

# Overloads Relays

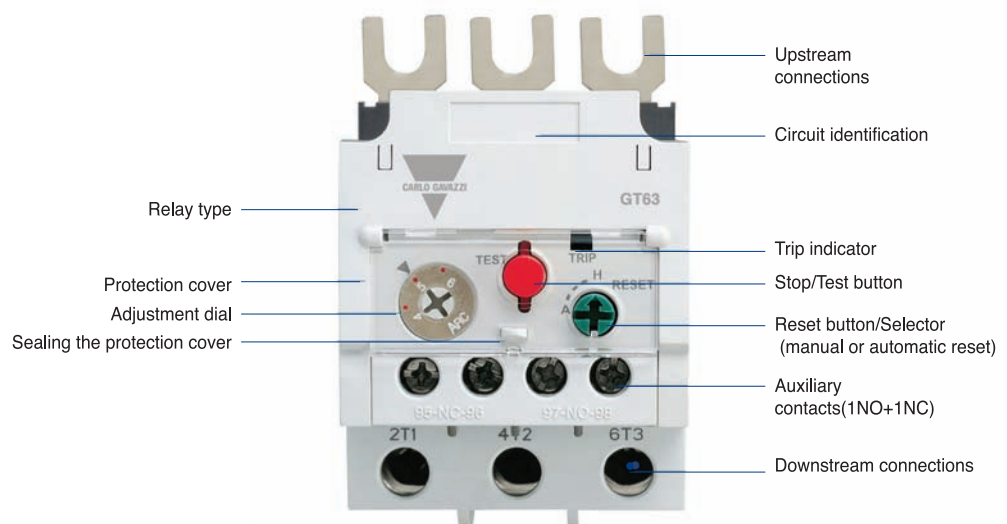
## General Descriptions

Type GT, bimetal-style, overload relays are designed to protect AC circuits and motors against overloads, phase failure, long starting times and prolonged stalling of the motor.

Two versions are available according to the protection function and trip class as below.

1. Differential: 3pole-3bimetal(heater) and trip class 10
2. Differential: 3pole-3bimetal(heater) and trip class 20

## Configuration of the Front



| GT32 | GT63 | GT95 |
|------|------|------|
|------|------|------|



# Overloads Relays

## Environment and Auxiliary Circuit

| Environment   |                                     |                                  |                                  |                          |
|---|-------------------------------------|----------------------------------|----------------------------------|--------------------------|
| Standards   |                                     | IEC/EN 60947-1, IEC/EN 60947-4-1 | IEC/EN 60947-1, IEC/EN 60947-4-1 |                          |
| Certifications  |                                     | CE, CSA, UL                      | CE, CSA, UL                      |                          |
| Rated operation voltage                                   |                                     | Max. 690V                        | Max. 690V                        |                          |
| Rated insulation voltage                                  |                                     | 690V                             | 690V                             |                          |
| Rated frequency   |                                     | 50/60Hz                          | 50/60Hz                          |                          |
| Degree of protection (Conforming to IEC 60 529)           |                                     | IP 20                            | IP 20                            |                          |
| Ambient air temperature                                   | Storage                             | -55 ~ +80° C                     | -55 ~ +80° C                     |                          |
|   | Operation                           | -5 ~ +60° C                      | -5 ~ +60° C                      |                          |
| Mounting position   |                                     | Vertical plane                   | Vertical plane                   |                          |
| Shock resistance (Conforming to IEC 68-2-7)               |                                     | 15gn - 11ms                      | 15gn - 11ms                      |                          |
| Vibration resistance (Conforming to IEC68-2-6)            |                                     | 6G                               | 6G                               |                          |
| Insulation strength (Conforming to IEC 255-5)             |                                     | 6kV                              | 6kV                              |                          |
| Rated impulse withstand voltage (Conforming to IEC 801-5) |                                     | 6kV                              | 6kV                              |                          |
| Auxiliary contacts characteristics                        |                                     |                                  |                                  |                          |
| Composition   |                                     | 1a1b (1NO +1NC)                  | 1NO+1NC                          |                          |
| Rated thermal current                                     |                                     | 5A                               | 5A                               |                          |
| Rated operation current                                   | AC15 duty<br>(C600)                 | 120V                             | 1.5A                             | 2.5A                     |
|   |                                     | 240V                             | 0.75A                            | 2A                       |
|   |                                     | 380V                             | 0.47A                            | 0.47A                    |
|   |                                     | 480V                             | 0.375A                           | 0.375A                   |
|   |                                     | 500V                             | 0.35A                            | 0.35A                    |
|   |                                     | 600V                             | 0.3A                             | 1A                       |
|   | DC13 duty<br>(R300)                 | 120V                             | 0.22A                            | 0.28A                    |
|   |                                     | 240V                             | 0.1A                             | 0.14A                    |
|   | Connecting conductor                | Size                             | 18AWG /1 mm <sup>2</sup>         | 18AWG /1 mm <sup>2</sup> |
|   | Connection to screw clamp terminals | Type                             | 65/75°C Cu-wire                  | 65/75°C Cu-wire          |

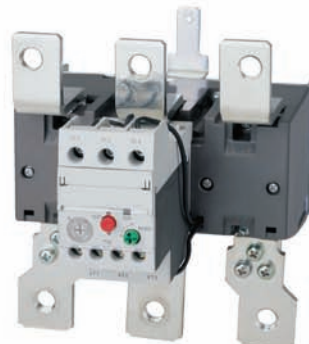
GT150



GT225



GT400



GT800



# Overloads Relay Specifications

## GT Type Thermal Overload Relays



**GT32**

| Frame size                        |                        |       |
|-----------------------------------|------------------------|-------|
| Trip class                        |                        |       |
| Type                              | Differential type      |       |
| Terminal type                     |                        |       |
| Number of poles                   |                        |       |
| Rated operational voltage (Ue)    |                        |       |
| Rated insulation voltage (Ui)     |                        |       |
| Rated impulse voltage (Uimp)      |                        |       |
| Degree of protection (IEC 60 529) |                        |       |
| Temperature compensation (° C)    |                        |       |
| Functions                         | Trip indicating        |       |
|                                   | Stop                   |       |
|                                   | Test                   |       |
|                                   | Manual/Automatic Reset |       |
| Setting range(A)                  |                        |       |
| Nominal current rating            | Wire size              |       |
|                                   | mm <sup>2</sup>        | AWG   |
| 0.14                              | 1                      | 18    |
| 0.21                              |                        |       |
| 0.33                              |                        |       |
| 0.52                              |                        |       |
| 0.82                              |                        |       |
| 1.3                               |                        |       |
| 2.1                               |                        |       |
| 3.3                               |                        |       |
| 5                                 |                        |       |
| 6.5                               |                        |       |
| 7.5                               | 1~1.5                  | 18~16 |
| 8.5                               |                        |       |
| 11                                | 1.5~2.5                | 16~14 |
| 15                                | 2.5                    | 14~12 |
| 19                                | 2.5~4                  | 12~10 |
| 21.5                              |                        |       |
| 27                                | 4~6                    | 10    |
| 30                                | 4~10                   | 10~8  |
| 34                                | 6~10                   | 10~8  |
| 42                                | 10                     | 8     |
| 54                                |                        |       |
| 65                                | 16~25                  | 6~4   |
| 74                                |                        |       |
| 83                                | 25~35                  | 4~3   |
| 90                                |                        |       |
| Applied contactors                |                        |       |
| Separate mounting unit            |                        |       |

| 40AF                        |         |
|-----------------------------|---------|
| 10                          | 20      |
| GT32                        | GT32L   |
| Screw Clamp or Lug          |         |
| 3                           |         |
| 690V                        |         |
| Up to 690V                  |         |
| 6kV                         |         |
| IP 20                       |         |
| -5~+40°C                    |         |
| ■                           |         |
| ■                           |         |
| ■                           |         |
| ■                           |         |
| 0.1~40A                     | 1~40A   |
| 0.1~0.16                    |         |
| 0.16~0.25                   |         |
| 0.25~0.4                    |         |
| 0.4~0.63                    |         |
| 0.63~1                      |         |
| 1~1.6                       | 1~1.6   |
| 1.6~2.5                     | 1.6~2.5 |
| 2.5~4                       | 2.5~4   |
| 4~6                         | 4~6     |
| 5~8                         | 5~8     |
| 6~9                         | 6~9     |
| 7~10                        | 7~10    |
| 9~13                        | 9~13    |
| 12~18                       | 12~18   |
| 16~22                       | 16~22   |
| 18~25                       | 18~25   |
| 22~32                       | 22~32   |
| -                           | -       |
| 28~40                       | 28~40   |
| CC9, CC12, CC18, CC32, CC40 |         |
| GUZ32                       |         |



# Overloads Relay Specifications

## GT Type Thermal Overload Relays

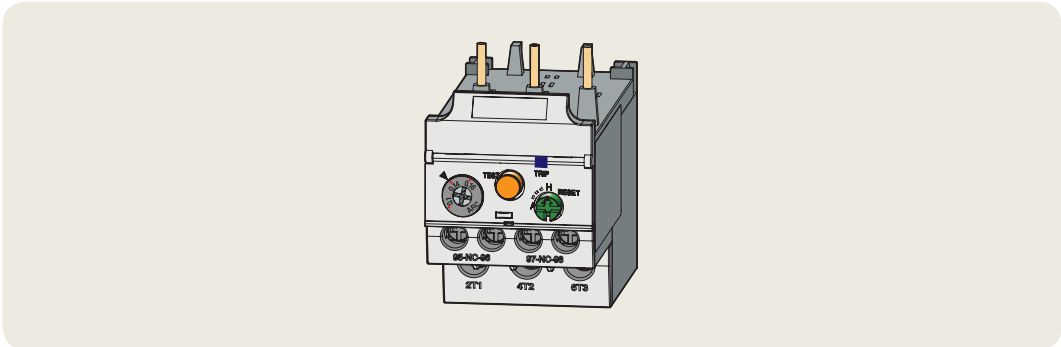
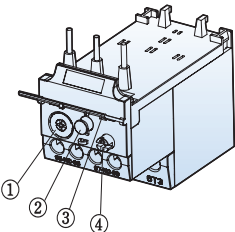


| Frame size                        |                        |          |
|-----------------------------------|------------------------|----------|
| Trip class                        |                        |          |
| Type                              | Differential type      |          |
| Terminal type                     |                        |          |
| Number of poles                   |                        |          |
| Rated operational voltage (Ue)    |                        |          |
| Rated insulation voltage (Ui)     |                        |          |
| Rated impulse voltage (Uimp)      |                        |          |
| Degree of protection (IEC 60 529) |                        |          |
| Temperature compensation (° C)    |                        |          |
| Functions                         | Trip indicating        |          |
|                                   | Stop                   |          |
|                                   | Test                   |          |
|                                   | Manual/Automatic Reset |          |
| Setting range(A)                  |                        |          |
| Nominal current rating            | Wire size              |          |
|                                   | mm <sup>2</sup>        | AWG      |
| 42                                | 10                     | 8        |
| 55                                | 16                     | 6        |
| 65                                | 25                     | 4        |
| 74                                | 25                     | 4        |
| 80                                | 35                     | 3        |
| 93                                | 35                     | 2        |
| 107                               | 50                     | 1        |
| 113                               | 50                     | 1        |
| 130                               | 50                     | 0        |
| 130                               | 70                     | 00       |
| 153                               | 95                     | 000      |
| 200                               | 120                    | 250      |
| 265                               | 185                    | 350      |
| 350                               | 240                    | 500      |
| 515                               | 185 × 2n               | 350 × 2n |
| 660                               | 240 × 2n               | 300 × 3n |
| Applied contactors                |                        |          |
| Separate mounting unit            |                        |          |

| 150AF              |         |
|--------------------|---------|
| 10                 | 20      |
| GT150              | GT150L  |
| Screw Clamp or Lug |         |
| 3                  |         |
| 690V               |         |
| 690V               |         |
| 6kV                |         |
| IP 20              |         |
| -5~+40°C           |         |
| ■                  |         |
| ■                  |         |
| ■                  |         |
| ■                  |         |
| 34~150A            | 34~150A |
| 34~50              |         |
| 45~65              |         |
| 54~75              |         |
| 63~85              |         |
| -                  |         |
| 80~105             |         |
| -                  |         |
| 95~130             |         |
| 110~150            |         |
| CC130, CC150       |         |
| GUZ150             |         |



# Overloads Relay Operation

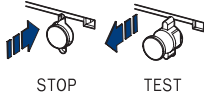


### 1. Adjustment dial



Before adjusting the dial open the protection cover.  
Current setting can be done easily by using (+) or (-) driver.  
Do not rotate the dial out of the setting range.

### 2. Stop/Test button



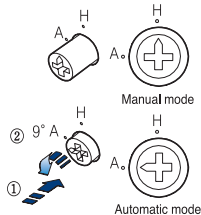
STOP function is executed by pushing the button, which causes the next sequence.  
In case of operation test pull this button.

### 3. Trip indicator



If relay is tripped it comes out.

### 4. Reset button/Selector



Using a driver the reset mode can be set.  
In case of Manual mode(H) push the button to reset the relay.  
To change to Automatic mode(A) from Manual mode push the button and rotate as shown in the fig.

### 5. Auxiliary contact operation

| Terminal no. | Normal | STOP | TEST/TRIP | RESET |
|--------------|--------|------|-----------|-------|
| NC 95-96     |        |      |           |       |
| NO 97-98     |        |      |           |       |

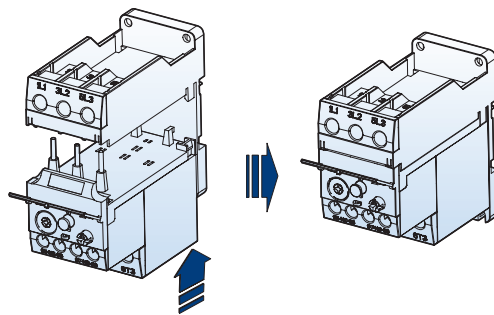
# Overloads Relay Operation

## Separate Mounting Units

These accessories are used to mount the relays separately from contactors. If a relay is combined with a unit, it can be mounted on DIN rail or panel by fixing screws.



| Relay          | Unit             |        |
|----------------|------------------|--------|
|                | Type             | Weight |
| GT32S          | GUZ32S           | 38g    |
| GT63S, GT63L   | GUZ63S, GUZ63L   | 134g   |
| GT95S, GT95L   | GUZ95S, GUZ95L   | 230g   |
| GT150S, GT150L | GUZ150S, GUZ150L | 284g   |



## Terminal Cover Units for Overload Relays



| Relay | Unit type | Remarks        |
|-------|-----------|----------------|
| GT225 | APT-225   | 2 pcs included |
| GT400 | APT-400   |                |
| GT800 | APT-600   |                |



# Accessories for Overload Relay

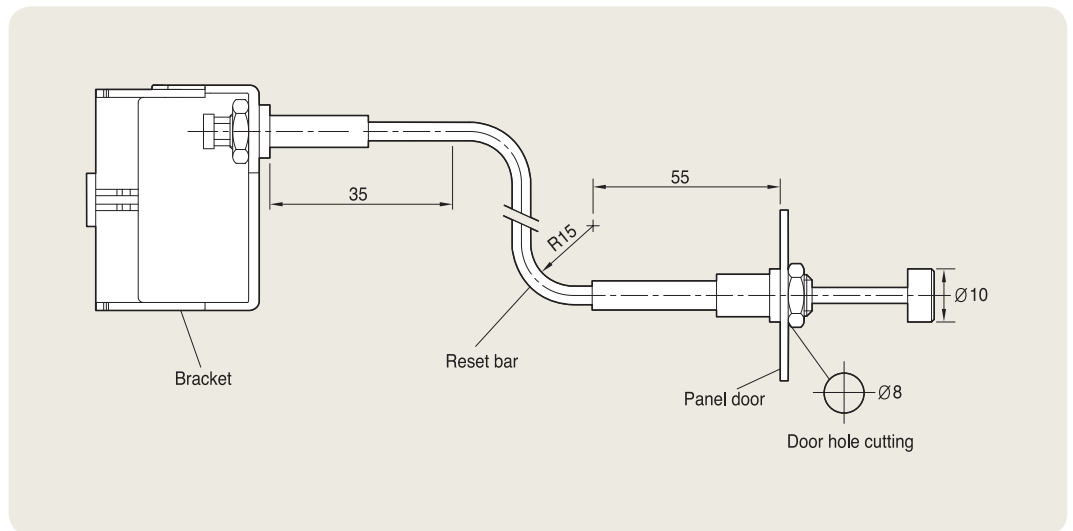
## Remote Reset Units

These accessories are used to reset the relays on the panel door.



| Type    | Cable length (L) |
|---------|------------------|
| GTRR-16 | 400mm /16 in     |
| GTRR-20 | 500mm /20 in     |
| GTRR-24 | 600mm /24 in     |

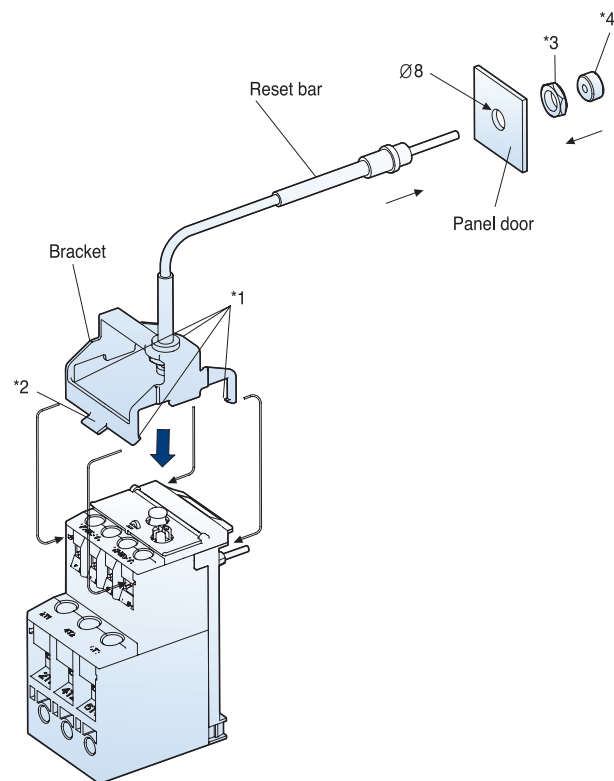
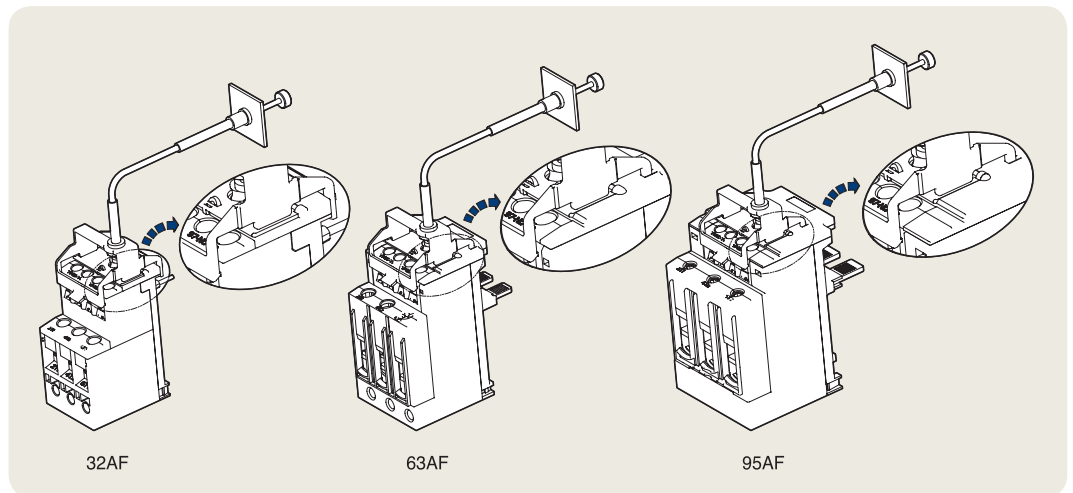
1. Make the reset bar straight at least 55mm from the panel door and 35mm from the bracket.
2. The bending radius of the flexible reset bar should not be less than 15mm.



# Accessories for Overload Relay

## Installation

1. Fit the bracket with the relay as indicated(\*1) below.
2. Separate Nut(\*3) and Head cap(\*4) from the reset bar first.  
Insert the reset bar into the panel hole and then fix it with the Nut and Head.
3. To separate the bracket from the relay lift the \*2 part as shown in the fig.



# Overload Relay Ordering Types

## Bimetallic Overload for 32AF Contactors

Direct mounting type



GT32

| Setting Range (A) | Ordering Type Differential |                         | Contactor                                   | Separate mounting unit |
|-------------------|----------------------------|-------------------------|---|------------------------|
|                   | Class 10 Screw Terminal    | Class 20 Screw Terminal |   |                        |
| 0.1~0.16          | GT32S0.16A                 | GT32LS0.16A             | CC9<br>CC12<br>CC18<br>CC22<br>CC32<br>CC40 | GUZ32S                 |
| 0.16~0.25         | GT32S0.25A                 | GT32LS0.25A             |   |                        |
| 0.25~0.4          | GT32S0.4A                  | GT32LS0.4A              |   |                        |
| 0.4~0.63          | GT32S0.63A                 | GT32LS0.63A             |   |                        |
| 0.63~1            | GT32S1A                    | GT32LS1A                |   |                        |
| 1~1.6             | GT32S1.6A                  | GT32LS1.6A              |   |                        |
| 1.6~2.5           | GT32S2.5A                  | GT32LS2.5A              |   |                        |
| 2.5~4             | GT32S4A                    | GT32LS4A                |   |                        |
| 4~6               | GT32S6A                    | GT32LS6A                |   |                        |
| 5~8               | GT32S8A                    | GT32LS8A                |   |                        |
| 6~9               | GT32S9A                    | GT32LS9A                |   |                        |
| 7~10              | GT32S10A                   | GT32LS10A               |   |                        |
| 9~13              | GT32S13A                   | GT32LS13A               |   |                        |
| 12~18             | GT32S18A                   | GT32LS18A               |   |                        |
| 16~22             | GT32S22A                   | GT32LS22A               |   |                        |
| 18~25             | GT32S25A                   | GT32LS25A               |   |                        |
| 22~32             | GT32S36A                   | GT32LS36A               |   |                        |
| 28~40             | GT32S40A                   | GT32LS40A               |   |                        |

# Overload Relay Ordering Types

## Bimetallic Overload for 65AF Contactors

Direct mounting type



GT63

| Setting Range (A) | Ordering Type Differential Class 10 |              | Ordering Type Differential Class 20 |              | Contactor    | Separate mounting unit |
|-------------------|-------------------------------------|--------------|-------------------------------------|--------------|--------------|------------------------|
|                   | Screw Terminal                      | Lug Terminal | Screw Terminal                      | Lug Terminal |              |                        |
| 4~6               | GT63S6A                             | GT63L6A      | GT63LS6A                            | GT63LL6A     | CC50<br>CC65 | GUZ63S<br>GUZ63L       |
| 5~8               | GT63S8A                             | GT63L8A      | GT63LS8A                            | GT63LL8A     |              |                        |
| 6~9               | GT63S9A                             | GT63L9A      | GT63LS9A                            | GT63LL9A     |              |                        |
| 7~10              | GT63S10A                            | GT63L10A     | GT63LS10A                           | GT63LL10A    |              |                        |
| 9~13              | GT63S13A                            | GT63L13A     | GT63LS13A                           | GT63LL13A    |              |                        |
| 12~18             | GT63S18A                            | GT63L18A     | GT63LS18A                           | GT63LL18A    |              |                        |
| 16~22             | GT63S22A                            | GT63L22A     | GT63LS22A                           | GT63LL22A    |              |                        |
| 18~25             | GT63S25A                            | GT63L25A     | GT63LS25A                           | GT63LL25A    |              |                        |
| 24~36             | GT63S36A                            | GT63L36A     | GT63LS36A                           | GT63LL36A    |              |                        |
| 28~40             | GT63S40A                            | GT63L40A     | GT63LS40A                           | GT63LL40A    |              |                        |
| 34~50             | GT63S50A                            | GT63L50A     | GT63LS50A                           | GT63LL50A    |              |                        |
| 45~65             | GT63S65A                            | GT63L65A     | GT63LS65A                           | GT63LL65A    |              |                        |

Note: overload terminal type must match contactors terminal type.

## Bimetallic Overload for 100AF Contactors



GT100

| Setting Range (A) | Ordering Type Differential Class 10 |              | Ordering Type Differential Class 20 |              | Contactor             | Separate mounting unit |
|-------------------|-------------------------------------|--------------|-------------------------------------|--------------|-----------------------|------------------------|
|                   | Screw Terminal                      | Lug Terminal | Screw Terminal                      | Lug Terminal |                       |                        |
| 7~10              | GT95S10A                            | GT95L10A     | GT95LS10A                           | GT95LL10A    | CC75<br>CC85<br>CC100 | GUZ95S<br>GUZ95L       |
| 9~13              | GT95S13A                            | GT95L13A     | GT95LS13A                           | GT95LL13A    |                       |                        |
| 12~18             | GT95S18A                            | GT95L18A     | GT95LS18A                           | GT95LL18A    |                       |                        |
| 16~22             | GT95S22A                            | GT95L22A     | GT95LS22A                           | GT95LL22A    |                       |                        |
| 18~25             | GT95S25A                            | GT95L25A     | GT95LS25A                           | GT95LL25A    |                       |                        |
| 24~36             | GT95S36A                            | GT95L36A     | GT95LS36A                           | GT95LL36A    |                       |                        |
| 28~40             | GT95S40A                            | GT95L40A     | GT95LS40A                           | GT95LL40A    |                       |                        |
| 34~50             | GT95S50A                            | GT95L50A     | GT95LS50A                           | GT95LL50A    |                       |                        |
| 45~65             | GT95S65A                            | GT95L65A     | GT95LS65A                           | GT95LL65A    |                       |                        |
| 54~75             | GT95S75A                            | GT95L75A     | GT95LS75A                           | GT95LL75A    |                       |                        |
| 63~85             | GT95S85A                            | GT95L85A     | GT95LS85A                           | GT95LL85A    |                       |                        |
| 70~98             | GT95S98A                            | GT95L98A     | GT95LS98A                           | GT95LL98A    |                       |                        |
| 80~100            | GT95S100A                           | GT95L100A    | GT95LS100A                          | GT95LL100A   |                       |                        |

Note: overload terminal type must match contactors terminal type.

# Overload Relay Ordering Types

## Bimetallic Overload for 150AF Contactors



GT150

| Setting Range (A) | Ordering Type Differential Class 10 |              | Ordering Type Differential Class 20 |              | Contactor      | Separate mounting unit |
|-------------------|-------------------------------------|--------------|-------------------------------------|--------------|----------------|------------------------|
|                   | Screw Terminal                      | Lug Terminal | Screw Terminal                      | Lug Terminal |                |                        |
| 34~50             | GT150S50A                           | GT150L50A    | GT150LS50A                          | GT150LL50A   | CC130<br>CC150 | GUZ150S                |
| 45~65             | GT150S65A                           | GT150L65A    | GT150LS65A                          | GT150LL65A   |                |                        |
| 54~75             | GT150S75A                           | GT150L75A    | GT150LS75A                          | GT150LL75A   |                |                        |
| 63~85             | GT150S85A                           | GT150L85A    | GT150LS85A                          | GT150LL85A   |                |                        |
| 80~105            | GT150S105A                          | GT150L105A   | GT150LS105A                         | GT150LL105A  |                |                        |
| 95~130            | GT150S130A                          | GT150L130A   | GT150LS130A                         | GT150LL130A  |                |                        |
| 110~150           | GT150S150A                          | GT150L150A   | GT150LS150A                         | GT150LL150A  |                |                        |

Note: overload terminal type must match contactors terminal type.

## Bimetallic Overload for 225AF Contactors



GT225

| Setting Range (A) | Ordering Type Differential |             | Contactor      |
|-------------------|----------------------------|-------------|----------------|
|                   | Class 10                   | Class 20    |                |
|                   | Screw Terminal             |             |                |
| 65~100            | GT225S100A                 | GT225LS100A | CC185<br>CC225 |
| 85~125            | GT225S125A                 | GT225LS125A |                |
| 100~160           | GT225S160A                 | GT225LS160A |                |
| 120~185           | GT225S185A                 | GT225LS185A |                |
| 160~240           | GT225S240A                 | GT225LS240A |                |

## Bimetallic Overload for 400AF Contactors



GT400

| Setting Range (A) | Ordering Type Differential |             | Contactor               |
|-------------------|----------------------------|-------------|-------------------------|
|                   | Class 10                   | Class 20    |                         |
|                   | Screw Terminal             |             |                         |
| 85~125            | GT400S125A                 | GT400LS125A | CC265<br>CC330<br>CC400 |
| 100~160           | GT400S160A                 | GT400LS160A |                         |
| 120~185           | GT400S185A                 | GT400LS185A |                         |
| 160~240           | GT400S240A                 | GT400LS240A |                         |
| 200~330           | GT400S330A                 | GT400LS330A |                         |
| 260~400           | GT400S400A                 | GT400LS400A |                         |

## Bimetallic Overload for 800AF Contactors



GT800

| Setting Range (A) | Ordering Type Differential |             | Contactor |
|-------------------|----------------------------|-------------|-----------|
|                   | Class 10                   | Class 20    |           |
|                   | Screw Terminal             |             |           |
| 200~330           | GT800S330A                 | GT800LS330A | CC500     |
| 260~400           | GT800S400A                 | GT800LS400A | CC630     |
| 400~630           | GT800S630A                 | GT800LS630A | CC800     |
| 520~800           | GT800S800A                 | GT800LS800A |           |

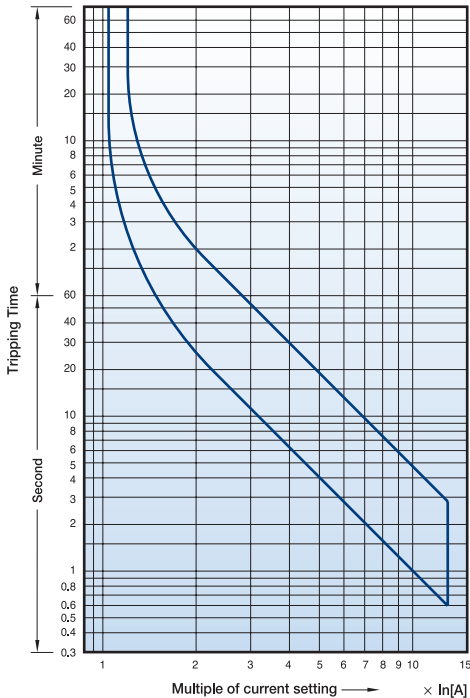
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# Overload Relay Trip Curves

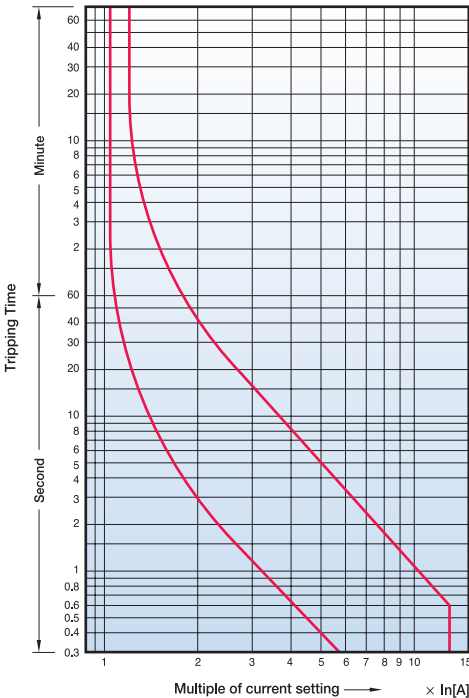
## Class 10A, 40AF

GT32S

Cold starting



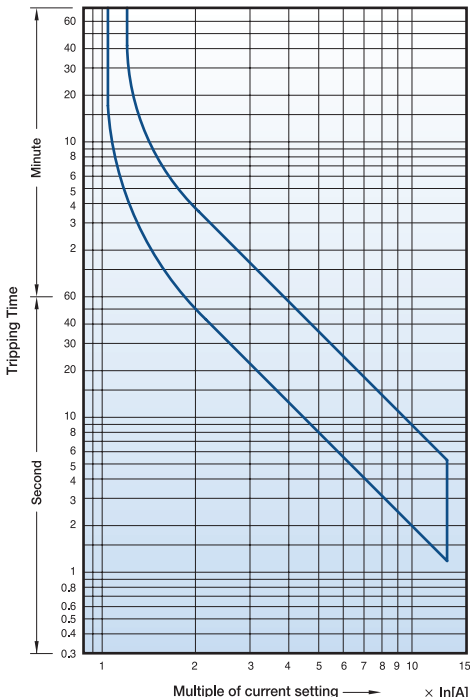
Hot starting



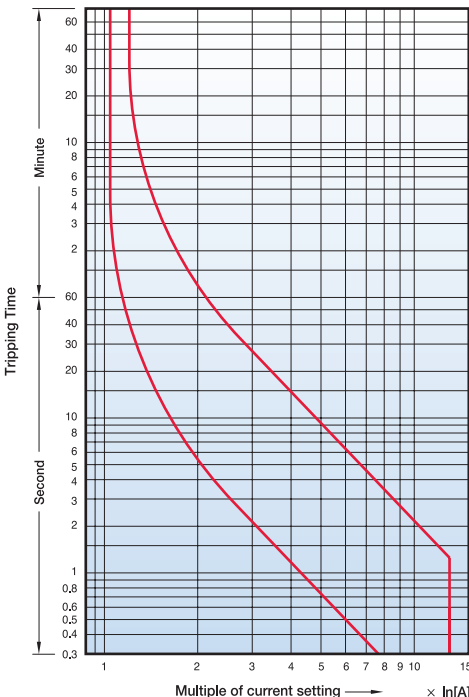
## Class 20, 40AF

GT32LS

Cold starting



Hot starting



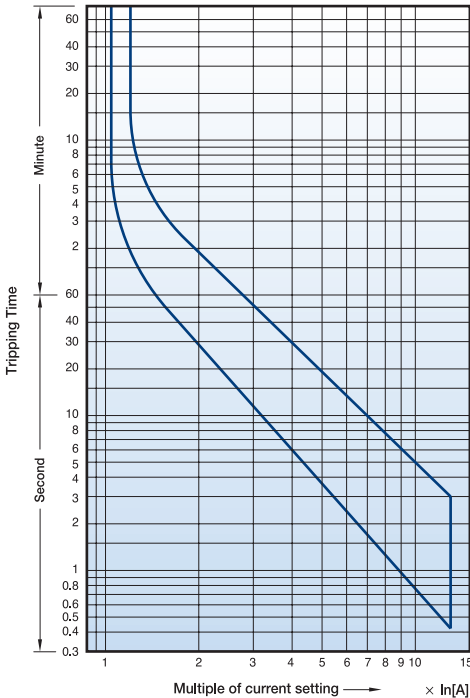
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# Overload Relay Trip Curves

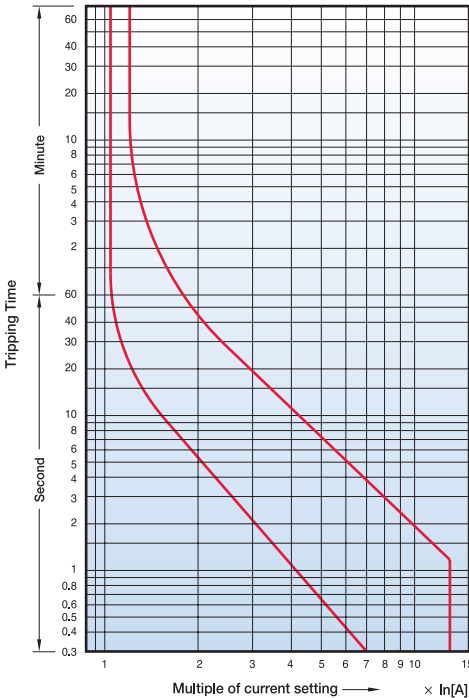
## Class 10A, 65AF

- GT63S
- GT63L

Cold starting



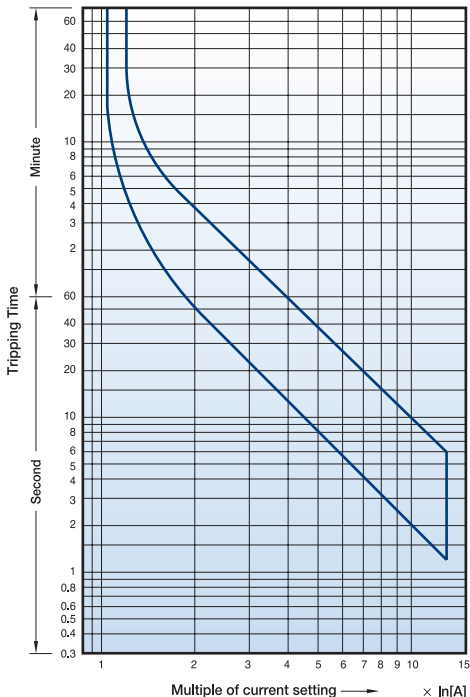
Hot starting



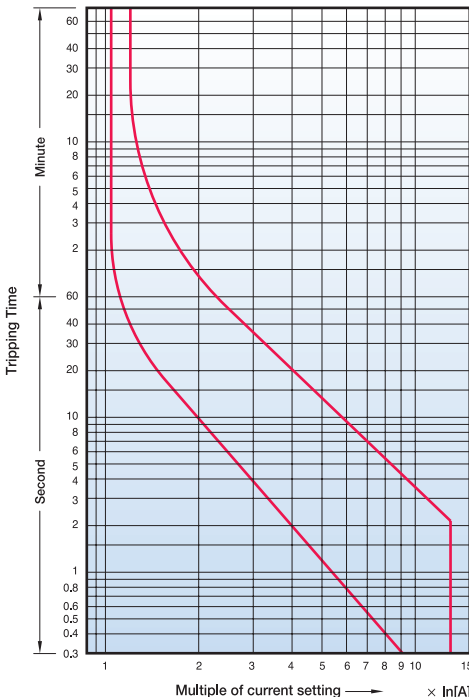
## Class 20, 65AF

- GT63LS
- GT63LL

Cold starting



Hot starting

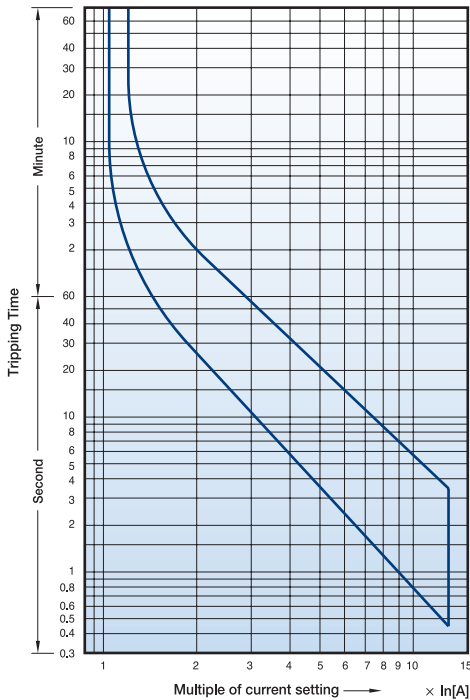


# Overload Relay Trip Curves

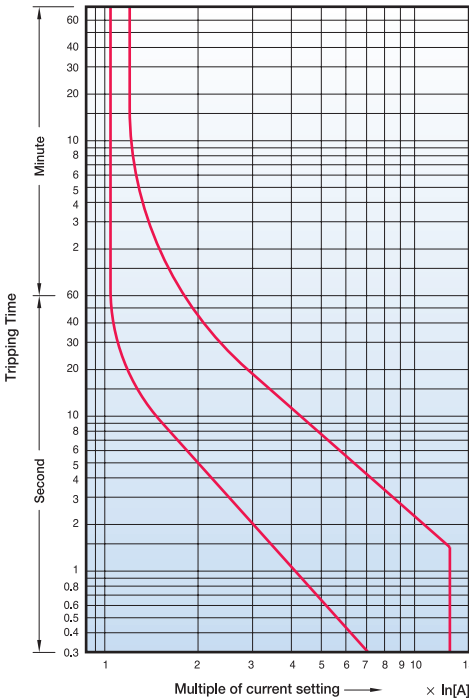
## Class 10A, 100AF

- GT95S
- GT95L

Cold starting



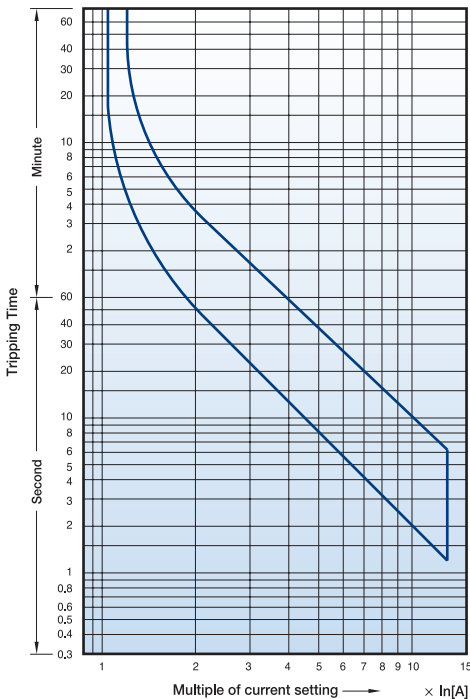
Hot starting



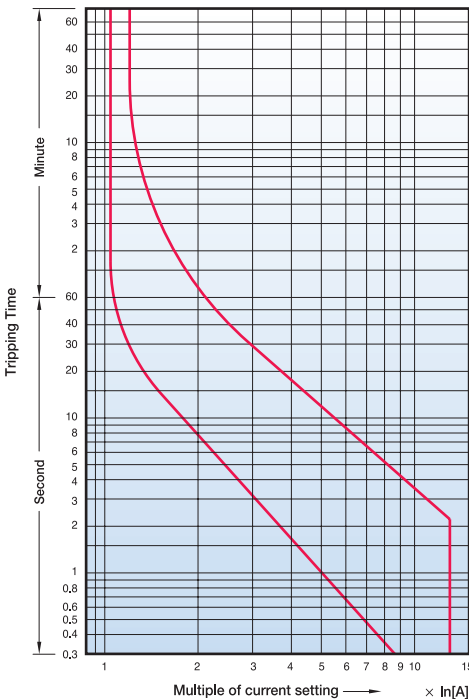
## Class 20, 100AF

- GT95LS
- GT95LL

Cold starting



Hot starting



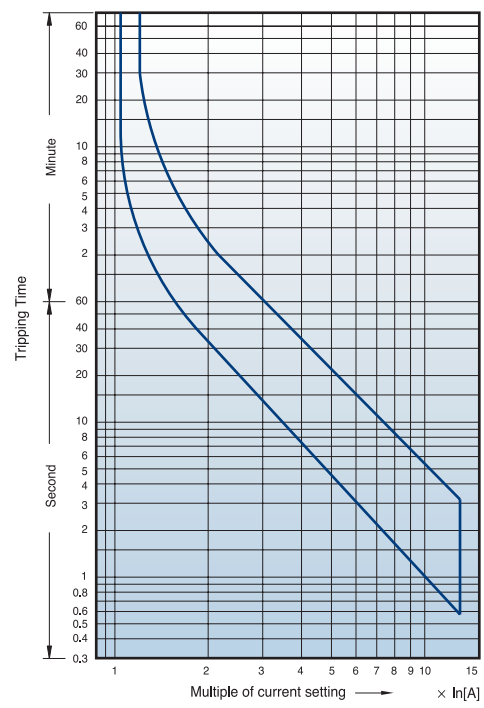


# Overload Relay Trip Curves

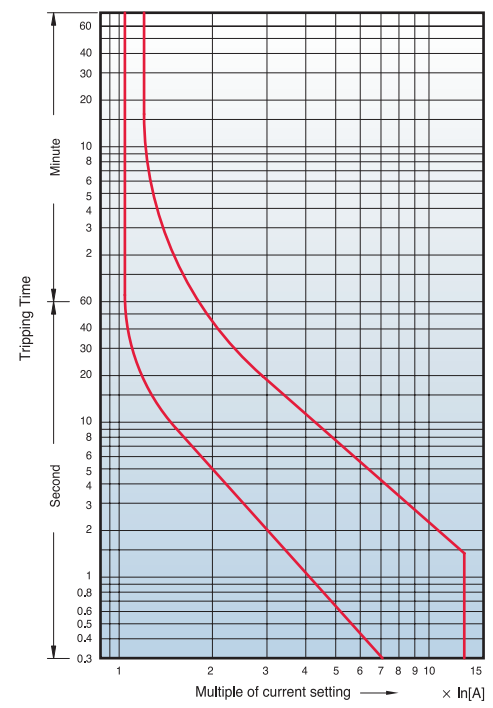
## Class 10A, 150AF

- GT150S
- GT150L

Cold starting



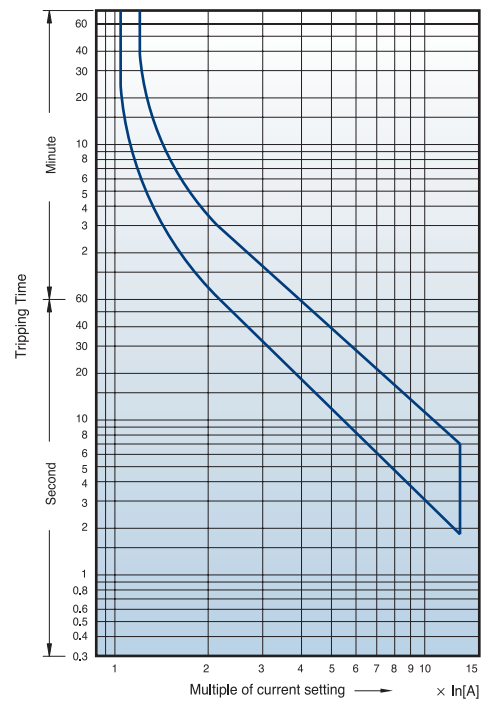
Hot starting



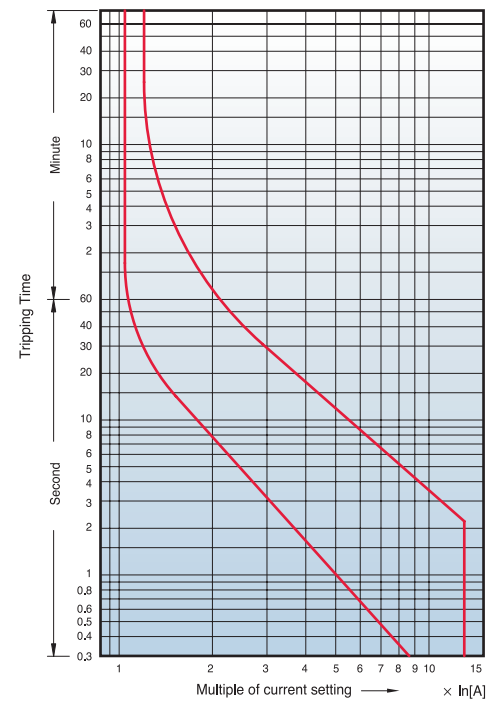
## Class 20, 150AF

- GT150LS
- GT150LL

Cold starting



Hot starting

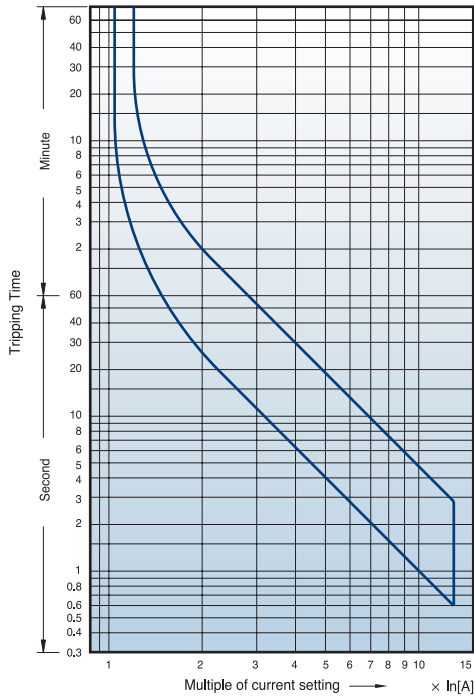


# Overload Relay Trip Curves

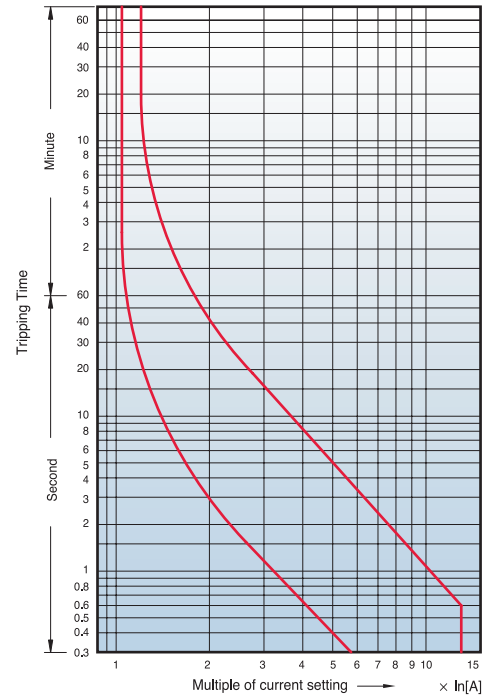
## Class 10A, 225AF

GT225S

Cold starting



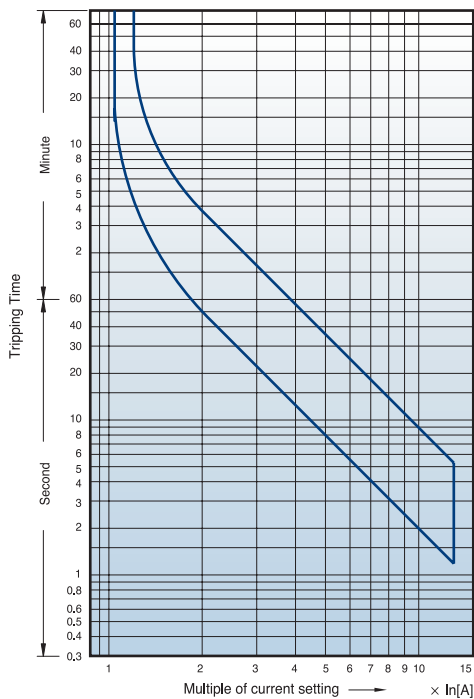
Hot starting



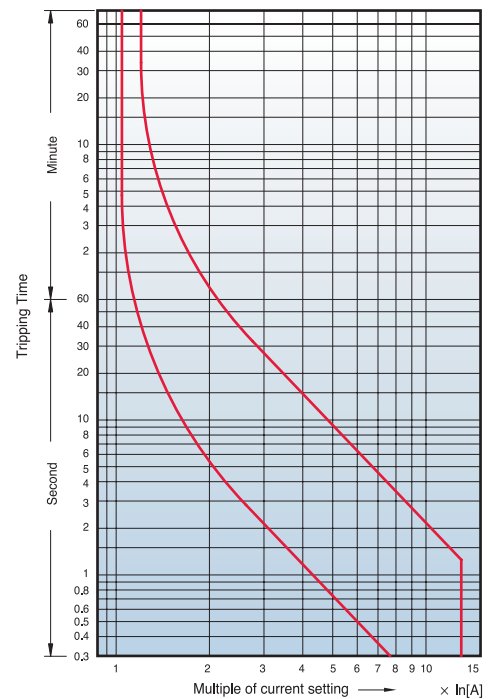
## Class 20, 225AF

GT225LS

Cold starting



Hot starting

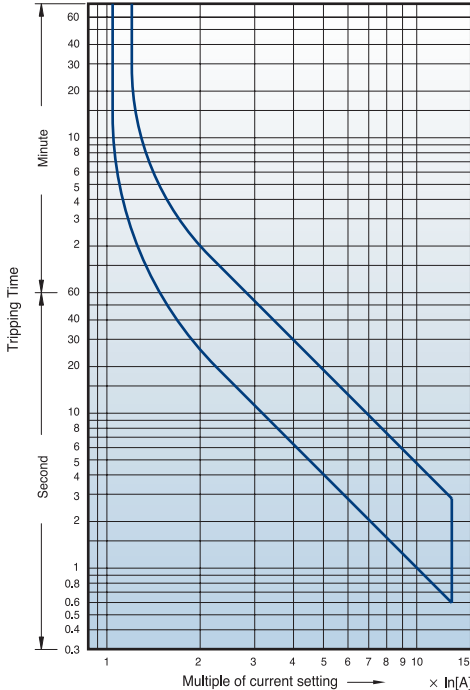


# Overload Relay Trip Curves

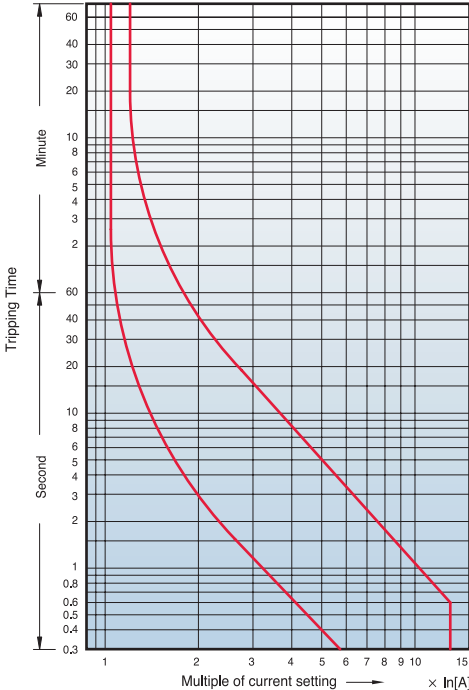
## Class 10A, 400AF

GT400S

Cold starting



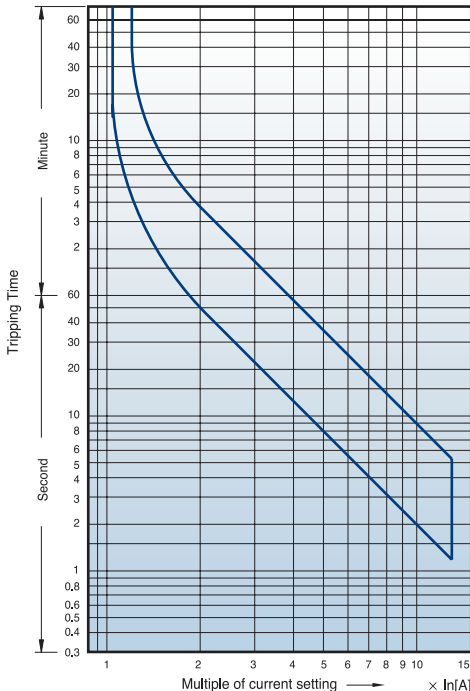
Hot starting



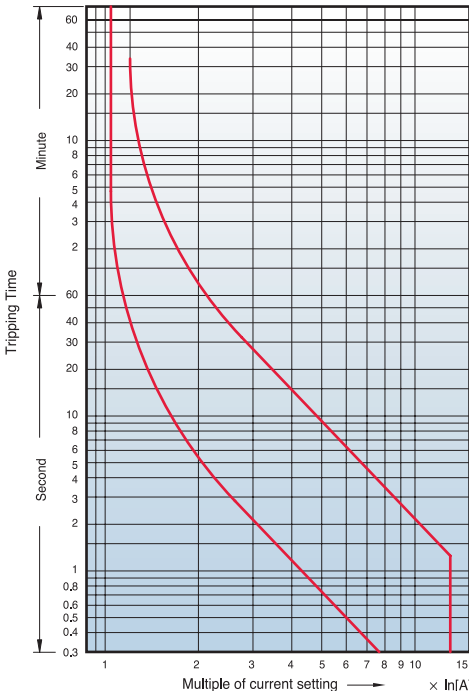
## Class 20, 400AF

GT400LS

Cold starting



Hot starting

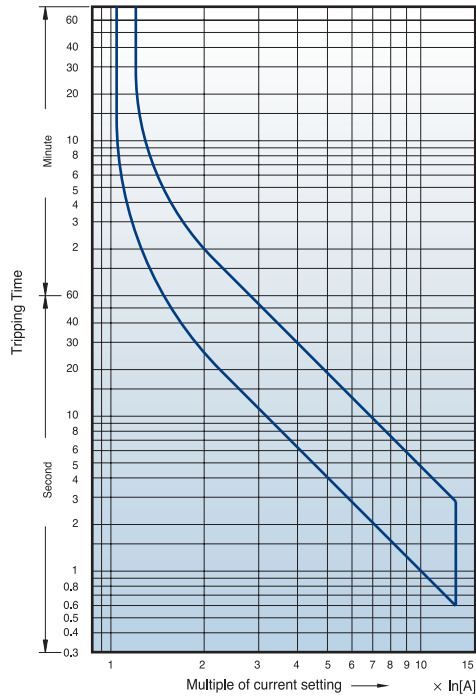


# Overload Relay Trip Curves

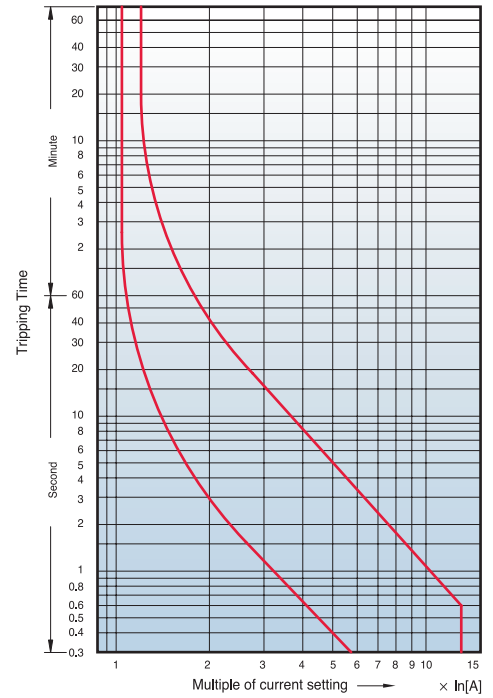
## Class 10A, 800AF

GT800S

Cold starting



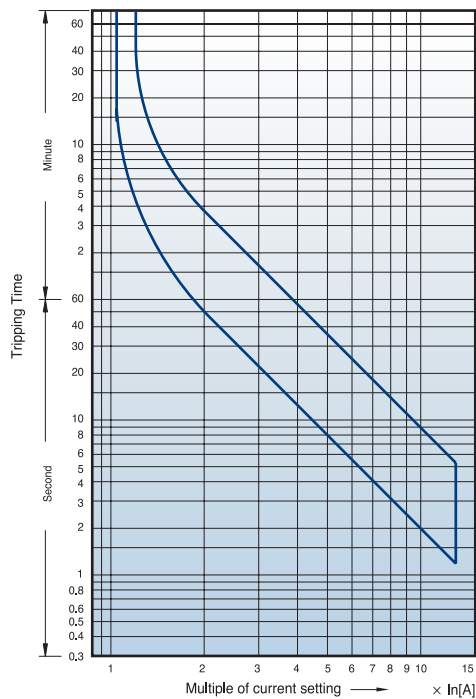
Hot starting



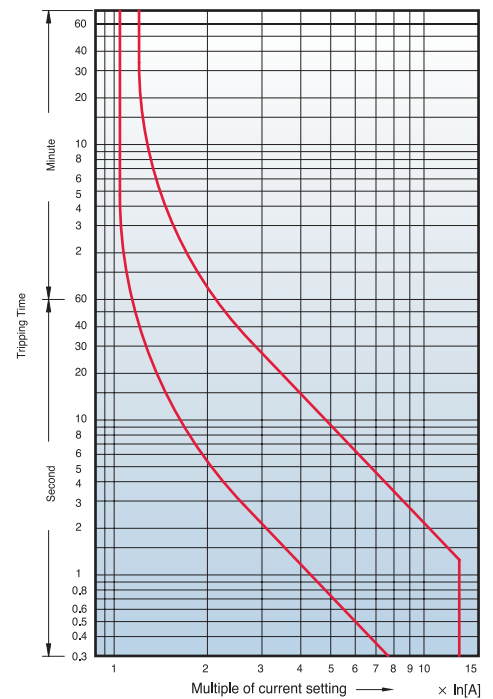
## Class 20, 800AF

GT800LS

Cold starting



Hot starting



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