

JR28/JR28s series


Thermal Overload Relay

OPERATION INSTRUCTION

Standard: IEC 60947-4-1

CNC

Deliver
Power For Better Life

 Before installing and using this product, please read this manual carefully and pay more attention to safety.

JR28/JR28s series

Instruction

1 General

JR28/JR28s series thermal overload relay (hereafter referred to as a thermal relay). mainly applicable in AC 50Hz, rated operation voltage of 380v, setting current from 0.1~630A, for protecting the circuit and motor's overload, phase loss, overtime start-up and overtime locked-rotor; This type of thermal relay is novel designed, with functions of phase loss protection, temperature compensation, setting current adjustable, replacing automatic or manual is selectable, operation indicator, separate insulation of auxiliary contact of NP and NO; small installation area, multi-method installation, testing button and stop button.

Check the flexibility of operation. A shield can protect finger from electric shocking.

The blocking device can prevent mistake operation, remote operation with accessory, complete functions, excellent quality.

The products comply with standard of IEC 60947-4-1.

2 Working condition and installation

2.1 working condition

2.1.1 Ambient air temperature: the ambient air temperature not exceed +40°C ; the average temperature in 24 hours not exceed +35°C. The lowest temperature of ambient air temperature is -5°C.

2.1.2 Altitude: not exceed 2000m in installation site.

2.1.3 Atmosphere condition:

2.1.3.1 Humidity: the relative humidity not exceed 50% when the highest temperature is 40°C , the relative humidity will higher if the temperature lower, for example, when the temperature reach 20°C , the humidity is 90%, it should take special action to the condensation caused by temperature variation.

2.1.3.2 Class of pollution: class 3

2.2 Installation condition:

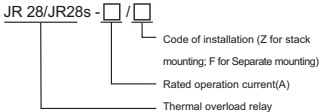
2.2.1 Installation class: III

2.2.1 The inclination of installation place: $\leq 5^\circ$; No obvious vibration and impact;

3 Main specification and technical data

3.1 Main type

3.1.1 Type designation:



3.1.2 Refer the chart 1 to find rated operation current, setting current adjusting range, adaptation type for AC contactor and recommended type of fuse.

3.2 Specification 3.2.1 Basic data.

3.2.1.1 Rated insulation voltage of main circuit (U_i): AC660V;

3.2.1.2 Rated impulse withstand voltage U_{imp} : 6kV

3.2.1.3 Tripping class of thermal relay: class10A

3.2.1.4 Rated insulation voltage of auxiliary circuit: AC380V;

Rated frequency: 50Hz;

Using class; rated operation voltage; rated operation current and rated thermal current, please refer chart 2.

Chart 1

Num.	Type	Frame size	Current setting range(A)	Matching contactor type
1	JR28-11.5	11.5	0.1~0.16	CJX2-K06 CJX2-K19 CJX2-K12
2			0.16~0.25	
3			0.25~0.4	
4			0.4~0.63	
5			1~1.6	
6			1.25~2	
7			1.6~2.5	
8			2.5~4	
9			4~6	
10			5.5~8	
11			7~10	
12			9~13	

Chart 2

Num.	Type	Frame size	Current setting range(A)	Matching contactor type
13	JR28s-25 JR28-25	25	0.1~0.16	CJX2s-09
14			0.16~0.25	CJX2i-09
15			0.25~0.4	CJX2s-12
16			0.4~0.63	CJX2i-12
17			0.63~1	CJX2s-18
18			1~1.6	CJX2i-18
19			1.25~2	CJX2s-25
20			1.6~2.5	CJX2i-25
21			2.5~4	
22			4~6	
23			5.5~8	CJX2-D09
24			7~10	CJX2-D12
25			9~13	CJX2-D18
26			12~18	CJX2-D25
27			17~25	
28			23-32	
29	JR28s-36	36	23~32	CJX2s-32/CJX2i-32
30	JR28-36		28~36	CJX2s-38/CJX2i-38 CJX2-D32
31	JR28s-93 JR28-93	93	23~32	CJX2s-40/CJX2i-40
32			30~40	CJX2s-50/CJX2i-50
33			37~50	CJX2s-65/CJX2i-65
34			48~65	CJX2s-80/CJX2i-80
35			55~70	CJX2s-95/CJX2i-95
36			63~80	CJX2-D40
37			80~93	CJX2-D50
				CJX2-D65
		CJX2-D80		
		CJX2-D95		

Chart 3

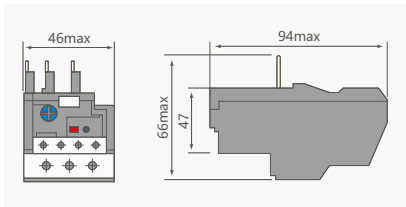
Num.	Type	Frame size	Current setting range(A)	Matching contactor type
38	JR28s-150	150	80~104	CJX2F-115 CJX2F-150 CJX2F-170
39			95~120	
40			110~150	
41	JR28s-200	200	80~125	CJX2-F115 CJX2-F150 CJX2-F185 CJX2-F225
42			100~160	
43			125~200	
44	JR28s-630	630	160~250	CJX2-F185 CJX2-F225 CJX2-F265 CJX2-F330 CJX2-F400 CJX2-F500 CJX2-F630
45			200~315	
46			250~400	
47			315~500	
48			400~630	

Chart 4

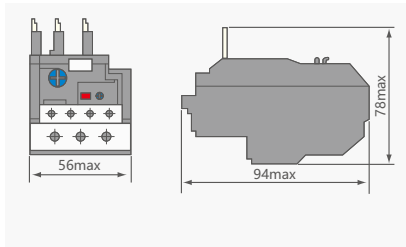
Working category	AC-15		DC-13
Rated working voltage	220	380	220
Rated working current	1.64	0.95	0.15
Rated thermal current	5		

Overall and mounting dimensions as Pic1 ~Pic3

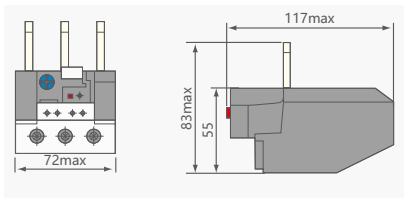
JR28s(JR28)-25



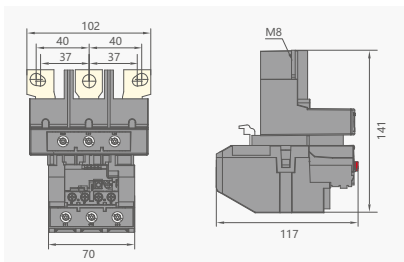
JR28s(JR28)-36



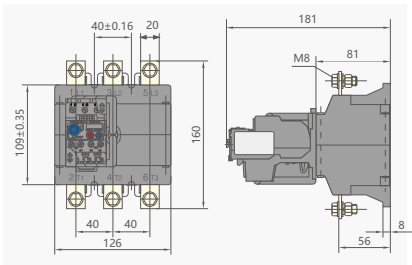
JR28s(JR28)-93



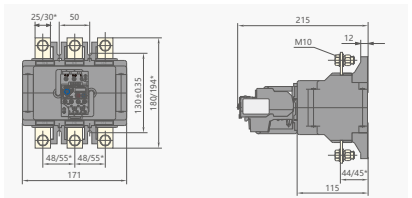
JR28s-150



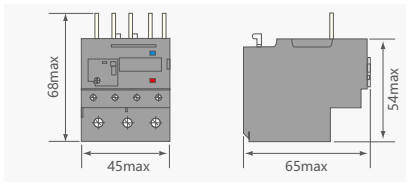
JR28s-200



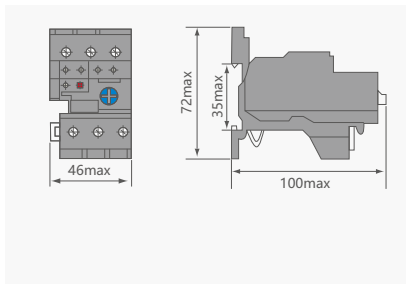
JR28s-630



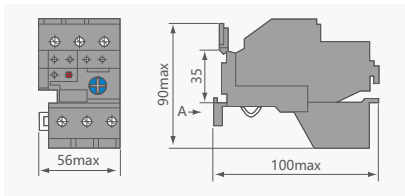
JR28-11.5



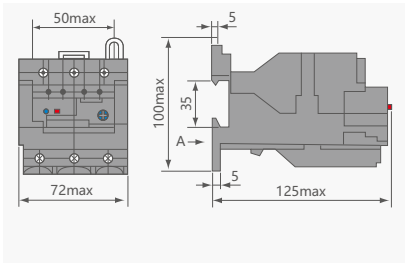
JR28s-25 with mounting base



JR28s-36 with mounting base



JR28s-93 with mounting base



3.2.2 Operation features

3.2.2.1 Thermal relay operation features when each phase lode balancing (chart 3)

Chart 3

Num.	Multiples of the setting current		Tripping time		Condition	ambient air temperature °C
1	1.05		>2h		Cold state	20±5
2	1.20		<2h		Start from the sequence1 testing	
3	1.50		Tripping class 10A	<2min	Start from the sequence1 testing	
4	7.2		Tripping class 10A	2s<Tp ≤10s	Cold state	

3.2.2.2 Thermal relay operation features when each phase lode unbalanced (see diagram4)

Num.	Multiples of the setting current		Tripping time	Condition	ambient air temperature °C
1	1.0	0.9	>2h	Cold state	20±5
2	1.15	0	<2h	Start from the sequence1 testing	

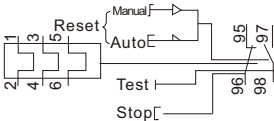
3.2.3 Reset performance

After thermal relay operation , the manual reset time should not be more than 2mins,the auto reset time should not be more than 8mins.

4 Product structure overview

4.1 Internal structure of the thermal relay

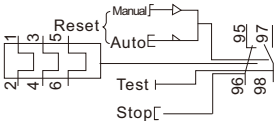
The internal structure of the thermal relay is layer three-dimensional layout structure, It means the operation structure(standoff) is in the front ,the thermo bimetal is in the back. The features of this structure is as following: the thermal relay could be constituted sectional mounting with matching contactor, reduce the mounting area : The current setting, reset, stop, testing button and operation indicator and other functional components all could be arranged in front of the cover panel, operate easily, function indicator intuitively. The internal structure diagram is as pic4.



4 Product structure overview

4.1 Internal structure of the thermal relay

The internal structure of the thermal relay is layer three-dimensional layout structure, It means the operation structure(standoff) is in the front ,the thermo bimetal is in the back. The features of this structure is as following: the thermal relay could be constituted sectional mounting with matching contactor, reduce the mounting area : The current setting, reset, stop, testing button and operation indicator and other functional components all could be arranged in front of the cover panel, operate easily, function indicator intuitively. The internal structure diagram is as pic4.



4.2 Working Principle of thermal relay

Thermal relay is working with bimetallic strips. Its thermoelement is tandem connected with protected object's main circuit. When load current go through thermoelement and bimetallic strip, the bimetallic strip will curve because of heat and bimetallic strip's heating effect. But when the load current is at 1.05 times of prevalue (normally the rated current of protected object) or below, the curvature of bimetallic strip caused by the heat, is notable to make the motion of thermal relay operation mechanism to cut the power and protect the object.

5. Installation and maintenance

5.1 Installation

5.1.1 The protected object's rated current value should be contained in the adjustable range of thermal relay's setting current.

5.1.2 Adjustment Button of thermal relay's setting current can not be rotated freely. It should be base on the protected object's current value when adjust or set the setting current of thermal relay, or it will cause the mistake motion.

5.1.3 When you choose stack mounting, you should firstly loose the connection screw on the main connection terminal

of contactor. Then insert the hook of thermal relay into the groove of contactor. At last, insert the conducting rod into the main connection terminal and fix the screw. So the installation is finished.

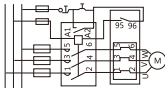
5.1.4 when you choose separation installation, you can fix the thermal relay on the accessory (bottom plate) according to 5.1.3 procedure, and then you can make the separation installation.

5.1.5 Connection wire should use single core polyvinyl chloride (PVC) insulation copper wire. The cross section of ancillary circuit connection wire is 1mm^2 .

The cross section of main circuit connection wire please see table 5. Schematic wiring diagram when load is motor please see picture 5.

Chart 5

Rated setting current A	<	0	8	12	20	25	32	50	65	85
	>	8	12	20	25	32	50	65	85	115
Cross section of connection wire mm^2		1	1.5	2.5	4	6	10	16	25	35



Picture 5

Schematic wiring diagram when load is motor

5.2 Maintenance

5.2.1 There is no need to maintain when thermal relay is under normal condition, but it need to be kept clean, to protect its motion performance from dust accumulation

5.2.2 Thermal relay .must be sent to professional factory when it need maintain.



CERTIFICATE

Product Model: JR28/JR28s

Standard: IEC 60947-4-1

Inspector : CNC 003

Production date: Printed on the product
or package.

This product is qualified according
to the delivery inspection

CNC ELECTRIC

Tel: 0086-577-61989999 Fax: 0086-577-61891122

www.cncele.com E-mail: cncele@cncele.com

CNC

JR28/JR28s