for 3s with a relative error of ± 20%.

$$\frac{\underset{i=1}{\overset{3}{\mathrm{Max}}} \left| I_i - I_{avg} \right|}{I_{avg}} \times 100\% > 30\%$$

Where:

I_i —— Effective current value of each phase.

I_{avg} —— Mean value of effective three-phase current values.

2.1.4 Motion characteristic of blocking protection: The blocking current set in the protector is 6Ie. When the current of the main circuit is greater than the blocking current, the protector motions for 3s with a delay and a relative error of ± 20%.

2.2 Reset characteristic

After the protector motions, the protector' s reset mode is manual reset when the rated control power supply voltage is normal; the protector is immediately reset when the rated control power supply voltage is disconnected.

3 Installation

3.1 Outline and installation size: see Fig. 1

Unit:mm

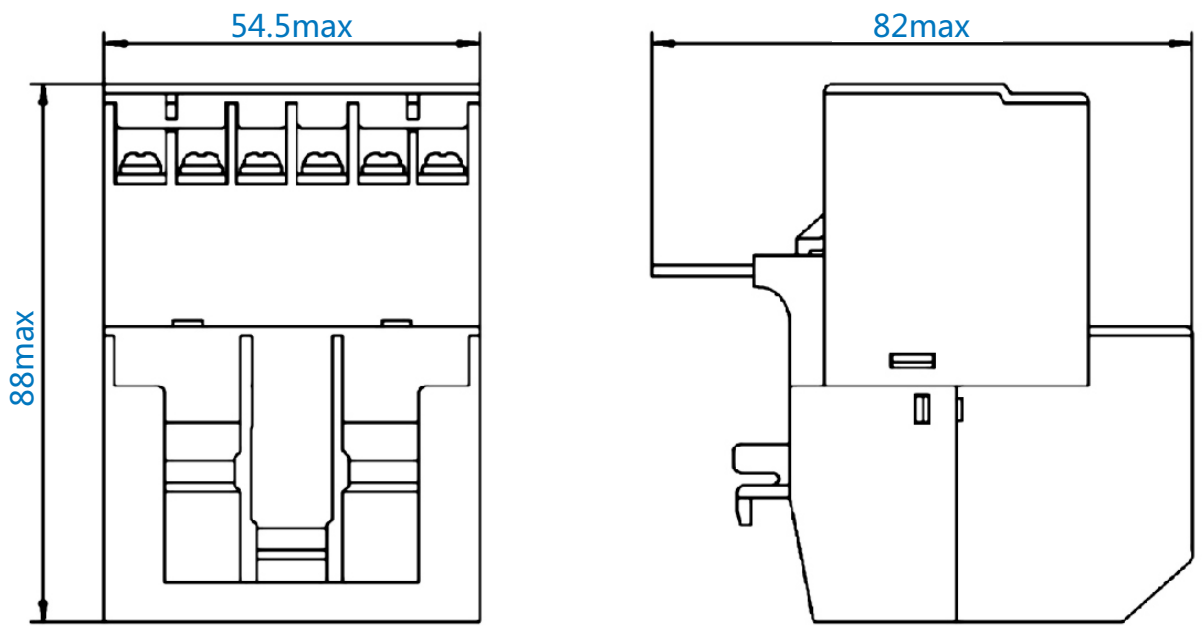

Figure 1 Outline and Installation Size of the Protector

3.2 Wiring diagram: See Fig. 2 ~ Fig. 3.

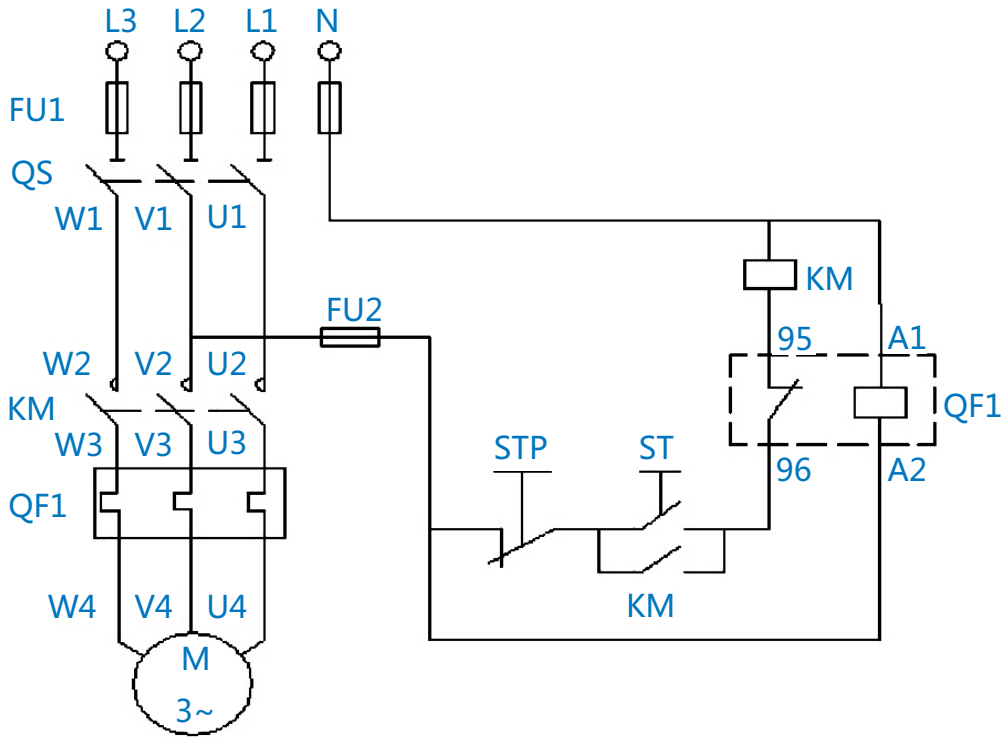

Figure 2 Wiring Diagram of the Protector with the Control Power Supply Voltage of AC220V/AC240V

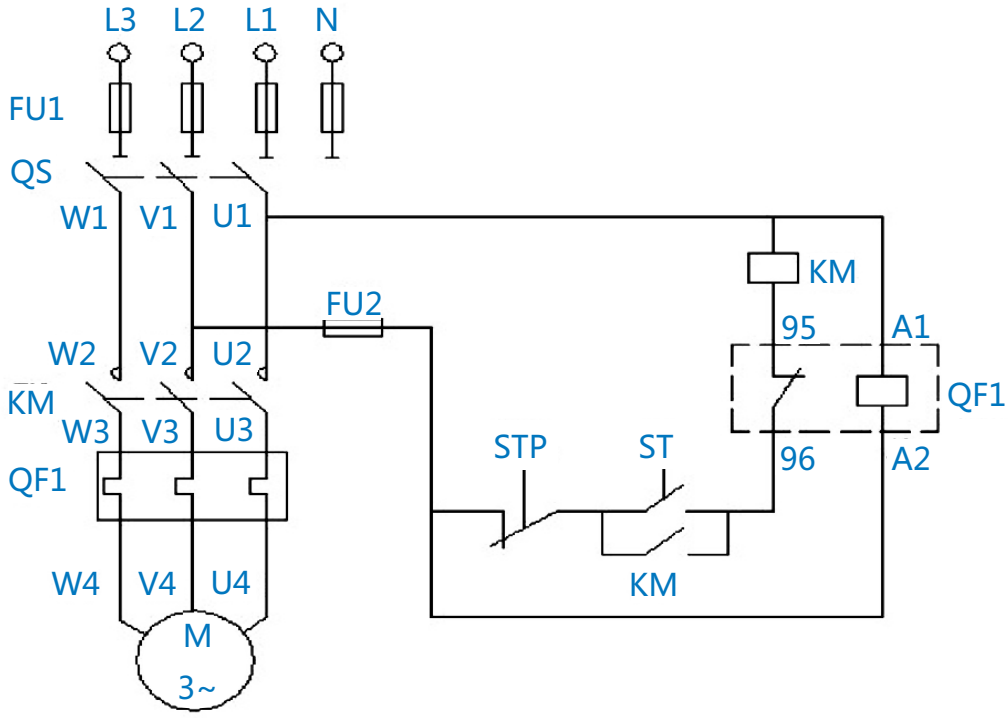

Figure 3 Wiring Diagram of the Protector with the Control Power Supply Voltage of AC380V

3.3 Test/reset button instructions: "TEST/RST" on the protector is the test/reset button. Press it when the product is working normally, the protector motions and the red light flashes; press it after a fault, the protector is reset.

3.4 Adjustment of the setting current value: the protector uses the setting knobs with indicating arrows. Based on the setting current value on the nameplate, set the current according to the rated current and motor load condition marked on the nameplate of the motor. Adjust the setting current value of the protector to a scale equal to the rated current value marked on the motor nameplate.

3.5 Commissioning: After confirming that the wiring and setting are correct, power on the product and press the start button, then the motor should be able to run normally and the (green) operation indicator on the panel should be on. If the red indicator flashes, fine tune the setting value until the red indicator light just does not flash.

Notes:

1) Check the performance of the protector on a regular basis. Perform overload and loss of phase testing. The testing should be performed by professional technicians to ensure the safety of electricity use.

2) The setting error of the protector shall not be greater than 5%. When the current of the main circuit is within this range, the overload indicator may be on.

3) If the motor stops during its operation, the motor should be checked for loss of phase or overload. First, check whether the temperature rise of the motor is too high. If the temperature rise is too high, the stop may be caused by overload; if not, the motion of the protector may be caused by the loss of phase of the circuit. Check whether the three-phase power supply is normal, whether the dynamic and static contacts of the AC contactor are in good contact, and whether the three-phase power line of the motor has loosened; if everything goes well but the motor still cannot be started, then carefully check whether the self-locking contact of the AC contactor and the terminal wiring of the protector have loosened. The motor cannot be started until the fault is eliminated. When the fault is not eliminated, it cannot be started forcibly for fear of accidents.

4) Do not open the protector without permission, so as to avoid danger or affecting the normal operation of the protector.

4 Maintenance

4.1 The terminal of the protector should be tightened on a regular basis.

4.2 Avoid squeezing the product; the product should be stored in a well-ventilated place.

Table 6 Analysis and Troubleshooting of Common Faults

Symptoms	Cause analysis	Troubleshooting method
The power indicator light is off.	Whether the wire and the terminal are in reliable contact, and whether the power terminal is correctly wired.	Connect wires reliably according to the user instructions.
The motor stops in operation	Whether the motor has phase loss or overload.	Trouble shooting according to Note 3) under No. 3.5.

5 ⚠ Environmental Protection

In order to protect the environment, the product or product parts should be disposed of according to the industrial waste treatment process, or be sent to the recycling station for assortment, dismantling and recycling according to local regulations.

CHINT

QC PASS

NJBK6 Series
Motor Protector
IEC/EN 60947-4-1

JDQ Check 10

Test date: Please see the packing

ZHEJIANG CHINT ELECTRICS CO.,LTD.

CHINT ELECTRICS

NJBK6 Series
Motor Protector
User Instruction

Zhejiang Chint Electrics Co., Ltd.

Add: No.1, CHINT Road, CHINT Industrial Zone,North Baixiang,
Yueqing, Zhejiang 325603,P.R.China

E-mail: global-sales@chint.com

Website: http://en.chint.com