



NXR-12~100

Thermal Overload Relay

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# User Instruction

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## Safety Warning

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- 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.

## 1 Use Purpose

NXR-12~100 thermal overload relay (hereinafter referred to as thermal relay) is applicable to circuits with frequency of AC 50Hz or 60Hz, rated operating voltage up to 690V and current from 0.1A to 100A. It is used for overload protection and phase-failure protection of 3-phase AC motor.

## 2 Main Technical Parameters

**Table 1 Environmental conditions and technical parameter of main circuit**

Environment conditions	
Ambient temp. (°C)	Normal operating temperature: -5°C~+40°C (extreme operating temperature: -35°C~+70°C), average temperature should not exceed +35°C within 24h
Hot and humid atmospheric conditions	Relative humidity should not exceed 50% at +40°C; up to 90% at +20°C
Altitude	No influence below 2000m
Pollution class/installation category	Class 3/III

**Table 2 Technical parameters**

Model	NXR-12	NXR-25	NXR-38	NXR-100
Phase-failure protection	Yes	Yes	Yes	Yes
Manual and automatic reset	Yes	Yes	Yes	Yes
Temperature compensation	Yes	Yes	Yes	Yes
Tripping indication	Yes	Yes	Yes	Yes
Test button	Yes	Yes	Yes	Yes
Stop button	Yes	Yes	Yes	Yes
Setting current range (A)	0.1-12	0.1-25	23-38	23-100

Table 2 (continued)

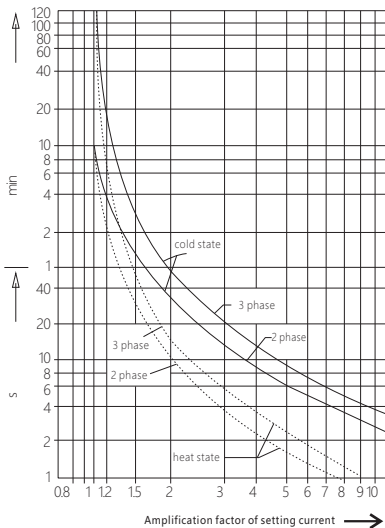
Model		NXR-12	NXR-25	NXR-38	NXR-100
Matching contactor		NXC-06M, 09M,12M	NXC-06, 09,12,16 NXC-18,22 NXC-25, 32,38	NXC-25, 32,38	NXC-40, 50,65 NXC-75, 85,100
Matching mounting base		MB-1	MB-2	MB-3	MB-4
Rated insulation voltage $U_i$		690V			
Rated operating voltage $U_e$		660/690V			
Rated impulse withstand voltage $U_{imp}$		6kV			
Auxiliary circuit	Ith	5A			
	AC-15	380/400 V 1.5A			
	DC-13	220V 0.2A			
	Auxiliary contact type	1NO 1NC			
	Specification of matching fuse A	6A			

Table 3 Combination with fuse

Model	Setting current range A	Specification of matching fuse gG (Recommend RT16) A	Sectional area of connecting wire mm <sup>2</sup>
NXR-12 NXR-25	0.1~0.16	2	1
	0.16~0.25	2	
	0.25~0.4	2	
	0.4~0.63	2	
	0.63~1	4	
	1~1.6	4	
	1.25~2	6	
	1.6~2.5	6	
	2.5~4	10	
	4~6	16	

Table 3 (continued)

Model	Setting current range A	Specification of matching fuse gG (Recommend RT16) A	Sectional area of connecting wire mm <sup>2</sup>
NXR-12	5.5~8	20	1
NXR-25	7~10	20	1.5
NXR-12	9~12	25	2.5
NXR-25	9~13	25	2.5
	12~18	35	2.5
	17~25	50	4
NXR-38	23~32	63	6
	30~38	80	10
NXR-100	23~32	63	6
	30~40	100	10
	37~50	100	10
	48~65	100	16
	55~70	125	25
	63~80	125	25
	80~93	160	35
	80~100	160	35



**Figure 1 Operation time – current characteristic curve**

### 3 Installation

#### 2 ) Installation

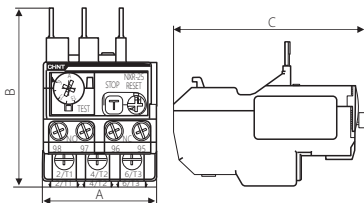


Figure 2 Thermal relay outline

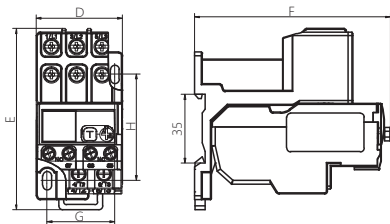
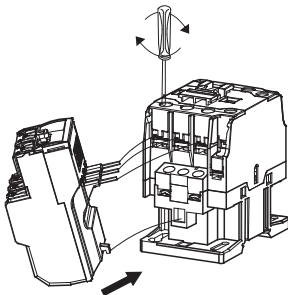


Figure 3 Combination of thermal relay and mounting base

**Table 4 Overall dimensions**

Unit: mm

Model	Amax	Bmax	Cmax	D	E	F	G	H
NXR-12	45	73	68	45	96	75.3	34	85.1
NXR-25	45	67	94	45	93.6	102	35	55
NXR-38	55	82	94	55	102.9	102	41	75.1
NXR-100	72	87	117	72	126.5	126	61.5	109

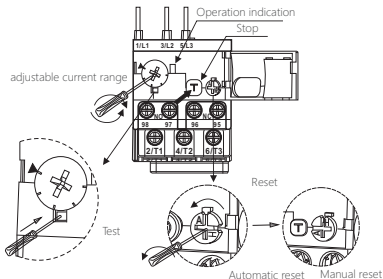
**Figure 4 Assembly of thermal relay and contactor**



**Table 5 Wiring parameters**

				S (mm <sup>2</sup> )						
Main circuit	M10 10 N.m		NXR-100	—	—	4~35	—	4~35	—	
	M4 1.7 N.m		NXR-38	—	—	4~10	4~10	4~10	4~10	A > 4mm, L < 12mm
	M3.5 1.2 N.m		NXR-25	1~6	1~6	1~6	1~6	1~6	1~6	A > 4mm, L < 10mm
			NXR-12	1~4	1~4	1~4	1~4	1~4	1~4	A > 3.5mm, L < 9mm
Auxiliary circuit	M3.5 0.8 N.m		NXR-12~100							 A > 3.5mm, L < 8mm
				mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>	
				1~2.5	1~2.5	1~2.5	1~2.5	1~2.5	1~2.5	

## 2) Operation and commissioning



**Figure 5 Operation diagram**

## 4 Maintenance

Conduct product test and maintenance every half a year to ensure the smooth operation of the product and the good contact of NO and NC contacts. Tighten the terminal screws with specified torque and align the protection capability of the thermal overload relay with load according to commissioning requirements.

Please be careful when handling and installing the thermal relay. It is prohibited to move the product by crane with strong impact so that the product will not be damaged and its protection characteristics will not change.

**Table 6 Analysis and Troubleshooting of Faults**

Symptoms	Cause analysis	Troubleshooting method and precautions
Misoperation of thermal relay without the motor being overloaded.	Size is too small.	Change to product with bigger size.
	The set current value is smaller than the actual operating current of the motor.	Fine tune the cam clockwise so that the set current matches the actual motor current.
	Strong shock or vibration	Check installation status and conduct troubleshooting. Do not place the product in environment with strong shock or vibration.
	Frequent start of motor	The start frequency of motor should not exceed 30 times per hour.
	The sectional area of connecting wire is too small, or there is loose connection.	Use standard wire and torque.
Thermal relay does not operate.	The size is too big	Change to product with smaller size.
	The set current value is bigger than the actual operating current of the motor.	Fine tune the cam counter-clockwise so that the set current matches the actual motor current.
	The sectional area of connecting wire is too big.	Use standard wire and torque.
Thermal relay does not work.	The product is not reset.	Press the reset button to reset the relay.
	Auxiliary contacts are not powered-on.	Replace thermal relay.
	Main circuit or auxiliary circuit is burnt	Replace thermal relay.

## 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.

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**CHNT**

**QC PASS**

NXR-12~100

Thermal Overload Relay

IEC/EN 60947-4-1

Check 21

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Test date: Please see the packing

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**ZHEJIANG CHINT ELECTRICS CO.,LTD.**

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**CHNT**

CHINT ELECTRICS

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**Thermal Overload Relay**  
**User Instruction**

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