

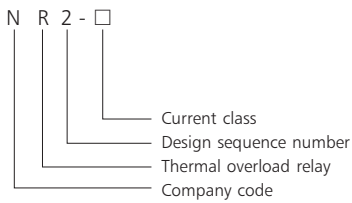
| | | | | | |
|---|---|---|---|---|---|
|  |  |  |  | RCC |  |
| EU | Germany | Ukraine | Russia | South Africa | USA |
|  |  |  |  |  |  |

NR2 Thermal Overload Relay

1. General

- 1.1 Certificates: CE, VDE, Ukraine, PCT, RCC, UL;
- 1.2 Electric ratings: AC 50/60Hz, 690V, 0.1A~630A;
- 1.3 Tripping class: 10A;
- 1.4 Mounting version:
 - a. Plug-in: Available for NR2-11.5, 25, 36, 93;
 - b. Independent: Available for NR2-150, 200, 630;
- 1.5 Standard: IEC/EN 60947-4-1.

2. Type Designation



3. Features

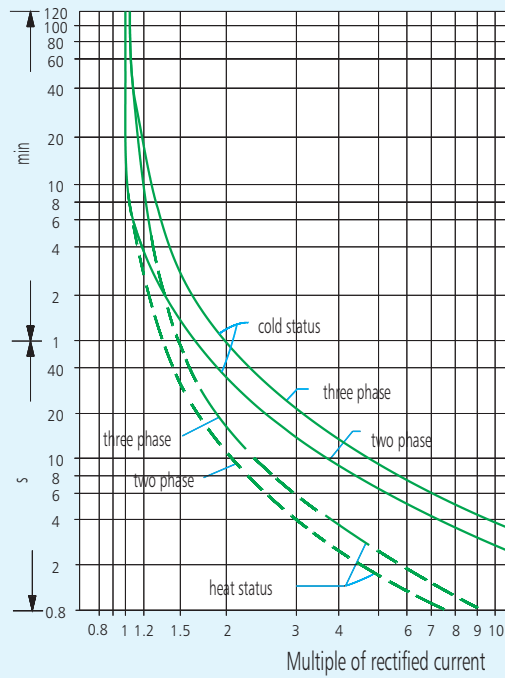
- 3.1 3-phase bimetal
- 3.2 Continuously readjustable current settings
- 3.3 Temperature compensation
- 3.4 Tripping indicator
- 3.5 Test button
- 3.6 Stop button
- 3.7 Manual and automatic reset button
- 3.8 Electrically separated 1N/O plus 1N/C contact

4. Technical Data


4.1 Protection properties


| Item | Series No. | I/In | | Operating time T_p | Test condition |
|--------------------------|------------|----------------|---------------|----------------------|---|
| Overload protection | 1 | 1.05 | | $> 2 \text{ h}$ | Start from cold status |
| | 2 | 1.2 | | $\leq 2 \text{ h}$ | Start from heat status, right after item no.1 |
| | 3 | 1.5 | | $\leq 2 \text{ min}$ | Start from heat status, right after item no.1 |
| | 4 | 7.2 | | $2s < T_p \leq 10s$ | Start from cold status |
| Phase failure protection | 5 | Any two phases | Another phase | $> 2 \text{ h}$ | Start from cold status |
| | | 1.0 | 0.9 | | Start from cold status |
| | 6 | 1.15 | 0 | $\leq 2 \text{ h}$ | Start from heat status, right after item no.5 |



Curves






4.2 Main Technical Parameters

| Model | | NR2-11.5 | | | | | | |
|-----------------------------------|--------------------------------|---|-----------|-----------|-----------|--------|-------|--------|
| Picture | |  | | | | | | |
| Current class(A) | | 13 | | | | | | |
| Phase failure protection function | | Yes | | | | | | |
| Automatic & manual reset | | Yes | | | | | | |
| Temperature compensation | | Yes | | | | | | |
| Releasing indicator | | Yes | | | | | | |
| Test & stop pushbutton | | Yes | | | | | | |
| Mounting mode | Plug-in | Yes | | | | | | |
| | Independent | Yes | | | | | | |
| Auxiliary contacts | No. of contacts | 1N/O+1N/C | | | | | | |
| | Rated current (A) (AC-15 220V) | 2.73 | | | | | | |
| | Rated current (A) (AC-15 380V) | 1.58 | | | | | | |
| | Rated current (A) (DC-13 220V) | 0.2 | | | | | | |
| Rated operational current(A) | | Current setting range | | | | | | |
| | | 0.1~0.16 | 0.16~0.25 | 0.25~0.40 | 0.40~0.63 | 0.63~1 | 1~1.6 | 1.25~2 |
| Matched fuse | aM(A) | 0.25 | 0.25 | 1 | 1 | 2 | 2 | 4 |
| | gG(A) | 2 | 2 | 2 | 2 | 4 | 4 | 6 |

| Model | | NR2-93 | | | | | | |
|-----------------------------------|------------------------------------|---|-------|-------|-------|-------|-------|-------|
| Picture | |  | | | | | | |
| Current class(A) | | 93 | | | | | | |
| Phase failure protection function | | Yes | | | | | | |
| Automatic & manual reset | | Yes | | | | | | |
| Temperature compensation | | Yes | | | | | | |
| Releasing indicator | | Yes | | | | | | |
| Test & stop pushbutton | | Yes | | | | | | |
| Mounting mode | Plug-in | Yes | | | | | | |
| | Independent | Yes | | | | | | |
| Auxiliary contacts | Configuration of contacts | 1N/O+1N/C | | | | | | |
| | Rated current (A) (AC-15 220/230V) | 2.73 | | | | | | |
| | Rated current (A) (AC-15 380/400V) | 1.58 | | | | | | |
| | Rated current (A) (DC-13 220/230V) | 0.2 | | | | | | |
| Rated operational current(A) | | Current setting range | | | | | | |
| | | 23~32 | 30~40 | 37~50 | 48~65 | 55~70 | 63~80 | 80~93 |
| Matched fuse | aM(A) | 40 | 40 | 63 | 63 | 80 | 80 | 100 |
| | gG(A) | 63 | 100 | 100 | 100 | 125 | 125 | 160 |

| NR2-25 | | | | | | | | NR2-36 | |
|---|--|--|--|--|--|--|--|---|--|
|  | | | | | | | |  | |
| 25 | | | | | | | | 36 | |
| Yes | | | | | | | | Yes | |
| Yes | | | | | | | | Yes | |
| Yes | | | | | | | | Yes | |
| Yes | | | | | | | | Yes | |
| Yes | | | | | | | | Yes | |
| Yes | | | | | | | | Yes | |
| Yes | | | | | | | | Yes | |
| 1N/O+1N/C | | | | | | | | 1N/O+1N/C | |
| 2.73 | | | | | | | | 2.73 | |
| 1.58 | | | | | | | | 1.58 | |
| 0.2 | | | | | | | | 0.2 | |

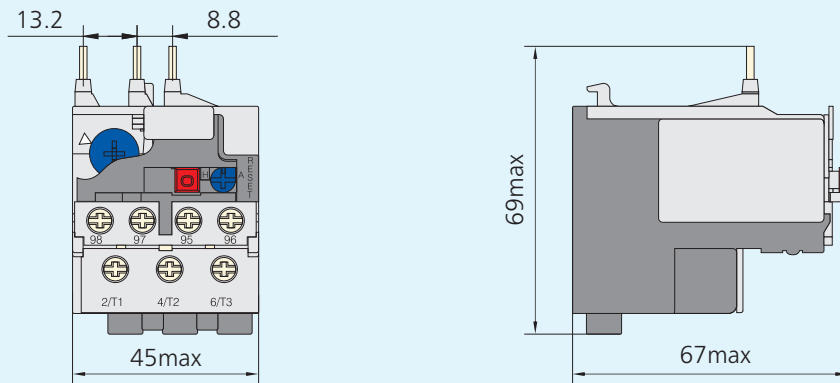
| Current setting range | | | | | | | | Current setting range | |
|-----------------------|-------|-----|-------|------|------|-------|-------|-----------------------|-------|
| 1.6~2.5 | 2.5~4 | 4~6 | 5.5~8 | 7~10 | 9~13 | 12~18 | 17~25 | 23~32 | 28~36 |
| 4 | 6 | 8 | 12 | 12 | 16 | 20 | 25 | 40 | 40 |
| 6 | 10 | 16 | 20 | 20 | 25 | 35 | 50 | 63 | 80 |

| NR2-150 | | | NR2-200 | | | NR2-630 | | |
|---|--|--|---|--|--|---|--|--|
|  | | |  | | |  | | |
| 150 | | | 200 | | | 630 | | |
| Yes | | | Yes | | | Yes | | |
| Yes | | | Yes | | | Yes | | |
| Yes | | | Yes | | | Yes | | |
| Yes | | | Yes | | | Yes | | |
| Yes | | | Yes | | | Yes | | |
| Yes | | | Yes | | | Yes | | |
| Yes | | | Yes | | | Yes | | |
| 1N/O+1N/C | | | 1N/O+1N/C | | | 1N/O+1N/C | | |
| 2.73 | | | 2.73 | | | 2.73 | | |
| 1.58 | | | 1.58 | | | 1.58 | | |
| 0.2 | | | 0.2 | | | 0.2 | | |

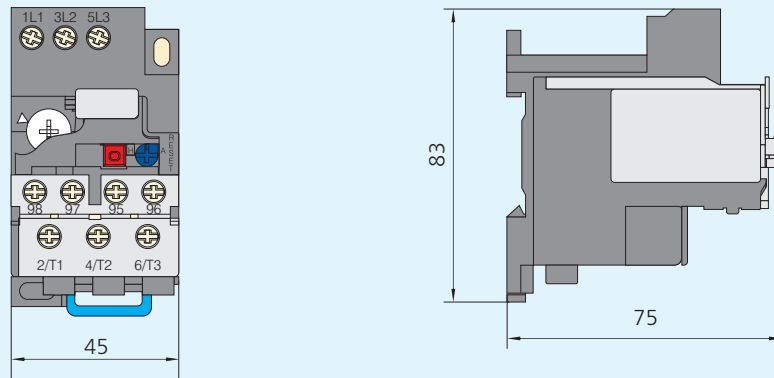
| Current setting range | | | Current setting range | | | Current setting range | | | | |
|-----------------------|--------|---------|-----------------------|---------|---------|-----------------------|---------|---------|---------|---------|
| 80~104 | 95~120 | 110~150 | 80~125 | 100~160 | 125~200 | 160~250 | 200~315 | 250~400 | 315~500 | 400~630 |
| 125 | 125 | 160 | 125 | 160 | 200 | 250 | 315 | 400 | 550 | 630 |
| 200 | 224 | 250 | 200 | 250 | 315 | 400 | 500 | 630 | 800 | 800 |

5. Overall and Mounting Dimensions (mm)

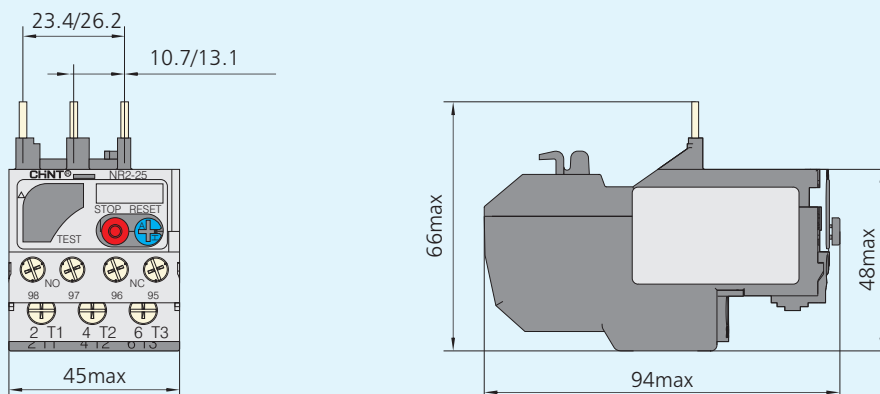
NR2-11.5



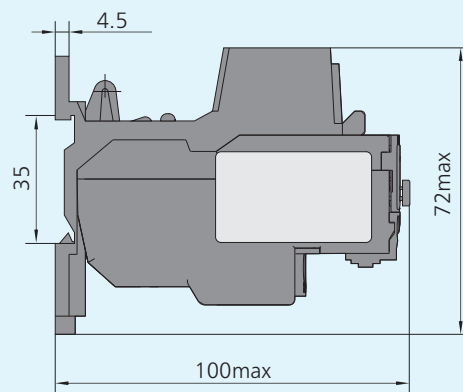
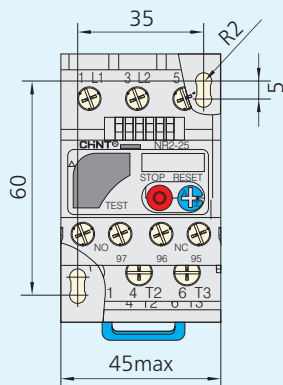
NR2-11.5 with Mounting Block



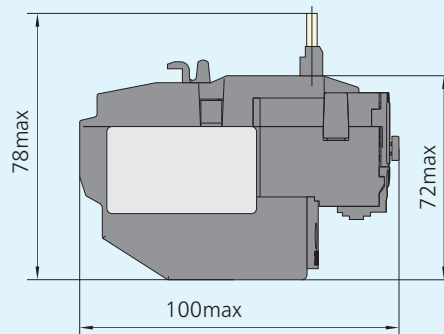
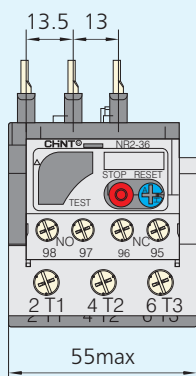
NR2-25



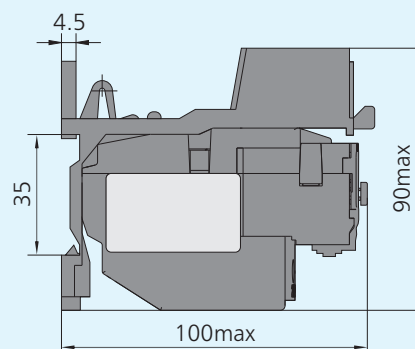
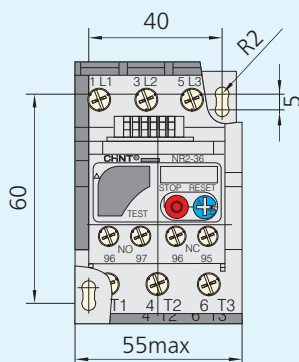
NR2-25 with Mounting Block



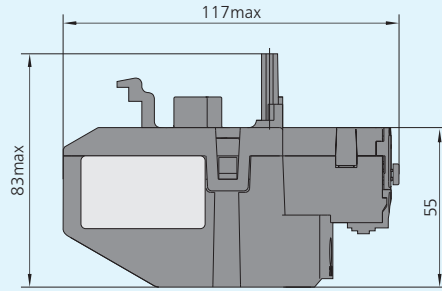
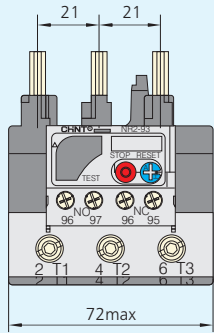
NR2-36



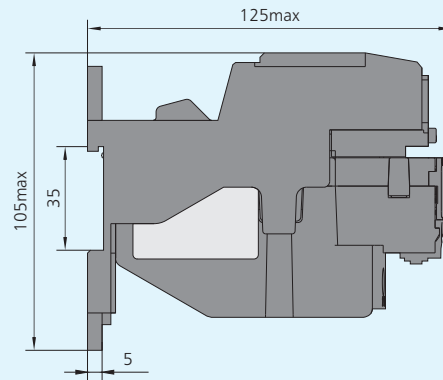
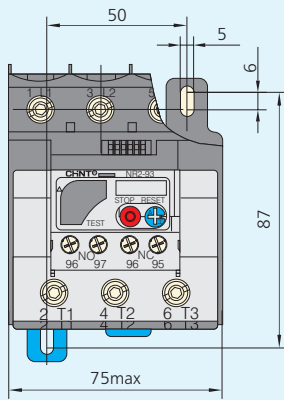
NR2-36 with Mounting Block



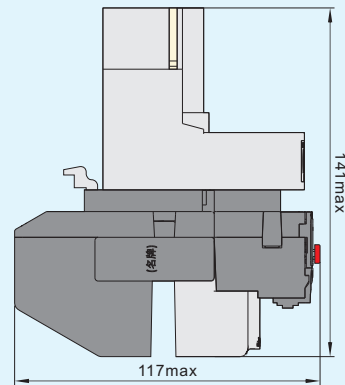
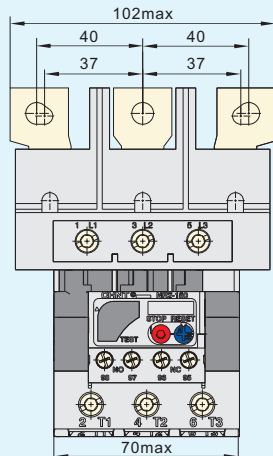
NR2-93



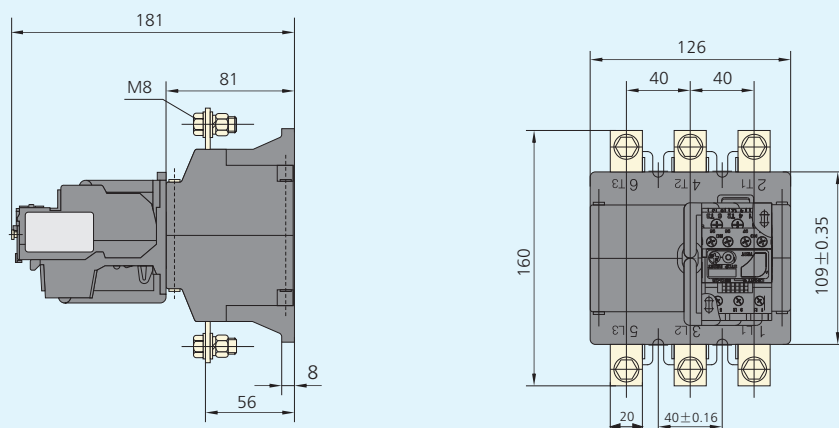
NR2-93 with Mounting Block



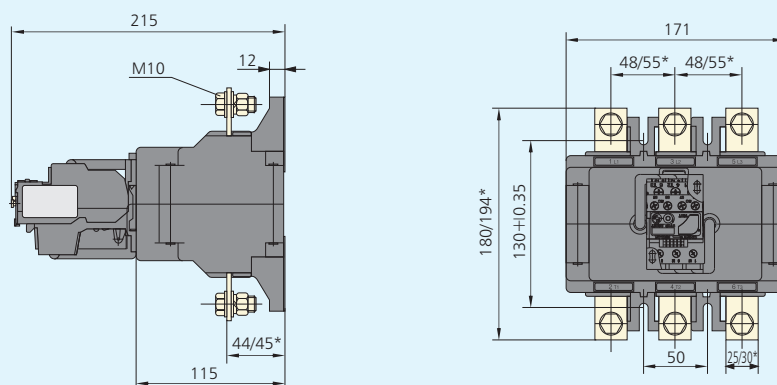
NR2-150



NR2-200



NR2-630



Note: Dimension of product 400A and less / dimension of product above 400A.



6. Wiring

| Items | | | NR2-11.5 | NR2-25 | NR2-36 | NR2-93 | NR2-150 | NR2-200 | NR2-630 |
|---|-------------------|------------------------------|----------|---------|---------|---------|---------|---------|----------|
| Cross section area of conductor mm ² | Main circuit | Single core or stranded wire | 1~4 | 1~4 | 4~10 | 4~35 | 25~95 | 25~95 | 70~2×240 |
| | | Wiring screw | M4 | M4 | M4 | M10 | M6/M8 | M8 | M10 |
| | Auxiliary circuit | Single core or stranded wire | 0.5~2.5 | 0.5~2.5 | 0.5~2.5 | 0.5~2.5 | 0.5~2.5 | 0.5~2.5 | 0.5~2.5 |
| | | Wiring screw | M3.5 | M3.5 | M3.5 | M3.5 | M3.5 | M3.5 | M3.5 |

7. Accessories

| No. | | Description | Application |
|-----|---|-----------------------------|--|
| 1 |  | Mounting block for NR2-11.5 | Incorporate with NR2-11.5 relay to form an independently mounted product |
| 2 |  | Mounting block for NR2-25 | Incorporate with NR2-25 relay to form an independently mounted product |
| 3 |  | Mounting block for NR2-36 | Incorporate with NR2-36 relay to form an independently mounted product |
| 4 |  | Mounting block for NR2-93 | Incorporate with NR2-93 relay to form an independently mounted product |

8. Assembly with contactor

| Model of overload relay | Rated current (A) | Recommended fuse type (RT16 is recommended) | | Model of contactor |
|---|-------------------|---|----|---------------------|
| | | aM | gG | |
|  NR2-11.5 | 0.1~0.16 | 0.25 | 2 | NC6-09 NC1-09~18 |
| | 0.16~0.25 | 0.5 | 2 | |
| | 0.25~0.4 | 1 | 2 | |
| | 0.4~0.63 | 1 | 2 | |
| | 0.63~1 | 2 | 4 | |
| | 1~1.6 | 2 | 4 | |
| | 1.25~2 | 4 | 6 | |
| | 1.6~2.5 | 4 | 6 | |
| | 2.5~4 | 6 | 10 | |
| | 4~6 | 8 | 16 | |
| | 5.5~8 | 12 | 20 | |
| | 7~10 | 12 | 20 | |
| | 9~13 | 16 | 25 | |
|  NR2-25 | 0.1~0.16 | 0.25 | 2 | |
| | 0.16~0.25 | 0.5 | 2 | |
| | 0.25~0.4 | 1 | 2 | |
| | 0.4~0.63 | 1 | 2 | |
| | 0.63~1 | 2 | 4 | |
| | 1~1.6 | 2 | 4 | |

| Model of overload relay | Rated current (A) | Recommended fuse type (RT16 is recommended) | | Model of contactor |
|--|-------------------|---|-----|---|
| | | aM | gG | |
|  NR2-25 | 1.25~2 | 4 | 6 | NC1-09 NC1-12 NC1-18 NC1-25 NC1-32 |
| | 1.6~2.5 | 4 | 6 | |
| | 2.5~4 | 6 | 10 | |
| | 4~6 | 8 | 16 | |
| | 5.5~8 | 12 | 20 | |
| | 7~10 | 12 | 20 | |
| | 9~13 | 16 | 25 | |
| | 12~18 | 20 | 35 | |
| 17~25 | 25 | 50 | | |
|  NR2-36 | 23~32 | 40 | 63 | NC1-32 |
| | 28~36 | 40 | 80 | |
|  NR2-93 | 23~32 | 40 | 63 | NC1-40 NC1-50 NC1-65 NC1-80 NC1-95 |
| | 30~40 | 40 | 100 | |
| | 37~50 | 63 | 100 | |
| | 48~65 | 63 | 100 | |
| | 55~70 | 80 | 125 | |
| | 63~80 | 80 | 125 | |
| | 80~93 | 100 | 160 | |
|  NR2-150 | 80~104 | 125 | 200 | NC2-115 NC2-150 |
| | 95~120 | 125 | 224 | |
| | 110~150 | 160 | 250 | |
|  NR2-200 | 80~125 | 125 | 200 | NC2-185 NC2-225 NC2-265 NC2-330 NC2-400 NC2-500 NC2-630 |
| | 100~160 | 160 | 250 | |
| | 125~200 | 200 | 315 | |
|  NR2-630 | 160~250 | 250 | 400 | |
| | 200~315 | 315 | 500 | |
| | 250~400 | 400 | 630 | |
| | 315~500 | 500 | 800 | |
| | 400~630 | 630 | 800 | |



USA

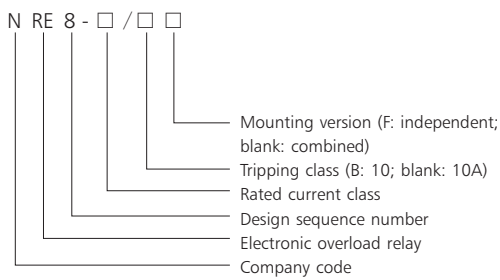


NRE8 Electronic Over-load Relay

1. General

- 1.1 Certificates: UL;
- 1.2 Electrical ratings: AC50/60Hz, 690V;
- 1.3 Standards: IEC/EN 60947-4-1, UL508

2. Type Designation



3. Features

- 3.1 Three-phase electronic type, tripping class 10A and 10.
- 3.2 Energy saving up to 80% compared with bimetallic type.
- 3.3 Phase-failure protection.
- 3.4 Current setting continuously adjustable.
- 3.5 Two indicator lights available for indicating normal, overload time-delay, phase-failure and phase-failure time-delay status respectively.
- 3.6 Manual test mechanism.
- 3.7 Manual reset button.
- 3.8 A pair of N/C and N/O contacts.
- 3.9 Two mounting versions: independent or combined with a contactor.



4. Technical Data

- 4.1 Main Circuit: Rated insulation voltage: AC 690V; Rated frequency: 50/60Hz
- 4.2 Auxiliary Circuit: Rated insulation voltage: AC 400V; Rated frequency: 50/60Hz; See table below for other ratings.

| Utilization category | AC-15 | | DC-13 |
|----------------------------------|-------|-----|-------|
| Rated operational voltage Ue (V) | 230 | 400 | 220 |
| Rated operational current Ie (A) | 2.5 | 1.5 | 0.2 |
| Conventional heating current (A) | 5 | | |

4.3 Wiring

Connection of main circuit is PVC insulation copper conductor or cable. See table below for details:

| Current range (A) | Cross section area (mm ²) | Length (m) | Number of piece |
|-------------------|---------------------------------------|------------|-----------------|
| I ≤ 8 | 1.0 | 1 | 1 |
| 8 < I ≤ 12 | 1.5 | 1 | 1 |
| 12 < I ≤ 20 | 2.5 | 1 | 1 |
| 20 < I ≤ 25 | 4.0 | 1 | 1 |
| 25 < I ≤ 32 | 6.0 | 1 | 1 |
| 32 < I ≤ 50 | 10 | 1 | 1 |

| Current range (A) | Cross section area (mm ²) | Length (m) | Number of piece |
|-------------------|---------------------------------------|------------|-----------------|
| 50<I≤65 | 16 | 1 | 1 |
| 65<I≤85 | 25 | 1 | 1 |
| 85<I≤115 | 35 | 1 | 1 |
| 115<I≤150 | 50 | 2 | 1 |
| 150<I≤175 | 75 | 2 | 1 |
| 175<I≤225 | 95 | 2 | 1 |
| 225<I≤250 | 120 | 2 | 1 |
| 250<I≤275 | 150 | 2 | 1 |
| 275<I≤350 | 185 | 2 | 1 |
| 350<I≤400 | 240 | 2 | 1 |
| 400<I≤500 | 150 | 2 | 2 |
| 500<I≤630 | 185 | 2 | 2 |

4.4 Protection Characteristics

4.4.1 Operation characteristic under three-phase balanced-load status as per the table below.

| Series No. | I/In | Operating time | | Test condition | Ambient temperature (°C) |
|------------|------|------------------|-----------|---|--------------------------|
| 1 | 1.05 | <2h non-tripping | | Cold status | (20±5)°C |
| 2 | 1.20 | <2h tripping | | Starts from hot status, right after item no.1 | |
| 3 | 1.50 | Class 10A | ≤ 2 min | | |
| | | Class 10 | ≤ 4 min | | |
| 4 | 7.20 | Class 10A | 2s<Tp≤10s | Cold status | |
| | | Class 10 | 4s<Tp≤10s | | |

Under three-phase operation, if relay current reaches and maintains 1.05 times of the current setting, the green lamp flashes and red lamp does not light up, which indicates that the relay is not at over-load time-delay status, which equals to non-operation in 2 hours in serial No. 1 of the table above. A current tolerance for serial No.1 is -3%, and a current tolerance for No.2 is +3% .

Cold status implies the status of the power re-energized of main circuit of relay 5 seconds after its power off.

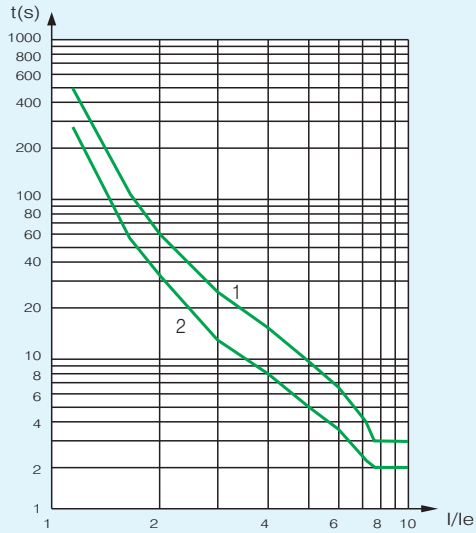
4.4.2 Operation characteristic under phase-failure status as per the table below.

| Series No. | I/In | | Operating time Tp | Test condition | Ambient temperature °C |
|------------|----------------|-----------------|-------------------|---|------------------------|
| | Any two phases | The third phase | | | |
| 1 | 1.0 | 0.9 | <2h non-tripping | Starts from cold status | (20±5)°C |
| 2 | 1.15 | 0 | <2h tripping | Starts from hot status, right after item No.1 | |

Under phase failure operation, if relay current reaches and maintains 1.0 times of the current setting, the red lamp flashes and green lamp does not light up, which equals to non-operation in 2 hours in serial No.1 of the table above. When current reaches and exceeds 1.15 times the current setting, the red lamp flashes and the green lamp lights up, which indicates that the relay is at time-delay release status. A current tolerance for serial No.1 is -3%, and a current tolerance for No.2 is +3%.

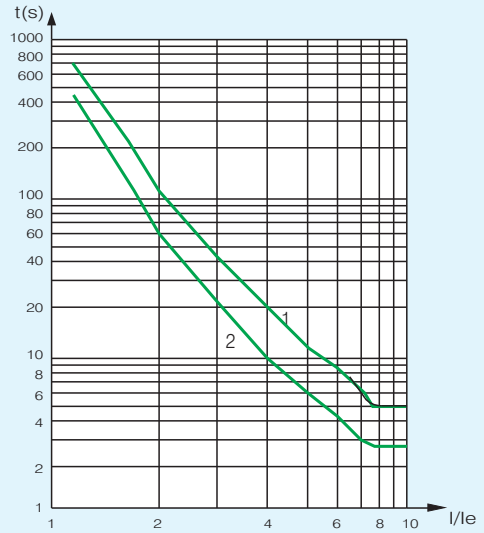
4.5 Tripping Curve

Tripping class 10A



1: Cold status 2: Hot status

Tripping class 10

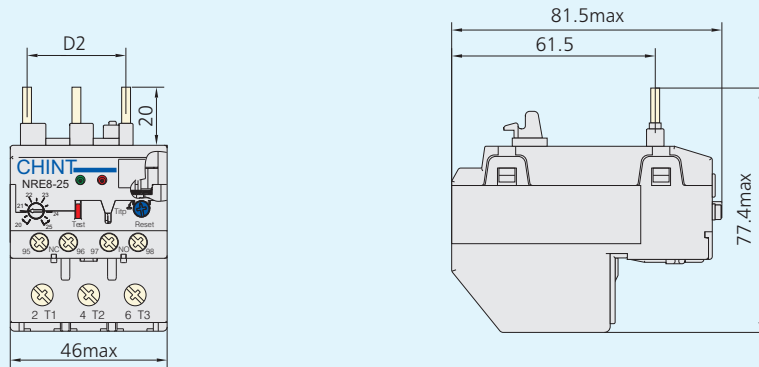


1: Cold status 2: Hot status

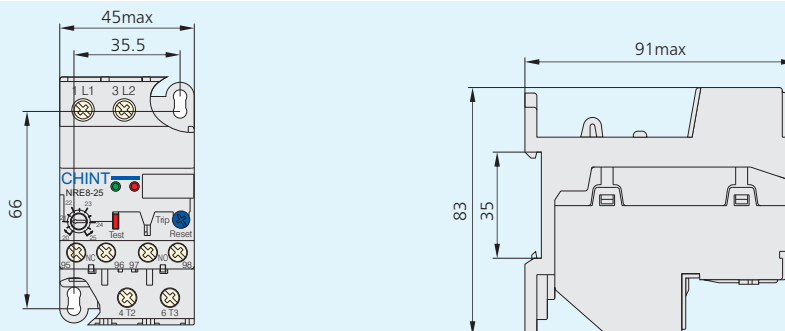
5. Overall and Mounting Dimensions (mm)

5.1 For Combined Mounting

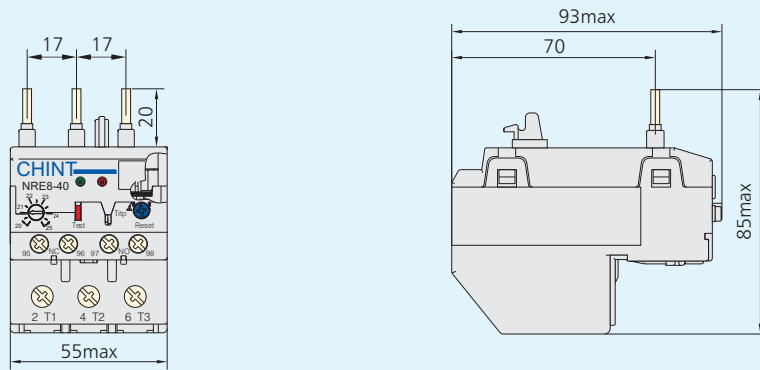
NRE8-25 Overall and Mounting Dimension



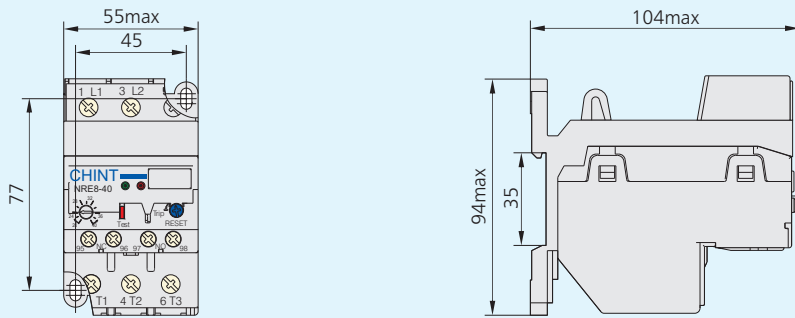
NRE8-25/F Overall and Mounting Dimension



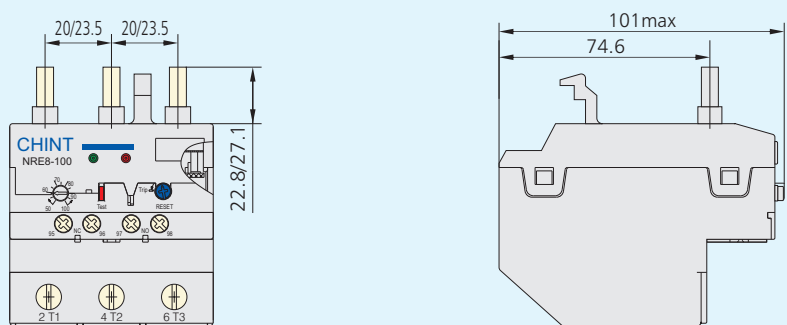
NRE8-40 Overall and Mounting Dimension



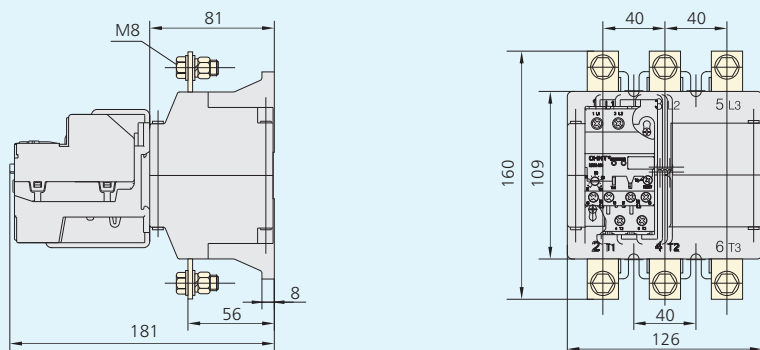
NRE8-40/F Overall and Mounting Dimension



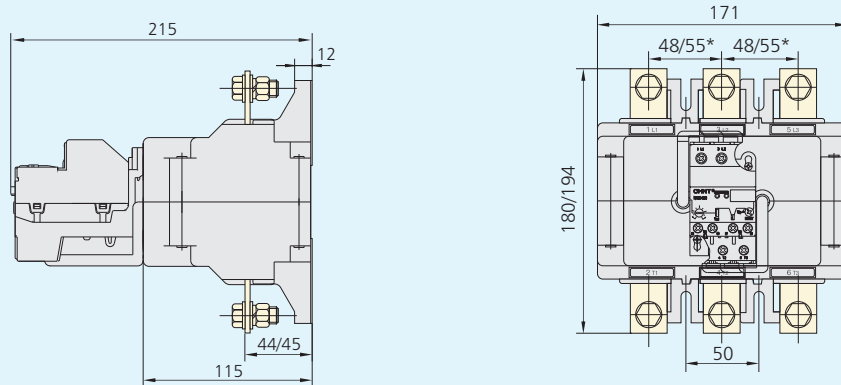
NRE8-100 Overall and Mounting Dimension



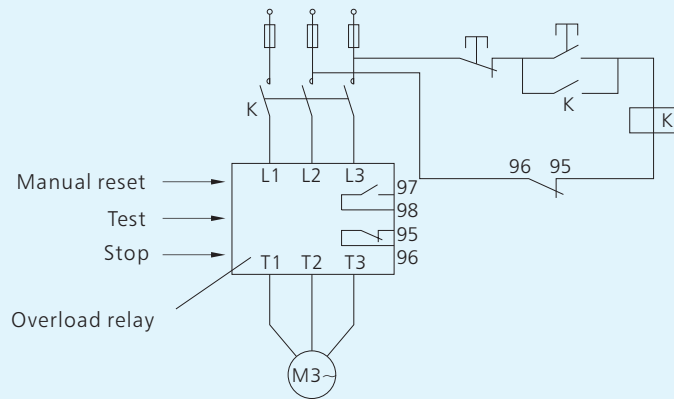
NRE8-200 Overall and Mounting Dimension



NRE8-630 Overall and Mounting Dimension





6. Applications








7. Accessories

7.1 Mounting base

| | Description | Application |
|---|--------------------------|--|
|  | NRE8-25 mounting bracket | Incorporates with NRE8-25 to form an independently mounted product |
|  | NRE8-40 mounting bracket | Incorporates with NRE8-25 to form an independently mounted product |

7.2 Assembly with contactors

| Thermal overload Relay | Rated current (A) | Current setting range (A) | Model of recommended contactor | Model of recommended fuse |
|---|-------------------|---------------------------|--|---------------------------|
|  NRE8-25 | 1.2 | 0.6~1.2 | NC1-09 | RT36-4 (NT00-4) |
| | 2.4 | 1.2~2.4 | | RT36-6 (NT00-6) |
| | 4 | 2~4 | | RT36-10 (NT00-10) |
| | 8 | 4~8 | | RT36-16 (NT00-16) |
| | 10 | 5~10 | NC1-12 | RT36-20 (NT00-20) |
| | 12 | 7~12 | | RT36-25 (NT00-25) |
| | 20 | 10~20 | NC1-16, NC1-25 | RT36-40 (NT00-40) |
| | 25 | 20~25 | NC1-25 | RT36-50 (NT00-50) |
| 32 | 22~32 | RT36-80 (NT00-80) | | |
|  NRE8-40 | 4 | 2~4 | NC1-32, NC1-40 | RT36-10 (NT00-10) |
| | 8 | 4~8 | | RT36-16 (NT00-16) |
| | 10 | 5~10 | | RT36-20 (NT00-20) |
| | 20 | 10~20 | | RT36-40 (NT00-40) |
| | 40 | 20~40 | | RT36-80 (NT00-80) |
|  NRE8-100 | 65 | 30~65 | NC1-50, NC1-65 | RT36-160 (NT00-160) |
| | 100 | 50~100 | NC1-80, NC1-95 | RT36-200 (NT1-200) |
|  NRE8-200 | 120 | 85~120 | NC2-115, NC2-150 NC2-185, NC2-225 | RT36-250 (NT1-250) |
| | 160 | 110~160 | | RT36-315 (NT2-315) |
| | 200 | 140~200 | | RT36-400 (NT2-400) |
|  NRE8-630 | 250 | 170~250 | NC2-225, NC2-265 NC2-330, NC2-400 NC2-500, NC2-630 | RT36-500 (NT3-500) |
| | 315 | 215~315 | | RT36-630 (NT3-630) |
| | 400 | 275~400 | | RT36-800 (NT4-800) |
| | 500 | 340~500 | | RT36-1000 (NT4-1000) |
| | 630 | 430~630 | | RT36-1000 (NT4-1000) |