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**FOR BG SERIES MINI-CONTACTORS**

- Type RF9, phase failure sensitive, manual resetting
- Type RFA9, phase failure sensitive, automatic resetting
- Type RFN9, non-phase failure sensitive, manual resetting
- Type RFNA9, non-phase failure sensitive, automatic resetting.



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**FOR BF SERIES CONTACTORS**

- Type RF38, phase failure sensitive, manual or automatic resetting
- Type RFN38, non phase failure sensitive, manual or automatic resetting
- Type RF95, phase failure sensitive, manual resetting
- Type RFA95, phase failure sensitive, automatic resetting
- Type RFN95, non phase failure sensitive, manual resetting
- Type RFNA95, non phase failure sensitive, automatic resetting.



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**FOR B SERIES CONTACTORS**

- Type RF200 and RF420, phase failure sensitive, manual or automatic resetting
- Type RFN200 and RFN420, non phase failure sensitive, manual or automatic resetting.

| Type of contactor | TYPE OF THERMAL OVERLOAD RELAY       |                 |  |                 | Page      |
|-------------------|--------------------------------------|-----------------|--|-----------------|-----------|
|                   | Phase failure/single phase sensitive |                 | Non phase failure / non single phase sensitive |                 |           |
|                   | Manual/hand reset                    | Automatic reset | Manual/hand reset                              | Automatic reset |           |
| BG06...BG12       | <b>RF9</b>                           | <b>RFA9</b>     | <b>RFN9</b>                                    | <b>RFNA9</b>    | 3-2 and 3 |
| BF09...BF38       | <b>RF38</b>                          |                 | <b>RFN38</b>                                   |                 | 3-4 and 5 |
| BF50...BF110      | <b>RF95</b>                          | <b>RFA95</b>    | <b>RFN95</b>                                   | <b>RFNA95</b>   |           |
| B115...B180       | <b>RF200</b>                         |                 | <b>RFN200</b>                                  |                 | 3-6 and 7 |
| B250...B400       | <b>RF400</b>                         |                 | <b>RFN400</b>                                  |                 |           |



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**THERMISTOR PROTECTION RELAY**

- 24VDC and 24 to 240VAC supply types.

**RF38 features**

**FRONT PROTECTION COVER OF THERMAL OVERLOAD RELAYS**

A sealable protection cover is available. When fitted on to the relay front, it precludes all possible adjuster tampering and involuntary activation of the "Reset" and "Stop" buttons of the thermal overload relay.



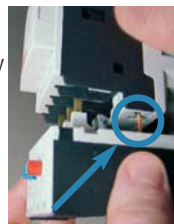
**CLEAR IDENTIFICATION OF THERMAL OVERLOAD RELAY MANUAL OR AUTOMATIC RESETTING**

The RF38 thermal overload relay is supplied configured for manual resetting. Breaking the plate below the "Reset" button allows for the automatic resetting configuration.



**FIXING EASE OF THE THERMAL OVERLOAD RELAY**

While the thermal overload relay is being linked to the contactor, its auxiliary contact fits on and connects to the coil terminal by rigid terminal. Complete relay fixing is done in a single operation, with no need of other connections.



**SEALABLE RELAY COVER**

A handy closing flap feature excludes any tampering of the thermal overload relay adjuster.





- Thermal overload relays for currents between 0.09 and 420A
- Phase failure sensitive and non phase failure sensitive versions
- Automatic and/or manual resetting
- Independent or direct mounting on contactor
- Thermistor protection relay.

|  | SEC. - PAGE |
|--|-------------|
| <b>Thermal overload relays</b>         |             |
| For BG series mini-contactors .....    | 3 - 2       |
| For BF series contactors .....         | 3 - 4       |
| For B series contactors .....          | 3 - 6       |
| Accessories .....                      | 3 - 8       |
| <b>Electronic relay</b>                |             |
| Thermistor protection relay .....      | 3 - 9       |
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### Non phase failure / non single phase sensitive Three poles (three phase)



11 RFN9...



11 RFNA9...

| Order code | Adjustment range | Protection fuses |     |       | Qty per pkg | Wt [kg] |
|------------|------------------|------------------|-----|-------|-------------|---------|
|            |                  | IEC aM           | gG  | UL K5 |             |         |
|            | [A]              | [A]              | [A] | [A]   | n°          |         |

MANUAL RESETTING.  
 Direct mounting on BG06, BG09, BG12 mini-contactors.

|             |             |      |    |    |   |       |
|-------------|-------------|------|----|----|---|-------|
| 11 RFN9 015 | 0.09 - 0.15 | 0.25 | —  | —  | 1 | 0.123 |
| 11 RFN9 023 | 0.14 - 0.23 | 0.5  | —  | 1  | 1 | 0.123 |
| 11 RFN9 033 | 0.2 - 0.33  | 0.5  | 1  | 1  | 1 | 0.123 |
| 11 RFN9 05  | 0.3 - 0.5   | 1    | 2  | 3  | 1 | 0.123 |
| 11 RFN9 075 | 0.45 - 0.75 | 1    | 2  | 3  | 1 | 0.123 |
| 11 RFN9 1   | 0.6 - 1     | 2    | 4  | 3  | 1 | 0.123 |
| 11 RFN9 1V5 | 0.9 - 1.5   | 2    | 4  | 6  | 1 | 0.123 |
| 11 RFN9 2V3 | 1.4 - 2.3   | 4    | 6  | 10 | 1 | 0.123 |
| 11 RFN9 33  | 2 - 3.3     | 4    | 10 | 10 | 1 | 0.123 |
| 11 RFN9 5   | 3 - 5       | 6    | 16 | 15 | 1 | 0.123 |
| 11 RFN9 75  | 4.5 - 7.5   | 8    | 20 | 25 | 1 | 0.123 |
| 11 RFN9 10  | 6 - 10      | 10   | 32 | 30 | 1 | 0.123 |
| 11 RFN9 15  | 9 - 15      | 16   | 40 | 45 | 1 | 0.123 |

AUTOMATIC RESETTING.  
 Direct mounting on BG06, BG09, BG12 mini-contactors.

|              |             |      |    |    |   |       |
|--------------|-------------|------|----|----|---|-------|
| 11 RFNA9 015 | 0.09 - 0.15 | 0.25 | —  | —  | 1 | 0.123 |
| 11 RFNA9 023 | 0.14 - 0.23 | 0.5  | —  | 1  | 1 | 0.123 |
| 11 RFNA9 033 | 0.2 - 0.33  | 0.5  | 1  | 1  | 1 | 0.123 |
| 11 RFNA9 05  | 0.3 - 0.5   | 1    | 2  | 3  | 1 | 0.123 |
| 11 RFNA9 075 | 0.45 - 0.75 | 1    | 2  | 3  | 1 | 0.123 |
| 11 RFNA9 1   | 0.6 - 1     | 2    | 4  | 3  | 1 | 0.123 |
| 11 RFNA9 1V5 | 0.9 - 1.5   | 2    | 4  | 6  | 1 | 0.123 |
| 11 RFNA9 2V3 | 1.4 - 2.3   | 4    | 6  | 10 | 1 | 0.123 |
| 11 RFNA9 33  | 2 - 3.3     | 4    | 10 | 10 | 1 | 0.123 |
| 11 RFNA9 5   | 3 - 5       | 6    | 16 | 15 | 1 | 0.123 |
| 11 RFNA9 75  | 4.5 - 7.5   | 8    | 20 | 25 | 1 | 0.123 |
| 11 RFNA9 10  | 6 - 10      | 10   | 32 | 30 | 1 | 0.123 |
| 11 RFNA9 15  | 9 - 15      | 16   | 40 | 45 | 1 | 0.123 |

NOTE: The appropriate adjustment range of the overload relay should be selected on the basis of the motor nameplate full-load current when direct, across the line starting is considered.

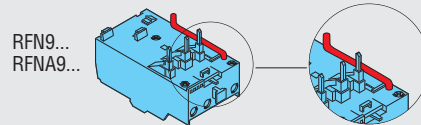
### Three-phase IEC motor powers ①

| 230V [kW] | 400V [kW] | 415V [kW] | 440V [kW] | 500V [kW] | 690V [kW] |
|-----------|-----------|-----------|-----------|-----------|-----------|
| Ⓜ         | Ⓜ         | Ⓜ         | Ⓜ         | Ⓜ         | Ⓜ         |
| Ⓜ         | Ⓜ         | Ⓜ         | Ⓜ         | Ⓜ         | Ⓜ         |
| Ⓜ         | Ⓜ         | Ⓜ         | Ⓜ         | Ⓜ         | Ⓜ         |
| Ⓜ         | Ⓜ         | Ⓜ         | Ⓜ         | Ⓜ         | Ⓜ         |
| Ⓜ         | Ⓜ         | Ⓜ         | 0.37      | 0.37      | 0.55      |
| Ⓜ         | Ⓜ         | 0.55      | 0.55      | 0.55      | 0.75      |
| 0.37      | 0.55-0.75 | 0.75      | 0.75      | 1.1       | 1.1-1.5   |
| 0.55      | 1.1       | 1.1       | 1.1-1.5   | 1.5       | 2.2       |
| 0.75-1.1  | 1.5       | 1.5-2.2   | 2.2       | 2.2       | 3-3.7     |
| 1.5       | 2.2-3     | 3-3.7     | 3-3.7     | 3-3.7     | 4         |
| 2.2       | 3.7-4     | 4         | 3.7-4     | 4-5.5     | —         |
| 3.2       | 5.5       | 5.5-7.5   | 5.5       | —         | —         |

|          |           |         |         |       |         |
|----------|-----------|---------|---------|-------|---------|
| Ⓜ        | Ⓜ         | Ⓜ       | Ⓜ       | Ⓜ     | Ⓜ       |
| Ⓜ        | Ⓜ         | Ⓜ       | Ⓜ       | Ⓜ     | Ⓜ       |
| Ⓜ        | Ⓜ         | Ⓜ       | Ⓜ       | Ⓜ     | Ⓜ       |
| Ⓜ        | Ⓜ         | Ⓜ       | Ⓜ       | Ⓜ     | Ⓜ       |
| Ⓜ        | Ⓜ         | Ⓜ       | Ⓜ       | Ⓜ     | Ⓜ       |
| Ⓜ        | Ⓜ         | Ⓜ       | 0.37    | 0.37  | 0.55    |
| Ⓜ        | Ⓜ         | 0.55    | 0.55    | 0.55  | 0.75    |
| 0.37     | 0.55-0.75 | 0.75    | 0.75    | 1.1   | 1.1-1.5 |
| 0.55     | 1.1       | 1.1     | 1.1-1.5 | 1.5   | 2.2     |
| 0.75-1.1 | 1.5       | 1.5-2.2 | 2.2     | 2.2   | 3-3.7   |
| 1.5      | 2.2-3     | 3-3.7   | 3-3.7   | 3-3.7 | 4       |
| 2.2      | 3.7-4     | 4       | 3.7-4   | 4-5.5 | —       |
| 3.2      | 5.5       | 5.5-7.5 | 5.5     | —     | —       |

- ① The indicated powers apply to 4-pole motors; it is advisable to always check that the nameplate motor current is within the relay adjustment range.
- Ⓜ No standard power ratings exist; select relay according to current consumption.

NOTE: To facilitate connection between the auxiliary NC contact of the RFN...9 thermal relay and terminal A2 of the contactor, insert the conductor into the appropriate conduit as shown.



### Certifications and compliance

Certifications obtained:

| Type               | cULus | CSA | EAC | CCC |
|--------------------|-------|-----|-----|-----|
| RFN9... - RFNA9... | ●     | ●   | ●   | ●   |

● Certified products.

cULus – UL Listed for USA and Canada (cULus - File E93601) as Auxiliary Devices – Thermal Overload Relays, 600VAC, open type, ambient compensated, 5000 Amps RMS symmetrical short circuit rating; the trip current is 120% FLA.  
 CSA – CSA certified for Canada only (File 54332) as Auxiliary Devices for use with magnetic contactors.

Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-4-1, UL508, CSA C22.2 n° 14.

### Phase failure / single phase sensitive Three poles (three phase)

3



RF38...

| Order code | Adjustment range | Protection fuses |     |      | Qty per pkg | Wt [kg] |
|------------|------------------|------------------|-----|------|-------------|---------|
|            |                  | IEC aM           | gG  | UL ① |             |         |
|            | [A]              | [A]              | [A] | [A]  | n°          |         |

MANUAL OR AUTOMATIC RESETTING.  
 Direct mounting on BF09 - BF38 contactors.  
 Independent mounting with RFX38 04 base.

|           |           |      |    |     |   |       |
|-----------|-----------|------|----|-----|---|-------|
| RF38 0016 | 0.1-0.16  | 0.25 | —  | 1   | 1 | 0.160 |
| RF38 0025 | 0.16-0.25 | 0.5  | —  | 1   | 1 | 0.160 |
| RF38 0040 | 0.25-0.4  | 0.5  | 1  | 3   | 1 | 0.160 |
| RF38 0063 | 0.4-0.63  | 1    | 2  | 3   | 1 | 0.160 |
| RF38 0100 | 0.63-1    | 2    | 4  | 3   | 5 | 0.160 |
| RF38 0160 | 1-1.6     | 2    | 4  | 6   | 5 | 0.160 |
| RF38 0250 | 1.6-2.5   | 4    | 6  | 10  | 5 | 0.160 |
| RF38 0400 | 2.5-4     | 4    | 6  | 15  | 5 | 0.160 |
| RF38 0650 | 4-6.5     | 8    | 16 | 25  | 5 | 0.160 |
| RF38 1000 | 6.3-10    | 10   | 20 | 40  | 5 | 0.160 |
| RF38 1400 | 9-14      | 16   | 32 | 50  | 5 | 0.160 |
| RF38 1800 | 13-18     | 25   | 40 | 70  | 5 | 0.160 |
| RF38 2300 | 17-23     | 25   | 50 | 90  | 5 | 0.160 |
| RF38 2500 | 20-25     | 32   | 50 | 100 | 5 | 0.160 |
| RF38 3200 | 24-32     | 40   | 63 | 120 | 1 | 0.160 |
| RF38 3800 | 32-38     | 40   | 63 | 150 | 1 | 0.160 |

MANUAL RESETTING.  
 Direct mounting on BF50-BF110 contactors.  
 Complete with G261 links.  
 Independent mounting with G270 base.

|               |          |     |     |     |   |       |
|---------------|----------|-----|-----|-----|---|-------|
| 11 RF95 3 33  | 20 - 33  | 40  | 63  | 110 | 1 | 0.365 |
| 11 RF95 3 42  | 28 - 42  | 50  | 80  | 150 | 1 | 0.365 |
| 11 RF95 3 50  | 35 - 50  | 50  | 100 | 175 | 1 | 0.365 |
| 11 RF95 3 65  | 46 - 65  | 80  | 125 | 200 | 1 | 0.365 |
| 11 RF95 3 82  | 60 - 82  | 100 | 200 | 250 | 1 | 0.365 |
| 11 RF95 3 95  | 70 - 95  | 100 | 200 | 350 | 1 | 0.365 |
| 11 RF95 3 110 | 90 - 110 | 125 | 200 | 350 | 1 | 0.365 |

AUTOMATIC RESETTING.  
 Direct mounting on BF50-BF110 contactors.  
 Complete with G261 links.  
 Independent mounting with G270 base.

|                |          |     |     |     |   |       |
|----------------|----------|-----|-----|-----|---|-------|
| 11 RFA95 3 33  | 20 - 33  | 40  | 63  | 110 | 1 | 0.365 |
| 11 RFA95 3 42  | 28 - 42  | 50  | 80  | 150 | 1 | 0.365 |
| 11 RFA95 3 50  | 35 - 50  | 50  | 100 | 175 | 1 | 0.365 |
| 11 RFA95 3 65  | 46 - 65  | 80  | 125 | 200 | 1 | 0.365 |
| 11 RFA95 3 82  | 60 - 82  | 100 | 200 | 250 | 1 | 0.365 |
| 11 RFA95 3 95  | 70 - 95  | 100 | 200 | 350 | 1 | 0.365 |
| 11 RFA95 3 110 | 90 - 110 | 125 | 200 | 350 | 1 | 0.365 |

① UL RK5 fuse class for RF38 types and UL K5 fuse class for RF...95 types.

NOTE: Two pole (single phase) versions are available on request.  
 Add the letter "S" in the order code e.g. RF381000 is three pole; RFS381000 two pole.

The appropriate adjustment range of the overload relay should be selected on the basis of the motor nameplate full-load current when direct, across the line starting is considered.



11 RF95 3...



11 RFA95 3...

### Three-phase IEC motor powers ②

| 230V [kW] | 400V [kW] | 415V [kW] | 440V [kW] | 500V [kW] | 690V [kW] |
|-----------|-----------|-----------|-----------|-----------|-----------|
|-----------|-----------|-----------|-----------|-----------|-----------|

|           |           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|-----------|
| 0.06      | 0.06      | 0.06      | 0.06-0.09 | 0.06-0.09 | 0.09-0.12 |
| 0.06      | 0.09      | 0.09      | 0.12      | 0.12      | 0.18      |
| 0.09      | 0.12-0.18 | 0.12-0.18 | 0.18      | 0.18      | 0.25      |
| 0.12      | 0.25      | 0.25      | 0.37      | 0.25-0.37 | 0.37-0.55 |
| 0.18-0.25 | 0.37-0.55 | 0.37-0.55 | 0.55      | 0.55-0.75 | 0.75      |
| 0.37      | 0.75      | 0.75      | 0.75-1.1  | 1.1       | 1.1-1.5   |
| 0.55-0.75 | 1.1-1.5   | 1.1-1.5   | 1.1       | 1.5-2.2   | 2.2-3     |
| 1.1-1.5   | 2.2       | 2.2       | 2.2-3     | 3         | 4         |
| 1.5-2.2   | 3-4       | 4         | 4         | 4-5.5     | 5.5-7.5   |
| 3         | 5.5       | 5.5       | 5.5-7.5   | 5.5-7.5   | 11        |
| 4         | 7.5       | 7.5-9     | 9         | 11        | 15        |
| 5.5       | 11        | 9-11      | 11        | 11        | 18.5      |
| 5.5       | 11        | 11        | 11        | 15        | 22        |
| 7.5       | 15        | 15        | 15        | 18.5      | 30        |
| 11        | 18.5      | 18.5      | 18.5      | 22        | 30        |

|         |         |         |         |         |       |
|---------|---------|---------|---------|---------|-------|
| 7.5     | 11-15   | 11-15   | 15-18.5 | 15-18.5 | 22-25 |
| 9-10    | 15-18.5 | 18.5-22 | 18.5-22 | 22-25   | 30-33 |
| 10-11   | 22      | 25      | 25      | 30      | 37-40 |
| 15-18.5 | 25-30   | 30-33   | 30-33   | 33-40   | 45-55 |
| 22      | 33-40   | 37-45   | 37-45   | 45-55   | 59-75 |
| 22-25   | 40-45   | 45-51   | 45-55   | 55-63   | 75-80 |
| 30      | 55      | 55      | 55      | 75      | 90    |

|         |         |         |         |         |       |
|---------|---------|---------|---------|---------|-------|
| 7.5     | 11-15   | 11-15   | 15-18.5 | 15-18.5 | 22-25 |
| 9-10    | 15-18.5 | 18.5-22 | 18.5-22 | 22-25   | 30-33 |
| 10-11   | 22      | 25      | 25      | 30      | 37-40 |
| 15-18.5 | 25-30   | 30-33   | 30-33   | 33-40   | 45-55 |
| 22      | 33-40   | 37-45   | 37-45   | 45-55   | 59-75 |
| 22-25   | 40-45   | 45-51   | 45-55   | 55-63   | 75-80 |
| 30      | 55      | 55      | 55      | 75      | 90    |

② No standard powers ratings exist; select relay according to current consumption.

③ The indicated powers apply to 4-pole motors; it is advisable to always check that the nameplate motor current is within the relay adjustment range.

### Certifications and compliance

Certifications obtained:

| Typo  | cULus | CSA | EAC | CCC | Register of shipping LORS |
|-------|-------|-----|-----|-----|---------------------------|
| RF38  | ●     | —   | ●   | ●   | —                         |
| RF95  | ●     | ●   | ●   | ●   | ●                         |
| RFA95 | ●     | ●   | ●   | ●   | —                         |

● Certified products.

cULus – UL Listed for USA and Canada (cULus - File E93601) as Auxiliary Devices – Thermal Overload Relays, 600VAC, open type, ambient compensated, 5000 Amps RMS symmetrical short circuit rating up to 82A FLA range and 10000 Amps RMS for 95A and 110A FLA range; the trip current is 120% FLA.  
 CSA – CSA certified for Canada only (File 54332) as Auxiliary Devices for use with magnetic contactors.

Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-4-1, UL508, CSA C22.2 n° 14.



### Non phase failure / non single phase sensitive Three poles (three phase)



RFN38...

| Order code | Adjustment range | Protection fuses IEC |    |    | Qty     | Wt   |
|------------|------------------|----------------------|----|----|---------|------|
|            | [A]              | aM                   | gG | UL | per pkg | [kg] |

MANUAL OR AUTOMATIC RESETTING.  
 Direct mounting on BF09 - BF38 contactors.  
 Independent mounting with RFX38 04 base.

|            |           |      |    |     |   |       |
|------------|-----------|------|----|-----|---|-------|
| RFN38 0016 | 0.1-0.16  | 0.25 | —  | 1   | 1 | 0.160 |
| RFN38 0025 | 0.16-0.25 | 0.5  | —  | 1   | 1 | 0.160 |
| RFN38 0040 | 0.25-0.4  | 0.5  | 1  | 3   | 1 | 0.160 |
| RFN38 0063 | 0.4-0.63  | 1    | 2  | 3   | 1 | 0.160 |
| RFN38 0100 | 0.63-1    | 2    | 4  | 3   | 1 | 0.160 |
| RFN38 0160 | 1-1.6     | 2    | 4  | 6   | 1 | 0.160 |
| RFN38 0250 | 1.6-2.5   | 4    | 6  | 10  | 1 | 0.160 |
| RFN38 0400 | 2.5-4     | 4    | 6  | 15  | 1 | 0.160 |
| RFN38 0650 | 4-6.5     | 8    | 16 | 25  | 1 | 0.160 |
| RFN38 1000 | 6.3-10    | 10   | 20 | 40  | 1 | 0.160 |
| RFN38 1400 | 9-14      | 16   | 32 | 50  | 1 | 0.160 |
| RFN38 1800 | 13-18     | 25   | 40 | 70  | 1 | 0.160 |
| RFN38 2300 | 17-23     | 25   | 50 | 90  | 1 | 0.160 |
| RFN38 2500 | 20-25     | 32   | 50 | 100 | 1 | 0.160 |
| RFN38 3200 | 24-32     | 40   | 63 | 125 | 1 | 0.160 |
| RFN38 3800 | 32-38     | 40   | 63 | 150 | 1 | 0.160 |

MANUAL RESETTING.  
 Direct mounting on BF50-BF110 contactors.  
 Complete with G261 links.  
 Independent mounting with G270 base.

|                |          |     |     |     |   |       |
|----------------|----------|-----|-----|-----|---|-------|
| 11 RFN95 3 42  | 28 - 42  | 50  | 80  | 150 | 1 | 0.365 |
| 11 RFN95 3 50  | 35 - 50  | 50  | 100 | 175 | 1 | 0.365 |
| 11 RFN95 3 65  | 46 - 65  | 80  | 125 | 200 | 1 | 0.365 |
| 11 RFN95 3 82  | 60 - 82  | 100 | 200 | 250 | 1 | 0.365 |
| 11 RFN95 3 95  | 70 - 95  | 100 | 200 | 350 | 1 | 0.365 |
| 11 RFN95 3 110 | 90 - 110 | 125 | 200 | 350 | 1 | 0.365 |

AUTOMATIC RESETTING.  
 Direct mounting on BF50-BF110 contactors.  
 Complete with G261 links.  
 Independent mounting with G270 base.

|                 |          |     |     |     |   |       |
|-----------------|----------|-----|-----|-----|---|-------|
| 11 RFNA95 3 42  | 28 - 42  | 50  | 80  | 150 | 1 | 0.365 |
| 11 RFNA95 3 50  | 35 - 50  | 50  | 100 | 175 | 1 | 0.365 |
| 11 RFNA95 3 65  | 46 - 65  | 80  | 125 | 200 | 1 | 0.365 |
| 11 RFNA95 3 82  | 60 - 82  | 100 | 200 | 250 | 1 | 0.365 |
| 11 RFNA95 3 95  | 70 - 95  | 100 | 200 | 350 | 1 | 0.365 |
| 11 RFNA95 3 110 | 90 - 110 | 125 | 200 | 350 | 1 | 0.365 |

① UL RK5 fuse class for RFN38 types and UL K5 fuse class for RF...95 types.

NOTE: The appropriate adjustment range of the overload relay should be selected on the basis of the motor nameplate full-load current when direct, across the line starting is considered.



11 RFN95 3...



11 RFNA95 3...

### Three-phase IEC motor powers ②

| 230V | 400V | 415V | 440V | 550V | 690V |
|------|------|------|------|------|------|
| [kW] | [kW] | [kW] | [kW] | [kW] | [kW] |

|           |           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|-----------|
| 0.06      | 0.06      | 0.06      | 0.06-0.09 | 0.06-0.09 | 0.09-0.12 |
| 0.09      | 0.12-0.18 | 0.12-0.18 | 0.18      | 0.18      | 0.25      |
| 0.12      | 0.25      | 0.25      | 0.37      | 0.25-0.37 | 0.37-0.55 |
| 0.18-0.25 | 0.37-0.55 | 0.37-0.55 | 0.55      | 0.55-0.75 | 0.75      |
| 0.37      | 0.75      | 0.75      | 0.75-1.1  | 1.1       | 1.1-1.5   |
| 0.55-0.75 | 1.1-1.5   | 1.1-1.5   | 1.1       | 1.5-2.2   | 2.2-3     |
| 1.1-1.5   | 2.2       | 2.2       | 2.2-3     | 3         | 4         |
| 1.5-2.2   | 3-4       | 4         | 4         | 4-5.5     | 5.5-7.5   |
| 3         | 5.5       | 5.5       | 5.5-7.5   | 5.5-7.5   | 11        |
| 4         | 7.5       | 7.5-9     | 9         | 11        | 15        |
| 5.5       | 11        | 9-11      | 11        | 11        | 18.5      |
| 5.5       | 11        | 11        | 11        | 15        | 22        |
| 7.5       | 15        | 15        | 15        | 18.5      | 30        |
| 11        | 18.5      | 18.5      | 18.5      | 22        | 30        |

|         |         |         |         |       |       |
|---------|---------|---------|---------|-------|-------|
| 9-10    | 15-18.5 | 18.5-22 | 18.5-22 | 22-25 | 30-33 |
| 10-11   | 22      | 25      | 25      | 30    | 37-40 |
| 15-18.5 | 25-30   | 30-33   | 30-33   | 33-40 | 45-55 |
| 22      | 33-40   | 37-45   | 37-45   | 45-55 | 59-75 |
| 22-25   | 40-45   | 45-51   | 45-55   | 55-63 | 75-80 |
| 30      | 55      | 55      | 55      | 75    | 90    |

|         |         |         |         |       |       |
|---------|---------|---------|---------|-------|-------|
| 9-10    | 15-18.5 | 18.5-22 | 18.5-22 | 22-25 | 30-33 |
| 10-11   | 22      | 25      | 25      | 30    | 37-40 |
| 15-18.5 | 25-30   | 30-33   | 30-33   | 33-40 | 45-55 |
| 22      | 33-40   | 37-45   | 37-45   | 45-55 | 59-75 |
| 22-25   | 40-45   | 45-51   | 45-55   | 55-63 | 75-80 |
| 30      | 55      | 55      | 55      | 75    | 90    |

② No standard power ratings exist; select relay according to current consumption.  
 ③ The indicated powers apply to 4-pole motors; it is advisable to always check that the nameplate motor current is within the relay adjustment range.

### Certifications and compliance

Certifications obtained:

| Type   | cULus | CSA | EAC | CCC |
|--------|-------|-----|-----|-----|
| RFN38  | ●     | —   | ●   | ●   |
| RFN95  | ●     | ●   | ●   | ●   |
| RFNA95 | ●     | ●   | ●   | ●   |

● Certified products.

cULus – UL Listed for USA and Canada (cULus - File E93601) as Auxiliary Devices – Thermal Overload Relays, 600VAC, open type, ambient compensated, 5000 Amps RMS symmetrical short circuit rating up to 82A FLA range and 10000 Amps RMS for 95A and 110A FLA range; the trip current is 120% FLA.  
 CSA – CSA certified for Canada only (File 54332) as Auxiliary Devices for use with magnetic contactors.

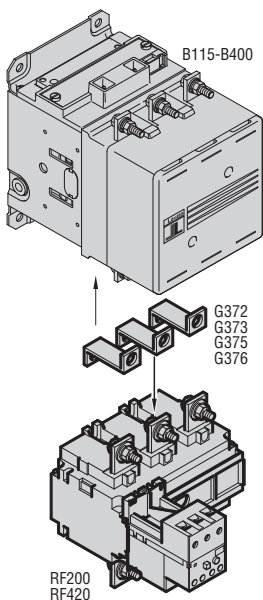
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-4-1, UL508, CSA C22.2 n° 14.

### Phase failure / single phase sensitive Three poles (three phase)

3



RF200... - RF420...



| Order code | Adjustment range | Protection fuses IEC |     |       | Qty per pkg | Wt [kg] |
|------------|------------------|----------------------|-----|-------|-------------|---------|
|            |                  | aM                   | gG  | UL K5 |             |         |
|            | [A]              | [A]                  | [A] | [A]   | n°          | [kg]    |

#### MANUAL OR AUTOMATIC RESETTING.

Independent screw fixing or direct mounting on contactors:  
 B115-B145-B180 using G372 links  
 B250-B310-B400 using G373 links

|                  |         |     |     |     |   |       |
|------------------|---------|-----|-----|-----|---|-------|
| <b>RF200 100</b> | 60-100  | 100 | 160 | 500 | 1 | 2.150 |
| <b>RF200 125</b> | 75-125  | 125 | 200 | 500 | 1 | 2.150 |
| <b>RF200 150</b> | 90-150  | 160 | 250 | 500 | 1 | 2.150 |
| <b>RF200 200</b> | 120-200 | 200 | 315 | 500 | 1 | 2.150 |

Independent screw fixing or direct mounting on contactors:  
 B145-B180 using G375 links  
 B250-B310-B400 using G376 links

|                  |         |     |     |     |   |       |
|------------------|---------|-----|-----|-----|---|-------|
| <b>RF420 250</b> | 150-250 | 250 | 400 | 800 | 1 | 2.460 |
| <b>RF420 300</b> | 180-300 | 315 | 500 | 800 | 1 | 2.460 |
| <b>RF420 420</b> | 250-420 | 500 | 630 | 800 | 1 | 2.460 |

NOTE: The appropriate adjustment range of the overload relay should be selected on the basis of the motor nameplate full-load current when direct, across the line starting is considered.

#### RELAYS FOR B500 AND B630 CONTACTORS

##### MANUAL OR AUTOMATIC RESETTING.

Consult Customer Service for the relative order codes and detailed information; see contact details on inside front cover.

#### Three-phase IEC motor powers

| 230V | 400V | 415V | 440V | 550V | 690V |
|------|------|------|------|------|------|
| [kW] | [kW] | [kW] | [kW] | [kW] | [kW] |

|         |        |        |        |        |         |
|---------|--------|--------|--------|--------|---------|
| 18.5-25 | 33-51  | 37-55  | 37-59  | 45-63  | 59-92   |
| 22-37   | 40-63  | 45-63  | 51-75  | 55-80  | 75-110  |
| 25-45   | 51-80  | 55-80  | 55-92  | 63-100 | 92-140  |
| 37-59   | 75-100 | 75-100 | 75-110 | 92-140 | 129-184 |

|        |         |         |         |         |         |
|--------|---------|---------|---------|---------|---------|
| 45-75  | 92-132  | 92-147  | 100-150 | 110-162 | 140-220 |
| 55-92  | 100-162 | 110-162 | 129-184 | 129-198 | 180-280 |
| 75-110 | 129-198 | 147-220 | 150-220 | 180-280 | 250-368 |

NOTE: For 1000V powers, consult Customer Service for information; see contact details on inside front cover.

① The indicated powers apply to 4-pole motors; it is advisable to always check that the nameplate motor current is within the relay adjustment range.

#### Certifications and compliance

Certifications obtained:

| Type  | C<br>U<br>L<br>s | E<br>A<br>C |
|-------|------------------|-------------|
| RF200 | ●                | ●           |
| RF420 | ●                | ●           |

● Certified products.

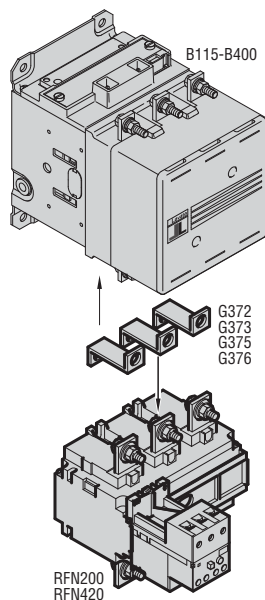
cULus – UL Listed for USA and Canada (cULus - File E93601) as Auxiliary Devices – Thermal Overload Relays, 600VAC, open type, ambient compensated, 5000 Amps RMS symmetrical short circuit rating up to 150A FLA range, 10000 Amps RMS for 200A up to 300A FLA range and 18000 Amps for the 420A; the trip current is 120% FLA.

Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-4-1, UL508, CSA C22.2 n° 14.

### Non phase failure / non single phase sensitive Three poles (three phase)



RFN200... - RFN420...



| Order code | Adjustment range | Protection fuses IEC |     |       | Qty per pkg | Wt [kg] |
|------------|------------------|----------------------|-----|-------|-------------|---------|
|            |                  | aM                   | gG  | UL K5 |             |         |
|            | [A]              | [A]                  | [A] | [A]   | n°          |         |

MANUAL OR AUTOMATIC RESETTING.  
 Independent screw fixing or direct mounting on contactors:  
 B115-B145-B180 using G372 links  
 B250-B310-B400 using G373 links

|                   |         |     |     |     |   |       |
|-------------------|---------|-----|-----|-----|---|-------|
| <b>RFN200 100</b> | 60-100  | 100 | 160 | 500 | 1 | 2.150 |
| <b>RFN200 125</b> | 75-125  | 125 | 200 | 500 | 1 | 2.150 |
| <b>RFN200 150</b> | 90-150  | 160 | 250 | 500 | 1 | 2.150 |
| <b>RFN200 200</b> | 120-200 | 200 | 315 | 500 | 1 | 2.150 |

Independent screw fixing or direct mounting on contactors:  
 B145-B180 using G375 links  
 B250-B310-B400 using G376 links

|                   |         |     |     |     |   |       |
|-------------------|---------|-----|-----|-----|---|-------|
| <b>RFN420 250</b> | 150-250 | 250 | 400 | 800 | 1 | 2.460 |
| <b>RFN420 300</b> | 180-300 | 315 | 500 | 800 | 1 | 2.460 |
| <b>RFN420 420</b> | 250-420 | 500 | 630 | 800 | 1 | 2.460 |

NOTE: The appropriate adjustment range of the overload relay should be selected on the basis of the motor nameplate full-load current when direct, across the line starting is considered.

#### RELAYS FOR B500 AND B630 CONTACTORS.

MANUAL OR AUTOMATIC RESETTING.  
 Consult Customer Service for the relative order codes and detailed information; see contact details on inside front cover.

#### Three-phase IEC motor powers

| 230V | 400V | 415V | 440V | 550V | 690V |
|------|------|------|------|------|------|
| [kW] | [kW] | [kW] | [kW] | [kW] | [kW] |

|         |        |        |        |        |         |
|---------|--------|--------|--------|--------|---------|
| 18.5-25 | 33-51  | 37-55  | 37-59  | 45-63  | 59-92   |
| 22-37   | 40-63  | 45-63  | 51-75  | 55-80  | 75-110  |
| 25-45   | 51-80  | 55-80  | 55-92  | 63-100 | 92-140  |
| 37-59   | 75-100 | 75-100 | 75-110 | 92-140 | 129-184 |

|        |         |         |         |         |         |
|--------|---------|---------|---------|---------|---------|
| 45-75  | 92-132  | 92-147  | 100-150 | 110-162 | 140-220 |
| 55-92  | 100-162 | 110-162 | 129-184 | 129-198 | 180-280 |
| 75-110 | 129-198 | 147-220 | 150-220 | 180-280 | 250-368 |

NOTE: For 1000V powers, consult Customer Service for information; see contact details on inside front cover.

① The indicated powers apply to 4-pole motors; it is advisable to always check that the nameplate motor current is within the relay adjustment range.

#### Certifications and compliance

Certifications obtained:

| Type   | C<br>U<br>L<br>U<br>s | E<br>A<br>C |
|--------|-----------------------|-------------|
| RFN200 | ●                     | ●           |
| RFN420 | ●                     | ●           |

● Certified products.

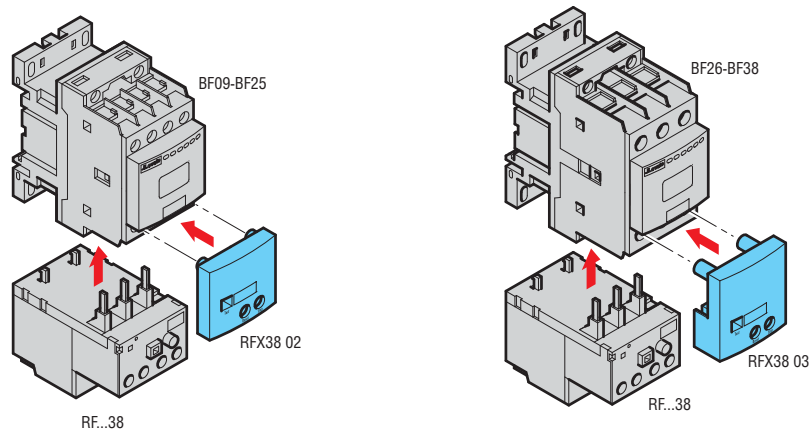
cULus – UL Listed for USA and Canada (cULus - File E93601) as Auxiliary Devices – Thermal Overload Relays, 600VAC, open type, ambient compensated, 5000 Amps RMS symmetrical short circuit rating up to 150A FLA range, 10000 Amps RMS for 200A up to 300A FLA range and 18000 Amps for the 420A; the trip current is 120% FLA.

Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-4-1, UL508, CSA C22.2 n° 14.





Protection cover for thermal overload relay-contactor assembly



Thermistor protection relay



31 DRPT...

| Order code   | Rated auxiliary supply voltage                            | Qty per pkg | Wt.   |
|--|---|-------------|-------|
|  | [V]   | n°          | [kg]  |
| DC supply (version for 35 mm DIN rail IEC/EN 60715). |   |             |       |
| 31 DRPTC 24  | 24VDC   | 1           | 0.269 |
| AC supply (version for 35 mm DIN rail IEC/EN 60715). |   |             |       |
| 31 DRPT 24   | 24VAC   | 1           | 0.269 |
| 31 DRPT 110  | 110VAC  | 1           | 0.269 |
| 31 DRPT 220  | 220-240VAC  | 1           | 0.269 |
| ACCESSORY  |   |             |       |
| Order code   | Description   | Qty per pkg | Wt.   |
|  |   | n°          | [kg]  |
| 31 CE106   | Adapter for screw fixing of DRPT relay on mounting plate. | 10          | 0.008 |

① Galvanic isolation between supply and measuring circuits does not exist.

General characteristics

The DRPT is a thermal protection relay for motors equipped with thermistor PTC sensors immersed in the winding heads. The maximum number of thermistors to be used is limited by the resistance of all the sensors connected in series; total ohmic value is not to exceed 1.5kΩ at 25°C.

The DRPT type has fail-safe operation: the protective feature trips even in the case the PTC circuit is disconnected or there is a lack of voltage. Resetting is manual or automatic.

Operational characteristics

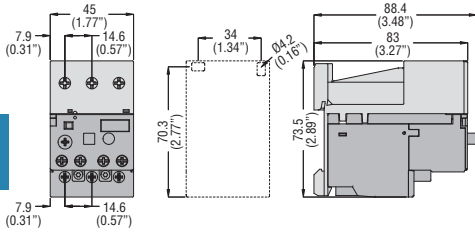
- Supply circuit
  - Rated frequency: 50-60Hz for AC types only
  - Operational limits: 0.85-1.1 Us
  - Maximum dissipation: 2.5W
  - Connection: permanent.
- Measuring circuit
  - Type of connectable PTC sensor: According to DIN 44081
  - Total PTC resistance at 25°C: ≤1.5kΩ
  - Tripping resistance: 2.7-3.1kΩ
  - Resetting resistance: 1.5-1.8kΩ
  - Voltage at PTC terminals: ≤ 2.5VDC.
- Remote resetting
  - Control: NC contact opening
  - Contact voltage: 5VDC
  - Current consumption: about 1mA.
- Relay output
  - Arrangement: 1 relay with 2 changeover contacts
  - Rated operational voltage Ue: 250VAC
  - Conventional free air thermal current Ith: 5A
  - Designation to IEC/EN 60947-5-1: B300
  - Mechanical life: 50x10<sup>6</sup> cycles
  - Electrical life (with rated load): 2x10<sup>6</sup> cycles.
- Indications
  - Green LED indicator for power ON
  - Red LED indicator for relay state TRIP
- Connections
  - Conductor section 2x1.5mm<sup>2</sup> with ferrule (max)
  - Tightening torque: 0.8-1.2Nm.
- Ambient conditions
  - Operating temperature: -10...+60°C
  - Storage temperature: -30...+80°C.
- Housing
  - Snap on 35mm DIN rail (IEC/EN 60715)
  - For screw fixing, use CE106 adapter
  - Degree of protection
    - IP40 housing
    - IP20 terminals.

Certifications and compliance

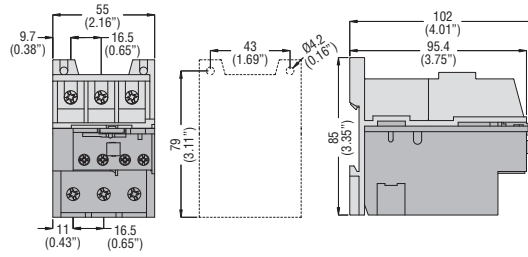
Certifications obtained: EAC.  
 Compliant with standards: IEC/EN 60255-5.

3

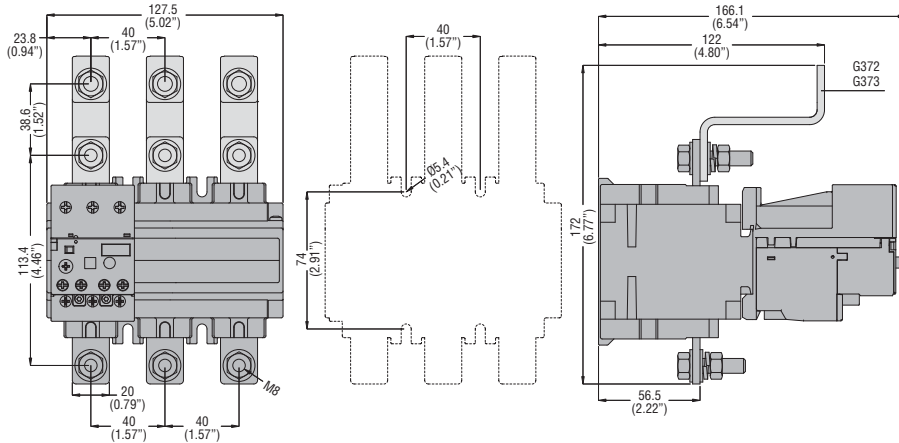
**RFX38 04** base c/w RF...38 thermal relay



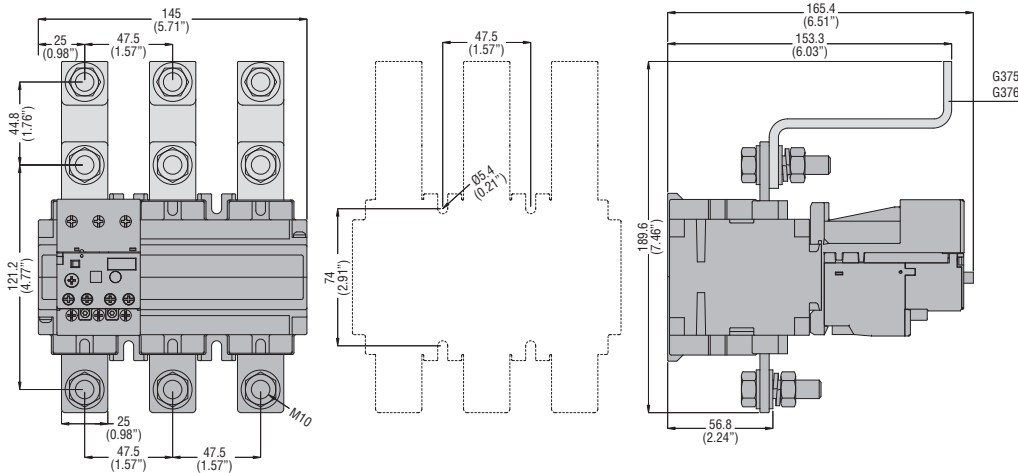
**G270** base c/w RF...95 thermal relay



**RF..200** thermal relay with links **G372** and **G373**



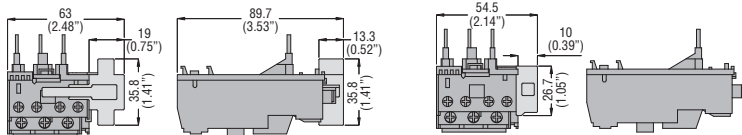
**RF..420** thermal relay with links **G375** and **G376**



**ADD-ON BLOCKS FOR THERMAL OVERLOAD RELAYS RF...9 and RF...95**

**G228...** reset

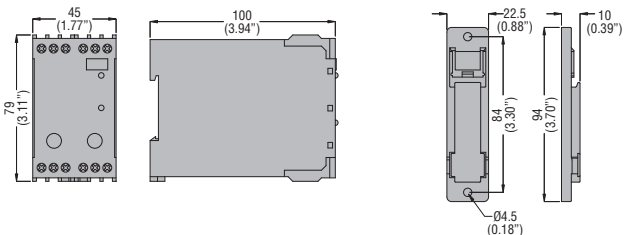
**G244** button



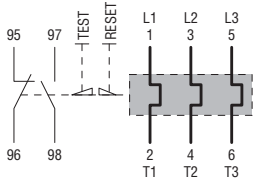
**THERMISTOR PROTECTION RELAY**

**DRPT** relay

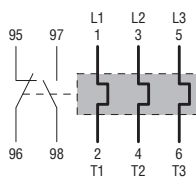
**CE106** adapter



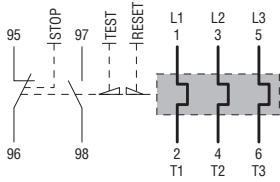
### THERMAL OVERLOAD RELAYS FOR BG MINI-CONTACTORS RF9 - RFN9



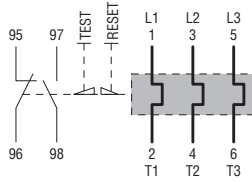
### RFA9 - RFNA9



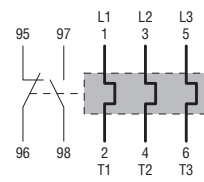
### THERMAL OVERLOAD RELAYS FOR BF CONTACTORS RF38 - RFN38



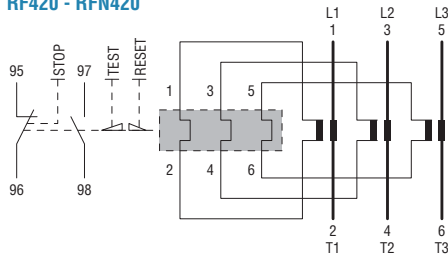
### RF95 - RFN95



### RFA95 - RFNA95



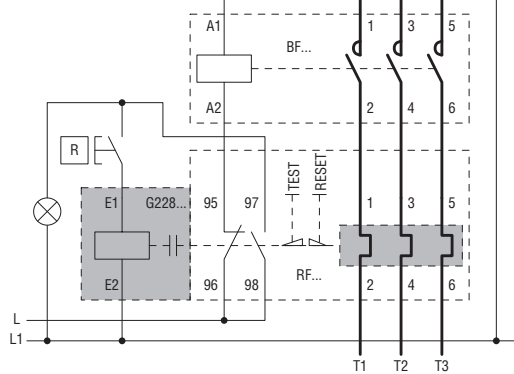
### THERMAL OVERLOAD RELAYS FOR B CONTACTORS RF200 - RFN200 RF420 - RFN420



### ADD-ON BLOCKS FOR THERMAL OVERLOAD RELAYS RF9 - RF95

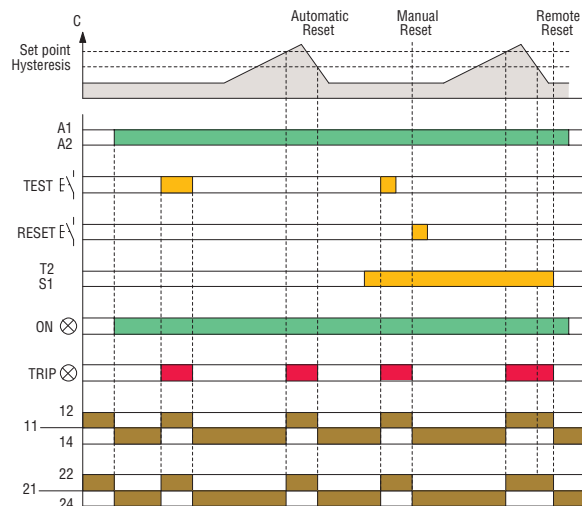
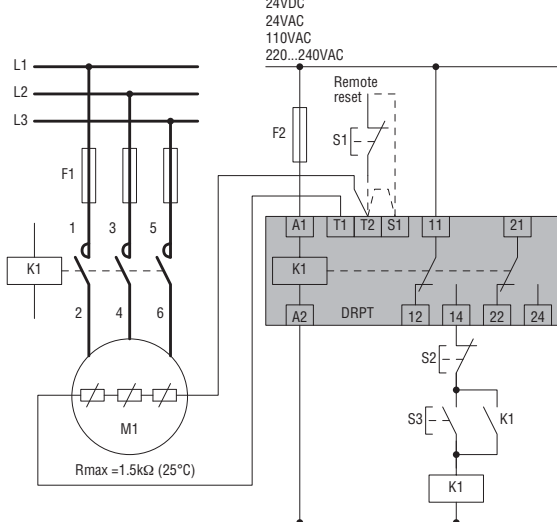
#### Electric reset

#### G228



### THERMISTOR PROTECTION RELAY

#### DRPT



|  |              |                |               |                 |                 |
|--|--------------|----------------|---------------|-----------------|-----------------|
| Phase failure/single phase sensitive hand reset              | <b>RF9</b>   | <b>RF38</b> Ⓚ  | <b>RF95</b>   | <b>RF200</b> Ⓚ  | <b>RF420</b> Ⓚ  |
| Phase failure sensitive automatic reset                      | <b>RFA9</b>  | <b>RFN38</b> Ⓚ | <b>RFA95</b>  | <b>RFN200</b> Ⓚ | <b>RFN420</b> Ⓚ |
| Non phase failure/non single phase sensitive hand reset      | <b>RFN9</b>  |                | <b>RFN95</b>  |                 |                 |
| Non phase failure/non single phase sensitive automatic reset | <b>RFNA9</b> |                | <b>RFNA95</b> |                 |                 |

### POWER CIRCUIT CHARACTERISTICS

|  |                                       |                              |         |            |                             |         |        |
|--|---------------------------------------|------------------------------|---------|------------|-----------------------------|---------|--------|
| IEC rated insulation voltage Ui          | V                                     | 690                          | 690     | 690        | 1000                        | 1000    |        |
| IEC rated impulse withstand voltage Uimp | kV                                    | 8                            | 6       | 8          | 6                           | 6       |        |
| Frequency limit                          | Hz                                    | 0-400                        | 0-400   | 0-400      | 50-60                       | 50-60   |        |
| Operational range                        | from                                  | A                            | 0.09    | 0.1        | 14                          | 60      |        |
|  | to                                    | A                            | 15      | 38         | 110                         | 200     |        |
| Tripping class                           |                                       | 10A                          |         |            |                             |         |        |
| Particular characteristics               |                                       | Test button - Trip indicator |         |            |                             |         |        |
| Connection                               |                                       | Direct                       |         |            | With current transformers Ⓚ |         |        |
| Terminals                                | Type                                  | Screw and washer             |         | Yoke clamp | Screw and flat washer       |         |        |
|  | Screw                                 | M4                           | M4      | M5         | M8                          | M10     |        |
|  | Terminal width                        | mm                           | 9.8     | 12.6       | 9                           | 20      | 25     |
| Phillips                                 | n°                                    | 2                            | 2       | 2          | 13mmⓀ                       | 18mmⓀ   |        |
|  | Tightening torque for power terminals | Nm                           | 2.3     | 2...2.5    | 3.9                         | 18      | 35     |
| Maximum conductor section connectable    | AWG                                   | N°                           | 10      | 8          | 2                           | -       | -      |
|  | Flexible w/o lug                      | mm²                          | 6       | 10         | 35                          | -       | -      |
| Flexible c/w lug                         | mm²                                   | 10                           | 6       | -          | 150                         | 2 x 150 |        |
|  | Bar                                   | mm                           | -       | -          | -                           | 25 x 3  | 30 x 5 |
| Dissipation per phase                    | W                                     | 0.7-2.4                      | 0.7-2.4 | 2.0-4.2    | 0.7-2.4                     | 0.7-2.4 |        |

### AUXILIARY CIRCUIT CHARACTERISTICS

|   |                  |                  |             |                |             |             |   |
|---|------------------|------------------|-------------|----------------|-------------|-------------|---|
| Available contacts                            | NO               | n°               | 1           |                |             |             |   |
|   | NC               | n°               | 1           |                |             |             |   |
| IEC rated insulation voltage                  | V                | 690              |             |                |             |             |   |
| IEC conventional free air thermal current Ith | A                | 10               |             |                |             |             |   |
| Terminals with screw and washer               | Screw            | M3.5             |             |                |             |             |   |
|   | Terminal width   | mm               | 8           |                |             |             |   |
|   | Phillips         | n°               | 1           | 2              | 1           | 2           | 2 |
| Maximum conductor section connectable         | Flexible w/o lug | mm²              | 2.5         |                |             |             |   |
|   | Flexible c/w lug | mm²              | 2.5         |                |             |             |   |
| Tightening torque for auxiliary terminals     | Nm               | 1                | 0.8...1     | 1              | 0.8...1     | 0.8...1     |   |
|   | lbft             | 0.74             | 0.59...0.74 | 0.74           | 0.59...0.74 | 0.59...0.74 |   |
| UL/CSA and IEC/EN 60947-5-1 designation       |                  | B600 - P600<br>Ⓚ | B600-R300   | B600-P600<br>Ⓚ | B600-R300   | B600-R300   |   |

### AMBIENT CONDITIONS

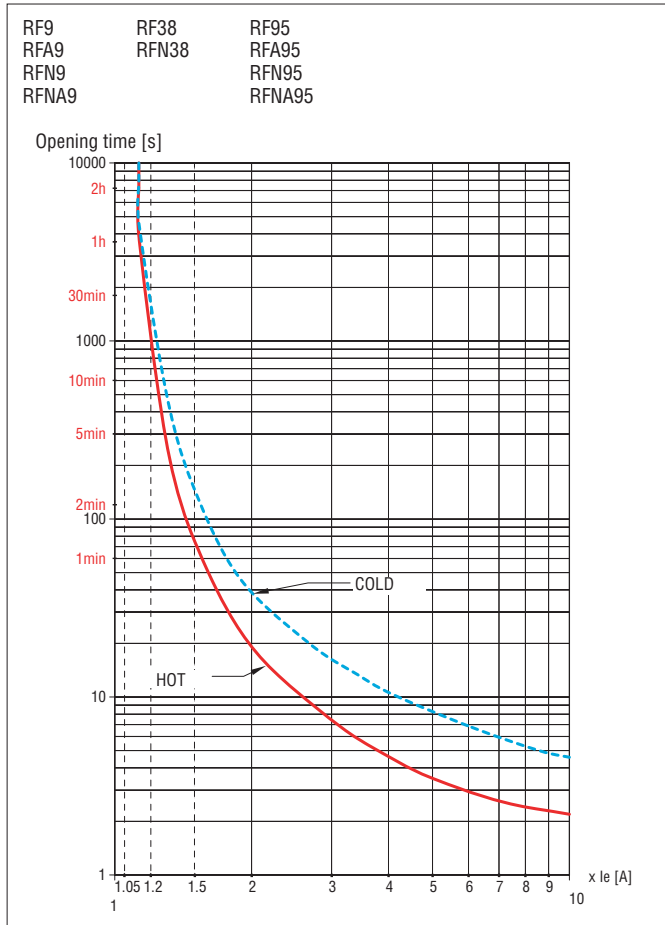
|                          |           |                            |           |           |           |           |
|--------------------------|-----------|----------------------------|-----------|-----------|-----------|-----------|
| Operating temperatureo   | °C        | -20...+55                  | -25...+60 | -20...+55 | -25...+60 | -25...+60 |
| Storage temperature      | °C        | -55...+70                  | -50...+70 | -55...+70 | -50...+70 | -50...+70 |
| Compensation temperature | °C        | -15...+55                  | -20...+60 | -15...+55 | -20...+60 | -20...+60 |
| Maximum altitude         | m         | 3000                       |           |           |           |           |
| Operation position       | Normal    | On vertical plane          |           |           |           |           |
|                          | Allowable | ±30°                       |           |           |           |           |
| Mounting                 |           | On contactor or separately |           |           |           |           |

- Ⓚ With manual and automatic resetting.
- Ⓚ For currents higher than 420A, consult Customer Service for information; see contact details on inside front cover.
- Ⓚ Standard supplied.
- Ⓚ Metric wrench/spanner.
- Ⓚ C600-R300 for automatic reset type.

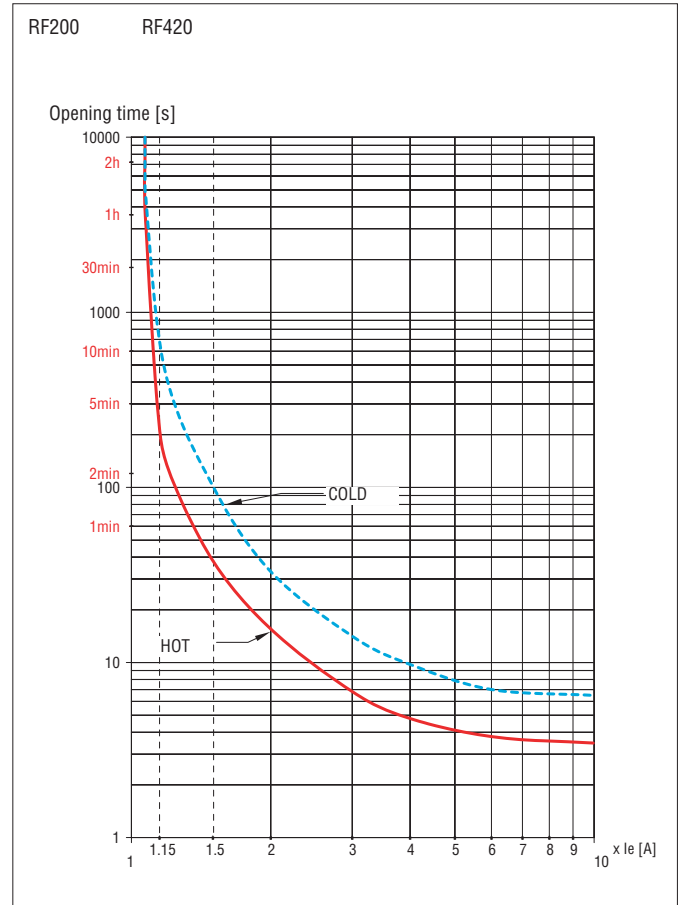
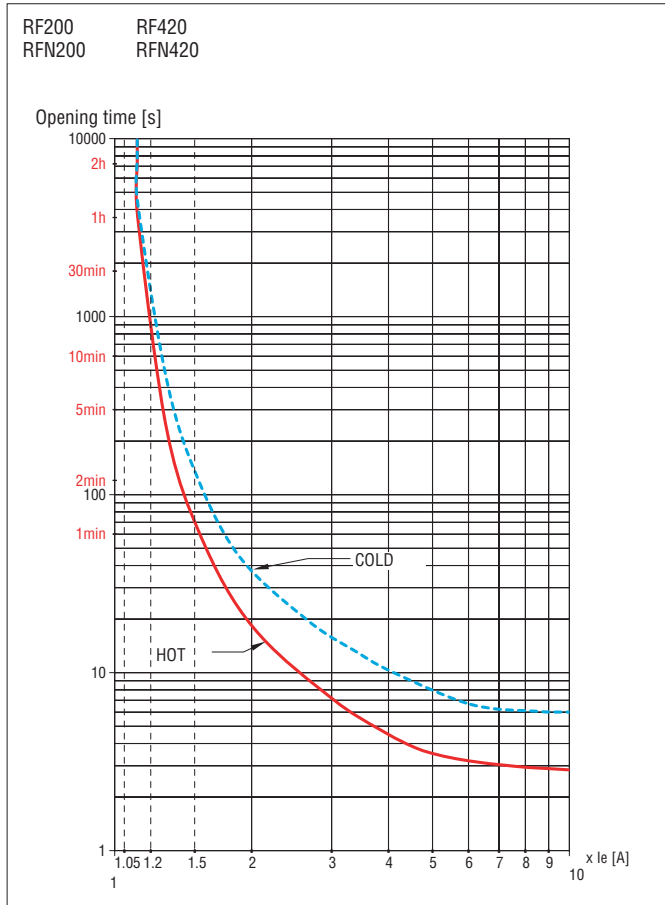
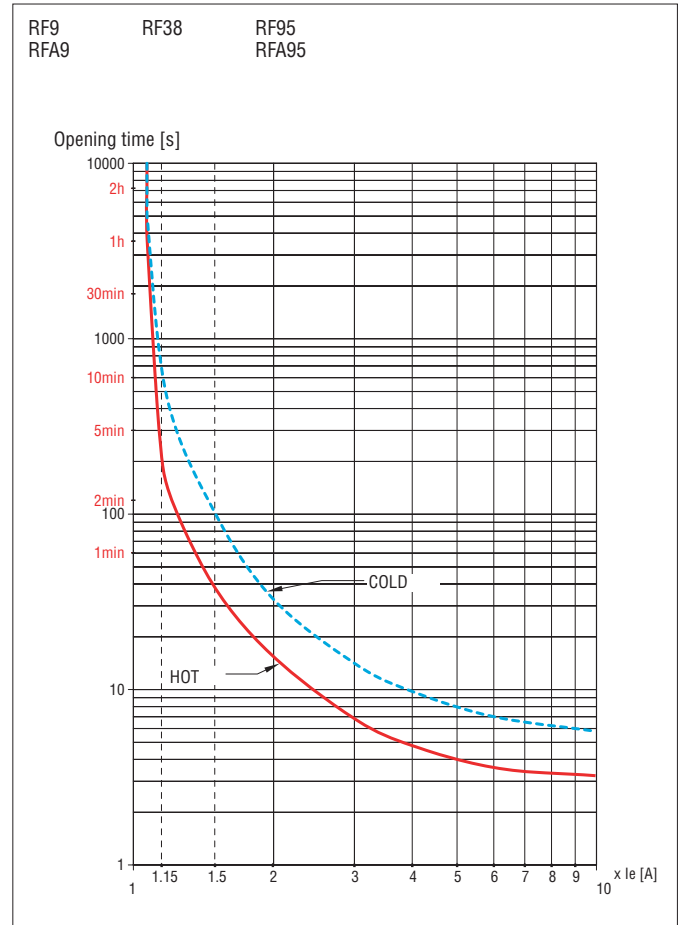


### TRIP CHARACTERISTIC FOR RF THERMAL OVERLOAD RELAYS (AVERAGE TIME)

Three-phase balanced operation



Two-phase operation (phase failure/single phase)



Tripping times can have a  $\pm 20\%$  deviation with respect to the average tripping curve values above.