



NR8 Series Thermal Overload Relays

1. General

NR8 series thermal overload relay (hereinafter referred to as thermal relay) is used to provide overload and phase failure protection for AC motors with a frequency of AC 50Hz/60Hz, a voltage of up to 690V and a current of 0.1A-630A that operate continuously or intermittently. The thermal relay also has temperature compensation, operation indication, automatic and manual reset and stop functions and stable and reliable performances.

Standard: IEC 60947-4-1.

Plug-in mounting is used between the thermal relay and the contactor.

2. Operating conditions

- 2.1 Altitude: not higher than 2000m.
- 2.2 When the ambient temperature is $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$, the mean value is no greater than $+35^{\circ}\text{C}$ within 24 hours.
- 2.3 Atmospheric conditions: When the ambient air temperature is $+40^{\circ}\text{C}$, the relative humidity of the air shall not be higher than 50%; a higher relative humidity is allowed at a lower temperature; for example, for the wettest month, the lowest temperature averaged shall not be higher than $+25^{\circ}\text{C}$, the maximum relative humidity averaged shall be 90%, and special measures shall be taken for the condensation occasionally produced due to temperature change.
- 2.4 Class of pollution: 3.
- 2.5 The inclination between the mounting plane and the vertical plane shall not exceed 5° .
- 2.6 In non-explosive media that do not contain a sufficient amount of gas or conductive dust to cause metal corrosion or insulation failure.
- 2.7 In places with rain and snow protection equipment and not full of vapor.
- 2.8 In places where there is no significant shake, impact or vibration.

3. Technical data

Item			NR8-16	NR8-38	NR8-100	NR8-200	NR8-630
Current class			16	38	100	200	630
Nominal insulation voltage V			690	690	690	690	690
Phase failure protection			Have	Have	Have	Have	Have
Manual and automatic reset			Have	Have	Have	Manual	Manual
Temperature compensation			Have	Have	Have	Have	Have
Tripping indication			Have	Have	Have	Have	Have
Test button			Have	Have	Have	Have	Have
Stop button			Have	Have	Have	Have	Have
Mounting type			Plug-in type	Plug-in type	Plug-in type	Independent type	Independent type
Auxiliary contact			1NO+1NC	1NO+1NC	1NO+1NC	1NO+1NC	1NO+1NC
AC-15 230V rated current A			/	/	/	2.5	2.5
AC-15 380V/400V rated current A			1.5	1.5	1.5	1.5	1.5
DC-13 220V rated current A			0.2	0.2	0.2	0.2	0.2
Conductor cross-sectional area mm ²	Main circuit	Single-core or stranded conductor	1~2.5	1~10	6~35	25~98	50~2×185
		Terminal screw	M3.5	M4	M4	M8	M10
	Auxiliary circuit	Single-core or stranded conductor	1~2.5	1~2.5	1~2.5	1~2.5	1~2.5
		Terminal screw	M3.5	M3.5	M3.5	M3.5	M3.5

4. Others

4.1 Structural features

- 4.1.1 Three-phase bimetal type, tripping class 10A.
- 4.1.2 Phase failure protection.
- 4.1.3 Setting current continuously adjustable device.
- 4.1.4 Temperature compensation.
- 4.1.5 Operation indication.
- 4.1.6 Testing mechanism.
- 4.1.7 Stop button.
- 4.1.8 Manual and automatic reset button.
- 4.1.9 One N.O. contact and one N.C. contact, electrically separable.
- 4.1.10 Mounting type: plug-in mounting with the contactor.

4.2 Protection characteristics

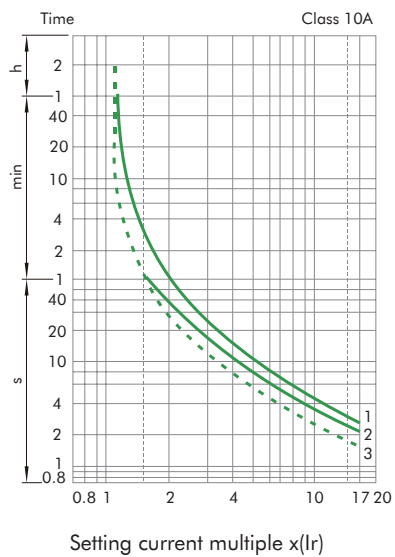
Item	No.	Setting current multiple		Tripping time	Test conditions
Overload protection	1	1.05		>2h	Cold state start Hot state start(after No.1) Start when thermal equilibrium is reached after applying a 1 times setting current
	2	1.2		≤2h	
	3	1.5		≤2min	
	4	7.2		2s<Tp1≤0s	
Phase failure protection	5	Any two phases	The other phase	>2h	Cold state start
		1.0	0.9		
	6	1.15	0	≤2h	Hot state start(after No.5)

4.3 Type selection and ordering data (see the table)

Product appearance	Rated current A	Specification of matching fuse(RT 36 is recommended) A	Model of matching contactor
		gG	
 NR8-16	0.1~0.14	2	 NC8-06M、NC8-06M/Z NC8-09M、NC8-09M/Z NC8-12M、NC8-12M/Z
	0.14~0.2	2	
	0.18~0.25	2	
	0.22~0.32	2	
	0.28~0.4	2	
	0.35~0.5	2	
	0.45~0.63	2	
	0.55~0.8	4	
	0.7~1	4	
	0.9~1.25	4	
	1.1~1.6	4	
	1.4~2	6	
	1.8~2.5	6	
	2.2~3.2	10	
	2.8 ~ 4	10	
	3.5~5	16	
	4.5~6.3	16	
	5.5 ~ 8	20	
	7.5~10	20	
	9~13	25	
	12~16	35	
 NR8-38	0.10-0.14	2	 NC8-09、NC8-12 NC8-18、NC8-25 NC8-32、NC8-38
	0.14-0.2	2	
	0.18-0.25	2	
	0.22-0.32	2	
	0.28-0.4	2	
	0.35-0.5	2	
	0.45-0.63	2	
	0.55-0.8	4	
	0.7-1	4	
	0.9-1.25	4	
	1.1-1.6	4	
	1.4-2	6	
	1.8-2.5	6	
	2.2-3.2	10	
	2.8-4	10	
	3.5-5	16	
	4.5-6.3	16	
	5.5-8	20	
	7.5-10	20	
	9-13	25	
	12-16	35	
	14-20	50	
	18-24	50	
	23-32	63	
	30-38	80	

Product appearance	Rated current A	Specification of matching fuse(RT 36 is recommended) A	Model of matching contactor
		gG	
 NR8-100	23-32	63	 NC8-40、NC8-50、 NC8-65、NC8-80、 NC8-100
	30-40	100	
	37-50	100	
	48-65	100	
	55-70	125	
	63-80	125	
	80-93	160	
	80-100	160	
 NR8-200	80-160	315	 NC8-115~170
	100-200	315	
 NR8-630	125-250	800	 NC8-205-502
	200-400	800	
	315-630	800	

4.4 Tripping characteristics



One Balanced operation,3-phase, cold state start.
Two Balanced operation,2-phase, cold state start.
Three Balanced operation,3-phase, cold state start.

5. Overall and mounting dimensions (mm)

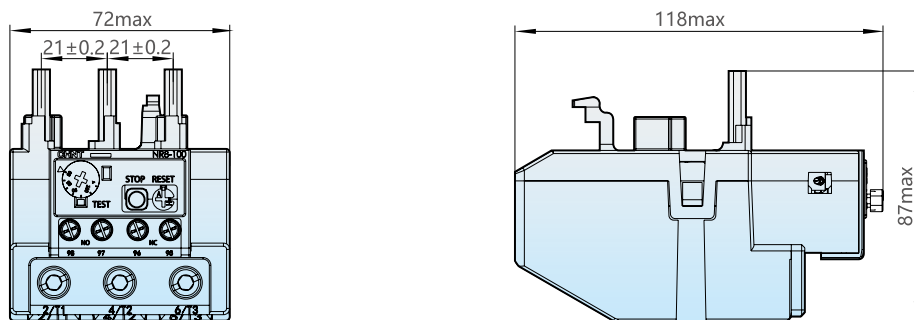
NR8-16



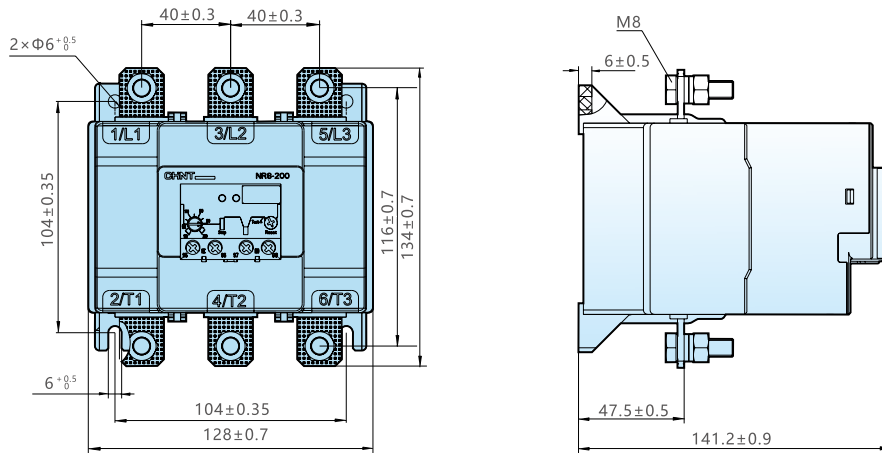
NR8-38



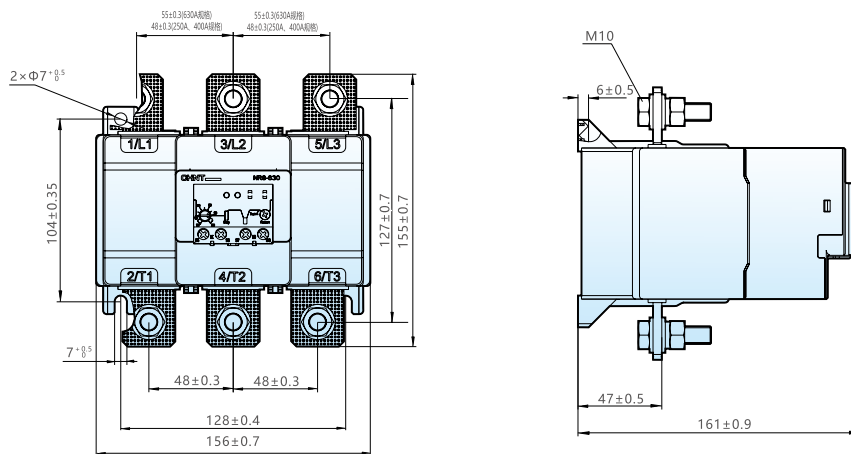
NR8-100



NR8-200



NR8-630



NR8	-	38	12~16A
Product Series		Frame Size	Setting Current Scope
		16 38 100 200 630	Frame Size 16: 0.1~0.14A 0.14~0.2A 0.18~0.25A 0.22~0.32A 0.28~0.4A 0.35~0.5A 0.45~0.63A 0.55~0.8A 0.7~1A 0.9~1.25A 1.1~1.6A 1.4~2A 1.8~2.5A 2.2~3.2A 2.8~4A 3.5~5A 4.5~6.3A 5.5~8A 7.5~10A 9~13A 12~16A Frame Size 38: 0.1~0.14A 0.14~0.2A 0.18~0.25A 0.22~0.32A 0.28~0.4A 0.35~0.5A 0.45~0.63A 0.55~0.8A 0.7~1A 0.9~1.25A 1.1~1.6A 1.4~2A 1.8~2.5A 2.2~3.2A 2.8~4A 3.5~5A 4.5~6.3A 5.5~8A 7.5~10A 9~13A 12~16A 14~20A 18~24A 23~32A 30~38A Frame Size 100: 23~32A 30~40A 37~50A 48~65A 55~70A 63~80A 80~93A 80~100A Frame Size 200: 80~160A 100~200A Frame Size 630: 125~250A 200~400A 315~630A

NR8 Relay 16~630A

Frame Size	Auxiliary Contacts	Setting Current	Model Description	Code
16A	1NO+1NC	0.14A-0.2A	NR8-16 0.14A-0.2A	341553
16A	1NO+1NC	0.1A-0.14A	NR8-16 0.1A-0.14A	341554
16A	1NO+1NC	0.18A-0.25A	NR8-16 0.18A-0.25A	341555
16A	1NO+1NC	0.28A-0.4A	NR8-16 0.28A-0.4A	341556
16A	1NO+1NC	0.22A-0.32A	NR8-16 0.22A-0.32A	341557
16A	1NO+1NC	0.35A-0.5A	NR8-16 0.35A-0.5A	341558
16A	1NO+1NC	0.55A-0.8A	NR8-16 0.55A-0.8A	341559
16A	1NO+1NC	0.45A-0.63A	NR8-16 0.45A-0.63A	341560
16A	1NO+1NC	0.9A-1.25A	NR8-16 0.9A-1.25A	341561
16A	1NO+1NC	0.7A-1A	NR8-16 0.7A-1A	341562
16A	1NO+1NC	1.4A-2A	NR8-16 1.4A-2A	341563
16A	1NO+1NC	1.8A-2.5A	NR8-16 1.8A-2.5A	341564
16A	1NO+1NC	1.1A-1.6A	NR8-16 1.1A-1.6A	341565
16A	1NO+1NC	2.2A-3.2A	NR8-16 2.2A-3.2A	341566
16A	1NO+1NC	2.8A-4A	NR8-16 2.8A-4A	341567
16A	1NO+1NC	3.5A-5A	NR8-16 3.5A-5A	341568
16A	1NO+1NC	4.5A-6.3A	NR8-16 4.5A-6.3A	341569
16A	1NO+1NC	5.5A-8A	NR8-16 5.5A-8A	341570
16A	1NO+1NC	9A-13A	NR8-16 9A-13A	341571
16A	1NO+1NC	7.5A-10A	NR8-16 7.5A-10A	341572
16A	1NO+1NC	12A-16A	NR8-16 12A-16A	341573
38A	1NO+1NC	0.1-0.14A	NR8-38 0.1-0.14A	253671
38A	1NO+1NC	0.14-0.2A	NR8-38 0.14-0.2A	253672
38A	1NO+1NC	0.18-0.25A	NR8-38 0.18-0.25A	253673
38A	1NO+1NC	0.22-0.32A	NR8-38 0.22-0.32A	253674
38A	1NO+1NC	0.28-0.4A	NR8-38 0.28-0.4A	253675
38A	1NO+1NC	0.35-0.5A	NR8-38 0.35-0.5A	253676
38A	1NO+1NC	0.45-0.63A	NR8-38 0.45-0.63A	253677
38A	1NO+1NC	0.55-0.8A	NR8-38 0.55-0.8A	253678
38A	1NO+1NC	0.7-1A	NR8-38 0.7-1A	253679
38A	1NO+1NC	0.9-1.25A	NR8-38 0.9-1.25A	253680
38A	1NO+1NC	1.1-1.6A	NR8-38 1.1-1.6A	253681
38A	1NO+1NC	1.4-2A	NR8-38 1.4-2A	253682
38A	1NO+1NC	1.8-2.5A	NR8-38 1.8-2.5A	253683
38A	1NO+1NC	2.2-3.2A	NR8-38 2.2-3.2A	253684
38A	1NO+1NC	2.8-4A	NR8-38 2.8-4A	253685
38A	1NO+1NC	3.5-5A	NR8-38 3.5-5A	253686
38A	1NO+1NC	4.5-6.3A	NR8-38 4.5-6.3A	253687
38A	1NO+1NC	5.5-8A	NR8-38 5.5-8A	253688
38A	1NO+1NC	7.5-10A	NR8-38 7.5-10A	253689
38A	1NO+1NC	9-13A	NR8-38 9-13A	253690
38A	1NO+1NC	12-16A	NR8-38 12-16A	253691
38A	1NO+1NC	14-20A	NR8-38 14-20A	253692
38A	1NO+1NC	18-24A	NR8-38 18-24A	253693
38A	1NO+1NC	23-32A	NR8-38 23-32A	253694
38A	1NO+1NC	30-38A	NR8-38 30-38A	253695

Frame Size	Auxiliary Contacts	Setting Current	Model Description	Code
100A	1NO+1NC	23A-32A	NR8-100 23A-32A	254395
100A	1NO+1NC	30A-40A	NR8-100 30A-40A	254396
100A	1NO+1NC	37A-50A	NR8-100 37A-50A	254397
100A	1NO+1NC	48A-65A	NR8-100 48A-65A	254398
100A	1NO+1NC	55A-70A	NR8-100 55A-70A	254399
100A	1NO+1NC	63A-80A	NR8-100 63A-80A	254400
100A	1NO+1NC	80A-93A	NR8-100 80A-93A	254401
100A	1NO+1NC	80A-100A	NR8-100 80A-100A	254402
200A	1NO+1NC	80-160A	NR8-200 80-160A	269778
200A	1NO+1NC	100-200A	NR8-200 100-200A	269779
630A	1NO+1NC	125-250A	NR8-630 125-250A	269780
630A	1NO+1NC	200-400A	NR8-630 200-400A	269781
630A	1NO+1NC	315-630A	NR8-630 315-630A	269782