

Derwent
Top 100
Global
Innovator
2020

Metasol *Meta Solution*

MC/TOR

Contactors and Overload Relays



LS *ELECTRIC*

Metasol Contactors and overload relays

New Generation of Contactors From LS



Designed to show superior technology: Metasol series

Sealed structure has improved its safety features so that no arc flash is exposed. In order to emphasize its durability as an industrial device, Metasol series adopt simple design form and sophisticated shape applying diamond cut concepts on product surface.



Contents

| | |
|--------------------------------------------------------|-----|
| Table of specifications | 10 |
| Type numbering system | 20 |
| Environment | 23 |
| Connections | 24 |
| Control coil characteristics | 26 |
| Marking | 30 |
| Internal structure | 31 |
| 3-pole Contactors | 32 |
| Motor starters | 56 |
| Reversing contactors | 60 |
| LED voltage monitoring contactor | 62 |
| Contactor relays | 63 |
| Latching contactors | 66 |
| 4-pole Contactors | 70 |
| Enclosed motor starters, Mold enclosure | 82 |
| Enclosed motor starters, Steel enclosure | 83 |
| Capacitor contactors | 84 |
| 2-pole AC Contactors, Definite purpose | 85 |
| 3-pole AC Contactors, Definite purpose | 86 |
| Single-pole AC Contactors, Definite purpose | 87 |
| 2-pole DC Contactors | 88 |
| Accessory | 89 |
| Overload relays | 100 |
| Overload relay specifications | 102 |
| Overload relay operation | 106 |
| Accessories for overload relay | 107 |
| Overload relay ordering types | 112 |
| Overload relay trip curves | 118 |
| Type 2 Coordination (440V) | 126 |
| Rated UL 508 combination motor controller Type-C | 131 |
| Rated UL 508 combination motor controller Type-D | 135 |
| Rated UL 508 combination motor controller Type-F | 138 |
| Ready for IE3 | 141 |
| Dimension | 142 |
| Delayed Opening Device | 178 |
| Electronic timer unit | 179 |
| Contact arrangement | 180 |
| Comparison table | 183 |
| Certifications | 189 |

Metasol Series completion



More Safe,
More Valuable



Contactors & Overload Relays



- *Advanced technology & Expert solution*
- *Offering economical solution with compact size & easy connection*
- *Ensure reliability in the system: Type II Coordination*
- *Perfect system with peripheral devices.*
- *Environment friendly product: complies with International environment standard RoHS.*
- *25 Models in 9 Frames*

Motor Starters

- Compact design for space saving
- DIN rail and screw mountable (upto 150AF)
- Overload relays directly mountable to contactors separately
- Finger-proof design
- Easy to combine with manual motor starters
- Broad range of accessories
- World class products conforming to IEC and UL standards



18AF

Contactor
MC-6a, 9a, 12a, 18a
 Rated current:
 6, 9, 12, 18A
 Rated insulation voltage:
 690V
Overload relay MT-12
 Current range: 0.1~18A
 Trip class: Class10A, 20

22AF

Contactor
MC-9b, 12b, 18b, 22b
 Rated current:
 9, 12, 18, 22A
 Rated insulation voltage:
 690V
Overload relay MT-32
 Current range: 0.1~40A
 Trip class: Class10A, 20

40AF

Contactor
MC-32a, 40a
 Rated current:
 32, 40A
 Rated insulation voltage:
 1000V
Overload relay MT-32
 Current range: 0.1~40A
 Trip class: Class10A, 20

65AF

Contactor
MC-50a, 65a
 Rated current:
 50, 65A
 Rated insulation voltage:
 1000V
Overload relay MT-63
 Current range: 4~65A
 Trip class: Class10A, 20

100AF

Contactor
MC-75a, 85a, 100a
 Rated current:
 75, 85, 100A
 Rated insulation voltage:
 1000V
Overload relay MT-95
 Current range: 7~100A
 Trip class: Class10A, 20

150AF

Contactor
MC-130a, 150a
 Rated current:
 130, 150A
 Rated insulation voltage:
 1000V
Overload relay MT-150
 Current range: 34~150A
 Trip class: Class10A, 20

MS-500a, MS-630a, MS-800a

MS-185a, MS-225a

MS-265a, MS-330a, MS-400a



225AF

400AF

800AF

225AF

Contactor
MC-185a, 225a

Rated current:
185, 225A
Rated insulation voltage:
1000V

Overload relay MT-225

Current range: 65~240A
Trip class: Class10A, 20

400AF

Contactor
MC-265a, 330a, 400a

Rated current:
265, 330, 400A
Rated insulation voltage:
1000V

Overload relay MT-400

Current range: 85~400A
Trip class: Class10A, 20

800AF

Contactor
MC-500a, 630a, 800a

Rated current:
500, 630, 800A
Rated insulation voltage:
1000V

Overload relay MT-800

Current range: 200~800A
Trip class: Class10A, 20

1260AF

Contactor
MC-1260a

Rated current:
1260A
Rated insulation voltage:
1000V

2650AF

Contactor
**MC-1400a, 1700a,
2100a. 2650a**

Rated current:
1400, 1700, 2100, 2650A
Rated insulation voltage:
1000V

MC/TOR Accessories

Perfect combination of peripheral
devices and various accessories



Offering economical solution with compact size & easy connection



Perfect system with other devices and accessories

■ One-touch connection

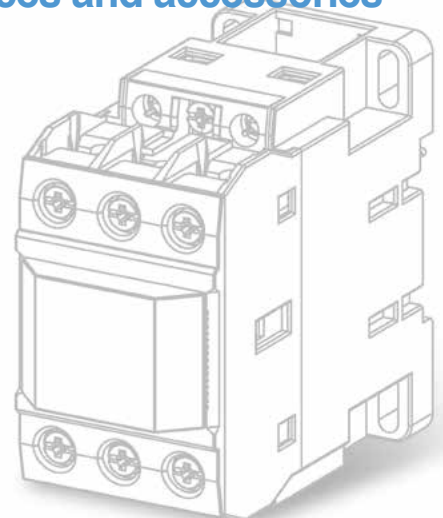
- Din Rail connection without any special tools
- Direct combine a surge unit

■ Simple wiring

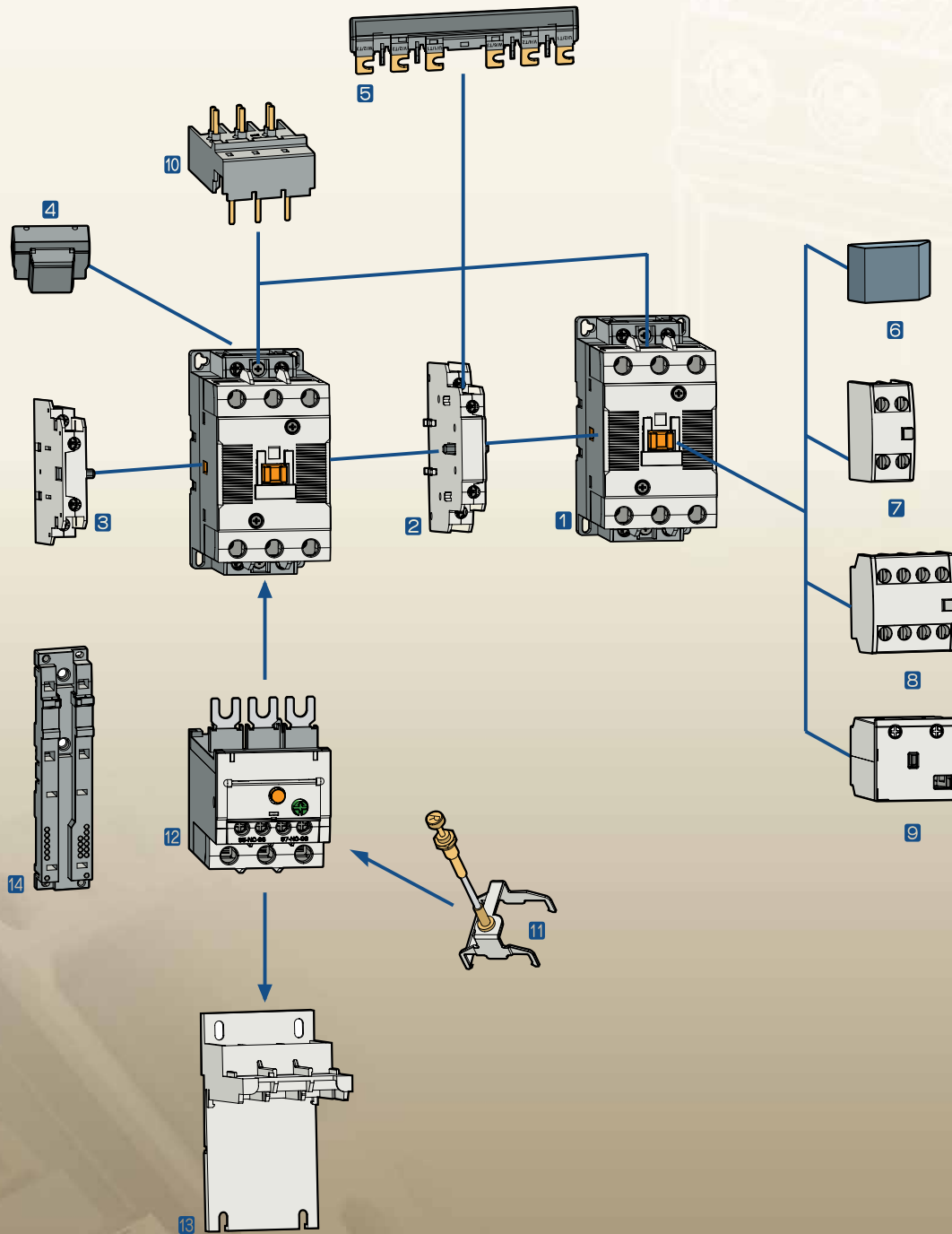
- Mounting unit, Adapter
- Reversing wire set

■ Easy Maintenance

- 4-terminal type: Easy wiring of operation coil
- Module type of Screw terminal
- Interlock unit with built-in auxiliary contacts(2NO built-in)



Advanced accessories for Metasol contactors



- | | | |
|------------------------------------------|-----------------------------------------------|-----------------------------------|
| 1 Contactor | 6 Safety cover (Option) | 10 Direct adaptor to MMS |
| 2 Interlock unit | 7 Auxiliary contact unit - front mount(2p) | 11 Remote reset unit |
| 3 Auxiliary contact unit - side mount | 8 Auxiliary contact unit - front mount(4p) | 12 Overload relay |
| 4 Surge unit | 9 Mechanical latch unit | 13 Separate mounting unit |
| 5 Wire kit | | 14 Mounting unit for use with MMS |

Table of specifications

MC type Magnetic Contactors



| Frame size | | | |
|----------------------------------------------------------|-----------------------------------------------|---------------------|----|
| Type | screws clamp terminals Lug clamp terminals | | |
| Number of poles | 3pole | | |
| Rated operational voltage, Ue | 690V | | |
| Rated insulation voltage, Ui | 690V | | |
| Rated frequency | 50/60Hz | | |
| Rated impulse withstand voltage, Uimp | 6kV | | |
| Maximum operating rate in operating cycles per hour(AC3) | 1800 operations per hour | | |
| Durability | Mechanical | 15 mil. operations | |
| | Electrical | 2.5 mil. operations | |
| Current and power | AC-1, Thermal current | A | |
| | AC-3 200/240V | kW | |
| | | A | |
| | 380/440V | kW | |
| | | A | |
| | 500/550V | kW | |
| | | A | |
| | 690V | kW | |
| | | A | |
| | | 1000V | kW |
| Rated Short-time withstand current (IEC 60947) | 1s | A | |
| | 10s | A | |
| | 30s | A | |
| | 1min | A | |
| | 3min | A | |
| | 10min | A | |
| | ≥15min | A | |
| UL rating (50/60Hz) | Continuous current | A | |
| | Single phase 110~120V | HP | |
| | 220~240V | HP | |
| | 200~208V | HP | |
| | Three phase 220~240V | HP | |
| | 440~480V | HP | |
| | 550~600V | HP | |
| Size and weight | AC control | Weight | kg |
| | DC control | Weight | kg |
| Auxiliary(standard) | Side mount | | |
| | Front mount | | |

| 18AF | | | | |
|----------------------------------------------------------|--------------------------|-------|--------|--------|
| | MC-6a | MC-9a | MC-12a | MC-18a |
| | ● | ● | ● | ● |
| Number of poles | 3pole | | | |
| Rated operational voltage, Ue | 690V | | | |
| Rated insulation voltage, Ui | 690V | | | |
| Rated frequency | 50/60Hz | | | |
| Rated impulse withstand voltage, Uimp | 6kV | | | |
| Maximum operating rate in operating cycles per hour(AC3) | 1800 operations per hour | | | |
| Durability | 15 mil. operations | | | |
| | 2.5 mil. operations | | | |
| Current and power | 25 | 25 | 25 | 32 |
| | 2.2 | 2.5 | 3.5 | 4.5 |
| | 9 | 11 | 13 | 18 |
| | 3 | 4 | 5.5 | 7.5 |
| | 7 | 9 | 12 | 18 |
| | 3 | 4 | 7.5 | 7.5 |
| | 6 | 7 | 12 | 13 |
| | 3 | 4 | 7.5 | 7.5 |
| | 4 | 5 | 9 | 9 |
| | - | - | - | - |
| Rated Short-time withstand current (IEC 60947) | 210 | 250 | 280 | 300 |
| | 105 | 110 | 120 | 130 |
| | 70 | 70 | 80 | 85 |
| | 61 | 61 | 61 | 70 |
| | 40 | 45 | 47 | 50 |
| | 30 | 30 | 30 | 40 |
| | 25 | 26 | 28 | 30 |
| UL rating (50/60Hz) | 25 | 25 | 25 | 32 |
| | 0.5 | 0.5 | 1 | 2 |
| | 1.5 | 1.5 | 2 | 3 |
| | 2 | 2 | 3 | 7.5 |
| | 3 | 3 | 5 | 7.5 |
| | 5 | 5 | 7.5 | 10 |
| | 7.5 | 7.5 | 10 | 15 |
| Size and weight | 00 | 00 | 0 | 1 |
| | 0.33 | | | |
| Auxiliary(standard) | 45×73.5×80.4 | | | |
| | 0.4 | | | |
| Auxiliary | 45×73.5×96.6 | | | |
| | 1a or 1b | | | |
| Auxiliary | UA-1 | | | |
| | UA-2, UA-4 | | | |

| 22AF | | | | |
|----------------------------------------------------------|--------------------------|--------|--------|--------|
| | MC-9b | MC-12b | MC-18b | MC-22b |
| | ● | ● | ● | ● |
| Number of poles | 3pole | | | |
| Rated operational voltage, Ue | 690V | | | |
| Rated insulation voltage, Ui | 690V | | | |
| Rated frequency | 50/60Hz | | | |
| Rated impulse withstand voltage, Uimp | 6kV | | | |
| Maximum operating rate in operating cycles per hour(AC3) | 1800 operations per hour | | | |
| Durability | 15 mil. operations | | | |
| | 2.5 mil. operations | | | |
| Current and power | 25 | 27 | 40 | 45 |
| | 2.5 | 3.5 | 4.5 | 5.5 |
| | 11 | 13 | 18 | 22 |
| | 4 | 5.5 | 7.5 | 11 |
| | 9 | 12 | 18 | 22 |
| | 4 | 7.5 | 7.5 | 15 |
| | 7 | 12 | 13 | 20 |
| | 4 | 7.5 | 7.5 | 15 |
| | 6 | 9 | 9 | 18 |
| | - | - | - | - |
| Rated Short-time withstand current (IEC 60947) | 250 | 280 | 300 | 400 |
| | 110 | 120 | 154 | 186 |
| | 70 | 80 | 100 | 130 |
| | 61 | 61 | 84 | 90 |
| | 45 | 50 | 60 | 60 |
| | 30 | 30 | 40 | 50 |
| | 26 | 28 | 30 | 45 |
| UL rating (50/60Hz) | 25 | 25 | 40 | 40 |
| | 0.5 | 1 | 2 | 2 |
| | 1.5 | 2 | 3 | 3 |
| | 2 | 3 | 7.5 | 7.5 |
| | 3 | 5 | 7.5 | 10 |
| | 5 | 7.5 | 10 | 15 |
| | 7.5 | 10 | 15 | 20 |
| Size and weight | 00 | 0 | 1 | |
| | 0.34 | | | |
| Auxiliary(standard) | 45×73.5×87.4 | | | |
| | 0.41 | | | |
| Auxiliary | 45×73.5×103.6 | | | |
| | 1a1b | | | |
| Auxiliary | UA-1 | | | |
| | UA-2, UA-4 | | | |

Note) Minimum conduct current of Auxiliary contactor is DC 17V 5mA.

MT type Thermal Overload Relays



| Type | | | |
|---------------------------------------|-----------------------------------------------|----|--|
| | screws clamp terminals Lug clamp terminals | | |
| Rated operational voltage, Ue | 690V | | |
| Rated insulation voltage, Ui | 690V | | |
| Rated impulse withstand voltage, Uimp | 6kV | | |
| Trip class | 10A, 20 | | |
| Setting range | 0.1~18A | | |
| Size and weight | Weight | kg | |
| | Size(WxHxD) | mm | |

| MT-12/ □ | |
|---------------------------------------|--------------|
| | ● |
| Rated operational voltage, Ue | 690V |
| Rated insulation voltage, Ui | 690V |
| Rated impulse withstand voltage, Uimp | 6kV |
| Trip class | 10A, 20 |
| Setting range | 0.1~18A |
| Weight | 0.1 |
| Size(WxHxD) | 45×73.2×63.7 |

| MT-32/ □ | |
|---------------------------------------|----------|
| | ● |
| Rated operational voltage, Ue | 690V |
| Rated insulation voltage, Ui | 690V |
| Rated impulse withstand voltage, Uimp | 6kV |
| Trip class | 10A, 20 |
| Setting range | 0.1~40A |
| Weight | 0.17 |
| Size(WxHxD) | 45×75×90 |

* The safety cover of magnetic contactor and thermal overload relay is optional.



| 40AF | |
|--------------------------|--------|
| MC-32a | MC-40a |
| ● | ● |
| 3pole | |
| 1000V | |
| 1000V | |
| 50/60Hz | |
| 8kV | |
| 1800 operations per hour | |
| 12 mil. operations | |
| 2 mil. operations | |
| 55 | 60 |
| 7.5 | 11 |
| 32 | 40 |
| 15 | 18.5 |
| 32 | 40 |
| 18.5 | 22 |
| 28 | 32 |
| 18.5 | 22 |
| 20 | 23 |
| 22 | 22 |
| 17 | 17 |
| 600 | 700 |
| 260 | 300 |
| 160 | 190 |
| 100 | 120 |
| 70 | 80 |
| 55 | 65 |
| 50 | 60 |
| 50 | 60 |
| 3 | 3 |
| 5 | 7.5 |
| 7.5 | 15 |
| 10 | 15 |
| 20 | 30 |
| 25 | 30 |
| 1P | 2 |
| 0.55 | |
| 69 × 83 × 90 | |
| 0.77 | |
| 69 × 83 × 117.1 | |

| 2a2b | |
|------|------------|
| UA-1 | UA-2, UA-4 |
| ● | ● |



| MT-32/ □ |
|--------------|
| ● |
| 690V |
| 690V |
| 6kV |
| 10A, 20 |
| 0.1~40A |
| 0.17 |
| 45 × 75 × 90 |



| 65AF | |
|--------------------------|--------|
| MC-50a | MC-65a |
| ● | ● |
| 3pole | |
| 1000V | |
| 1000V | |
| 50/60Hz | |
| 8kV | |
| 1200 operations per hour | |
| 12 mil. operations | |
| 2 mil. operations | |
| 100 | 115 |
| 15 | 18.5 |
| 55 | 65 |
| 22 | 30 |
| 50 | 65 |
| 30 | 33 |
| 43 | 60 |
| 30 | 33 |
| 28 | 35 |
| 30 | 30 |
| 23 | 23 |
| 1000 | 1050 |
| 550 | 700 |
| 330 | 380 |
| 250 | 270 |
| 150 | 200 |
| 90 | 120 |
| 87 | 96 |
| 70 | 100 |
| 3 | 5 |
| 10 | 15 |
| 20 | 25 |
| 25 | 30 |
| 40 | 50 |
| 50 | 60 |
| 1.05 | |
| 79 × 106 × 119 | |
| 1.3 | |
| 79 × 106 × 146.4 | |

| 2a2b | |
|------|------------|
| UA-1 | UA-2, UA-4 |
| ● | ● |



| MT-63/ □ |
|---------------|
| ● |
| 690V |
| 690V |
| 6kV |
| 10A, 20 |
| 4~65A |
| 0.31/0.33 |
| 55 × 81 × 100 |



| 100AF | | |
|--------------------------|--------|-------------------|
| MC-75a | MC-85a | MC-100a |
| ● | ● | ● |
| 3pole | | |
| 1000V | | |
| 1000V | | |
| 50/60Hz | | |
| 8kV | | |
| 1200 operations per hour | | |
| 12 mil. operations | | |
| 2 mil. operations | | 1 mil. operations |
| 125 | 135 | 160 |
| 22 | 25 | 30 |
| 75 | 85 | 105 |
| 37 | 45 | 55 |
| 75 | 85 | 105 |
| 37 | 45 | 55 |
| 64 | 75 | 85 |
| 37 | 45 | 55 |
| 42 | 45 | 65 |
| 37 | 37 | 37 |
| 28 | 28 | 28 |
| 1100 | 1200 | 1320 |
| 750 | 800 | 900 |
| 400 | 450 | 500 |
| 300 | 350 | 400 |
| 220 | 270 | 270 |
| 140 | 170 | 180 |
| 114 | 150 | 160 |
| 110 | 135 | 160 |
| 5 | 7.5 | 10 |
| 15 | 15 | 20 |
| 25 | 30 | 30 |
| 30 | 40 | 40 |
| 50 | 60 | 75 |
| 60 | 75 | 75 |
| 3 | | |
| 1.93 | | |
| 94 × 140 × 135.8 | | |
| 2.8 | | |
| 94 × 140 × 172.3 | | |

| 2a2b | | |
|------|------------|---|
| UA-1 | UA-2, UA-4 | |
| ● | ● | ● |



| MT-95/ □ |
|---------------|
| ● |
| 690V |
| 690V |
| 6kV |
| 10A, 20 |
| 7~100A |
| 0.48/0.5 |
| 70 × 97 × 110 |

Table of specifications

MC type Magnetic Contactors



| Frame size | | | 150AF | | 225AF | | 400AF | | | |
|----------------------------------------------------------|-----------------------------------------------|---------------------------|--------------------------|---------|---------------------------------|---------|---------------------------------|---------------------|---------|-----|
| Type | screws clamp terminals Lug clamp terminals | | MC-130a | MC-150a | MC-185a | MC-225a | MC-265a | MC-330a | MC-400a | |
| Number of poles | | | 3pole | | 3pole | | 3pole | | | |
| Rated operational voltage, Ue | | | 1000V | | 1000V | | 1000V | | | |
| Rated insulation voltage, Ui | | | 1000V | | 1000V | | 1000V | | | |
| Rated frequency | | | 50/60Hz | | 50/60Hz | | 50/60Hz | | | |
| Rated impulse withstand voltage, Uimp | | | 8kV | | 8kV | | 8kV | | | |
| Maximum operating rate in operating cycles per hour(AC3) | | | 1200 operations per hour | | 1200 operations per hour | | 1200 operations per hour | | | |
| Durability | Mechanical | | 5 mil. operations | | 5 mil. operations | | 5 mil. operations | 2.5 mil. operations | | |
| | Electrical | | 1 mil. operations | | 1 mil. operations | | 1 mil. operations | 0.5 mil. operations | | |
| Current and power | AC-1, Thermal current | A | 200 | 250 | 300 | 350 | 400 | 500 | 520 | |
| | | kW | 37 | 45 | 55 | 75 | 80 | 90 | 125 | |
| | AC-3 | 200/240V | A | 130 | 150 | 185 | 225 | 265 | 330 | 400 |
| | | kW | 60 | 75 | 90 | 132 | 147 | 160 | 200 | |
| | 380/440V | A | 130 | 150 | 185 | 225 | 265 | 330 | 400 | |
| | kW | 60 | 70 | 110 | 132 | 147 | 160 | 225 | | |
| | 500/550V | A | 90 | 100 | 180 | 200 | 225 | 280 | 350 | |
| | kW | 55 | 55 | 110 | 140 | 160 | 200 | 250 | | |
| | 690V | A | 60 | 60 | 120 | 150 | 185 | 220 | 300 | |
| | kW | 75 | 75 | 132 | 132 | 147 | 147 | 147 | | |
| A | 50 | 50 | 90 | 90 | 105 | 105 | 105 | | | |
| Rated Short-time withstand current (IEC 60947) | 1s | A | 1350 | 1800 | 2000 | 2500 | 3500 | 4000 | 4600 | |
| | 10s | A | 950 | 1200 | 1500 | 1700 | 2400 | 3000 | 4400 | |
| | 30s | A | 700 | 800 | 1000 | 1200 | 1500 | 2500 | 2974 | |
| | 1min | A | 550 | 600 | 800 | 1000 | 1100 | 1700 | 1846 | |
| | 3min | A | 350 | 450 | 520 | 700 | 800 | 1000 | 1313 | |
| | 10min | A | 200 | 300 | 350 | 500 | 600 | 620 | 760 | |
| | ≥15min | A | 175 | 280 | 320 | 400 | 500 | 553 | 699 | |
| UL rating (50/60Hz) | Continuous current | | 200 | 250 | 300 | 350 | 400 | 500 | 520 | |
| | Single phase | 110~120V | HP | 10 | 15 | 15 | 15 | - | - | - |
| | | 220~240V | HP | 20 | 25 | 30 | 40 | - | - | - |
| | | 200~208V | HP | 40 | 40 | 60 | 60 | 75 | 100 | 125 |
| | Three phase | 220~240V | HP | 40 | 50 | 60 | 75 | 100 | 100 | 150 |
| | | 440~480V | HP | 75 | 100 | 125 | 150 | 200 | 200 | 300 |
| | | 550~600V | HP | 75 | 75 | 125 | 150 | 200 | 200 | 300 |
| NEMA size | | | | | | 5 | | | | |
| Size and weight | AC control | Weight | 2.4 | | 5.4 | | 9.2 | | | |
| | DC control | Size(WxHxD) | 119 × 158 × 130.3 | | 138 × 203 × 185.1 | | 163 × 243 × 204.4 | | | |
| Auxiliary(standard) | | | 2a2b | | 2a2b | | 2a2b | | | |
| | Auxiliary | Side mount Front mount | UA-1 UA-2, UA-4 | | AU-100, AU-100E (Max.4a4b) - | | AU-100, AU-100E (Max.4a4b) - | | | |

MT type Thermal Overload Relays



| Type | | | MT150/□ | MT225/□ | MT400/□ |
|-----------------------------------------------|-------------|----|----------------|-----------------|-----------------|
| screws clamp terminals Lug clamp terminals | | | ● | ● | ● |
| Rated operational voltage, Ue | | | 690V | 690V | 690V |
| Rated insulation voltage, Ui | | | 690V | 690V | 690V |
| Rated impulse withstand voltage, Uimp | | | 6kV | 6kV | 6kV |
| Trip class | | | 10A, 20 | 10A, 20 | 10A, 20 |
| Setting range | | | 34~150A | 65~240A | 85~400A |
| Size and weight | Weight | kg | 0.67 | 2.5 | 2.6 |
| | Size(WxHxD) | mm | 95 × 109 × 113 | 147 × 141 × 184 | 151 × 171 × 198 |

* The safety cover of magnetic contactor and thermal overload relay is optional.



800AF

| MC-500a | MC-630a | MC-800a |
|--------------------------|---------|---------|
| ● | ● | ● |
| 3pole | | |
| 1000V | | |
| 1000V | | |
| 50/60Hz | | |
| 8kV | | |
| 1200 operations per hour | | |
| 2.5 mil. operations | | |
| 0.5 mil. operations | | |
| 700 | 900 | 1050 |
| 147 | 190 | 220 |
| 500 | 630 | 800 |
| 265 | 330 | 440 |
| 500 | 630 | 800 |
| 265 | 330 | 500 |
| 400 | 500 | 720 |
| 300 | 400 | 500 |
| 380 | 420 | 630 |
| 280 | 280 | 280 |
| 220 | 220 | 220 |
| 6000 | 7000 | 7500 |
| 5050 | 6400 | 7000 |
| 4400 | 4500 | 4900 |
| 3400 | 3500 | 3800 |
| 2000 | 2200 | 2500 |
| 1400 | 1550 | 1550 |
| 1100 | 1300 | 1300 |
| 700 | 900 | 1050 |
| - | - | - |
| - | - | - |
| 150 | 200 | 200 |
| 200 | 250 | 300 |
| 400 | 500 | 600 |
| 400 | 500 | 600 |
| 6 | | 7 |

22.2
285 × 310 × 246

2a2b
AU-100, AU-100E (Max.4a4b)



MT-800/ □

| |
|-----------------|
| ● |
| 690V |
| 690V |
| 6kV |
| 10A, 20 |
| 200~800A |
| 11.5 |
| 360 × 530 × 212 |



1260AF

| MC-1260a |
|-------------------------|
| ● |
| 3pole |
| 1000V |
| 1000V |
| 50/60Hz |
| 8kV |
| 300 operations per hour |
| 0.5 mil. operations |
| 0.05 mil. operations |
| 1260 |
| - |
| - |
| - |
| - |
| - |
| - |
| - |
| - |
| - |
| - |
| - |
| 8000 |
| 7200 |
| 5200 |
| 4000 |
| 2300 |
| 3000 |
| 1500 |
| 1260 |
| - |
| - |

24
285 × 352 × 246

2a2b
AU-100, AU-100E (Max.4a4b)



2650AF

| MC-1400a | MC-1700a | MC-2100a | MC-2650a |
|-------------------------|----------|----------|----------|
| ● | ● | ● | ● |
| 3pole | | | |
| 1000V | | | |
| 1000V | | | |
| 50/60Hz | | | |
| 8kV | | | |
| 300 operations per hour | | | |
| 0.5 mil. operations | | | |
| 0.05 mil. operations | | | |
| 1400 | 1700 | 2100 | 2650 |
| 290 | 310 | - | - |
| 860 | 1050 | - | - |
| 550 | 700 | 900 | - |
| 860 | 1050 | 1450 | - |
| - | - | - | - |
| - | - | - | - |
| 800 | 1000 | - | - |
| 800 | 950 | - | - |
| - | - | - | - |
| - | - | - | - |
| - | - | - | - |
| - | - | - | - |
| 8000 | 10000 | 10000 | |
| - | - | - | |
| 4500 | 5500 | 5500 | |
| - | - | - | |
| 2600 | 3000 | 3000 | |
| - | - | - | |
| 1400 | 1700 | 2100 | 2650 |
| - | - | - | - |
| - | - | - | - |

33.8
431 × 380 × 246

47
431 × 392 × 246

2a2b
AU-100, AU-100E (Max.4a4b)

Table of specifications

MC type Magnetic Contactors (4pole)



| Frame size | | | | | |
|----------------------------------------------------------|--------------------------|---------------------|----------------|----------------|--|
| Type | Screw clamp terminal | | | | |
| Number of poles | 4 | | | | |
| Rated operational voltage (Ue) | 690V | | | | |
| Rated insulation voltage (Ui) | 690V | | | | |
| Rated frequency | 50/60Hz | | | | |
| Rated impulse withstand voltage, Uimp | 6kV | | | | |
| Maximum operating rate in operating cycles per hour(AC1) | 1800 operations per hour | | | | |
| Durability | Mechanical | | | | |
| | Electrical | | | | |
| Current and Power | AC-1 | Thermal current | A | | |
| | | 200/240V | kW | | |
| | | 380/400V | kW | | |
| | | | A | | |
| | | 500/550V | kW | | |
| | | 690V | kW | | |
| UL rating (50/60Hz) | Continuous current | | A | | |
| | | Single | 110~120V HP | | |
| | | Phase | 220~240V HP | | |
| | | | 200~208V HP | | |
| | | Three | 220~240V HP | | |
| | | Phase | 440~480V HP | | |
| Size and weight | AC | Weight | kg | | |
| | | Control | Size(WxHxD) mm | | |
| | | DC | Weight | kg | |
| | | | Control | Size(WxHxD) mm | |
| | | Auxiliary(standard) | Side Mount | | |
| | | | Front Mount | | |



| 18AF | | | |
|--------------------------|---------|---------------------|----------|
| MC-6a/4 | MC-9a/4 | MC-12a/4 | MC-18a/4 |
| ● | | | |
| 4pole | | | |
| 690V | | | |
| 690V | | | |
| 50/60Hz | | | |
| 6kV | | | |
| 1800 operations per hour | | | |
| 15 mil. Operations | | | |
| 0.5 mil. Operations | | 0.8 mil. Operations | |
| 25 | 25 | 25 | 40 |
| 9 | 9 | 9 | 15 |
| 25 | 25 | 25 | 40 |
| 17 | 17 | 17 | 27 |
| 25 | 25 | 25 | 40 |
| 21 | 21 | 21 | 35 |
| 25 | 25 | 25 | 40 |
| 27 | 27 | 27 | 44 |
| 25 | 25 | 25 | 40 |
| 25 | 25 | 25 | 32 |
| 0.5 | 0.5 | 0.75 | 1 |
| 1.5 | 1.5 | 2 | 3 |
| 2 | 2 | 3 | 7.5 |
| 3 | 3 | 5 | 7.5 |
| 5 | 5 | 7.5 | 10 |
| 7.5 | 7.5 | 10 | 15 |
| 0.33 | | | |
| 45 × 73.5 × 80.4 | | | |
| 0.4 | | | |
| 45 × 73.5 × 96.6 | | | |
| - | | | |
| UA-1 | | | |
| UA-2, UA-4 | | | |



| 22AF | |
|--------------------|--|
| MC-22a/4 | |
| ● | |
| 4pole | |
| 690V | |
| 690V | |
| 50/60Hz | |
| 6kV | |
| 1800 operations | |
| 15 mil. Operations | |
| 1 mil. Operations | |
| 40 | |
| 15 | |
| 40 | |
| 27 | |
| 40 | |
| 35 | |
| 40 | |
| 44 | |
| 40 | |
| 32 | |
| 2 | |
| 3 | |
| 7.5 | |
| 7.5 | |
| 10 | |
| 15 | |
| 0.4 | |
| 47.2 × 80 × 86.8 | |
| 0.5 | |
| 47.2 × 80 × 113.2 | |
| - | |
| AU-1 | |
| UA-2, UA-4 | |

| 40AF | |
|--------------------------|----------|
| MC-32a/4 | MC-40a/4 |
| ● | |
| 4pole | |
| 690V | |
| 690V | |
| 50/60Hz | |
| 6kV | |
| 1800 operations per hour | |
| 15 mil. Operations | |
| 1 mil. Operations | |
| 50 | 60 |
| 18 | 22 |
| 50 | 60 |
| 35 | 42 |
| 50 | 60 |
| 43 | 52 |
| 50 | 60 |
| 55 | 66 |
| 50 | 60 |
| 45 | 50 |
| 2 | 3 |
| 5 | 5 |
| 7.5 | 10 |
| 10 | 10 |
| 20 | 25 |
| 20 | 25 |
| 0.59 | |
| 59 × 83.5 × 94.6 | |
| 0.7 | |
| 59 × 83.5 × 121 | |
| - | |
| AU-1 | |
| UA-2, UA-4 | |

| 85AF | | | |
|--------------------------|----------|----------|----------|
| MC-50a/4 | MC-65a/4 | MC-75a/4 | MC-85a/4 |
| ● | | | |
| 4pole | | | |
| 690V | | | |
| 1000V | | | |
| 50/60Hz | | | |
| 8kV | | | |
| 1800 operations per hour | | | |
| 12 mil. Operations | | | |
| 1 mil. Operations | | | |
| 80 | 100 | 110 | 135 |
| 30 | 37 | 41 | 51 |
| 80 | 100 | 110 | 135 |
| 56 | 70 | 76 | 95 |
| 80 | 100 | 110 | 135 |
| 70 | 88 | 97 | 120 |
| 80 | 100 | 110 | 135 |
| 88 | 110 | 120 | 150 |
| 80 | 100 | 110 | 135 |
| 70 | 80 | 90 | 100 |
| 3 | 5 | 5 | 7.5 |
| 7.5 | 10 | 15 | 15 |
| 10 | 15 | 20 | 25 |
| 15 | 20 | 25 | 30 |
| 30 | 40 | 50 | 50 |
| 30 | 40 | 50 | 50 |
| 1.2 | | | |
| 91 × 123.5 × 117.8 | | | |
| 1.29 | | | |
| 91 × 123.5 × 117.8 | | | |
| - | | | |
| AU-1 | | | |
| UA-2, UA-4 | | | |

Table of specifications

MC type Magnetic Contactors (4pole)



| Frame size | | | |
|----------------------------------------------------------|--------------------------|---------------------|-------------|
| Type | Screw clamp terminal | | |
| Number of poles | 4 | | |
| Rated operational voltage (Ue) | 690V | | |
| Rated insulation voltage (Ui) | 1000V | | |
| Rated frequency | 50/60Hz | | |
| Rated impulse withstand voltage, Uimp | 8kV | | |
| Maximum operating rate in operating cycles per hour(AC1) | 1200 operations per hour | | |
| Durability | Mechanical | 5 mil. Operations | |
| | Electrical | 0.8 mil. Operations | |
| Current and Power | AC-1 | Thermal current | A |
| | | 200/240V | kW |
| | | 380/400V | kW |
| | | | A |
| | | 500/550V | kW |
| | | 690V | kW |
| UL rating (50/60Hz) | Continuous current | | A |
| | | Single | 110~120V HP |
| | Phase | | 220~240V HP |
| | | | 200~208V HP |
| | Three | | 220~240V HP |
| | | Phase | 440~480V HP |
| | | 550~600V HP | |
| Size and weight | AC | Weight | kg |
| | | Control Size(WxHxD) | mm |
| | DC | Weight | kg |
| | | Control Size(WxHxD) | mm |
| Auxiliary(standard) | | | |
| Auxiliary | Side Mount | | |
| | Front Mount | | |



* - FLA = 722 A, LRA = 5618 A
 ** - FLA = 566 A, LRA = 4495 A

| 225AF | | | | | |
|--------------------------|-----------|-----------|-----------|-----------|--|
| MC-100a/4 | MC-130a/4 | MC-150a/4 | MC-185a/4 | MC-225a/4 | |
| ● | | | | | |
| 4pole | | | | | |
| 690V | | | | | |
| 1000V | | | | | |
| 50/60Hz | | | | | |
| 8kV | | | | | |
| 1200 operations per hour | | | | | |
| 5 mil. Operations | | | | | |
| 0.8 mil. Operations | | | | | |
| 200 | 250 | 275 | 300 | 350 | |
| 57 | 60 | 76 | 87 | 100 | |
| 200 | 250 | 275 | 300 | 350 | |
| 106 | 110 | 142 | 165 | 185 | |
| 200 | 250 | 275 | 300 | 350 | |
| 132 | 137 | 180 | 205 | 230 | |
| 200 | 250 | 275 | 300 | 350 | |
| 165 | 170 | 225 | 255 | 290 | |
| 200 | 250 | 275 | 300 | 350 | |
| 200 | 250 | 275 | 300 | 350 | |
| 7.5 | 10 | 15 | 15 | 15 | |
| 15 | 20 | 25 | 30 | 40 | |
| 30 | 40 | 40 | 60 | 60 | |
| 30 | 40 | 50 | 60 | 75 | |
| 60 | 75 | 100 | 125 | 150 | |
| 60 | 75 | 100 | 125 | 150 | |
| 5.6 | | | | | |
| 175 x 203 x 185 | | | | | |
| 2NO2NC | | | | | |
| AU-100, AU-100E | | | | | |
| - | | | | | |



400AF

| MC-265a/4 | MC-330a/4 | MC-400a/4 |
|--------------------------|-----------|-----------|
| ● | | |
| 4pole | | |
| 690V | | |
| 1000V | | |
| 50/60Hz | | |
| 8kV | | |
| 1200 operations per hour | | |
| 2.5 mil. Operations | | |
| 0.5 mil. Operations | | |
| 400 | 500 | 520 |
| 115 | 135 | 160 |
| 400 | 500 | 520 |
| 215 | 250 | 300 |
| 400 | 500 | 520 |
| 265 | 315 | 375 |
| 400 | 500 | 520 |
| 335 | 390 | 470 |
| 400 | 500 | 520 |
| 400 | 500 | 520 |
| - | - | - |
| - | - | - |
| 75 | 100 | 125 |
| 100 | 100 | 150 |
| 200 | 200 | 300 |
| 200 | 200 | 300 |

9.9
206 × 243 × 205

2NO2NC

| AU-100, AU-100E |
|-----------------|
| - |

800AF

| MC-500a/4 | MC-630a/4 | MC-800a/4 |
|--------------------------|-----------|-----------|
| ● | | |
| 4pole | | |
| 690V | | |
| 1000V | | |
| 50/60Hz | | |
| 8kV | | |
| 1200 operations per hour | | |
| 2.5 mil. Operations | | |
| 0.5 mil. Operations | | |
| 700 | 900 | 1050 |
| 245 | 255 | 310 |
| 700 | 900 | 1050 |
| 450 | 470 | 570 |
| 700 | 900 | 1050 |
| 560 | 590 | 710 |
| 700 | 900 | 1050 |
| 710 | 740 | 900 |
| 700 | 900 | 1050 |
| 700 | 900 | 1050 |
| - | - | - |
| - | - | - |
| 150 | 200 | 200 |
| 200 | 250 | 300 |
| 400 | 500 | 600 * |
| 400 | 500 | 600 ** |

26.3
346 × 310 × 244

2NO2NC

| AU-100, AU-100E |
|-----------------|
| - |

Table of specifications

Renewable Magnetic Contactor

- Eco-friendly contact material applied (Cd free)
- Type 2 coordination data with MCCB or ACB



| Frame size | | | |
|-----------------------------------------------------|------------------------|-------------|----|
| Type | Screws clamp terminals | | |
| Number of poles | | pole | |
| Rated operational voltage(Ue) | | Vac | |
| Rated insulation voltage(Ui) | | Vac | |
| Rated frequency | | Hz | |
| Rated impulse withstand voltage(Uimp) | | kV | |
| Mechanical operating cycle | | cycles/hour | |
| Electrical operating cycle | | cycles/hour | |
| Durability | Mechanical | million | |
| | Electrical(AC-1 @690V) | million | |
| | Electrical(AC-1 @400V) | million | |
| Current and Power (IEC) | AC-1 1000V 55/60/70°C | A | |
| | Thermal current | A | |
| | Heat dissipation | W | |
| Rated Short-time withstand current(Icw) (IEC 60947) | 1s | A | |
| | 10s | A | |
| | 1min | A | |
| | 10min | A | |
| max. breaking capacity(Icd) | 400V | A | |
| | 690V | A | |
| | 1000V | A | |
| Type-2 Coordination (with MCCB or ACB) | | kA | |
| Current and HP (UL) | Thermal current | A | |
| | Single phase | 110~120V | HP |
| | | 220~240V | HP |
| | Three phase | 200~208V | HP |
| | | 220~240V | HP |
| | | 440~480V | HP |
| 550~600V | | HP | |
| Weight | | kg | |
| Size[(W×H×D) mm] | | | |
| Auxiliary(standard) | | | |
| Auxiliary | Side mount | | |
| | Front mount | | |

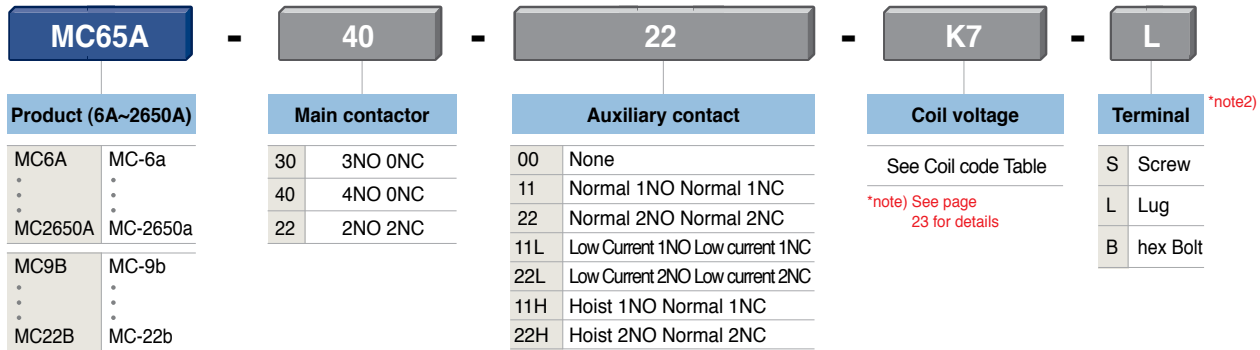
| 1260AF | | | |
|--------|-----------------------------------|-----------------|-----------------|
| | MCI-900 | MCI-1050 | MCI-1260 |
| | | ● | |
| | | 3 | |
| | | 1000 | |
| | | 1000 | |
| | | 50/60 | |
| | | 8 | |
| | 600 | 600 | 300 |
| | 600 | 600 | 300 |
| | 100 | 100 | 50 |
| | 26 | 26 | 15 |
| | 50 | 50 | 20 |
| | 900/850/700 | 1050/875/720 | 1260/1060/900 |
| | 900 | 1050 | 1260 |
| | 100 | 170 | 170 |
| | 7000 | 7500 | 8000 |
| | 6400 | 7000 | 7200 |
| | 3500 | 3800 | 4000 |
| | 1550 | 1550 | 2300 |
| | 6000 | 7500 | 7500 |
| | 5000 | 7000 | 7000 |
| | 2000 | 2500 | 2500 |
| | 42kA (Break time: less than 20ms) | | |
| | 900 | 1050 | 1260 |
| | - | - | - |
| | - | - | - |
| | 200 | 200 | - |
| | 250 | 300 | - |
| | 500 | 600 | - |
| | 500 | 600 | - |
| | 22.2 | 22.2 | 25 |
| | 285 x 310 x 246 | 285 x 310 x 246 | 285 x 352 x 246 |
| | 2a2b | | |
| | AU-100, AU-100E (max.4a4b) | | |
| | - | | |



| 2650AF | | |
|----------------------------|-----------------------------------|-----------------|
| MCI-1700 | MCI-2100 | MCI-2650 |
| | ● | |
| | 3 | |
| | 1000 | |
| | 1000 | |
| | 50/60 | |
| | 8 | |
| | 300 | |
| 300 | 300 | 120 |
| 50 | 50 | 30 |
| 5 | 5 | 2 |
| 5 | 5 | 5 |
| 1700/1450/1300 | 2100/1750/1500 | 2650/2350/2150 |
| 1700 | 2100 | 2650 |
| 220 | 350 | 350 |
| | 12000 | |
| | 10000 | |
| | 5500 | |
| | 3000 | |
| 9000 | 12000 | 12000 |
| 8000 | 8500 | 8500 |
| 3000 | 3150 | 3150 |
| | 42kA (Break time: less than 50ms) | |
| 1700 | 2100 | 2650 |
| - | - | - |
| - | - | - |
| - | - | - |
| - | - | - |
| - | - | - |
| 34.6 | 34.6 | 47 |
| 431 x 380 x 246 | 431 x 380 x 246 | 431 x 392 x 246 |
| 2a2b | | |
| AU-100, AU-100E (max.4a4b) | | |
| - | | |

Type numbering system

Contactors



- A : Metasol A Type
- B : Metasol B Type

ex)

| | |
|---------------------|-----------------------------------------------------------|
| MC65A-30-00-Q7-S-E | MC-65a AC380V 50/60Hz SCREW (Metasol) EXP |
| MC75A-30-22-H7-L-E | MC-75a AC100V 50/60Hz LUG 2a2b (Metasol) EXP |
| MC185A-30-22-FV-B-E | MC-185a AC100-240V 50/60Hz, DC100-220V 2a2b (Metasol) EXP |
| MC85A-40-00-M7-S-E | MC-85a AC220V 50/60Hz 4P (Metasol) EXP |
| MC800A-40-22-EV-B-E | MC-800a AC/DC200V 2a2b 4P (Metasol) EXP |

*note2)

3Pole

S: Screw with Phillips head; Bare wire or fork terminal are accessible. (Applied model : MC6A to MC150A)

L: Box Lug ; Bare wire is accessible. (Applied model : MC50A to MC150A)

B: Screw with hex Bolt head; Ring terminal or fork terminal are accessible (Applied model : MC185A to MC2650A)

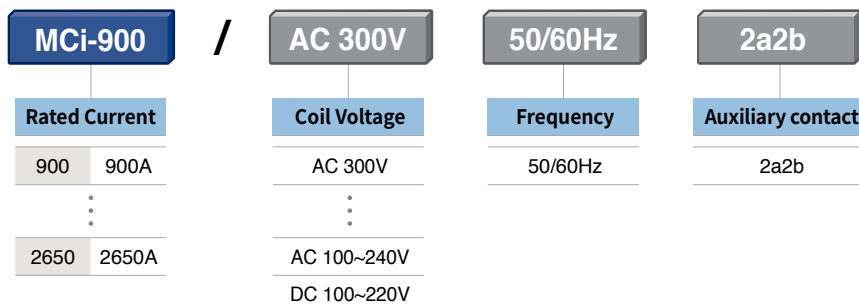
4Pole

S: Screw with Phillips head; Bare wire or fork terminal are accessible. (Applied model : MC6A to MC85A)

L : X

B : Screw with hex Bolt head; Ring terminal or fork terminal are accessible (Applied model : MC100A to MC800A)

Renewable Contactors



Contactor relays

| | | | | | |
|----------------|------|---------------------|---------------------------------|--------------------------------|--|
| MR4 | | 22L | | B7 | |
| Product | | Main contact | | Coil voltage | |
| MR4 | MR-4 | 00 | None | See Coil code Table | |
| MR6 | MR-6 | 13 | Normal 1NO Normal 3NC | *note) See page 23 for details | |
| MR8 | MR-8 | 22 | Normal 2NO Normal 2NC | | |
| | | 22L | Low Current 2NO Low current 2NC | | |
| | | 44 | Normal 4NO Normal 4NC | | |
| | | 44L | Low Current 2NO Low current 2NC | | |

| | | |
|-----|-------------|---------------------------------------|
| ex) | MR4-22-B7-E | MR-4 AC24V 50/60Hz 2a2b (Metasol) EXP |
| | MR6-42-JD-E | MR-6 DC12V 4a2b (Metasol) EXP |
| | MR8-44-MD-E | MR-8 DC220V 4a4b (Metasol) EXP |

Thermal Overload Relay

| | | | | | |
|----------------------|-------|----------------------|-----------------------------|------------------------------|------|
| MT-12 | | 3H | | 0.1 | |
| Rated current | | Relay version | | Relay setting current | |
| 12 | 12AF | 3H | Non-differential (3-heater) | 0.1 | 0.1A |
| 32 | 32AF | | 3K | Differential | ⋮ |
| 63 | 63AF | 3D | | Class 20 | 800 |
| 95 | 95AF | | | | |
| ⋮ | ⋮ | | | | |
| 800 | 800AF | | | | |

Enclosed Motor starters

| | | | | | |
|----------------|---------|-----------------|------|--------------------|--------|
| MW22B | | M | | B | |
| Product | | Material | | None/Button | |
| MW6A | MW-6a | - | Iron | - | None |
| ⋮ | ⋮ | | | | |
| MW100A | MW-100a | | | | |
| ⋮ | ⋮ | | | | |
| MW9B | MW-9b | M | Mold | B | Button |
| ⋮ | ⋮ | | | | |
| MW22B | MW-22b | | | | |

| | | |
|-----|-----------------------------|----------------------------------------------------------|
| ex) | MW32aB-30-22-M7-21.5-3H-S-E | MW-32aB AC220V 50/60Hz SCREW 2a2b 21.5A 3H (Metasol) EXP |
| | MW32A-30-22-N5-34-3H-S-E | MW-32a AC415V 50Hz SCREW 2a2b 34A 3H (Metasol) EXP |
| | MW22BMB-11-Q7-19-SH-S-E | MW-22bMB AC380V 50/60Hz SCREW 1a1b 19A 3H (Metasol) EXP |

Main Coil Voltage

| AC | | DC | | Semi-electric (AC) | | Electric (AC/DC) | | | | | |
|-----------------|------|-----------------|------|--------------------|------|------------------|------|-----------------|------|----------------------------------------|----|
| 50Hz | | 60Hz | | 50/60Hz | | 50/60Hz | | | | | |
| Coil Voltage(V) | code | Coil Voltage(V) | code | Coil Voltage(V) | code | Coil Voltage(V) | code | Coil Voltage(V) | code | | |
| 24V | B5 | 24V | B6 | 24V | B7 | 12V | JD | 100~120 | HF | 24 (AC24~25 50/60Hz, DC24) | AV |
| 48V | E5 | 48V | E6 | 48V | E7 | 24V | BD | 220~240 | MU | 48 (AC48~50 50/60Hz, DC24) | BV |
| 110V | F5 | 110V | F6 | 110V | F7 | 48V | ED | 265~347 | OQ | 24/48 (AC24~50 50/60Hz, DC100~110) | CV |
| 220V | M5 | 220V | M6 | 220V | M7 | 110V | FD | 380~440 | OV | 100/200 (AC100~240 50/60Hz, DC100~220) | FV |
| 380V | Q5 | 380V | Q6 | 380V | Q7 | 125V | GD | 440~575 | S7 | 100/200 (AC100~240 50/60Hz, DC100~220) | DV |
| 415V | N5 | 415V | N6 | 415V | N7 | 220V | MD | | | | EV |
| 440V | R5 | 440V | R6 | 440V | R7 | 240V | OD | | | | GV |

* See page 23 for details

Type numbering system

Optional Accessories

Auxiliary contact unit



| Version | | Contact composition | |
|---------|-----------------|---------------------|---------|
| UA-1 | Side mount | 11 | 1NO+1NC |
| AU-100 | | 20 | 2NO |
| AU-100E | | 02 | 2NC |
| UA-2 | Front mount(2P) | 40 | 4NO |
| UA-4 | Front mount(4P) | 31 | 3NO+1NC |
| | | 22 | 2NO+2NC |
| | | 13 | 1NO+3NC |
| | | 04 | 4NC |

Note) UA-2: 2NO, 1NO1NC, 2NC
 UA-4: 4NO, 3NO1NC, 4NC,
 2NO2NC, 1NO3NC,

Surge absorber



| Product Composition | Voltage | |
|---------------------|---------|----------------|
| Varistor+RC | 1 | AC 24~48V |
| Varistor+RC | 2 | AC 100~125V |
| Varistor+RC | 3 | AC 200~240V |
| Varistor+RC | 4 | DC 24~48V |
| Varistor+RC | 5 | DC 100~125V |
| Varistor+RC | 6 | DC 200~220V |
| Varistor | 11 | AC/DC 24~48V |
| Varistor | 12 | AC/DC 100~125V |
| Varisto | 13 | AC/DC 200~240V |
| Varistor | 14 | AC/DC 380~440V |
| RC | 22 | AC 100~125V |

Note) See page 82 for details.

Interlock unit



| Product | Contact composition | |
|---------|---------------------|------|
| | 02 | 2NC |
| | 00 | None |

Wire kit for Interlocking



| Product | Rated current | |
|---------|---------------|-------|
| | 18 | 18AF |
| | 22 | 22AF |
| | 32 | 40AF |
| | 63 | 65AF |
| | 95 | 100AF |

Separate mounting unit (For relay)



| Product | Rated current | |
|---------|---------------|-------|
| | 12 | 12AF |
| | 32 | 32AF |
| | 63 | 63AF |
| | 95 | 95AF |
| | 150 | 150AF |

Remote reset unit (For relay)



| Product | Cable Length | |
|---------|--------------|------|
| | 12 | 12AF |
| | 32 | 32AF |
| | 63 | 63AF |




















Environment



| | |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standards | IEC/EN 60947-1, IEC/EN 60947-4-1, UL508, K60947 |
| Certifications | CE, UL, CCC |
| Rated insulation voltage (Ui) | 1000V (6A~22A: 690V, 32A~800A: 1000V) |
| Rated impulse withstand voltage (Uimp) | 8kV (6A~22A: 6kV, 32A~800A: 8kV) |
| Degree of protection | IP20 (Conforming to IEC60529) |
| Ambient air temperature | <p>Storage: -30°C ~ +65°C (MCi : -40 ~ +80°C)</p> <p>Operation: -5°C ~ +55°C (AC Type) -5°C ~ +40°C (MT, DC Type) -25°C ~ +60°C (MT refer to Graph) -25°C ~ +55°C(MCi)</p> |
| Operating altitude | 3000m (8900ft) |
| Operating positions | |
| Shock resistance (1/2 sine wave =11ms) | <p>Opened: 8G(MC-2650a / MCi-2650 : 5G)</p> <p>Closed: 10G(MC-2650a / MCi-2650 : 5G)</p> |
| Vibration resistance (Conforming to IEC68-2-6) (5...300 Hz) | <p>Opened: 2G(MC-2650a / MCi-2650 : 1G)</p> <p>Closed: 4G(MC-2650a / MCi-2650 : 1G)</p> |
| Flame resistance | <p>Conforming to UL 94: V0</p> <p>Conforming to IEC 695-2-1: 960°C</p> |

Connections

Connections

| Frame | Wire type | Main Terminal Size |  |  |  |  |  |  | mm(max) | Torque | | |
|-----------------------------------|-------------------------------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------|---------|------|----------|
| | | | (AWG / mm ²) | | | | | | | [lb-in] | [Nm] | [kgf·cm] |
| MC-6a/9a |  | M3.5 | 18~10 / 1~6 | 18~10 / 1~6 | 18~10 / 1~6 | | | | 8.3 | 10 | 1.13 | 12 |
| MC-12a | | | 16~10 / 1.5~10 | 16~10 / 1.5~10 | 16~10 / 1.5~10 | | | | | | | |
| MC-18a | | | 16~8 / 1.5~10 | 16~8 / 1.5~10 | 16~8 / 1.5~10 | | | | | | | |
| MC-9b |  | M4 | 18~10 / 1~6 | 18~10 / 1~6 | 18~10 / 1~6 | | | | 9.6 | 20 | 2.25 | 23 |
| MC-12b | | | 18~10 / 1~6 | 16~10 / 1~6 | 16~10 / 1~6 | | | | | | | |
| MC-18b | | | 18~10 / 1~6 | 16~8 / 1.5~10 | 16~8 / 1.5~10 | | | | | | | |
| MC-22b | | | 18~10 / 1~6 | 14~8 / 2.5~10 | 14~8 / 2.5~10 | | | | | | | |
| MC-32a |  | M5 | 18~10 / 1~6 | 12~8 / 2.5~10 | 12~8 / 2.5~10 | | | | 12.8 | 35 | 4 | 41 |
| MC-40a | | | 18~10 / 1~6 | 8~6 / 10~16 | 8~6 / 10~16 | | | | | | | |
| MC-50a |  | M6 | - | 10~4 / 6~25 | 10~4 / 6~25 | | | | 14 | 35 | 4 | 41 |
| MC-65a | | | - | 8~3 / 10~35 | 8~3 / 10~35 | | | | | | | |
| MC-75a |  | M8 | - | 8~2 / 10~35 | 8~2 / 10~35 | | | | 17 | 45 | 5.1 | 52 |
| MC-85a | | | - | 8~1/0 / 10~50 | 8~1/0 / 10~50 | | | | | | | |
| MC-100a | | | - | 8~2/0 / 10~70 | 8~2/0 / 10~70 | | | | | | | |
| MC-130a |  | M8 | - | 3~2/0 / 35~70 | 3~2/0 / 35~70 | | | | 24.5 | 80 | 9.1 | 93 |
| MC-150a | | | - | 3~4/0 / 35~95 | 3~4/0 / 35~95 | | | | | | | |
| MC-6~150a Aux./Coil |  | M4 | 20~14 / 0.5~2.5 | 18~12 / 0.75~2.5 | 18~12 / 0.75~2.5 | | | | 7.6 | 10 | 1.13 | 12 |
| MC-185a |  | M10 | - | 1~4/0 / 50~95 | 1~4/0 / 50~95 | | | | 25 | 130 | 14.7 | 150 |
| MC-225a | | | - | 1/0~300 / 50~150 | 1/0~300 / 50~150 | | | | | | | |
| MC-265a |  | M12 | - | 3/0~500 / 95~240 | 3/0~500 / 95~240 | | | | 30 | 200 | 22.6 | 230 |
| MC-330a | | | - | 4/0~500 / 95~240 | 4/0~500 / 95~240 | | | | | | | |
| MC-400a | | | - | 350~700 / 185~185x2 | 350~700 / 185~185x2 | | | | | | | |
| MC-500a | | | - | 350~800 / 185~240x2 | 350~800 / 185~240x2 | | | | | | | |
| MC-630a/MCi-900 |  | M16 | - | 600~2000 | - | | | | 40 | 500 | 56.5 | 576 |
| MC-800a/MCi-1050 | | | - | 700~Busbar | - | | | | | | | |
| MC-185~800a/MCi-1050 Aux./Coil |  | M4 | 16~10 / 1.25~5.5 | 16~10 / 1.25~5.5 | 16~10 / 1.25~5.5 | | | | 7.6 | 15 | 1.75 | 18 |
| MC-1260a/MCi-1260 |  | M12 | - | 50mm×10mm×2ea | - | | | | - | 200 | 22.6 | 230 |
| MC-1400a |  | M12 | - | 100mm×5mm×2ea | - | | | | - | 200 | 22.6 | 230 |
| MC-1700a/MCi-1700 | | | - | 100mm×5mm×3ea | - | | | | | | | |
| MC-2100a/MCi-2100 | | | - | 100mm×5mm×4ea | - | | | | | | | |
| MC-2650a/MCi-2650 | | | - | 100mm×10mm×3ea | - | | | | | | | |

Coil code table

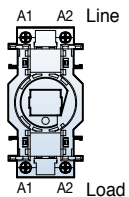
| AC | | | | | | DC | | Semi-electric (AC) | | Electric (AC/DC) | |
|-----------------|------|-----------------|------|-----------------|------|-----------------|------|--------------------|------|----------------------------------------|------|
| 50Hz | | 60Hz | | 50/60Hz | | - | | 50/60Hz | | - | |
| Coil voltage(V) | code | Coil voltage(V) | code | Coil voltage(V) | code | Coil voltage(V) | code | Coil voltage(V) | code | Coil voltage(V) | code |
| 24 | B5 | 24 | B6 | 24 | B7 | 12 | JD | 100~120 | HF | 24 (AC24~25 50/60Hz, DC24) | AV |
| 32 | C5 | 32 | - | 32 | - | 20 | AD | 220~240 | MU | 48 (AC48~50 50/60Hz, DC24) | BV |
| 36 | CB5 | 36 | - | 36 | CB7 | 24 | BD | 300 (265~247) | OQ | 24/48 (AC24~50 50/60Hz, DC24~48) | CV |
| 42 | D5 | 42 | - | 42 | D7 | 30 | PD | 380~440 | OV | 100/100 (AC100~127 50/60Hz, DC100~110) | DV |
| 48 | E5 | 48 | E6 | 48 | E7 | 36 | CD | 500 (440~575) | S7 | 100/200 (AC100~240 50/60Hz, DC100~220) | FV |
| 65 | GE5 | 65 | GE6 | 65 | GE7 | 42 | ID | 100~120 (LED) | HFL | 200/200 (AC200~240 50/60Hz, DC200~220) | EV |
| 80 | G5 | 80 | - | 80 | - | 48 | ED | 220~240 (LED) | MUL | 300/400 (AC265~450 50/60Hz) | GV |
| 100 | H5 | 100 | - | 100 | H7 | 60 | ND | 380~440 (LED) | QVL | AC 300 (AC265~347 50/60Hz) | HV |
| 110 | F5 | 110 | F6 | 110 | F7 | 72 | SD | | | AC 400 (AC380~450 50/60Hz) | IV |
| 100/110 | - | 100/110 | - | 100/110 | HF7 | 80 | KS | | | AC 500 (AC440~575 50/60Hz) | JV |
| 115 | FE5 | 115 | FE6 | 115 | FE7 | 100 | HD | | | | |
| 110/120 | - | 110/120 | - | 110/120 | HK7 | 110 | FD | | | | |
| 120 | K5 | 120 | K6 | 120 | K7 | 120 | KD | | | | |
| 127 | KB5 | 127 | KB6 | 127 | KB7 | 125 | GD | | | | |
| 175 | LC5 | 175 | LC6 | 175 | LC7 | 200 | LD | | | | |
| 200 | L5 | 200 | L6 | 200 | L7 | 220 | MD | | | | |
| 200/208 | - | 200/208 | - | 200/208 | LJ7 | 240 | OD | | | | |
| 208 | LB5 | 208 | LB6 | 208 | LB7 | 250 | UD | | | | |
| 220 | M5 | 220 | M6 | 220 | M7 | | | | | | |
| 200/220 | - | 200/220 | - | 200/220 | LM7 | | | | | | |
| 220/230 | - | 220/230 | - | 220/230 | MP7 | | | | | | |
| 220/240 | - | 220/240 | - | 220/240 | MU7 | | | | | | |
| 220L | M5L | 220L | M6L | 220L | M7L | | | | | | |
| 230 | P5 | 230 | - | 230 | P7 | | | | | | |
| 240 | U5 | 240 | U6 | 240 | U7 | | | | | | |
| 240W | U5W | 240W | - | 240W | - | | | | | | |
| 230/240 | PU5 | 230/240 | PU6 | 230/240 | PU7 | | | | | | |
| 240/277 | - | 240/277 | - | 240/277 | UO7 | | | | | | |
| 256 | A5 | 256 | A6 | 256 | A7 | | | | | | |
| 277 | O5 | 277 | O6 | 277 | O7 | | | | | | |
| 380 | Q5 | 380 | Q6 | 380 | Q7 | | | | | | |
| 400 | V5 | 400 | - | 400 | V7 | | | | | | |
| 380/400 | - | 380/400 | - | 380/400 | QV7 | | | | | | |
| 415 | N5 | 415 | N6 | 415 | N7 | | | | | | |
| 440 | R5 | 440 | R6 | 440 | R7 | | | | | | |
| 400/440 | - | 400/440 | - | 400/440 | VR7 | | | | | | |
| 460 | - | 460 | - | 460 | RW7 | | | | | | |
| 480 | W5 | 480 | W6 | 480 | - | | | | | | |
| 500 | S5 | 500 | - | 500 | S7 | | | | | | |
| 550 | X5 | 550 | - | 550 | X7 | | | | | | |
| 600 | T5 | 600 | T6 | 600 | - | | | | | | |

Control coil characteristics (3pole)



| Frame size | | | 18AF | 22AF | 40AF | 65AF | 100AF | 150AF(A) | |
|--------------------------|--------------|------|-------------------------------------------------------------------------------------|--------------------------|-----------|-----------|-------------|------------------------------------------|--|
| Type | | | MC-6a | MC-9b | MC-32a | MC-50a | MC-75a | MC-130a | |
| | | | MC-9a | MC-12b | MC-40a | MC-65a | MC-85a | MC-150a | |
| | | | MC-12a | MC-18b | | MD-30a | MC-100a | | |
| | | | MC-18a | MC-22b | | | MD-60a | | |
| | | | MR-4, 6, 8 | | | | MD-100a | | |
| AC coil | | | | | | | | | |
| Control voltage | | [Uc] | | | | | | 48, 110~120, 220~240, 300, 380~440, 500V | |
| | 50Hz | [V] | 24, 32, 36, 42, 48, 80, 100, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V | | | | | | |
| | 60Hz | [V] | 24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 440, 480, 600V | | | | | | |
| Voltage limit | | [Uc] | 85 ~110% | | | | | | |
| Coil consumption at 20°C | | | | | | | | | |
| AC 220V | Inrush | [VA] | 70 | 70 | 90 | 110 | 240 | 110 | |
| | 60Hz Holding | [VA] | 9 | 9 | 9 | 13 | 17 | 18 | |
| Heat dissipation | | [W] | 2.3 | 2.3 | 2.7 | 2.8 | 5.4 | 2.7 | |
| Operating time | | | | | | | | | |
| | Closing | [ms] | 15 ... 30 | 15 ... 30 | 15 ... 30 | 15 ... 30 | 15 ... 30 | 20 ... 40 | |
| | Opening | [ms] | 4 ... 19 | 4 ... 19 | 4 ... 19 | 4 ... 19 | 10 ... 30 | 50 ... 70 | |
| DC coil | | | | | | | | | |
| Control voltage | | [Uc] | 12, 20, 24, 30, 48, 60, 80, 100, 110, 125, 200, 220, 250V | | | | | 24, 48, 70~110, 110V | |
| Voltage limit | | [Uc] | 85~110% | | | | | | |
| Coil consumption at 20°C | | | | | | | | | |
| DC 110V | Inrush | [W] | 6 | 6 | 9 | 9 | 18 | 213 | |
| | Holding | [W] | 6 | 6 | 9 | 9 | 18 | 7.5 | |
| Time constant (L/R) | | [ms] | 28 | 28 | 28 | 65 | 75 | | |
| Operating time | | | | | | | | | |
| | Closing | [ms] | 40 ... 70 <i>Note 2)</i> | 40 ... 70 <i>Note 2)</i> | 50 ... 65 | 50 ... 65 | 100 ... 120 | 70 ... 80 | |
| | Opening | [ms] | 4 ... 19 | 4 ... 19 | 4 ... 19 | 4 ... 19 | 10 ... 25 | 60 ... 70 | |

Note) 1. Either semi-electronic coil(A) or electronic coil(B) can be chosen for MC-130a and MC-150a
 2. The operation time may increase up to 80ms when re-supply after the ON state continues.



Note) A1(A2) in line side is internally connected to A1(A2) in load side.



| Frame size | 150AF(B) | 225AF | 400AF | 800AF | 1260AF | 2650AF |
|-------------------------------------------------|--------------------------------|-----------------|--------------------|-------------------------------------------|-----------------|----------------------------------------------------------------------|
| Type | MC-130a | MC-185a | MC-265a | MC-500a | MC-1260a | MC-1400a |
| | MC-150a | MC-225a | MC-330a MC-400a | MC-630a MC-800a MCi-900 MCi-1050 | MCi-1260 | MC-1700a MC-2100a MC-2650a MCi-1700 MCi-2100 MCi-2650 |
| AC/DC common coil | | | | | | |
| Control voltage [Uc] | | | | | | |
| AC/DC | AC 24 | 24/24 | DC 24 | - | - | - |
| AC/DC | 24~48/24~48 | 48/48 | - | 100/100 | - | - |
| AC/DC | 100~240/100~220 | 100~240/100~220 | 100~240/100~220 | 200/200 | 100~240/100~220 | 100~240/100~220 |
| AC | - | 300 | 300 | 300 | - | - |
| AC | - | 400 | 400 | 400 | - | - |
| AC | - | 500 | 500 | 500 | - | - |
| Voltage limit [Uc] | 85~110% <small>Note 1)</small> | | | | | |
| Coil consumption at 20°C <small>Note 2)</small> | | | | | | |
| AC 220V Inrush [VA] | 320 | 380 | 571 | 1000 | 1500 | 2500 |
| 50/60Hz Holding [VA] | 10 | 11.6 | 14 | 29 | 24 | 50 |
| Heat dissipation [W] | 4.5 | 4.7 | 5 | 7.8 | 7.8 | 8.7 |
| Operating time | | | | | | |
| Closing [ms] | 70 | 70 | 55 | 75 | 75 | 80 |
| Opening [ms] | 70 | 70 | 55 | 75 | 75 | 70 |

Note) 1. Voltage limit for DC 24V coil is 75~110%.

2. Operating time for DC 24V coil is 90ms.

3. Either semi-electronic coil(A) or electronic coil(B) can be chosen for MC-130a and MC-150a

4. Please check the details page for each AF range

Control coil characteristics (4pole)



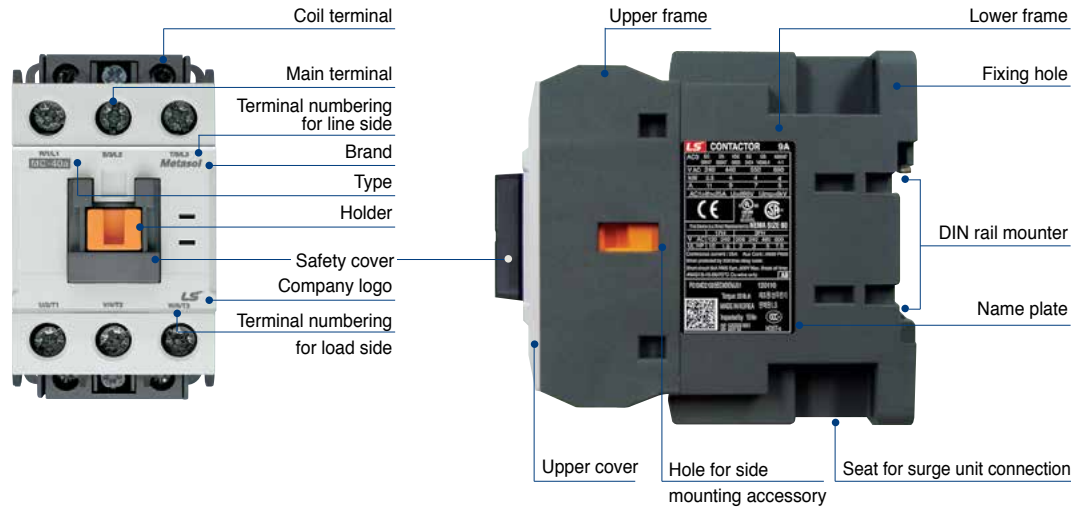
| Frame size | | | 18AF | 22AF | 40AF | 85AF |
|--------------------------|-----------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------------|-----------|
| Type | MC-6a/4P | | MC-22a/4P | MC-32a/4P | | MC-50a/4P |
| | MC-9a/4P | | | MC-40a/4P | | MC-65a/4P |
| | MC-12a/4P | | | | | MC-75a/4P |
| | MC-18a/4P | | | | | MC-85a/4P |
| AC coil | | | | | | |
| Control voltage [Uc] | | | | | | |
| 50Hz | [V] | 24, 32, 42, 48, 80, 100, 110, 220, 230, 240, 380, 400, 500, 550 | 24, 32, 42, 48, 65, 80, 100, 110, 220, 230, 240, 380, 400, 415, 500, 550, 240(wide) | | 24, 48, 100, 110, 200, 220, 230, 240, 380, 400, 415, 440, 500, 550, 240(wide) | |
| | | 24, 48, 100, 110, 120, 200, 208, 220, 230, 240, 277, 380, 480, 600 | 24, 48, 110, 120, 208, 220, 240, 277, 380, 440, 480, 600 | | 24, 48, 110, 120, 208, 220, 230, 240, 277, 380, 440, 480, 600 | |
| | | 24, 48, 100, 110, 120, 200, 220, 230, 240, 380, 415, 440, 500, 550 | 24, 48, 100, 110, 120, 200, 220, 230, 240, 380, 415, 440, 500, 550 | | 24, 48, 110, 120, 220, 230, 240, 240, 380, 415, 440, 500, 550 | |
| Voltage limit | | | 85~110% | | | |
| Coil consumption at 20°C | | | | | | |
| AC 220V | Inrush | [VA] | 70 | 95 | 95 | 220 |
| 60Hz | Holding | [VA] | 9 | 9 | 9 | 17 |
| Heat dissipation [W] | | | 2.3 | 2 | 2 | 5 |
| Operating time | Closing | [ms] | 15..30 | 10~17 | 10~17 | 16~25 |
| | Opening | [ms] | 4...9 | 6~9 | 6~9 | 8~15 |
| DC coil | | | | | | |
| Control voltage [Uc] | | | 12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250 | | | |
| Voltage limit | | | 85~110% | | | |
| Coil consumption at 20°C | | | | | | |
| DC 100V | Inrush | [W] | 6 | 9 | 9 | 460 |
| (18AF: DC110V) | Holding | [W] | 6 | 9 | 9 | 6 |
| Time constant (L/R) [ms] | | | 28 | 50 | 50 | - |
| Operating time | Closing | [ms] | 40..60 | 45~55 | 45~55 | 20~30 |
| | Opening | [ms] | 4...19 | 8~15 | 8~15 | 13~20 |



| Frame size | | | 225AF | 400AF | 800AF |
|--------------------------------------------|---------|---------|---------------------------|-----------------|------------|
| Type | | | MC-100a/4P | MC-265a/4P | MC-500a/4P |
| | | | MC-130a/4P | MC-330a/4P | MC-630a/4P |
| | | | MC-150a/4P | MC-400a/4P | MC-800a/4P |
| | | | MC-185a/4P | | |
| | | | MC-225a/4P | | |
| AC/DC common coil | | | | | |
| Control voltage | | [Uc] | | | |
| | | [AC/DC] | 24/24 | 24(DC Only) | - |
| | | [AC/DC] | 48/48 | - | 100/100 |
| | | [AC/DC] | 100~240/100~220 | 100~240/100~220 | 200/200 |
| | | [AC] | 300 | 300 | 300 |
| | | [AC] | 400 | 400 | 400 |
| | | [AC] | 500 | 500 | 500 |
| Voltage limit | | | 85~110% ^{Noet1)} | | |
| Coil consumption at 20°C ^{Noet2)} | | | | | |
| AC 220V | Inrush | [VA] | 380 | 571 | 1000 |
| 50/60Hz | Holding | [VA] | 11.6 | 14 | 29 |
| Heat dissipation | | [W] | 4.7 | 5 | 7.8 |
| Operating time | Closing | [ms] | 70 | 55 | 75 |
| | Opening | [ms] | 70 | 55 | 75 |

Note) 1. Voltage limit for DC 24V coil is 75~110%.
 2. Operating time for DC 24V coil is 90ms.

Marking

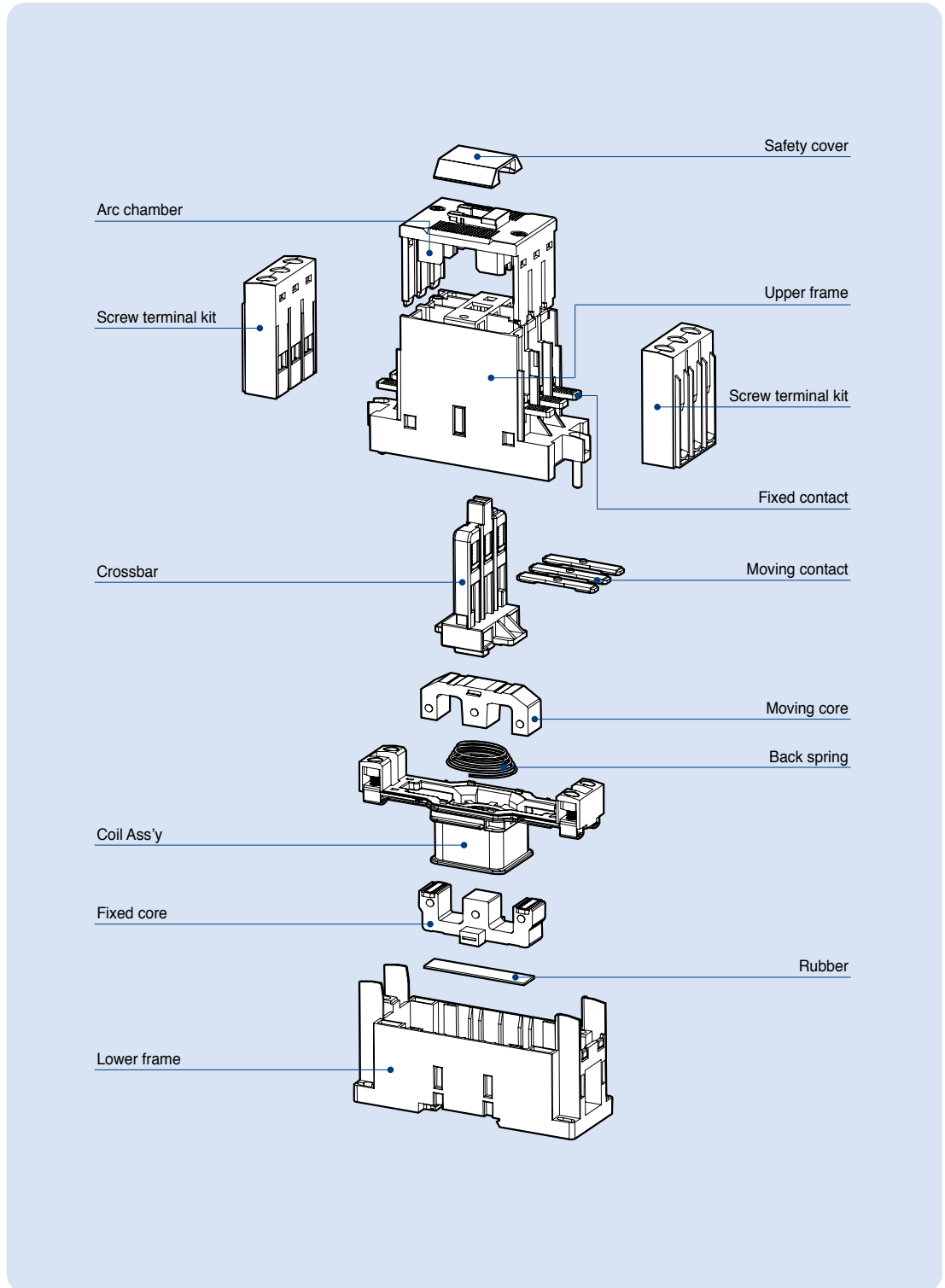


Labels for the nameplate:

- Company logo
- CE marking
- UL size
- Wire size
- Country of origin
- Bar code
- Type
- Product name
- Rating
- UL, CSA rating
- A, B : Metasol MC
S : Susol MC
- Date of manufacture
- Certification (Domestic use only)

| AC3 | | IEC | EN | VDI | BS | GB | K50947 |
|-------------------------------------------------------|-------|---------------------|------|---------|-----|-----|--------|
| 60947 | 60947 | 0660 | 5424 | 14048.4 | -H | | |
| V AC | 240 | 440 | 550 | 690 | | | |
| kW | 2.5 | 4 | 4 | 4 | | | |
| A | 11 | 9 | 7 | 5 | | | |
| AC1=Ith=25A Ui=690V Uimp=6kV | | | | | | | |
| This Device is a Direct Replacement to | | NEMA SIZE 00 | | | | | |
| V AC | 120 | 240 | 208 | 240 | 480 | 600 | |
| UL HP | 1/2 | 1.5 | 2 | 3 | 5 | 7.5 | |
| Continuous current : 25A Aux Cont.: A600 P600 | | | | | | | |
| When protected by 20A time delay fuses. | | | | | | | |
| Short circuit 5kA RMS Sym., 600V Max. Break all lines | | | | | | | |
| AWG18-10 60/75°C Cu-wire only | | | | | | | |
| P0104D21005EC9DEM01 | | 120110 | | | | | |
| Torque: 20 lb.in | | 제조원:성우전기 | | | | | |
| MADE IN KOREA | | 판매원:LS | | | | | |
| Inspected by YS Kim | | CS | | | | | |
| Pa S102002-0001 | | CS 240V 9A | | | | | |
| HOIST-a | | | | | | | |

Internal structure



Contactors (18AF)

Description

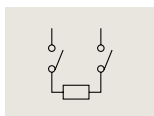
- 3-pole(NO) main contact
- Finger proof design
- DIN rail or screw mountable
- AC or DC control in different physical size
- Front/side mountable accessories available
- Direct mountable overload relay available Rating
- 1NO or 1NC Auxiliary contact built-in as standard.
- Degree of protection: IP20

Rating

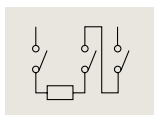


MC-18a

| Contactor type | | | MC-6a | | MC-9a | | MC-12a | | MC-18a | | |
|-----------------------------------|----------------------------------------------------|-----------|----------------------|-----|-------|-----|--------|----|--------|----|----|
| | | | kW | A | kW | A | kW | A | kW | A | |
| AC duty | AC3 | 200/240V | 2.2 | 9 | 2.5 | 11 | 3.5 | 13 | 4.5 | 18 | |
| | | 380/440V | 3 | 7 | 4 | 9 | 5.5 | 12 | 7.5 | 18 | |
| | | 500/550V | 3 | 6 | 4 | 7 | 7.5 | 12 | 7.5 | 13 | |
| | | 690V | 3 | 4 | 4 | 5 | 7.5 | 9 | 7.5 | 9 | |
| | AC4 | 200/240V | 1.5 | 7 | 1.5 | 8 | 2.2 | 11 | 3.7 | 16 | |
| | | 380/440V | 2.2 | 5 | 2.2 | 6 | 4 | 9 | 4 | 11 | |
| | AC1 | | - | 25 | - | 25 | - | 25 | - | 32 | |
| DC1 duty (L/R=1ms) | 2-pole | 24V | - | 10 | - | 10 | - | 12 | - | 18 | |
| | | in series | 48V | - | 10 | - | 10 | - | 12 | - | 18 |
| | | 110V | - | 6 | - | 6 | - | 10 | - | 13 | |
| | 3-pole | 24V | - | 10 | - | 10 | - | 12 | - | 18 | |
| | | in series | 48V | - | 10 | - | 10 | - | 12 | - | 18 |
| | | 110V | - | 8 | - | 8 | - | 12 | - | 18 | |
| DC3, 4 duty (L/R=15ms) | 2-pole | 24V | - | 8 | - | 8 | - | 12 | - | 12 | |
| | | in series | 48V | - | 4 | - | 4 | - | 6 | - | 6 |
| | | 110V | - | 2.5 | - | 2.5 | - | 4 | - | 4 | |
| | 3-pole | 24V | - | 8 | - | 8 | - | 12 | - | 12 | |
| | | in series | 48V | - | 6 | - | 6 | - | 10 | - | 10 |
| | | 110V | - | 4 | - | 4 | - | 8 | - | 8 | |
| Directly mountable Overload relay | | | MT-12 | | | | | | | | |
| Conductor size (solid, stranded) | AWG | | 18~10 | | 16~10 | | 16~8 | | 14~8 | | |
| | (the max. number of conduct: 2) mm ² | | 1~4 | | 1.5~4 | | 1.5~10 | | 2.5~10 | | |
| Conductor type | | | 65/75°C Cu-wire only | | | | | | | | |



2pole for DC contact



3pole for DC contact



Coil voltage

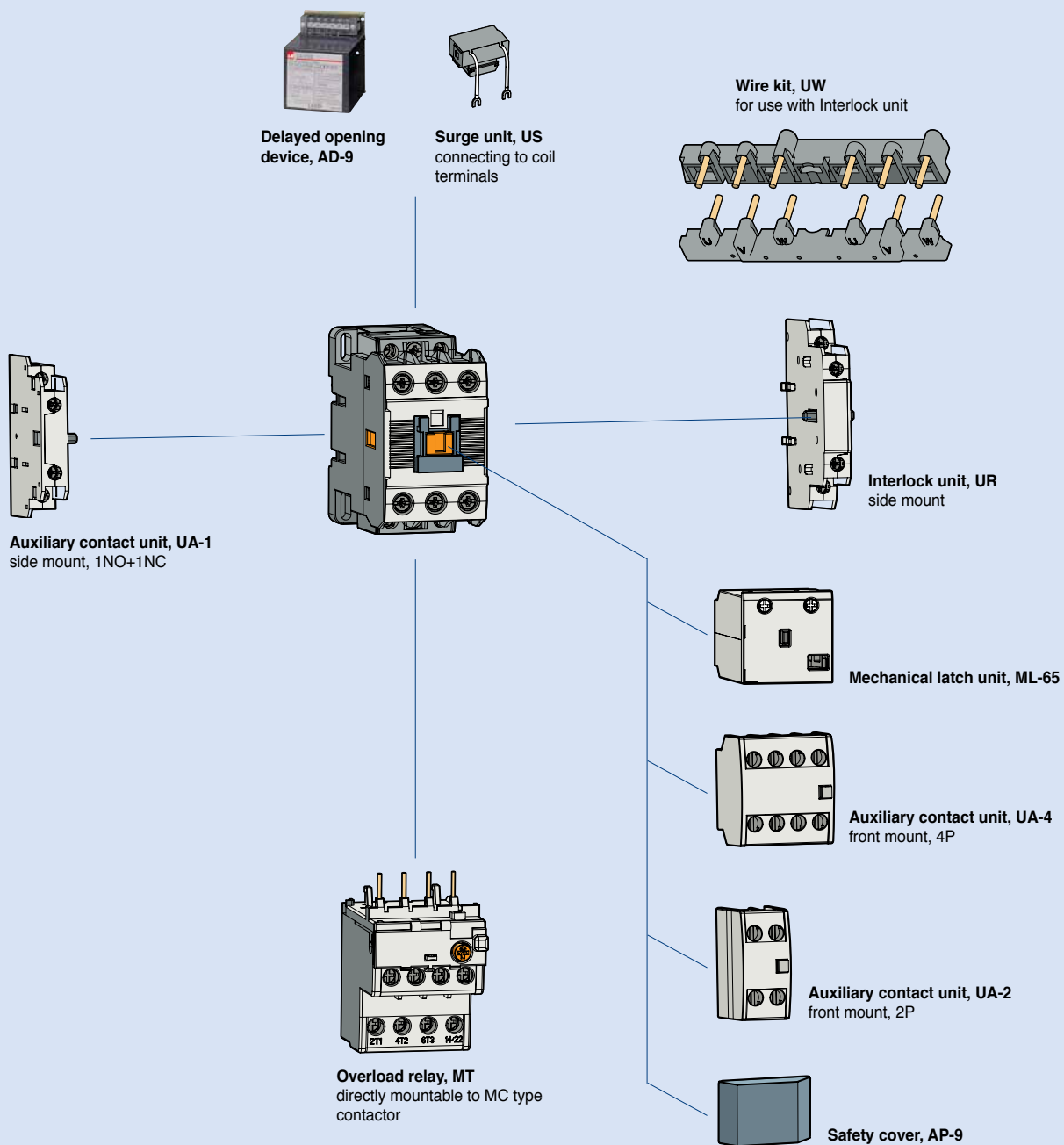
| | | |
|----|------|-------------------------------------------------------------------------------------|
| AC | 50Hz | 24, 32, 36, 42, 48, 80, 100, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V |
| | 60Hz | 24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 440, 480, 600V |
| DC | DC | 12, 20, 24, 30, 48, 60, 80, 100, 110, 125, 200, 220, 250V |

Certification

- CE(IEC)
- UL508
- CCC

* Please be cautious for wiring control power cable, especially "+" (Positive) and "-" (Negative) polarity should be correctly considered.

Accessories



Contactors (22AF)

Description

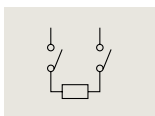
- 3-pole(NO) main contact
- Finger proof design
- DIN rail or screw mountable
- AC or DC control in different physical size
- Front/side mountable accessories available
- Direct mountable overload relay available Rating
- 1NO1NC Auxiliary contact built-in as standard.
- UA-1 is available on only left side
- Degree of protection: IP20

Rating

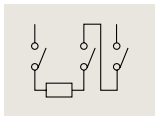


MC-22b

| Contactor type | | | MC-9b | | MC-12b | | MC-18b | | MC-22b | | |
|-----------------------------------|----------------------------------------------------|-----------|----------------------|-----|--------|----|--------|----|--------|----|----|
| | | | kW | A | kW | A | kW | A | kW | A | |
| AC duty | AC3 | 200/240V | 2.5 | 11 | 3.5 | 13 | 4.5 | 18 | 5.5 | 22 | |
| | | 380/440V | 4 | 9 | 5.5 | 12 | 7.5 | 18 | 11 | 22 | |
| | | 500/550V | 4 | 7 | 7.5 | 12 | 7.5 | 13 | 15 | 20 | |
| | | 690V | 4 | 6 | 7.5 | 9 | 7.5 | 9 | 15 | 18 | |
| | AC4 | 200/240V | 1.5 | 8 | 2.2 | 11 | 3.7 | 16 | 3.7 | 18 | |
| | | 380/440V | 2.2 | 6 | 4 | 9 | 4 | 11 | 5.5 | 13 | |
| AC1 | | - | 25 | - | 27 | - | 40 | - | 45 | | |
| DC1 duty (L/R=1ms) | 2-pole | 24V | - | 10 | - | 12 | - | 18 | - | 20 | |
| | | in series | 48V | - | 10 | - | 12 | - | 18 | - | 20 |
| | | 110V | - | 6 | - | 10 | - | 13 | - | 15 | |
| | 3-pole | 24V | - | 10 | - | 12 | - | 18 | - | 20 | |
| | | in series | 48V | - | 10 | - | 12 | - | 18 | - | 20 |
| | | 110V | - | 8 | - | 12 | - | 18 | - | 20 | |
| DC3,4 duty (L/R=15ms) | 2-pole | 24V | - | 8 | - | 12 | - | 12 | - | 20 | |
| | | in series | 48V | - | 4 | - | 6 | - | 6 | - | 15 |
| | | 110V | - | 2.5 | - | 4 | - | 4 | - | 8 | |
| | 3-pole | 24V | - | 8 | - | 12 | - | 12 | - | 20 | |
| | | in series | 48V | - | 6 | - | 10 | - | 10 | - | 20 |
| | | 110V | - | 4 | - | 8 | - | 8 | - | 15 | |
| Directly mountable Overload relay | | | MT-32 | | | | | | | | |
| Conductor size (solid, stranded) | AWG | | 16~10 | | 16~8 | | 14~8 | | 14~8 | | |
| | (the max. number of conductors: 2) mm ² | | 1.5~4 | | 1.5~10 | | 2.5~10 | | 2.5~10 | | |
| Conductor type | | | 65/75°C Cu-wire only | | | | | | | | |



2pole for DC contact



3pole for DC contact



Coil voltage

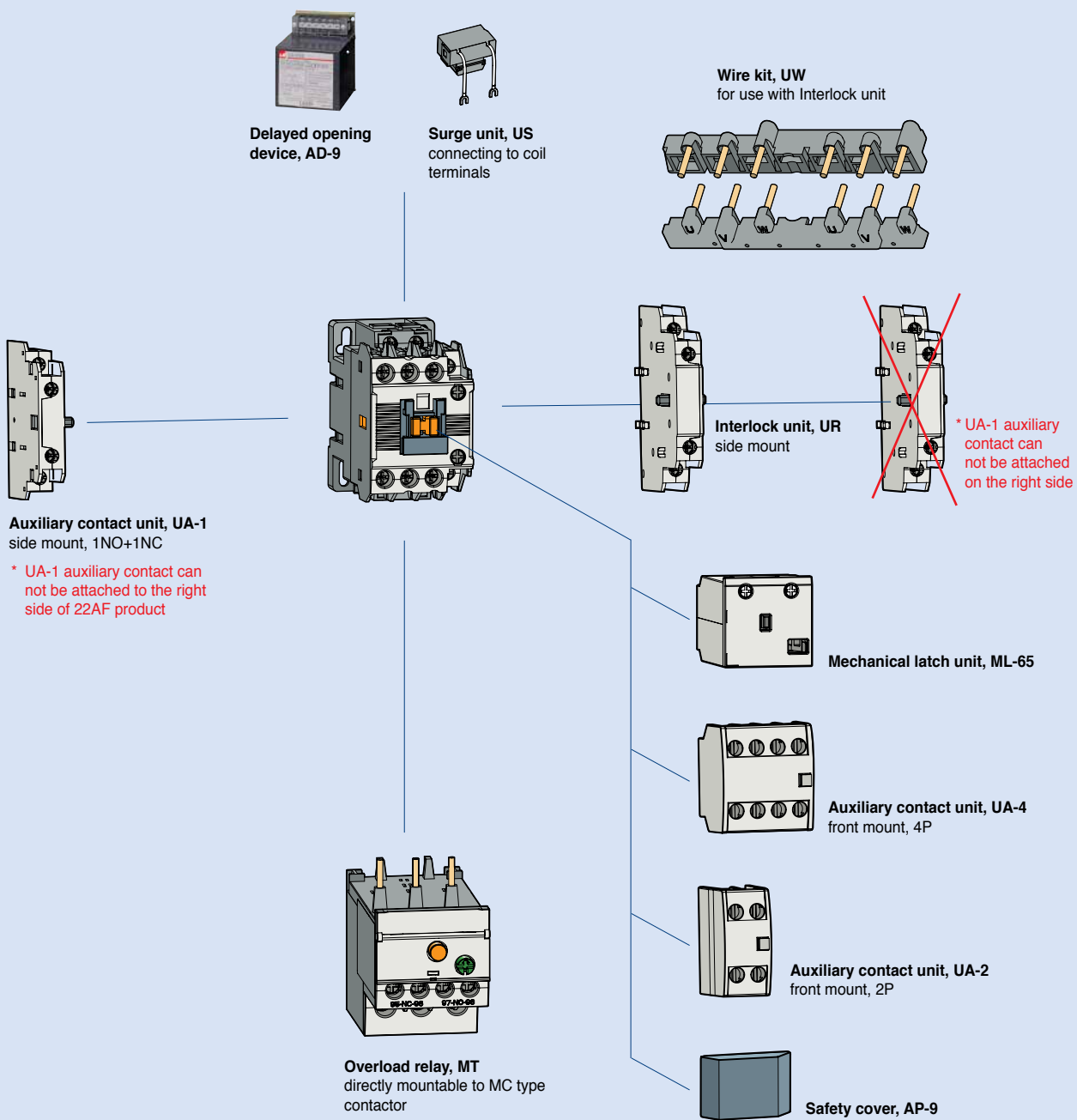
| | | |
|----|------|-------------------------------------------------------------------------------------|
| AC | 50Hz | 24, 32, 36, 42, 48, 80, 100, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V |
| | 60Hz | 24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 440, 480, 600V |
| DC | DC | 12, 20, 24, 30, 48, 60, 80, 100, 110, 125, 200, 220, 250V |

Certification

- CE(IEC)
- UL508
- CCC

* Please be cautious for wiring control power cable, especially "+" (Positive) and "-" (Negative) polarity should be correctly considered.

Accessories



Contactors (40AF)

Description

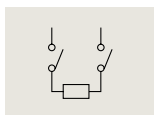
- 3-pole(NO) main contact
- Finger proof design
- DIN rail or screw mountable
- AC or DC control in different physical size
- Front/side mountable accessories available
- Direct mountable overload relay available Rating
- 2NO2NC Auxiliary contact built-in is possible as standard
- Degree of protection: IP20



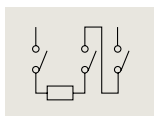
MC-40a

Rating

| Contactor type | | | MC-32a | | MC-40a | |
|-----------------------------------|---------------------|-----------------|----------------------|----|--------|----|
| | | | kW | A | kW | A |
| AC duty | AC3 | 200/240V | 7.5 | 32 | 11 | 40 |
| | | 380/440V | 15 | 32 | 18.5 | 40 |
| | | 500/550V | 18.5 | 28 | 22 | 32 |
| | | 690V | 18.5 | 20 | 22 | 23 |
| | | 1000V | 22 | 17 | 22 | 17 |
| | AC4 | 200/240V | 4.5 | 20 | 5.5 | 25 |
| | | 380/440V | 7.5 | 17 | 11 | 24 |
| | AC1 | | - | 55 | - | 60 |
| DC1 (L/R=1ms) | 2-pole | 24V | - | 25 | - | 35 |
| | in series | 48V | - | 25 | - | 35 |
| | | 110V | - | 25 | - | 25 |
| | | 24V | - | 25 | - | 35 |
| | 3-pole in series | 48V | - | 25 | - | 35 |
| | | 110V | - | 25 | - | 35 |
| DC3,4 (L/R=15ms) | 2-pole | 24V | - | 25 | - | 35 |
| | in series | 48V | - | 20 | - | 20 |
| | | 110V | - | 10 | - | 10 |
| | | 24V | - | 25 | - | 35 |
| | 3-pole in series | 48V | - | 25 | - | 30 |
| | | 110V | - | 20 | - | 20 |
| Directly mountable Overload relay | | | MT-32 | | | |
| Conductor size (solid, stranded) | | AWG | 12~8 | | 8~6 | |
| (the max. number of conduct: 2) | | mm ² | 2.5~10 | | 10~16 | |
| Conductor type | | | 65/75°C Cu-wire only | | | |



2pole for DC contact



3pole for DC contact



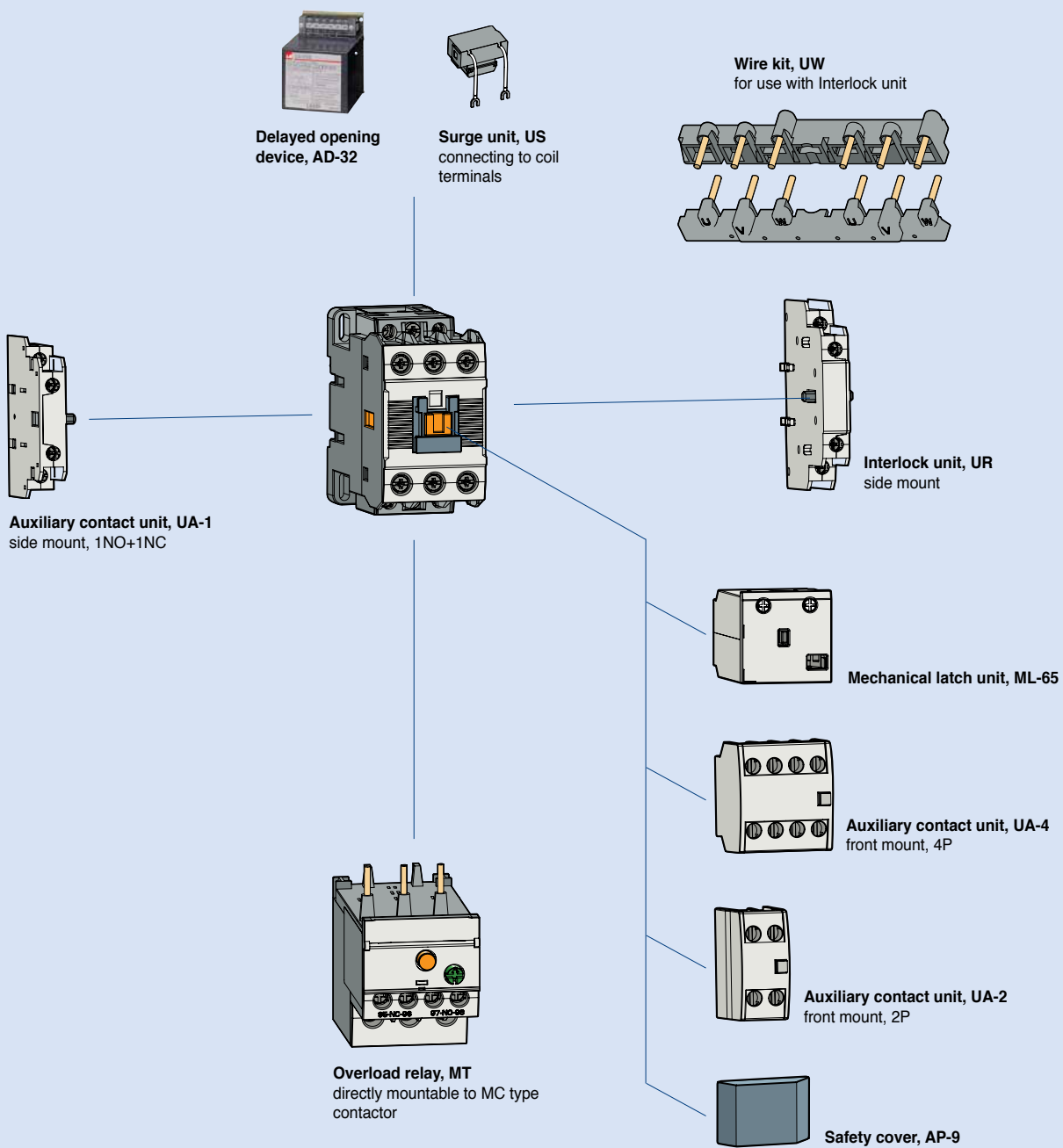
Coil voltage

| | | |
|----|------|-------------------------------------------------------------------------------------|
| AC | 50Hz | 24, 32, 36, 42, 48, 80, 100, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V |
| | 60Hz | 24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 440, 480, 600V |
| DC | DC | 12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250V |

Certification

- CE(IEC)
- UL508
- CCC

Accessories



Contactors (65AF)

Description

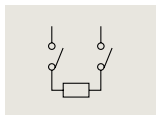
- 3-pole(NO) main contact
- Finger proof design
- DIN rail or screw mountable
- Both screw and Box terminal (lug) type are available
- AC or DC control in different physical size
- Front/side mountable accessories available
- Direct mountable overload relay available rating
- 2NO2NC Auxiliary contact built-in is possible as standard
- Degree of protection: IP20

Rating

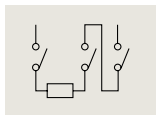


MC-65a

| Contactor type | | | MC-50a | | MC-65a | |
|-----------------------------------|-----------------------|-----------------|----------------------|-----|--------|-----|
| | | | kW | A | kW | A |
| AC duty | AC3 | 200/240V | 15 | 55 | 18.5 | 65 |
| | | 380/440V | 22 | 50 | 30 | 65 |
| | | 500/550V | 30 | 43 | 33 | 60 |
| | | 690V | 30 | 28 | 33 | 35 |
| | | 1000V | 30 | 23 | 30 | 23 |
| | AC4 | 200/240V | 7.5 | 35 | 11 | 50 |
| | | 380/440V | 15 | 32 | 22 | 47 |
| | AC1 | | - | 100 | - | 115 |
| | DC1 duty (L/R=1ms) | 2-pole | 24V | - | 50 | - |
| in series | | 48V | - | 40 | - | 40 |
| | | 110V | - | 35 | - | 35 |
| 3-pole | | 24V | - | 50 | - | 65 |
| | | in series | 48V | - | 50 | - |
| 110V | | - | 50 | - | 65 | |
| DC3, 4 duty (L/R=15ms) | 2-pole | 24V | - | 45 | - | 45 |
| | in series | 48V | - | 25 | - | 25 |
| | | 110V | - | 15 | - | 15 |
| | 3-pole | 24V | - | 50 | - | 50 |
| | | in series | 48V | - | 35 | - |
| | 110V | - | 30 | - | 30 | |
| Directly mountable Overload relay | | | MT-63 | | | |
| Conductor size (solid, stranded) | | AWG | 10~4 | | 8~3 | |
| (the max. number of conduct: 2) | | mm ² | 6~25 | | 10~35 | |
| Conductor type | | | 65/75°C Cu-wire only | | | |



2pole for DC contact



3pole for DC contact



Coil voltage

| | | |
|----|------|-------------------------------------------------------------------------------------|
| AC | 50Hz | 24, 32, 36, 42, 48, 80, 100, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V |
| | 60Hz | 24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 440, 480, 600V |
| DC | DC | 12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250V |

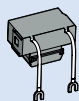
Certification

- CE(IEC)
- UL508
- CCC

Accessories

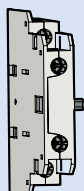
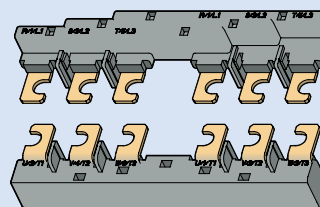


Delayed opening device, AD-50

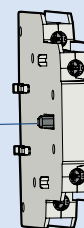
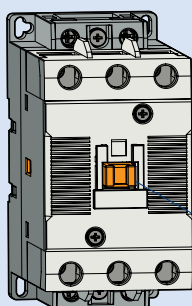


Surge unit, US connecting to coil terminals

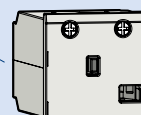
Wire kit, UW for use with Interlock unit



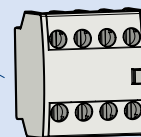
Auxiliary contact unit, UA-1 side mount, 1NO+1NC



Interlock unit, UR side mount



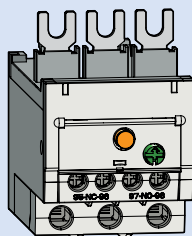
Mechanical latch unit, ML-65



Auxiliary contact unit, UA-4 front mount, 4P



Auxiliary contact unit, UA-2 front mount, 2P



Overload relay, MT directly mountable to MC type contactor



Safety cover, AP-9

Contactors (100AF)

Description

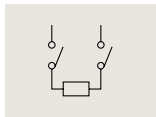
- 3-pole(NO) main contact
- Finger proof design
- DIN rail or screw mountable
- Both screw and Box terminal (lug) type are available
- AC or DC control in different physical size
- Front/side mountable accessories available
- Direct mountable overload relay available Rating
- 2NO2NC Auxiliary contact built-in is possible as standard
- Degree of protection: IP20

Rating

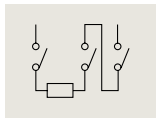


MC-100a

| Contactor type | | | MC-75a | | MC-85a | | MC-100a | |
|------------------------------------------------------------------------|-----------|-----------------|----------------------|----|--------|----|---------|-----|
| | | | kW | A | kW | A | kW | A |
| AC duty | AC3 | 200/240V | 22 | 75 | 25 | 85 | 30 | 105 |
| | | 380/440V | 37 | 75 | 45 | 85 | 55 | 105 |
| | | 500/550V | 37 | 64 | 45 | 75 | 55 | 85 |
| | | 690V | 37 | 42 | 45 | 45 | 45 | 65 |
| | | 1000V | 37 | 28 | 37 | 28 | 37 | 28 |
| | AC4 | 200/240V | 13 | 55 | 15 | 65 | 19 | 80 |
| | | 380/440V | 25 | 52 | 30 | 62 | 37 | 75 |
| AC1 | | - | 125 | - | 135 | - | 160 | |
| DC1 duty (L/R=1ms) | 2-pole | 24V | - | 75 | - | 80 | - | 100 |
| | in series | 48V | - | 65 | - | 65 | - | 100 |
| | | 110V | - | 50 | - | 50 | - | 80 |
| | 3-pole | 24V | - | 75 | - | 80 | - | 100 |
| | | in series | 48V | - | 75 | - | 80 | - |
| | 110V | - | 75 | - | 80 | - | 100 | |
| DC3, 4 duty (L/R=15ms) | 2-pole | 24V | - | 65 | - | 65 | - | 100 |
| | in series | 48V | - | 40 | - | 40 | - | 60 |
| | | 110V | - | 20 | - | 20 | - | 40 |
| | 3-pole | 24V | - | 80 | - | 80 | - | 100 |
| | | in series | 48V | - | 60 | - | 60 | - |
| | 110V | - | 50 | - | 50 | - | 80 | |
| Directly mountable Overload relay | | | MT-95 | | | | | |
| Conductor size (solid, stranded) (the max. number of conductors: 2) | | AWG | 8~2 | | 8~0 | | 8~00 | |
| | | mm ² | 10~35 | | 10~50 | | 10~70 | |
| Conductor type | | | 65/75°C Cu-wire only | | | | | |



2pole for DC contact



3pole for DC contact



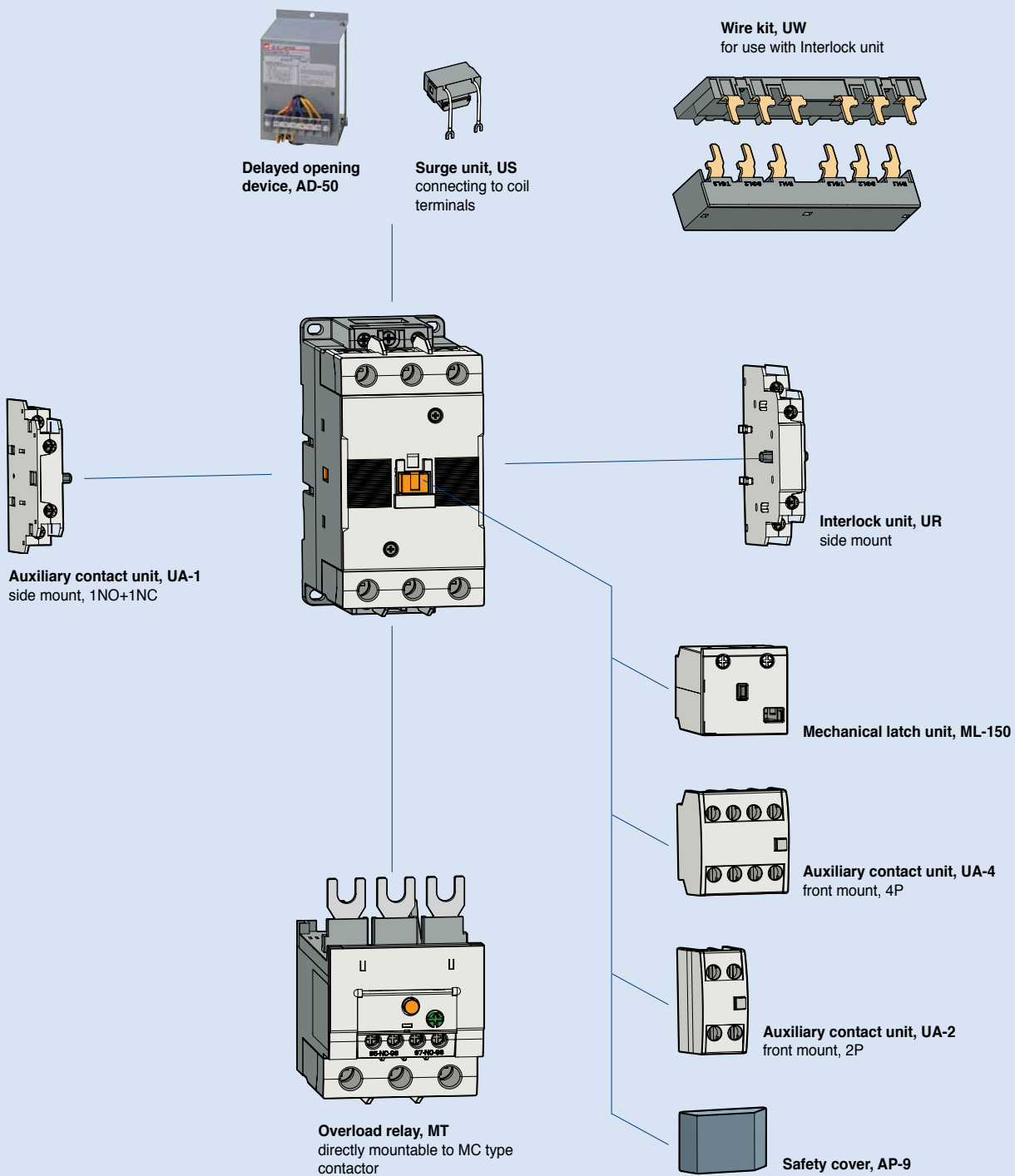
Coil voltage

| | | |
|----|------|-------------------------------------------------------------------------------------|
| AC | 50Hz | 24, 32, 36, 42, 48, 80, 100, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V |
| | 60Hz | 24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 440, 480, 600V |
| DC | DC | 12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250V |

Certification

- CE(IEC)
- UL508
- CCC

Accessories



Contactors (150AF)

Description

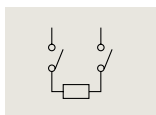
- 3-pole(NO) main contact
- Finger proof design
- DIN rail or screw mountable
- Both screw and Box terminal (lug) type are available
- AC or DC control in the same physical size
- Front/side mountable accessories available
- Direct mountable overload relay available
- 2NO2NC Auxiliary contact built-in is possible as standard
- Degree of protection: IP20



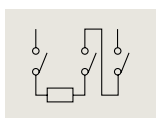
MC-150a

Rating

| Contactor type | | | MC-130a | | MC-150a | | |
|-----------------------------------|--------|-----------------|----------------------|-----|---------|-----|-----|
| | | | kW | A | kW | A | |
| AC duty | AC3 | 200/240V | 37 | 130 | 45 | 150 | |
| | | 380/440V | 60 | 130 | 75 | 150 | |
| | | 500/550V | 60 | 90 | 70 | 100 | |
| | | 690V | 55 | 60 | 55 | 60 | |
| | | 1000V | 75 | 50 | 75 | 50 | |
| | AC4 | 200/240V | 22 | 93 | 30 | 120 | |
| | | 380/440V | 45 | 90 | 55 | 110 | |
| | AC1 | | - | 200 | - | 250 | |
| DC1 duty (L/R=1ms) | 2-pole | 24V | - | 120 | - | 150 | |
| | | in series | 48V | - | 100 | - | 120 |
| | | | 110V | - | 80 | - | 100 |
| | 3-pole | 24V | - | 120 | - | 150 | |
| | | in series | 48V | - | 120 | - | 150 |
| | | | 110V | - | 100 | - | 150 |
| DC3,4 duty (L/R=15ms) | 2-pole | 24V | - | 120 | - | 150 | |
| | | in series | 48V | - | 60 | - | 100 |
| | | | 110V | - | 40 | - | 80 |
| | 3-pole | 24V | - | 120 | - | 150 | |
| | | in series | 48V | - | 90 | - | 130 |
| | | | 110V | - | 80 | - | 120 |
| Directly mountable Overload relay | | | MT-150 | | | | |
| Conductor size (solid, stranded) | | AWG | 3~00 | | 3~4/0 | | |
| (the max. number of conduct: 2) | | mm ² | 35~70 | | 35~95 | | |
| Conductor type | | | 65/75°C Cu-wire only | | | | |



2pole for DC contact



3pole for DC contact



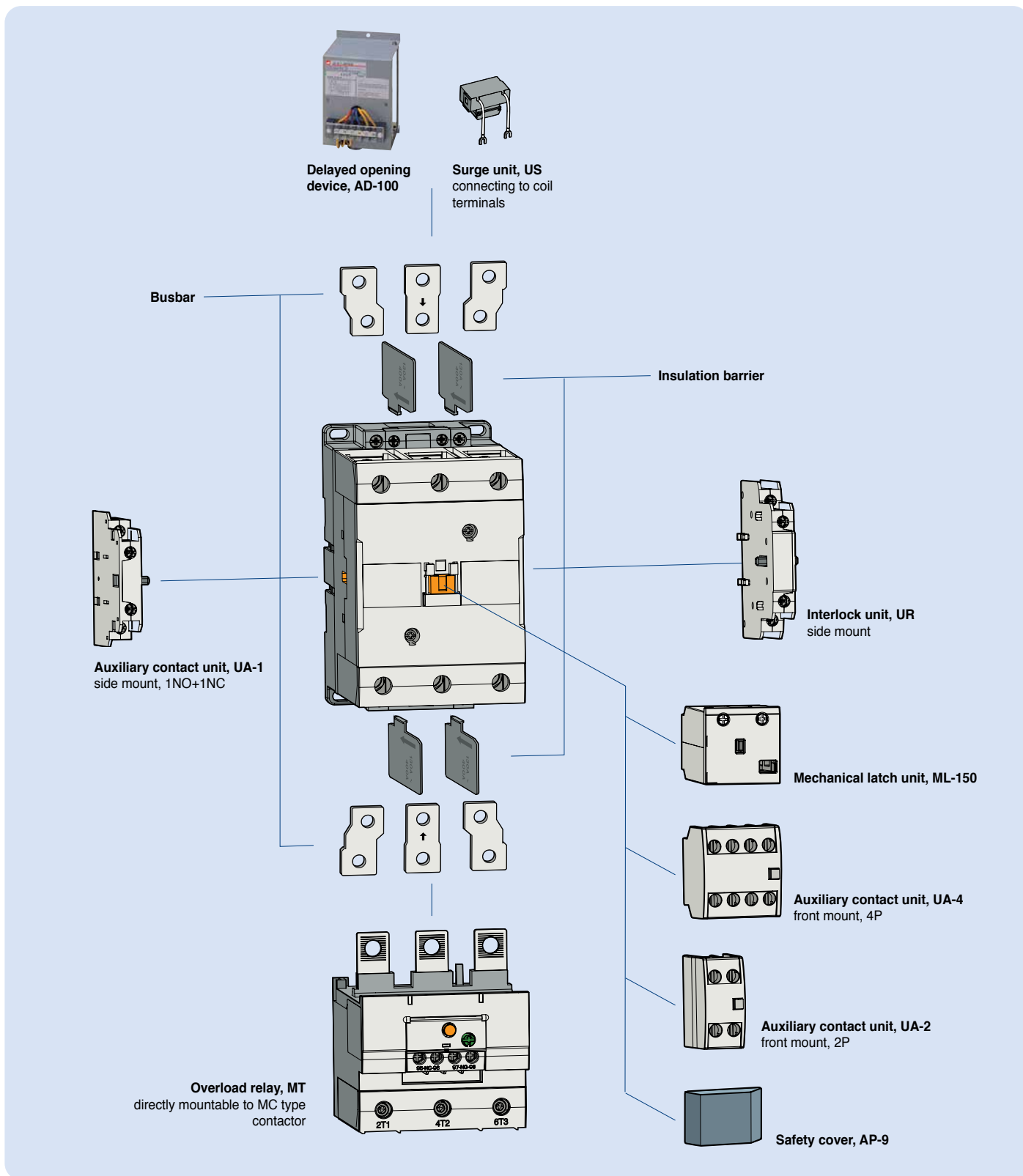
Coil voltage

| AC/DC | 100~240 / 100~220 / 24~48 |
|------------|-------------------------------------------------------|
| AC 50/60Hz | 24, 48, 100~240, 110~120, 220~240, 300, 380~440, 500V |
| DC DC | 24, 48, 70~110, 100~220, 110, 220V |

Certification

- CE(IEC)
- UL508
- CCC

Accessories



Contactors (225AF)

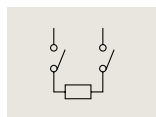
Description

- 3-pole main contact
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- Top/side mountable accessories available
- Direct mountable overload relays available
- Degree of protection: IP00

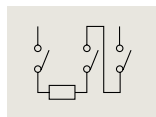
Rating



MC-225a



2pole for DC contact



3pole for DC contact

| Contactor type | | | MC-185a | | MC-225a | | |
|------------------------------------------------------------------------|--------|-----------------|-----------------------|-----|---------|-----|-----|
| | | | kW | A | kW | A | |
| AC duty | AC3 | 200/240V | 55 | 185 | 75 | 225 | |
| | | 380/440V | 90 | 185 | 132 | 225 | |
| | | 500/550V | 110 | 180 | 132 | 200 | |
| | | 690V | 110 | 120 | 140 | 150 | |
| | | 1000V | 132 | 90 | 132 | 90 | |
| | AC4 | 200/240V | 37 | 150 | 45 | 180 | |
| | | 380/440V | 75 | 150 | 90 | 180 | |
| | AC1 | | - | 300 | - | 350 | |
| DC1 duty (L/R=1ms) | 2-pole | 24V | - | 180 | - | 220 | |
| | | in series | 48V | - | 180 | - | 180 |
| | | 110V | - | 150 | - | 150 | |
| | 3-pole | 24V | - | 180 | - | 220 | |
| | | in series | 48V | - | 180 | - | 220 |
| | | 110V | - | 180 | - | 220 | |
| DC3, 4 duty (L/R=15ms) | 2-pole | 24V | - | 180 | - | 220 | |
| | | in series | 48V | - | 150 | - | 150 |
| | | 110V | - | 120 | - | 120 | |
| | 3-pole | 24V | - | 180 | - | 220 | |
| | | in series | 48V | - | 180 | - | 220 |
| | | 110V | - | 150 | - | 150 | |
| Directly mountable Overload relay | | | MT-225 | | | | |
| Conductor size (solid, stranded) (the max. number of conductors: 2) | | AWG | 1~4/0 | | 0~300 | | |
| | | mm ² | 50~95 | | 50~150 | | |
| Conductor type | | | 75°C Cu stranded wire | | | | |



Coil voltage, AC/DC common

| Nominal(ordering) voltage | AC 50/60Hz | DC |
|---------------------------|------------|------------|
| 24V | 24 - 25V | 24V |
| 48V | 48 - 50V | 48V |
| 100/200V | 100 - 240V | 100 - 220V |
| 300V | 265 - 347V | - |
| 400V | 380 - 450V | - |
| 500V | 440 - 575V | - |

Certification

- CE(IEC)
- UL508
- CCC

Accessories



AD-100
Delayed opening device



Safety cover, AP-185



AP-220
Terminal cover



AI-180
Insulation barrier



MT-225
Overload relay
directly mountable to the contactor
Current range 65~240A



AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC



AR-180
Interlock unit
side mount



Contactors (400AF)

Description

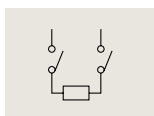
- 3-pole main contact
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- Top/side mountable accessories available
- Direct mountable overload relays available
- Degree of protection: IP00

Rating

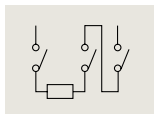


MC-400a

| Contactor type | | | MC-265a | | MC-330a | | MC-400a | | |
|-----------------------------------|-----------------------|-----------|-----------------------|--------|---------|-----|---------|-----|-----|
| | | | kW | A | kW | A | kW | A | |
| AC duty | AC3 | 200/240V | 80 | 265 | 90 | 330 | 125 | 400 | |
| | | 380/440V | 147 | 265 | 160 | 330 | 200 | 400 | |
| | | 500/550V | 147 | 225 | 160 | 280 | 225 | 350 | |
| | | 690V | 160 | 185 | 200 | 220 | 250 | 300 | |
| | | 1000V | 147 | 105 | 147 | 105 | 147 | 105 | |
| | AC4 | 200/240V | 50 | 200 | 55 | 220 | 75 | 300 | |
| | | 380/440V | 102 | 200 | 110 | 220 | 150 | 300 | |
| | AC1 | | - | 400 | - | 500 | - | 520 | |
| | DC1 duty (L/R=1ms) | 2-pole | 24V | - | 220 | - | 300 | - | 400 |
| in series | | | 48V | - | 180 | - | 240 | - | 240 |
| 110V | | | - | 150 | - | 200 | - | 200 | |
| 3-pole | | 24V | - | 220 | - | 300 | - | 400 | |
| | | in series | 48V | - | 220 | - | 300 | - | 400 |
| | | 110V | - | 220 | - | 300 | - | 400 | |
| DC3, 4 duty (L/R=15ms) | 2-pole | 24V | - | 220 | - | 300 | - | 400 | |
| | | in series | 48V | - | 150 | - | 200 | - | 200 |
| | | 110V | - | 120 | - | 150 | - | 150 | |
| | 3-pole | 24V | - | 220 | - | 300 | - | 400 | |
| | | in series | 48V | - | 220 | - | 280 | - | 280 |
| | | 110V | - | 150 | - | 200 | - | 200 | |
| Directly mountable Overload relay | | | | MT-400 | | | | | |
| Conductor size (solid, stranded) | AWG | | 3/0~500 | | 4/0~500 | | 350~700 | | |
| | mm ² | | 95~240 | | 95~240 | | 185~370 | | |
| Conductor type | | | 75°C Cu stranded wire | | | | | | |



2pole for DC contact



3pole for DC contact



Coil voltage, AC/DC common

| Nominal(ordering) voltage | AC 50/60Hz | DC |
|---------------------------|------------|------------|
| 100/200V | 100 - 240V | 100 - 220V |
| 300V | 265 - 347V | - |
| 400V | 380 - 450V | - |
| 500V | 440 - 575V | - |

Certification

- CE(IEC)
- UL508
- CCC

Accessories



AD-300
Delayed opening device



Safety cover, AP-185



AP-400
Terminal cover



AI-180
Insulation barrier



MT-400
Overload relay
directly mountable to the contactor
Current range 85~400A



AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC



AR-180
Interlock unit
side mount

Contactors (800AF)

Description

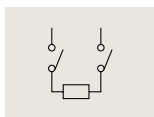
- 3-pole main contact
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- Side mountable accessories available
- Overload relays available
- Degree of protection: IP00

Rating

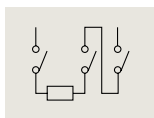


MC-800a

| Contactor type | | | MC-500a | | MC-630a | | MC-800a | | |
|-----------------------------------|-----------------------|-----------|-----------------------|-----|----------|-----|-------------|------|-----|
| | | | kW | A | kW | A | kW | A | |
| AC duty | AC3 | 200/240V | 147 | 500 | 190 | 630 | 220 | 800 | |
| | | 380/440V | 265 | 500 | 330 | 630 | 440 | 800 | |
| | | 500/550V | 265 | 400 | 330 | 500 | 500 | 720 | |
| | | 690V | 300 | 380 | 400 | 420 | 500 | 630 | |
| | | 1000V | 280 | 220 | 280 | 220 | 280 | 220 | |
| | AC4 | 200/240V | 90 | 350 | 110 | 400 | 160 | 630 | |
| | | 380/440V | 176 | 350 | 200 | 400 | 300 | 630 | |
| | AC1 | | - | 700 | - | 900 | - | 1050 | |
| | DC1 duty (L/R=1ms) | 2-pole | 24V | - | 400 | - | 630 | - | 800 |
| in series | | | 48V | - | 240 | - | 630 | - | 800 |
| 110V | | | - | 200 | - | 630 | - | 630 | |
| 3-pole | | 24V | - | 400 | - | 630 | - | 800 | |
| | | in series | 48V | - | 400 | - | 630 | - | 800 |
| | | 110V | - | 400 | - | 630 | - | 800 | |
| DC3, 4 duty (L/R=15ms) | 2-pole | 24V | - | 400 | - | 630 | - | 800 | |
| | | in series | 48V | - | 200 | - | 630 | - | 630 |
| | | 110V | - | 150 | - | 630 | - | 630 | |
| | 3-pole | 24V | - | 400 | - | 630 | - | 800 | |
| | | in series | 48V | - | 280 | - | 630 | - | 630 |
| | | 110V | - | 200 | - | 630 | - | 630 | |
| Directly mountable Overload relay | | | MT-800 | | | | | | |
| Conductor size (solid, stranded) | AWG | | 350~800 | | 600~2000 | | 1700~Busbar | | |
| | mm ² | | 185~480 | | - | | - | | |
| Conductor type | | | 75°C Cu stranded wire | | | | | | |



2pole for DC contact



3pole for DC contact



Coil voltage, AC/DC common

| Nominal(ordering) voltage | AC 50/60Hz | DC |
|---------------------------|------------|------------|
| 100V | 100 - 127V | 100 - 110V |
| 200V | 200 - 240V | 200 - 220V |
| 300V | 265 - 347V | - |
| 400V | 380 - 450V | - |
| 500V | 440 - 575V | - |

Certification

- CE(IEC)
- UL508
- CCC

Accessories



AD-600
Delayed opening device



Safety cover, AP-185



AP-800
Terminal cover



AI-600
Insulation barrier



AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC



AR-600
Interlock unit
side mount



MT-800
Overload relay
directly mountable to the contactor
Current range 200-800A

Contactors (1260AF)

Description

- 3-pole main contact
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- Side mountable accessories available
- Degree of protection: IP00



MC-1260a

Rating

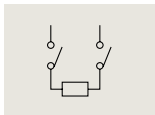
| Contactor type | | | MC-1260a | |
|----------------------------------|-------|-------------------|----------|------|
| | | | kW | A |
| AC duty | AC3 | 200/240V | - | - |
| | | 380/440V | - | - |
| | | 500/550V | - | - |
| | | 690V | - | - |
| | | 1000V | - | - |
| | AC1 | | - | 1260 |
| Conductor size (solid, stranded) | Bubar | 50mm × 10mm × 2ea | | |
| Conductor type | | Busbar | | |



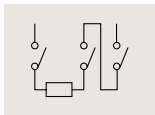
Coil voltage, AC/DC common

| Nominal(ordering) voltage | AC 50/60Hz | DC |
|---------------------------|------------|------------|
| 100V / 200V | 100 - 240V | 100 - 220V |

| Certification |
|-----------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • CE(IEC) • UL, UL/cUL |



2pole for DC contact



3pole for DC contact

Accessories



AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC



AI-800
Insulation barrier

Contactors (2650AF)

Description

- 3-pole main contact
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- Side mountable accessories available
- Degree of protection: IP00

Rating



MC-2650a

| Contactor type | | | MC-1400a | | MC-1700a | | MC-2100a | | MC-2650a | |
|--------------------------------------|-----|----------|---------------|------|---------------|------|---------------|------|----------------|------|
| | | | kW | A | kW | A | kW | A | kW | A |
| AC duty | AC3 | 200/240V | 290 | 860 | 310 | 1050 | - | - | - | - |
| | | 380/440V | 550 | 860 | 700 | 1050 | 900 | 1450 | - | - |
| | | 500/550V | - | - | - | - | - | - | - | - |
| | | 690V | 800 | 800 | 1000 | 950 | - | - | - | - |
| | | 1000V | - | - | - | - | - | - | - | - |
| | AC1 | | - | 1400 | - | 1700 | - | 2100 | - | 2650 |
| Conductor size (solid, stranded)(mm) | | Busbar | 100 × 5 × 2ea | | 100 × 5 × 3ea | | 100 × 5 × 4ea | | 100 × 10 × 3ea | |
| Conductor type | | | Busbar | | | | | | | |



Coil voltage, AC/DC common

| Nominal(ordering) voltage | AC 50/60Hz | DC |
|---------------------------|------------|------------|
| 100V / 200V | 100 - 240V | 100 - 220V |

Certification

- CE(IEC)
- UL60947-4-1
- CCC

Accessories



Insulation barrier
AI-2100(MC-1400a~2100a)
AI-2650(MC-2650a)



AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC

Renewal Magnetic Contactor

Metasol

1260AF Accessories



AI-1260
Insulation barrier



AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC

Renewal Magnetic Contactor

2650AF Accessories



Insulation barrier
AI-2650



AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC

Motor starters

Description

- Opened direct motor starter
- 3-pole(NO) main contact
- Finger proof design
- DIN rail or screw mountable
- AC or DC control contactor selectable
- Front/side mountable accessories available
- Overload relay is directly mounted to the contactor
- Degree of protection: IP20



Rating

| Starter type | 150AF | | 225AF | |
|-----------------------------------------------------------------|---------|---------|---------|---------|
| | MS-130a | MS-150a | MS-185a | MS-225a |
| Number of poles | 3 | | 3 | |
| Rated operational voltage (Ue) | 690V | | 690V | |
| Degree of pollution (IEC60529) | IP20 | | IP20 | |
| Rated operational current Ie ($\theta \leq 40^\circ\text{C}$) | | | | |
| AC-1 Ue max 690V A | 200 | 250 | 300 | 350 |
| AC-3 200/240V A | 130 | 150 | 185 | 225 |
| 380/400V A | 130 | 150 | 185 | 225 |
| 415V A | 130 | 150 | 185 | 225 |
| 440V A | 130 | 150 | 185 | 225 |
| 500V A | 90 | 100 | 180 | 200 |
| 690V A | 60 | 60 | 120 | 150 |
| 1000V A | 50 | 50 | 90 | 90 |
| Rated operational power ($\theta \leq 40^\circ\text{C}$) | | | | |
| AC-3 200/240V kW | 37 | 45 | 55 | 75 |
| 380/400V kW | 60 | 75 | 90 | 132 |
| 415V kW | 60 | 75 | 90 | 132 |
| 440V kW | 60 | 75 | 90 | 132 |
| 500V kW | 60 | 70 | 110 | 132 |
| 690V kW | 55 | 55 | 110 | 140 |
| 1000V kW | 75 | 90 | 132 | 132 |
| According to IEC60947-4-1 | | | | |
| Rated making capacity AC-3 | 1200 | 1500 | 1850 | 2250 |
| Rated breaking capacity AC-3 | 960 | 1200 | 1480 | 1800 |
| Electrical life for Ie/AC-3 Max in millions of operating cycles | 1 | 1 | 1 | 1 |
| Maximum operating rate in operating cycles per hour | 1200 | 1200 | 1200 | 1200 |

Devices usable in the starter combination

| Contactors | | 150AF | | 225AF | |
|---------------------------------------|---------------------------------|-----------|---------|-----------|---------|
| | | MC-130a | MC-150a | - | - |
| with AC or DC control coil | | | | | |
| with coil in common use for AC and DC | | - | - | MC-185a | MC-225a |
| Thermal Overload Relays | | 150AF | | 225AF | |
| Differential type | | MT-150/3K | | MT-225/3K | |
| Class 10 | Non-differential type | MT-150/3H | | MT-225/3H | |
| | Non-differential type(2-heater) | MT-150/2H | | MT-225/2H | |
| Class 20 | Differential type | MT-150/3D | | MT-225/3D | |
| | Setting range A | 34~150A | | 65~240A | |



| 400AF | | |
|---------|---------|---------|
| MS-265a | MS-330a | MS-400a |
| | 3 | |
| | 690V | |
| | IP20 | |
| 400 | 500 | 520 |
| 265 | 330 | 400 |
| 265 | 330 | 400 |
| 265 | 330 | 400 |
| 265 | 330 | 400 |
| 225 | 280 | 350 |
| 185 | 220 | 300 |
| 105 | 105 | 105 |
| 80 | 90 | 125 |
| 147 | 160 | 200 |
| 147 | 160 | 200 |
| 147 | 160 | 200 |
| 147 | 160 | 225 |
| 160 | 200 | 250 |
| 147 | 147 | 147 |
| 2650 | 3300 | 4000 |
| 2120 | 2640 | 3200 |
| 1 | 1 | 0.5 |
| 1200 | 1200 | 1200 |

| 800AF | | |
|---------|---------|---------|
| MS-500a | MS-630a | MS-800a |
| | 3 | |
| | 690V | |
| | IP20 | |
| 700 | 900 | 1050 |
| 500 | 630 | 800 |
| 500 | 630 | 800 |
| 500 | 630 | 800 |
| 500 | 630 | 800 |
| 400 | 500 | 720 |
| 380 | 420 | 630 |
| 220 | 220 | 220 |
| 147 | 190 | 220 |
| 265 | 330 | 440 |
| 265 | 330 | 440 |
| 265 | 330 | 440 |
| 265 | 330 | 500 |
| 300 | 400 | 500 |
| 280 | 280 | 280 |
| 5000 | 6300 | 8000 |
| 4000 | 5040 | 6400 |
| 0.5 | 0.5 | 0.5 |
| 1200 | 1200 | 1200 |

| 400AF | | |
|---------|-----------|---------|
| MC-265a | MC-330a | MC-400a |
| | MT-400/3K | |
| | MT-400/3H | |
| | MT-400/2H | |
| | MT-400/3D | |
| | 85~400A | |

| 800AF | | |
|---------|-----------|---------|
| MC-500a | MC-630a | MC-800a |
| | MT-800/3K | |
| | MT-800/3H | |
| | MT-800/2H | |
| | MT-800/3D | |
| | 200~800A | |

Motor starters

Description

- Opened direct motor starter
- 3-pole(NO) main contacts
- Screw mountable
- AC/DC common use control contactor used (from 225AF)
- Additional accessories available
- Overload relay is directly mounted to the contactor
- Degree of protection: IP20



Rating

| Starter type | 150AF | | 225AF | |
|-----------------------------------------------------------------|---------|---------|---------|---------|
| | MS-130a | MS-150a | MS-185a | MS-225a |
| Number of poles | 3 | | 3 | |
| Rated operational voltage (Ue) | 690V | | 690V | |
| Degree of pollution (IEC60529) | IP20 | | IP20 | |
| Rated operational current Ie ($\theta \leq 40^\circ\text{C}$) | | | | |
| AC-1 Ue max 690V A | 200 | 250 | 300 | 350 |
| AC-3 200/240V A | 130 | 150 | 185 | 225 |
| 380/400V A | 130 | 150 | 185 | 225 |
| 415V A | 130 | 150 | 185 | 225 |
| 440V A | 130 | 150 | 185 | 225 |
| 500V A | 90 | 100 | 180 | 200 |
| 690V A | 60 | 60 | 120 | 150 |
| 1000V A | 50 | 50 | 90 | 90 |
| Rated operational power ($\theta \leq 40^\circ\text{C}$) | | | | |
| AC-3 200/240V kW | 37 | 45 | 55 | 75 |
| 380/400V kW | 60 | 75 | 90 | 132 |
| 415V kW | 60 | 75 | 90 | 132 |
| 440V kW | 60 | 75 | 90 | 132 |
| 500V kW | 60 | 70 | 110 | 132 |
| 690V kW | 55 | 55 | 110 | 140 |
| 1000V kW | 75 | 90 | 132 | 132 |
| According to IEC60947-4-1 | | | | |
| Rated making capacity AC-3 | 1200 | 1500 | 1850 | 2250 |
| Rated breaking capacity AC-3 | 960 | 1200 | 1480 | 1800 |
| Electrical life for Ie/AC-3 Max | | | | |
| in millions of operating cycles | 1 | 1 | 1 | 1 |
| Maximum operating rate | | | | |
| in operating cycles per hour | 1200 | 1200 | 1200 | 1200 |

Devices usable in the starter combination

| Contactors | | 150AF | | 225AF | |
|---------------------------------------|---------------------------------|-----------|---------|-----------|---------|
| | | MC-130a | MC-150a | - | - |
| with AC or DC control coil | | | | | |
| with coil in common use for AC and DC | | - | - | MC-185a | MC-225a |
| Thermal Overload Relays | | 150AF | | 225AF | |
| | Differential type | | | | |
| Class 10 | Non-differential type | MT-150/3K | | MT-225/3K | |
| | Non-differential type(2-heater) | MT-150/3H | | MT-225/3H | |
| Class 20 | Differential type | MT-150/2H | | MT-225/2H | |
| | | MT-150/3D | | MT-225/3D | |
| Setting range A | | 34~150A | | 65~240A | |



| 400AF | | |
|---------|---------|---------|
| MS-265a | MS-330a | MS-400a |
| | 3 | |
| | 690V | |
| | IP20 | |
| 400 | 500 | 520 |
| 265 | 330 | 400 |
| 265 | 330 | 400 |
| 265 | 330 | 400 |
| 265 | 330 | 400 |
| 225 | 280 | 350 |
| 185 | 220 | 300 |
| 105 | 105 | 105 |
| 80 | 90 | 125 |
| 147 | 160 | 200 |
| 147 | 160 | 200 |
| 147 | 160 | 200 |
| 147 | 160 | 225 |
| 160 | 200 | 250 |
| 147 | 147 | 147 |
| 2650 | 3300 | 4000 |
| 2120 | 2640 | 3200 |
| 1 | 1 | 0.5 |
| 1200 | 1200 | 1200 |

| - | - | - |
|---------|-----------|---------|
| MC-265a | MC-330a | MC-400a |
| | MT-400/3K | |
| | MT-400/3H | |
| | MT-400/2H | |
| | MT-400/3D | |
| | 85~400A | |

| 800AF | | |
|---------|---------|---------|
| MS-500a | MS-630a | MS-800a |
| | 3 | |
| | 690V | |
| | IP20 | |
| 700 | 900 | 1050 |
| 500 | 630 | 800 |
| 500 | 630 | 800 |
| 500 | 630 | 800 |
| 500 | 630 | 800 |
| 400 | 500 | 720 |
| 380 | 420 | 630 |
| 220 | 220 | 220 |
| 147 | 190 | 220 |
| 265 | 330 | 440 |
| 265 | 330 | 440 |
| 265 | 330 | 440 |
| 265 | 330 | 500 |
| 300 | 400 | 500 |
| 280 | 280 | 280 |
| 5000 | 6300 | 8000 |
| 4000 | 5040 | 6400 |
| 0.5 | 0.5 | 0.5 |
| 1200 | 1200 | 1200 |

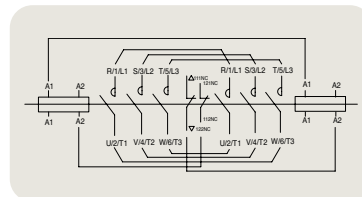
| - | - | - |
|---------|-----------|---------|
| MC-500a | MC-630a | MC-800a |
| | MT-800/3K | |
| | MT-800/3H | |
| | MT-800/2H | |
| | MT-800/3D | |
| | 200~800A | |

Reversing contactors

Description

- Two AC or DC control contactors are interlocked mechanically and electrically
- 3-pole(NO) main contact in each contactor
- Finger proof design
- DIN rail or screw mountable
- Front/side mountable accessories available
- Overload relay can be directly mounted to the contactor if necessary
- Please use interval time of over 25ms
- Degree of protection: IP20

Circuit diagram



Rating

| Type | AC-3 duty | | | | | | | Current (AC3) | Weight (AC control) |
|-----------|------------|------------|------|------|------|------|-------|---------------|---------------------|
| | 200 ~ 240V | 380 ~ 400V | 415V | 440V | 500V | 690V | 1000V | 440V | |
| | kW | kW | kW | kW | kW | kW | kW | A | |
| MC-6a/R | 2.2 | 3 | 3 | 3 | 3 | 3 | - | 7 | 0.63kg |
| MC-9a/R | 2.5 | 4 | 4 | 4 | 4 | 4 | - | 9 | 0.63kg |
| MC-12a/R | 3.5 | 5.5 | 5.5 | 5.5 | 7.5 | 7.5 | - | 12 | 0.63kg |
| MC-18a/R | 4.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | - | 18 | 0.63kg |
| MC-9b/R | 2.5 | 4 | 4 | 4 | 4 | 4 | - | 9 | 0.75kg |
| MC-12b/R | 3.5 | 5.5 | 5.5 | 5.5 | 7.5 | 7.5 | - | 12 | 0.75kg |
| MC-18b/R | 4.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | - | 18 | 0.75kg |
| MC-22b/R | 5.5 | 11 | 11 | 11 | 15 | 15 | - | 22 | 0.75kg |
| MC-32a/R | 7.5 | 15 | 15 | 15 | 18.5 | 18.5 | 22 | 32 | 0.95kg |
| MC-40a/R | 11 | 18.5 | 18.5 | 18.5 | 22 | 22 | 22 | 40 | 0.95kg |
| MC-50a/R | 15 | 22 | 22 | 22 | 30 | 30 | 30 | 50 | 1.7kg |
| MC-65a/R | 18.5 | 30 | 30 | 30 | 33 | 33 | 30 | 65 | 1.7kg |
| MC-75a/R | 22 | 37 | 37 | 37 | 37 | 37 | 37 | 75 | 3.3kg |
| MC-85a/R | 25 | 45 | 45 | 45 | 45 | 45 | 37 | 85 | 3.3kg |
| MC-100a/R | 30 | 55 | 55 | 55 | 55 | 55 | 37 | 105 | 3.3kg |



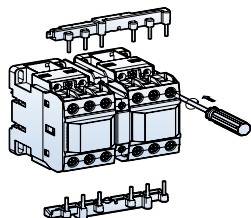
MC-40a/R



MC-65a/R



MC-100a/R



Coil voltage

| | | |
|----|------|---------------------------------------------------------------------|
| AC | 50Hz | 24, 32, 42, 48, 80, 100, 110, 220, 230, 240, 380, 400, 500, 550V |
| | 60Hz | 24, 48, 100, 110, 120, 200, 208, 220, 230, 240, 277, 380, 480, 600V |
| DC | DC | 12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250V |

Certification

- CE(IEC)
- UL508
- CCC

Description

- 3-pole main contact
- Mechanically interlocked
- AC/DC common use coil built (from MC-185a/R)
- Wide coil operation voltage
- Screw mountable
- 4NO4NC Auxiliary contacts built-in
- Top/side mountable accessories available
- Please use interval time of over 50ms
- Degree of protection: IP20



Rating

| Type | AC-3 duty | | | | | | | Current (AC3) | Weight (AC control) |
|-----------|---------------|---------------|------|------|------|------|-------|------------------|------------------------|
| | 200 ~ 240V | 380 ~ 400V | 415V | 440V | 500V | 690V | 1000V | 440V | |
| | kW | kW | kW | kW | kW | kW | kW | A | |
| MC-130a/R | 37 | 60 | 60 | 60 | 60 | 55 | 75 | 130 | 4.3kg |
| MC-150a/R | 45 | 75 | 75 | 75 | 70 | 55 | 75 | 150 | 4.3kg |
| MC-185a/R | 55 | 90 | 90 | 90 | 110 | 110 | 132 | 185 | 13kg |
| MC-225a/R | 75 | 132 | 132 | 132 | 132 | 140 | 132 | 225 | 13kg |
| MC-265a/R | 80 | 147 | 147 | 147 | 147 | 160 | 147 | 265 | 21.4kg |
| MC-330a/R | 90 | 160 | 160 | 160 | 160 | 200 | 147 | 330 | 21.4kg |
| MC-400a/R | 125 | 200 | 200 | 200 | 225 | 250 | 147 | 400 | 21.4kg |
| MC-500a/R | 147 | 265 | 265 | 265 | 265 | 300 | 280 | 500 | 60kg |
| MC-630a/R | 190 | 330 | 330 | 330 | 330 | 400 | 280 | 630 | 60kg |
| MC-800a/R | 220 | 440 | 440 | 440 | 440 | 500 | 280 | 800 | 60kg |



Coil voltage

For MC130a/R and MC-150a/R

| | | |
|----|---------|-------------------------------------------------------|
| AC | 50/60Hz | 24, 48, 100~240, 110~120, 220~240, 300, 380~440, 500V |
| DC | DC | 24, 48, 70~110, 100~220, 110, 220V |

For MC-185a/R ~ MC-800a/R

- 24, 48, 100/200, 300, 400, 500V for types MC-185a/R, 225a/R
- 100/200, 300, 400, 500V for types MC-265a/R, 330a/R, 400a/R
- 100, 200, 300, 400, 500V for types MC-500a/R, 600a/R, 800a/R

| Nominal(ordering) voltage | AC 50/60Hz | DC |
|---------------------------|------------|------------|
| 24V | 24 - 25V | 24V |
| 48V | 48 - 50V | 48V |
| 100V | 100 - 127V | 100 - 110V |
| 200V | 200 - 240V | 200 - 220V |
| 100/200V | 100 - 240V | 100 - 220V |
| 300V | 265 - 347V | - |
| 400V | 380 - 450V | - |
| 500V | 440 - 575V | - |

LED voltage monitoring contactor

Description

- Real time observe coil voltage without additional equipments for protect coil burn out due to the under and over voltage



**Yellow LED: U/V
(Under Voltage)**

L/V R/V O/V

● ● ●

**Green LED: R/V
(Rating Voltage)**

L/V R/V O/V

● ● ●

**Red LED: O/V
(Over Voltage)**

L/V R/V O/V

● ● ●

Coil voltage



| Type | Coil voltage | LED indicate statue | | |
|------------------------------|--------------|---------------------------|---------------------------|-----------------------|
| | | Under Voltage (Yellow) | Rating Voltage (Green) | Over Voltage (Red) |
| MC-130a, MC 150a | 110V | ~80V | 80~130V | 130V~ |
| | 220V | ~160V | 160~260V | 260V~ |
| | 400V | ~330V | 330~480V | 280V~ |
| MC-185a, MC-225a | 110V | ~80V | 80~130V | 130V~ |
| | 220V | ~160V | 160~260V | 260V~ |
| | 400V | ~330V | 330~480V | 280V~ |
| MC-265a, MC-330a, MC-400a | 110V | ~80V | 80~130V | 130V~ |
| | 220V | ~160V | 160~260V | 260V~ |
| | 400V | ~330V | 330~480V | 280V~ |
| MC-500a, MC-630a, MC-800a | 110V | ~80V | 80~130V | 130V~ |
| | 220V | ~160V | 160~260V | 260V~ |

* The accuracy of LED indicate statue is $\pm 5\%$

Contactors relays

Description

- 4,6,8 pole units
- AC/DC control voltage
- 16A continuous current, Ith
- DIN rail or screw mountable
- Degree of protection: IP20

Selection

| Poles | Composition | Types | Remarks |
|--------|---------------------------------------------|-------|-------------------------------------------------------------|
| 4 Pole | 4NO 3NO1NC 2NO2NC 1NO3NC 4NC | MR-4 | Additional auxiliary contacts can be mounted on the relays. |
| 6 pole | 6NO 5NO1NC 4NO2NC 3NO3NC 2NO4NC | MR-6 | UA-2 is mounted on the MR-4 |
| 8 pole | 8NO 7NO1NC 6NO2NC 5NO3NC 4NO4NC | MR-8 | UA-4 is mounted on the MR-4. |



MR-4



MR-6



MR-8

Ratings

| | | | | | | | |
|-------------------------------|----------------------|----------------------|------|------|------|------|------|
| Rated insulation voltage (Ui) | | AC 690V | | | | | |
| Continuous current (Ith) | | 16A | | | | | |
| Operating cycle | | 1800 operations/hour | | | | | |
| Endurance | Mechanical life time | 10 mil. Operations | | | | | |
| | Electrical life time | 0.25 mil. Operations | | | | | |
| Type | | MR-4 | MR-6 | MR-8 | | | |
| AC-15 | Rated current (A) | 120V | 6 | 6 | 6 | | |
| | | 240V | 3 | 3 | 3 | | |
| | | 380V | 1.9 | 1.9 | 1.9 | | |
| | | 480V | 1.5 | 1.5 | 1.5 | | |
| | | 500V | 1.4 | 1.4 | 1.4 | | |
| | | 600V | 1.2 | 1.2 | 1.2 | | |
| DC-13 | Rated current (A) | 125V | 1.1 | 1.1 | 0.55 | 1.1 | 0.55 |
| | | 250V | 0.55 | 0.55 | 0.27 | 0.55 | 0.27 |
| | | 400V | 0.31 | 0.31 | 0.15 | 0.31 | 0.15 |
| | | 500V | 0.27 | 0.27 | 0.13 | 0.27 | 0.13 |
| | | 600V | 0.2 | 0.2 | 0.1 | 0.2 | 0.1 |
| Minimum rated through current | | DC 24V 10mA | | | | | |



Coil voltage

| | | |
|---------------|------|---------------------------------------------------------------------------|
| AC | 50Hz | 24, 32, 42, 48, 65, 80, 100, 110, 120, 220, 230, 240, 380, 400, 500, 550V |
| | 60Hz | 24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 480, 600V |
| DC | DC | 12, 20, 24, 30, 48, 60, 80, 100, 110, 125, 200, 220, 250V |
| Voltage limit | | 85%~110% |

Note) See page 22, 23 for details.

* Please be cautious for wiring control power cable, especially "+" (Positive) and "-" (Negative) polarity should be correctly considered.

Contactors relays for micro current

Description

- 2,4,8 pole units
- AC/DC control voltage
- 0.5 mil. operations, 2.5 mil. operations
- DIN rail or screw mountable (35mm)
- Degree of protection: IP20

* Do not place strong magnets around the main circuit.

Type



MR-4E



MR-8E



UA-4E



UA-1E

| Number of poles | Contact configuration | | Types | Remarks |
|-----------------|----------------------------------|----------------------------------|--------------------------|-----------------------------------------------------------------|
| | Normal contact | Micro contact | | |
| 2 pole | 1a1b | - | UA-1E AU-100E | Auxiliary contact unit (UA-1E) |
| 4 pole | 2a 1a1b 2b | 2a 1a1b 2b | MR-4E or UA-4E | Auxiliary relay (MR-4E) or Auxiliary contact unit (UA-4E) |
| 8 pole | 4a 3a1b 2a2b 1a3b 4b | 4a 3a1b 2a2b 1a3b 4b | MR-8E (MR-4E + UA-4E) | Auxiliary relay (MR-4E) and Auxiliary contact unit (UA-4E) |

* MR-4E UA-4E 'Negative sides of both sides' is the contact for microcurrent.

* UA-1E is applicable to 150AF or less. (Above 225AF, AU-100E is available.)

* Please note that contact welding may occur when a high voltage is applied to the contact for micro current, not the rated voltage.

Ratings

| | Micro contact | Normal contact |
|--------------------------------|-----------------------|----------------------|
| Rated operational voltage (Ue) | AC 130V, DC 180V MAX. | AC 600V |
| Continuous current (Ith) | 1A | 16A |
| Switching current | 0.7A MAX. | 6A |
| Contact Capacity | 10VA (10W) Less | 720VA |
| Rated insulation voltage (Ui) | DC 200V | AC 690V |
| Operating cycle (AC1) | 1800 operations/hour | 1800 operations/hour |
| Endurance | Mechanical | 2.5 mil. operations |
| | Electrical | 0.5 mil. operations |
| Minimum rated through current | DC 5V 0.5mA | DC 24V 10mA |
| Contact reliability | 1×10^8 | 4×10^6 |



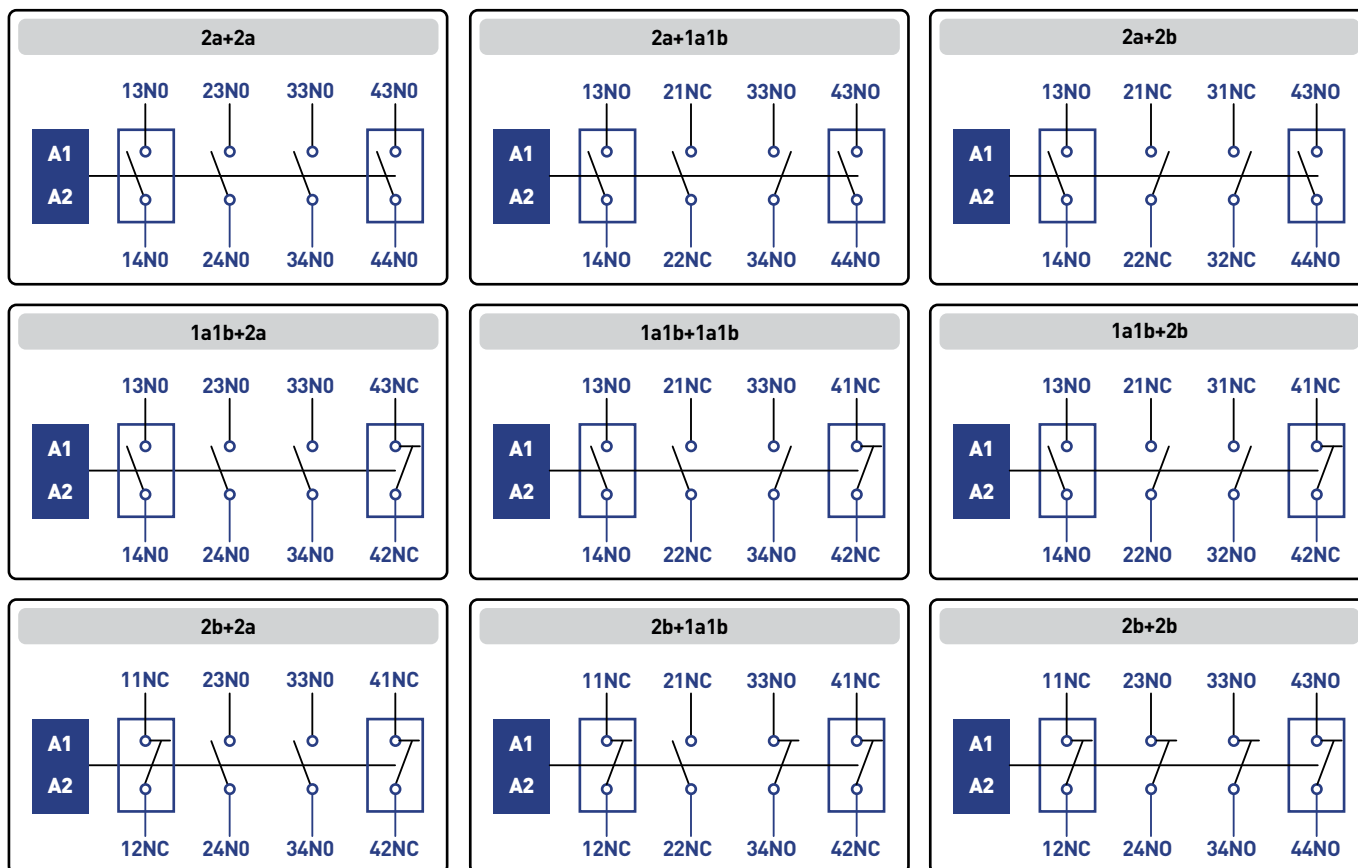
Coil voltage

| | | |
|-------------------|------|-----------------------------------------------------------------------------------------|
| AC | 50Hz | 24, 32, 36, 42, 48, 65, 80, 100, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V |
| | 60Hz | 24, 48, 110, 120, 200, 208, 220, 230, 240, 277, 380, 440, 480, 600V |
| DC | DC | 12, 20, 24, 30, 48, 60, 80, 100, 110, 125, 200, 220, 250V |
| Temperature Range | | 85%~110% |

Note) 1. Coil For detailed specifications, refer to Operating Coil Rating and Characteristics data (22AF) on Catalog 22 page.

2. For DC type products, be sure to wire the polarity of the + and - polarities when wiring the coil terminals.

Contact configuration



* □ is micro contact.

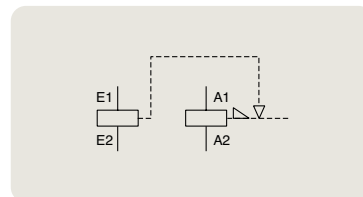
Description

- 3-pole main contact
- Mechanically latched
- Finger proof design
- DIN rail or screw mountable
- Side mountable accessories available
- Direct mountable overload relays available



Circuit diagram

MC-6a/L~150a/L



Rating

| Contactor | AC3 ratings | | | | | Devices combined | | | |
|-----------|----------------|----------------|----------------|------------|-------------|------------------|----------------------------|---------------------|---------------------------|
| | 200/240V kW | 380/440V kW | 500/550V kW | 690V kW | 1000V kW | Type | Durability (Mechanical) | Operational time | Excitation time |
| MC-6a/L | 2.2 | 3 | 3 | 3 | - | ML-65 | 0.5 mil. | Less 30ms (AC) | More than 50ms (AC) |
| MC-9a/L | 2.5 | 4 | 4 | 4 | - | | | | |
| MC-12a/L | 3.5 | 5.5 | 7.5 | 7.5 | - | | | | |
| MC-18a/L | 4.5 | 7.5 | 7.5 | 7.5 | - | | | | |
| MC-9b/L | 2.5 | 4 | 4 | 4 | - | | | | |
| MC-12b/L | 3.5 | 5.5 | 7.5 | 7.5 | - | | | | |
| MC-18b/L | 4.5 | 7.5 | 7.5 | 7.5 | - | | | | |
| MC-22b/L | 5.5 | 11 | 15 | 15 | - | | | | |
| MC-32a/L | 7.5 | 15 | 18.5 | 18.5 | 22 | | | | |
| MC-40a/L | 11 | 18.5 | 22 | 22 | 22 | | | | |
| MC-50a/L | 15 | 22 | 30 | 30 | 30 | | | | |
| MC-65a/L | 18.5 | 30 | 33 | 33 | 30 | | | | |
| MC-75a/L | 22 | 37 | 37 | 37 | 37 | | | | |
| MC-85a/L | 25 | 45 | 45 | 45 | 37 | | | | |
| MC-100a/L | 30 | 55 | 55 | 45 | 37 | ML-150 | 2.5 mil. | Less 50ms (DC) | More than 70ms (DC) |
| MC-130a/L | 37 | 60 | 60 | 55 | 75 | | | | |
| MC-150a/L | 45 | 75 | 75 | 55 | 75 | | | | |
| | | | | | | | | | |
| | | | | | | | | Less 100ms | More than 130ms |

* When the open signal is input for more than 1 second, the coil of the latch is burned.



Coil voltage

| | | |
|----|---------|----------------------------------------------------------------|
| AC | 50/60Hz | 24, 48, 100, 110, 120, 200, 220, 230, 240, 380, 400, 415, 440V |
| DC | DC | 24, 48, 110V |

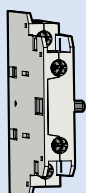
Certification

- CE(IEC)
- UL508

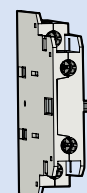
Accessories



Surge unit, US
connecting to coil terminals



Auxiliary contact unit, UA-1
side mount, 1NO+1NC

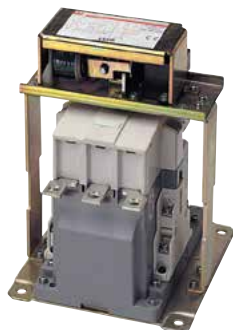


Auxiliary contact unit, UA-1
side mount, 1NO+1NC

* It is not possible to attach "UA-1" on the right side of product for Range MC-9b~22b.



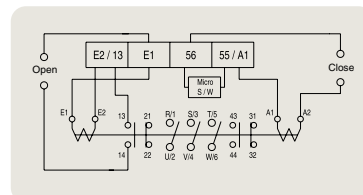
Overload relay
MT-12 ~ MT-150



Description

- 3-pole main contact
- Mechanically interlocked
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 1NO+2NC Auxiliary contacts built-in as standard
- Top/side mountable accessories available

Circuit diagram



Rating

| Contactor | AC3 ratings | | | | | Auxiliary contact (standard) |
|-----------|---------------|---------------|---------------|---------------|---------------|------------------------------|
| | 200 ~ 240V | 380 ~ 440V | 500 ~ 550V | 690V | 1000V | |
| MC-185a/L | 55kW 185A | 90kW 185A | 110kW 180A | 110kW 120A | 132kW 90A | 2NO2NC* (1NO2NC) |
| MC-225a/L | 75kW 225A | 132kW 225A | 132kW 200A | 140kW 150A | 132kW 90A | |
| MC-265a/L | 80kW 265A | 147kW 265A | 147kW 225A | 160kW 185A | 147kW 105A | |
| MC-330a/L | 90kW 330A | 160kW 330A | 160kW 280A | 200kW 220A | 147kW 105A | |
| MC-400a/L | 125kW 400A | 200kW 400A | 225kW 350A | 250kW 300A | 147kW 105A | |

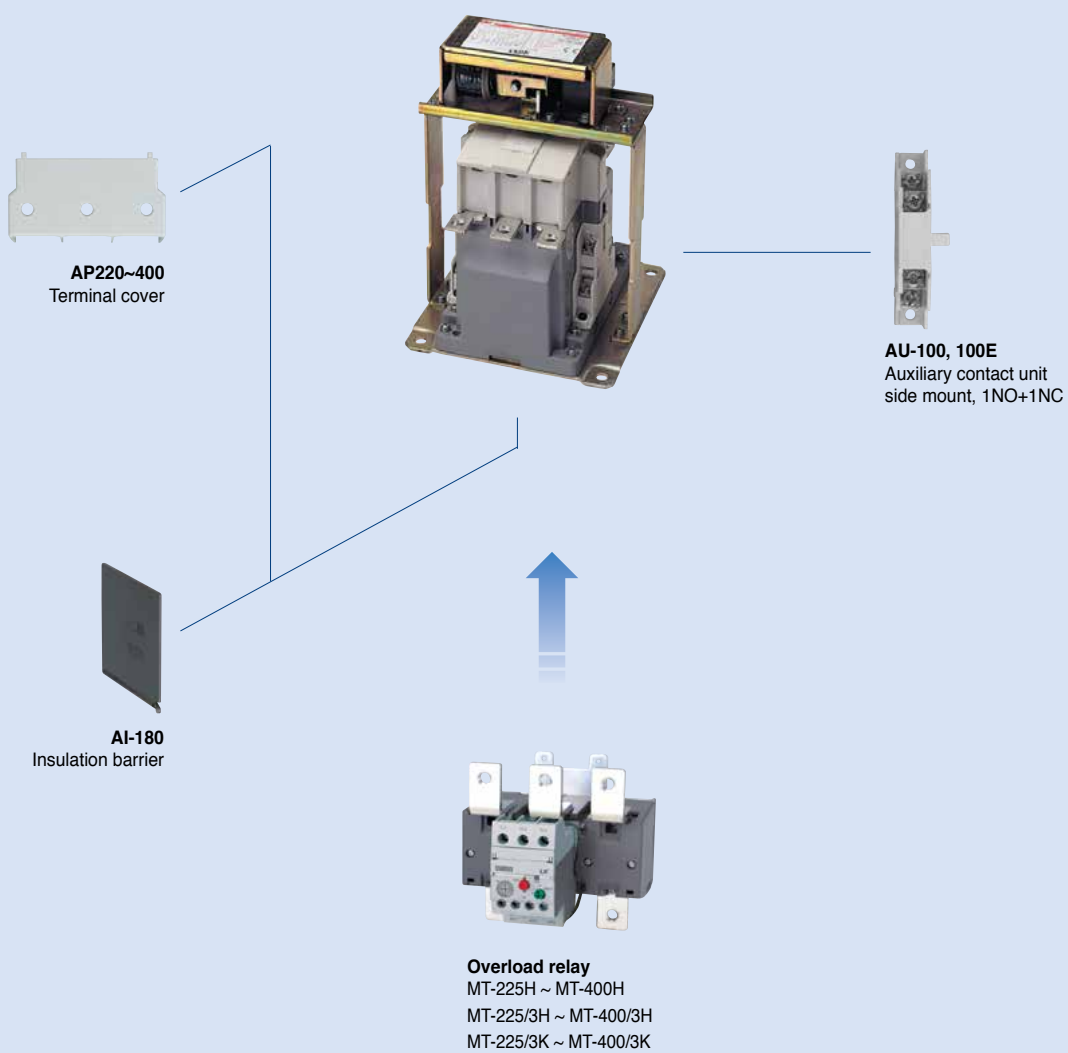
* 1NO contact of 2NO2NC is used in Latch and customer contact is 1NO2NC. If 2NO or higher is used, additional attachment of AU-100 is required.



Coil voltage

| Nominal(ordering) voltage | Operational voltage | Operation frequency |
|---------------------------|---------------------|---------------------|
| 100V | AC100~127V | 600 operations/hour |
| | DC100~125V | 300 operations/hour |
| 200V | AC200~240V | 600 operations/hour |
| | DC200~220V | 300 operations/hour |

Accessories



4-pole Contactors (18AF)

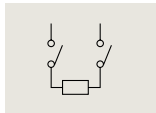
Description

- 4-pole main contact
- Finger proof design
- DIN rail or screw mountable
- Small physical size: 44 mm wide
- Auxiliary contacts are optional
- Front/side mountable accessories
- Direct mountable overload relays available
- Degree of protection: IP20

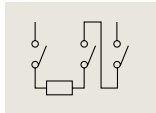
Rating



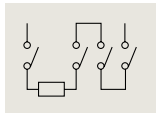
MC-18a/4



2pole for DC contact



3pole for DC contact



4pole for DC contact

| Contactor type | | | MC-6a/4 | | MC-9a/4 | | MC-12a/4 | | MC-18a/4 | | |
|------------------------------------|-----------|-----------------|----------------------|----------|-----------|----------|-----------|----------|-----------|----------|----|
| | | | kW | A | kW | A | kW | A | kW | A | |
| AC duty | AC1 | 200/240V | 9 | 25 | 9 | 25 | 9 | 25 | 15 | 40 | |
| | | 380/440V | 17 | 25 | 17 | 25 | 17 | 25 | 27 | 40 | |
| | | 500/550V | 21 | 25 | 21 | 25 | 21 | 25 | 35 | 40 | |
| | | 690V | 27 | 25 | 27 | 25 | 27 | 25 | 44 | 40 | |
| | AC3 | 200/240V | 2.2 | 9 | 2.5 | 11 | 3.5 | 13 | 4.5 | 18 | |
| | | 380/440V | 3 | 7 | 4 | 9 | 5.5 | 12 | 7.5 | 18 | |
| | | lth | - | 25 | - | 25 | - | 25 | - | 40 | |
| | | | | | | | | | | | |
| DC1 duty (L/R=1ms) | 2-pole | 110V | - | 6 | - | 6 | - | 10 | - | 13 | |
| | in series | 220V | - | 3 | - | 3 | - | 7 | - | 8 | |
| | 3-pole | 110V | - | 8 | - | 8 | - | 12 | - | 18 | |
| | in series | 220V | - | 8 | - | 8 | - | 12 | - | 18 | |
| | 4-pole | 110V | - | 10 | - | 10 | - | 15 | - | 20 | |
| | in series | 220V | - | 10 | - | 10 | - | 12 | - | 20 | |
| UL rating | | | hp | A | hp | A | hp | A | hp | A | |
| | | | 220/240V | 3 | - | 3 | - | 5 | - | 7.5 | - |
| | | | 440/480V | 5 | - | 5 | - | 7.5 | - | 10 | - |
| | | | 550/600V | 7.5 | - | 7.5 | - | 10 | - | 15 | - |
| | | | lth | - | 25 | - | 25 | - | 25 | - | 32 |
| Conductor size (solid, stranded) | | AWG | 18~10 | | 18~10 | | 16~10 | | 16~8 | | |
| (the max. number of conductors: 2) | | mm ² | 1.5~4 | | 1.5~10 | | 1.5~10 | | 1~4 | | |
| Conductor type | | | 65/75°C Cu-wire only | | | | | | | | |



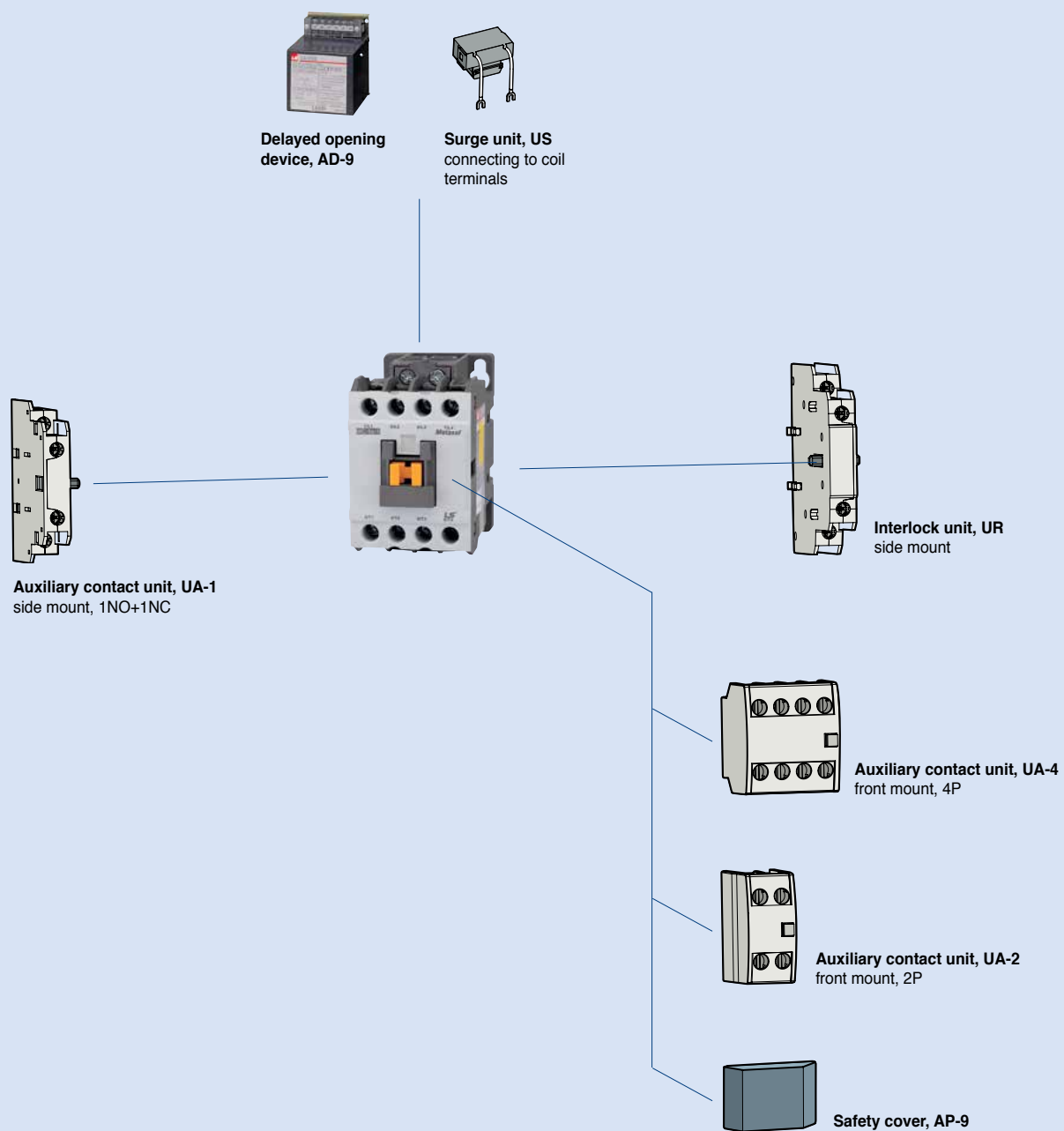
Coil voltage

| | | |
|----|---------|---------------------------------------------------------------------|
| AC | 50Hz | 24, 32, 42, 48, 80, 100, 110, 220, 230, 240, 380, 400, 500, 550V |
| | 60Hz | 24, 48, 100, 110, 120, 200, 208, 220, 230, 240, 277, 380, 480, 600V |
| | 50/60Hz | 24, 48, 100, 110, 120, 200, 220, 230, 240, 380, 415, 440, 500, 550V |
| DC | DC | 12, 20, 24, 30, 48, 60, 80, 100, 110, 125, 200, 220, 250V |

Certification

- CE(IEC)
- UL508
- CCC

Accessories



4-pole Contactors (22, 40AF)

Description

- 4-pole main contact
- Finger proof design
- DIN rail or screw mountable
- Auxiliary contacts are optional
- Front/side mountable accessories
- Direct mountable overload relays available
- Degree of protection: IP20

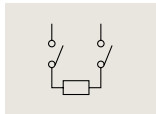
Rating



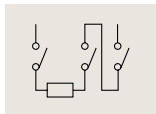
MC-22a/4



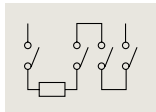
MC-40a/4



2pole for DC contact



3pole for DC contact



4pole for DC contact

| Contactor type | | | MC-22a/4 | | MC-32a/4 | | MC-40a/4 | | |
|------------------------------------|-----------|-----------------|----------------------|----------|-----------|----------|-----------|----------|----|
| | | | kW | A | kW | A | kW | A | |
| AC duty | AC1 | 200/240V | 15 | 40 | 18 | 50 | 22 | 60 | |
| | | 380/440V | 27 | 40 | 35 | 50 | 42 | 60 | |
| | | 500/550V | 35 | 40 | 43 | 50 | 52 | 60 | |
| | | 690V | 44 | 40 | 55 | 50 | 66 | 60 | |
| | AC3 | 200/240V | 5.5 | 22 | 7.5 | 32 | 11 | 40 | |
| | | 380/440V | 11 | 22 | 15 | 32 | 18.5 | 40 | |
| lth | | - | 40 | - | 50 | - | 60 | | |
| DC1 duty (L/R=1ms) | 2-pole | 110V | - | 15 | - | 25 | - | 25 | |
| | in series | 220V | - | 10 | - | 12 | - | 12 | |
| | 3-pole | 110V | - | 20 | - | 25 | - | 35 | |
| | in series | 220V | - | 20 | - | 22 | - | 30 | |
| | 4-pole | 110V | - | 30 | - | 32 | - | 40 | |
| | in series | 220V | - | 25 | - | 30 | - | 35 | |
| UL rating | | | hp | A | hp | A | hp | A | |
| | | | 220/240V | 7.5 | - | 10 | - | 10 | - |
| | | | 440/480V | 10 | - | 20 | - | 25 | - |
| | | | 550/600V | 15 | - | 20 | - | 25 | - |
| | | | lth | - | 32 | - | 45 | - | 50 |
| Conductor size (solid, stranded) | | AWG | 12~8 | | 10~6 | | 8~6 | | |
| (the max. number of conductors: 2) | | mm ² | 2.5~10 | | 4~16 | | 10~16 | | |
| Conductor type | | | 65/75°C Cu-wire only | | | | | | |



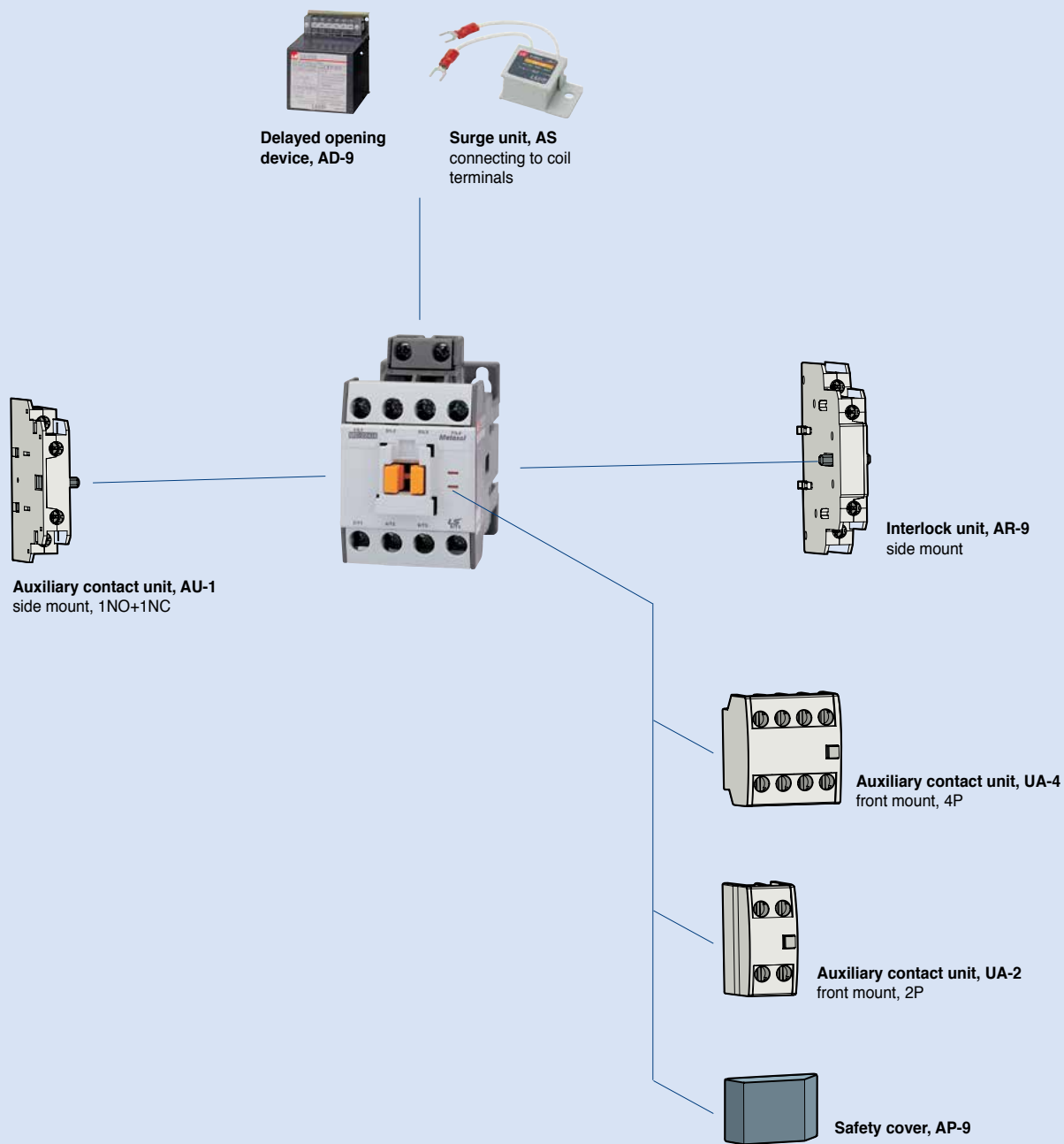
Coil voltage

| | | |
|----|---------|-------------------------------------------------------------------------------------------|
| AC | 50Hz | 24, 36, 42, 48, 65, 80, 100, 110, 220, 230, 240, 380, 400, 415, 440, 500, 550, 240(wide)V |
| | 60Hz | 24, 48, 110, 208, 220, 240, 277, 380, 440, 480, 600V |
| | 50/60Hz | 24, 48, 100, 110, 120, 200, 220, 230, 240, 380, 400, 415, 440, 500, 550V |
| DC | DC | 12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250V |

Certification

- CE(IEC)
- UL508
- CCC

Accessories



4-pole Contactors (85AF)

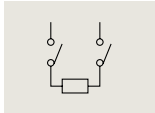
Description

- 4-pole main contact
- Finger proof design
- DIN rail or screw mountable
- Auxiliary contacts are optional
- Front/side mountable accessories
- Direct mountable overload relays available
- Degree of protection: IP20

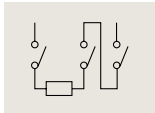
Rating



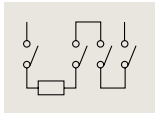
MC-85a/4



2pole for DC contact



3pole for DC contact



4pole for DC contact

| Contactor type | | | MC-50a/4 | | MC-65a/4 | | MC-75a/4 | | MC-85a/4 | | |
|------------------------------------|-----------|-----------------|----------------------|----------|-----------|----------|-----------|----------|-----------|----------|-----|
| | | | kW | A | kW | A | kW | A | kW | A | |
| AC duty | AC1 | 200/240V | 30 | 80 | 37 | 100 | 41 | 110 | 51 | 135 | |
| | | 380/440V | 56 | 80 | 70 | 100 | 76 | 110 | 95 | 135 | |
| | | 500/550V | 70 | 80 | 88 | 100 | 97 | 110 | 120 | 135 | |
| | | 690V | 88 | 80 | 110 | 100 | 120 | 110 | 150 | 135 | |
| | AC3 | 200/240V | 15 | 55 | 18.5 | 65 | 22 | 75 | 25 | 85 | |
| | | 380/440V | 22 | 50 | 30 | 65 | 37 | 75 | 45 | 85 | |
| lth | | - | 80 | - | 100 | - | 110 | - | 135 | | |
| DC1 duty (L/R=1ms) | 2-pole | 110V | - | 35 | - | 35 | - | 50 | - | 50 | |
| | in series | 220V | - | 15 | - | 15 | - | 20 | - | 20 | |
| | 3-pole | 110V | - | 50 | - | 65 | - | 75 | - | 80 | |
| | | in series | 220V | - | 40 | - | 50 | - | 55 | - | 60 |
| | 4-pole | 110V | - | 60 | - | 70 | - | 80 | - | 100 | |
| | | in series | 220V | - | 50 | - | 60 | - | 70 | - | 70 |
| UL rating | | | hp | A | hp | A | hp | A | hp | A | |
| | | | 220/240V | 15 | - | 20 | - | 25 | - | 30 | - |
| | | | 440/480V | 30 | - | 40 | - | 50 | - | 50 | - |
| | | | 550/600V | 30 | - | 40 | - | 50 | - | 50 | - |
| | | | lth | - | 70 | - | 80 | - | 90 | - | 100 |
| Conductor size (solid, stranded) | | AWG | 8~4 | | 6~3 | | 4~2 | | 4~1 | | |
| (the max. number of conductors: 2) | | mm ² | 10~25 | | 16~35 | | 25~35 | | 25~50 | | |
| Conductor type | | | 65/75°C Cu-wire only | | | | | | | | |

Coil voltage

| | | |
|----|---------|---------------------------------------------------------------------------------|
| AC | 50Hz | 24, 48, 100, 110, 200, 220, 230, 240, 380, 400, 415, 440, 500, 550V, 240(wide)V |
| | 60Hz | 24, 48, 110, 120, 208, 220, 240, 277, 380, 440, 480, 600V |
| | 50/60Hz | 24, 48, 110, 120, 220, 230, 240, 380, 400, 415, 440, 500, 550V |
| DC | DC | 12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250V |

Certification

- CE(IEC)
- UL508
- CCC

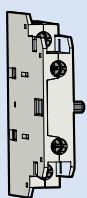
Accessories



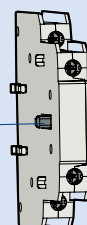
Delayed opening device, AD-50



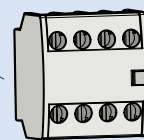
Surge unit, AS connecting to coil terminals



Auxiliary contact unit, AU-1 side mount, 1NO+1NC



Interlock unit, AR-9 side mount



Auxiliary contact unit, UA-4 front mount, 4P



Auxiliary contact unit, UA-2 front mount, 2P



Safety cover, AP-9

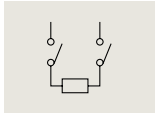
4-pole Contactors (225AF)

Description

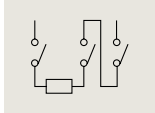
- 4-pole main contact
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- Side mountable accessories
- Direct mountable overload relays available
- Degree of protection: IP20



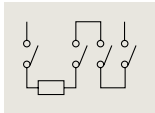
MC-225a/4



2pole for DC contact



3pole for DC contact



4-pole in series

Rating

| Contactor type | | | MC-100a/4 | | MC-130a/4 | | MC-150a/4 | | MC-185a/4 | | MC-225a/4 | | |
|------------------------------------|--------|-----------------|-----------------------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----|
| | | | kW | A | kW | A | kW | A | kW | A | kW | A | |
| AC duty | AC1 | 200/240V | 57 | 200 | 60 | 250 | 76 | 275 | 87 | 300 | 100 | 350 | |
| | | 380/440V | 106 | 200 | 110 | 250 | 142 | 275 | 165 | 300 | 185 | 350 | |
| | | 500/550V | 132 | 200 | 137 | 250 | 180 | 275 | 205 | 300 | 230 | 350 | |
| | | 690V | 165 | 200 | 170 | 250 | 225 | 275 | 255 | 300 | 290 | 350 | |
| | AC3 | 200/240V | 30 | 105 | 37 | 125 | 45 | 150 | 55 | 185 | 75 | 225 | |
| | | 380/440V | 55 | 105 | 60 | 120 | 75 | 150 | 90 | 185 | 132 | 225 | |
| lth | | - | 200 | - | 250 | - | 275 | - | 300 | - | 350 | | |
| DC1 duty (L/R=1ms) | 2-pole | 110V | - | 80 | - | 80 | - | 100 | - | 150 | - | 150 | |
| | | in series 220V | - | 50 | - | 50 | - | 100 | - | 150 | - | 150 | |
| | 3-pole | 110V | - | 100 | - | 100 | - | 150 | - | 180 | - | 220 | |
| | | in series 220V | - | 80 | - | 80 | - | 150 | - | 180 | - | 220 | |
| | 4-pole | 110V | - | 100 | - | 100 | - | 150 | - | 180 | - | 220 | |
| | | in series 220V | - | 90 | - | 100 | - | 150 | - | 180 | - | 220 | |
| UL rating | | | hp | A | hp | A | hp | A | hp | A | hp | A | |
| | | | 220/240V | 30 | - | 40 | - | 50 | - | 60 | - | 75 | - |
| | | | 440/480V | 60 | - | 75 | - | 100 | - | 125 | - | 150 | - |
| | | | 550/600V | 60 | - | 75 | - | 100 | - | 125 | - | 150 | - |
| | | | lth | - | 200 | - | 250 | - | 275 | - | 300 | - | 350 |
| Conductor size (solid, stranded) | | AWG | 6~00 | | 3~00 | | 3~4/0 | | 1~4/0 | | 0~300 | | |
| (the max. number of conductors: 2) | | mm ² | 16~70 | | 35~70 | | 35~95 | | 50~95 | | 50~150 | | |
| Conductor type | | | 75°C Cu stranded wire | | | | | | | | | | |



Coil voltage, AC/DC common

| Nominal(ordering) voltage | AC 50/60Hz | DC |
|---------------------------|------------|------------|
| 24V | 24 - 25V | 24V |
| 48V | 48 - 50V | 48V |
| 100/200V | 100 - 240V | 100 - 220V |
| 300V | 265 - 347V | - |
| 400V | 380 - 450V | - |
| 500V | 440 - 575V | - |

Certification

- CE(IEC)
- UL508
- CCC

Accessories



AD-100
Delayed opening device



Safety cover, AP-185



AP220/4
Terminal cover



AI-180
Insulation barrier



AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC



AR-180
Interlock unit
side mount

4-pole Contactors (400AF)

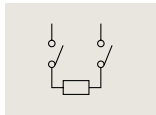
Description

- 4-pole main contact
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- Side mountable accessories
- Degree of protection: IP20

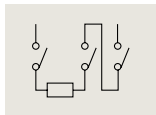
Rating



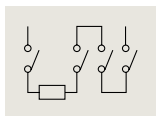
MC-400a/4



2pole for DC contact



3pole for DC contact



4pole for DC contact

| Contactor type | | | MC-265a/4 | | MC-330a/4 | | MC-400a/4 | | |
|----------------------------------|-----------|---------------------------------|-----------------------|----------|-----------|----------|-----------|----------|-----|
| | | | kW | A | kW | A | kW | A | |
| AC duty | AC1 | 200/240V | 115 | 400 | 135 | 500 | 160 | 520 | |
| | | 380/440V | 215 | 400 | 250 | 500 | 300 | 520 | |
| | | 500/550V | 265 | 400 | 315 | 500 | 375 | 520 | |
| | | 690V | 335 | 400 | 390 | 500 | 470 | 520 | |
| | AC3 | 200/240V | 80 | 265 | 90 | 330 | 125 | 400 | |
| | | 380/440V | 147 | 265 | 160 | 330 | 200 | 400 | |
| lth | | - | 400 | - | 500 | - | 520 | | |
| DC1 duty (L/R=1ms) | 2-pole | 110V | - | 150 | - | 200 | - | 200 | |
| | in series | 220V | - | 150 | - | 200 | - | 200 | |
| | 3-pole | 110V | - | 220 | - | 300 | - | 400 | |
| | in series | 220V | - | 220 | - | 300 | - | 300 | |
| | 4-pole | 110V | - | 220 | - | 300 | - | 400 | |
| | in series | 220V | - | 220 | - | 300 | - | 300 | |
| UL rating | | | hp | A | hp | A | hp | A | |
| | | | 220/240V | 100 | - | 100 | - | 150 | - |
| | | | 440/480V | 200 | - | 200 | - | 300 | - |
| | | | 550/600V | 200 | - | 200 | - | 300 | - |
| | | | lth | - | 400 | - | 500 | - | 520 |
| Conductor size (solid, stranded) | | AWG | 3/0~500 | | 4/0~500 | | 350~700 | | |
| | | (the max. number of conduct: 2) | mm ² | | 95~240 | | 185~370 | | |
| Conductor type | | | 75°C Cu stranded wire | | | | | | |



Coil voltage, AC/DC common

| Nominal(ordering) voltage | AC 50/60Hz | DC |
|---------------------------|------------|------------|
| 100/200V | 100 - 240V | 100 - 220V |
| 300V | 265 - 347V | - |
| 400V | 380 - 450V | - |
| 500V | 440 - 575V | - |

Certification

- CE(IEC)
- UL508
- CCC

Accessories



AD-300
Delayed opening device



Safety cover, AP-185



AP-400/4
Terminal cover



AI-180
Insulation barrier



AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC



AR-180
Interlock unit
side mount

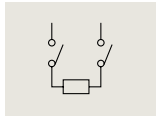
4-pole Contactors (800AF)

Description

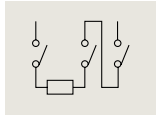
- 4-pole main contact
- AC/DC common use coil built
- Wide coil operation voltage
- Screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- Side mountable accessories
- Degree of protection: IP20



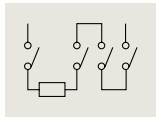
MC-800a/4



2pole for DC contact



3pole for DC contact



4pole for DC contact

Rating

| Contactor type | | | MC-500a/4 | | MC-630a/4 | | MC-800a/4 | |
|------------------------------------|--------|-----------------|-----------------------|----------|-----------|----------|-------------|----------|
| | | | kW | A | kW | A | kW | A |
| AC duty | AC1 | 200/240V | 245 | 700 | 255 | 900 | 310 | 1050 |
| | | 380/440V | 450 | 700 | 470 | 900 | 570 | 1050 |
| | | 500/550V | 560 | 700 | 590 | 900 | 710 | 1050 |
| | | 690V | 710 | 700 | 740 | 900 | 900 | 1050 |
| | AC3 | 200/240V | 147 | 500 | 190 | 630 | 220 | 800 |
| | | 380/440V | 265 | 500 | 330 | 630 | 440 | 800 |
| lth | | - | 700 | - | 900 | - | 1050 | |
| DC1 duty (L/R=1ms) | 2-pole | 110V | - | 200 | - | 630 | - | 630 |
| | | 220V | - | 200 | - | 630 | - | 630 |
| | 3-pole | 110V | - | 400 | - | 630 | - | 800 |
| | | 220V | - | 300 | - | 630 | - | 800 |
| | 4-pole | 110V | - | 400 | - | 630 | - | 800 |
| | | 220V | - | 300 | - | 630 | - | 800 |
| UL rating | | | hp | A | hp | A | hp | A |
| | | 220/240V | 200 | - | 250 | - | 300 | - |
| | | 440/480V | 400 | - | 500 | - | 600 | - |
| | | 550/600V | 400 | - | 500 | - | 600 | - |
| | | lth | - | 700 | - | 900 | - | 1050 |
| Conductor size (solid, stranded) | | AWG | 350~800 | | 600~2000 | | 1700~Busbar | |
| (the max. number of conductors: 2) | | mm ² | 185~480 | | - | | - | |
| Conductor type | | | 75°C Cu stranded wire | | | | | |



Coil voltage, AC/DC common

| Nominal(ordering) voltage | AC 50/60Hz | DC |
|---------------------------|------------|------------|
| 100V | 100 - 127V | 100 - 110V |
| 200V | 200 - 240V | 200 - 220V |
| 300V | 265 - 347V | - |
| 400V | 380 - 450V | - |
| 500V | 440 - 575V | - |

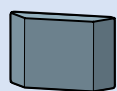
Certification

- CE(IEC)
- UL508
- CCC

Accessories



AD-600
Delayed opening device



Safety cover, AP-185



AP-800/4
Terminal cover



AI-600
Insulation barrier



AU-100, 100E
Auxiliary contact unit
side mount, 1NO+1NC



AR-600
Interlock unit

Enclosed motor starters, Mold enclosure

Description

- Enclosed & full voltage type
 - MW-□bM: Plastic enclosure without buttons
 - MW-□bMB: Plastic enclosure with ON/OFF buttons
- With differential or non-differential type thermal overload relay
- Contactors: 3 pole with AC coil
- Screw mountable
- Degree of protection: IP40



Internal device

Ratings

| Type | AC3 Ratings (IEC 60947-4-1) | | | | Auxiliary contact (standard) | Devices combined | |
|------------|-----------------------------|--------------|--------------|-------------|------------------------------|------------------|--------------------|
| | 220 ~ 240V | 380 ~ 440V | 500 ~ 550V | 690 | | Contactor | Overload relay |
| MW-9bM(B) | 2.5kW 11A | 4kW 9A | 4kW 7A | 4kW 6A | 1NO1NC | MC-9b | MT-32 (0.1~22A) |
| MW-12bM(B) | 3.5kW 13A | 5.5kW 12A | 7.5kW 12A | 7.5kW 9A | | MC-12b | |
| MW-18bM(B) | 4.5kW 18A | 7.5kW 18A | 7.5kW 13A | 7.5kW 9A | | MC-18b | |
| MW-22bM(B) | 5.5kW 22A | 11kW 22A | 15kW 20A | 15kW 18A | | MC-22b | |

Overload relay setting range, Amp.

| MT-12 | | MT-32 | | MT-63 | | MT-95 | |
|-------------|---------|-------------|---------|---------|---------|---------|----------|
| 0.1 - 0.16 | 5 - 8 | 0.1 - 0.16 | 5 - 8 | 4 - 6 | 28 - 40 | 7 - 10 | 54 - 75 |
| 0.16 - 0.25 | 6 - 9 | 0.16 - 0.25 | 6 - 9 | 5 - 8 | 34 - 50 | 9 - 13 | 63 - 85 |
| 0.25 - 0.4 | 7 - 10 | 0.25 - 0.4 | 7 - 10 | 6 - 9 | 45 - 65 | 12 - 18 | 70 - 95 |
| 0.4 - 0.63 | 9 - 13 | 0.4 - 0.63 | 9 - 13 | 7 - 10 | | 16 - 22 | 80 - 100 |
| 0.63 - 1 | 12 - 18 | 0.63 - 1 | 12 - 18 | 9 - 13 | | 18 - 25 | |
| 1 - 1.6 | | 1 - 1.6 | 16 - 22 | 12 - 18 | | 24 - 36 | |
| 1.6 - 2.5 | | 1.6 - 2.5 | 18 - 25 | 16 - 22 | | 28 - 40 | |
| 2.5 - 4 | | 2.5 - 4 | 22 - 32 | 18 - 25 | | 34 - 50 | |
| 4 - 6 | | 4 - 6 | 28 - 40 | 24 - 36 | | 45 - 65 | |



Coil voltage

| AC | 50Hz | 60Hz |
|----|------------------------------------------------------------------|---------------------------------------------------------------------|
| | 24, 32, 42, 48, 80, 100, 110, 220, 230, 240, 380, 400, 500, 550V | 24, 48, 100, 110, 120, 200, 208, 220, 230, 240, 277, 380, 480, 600V |

Certification

- CE(IEC)
- UL508

Type numbering system

| MW-6a | | / | | B | | / | | 2H | |
|---------------|------|----|--|----------------|--------------------------------------|----|--|--------------------------------|----------------------------|
| Rated current | | | | Enclosure type | | | | Thermal overload relay version | |
| 6a | 6A | - | | - | Without push button(Steel enclosure) | 2H | | 2H | Non-differential(2-heater) |
| ⋮ | | B | | B | With push button (Steel enclosure) | 3H | | 3H | Non-differential(3-heater) |
| 100a | 100A | M | | M | Without push button (Mold enclosure) | 3K | | 3K | Differential |
| | | MB | | MB | With push button (Mold enclosure) | 3D | | 3D | Class 20 |

Enclosed motor starters, Steel enclosure

Description



- Full voltage type
 - MW-□a/MW-□b: Steel enclosure without buttons
 - MW-□aB/MW-□bB: Steel enclosure ON/OFF buttons
- Contactors: 3 pole with AC coil
- Overload relay With differential or non-differential type
- Screw mountable
- Degree of protection: IP40

Ratings



| Type | AC3 Ratings (IEC 60947-4-1) | | | | | Devices combined | |
|------------|-----------------------------|---------------|---------------|------------|----------|------------------|--------------------|
| | 220 ~ 240V | 380 ~ 440V | 500 ~ 550V | 690V | 1000V | Contactor | Overload relay |
| MW-6a(B) | 2.2kW 9A | 3kW 7A | 3kW 6A | 3kW 4A | - | MC-6a | MT-12 (0.1~18A) |
| MW-9a(B) | 2.5kW 11A | 4kW 9A | 4kW 7A | 4kW 5A | - | MC-9a | |
| MW-12a(B) | 3.5kW 13A | 5.5kW 12A | 7.5kW 12A | 7.5kW 9A | - | MC-12a | |
| MW-18a(B) | 4.5kW 18A | 7.5kW 18A | 7.5kW 13A | 7.5kW 9A | - | MC-18a | |
| MW-9b(B) | 2.5kW 11A | 4kW 9A | 4kW 7A | 4kW 6A | - | MC-9b | MT-32 (0.1~22A) |
| MW-12b(B) | 3.5kW 13A | 5.5kW 12A | 7.5kW 12A | 7.5kW 9A | - | MC-12b | |
| MW-18b(B) | 4.5kW 18A | 7.5kW 18A | 7.5kW 13A | 7.5kW 9A | - | MC-18b | |
| MW-22b(B) | 5.5kW 22A | 11kW 22A | 15kW 20A | 15kW 18A | - | MC-22b | |
| MW-32a(B) | 7.5kW 32A | 15kW 32A | 18.5kW 28A | 18.5kW 20A | 22kW 17A | MC-32a | MT-32 |
| MW-40a(B) | 11kW 40A | 18.5kW 40A | 22kW 32A | 22kW 23A | 22kW 17A | MC-40a | (0.1~40A) |
| MW-50a(B) | 15kW 55A | 22kW 50A | 30kW 43A | 30kW 28A | 30kW 23A | MC-50a | MT-63 |
| MW-65a(B) | 18.5kW 65A | 30kW 65A | 33kW 60A | 33kW 35A | 33kW 26A | MC-65a | (4~65A) |
| MW-75a(B) | 22kW 75A | 37kW 75A | 37kW 64A | 37kW 42A | 37kW 28A | MC-75a | MT-95 (7~100A) |
| MW-85a(B) | 25kW 85A | 45kW 85A | 45kW 75A | 45kW 45A | 45kW 33A | MC-85a | |
| MW-100a(B) | 30kW 105A | 55kW 105A | 55kW 85A | 55kW 65A | 45kW 33A | MC-100a | |



Internal device

Overload relay setting range, Amp.

| MT-12 | | MT-32 | | MT-63 | | MT-95 | |
|-------------|---------|-------------|---------|---------|---------|---------|----------|
| 0.1 - 0.16 | 5 - 8 | 0.1 - 0.16 | 5 - 8 | 4 - 6 | 28 - 40 | 7 - 10 | 54 - 75 |
| 0.16 - 0.25 | 6 - 9 | 0.16 - 0.25 | 6 - 9 | 5 - 8 | 34 - 50 | 9 - 13 | 63 - 85 |
| 0.25 - 0.4 | 7 - 10 | 0.25 - 0.4 | 7 - 10 | 6 - 9 | 45 - 65 | 12 - 18 | 70 - 95 |
| 0.4 - 0.63 | 9 - 13 | 0.4 - 0.63 | 9 - 13 | 7 - 10 | | 16 - 22 | 80 - 100 |
| 0.63 - 1 | 12 - 18 | 0.63 - 1 | 12 - 18 | 9 - 13 | | 18 - 25 | |
| 1 - 1.6 | | 1 - 1.6 | 16 - 22 | 12 - 18 | | 24 - 36 | |
| 1.6 - 2.5 | | 1.6 - 2.5 | 18 - 25 | 16 - 22 | | 28 - 40 | |
| 2.5 - 4 | | 2.5 - 4 | 22 - 32 | 18 - 25 | | 34 - 50 | |
| 4 - 6 | | 4 - 6 | 28 - 40 | 24 - 36 | | 45 - 65 | |



Coil voltage

| AC | 50Hz | 24, 32, 42, 48, 80, 100, 110, 220, 230, 240, 380, 400, 500, 550V |
|----|------|---------------------------------------------------------------------|
| | 60Hz | 24, 48, 100, 110, 120, 200, 208, 220, 230, 240, 277, 380, 480, 600V |

| Certification |
|---------------|
| • CE(IEC) |
| • UL508 |

Capacitor contactors

Description

Capacitor unit(Pre-loading resistor) is connected to the terminals of the contactor to reduce the high inrush current exceeding $20 \times I_n$.

- AC control coil on selection
- 3-pole(NO) main contact
- Finger proof design
- DIN rail or screw mountable
- IEC 60947-4-1 AC 6b



| Type | Rating (kVar, A) | | | |
|--------------------|------------------|----------|----------|----------|
| | 220~240V | 400~440V | 500~550V | 600~690V |
| MC-9b with AC-9 | 5kVar | 9.7kVar | 14kVar | 16kVar |
| | 13A | 14A | 16A | 15A |
| MC-12b with AC-9 | 6.7kVar | 12.5kVar | 18kVar | 18kVar |
| | 18A | 18A | 21A | 17A |
| MC-18b with AC-9 | 8.5kVar | 16.7kVar | 24kVar | 26kVar |
| | 22A | 24A | 28A | 25A |
| MC-22b with AC-9 | 10kVar | 18kVar | 26kVar | 30kVar |
| | 26A | 26A | 30A | 29A |
| MC-32a with AC-9 | 15kVar | 25kVar | 36kVar | 40kVar |
| | 39A | 36A | 42A | 38A |
| MC-40a with AC-9 | 20kVar | 33.3kVar | 48kVar | 53kVar |
| | 52A | 48A | 55A | 51A |
| MC-50a with AC-50 | 20kVar | 40kVar | 58kVar | 65kVar |
| | 52A | 58A | 67A | 63A |
| MC-65a with AC-50 | 25kVar | 45.7kVar | 66kVar | 73kVar |
| | 66A | 66A | 76A | 70A |
| MC-75a with AC-75 | 29.7kVar | 54kVar | 78kVar | 85kVar |
| | 78A | 78A | 90A | 82A |
| MC-85a with AC-75 | 35kVar | 60kVar | 92kVar | 100kVar |
| | 92A | 87A | 106A | 96A |
| MC-100a with AC-75 | 37kVar | 62kVar | 94kVar | 105kVar |
| | 97A | 89A | 109A | 101A |

| Type | Rating (kVar, A) | |
|---------|------------------|----------|
| | 500~550V | 600~690V |
| MC-9b | 4kVar | 3.5kVar |
| | 4.6A | 3.4A |
| MC-12b | 4kVar | 4kVar |
| | 4.6A | 3.8A |
| MC-18b | 5kVar | 4.5kVar |
| | 5.8A | 4.3A |
| MC-22b | 8kVar | 8kVar |
| | 9.2A | 7.7A |
| MC-32a | 17kVar | 14kVar |
| | 20A | 13A |
| MC-40a | 25kVar | 18kVar |
| | 29A | 17A |
| MC-50a | 30kVar | 25kVar |
| | 35A | 24A |
| MC-65a | 40kVar | 35kVar |
| | 46A | 34A |
| MC-75a | 50kVar | 40kVar |
| | 58A | 38A |
| MC-85a | 55kVar | 45kVar |
| | 64A | 43A |
| MC-100a | 60kVar | 48kVar |
| | 69A | 46A |
| MC-130a | 70kVar | 60kVar |
| | 81A | 58A |
| MC-150a | 90kVar | 78kVar |
| | 104A | 75A |
| MC-185a | 120kVar | 100kVar |
| | 139A | 96A |
| MC-225a | 130kVar | 105kVar |
| | 150A | 101A |
| MC-265a | 140kVar | 115kVar |
| | 162A | 111A |
| MC-330a | 185kVar | 140kVar |
| | 214A | 135A |
| MC-400a | 195kVar | 160kVar |
| | 225A | 154A |
| MC-500a | 330kVar | 290kVar |
| | 381A | 279A |
| MC-630a | 340kVar | 300kVar |
| | 393A | 289A |
| MC-800a | 370kVar | 320kVar |
| | 427A | 308A |

- Note) 1. When the switch is closed condenser must be discharged before recharged. (Maximum residual voltage at terminals $\leq 50V$)
 2. To prevent short current, gG type fuse must be 1.5~2 times than rated current.



Coil voltage

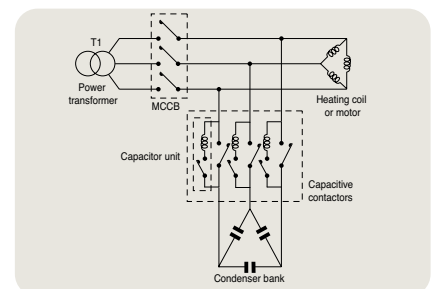
| AC | 50Hz | 24, 32, 42, 48, 80, 100, 110, 220, 230, 240, 380, 400, 500, 550V |
|----|------|---------------------------------------------------------------------|
| | 60Hz | 24, 48, 100, 110, 120, 200, 208, 220, 230, 240, 277, 380, 480, 600V |

These capacitive contactors are suitable for switching single-step or multiple-step condenser bank.

It is standardized by IEC-60947-4941, UL and CSA.

Features of capacitor unit(Pre-loading resistor)

- Damping resistor that can limit the inrush current upto $60 \times I_n$ is connected to the mechanism that closed earlier than the main contact of the contactor
- No heat loss by the serial resistor
- Eliminate the switching surge
- Improving the performance of the capacitor system



Example

2-pole AC Contactors, Definite purpose

Description



- Two normally open main contacts
- Screw clamp or fast-on connections
- Small and light design suitable for use in air conditioners, heaters, refrigerators, etc.
- Screw mountable
- No auxiliary contact
- AC control voltage

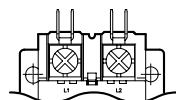
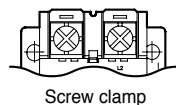


Ratings

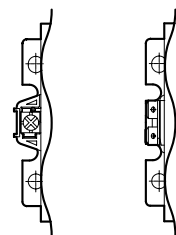
| Type | AC3 ratings | | | Ith | Contact | |
|----------|-------------|----------|----------|-----|---------|----|
| | 220~240V | 380~440V | 500~550V | | NO | NC |
| GMC-10P2 | 10A | 8A | 6A | 20A | 2 | - |
| GMC-20P2 | 20A | 17A | 14A | 30A | 2 | - |
| GMC-25P2 | 25A | 21A | 17A | 35A | 2 | - |
| GMC-30P2 | 30A | 23A | 21A | 40A | 2 | - |
| GMC-35P2 | 35A | 26A | 23A | 45A | 2 | - |
| GMC-40P2 | 40A | 32A | 26A | 50A | 2 | - |

Insulation voltage: 690V at AC, 250V at DC

Main terminal



Coil terminal



Control coil characteristics

| Coil voltage | Coil consumption (VA) | | Thermal dissipation (W) | Operational voltage(V) | | Coil current (mA) | Operational time (ms) | |
|--------------|-----------------------|---------|-------------------------|-----------------------------|-------------------------------|-------------------|-----------------------|---------|
| | Inrush | Holding | | Pick-up | Drop-out | | Closing | Opening |
| 24V 50/60Hz | 35 | 6.0 | 2 | 83% or less of coil voltage | More than 20% of coil voltage | 263 | 40 | 30 |
| 48V 50/60Hz | 35 | 6.0 | 2 | | | 131 | 40 | 30 |
| 100V 50/60Hz | 35 | 6.0 | 2 | | | 63 | 40 | 30 |
| 110V 50/60Hz | 35 | 6.0 | 2 | | | 57 | 40 | 30 |
| 120V 50/60Hz | 35 | 6.0 | 2 | | | 53 | 40 | 30 |
| 200V 50/60Hz | 35 | 6.0 | 2 | | | 32 | 40 | 30 |
| 220V 50/60Hz | 35 | 6.0 | 2 | | | 29 | 40 | 30 |
| 230V 50/60Hz | 35 | 6.0 | 2 | | | 27 | 40 | 30 |
| 240V 50/60Hz | 35 | 6.0 | 2 | | | 26 | 40 | 30 |

Note) 1. The condition of the above data: 60Hz, 20 °C from cold state
 2. Coil consumption (VA) is average value.

Type numbering system

| | | | | | | | | | | | | | |
|---------------------------|----------|---|-------------------------|---|---------------------------------|---|---------------------|---|-------------------------|---|-----------------|---|-----------------|
| GMC10P2 | | / | 20 | / | 00 | / | F7 | / | AC | / | S | / | E |
| Product (6A~2100A) | | | Main contactor | | Auxiliary contact | | Coil voltage | | Coil consumption | | Terminal | | Devision |
| GMC10P2 | GMC-10P2 | | 20 2NO0NC | | 00 None | | Coil code Table | | AC AC | | S Screw | | L Local |
| GMC20P2 | GMC-20P2 | | | | | | | | | | Q Quick Connect | | E Export |
| GMC25P2 | GMC-25PS | | | | | | | | | | | | |
| GMC30P2 | GMC-30P2 | | | | | | | | | | | | |
| GMC35P2 | GMC-35P2 | | | | | | | | | | | | |
| GMC40P2 | GMC-40P2 | | | | | | | | | | | | |
| ex) | | | GMC10P2-20-00-F7-AC-S-E | | GMC-10P2 AC110V 50/60Hz EXP | | | | | | | | |
| | | | GMC40P2-20-00-B7-AC-Q-E | | GMC-40P2 TQBQ AC24V 50/60Hz EXP | | | | | | | | |

3-pole AC Contactors, Definite purpose



Description

- Three main contacts
- Screw clamp connections
- Small and light design suitable for use in air conditioners, heaters, refrigerators, etc.
- Screw mountable
- No auxiliary contact
- AC control voltage

Ratings

| Type | AC3 ratings | | | AC4 ratings | | | Ith | Contact | |
|------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|-----|-------------|-------------|
| | 220~ 240V | 380~ 440V | 500~ 550V | 220~ 240V | 380~ 440V | 500~ 550V | | NO | NC |
| GMC-20D2 GMC-20D3 | 20A | 17A | 14A | 18A | 13A | 10A | 30A | 2 3 | - - 1 |
| GMC-25D2 GMC-25D3 | 25A | 21A | 17A | 20A | 14A | 12A | 35A | 2 3 2 | - - 1 |

Note) Above contact ratings are for NO contact.
 Rating for NC contact: 6A@120V, 3A@240V, 1.5A@480V at AC15 duty
 Rating above 24V 1A
 Please use NC contact for Insulation voltage: 690V at AC, 250V at DC

Control coil characteristics

| Coil voltage | Coil consumption (VA) | | Thermal dissipation (W) | Operational voltage(V) | | Coil current (mA) | Operational time (ms) | |
|--------------|-----------------------|---------|-------------------------------|--------------------------------------|----------------------------------------|-------------------------|-----------------------|---------|
| | Inrush | Holding | | Pick-up | Drop-out | | Closing | Opening |
| 24V 60Hz | 72 | 9.0 | 3 | 83% or less of coil voltage | More than 20% of coil voltage | 215 | 30 | 20 |
| 48V 60Hz | 72 | 9.0 | 3 | | | 125 | 30 | 20 |
| 110V 60Hz | 72 | 9.0 | 3 | | | 60 | 30 | 20 |
| 220V 60Hz | 72 | 9.0 | 3 | | | 41 | 30 | 20 |

Note) 1. The condition of the above data: 60Hz, 20 °C from cold state
 2. Coil consumption (VA) is average value.

Type numbering system

| | | | | | | | | | | | |
|--------------------|----------|---|----------------|--------|-------------------|------|-----------------|----|------------------|---|----------|
| GMC20D2 | | / | 20 | / | 00 | / | F7 | / | AC | / | S |
| Product (6A~2100A) | | | Main contactor | | Auxiliary contact | | Coil voltage | | Coil consumption | | Terminal |
| GMC20D2 | GMC-10D2 | | 20 | 2NO0NC | 00 | None | Coil code Table | AC | AC | S | Screw |
| GMC20D3 | GMC-20D3 | | 30 | 2NO1NC | | | | | | | |
| GMC25D2 | GMC-25D2 | | 21 | 3NO0NC | | | | | | | |
| GMC25P3 | GMC-25D3 | | | | | | | | | | |

Single-pole AC Contactors, Definite purpose

Description



- Single-pole NO main contact
- Small and light design suitable for use in electric shock protector for AC arc welder
- DIN rail or screw mountable
- No auxiliary contact (Optional unit can be added up to 2NO2NC)
- AC control voltage

Ratings

| Type | Rated current, In 110/220V | Ith | Performance | |
|----------|-------------------------------|------|----------------|------------------|
| | | | Making current | Breaking current |
| MC-65aSP | 220A | 500A | 1.5×In | |

Control coil characteristics

| Coil consumption (VA) | | Operational voltage | | Operational time |
|-----------------------|---------|---------------------|----------|------------------|
| Inrush | Holding | Pick-up | Drop-out | Closing |
| 150VA | 17VA | 85% under | 20% over | 30ms under |

Note) Coil voltage is available between AC24V and AC550V

2-pole DC Contactors

Description



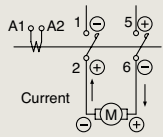
- Two normally open main contacts for DC circuit
- Positive and negative poles indicated on the front plate
- Eternal magnet installed for the effective arc extinguishing
- DIN rail or screw mountable
- 2NO+2NC Auxiliary contacts built-in as standard
- AC/DC control voltage

Selection



| Contactor types | DC-3, 5 ratings | | | DC-1 rating | Continuous current, Ith | Auxiliary contacts |
|-----------------|-----------------|------|------|-------------|-------------------------|--------------------|
| | 125V | 250V | 500V | 1000V | | |
| MD-30a | 40A | 30A | 20A | 10A | 60A | 2a(NO)+2b(NC) |
| MD-60a | 80A | 60A | 40A | 25A | 100A | 2a(NO)+2b(NC) |
| MD-100a | 120A | 100A | 60A | 35A | 135A | 2a(NO)+2b(NC) |

Ratings of auxiliary contacts



| UA-1 | AC15 duty | | | | | | DC13 duty | | | | |
|-------------------------|-----------|------|------|------|------|------|-----------|-------|-------|-------|------|
| | 120V | 240V | 380V | 480V | 500V | 600V | 125V | 250V | 400V | 500V | 600V |
| Rated currents | 6A | 3A | 1.9A | 1.5A | 1.4A | 1.2A | 1.1A | 0.55A | 0.31A | 0.27A | 0.2A |
| Continuous current, Ith | 16A | | | | | | | | | | |



Coil voltage

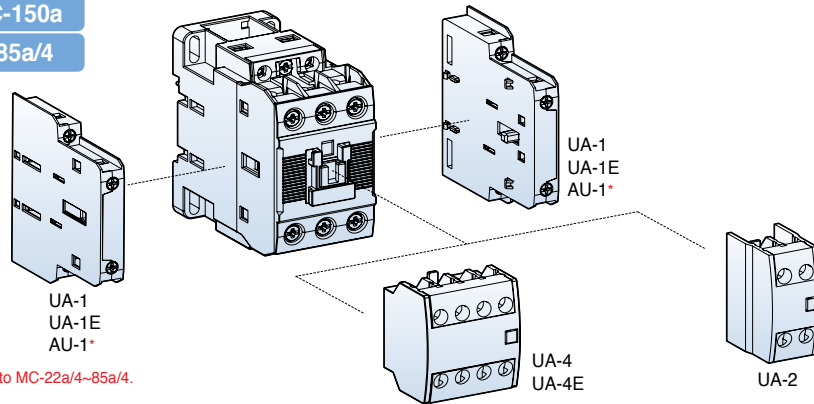
| | | |
|----|---------|--------------------------------------------------------------------------|
| AC | 50/60Hz | 24, 48, 100, 110, 120, 200, 220, 230, 240, 380, 400, 415, 440, 500, 550V |
| DC | DC | 12, 20, 24, 48, 60, 80, 100, 110, 125, 200, 220, 250V |

Auxiliary contact units

- 2 and 4 pole
- Side and front mountable
- Common use for Metasol contactors from MC-6a to MC-150a, and from MC-6a/4 to 85a/4
- Auxiliary contact meet the requirements for mirror contacts in IEC 60947-4-1. Annex F (A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with a NO main contact)

MC-6a~MC-150a

MC-6a/4~85a/4



* AU-1 only applies to MC-22a/4~85a/4.

Selection

| Type | Appearance | Pole | Composition | | Contact arrangement | Mount | Weight |
|-----------------------|------------|------|-----------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------|
| | | | NO | NC | | | |
| UA-1 UA-1E AU-1 | | 2 | 1 | 1 | <p>13(43) 21(31) 14(44) 22(32)</p> | Side | 53g |
| UA2 | | 2 | 1 2 | 1 | <p>53 63 51 63 51 61 54 64 52 64 52 62 2a 1a1b 2b</p> | Front | 28g |
| UA-4 UA-4E | | 4 | 4 3 2 1 - | - 1 2 3 4 | <p>53 63 73 83 53 61 73 83 53 61 71 83 54 64 74 84 54 62 74 84 54 62 72 84 4a 3a1b 2a2b 51 63 71 81 51 61 71 81 52 64 72 82 52 62 72 82 1a3b 4b</p> | Front | 50g |

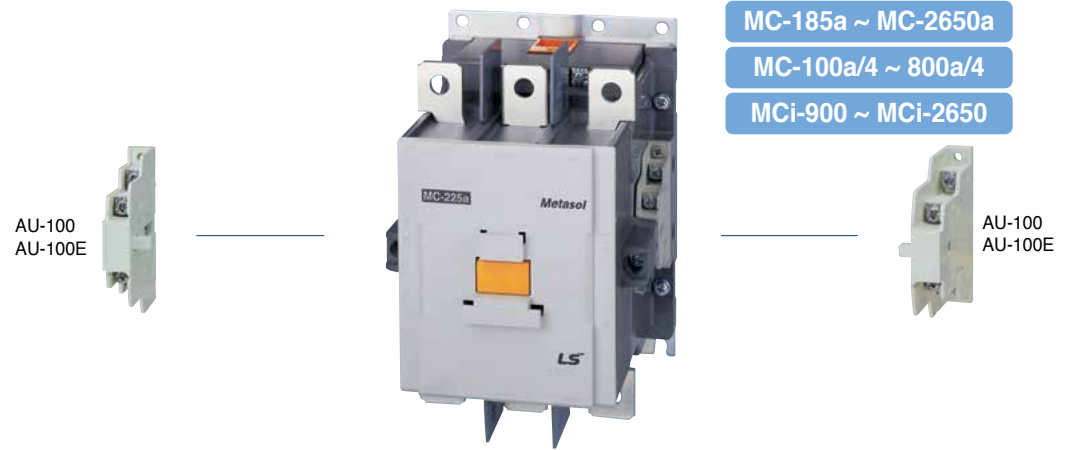
* UA-1 auxiliary contact can not be attached to the right side of 22AF product

Maximum combination of contact units

| MC-6a~18a, 9b~22b (Max. 3a3b) | MC-32a~150a (Max. 4a4b) |
|---------------------------------------------|-----------------------------------------------|
| UA-4(on front)+UA-1 × 1EA (1EA on one side) | UA-4(on front)+UA-1 × 2EA (1EA on both sides) |
| UA-2(on front)+UA-1 × 1EA (1EA on one side) | UA-2(on front)+UA-1 × 2EA (1EA on both sides) |
| UA-1 × 2EA (1EA on both sides) | UA-1 × 4EA (2EA on both sides) *For AC Coil |

Auxiliary contact units

- 2 pole
- Side mountable
- Auxiliary contact meet the requirements for mirror contacts in IEC 60947-4-1. Annex F
(A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with a NO main contact)



Selection

| Type | Appearance | Pole | Composition | | Contact arrangement | Mount | Weight |
|-------------------|------------|------|-------------|-------|---------------------|-------|--------|
| | | | a(NO) | b(NC) | | | |
| AU-100 AU-100E | | 2 | 1 | 1 | | Side | 53g |

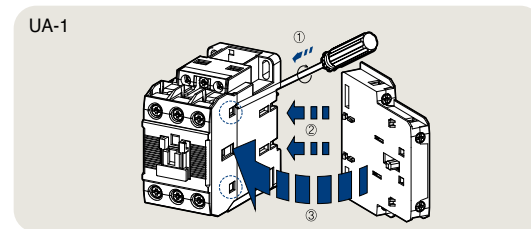
Maximum combination of contact units

MC-185a~2650a (Max. 4a4b)

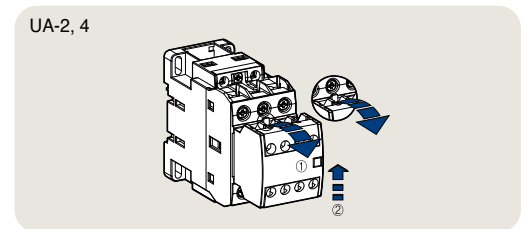
AU-100 × 4EA (2EA on both sides)

AU-100E × 4EA (2EA on both sides)

Installation



To install side mounting unit remove the indicated part in the circle in the fig. first. And then fit each part as shown. To separate push forward and pull.



To install front mounting unit fit it on the upper part in the circle in the fig. first. And then fit each part of the front of the contactor and push it down. To separate pull the lever of the unit and push the unit upward.

Rating

| Type | UA-1 | AU-1 | UA-2, 4 | AU-100 |
|----------------------------------------|-----------------|---------|---------|---------|
| Rated operation voltage (Ue) | 600V | 600V | 600V | 600V |
| Rated insulation voltage (Ui) | 1000V | 690V | 690V | 600V |
| Rated impulse withstand voltage (Uimp) | 8kV | 8kV | 6kV | 6kV |
| Rated frequency | 50/60Hz | 50/60Hz | 50/60Hz | 50/60Hz |
| Contact sensibility | Voltage | DC 24V | DC 24V | DC 24V |
| | Current | DC 10mA | DC 10mA | DC 10mA |
| Rated thermal current (Ith, AC12 duty) | 16A | 16A | 16A | 16A |
| Rated operation current | AC15 duty | 6A | 6A | 6A |
| | 240V | 3A | 3A | 3A |
| | 380V | 1.9A | 1.9A | 1.9A |
| | 480V | 1.5A | 1.5A | 1.5A |
| | 500V | 1.4A | 1.4A | 1.4A |
| | 600V | 1.2A | 1.2A | 1.2A |
| | 600V | 0.2A | 0.2A | 0.1A |
| Rated 1s | 100A | 100A | - | 100A |
| Short-time 0.5s | 125A | 125A | - | 120A |
| withstand current 0.1s | 145A | 145A | - | 140A |
| Electrical lifetime (mil. operations) | AC15 duty 220V | 0.25 | 0.25 | 0.25 |
| | 440V | 0.25 | 0.25 | 0.25 |
| Maximum operating cycles per hour | 1800 | 1800 | 1800 | 1800 |
| Conductor size (Solid, stranded) | AWG | 18~10 | 18~10 | 18~10 |
| | mm ² | 1~2.5 | 1~2.5 | 1~2.5 |

Air pressure timer



Air pressure timer

It is attached to the head-on of the magnetic contactor. It uses the principle of air pressure and it is delayed by the set time after the magnetic contactor is inserted and released and then the auxiliary contact of the air pressure timer is reversed

| UN | 1 | N |
|------------------|-----------|-------------|
| Time delay range | | |
| 1 | 0.1 ~ 3s | N ON delay |
| 2 | 0.1 ~ 30s | F OFF delay |
| 3 | 10 ~ 180s | |

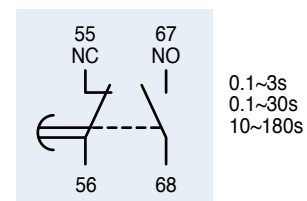
Note) Applicable MC: MC-6a ~ 100a, MC-9b ~ 22b, AC operation voltage

| Type | MC-6a~100a / MC-9b~22b | | | | | |
|-----------------------------|-------------------------------------|---------------|---------|--------|---------|---------|
| | UN-1N | UN-2N | UN-3N | UN-1F | UN-2F | UN-3F |
| Standards | IEC60947-5-1, GB14048.5 | | | | | |
| Certification | CCC, CE | | | | | |
| Degree of protection | IP20 | | | | | |
| Temperature range | Storage | -25°C ~ +60°C | | | | |
| | Operation | -5°C ~ +40°C | | | | |
| Altitude | 2,000m less | | | | | |
| Poles | 1NO + 1NC | | | | | |
| Rated operating voltage | 690V | | | | | |
| Rated insulation voltage | 690V | | | | | |
| Frequency | 50/60Hz | | | | | |
| Rated operation current(Ie) | A600(AC-15), Q600(DC-13) | | | | | |
| Ith(thermal Current) | 10A | | | | | |
| Minimum switching current | 10mA | | | | | |
| Irms rated making capacity | 10 x Ie AC-15 acc. to IEC 60947-5-1 | | | | | |
| Non overlap time | 1.5ms | | | | | |
| Setting time | 0.1~3s | 0.1~30s | 10~180s | 0.1~3s | 0.1~30s | 10~180s |
| Operating time tolerance | ±50% less | | | | | |
| Mechanical durability | 2.5 mil. operations | | | | | |

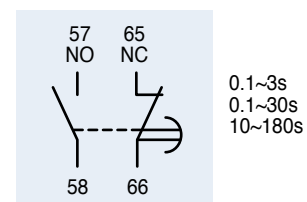


Combination with MC

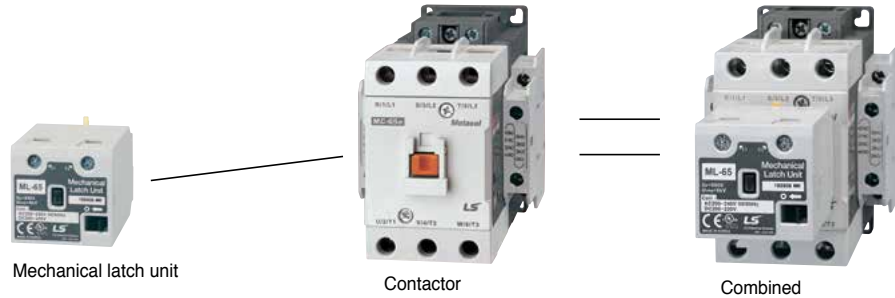
On Delay Timer Block(UN-N)



Off Delay Timer Block(UN-F)



Mechanical latch unit ML, AL



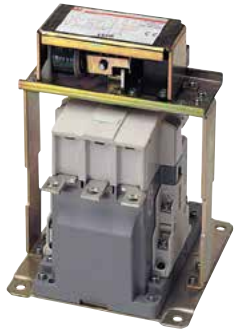
Mechanical latch unit

Contactor

Combined



ML-65

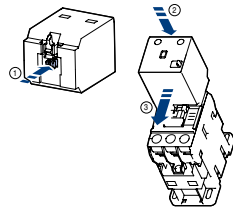


Ratings

| Applying contactors | Type | Coil voltage of latch unit | | | | | | | | | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------|----------------|----------------------------------|----------------|----------------------------------|-----------------|--------------------------------------|-----------------|--------------------------------------|---------|----------------------|--|
| MC-6a/L MC-9a/L MC-12a/L MC-18a/L MC-9b/L MC-12b/L MC-18b/L MC-22b/L MC-32a/L MC-40a/L MC-50a/L MC-65a/L | ML-65 | <table border="1"> <thead> <tr> <th>Ordering voltage</th> <th>Operation voltage</th> </tr> </thead> <tbody> <tr> <td>AC 24V/ DC 24V</td> <td>AC 24V 50/60Hz, DC 24V</td> </tr> <tr> <td>AC 48V/ DC 48V</td> <td>AC 48V 50/60Hz, DC 48V</td> </tr> <tr> <td>AC 100V/DC 100V</td> <td>AC 100~127V 50/60Hz, DC 100V~125V</td> </tr> <tr> <td>AC 200V/DC 200V</td> <td>AC 200~240V 50/60Hz, DC 200V~220V</td> </tr> <tr> <td>AC 400V</td> <td>AC 380V~440V 50/60Hz</td> </tr> </tbody> </table> | Ordering voltage | Operation voltage | AC 24V/ DC 24V | AC 24V 50/60Hz, DC 24V | AC 48V/ DC 48V | AC 48V 50/60Hz, DC 48V | AC 100V/DC 100V | AC 100~127V 50/60Hz, DC 100V~125V | AC 200V/DC 200V | AC 200~240V 50/60Hz, DC 200V~220V | AC 400V | AC 380V~440V 50/60Hz | |
| Ordering voltage | Operation voltage | | | | | | | | | | | | | | |
| AC 24V/ DC 24V | AC 24V 50/60Hz, DC 24V | | | | | | | | | | | | | | |
| AC 48V/ DC 48V | AC 48V 50/60Hz, DC 48V | | | | | | | | | | | | | | |
| AC 100V/DC 100V | AC 100~127V 50/60Hz, DC 100V~125V | | | | | | | | | | | | | | |
| AC 200V/DC 200V | AC 200~240V 50/60Hz, DC 200V~220V | | | | | | | | | | | | | | |
| AC 400V | AC 380V~440V 50/60Hz | | | | | | | | | | | | | | |
| MC-75a/L MC-85a/L MC-100a/L MC-130a/L MC-150a/L | ML-150 | * Coils for 24, 48, 100, 200V are AC / DC common. | | | | | | | | | | | | | |
| MC-185a/L, 225a/L | AL-225 | <table border="1"> <thead> <tr> <th>Ordering voltage</th> <th>Operation voltage</th> </tr> </thead> <tbody> <tr> <td>AC 100V</td> <td>AC 100~127V 50/60Hz, DC 100~110V</td> </tr> <tr> <td>AC 200V</td> <td>AC 200~240V 50/60Hz, DC 200~220V</td> </tr> </tbody> </table> | Ordering voltage | Operation voltage | AC 100V | AC 100~127V 50/60Hz, DC 100~110V | AC 200V | AC 200~240V 50/60Hz, DC 200~220V | | | | | | | |
| Ordering voltage | Operation voltage | | | | | | | | | | | | | | |
| AC 100V | AC 100~127V 50/60Hz, DC 100~110V | | | | | | | | | | | | | | |
| AC 200V | AC 200~240V 50/60Hz, DC 200~220V | | | | | | | | | | | | | | |
| MC-265a/L, 330a/L, 400a/L | AL-400 | * For using safely the product providing DC control power, Please consider that the maximum switching frequency should be less than 150 times/hour. | | | | | | | | | | | | | |

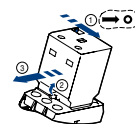
Note) Latch units for upto MC-150 are supplied seperately. From MC-185 the units are assembled at factory.

To install



1. Push the black bar
2. Position the Latch on the top of the contactor
3. Pull in the direction of the arrow until snapping

To separate



1. Pull the black lever in the direction of the arrow.
2. Pull up the yellow lever.
3. Push the latch in the direction of the arrow.

Delayed opening devices, AD

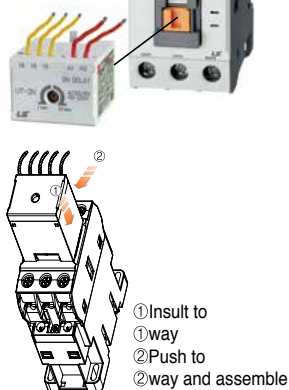
Delayed opening device prevents the inadvertent opening of a contactor in the event of a wide voltage drop or brief supply voltage interruptions of control power for 1 to 7 seconds.



| Applying contactors | Type | Rated voltage | MC Rated voltage | Durability | | Performance |
|---------------------|--------|---------------|------------------|--------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | Mechanical | Electrical | |
| MC-6a~18a | AD-9 | AC 110V | DC 110V | 5 mil operations | 1 mil operations | <ul style="list-style-type: none"> • Making/Breaking capacity at AC3 <ul style="list-style-type: none"> - Making current : min. 10xIn - Breaking current : min. 8xIn • Max. operating rate : 600 operations/hour • Delaying time : 1~7sec. • Capacitor durability <ul style="list-style-type: none"> 1) Operation : > 0.1 mil. operations 2) Cumulative charge life at AC 200/220V <ul style="list-style-type: none"> - 45°C or less: 80,000 hours - 50°C or less: 60,000 hours |
| MC-9b~22b | | AC 220V | DC 220V | | | |
| MC-32a~40a | AD-32 | AC 110V | DC 110V | | | |
| MC-50a~100a | AD-50 | AC 110V | DC 110V | | | |
| MC-130a~225a | AD-100 | AC 100~240V | AC/DC 100~240V | | | |
| MC-265a~400a | AD-300 | AC 100~240V | AC/DC 100~240V | | | |
| MC-500a~800a | AD-600 | AC 100~127V | AC/DC 100~127V | 0.5 mil operations | | |
| | | AC 200~240V | AC/DC 200~240V | | | |

* AD shall be used for DC type contactor

Electronic timer unit, UT



| Applying contactors | Type | Rated voltage | Performance |
|-------------------------|-----------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MC-6a~150a MC-9b~22b | On delay | UT-1N | <ul style="list-style-type: none"> • Mounting: Head on • Contact: 1c • Time delay: 1 Sec~30 Sec On delay, Off delay |
| | | UT-2N | |
| MR-4~8 | Off delay | UT-1F | <ul style="list-style-type: none"> • Frequency: AC 50/60Hz • Operation: Min. voltage 85%, Max. voltage 110% • Accuracy of setting time: ±20% |
| | | UT-2F | |

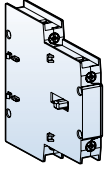
Terminal cover units for contactors, AP

| Applying contactors | Type | | Remarks |
|---------------------------|----------|-------------|------------------------------|
| | Standard | Transparent | |
| MC-6a,9a,12a,18a (18AF) | AP-18 | - | 2 pcs required per contactor |
| MC-9b,12b,18b,22b (22AF) | AP-22 | AP/T-9 | |
| MC-32a,40a (40AF) | AP-40 | AP/T-32 | |
| MC-50,65a (65AF) | AP-65 | AP/T-50 | |
| MC-75a,85a,100a (100AF) | AP-100 | AP/T-75 | |
| MC-130a,150a (150AF) | AP-150 | AP/T-130 | |
| MC-185a,225a (225AF) | AP-220 | AP/T-185 | |
| MC-265a,330a,400a (400AF) | AP-400 | AP/T-265 | |
| MC-500a,630a,800 (800AF) | AP-800 | AP/T-500 | |

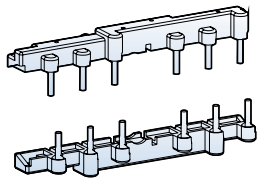
Insulation barrier units, AI

| Applying contactors | Type | Remarks |
|--------------------------------|---------|------------------------------|
| MC-130a, 150a | AI-180 | 4 pcs required per contactor |
| MC-185a, 225a | | |
| MC-265a, 330a, 400a | | |
| MC-500a, 630a, 800a, 1260a | AI-800 | |
| MC-1400a, 1700a, 2100a | AI-2100 | |
| MC-2650a, MCi-1700, 2100, 2650 | AI-2650 | |
| MCi-900, 1050, 1260 | AI-2650 | |

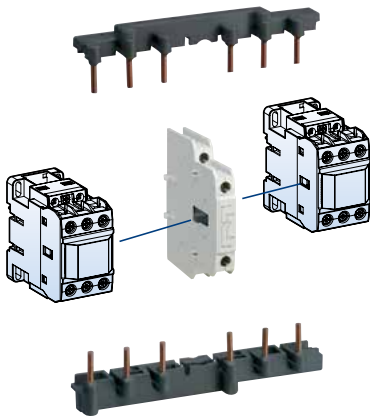
* The insulation barrier for MC-150a is available on the screw type only.



Interlock unit



Wire kit



Interlocks

Component parts for assembling by customer

Interlock unit, UR-02 and AR-9 & Wire kit UW

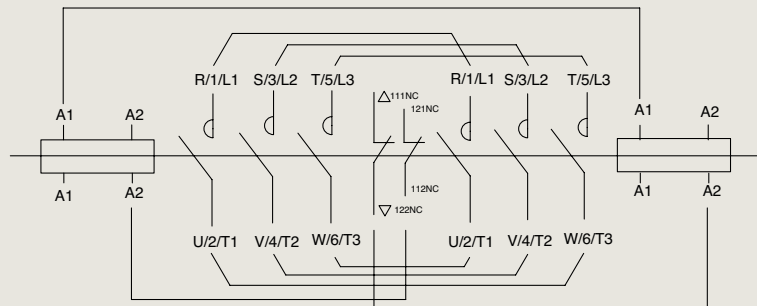
UR-02 is a mechanical interlock unit and provides 2NC contacts for use in electrical interlocking

UW is used for making reversing circuit between two contactors.

| Contactor | Pole | Wire kit | | Interlock unit | | Aux Contact |
|--------------|------|----------|--------|----------------|--------|-------------|
| | | Type | Weight | Type | Weight | |
| MC-6a~18a | 3P | UW-18 | 0.05kg | UR-02 | 0.06kg | 2NC |
| | 4P | - | - | | | |
| MC-9b~22b | 3P | UW-22 | 0.04kg | | | - |
| MC-32a~40a | | UW-32 | 0.05kg | | | |
| MC-50a, 65a | | UW-63 | 0.12kg | | | |
| MC-75a~100a | | UW-95 | 0.33kg | | | |
| MC-130a~150a | - | - | | | | |
| MC-22a~85a | 4P | - | - | AR-9 | 0.05kg | - |

Rating of the contacts in the interlocks

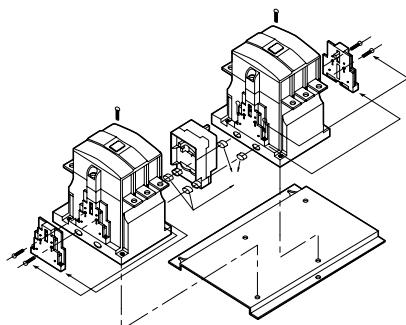
| | | |
|--------------------------|---------|-------|
| Rated operation voltage | 600V | |
| Rated insulation voltage | 1000V | |
| Rated frequency | 50/60Hz | |
| Rated thermal current | 16A | |
| Rated operation current | | |
| AC15 duty (A600) | 120V | 6A |
| | 240V | 3A |
| | 380V | 1.9A |
| | 480V | 1.5A |
| | 500V | 1.4A |
| | 600V | 1.2A |
| DC13 duty (Q300) | 125V | 0.55A |
| | 250V | 0.27A |



<MC-6aR ~ MC-150aR typical circuit diagram for reversing contactor>



AR-180



Interlock unit, AR-180 and AR-600

AR-180 and AR-600 are mechanical interlock units in which electrical contacts for use in electrical interlocking are not included. Please use the auxiliary contacts on the sides of the contactors for that purpose.

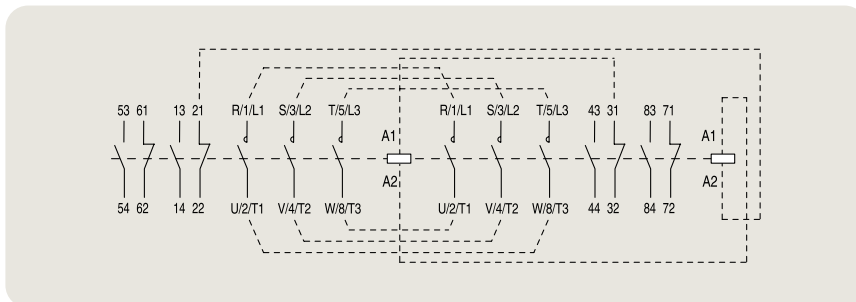
| Contactor | Pole | Interlock unit | |
|-----------|------|--------------------|--------|
| | | Type | Weight |
| MC-100a | 4P | AR-180 | 0.09kg |
| MC-130a | | | |
| MC-150a | | | |
| MC-185a | | | |
| MC-225a | | | |
| MC-265a | | | |
| MC-330a | 3,4P | AR-600 AR-600/V | 15.2kg |
| MC-400a | | | |
| MC-500a | | | |
| MC-630a | | | |
| MC-800a | | | |

*AR-600 3pole product is different fro, AR-600 4pole product in size.

*The AR-600 / V is a vertical interlock unit.

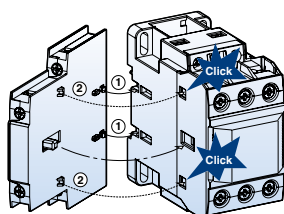


AR-600 & AR-600/V

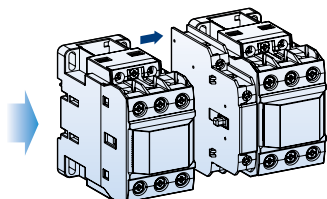


<MC-180aR ~ MC-800aR typical circuit diagram for reversing contactor>

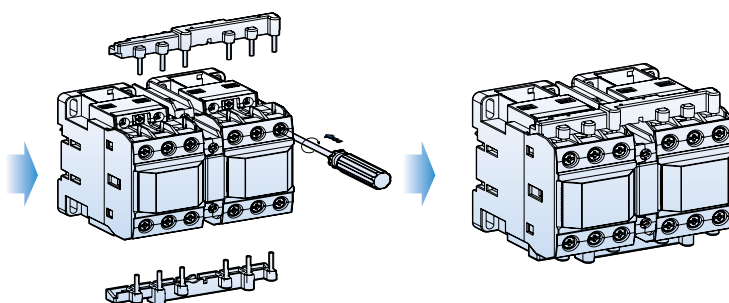
Installation of Interlock and Wire kits



Install the interlock unit on the side of a contactor first. Fit each part as indicated in the fig.



And then install the other contactor on the other side of the interlock unit as shown.



After installing interlock unit wiring kit can be assembled.

Wiring kit contains two molded wires - one for line side and the other for load side.

- In case of assembling Reversing contactor, please check the R, S, T/U, V, W mark on the contactor and Wire kit.

Surge unit



US Type



AS Type

It absorbs the surge arisen out of the coil of the contactor.

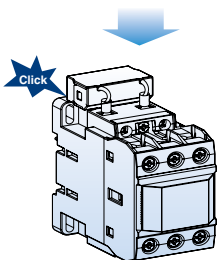
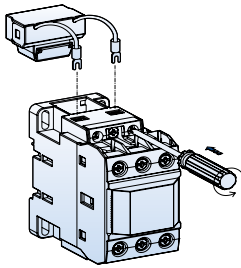
It can be installed simply to the contactor.

- Rated operation voltage (Ue): AC 24 ~ 440V / DC 24 ~ 125V
- Rated insulation voltage (Ui): 1000V
- Rated impulse withstand voltage (Uimp): 8kV
- Degree of protection: IP20
- Combination with 3Pole 6a/3~150a/3, 4Pole 32a/4~85a/4

US Type

| Surge unit | | Rated voltage | | Internal elements spec. | | | Contactor |
|------------|-------------|-----------------|----------|-------------------------|------|--------|---------------------------------------------------------|
| Type | Composition | | | V | R | C | |
| US-1 | Varistor+RC | AC | 24~48V | 120V | 100Ω | 0.1μF | 3Pole MC 6a~150a 9b~22b 4Pole MC 6a/4~18a/4 |
| US-2 | Varistor+RC | | 100~125V | 270V | 100Ω | 0.1μF | |
| US-3 | Varistor+RC | | 200~240V | 470V | 100Ω | 0.1μF | |
| US-4 | Varistor+RC | DC | 24~48V | 120V | 100Ω | 0.47μF | |
| US-5 | Varistor+RC | | 100~125V | 270V | 100Ω | 0.47μF | |
| US-6 | Varistor+RC | | 200~220V | 470V | 100Ω | 0.47μF | |
| US-11 | Varistor | AC/DC common | 24~48V | 120V | - | - | |
| US-12 | Varistor | | 100~125V | 270V | - | - | |
| US-13 | Varistor | | 200~240V | 470V | - | - | |
| US-14 | Varistor | | 380~440V | 1000V | - | - | |
| US-22 | RC | AC | 100~125V | - | 56Ω | 1μF | |

Installation (US Type)



Connect the lead wires to the coil terminals of the contactor first. And then insert the body into the space of the contactor as shown above.

AS Type

| Surge unit | | Rated voltage | | Internal elements spec. | | | Contactor |
|------------|-------------|-----------------|----------|-------------------------|------|--------|---------------------------------------------------|
| Type | Composition | | | V | R | C | |
| AS-1 | Varistor+RC | AC | 24~48V | 120V | 100Ω | 0.1μF | 3Pole MC 185a~800a 4Pole MC 22a/4~800a/4 |
| AS-2 | Varistor+RC | | 100~125V | 270V | 100Ω | 0.1μF | |
| AS-3 | Varistor+RC | | 200~240V | 470V | 100Ω | 0.1μF | |
| AS-4 | Varistor+RC | DC | 24~48V | 120V | 100Ω | 0.47μF | |
| AS-5 | Varistor+RC | | 100~125V | 270V | 100Ω | 0.47μF | |
| AS-6 | Varistor+RC | | 200~220V | 470V | 100Ω | 0.47μF | |
| AS-11 | Varistor | AC/DC common | 24~48V | 120V | - | - | |
| AS-12 | Varistor | | 100~125V | 270V | - | - | |
| AS-13 | Varistor | | 200~240V | 470V | - | - | |
| AS-14 | Varistor | | 380~440V | 1000V | - | - | |

Specification of surge unit

| Without surge unit | ① With Varistor unit | ② With CR+Varistor unit |
|-------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------|
| Surge voltage, arise when the coil is off, may provoke mis-operation and damage in the circuit. | Varistor has an effect to cut down the peak voltage | Varistor has an effect to cut down the peak voltage and high frequency wave |
| | | |

Capacitor unit



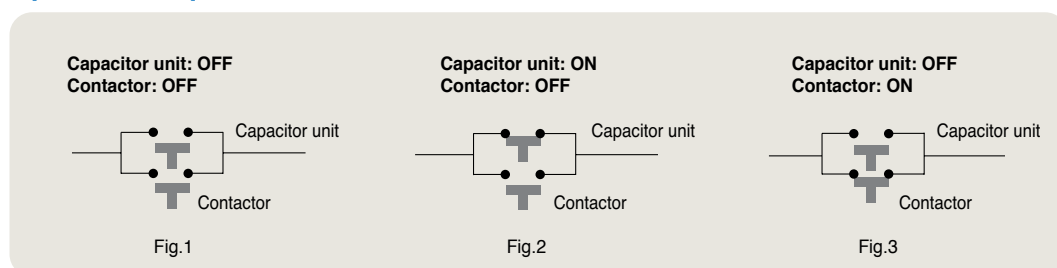
Capacitor unit is connected to the terminals of the contactor to reduce the high inrush current.
IEC 60947-5-1

| | | Type (AUX Contact 1b) | AC-9 (1b) | AC-50 (1b) | AC-75 (1b) | |
|---------|-------|------------------------------|-----------|------------|------------|------|
| | | Rating thermal current (Ith) | 16A | 16A | 16A | |
| Current | AC-15 | Rated | 120V | 6 | 6 | 6 |
| | | | 240V | 3 | 3 | 3 |
| | | Operational Current (A) | 380V | 1.9 | 1.9 | 1.9 |
| | | | 480V | 1.5 | 1.5 | 1.5 |
| | | | 500V | 1.4 | 1.4 | 1.4 |
| | DC-13 | Rated | 600V | 1.2 | 1.2 | 1.2 |
| | | | 125V | 0.55 | 0.55 | 0.55 |
| | | Operational Current (A) | 250V | 0.27 | 0.27 | 0.27 |
| | | | 400V | 0.15 | 0.15 | 0.15 |
| | | | 500V | 0.13 | 0.13 | 0.13 |
| | | 600V | 0.1 | 0.1 | 0.1 | |

Features of capacitor unit (Pre-loading resistor)

- Damping resistor that can limit the inrush current upto $60 \times I_n$ is connected to the mechanism that closed earlier than the main contact of the contactor
- No heat loss by the serial resistor
- Eliminate the switching surge
- Improving the performance of the capacitor system

Operation sequence



Note) Closing sequence: Fig.1 => Fig.2 => Fig.3
Opening sequence: Fig.3 => Fig.1

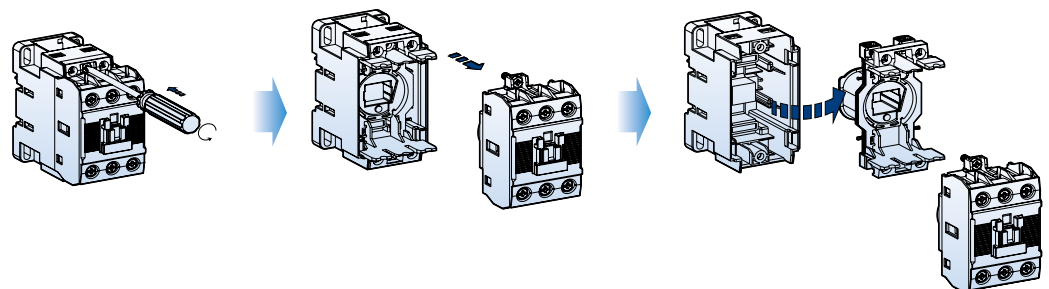
Replacement coils

To replace the existing coil to change voltage or repair.



| Contactor | Coil voltage | | | | | | DC coil DC (V) | |
|--------------------------------------------------|--------------|-----|-------------|---------|----------------|---------|-------------------|-----|
| | AC coil | | | | AC 50/60Hz (V) | | | |
| | AC 60Hz (V) | | AC 50Hz (V) | | | | | |
| MC-6a MC-9a MC-12a MC-18a MR-4, 6, 8 | 24 | 230 | 24 | 230 | 24 | 240 | | |
| | 48 | 240 | 36 | 240 | 48 | 380 | | |
| | 100 | 277 | 42 | 380 | 100 | 415 | | |
| | 110 | 380 | 48 | 400 | 110 | 440 | | |
| | 120 | 440 | 80 | 415 | 120 | 500 | | |
| | 200 | 480 | 100 | 440 | 200 | 550 | | |
| MC-9b MC-12b MC-18b MC-22b | 208 | 600 | 110 | 500 | 220 | | | |
| | 220 | | 220 | 550 | 230 | | | |
| | 24 | 230 | 24 | 230 | 24 | 240 | | |
| | 48 | 240 | 36 | 240 | 48 | 380 | | |
| | 100 | 277 | 42 | 380 | 100 | 415 | | |
| | 110 | 380 | 48 | 400 | 110 | 440 | | |
| MC-32a MC-40a | 120 | 440 | 80 | 415 | 120 | 500 | | |
| | 200 | 480 | 100 | 440 | 200 | 550 | | |
| | 208 | 600 | 110 | 500 | 220 | | 12 | 110 |
| | 220 | | 220 | 550 | 230 | | 20 | 125 |
| | 24 | 230 | 24 | 230 | 24 | 240 | 24 | 200 |
| | 48 | 240 | 36 | 240 | 48 | 380 | 48 | 220 |
| MC-50a MC-65a | 100 | 277 | 42 | 380 | 100 | 415 | 60 | 250 |
| | 110 | 380 | 48 | 400 | 110 | 440 | 80 | |
| | 120 | 440 | 80 | 415 | 120 | 500 | 100 | |
| | 200 | 480 | 100 | 440 | 200 | 550 | | |
| | 208 | 600 | 110 | 500 | 220 | | | |
| | 220 | | 220 | 550 | 230 | | | |
| MC-75a MC-85a MC-100a | 24 | 230 | 24 | 230 | 24 | 240 | | |
| | 48 | 240 | 36 | 240 | 48 | 380 | | |
| | 100 | 277 | 42 | 380 | 100 | 415 | | |
| | 110 | 380 | 48 | 400 | 110 | 440 | | |
| | 120 | 440 | 80 | 415 | 120 | 500 | | |
| | 200 | 480 | 100 | 440 | 200 | 550 | | |
| MC-130a MC-150a | 208 | 600 | 110 | 500 | 220 | | 12 | 110 |
| | 220 | | 220 | 550 | 230 | | 20 | 125 |
| | | | | | 24 | 240 | 24 | 200 |
| | | | | | 48 | 380 | 48 | 220 |
| | | | | | 24~48 | 380~440 | 24~48 | |
| | | | | | 100~240 | 500 | 70~110 | |
| | | | | 110~120 | | 100~220 | | |

Replacement process



To replace the existing coil to change voltage or repair.

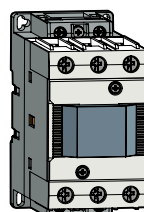


| Contactor | Coil voltage | |
|----------------------------------------------------------------------------------|-----------------------------|-------------------|
| | AC/DC common coil (V) | AC coil (V) |
| MC-185a MC-225a | 24 48 100~240/100~220 | 300 400 500 |
| MC-265a MC-300a MC-400a | DC 24 100~240/100~220 | 300 400 500 |
| MC-500a MC-630a MC-800a MCI-900 MCI-1050 | 100/100 200/200 | 300 400 500 |
| MC-1260 MCI-1260 | 100~240/100~220 | - |
| MC-1400a MC-1700a MC-2100a MC-2650a MCI-1700 MCI-2100 MCI-2650 | 100~240/100~220 | - |

Safety cover (Option)

- To prevent arc from coming out from the contactor
- To protect from unintended manual operation
- To prevent dust from entering into the inside of the contactor

| Type | Contactor |
|--------|--------------|
| AP-9 | MC-6a~150a |
| AP-185 | MC-185a~800a |



Overload relays

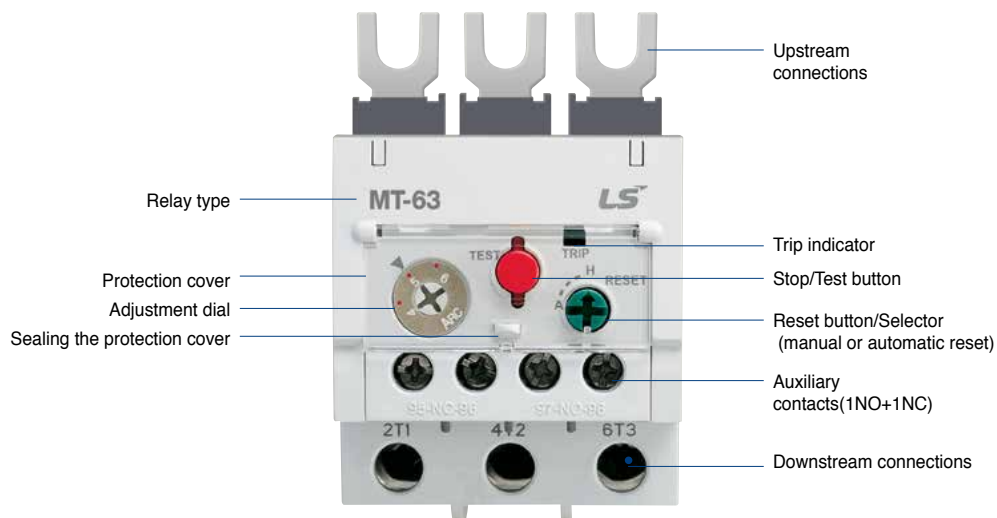
General descriptions

Type MT, 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.

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

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

Configuration of the front



MT-12

MT-32

MT-63

MT-95



Environment and auxiliary circuit

| Environment | | MT-12~800 |
|-----------------------------------------------------------|-----------|----------------------------------|
| Standards | | IEC/EN 60947-1, IEC/EN 60947-4-1 |
| Certifications | | CE, CSA, UL, CCC |
| Rated operation voltage | | Max. 690V |
| Rated insulation voltage | | 690V |
| Rated frequency | | 50/60Hz |
| Degree of protection (Conforming to IEC 60 529) | | IP 20 |
| Ambient air temperature | Storage | -30 ~ +65°C |
| | Operation | -25 ~ +60°C (MT refer to Graph) |
| Mounting position | | Vertical plane |
| Shock resistance (Conforming to IEC 68-2-7) | | 15gn - 11ms |
| Vibration resistance (Conforming to IEC68-2-6) | | 6G |
| Insulation strength (Conforming to IEC 255-5) | | 6kV |
| Rated impulse withstand voltage (Conforming to IEC 801-5) | | 6kV |
| Auxiliary contacts characteristics | | |
| Composition | | 1NO +1NC |
| Rated thermal current | | 5A |
| Rated operation current | | C600, R300 |
| AC15 duty (C600) | 120V | 1.5A |
| | 240V | 0.75A |
| | 380V | 0.47A |
| | 480V | 0.375A |
| | 500V | 0.35A |
| | 600V | 0.3A |
| DC13 duty (R300) | 120V | 0.22A |
| | 240V | 0.1A |
| Connecting conductor | Size | 18AWG /1mm ² |
| Connection to screw clamp terminals | Type | 65/75°C Cu-wire |

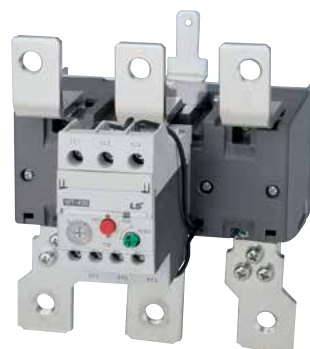
MT-150



MT-225



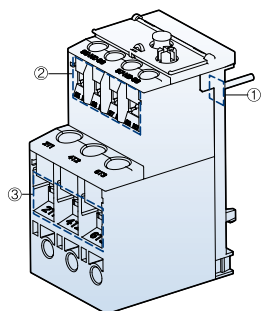
MT-400



MT-800



Overload relay specifications



- ① Main terminals/upstream
- ② Auxiliary terminals
- ③ Main terminals/downstream

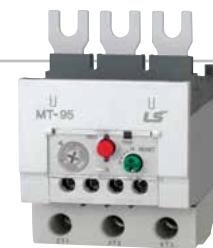
MT type Thermal Overload Relays

| Frame size | | |
|-----------------------------------|-------------------------------|-------|
| Trip class | | |
| Type | Non-differential(3P-2 heater) | |
| | Non-differential(3P-3 heater) | |
| | Differential type | |
| Terminals | Main-upstream | |
| | Main-downstream | |
| | Auxiliary | |
| 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 ² | 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 | 1.5~2.5 | 16~14 |
| 11 | 2.5 | 14~12 |
| 15 | 2.5~4 | 12~10 |
| 19 | | |
| 21.5 | 4~6 | 10 |
| 27 | | |
| 30 | | |
| 34 | | |
| 42 | 6~10 | 10~8 |
| 54 | | |
| 65 | | |
| 74 | 10 | 8 |
| 83 | | |
| 90 | 16~25 | 6~4 |
| | 25~35 | 4~3 |
| Applied contactors | | |
| Separate mounting unit | | |



| 18AF | |
|---------------------|------------|
| 10A | 20 |
| MT-12/2H□S | - |
| MT-12/3H□S | - |
| MT-12/3K□S | MT-12/3D□S |
| Screw clamp | |
| Screw clamp | |
| Screw clamp | |
| 3 | |
| 690V | |
| Up to 690V | |
| 6kV | |
| IP 20 | |
| -5~+40°C | |
| ■ | |
| - | |
| ■ | |
| ■ | |
| 0.1~18A | 1~18A |
| 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 |
| MC-6a, 9a, 12a, 18a | |
| UZ-12 | |

Note : Screw clamp and Lug types are available for the main terminals of 65AF, 100AF and 150AF relays.
The other AF relays provide Screw clamp types only.



40AF

| | |
|-------------|------------|
| 10A | 20 |
| MT-32/2H□S | - |
| MT-32/3H□S | - |
| MT-32/3K□S | MT-32/3D□S |
| Screw clamp | |
| Screw clamp | |
| Screw clamp | |
| 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 |

MC-9b, 12b, 18b, 22b, 32a, 40a
UZ-32

65AF

| | |
|-----------------|--------------|
| 10A | 20 |
| MT-63/2H□S/L | - |
| MT-63/3H□S/L | - |
| MT-63/3K□S/L | MT-63/3D□S/L |
| Screw/Lug clamp | |
| Screw/Lug clamp | |
| Screw clamp | |
| 3 | |
| 690V | |
| Up to 690V | |
| 6kV | |
| IP 20 | |
| -5~+40°C | |
| ■ | |
| ■ | |
| ■ | |
| ■ | |

4~65A

| | |
|-------|-------|
| 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 |
| - | - |
| 24~36 | 24~36 |
| 28~40 | 28~40 |
| 34~50 | 34~50 |
| 45~65 | 45~65 |

MC-50a, 65a
UZ-63S/L

100AF

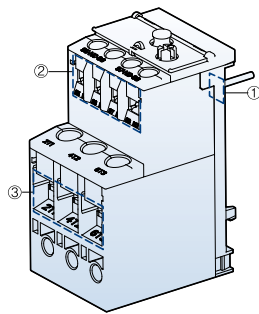
| | |
|-----------------|--------------|
| 10A | 20 |
| MT-95/2H□S/L | - |
| MT-95/3H□S/L | - |
| MT-95/3K□S/L | MT-95/3D□S/L |
| Screw/Lug clamp | |
| Screw/Lug clamp | |
| Screw clamp | |
| 3 | |
| 690V | |
| Up to 690V | |
| 6kV | |
| IP 20 | |
| -5~+40°C | |
| ■ | |
| ■ | |
| ■ | |
| ■ | |

7~100A

| | |
|--------|--------|
| 7~10 | 7~10 |
| 9~13 | 9~13 |
| 12~18 | 12~18 |
| 16~22 | 16~22 |
| 18~25 | 18~25 |
| - | - |
| 24~36 | 24~36 |
| 28~40 | 28~40 |
| 34~50 | 34~50 |
| 45~65 | 45~65 |
| 54~75 | 54~75 |
| 63~85 | 63~85 |
| 70~95 | 70~95 |
| 80~100 | 80~100 |

MC-75a, 85a, 100a
UZ-95S/L

Overload relay specifications



- ① Main terminals/upstream
- ② Auxiliary terminals
- ③ Main terminals/downstream

MT type Thermal Overload Relays

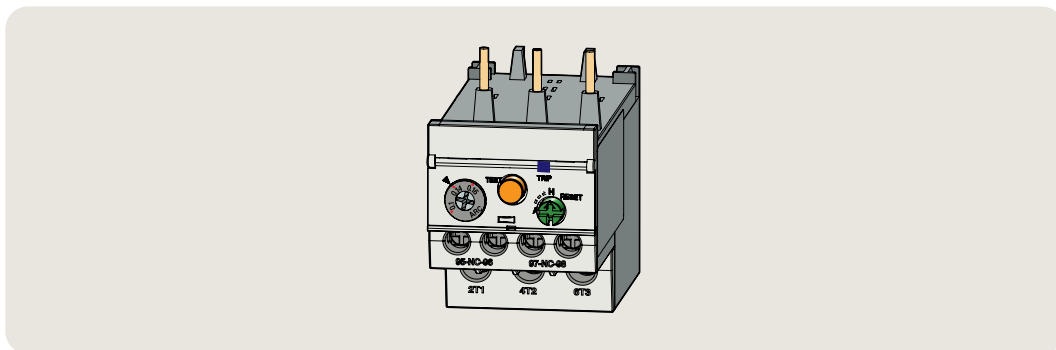
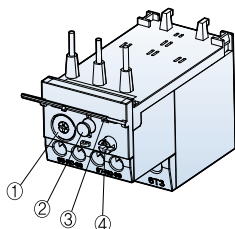


| Frame size | | |
|-----------------------------------|-------------------------------|--------|
| Trip class | | |
| Type | Non-differential(3P-2 heater) | |
| | Non-differential(3P-3 heater) | |
| | Differential type | |
| Terminals | Main-upstream | |
| | Main-downstream | |
| | Auxiliary | |
| Number 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 ² | 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 | | |

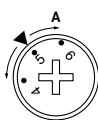
| 150AF | |
|-----------------|---------------|
| 10A | 20 |
| MT-150/2H□S/L | - |
| MT-150/3H□S/L | - |
| MT-150/3K□S/L | MT-150/3D□S/L |
| Screw/Lug clamp | |
| Screw/Lug clamp | |
| Screw clamp | |
| 3 | |
| 690V | |
| 690V | |
| 6kV | |
| IP 20 | |
| -5~+40°C | |
| ■ | |
| ■ | |
| ■ | |
| ■ | |
| 34~150A | 34~150A |
| 34~50 | |
| 45~65 | |
| 54~75 | |
| 63~85 | |
| - | |
| 80~105 | |
| - | |
| 95~130 | |
| 110~150 | |
| MC-130a, 150a | |
| UZ-150S/L | |

Note : Screw clamp and Lug types are available for the main terminals of 65AF, 100AF and 150AF relays.
The other AF relays provide Screw clamp types only.

Overload relay operation



1. Adjustment dial

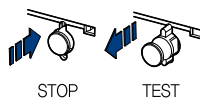


Before adjusting the dial open the protection cover.

Current setting can be done easily by using (+) or (-) driver and have to be set by dotting or graduations standard.

Do not rotate the dial out of the setting range.

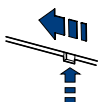
2. Stop/Test button



STOP function is executed by pushing the button, which causes the next sequence.

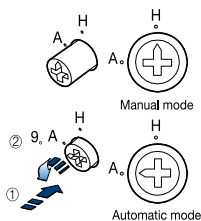
In case of operation test pull this button.

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 | | | | |

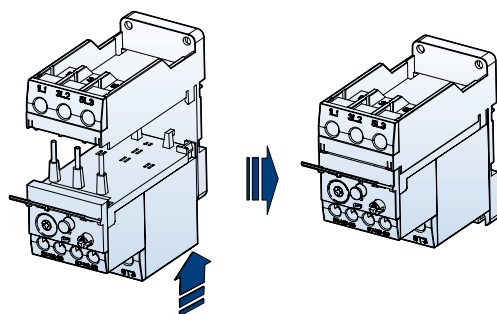
Accessories for overload relay

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 |
| MT-12/2H□ MT-12/3H□ MT-12/3K□ MT-12/3D□ | UZ-12 | 35g |
| MT-32/2H□ MT-32/3H□ MT-32/3K□ MT-32/3D□ | UZ-32 | 68g |
| MT-63/2H□ MT-63/3H□ MT-63/3K□ MT-63/3D□ | UZ-63S/L | 134g |
| MT-95/2H□ MT-95/3H□ MT-95/3K□ MT-95/3D□ | UZ-95S/L | 230g |
| MT-150/2H□ MT-150/3H□ MT-150/3K□ MT-150/3D□ | UZ-150S/L | 284g |



Terminal cover units for overload relays



| Relay | Remarks |
|--------|---------|
| MT-225 | 2 pcs |
| MT-400 | |

Accessories for overload relay

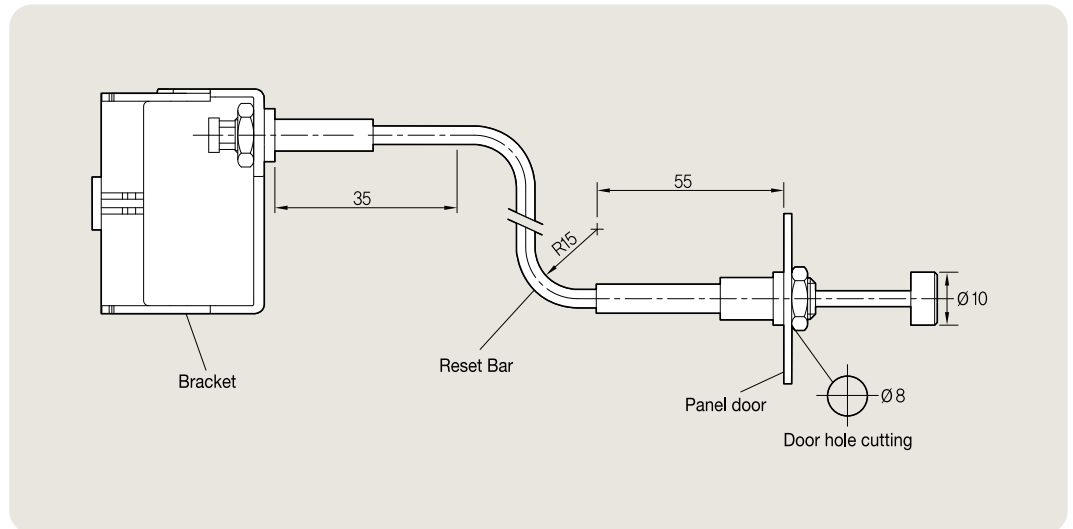
Remote reset units

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



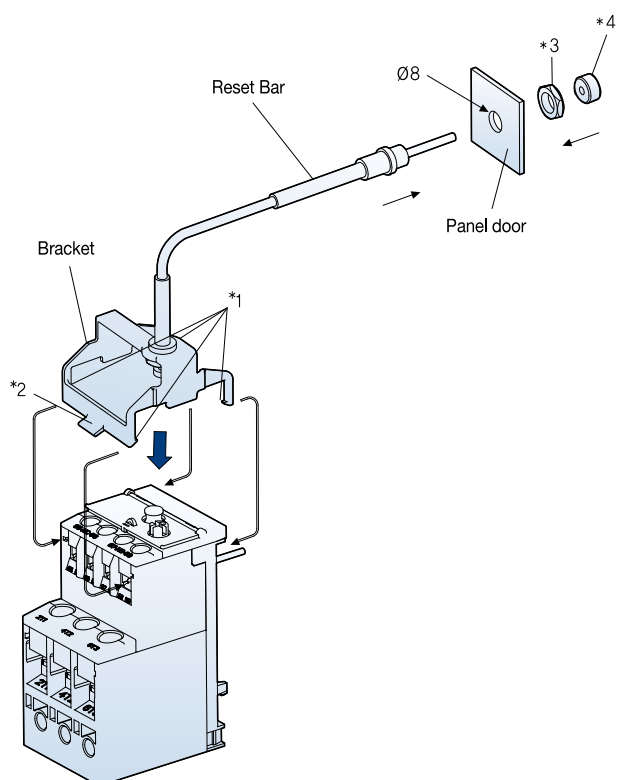
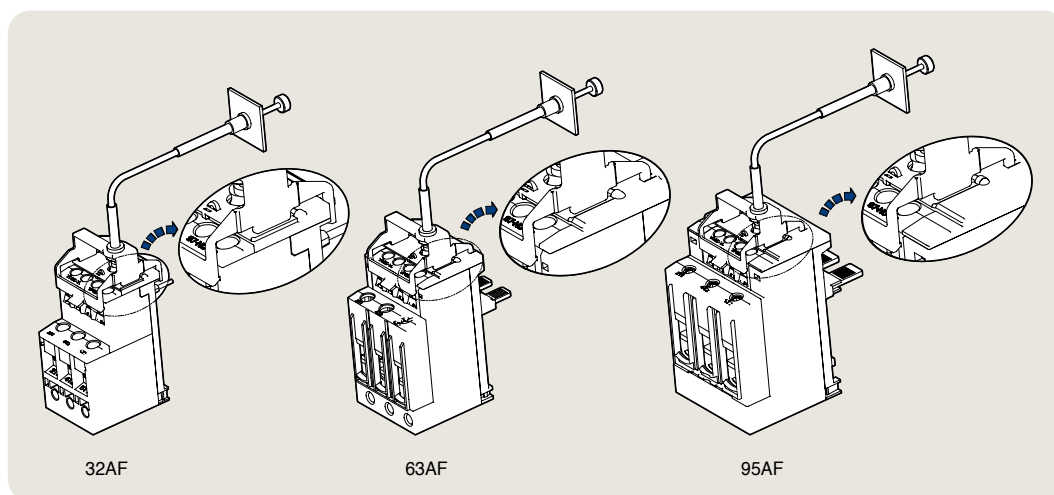
| Type | Cable length (L) |
|-------|------------------|
| UM-4R | 400 mm |
| UM-5R | 500 mm |
| UM-6R | 600 mm |
| UM-7R | 700 mm |
| UM-9R | 900 mm |

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.



Installation

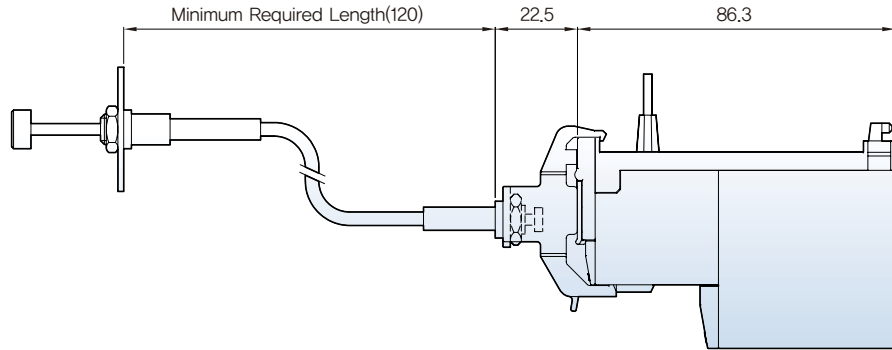
1. Fit the bracket with the relay as indicated(*1) below.
2. Separate Nut(*3) and Head cap(*4) from the reset bar first.
Insert the reset bar into the panel hole and then fix it with the Nut and Head.
3. To separate the bracket from the relay lift the *2 part as shown in the fig.



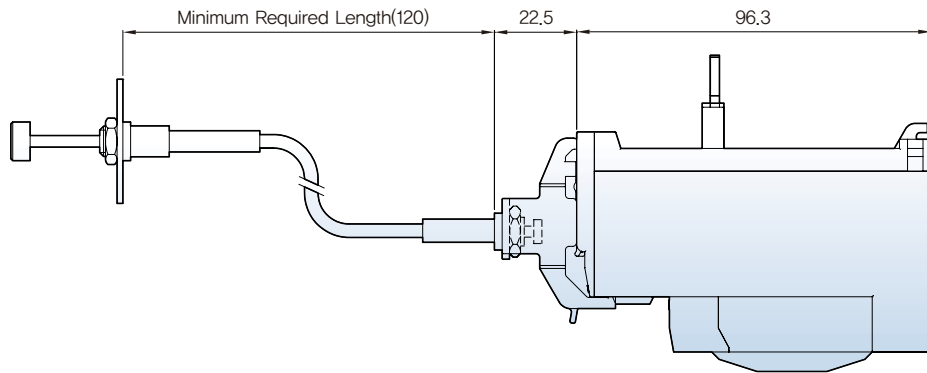
Accessories for overload relay

Remote reset units

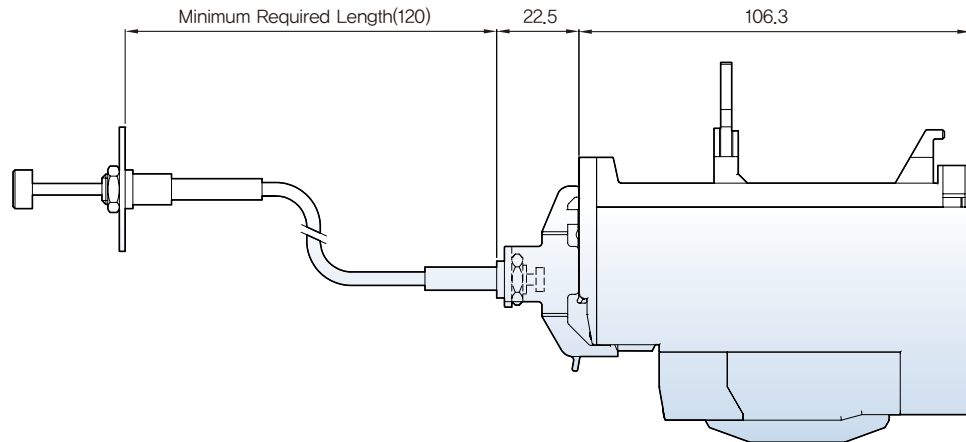
MT-32



MT-63

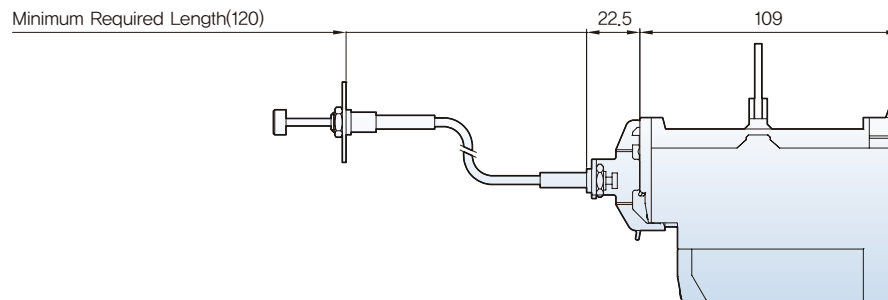


MT-95

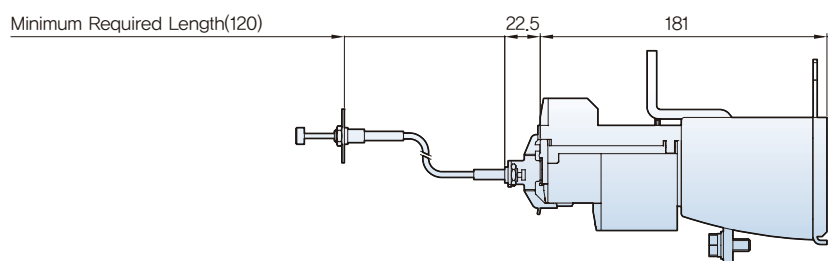


Remote reset units

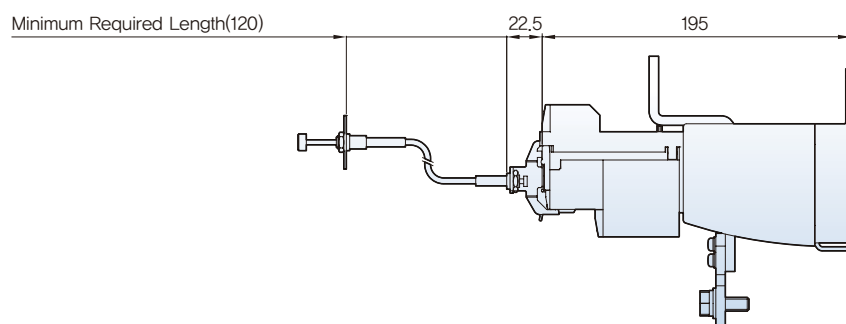
MT-150



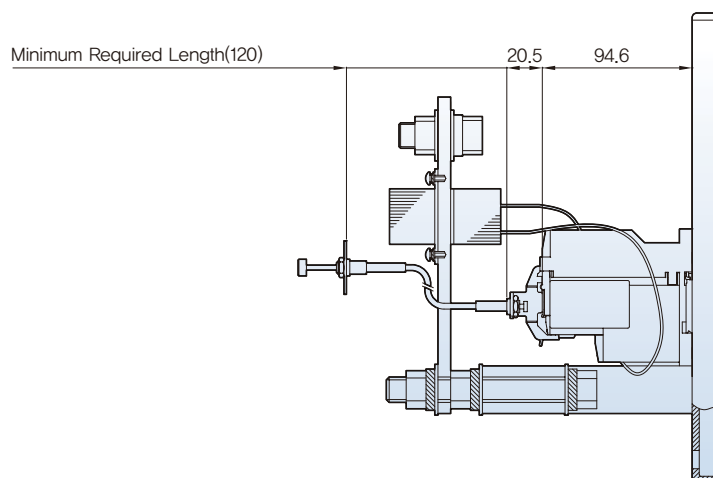
MT-225



MT-400



MT-800



Overload relay ordering types

Trip class 10A

Terminal type: Screw

Degree of protection: IP20

MT-12



MT-12/□

| Setting range (A) | Ordering type | | | Contactor | Separate mounting unit |
|----------------------|-----------------------------------|-----------------------------------|--------------|------------------------------------|---------------------------|
| | Non-differential (3P-2 heater) | Non-differential (3P-3 heater) | Differential | | |
| 0.1~0.16 | MT-12/2H0.14 | MT-12/3H0.14 | MT-12/3K0.14 | MC-6a MC-9a MC-12a MC-18a | UZ-12 |
| 0.16~0.25 | MT-12/2H0.21 | MT-12/3H0.21 | MT-12/3K0.21 | | |
| 0.25~0.4 | MT-12/2H0.33 | MT-12/3H0.33 | MT-12/3K0.33 | | |
| 0.4~0.63 | MT-12/2H0.52 | MT-12/3H0.52 | MT-12/3K0.52 | | |
| 0.63~1 | MT-12/2H0.82 | MT-12/3H0.82 | MT-12/3K0.82 | | |
| 1~1.6 | MT-12/2H1.3 | MT-12/3H1.3 | MT-12/3K1.3 | | |
| 1.6~2.5 | MT-12/2H2.1 | MT-12/3H2.1 | MT-12/3K2.1 | | |
| 2.5~4 | MT-12/2H3.3 | MT-12/3H3.3 | MT-12/3K3.3 | | |
| 4~6 | MT-12/2H5 | MT-12/3H5 | MT-12/3K5 | | |
| 5~8 | MT-12/2H6.5 | MT-12/3H6.5 | MT-12/3K6.5 | | |
| 6~9 | MT-12/2H7.5 | MT-12/3H7.5 | MT-12/3K7.5 | | |
| 7~10 | MT-12/2H8.5 | MT-12/3H8.5 | MT-12/3K8.5 | | |
| 9~13 | MT-12/2H11 | MT-12/3H11 | MT-12/3K11 | | |
| 12~18 | MT-12/2H15 | MT-12/3H15 | MT-12/3K15 | | |

MT-32



MT-32/□

| Setting range (A) | Ordering type | | | Contactor | Separate mounting unit |
|----------------------|-----------------------------------|-----------------------------------|--------------|---------------------------------------------------------|---------------------------|
| | Non-differential (3P-2 heater) | Non-differential (3P-3 heater) | Differential | | |
| 0.1~0.16 | MT-32/2H0.14 | MT-32/3H0.14 | MT-32/3K0.14 | MC-9b MC-12b MC-18b MC-22b MC-32a MC-40a | UZ-32 |
| 0.16~0.25 | MT-32/2H0.21 | MT-32/3H0.21 | MT-32/3K0.21 | | |
| 0.25~0.4 | MT-32/2H0.33 | MT-32/3H0.33 | MT-32/3K0.33 | | |
| 0.4~0.63 | MT-32/2H0.52 | MT-32/3H0.52 | MT-32/3K0.52 | | |
| 0.63~1 | MT-32/2H0.82 | MT-32/3H0.82 | MT-32/3K0.82 | | |
| 1~1.6 | MT-32/2H1.3 | MT-32/3H1.3 | MT-32/3K1.3 | | |
| 1.6~2.5 | MT-32/2H2.1 | MT-32/3H2.1 | MT-32/3K2.1 | | |
| 2.5~4 | MT-32/2H3.3 | MT-32/3H3.3 | MT-32/3K3.3 | | |
| 4~6 | MT-32/2H5 | MT-32/3H5 | MT-32/3K5 | | |
| 5~8 | MT-32/2H6.5 | MT-32/3H6.5 | MT-32/3K6.5 | | |
| 6~9 | MT-32/2H7.5 | MT-32/3H7.5 | MT-32/3K7.5 | | |
| 7~10 | MT-32/2H8.5 | MT-32/3H8.5 | MT-32/3K8.5 | | |
| 9~13 | MT-32/2H11 | MT-32/3H11 | MT-32/3K11 | | |
| 12~18 | MT-32/2H15 | MT-32/3H15 | MT-32/3K15 | | |
| 16~22 | MT-32/2H19 | MT-32/3H19 | MT-32/3K19 | | |
| 18~25 | MT-32/2H21.5 | MT-32/3H21.5 | MT-32/3K21.5 | | |
| 22~32 | MT-32/2H27 | MT-32/3H27 | MT-32/3K27 | | |
| 28~40 | MT-32/2H34 | MT-32/3H34 | MT-32/3K34 | | |

UZ-32(34A)

Trip class 10A

Terminal type: Screw(S), Lug(L)

Degree of protection: IP20

MT-63



MT-63/□S



MT-63/□L

| Setting range (A) | Ordering type | | | Contactor | Separate mounting unit |
|----------------------|-----------------------------------|-----------------------------------|-----------------|------------------|------------------------|
| | Non-differential (3P-2 heater) | Non-differential (3P-3 heater) | Differential | | |
| 4~6 | MT-63/2H5S/L | MT-63/3H5S/L | MT-63/3K5S/L | MC-50a MC-65a | UZ-63S/L |
| 5~8 | MT-63/2H6.5S/L | MT-63/3H6.5S/L | MT-63/3K6.5S/L | | |
| 6~9 | MT-63/2H7.5S/L | MT-63/3H7.5S/L | MT-63/3K7.5S/L | | |
| 7~10 | MT-63/2H8.5S/L | MT-63/3H8.5S/L | MT-63/3K8.5S/L | | |
| 9~13 | MT-63/2H11S/L | MT-63/3H11S/L | MT-63/3K11S/L | | |
| 12~18 | MT-63/2H15S/L | MT-63/3H15S/L | MT-63/3K15S/L | | |
| 16~22 | MT-63/2H19S/L | MT-63/3H19S/L | MT-63/3K19S/L | | |
| 18~25 | MT-63/2H21.5S/L | MT-63/3H21.5S/L | MT-63/3K21.5S/L | | |
| 24~36 | MT-63/2H30S/L | MT-63/3H30S/L | MT-63/3K30S/L | | |
| 28~40 | MT-63/2H34S/L | MT-63/3H34S/L | MT-63/3K34S/L | | |
| 34~50 | MT-63/2H42S/L | MT-63/3H42S/L | MT-63/3K42S/L | | |
| 45~65 | MT-63/2H55S/L | MT-63/3H55S/L | MT-63/3K55S/L | | |

MT-95



MT-95/□S



MT-95/□L

| Setting range (A) | Ordering type | | | Contactor | Separate mounting unit |
|----------------------|-----------------------------------|-----------------------------------|-----------------|-----------------------------|------------------------|
| | Non-differential (3P-2 heater) | Non-differential (3P-3 heater) | Differential | | |
| 7~10 | MT-95/2H8.5S/L | MT-95/3H8.5S/L | MT-95/3K8.5S/L | MC-75a MC-85a MC-100a | UZ-95S/L |
| 9~13 | MT-95/2H11S/L | MT-95/3H11S/L | MT-95/3K11S/L | | |
| 12~18 | MT-95/2H15S/L | MT-95/3H15S/L | MT-95/3K15S/L | | |
| 16~22 | MT-95/2H19S/L | MT-95/3H19S/L | MT-95/3K19S/L | | |
| 18~25 | MT-95/2H21.5S/L | MT-95/3H21.5S/L | MT-95/3K21.5S/L | | |
| 24~36 | MT-95/2H30S/L | MT-95/3H30S/L | MT-95/3K30S/L | | |
| 28~40 | MT-95/2H34S/L | MT-95/3H34S/L | MT-95/3K34S/L | | |
| 34~50 | MT-95/2H42S/L | MT-95/3H42S/L | MT-95/3K42S/L | | |
| 45~65 | MT-95/2H55S/L | MT-95/3H55S/L | MT-95/3K55S/L | | |
| 54~75 | MT-95/2H65S/L | MT-95/3H65S/L | MT-95/3K65S/L | | |
| 63~85 | MT-95/2H74S/L | MT-95/3H74S/L | MT-95/3K74S/L | | |
| 70~95 | MT-95/2H83S/L | MT-95/3H83S/L | MT-95/3K83S/L | | |
| 80~100 | MT-95/2H90S/L | MT-95/3H90S/L | MT-95/3K90S/L | | |

MT-150



MT-150/□S

| Setting range (A) | Ordering type | | | Contactor | Separate mounting unit |
|----------------------|------------------|-----------------|-----------------|--------------------|------------------------|
| | Non-differential | | Differential | | |
| | (3P-2 heater) | (3P-3 heater) | | | |
| 34~50 | MT-150/2H42S/L | MT-150/3H42S/L | MT-150/3K42S/L | MC-130a MC-150a | UZ-150S/L |
| 45~65 | MT-150/2H55S/L | MT-150/3H55S/L | MT-150/3K55S/L | | |
| 54~75 | MT-150/2H65S/L | MT-150/3H65S/L | MT-150/3K65S/L | | |
| 63~85 | MT-150/2H74S/L | MT-150/3H74S/L | MT-150/3K74S/L | | |
| 80~105 | MT-150/2H93S/L | MT-150/3H93S/L | MT-150/3K93S/L | | |
| 95~130 | MT-150/2H113S/L | MT-150/3H113S/L | MT-150/3K113S/L | | |
| 110~150 | MT-150/2H130S/L | MT-150/3H130S/L | MT-150/3K130S/L | | |

Overload relay ordering types

Trip class 10A

Terminal type: Screw

Degree of protection: IP20

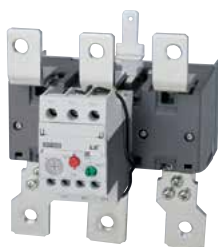
MT-225



MT-225/□

| Setting range (A) | Ordering type | | | Contactor | Remarks |
|----------------------|------------------|---------------|--------------|--------------------|---------|
| | Non-differential | | Differential | | |
| | (3P-2 heater) | (3P-3 heater) | | | |
| 65~100 | MT-225/2H80 | MT-225/3H80 | MT-225/3K80 | MC-185a MC-225a | - |
| 85~125 | MT-225/2H107 | MT-225/3H107 | MT-225/3K107 | | |
| 100~160 | MT-225/2H130 | MT-225/3H130 | MT-225/3K130 | | |
| 120~185 | MT-225/2H153 | MT-225/3H153 | MT-225/3K153 | | |
| 160~240 | MT-225/2H200 | MT-225/3H200 | MT-225/3K200 | | |

MT-400



MT-400/□

| Setting range (A) | Ordering type | | | Contactor | Remarks |
|----------------------|------------------|---------------|--------------|-------------------------------|---------|
| | Non-differential | | Differential | | |
| | (3P-2 heater) | (3P-3 heater) | | | |
| 85~125 | MT-400/2H107 | MT-400/3H107 | MT-400/3K107 | MC-265a MC-330a MC-400a | - |
| 100~160 | MT-400/2H130 | MT-400/3H130 | MT-400/3K130 | | |
| 120~185 | MT-400/2H153 | MT-400/3H153 | MT-400/3K153 | | |
| 160~240 | MT-400/2H200 | MT-400/3H200 | MT-400/3K200 | | |
| 200~330 | MT-400/2H265 | MT-400/3H265 | MT-400/3K265 | | |
| 260~400 | MT-400/2H350 | MT-400/3H350 | MT-400/3K350 | | |

MT-800



MT-800/□

| Setting range (A) | Ordering type | | | Contactor | Remarks |
|----------------------|------------------|---------------|--------------|-------------------------------|---------|
| | Non-differential | | Differential | | |
| | (3P-2 heater) | (3P-3 heater) | | | |
| 200~330 | MT-800/2H265 | MT-800/3H265 | MT-800/3K265 | MC-500a MC-630a MC-800a | - |
| 260~400 | MT-800/2H350 | MT-800/3H350 | MT-800/3K350 | | |
| 400~630 | MT-800/2H515 | MT-800/3H515 | MT-800/3K515 | | |
| 520~800 | MT-800/2H660 | MT-800/3H660 | MT-800/3K660 | | |

Trip class 20

Terminal type: Screw

Degree of protection: IP20

MT-12



MT-12/3D□

| Setting range (A) | Ordering type | Contactor | Separate mounting unit |
|-------------------|---------------|------------------------------------|------------------------|
| | Differential | | |
| 1~1.6 | MT-12/3D1.3 | MC-6a MC-9a MC-12a MC-18a | UZ-12 |
| 1.6~2.5 | MT-12/3D2.1 | | |
| 2.5~4 | MT-12/3D3.3 | | |
| 4~6 | MT-12/3D5 | | |
| 5~8 | MT-12/3D6.5 | | |
| 6~9 | MT-12/3D7.5 | | |
| 7~10 | MT-12/3D8.5 | | |
| 9~13 | MT-12/3D11 | | |
| 12~18 | MT-12/3D15 | | |

MT-32



MT-32/3D□

| Setting range (A) | Ordering type | Contactor | Separate mounting unit |
|-------------------|---------------|---------------------------------------------------------|------------------------|
| | Differential | | |
| 1~1.6 | MT-32/3D1.3 | MC-9b MC-12b MC-18b MC-22b MC-32a MC-40a | UZ-32 |
| 1.6~2.5 | MT-32/3D2.1 | | |
| 2.5~4 | MT-32/3D3.3 | | |
| 4~6 | MT-32/3D5 | | |
| 5~8 | MT-32/3D6.5 | | |
| 6~9 | MT-32/3D7.5 | | |
| 7~10 | MT-32/3D8.5 | | |
| 9~13 | MT-32/3D11 | | |
| 12~18 | MT-32/3D15 | | |
| 16~22 | MT-32/3D19 | | |
| 18~25 | MT-32/3D21.5 | | |
| 22~32 | MT-32/3D27 | | |
| 28~40 | MT-32/3D34 | | |

Overload relay ordering types

Trip class 20

Terminal type: Screw(S), Lug(L)

Degree of protection: IP20



MT-63/S



MT-63/L

MT-63

| Setting range (A) | Ordering type | Contactor | Separate mounting unit |
|-------------------|-----------------|------------------|------------------------|
| | Differential | | |
| 4~6 | MT-63/3D5S/L | MC-50a MC-65a | UZ-63S/L |
| 5~8 | MT-63/3D6.5S/L | | |
| 6~9 | MT-63/3D7.5S/L | | |
| 7~10 | MT-63/3D8.5S/L | | |
| 9~13 | MT-63/3D11S/L | | |
| 12~18 | MT-63/3D15S/L | | |
| 16~22 | MT-63/3D19S/L | | |
| 18~25 | MT-63/3D21.5S/L | | |
| 24~36 | MT-63/3D30S/L | | |
| 28~40 | MT-63/3D34S/L | | |
| 34~50 | MT-63/3D42S/L | | |
| 45~65 | MT-63/3D55S/L | | |



MT-95/S



MT-95/L

MT-95

| Setting range (A) | Ordering type | Contactor | Separate mounting unit |
|-------------------|-----------------|-----------------------------|------------------------|
| | Differential | | |
| 7~10 | MT-95/3D8.5S/L | MC-75a MC-85a MC-100a | UZ-95S/L |
| 9~13 | MT-95/3D11S/L | | |
| 12~18 | MT-95/3DK15S/L | | |
| 16~22 | MT-95/3D19S/L | | |
| 18~25 | MT-95/3D21.5S/L | | |
| 24~36 | MT-95/3D30S/L | | |
| 28~40 | MT-95/3D34S/L | | |
| 34~50 | MT-95/3D42S/L | | |
| 45~65 | MT-95/3D55S/L | | |
| 54~75 | MT-95/3D65S/L | | |
| 63~85 | MT-95/3D74S/L | | |
| 70~95 | MT-95/3D83S/L | | |
| 80~100 | MT-95/3D90S/L | | |



MT-150/S

MT-150

| Setting range (A) | Ordering type | Contactor | Separate mounting unit |
|-------------------|-----------------|--------------------|------------------------|
| | Differential | | |
| 34~50 | MT-150/3D42S/L | MC-130a MC-150a | UZ-150S/L |
| 45~65 | MT-150/3D55S/L | | |
| 54~75 | MT-150/3D65S/L | | |
| 63~85 | MT-150/3D74S/L | | |
| 80~105 | MT-150/3D93S/L | | |
| 95~130 | MT-150/3D113S/L | | |
| 110~150 | MT-150/3D130S/L | | |

Trip class 20

Terminal type: Screw

Degree of protection: IP20



MT-225/3D

MT-225

| Setting range (A) | Ordering type | Contactor | Remarks |
|-------------------|---------------|--------------------|---------|
| | Differential | | |
| 65~100 | MT-225/3D80 | MC-185a MC-225a | - |
| 85~125 | MT-225/3D107 | | |
| 100~160 | MT-225/3D130 | | |
| 120~185 | MT-225/3D153 | | |
| 160~240 | MT-225/3D200 | | |



MT-400/3D

MT-400

| Setting range (A) | Ordering type | Contactor | Remarks |
|-------------------|---------------|-------------------------------|---------|
| | Differential | | |
| 85~125 | MT-400/3D107 | MC-265a MC-330a MC-400a | - |
| 100~160 | MT-400/3D130 | | |
| 120~185 | MT-400/3D153 | | |
| 160~240 | MT-400/3D200 | | |
| 200~330 | MT-400/3D265 | | |
| 260~400 | MT-400/3D350 | | |



MT-800/3D

MT-800

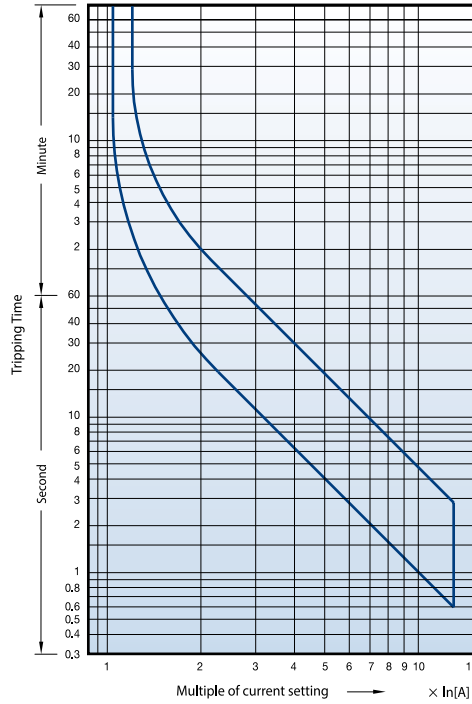
| Setting range (A) | Ordering type | Contactor | Remarks |
|-------------------|---------------|-------------------------------|---------|
| | Differential | | |
| 200~330 | MT-800/3D265 | MC-500a MC-630a MC-800a | - |
| 260~400 | MT-800/3D350 | | |
| 400~630 | MT-800/3D515 | | |
| 520~800 | MT-800/3D660 | | |

Overload relay trip curves

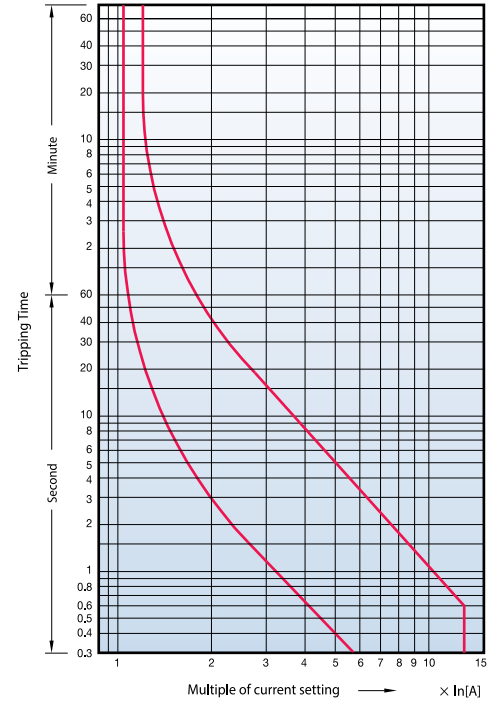
Class 10A, 18AF

- MT-12/2H
- MT-12/3H
- MT-12/3K

Cold starting



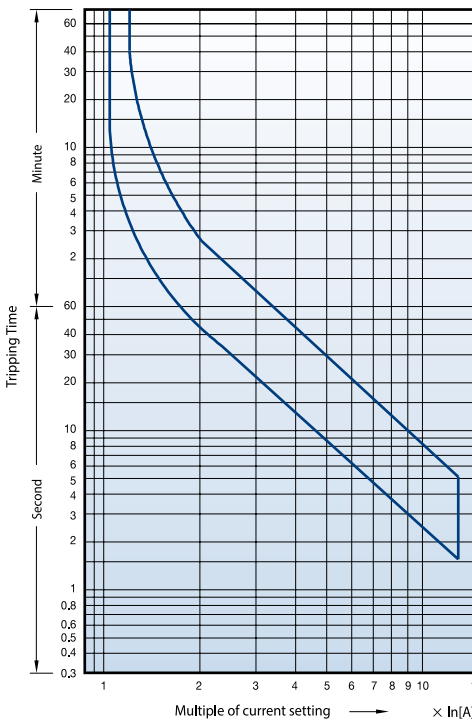
Hot starting



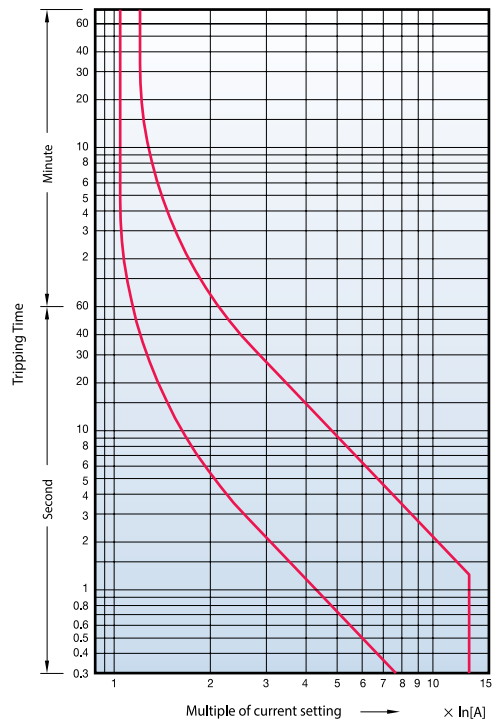
Class 20, 18AF

- MT-12/3D

Cold starting



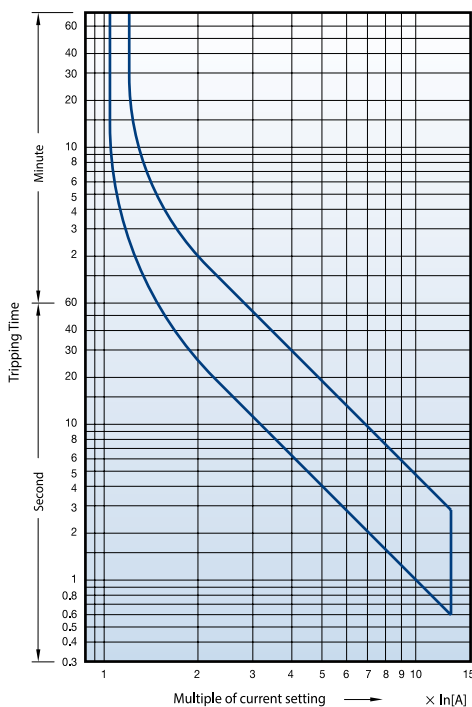
Hot starting



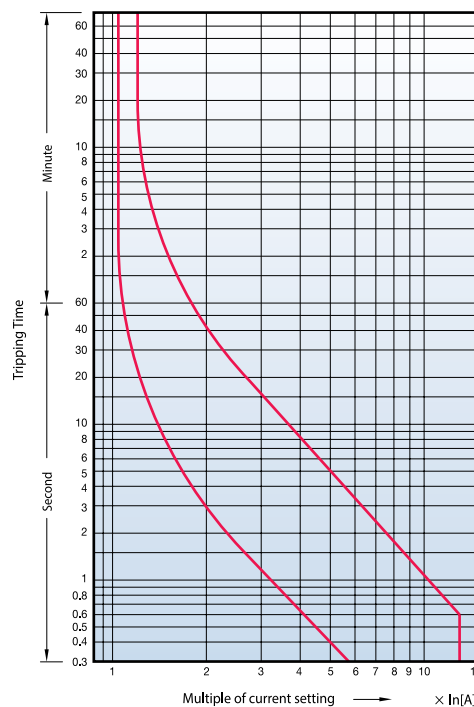
Class 10A, 40AF

- MT-32/2H
- MT-32/3H
- MT-32/3K

Cold starting



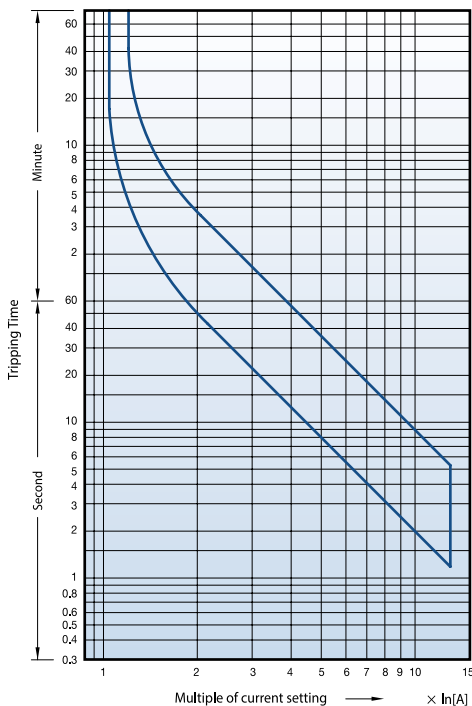
Hot starting



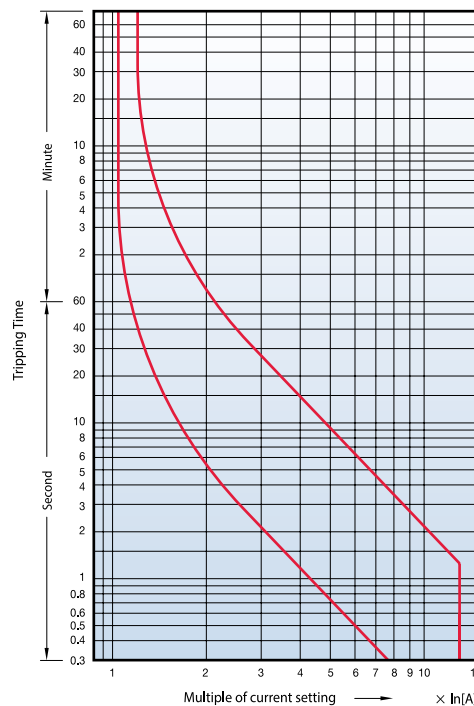
Class 20, 40AF

- MT-32/3D

Cold starting



Hot starting



Overload relay trip curves

Metasol

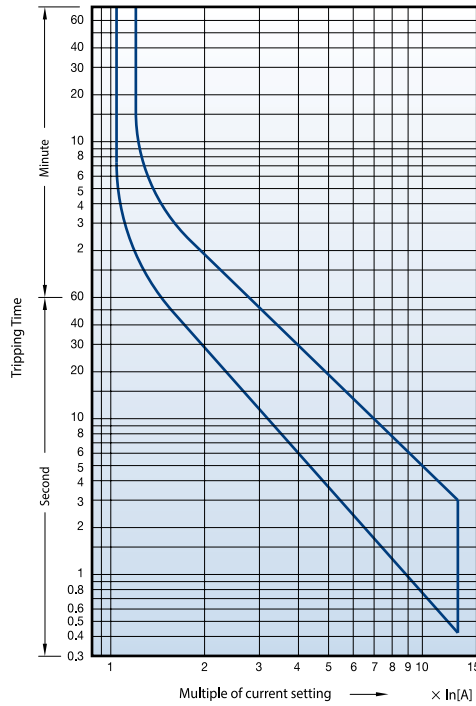
Class 10A, 65AF

MT-63/2H

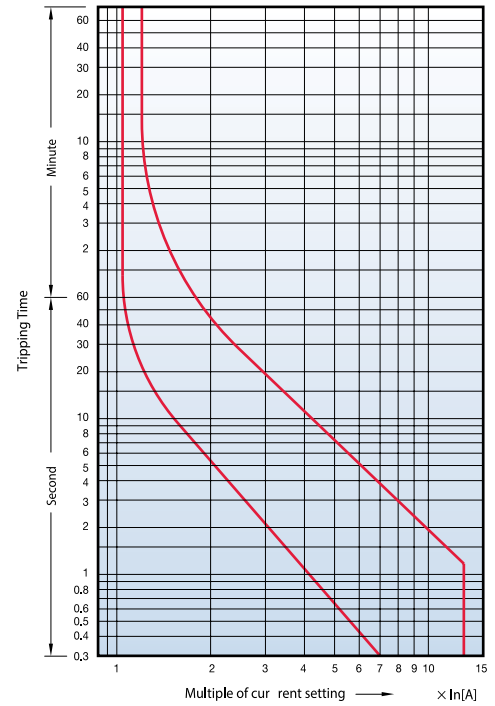
MT-63/3H

MT-63/3K

Cold starting



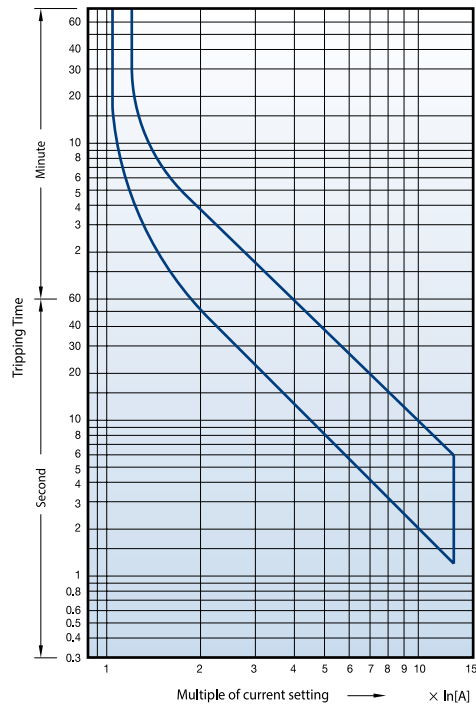
Hot starting



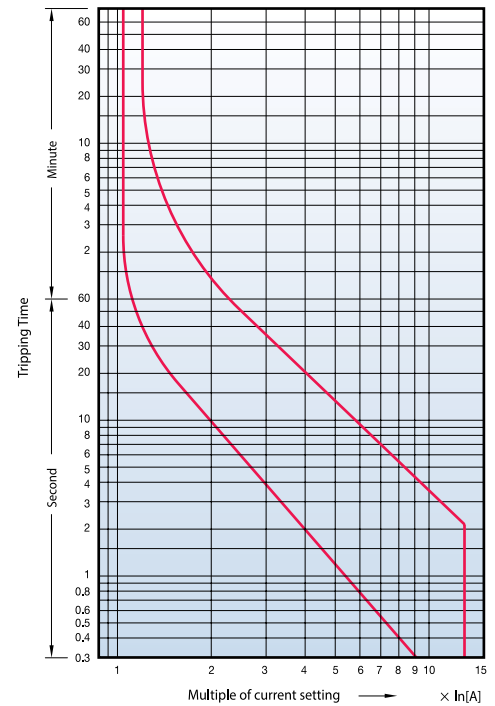
Class 20, 65AF

MT-63/3D

Cold starting



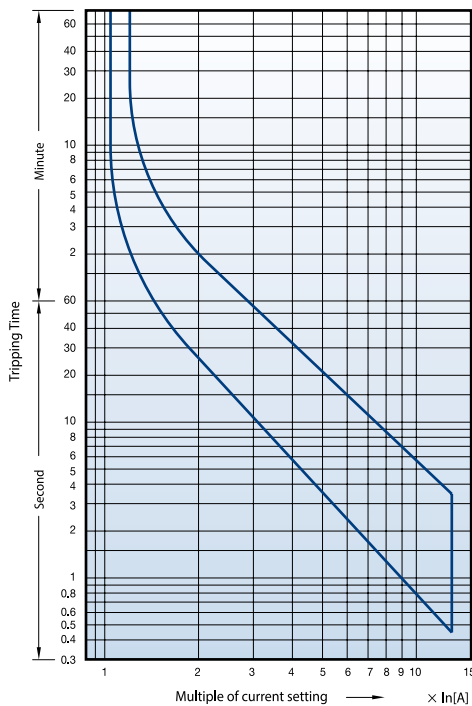
Hot starting



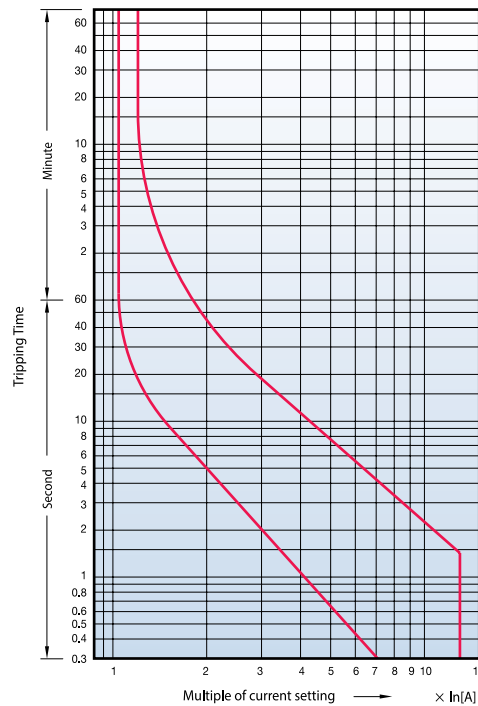
Class 10A, 100AF

- MT-95/2H
- MT-95/3H
- MT-95/3K

Cold starting



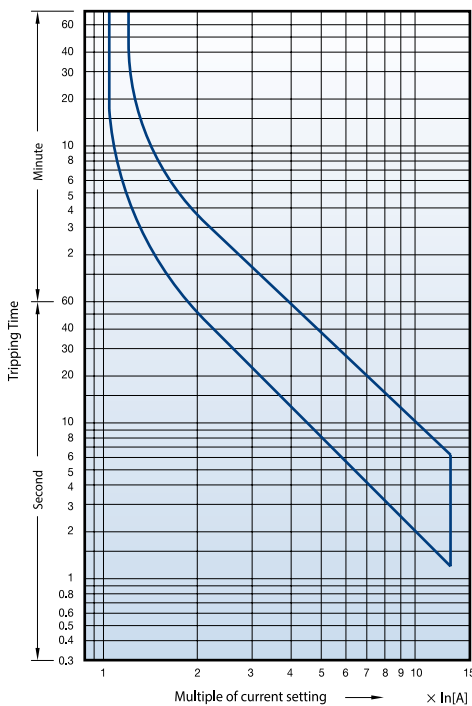
Hot starting



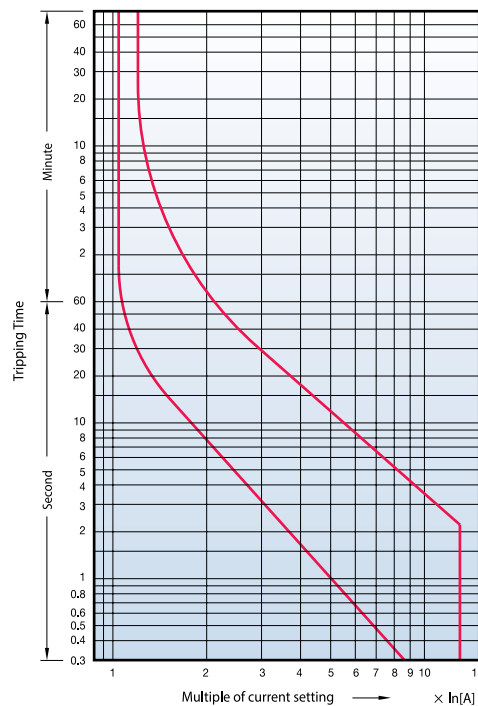
Class 20, 100AF

- MT-95/3D

Cold starting



Hot starting



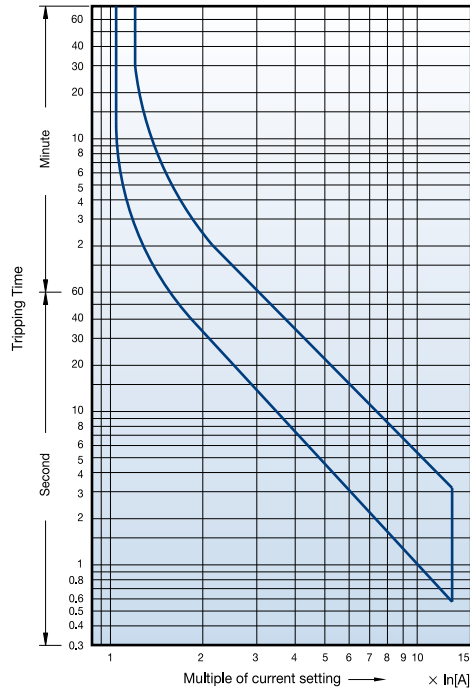
Overload relay trip curves

Metasol

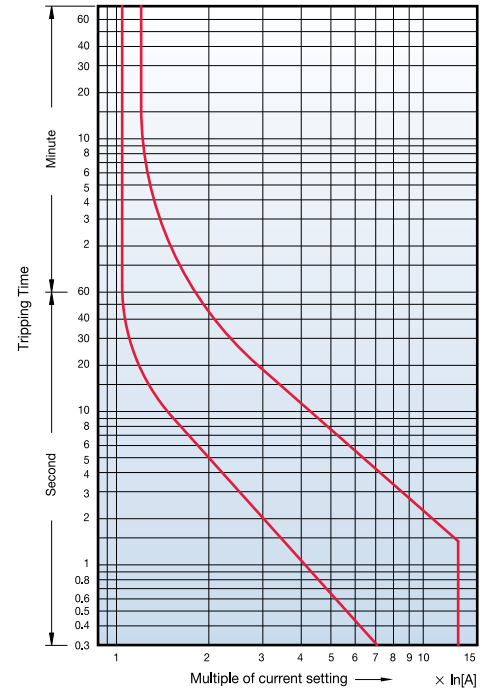
Class 10A, 150AF

- MT-150/2H
- MT-150/3H
- MT-150/3K

Cold starting



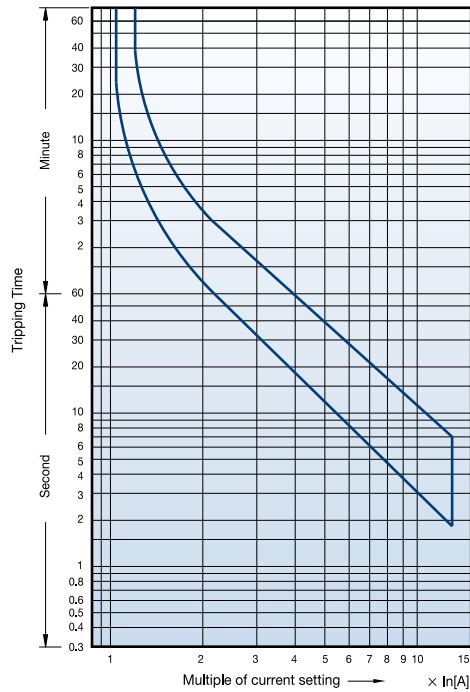
Hot starting



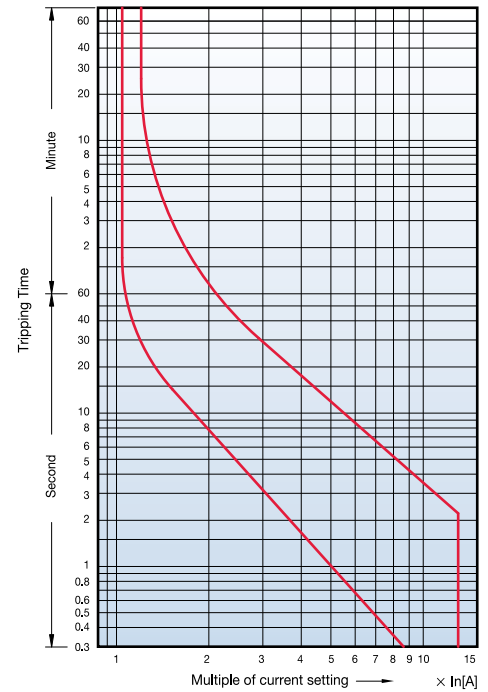
Class 20, 150AF

- MT-150/3D

Cold starting



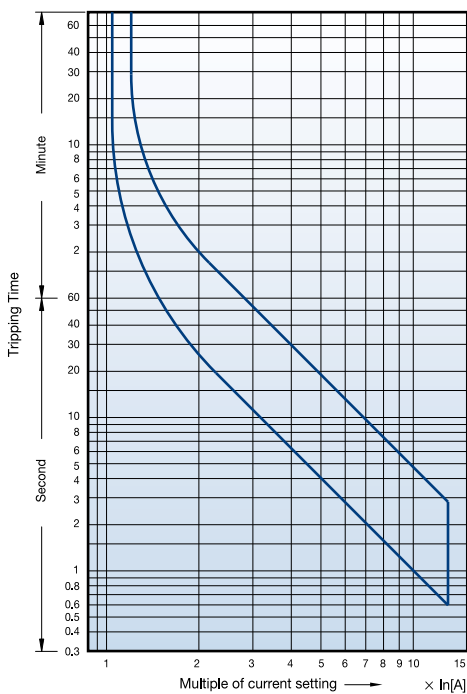
Hot starting



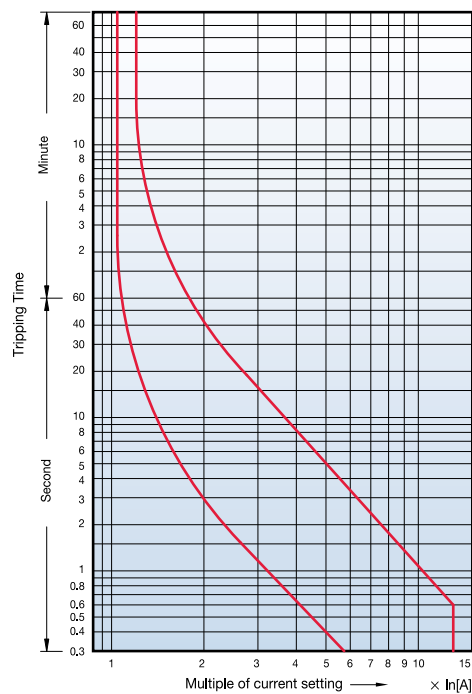
Class 10A, 225AF

- MT-225/2H
- MT-225/3H
- MT-225/3K

Cold starting



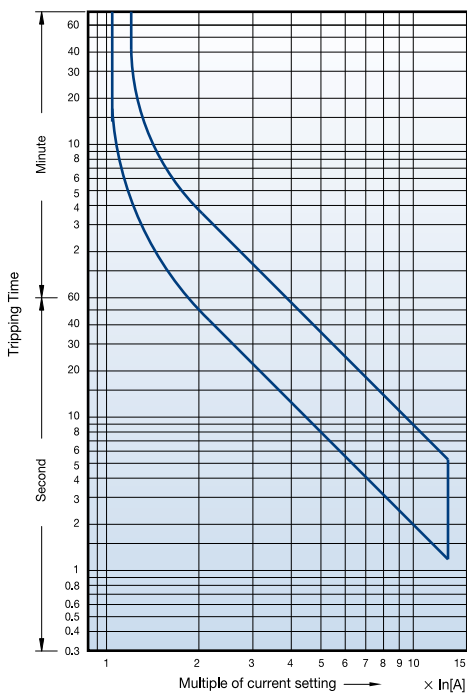
Hot starting



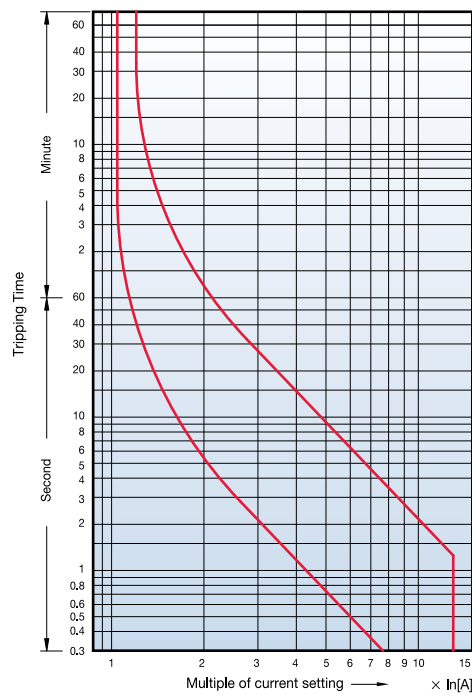
Class 20, 225AF

- MT-225/3D

Cold starting



Hot starting

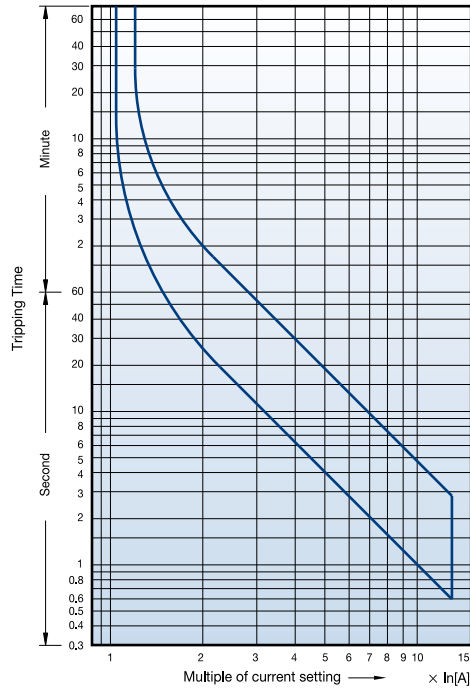


Overload relay trip curves

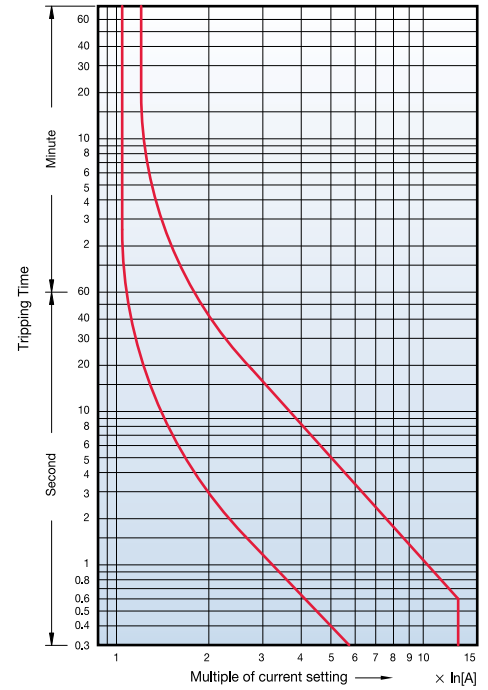
Class 10A, 400AF

- MT-400/2H
- MT-400/3H
- MT-400/3K

Cold starting



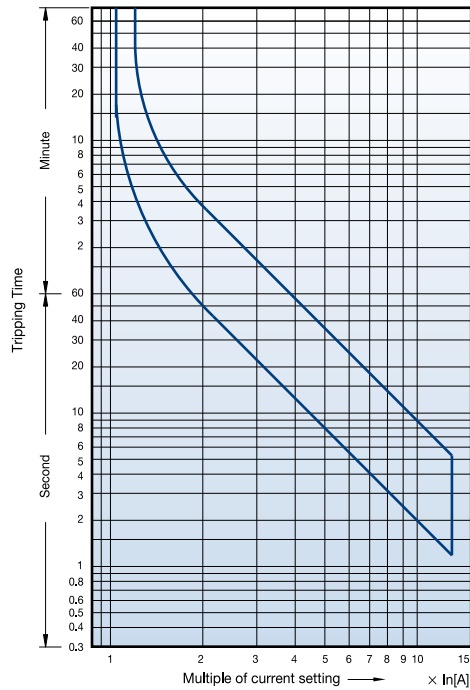
Hot starting



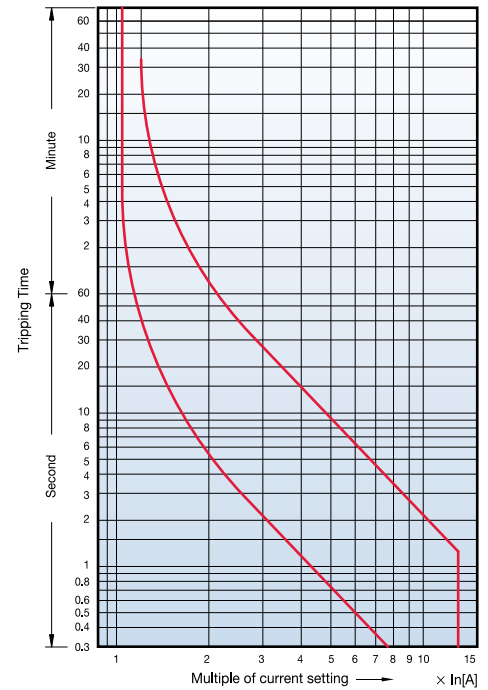
Class 20, 400AF

- MT-400/3D

Cold starting



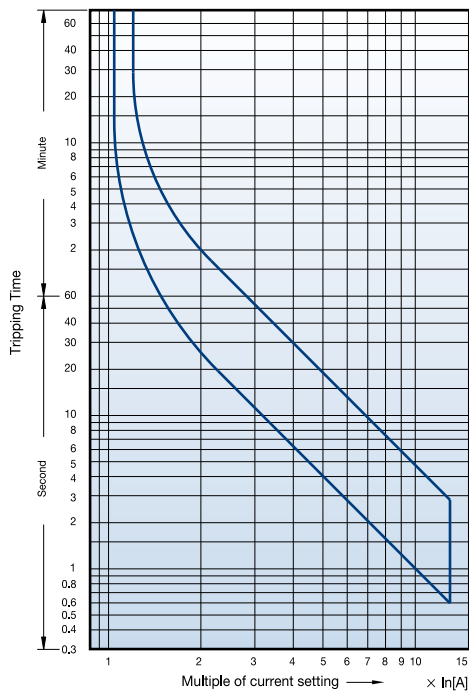
Hot starting



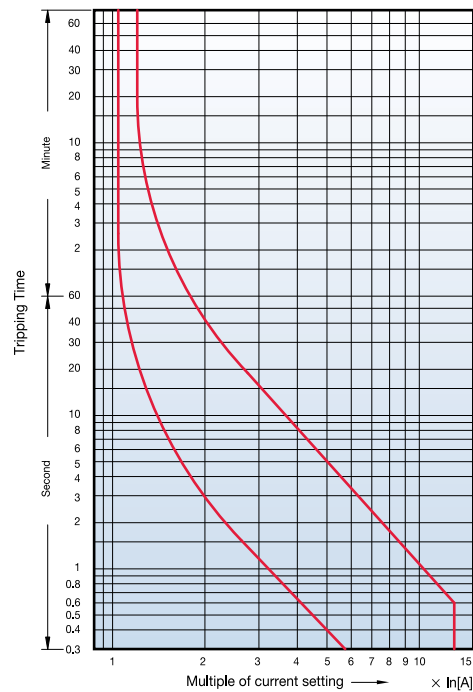
Class 10A, 800AF

- MT-800/2H
- MT-800/3H
- MT-800/3K

Cold starting



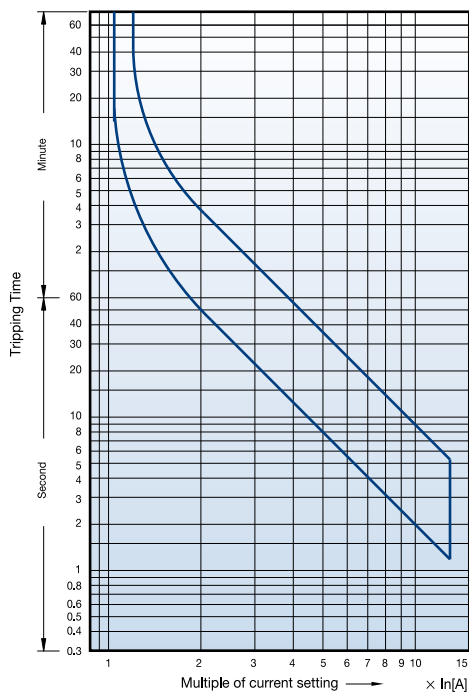
Hot starting



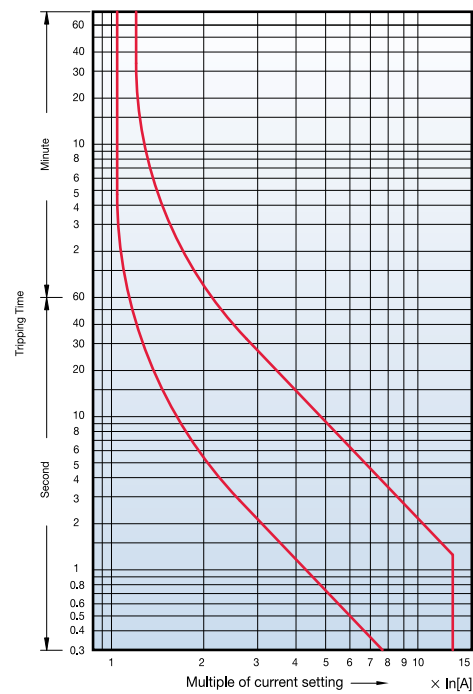
Class 20, 800AF

- MT-800/3D

Cold starting



Hot starting



Type 2 Coordination (440V)

440V

Susol MCCB N-type

| Rated Operational Power | | Circuit Breaker | | Contactor | Thermal Overload Relays | | Short Circuit Breaking Capacity | |
|-------------------------|-------------|-----------------|------------|-----------|-------------------------|-------------------|---------------------------------|---------------------|
| kW | Current [A] | Type | Rating [A] | Type | Type | Setting Range [A] | I _r [kA] | I _q [kA] |
| | 440V | | | | | | | |
| 1.1 | 2.37 | TS100N | 16 | MC-12b | MT-32 | 2.5~4 | 1 | 50 |
| 1.5 | 3.06 | TS100N | 16 | MC-18b | MT-32 | 2.5~4 | 1 | 50 |
| 2.2 | 4.42 | TS100N | 16 | MC-22b | MT-32 | 4~6 | 1 | 50 |
| 3 | 5.77 | TS100N | 16 | MC-22b | MT-32 | 5~8 | 1 | 50 |
| 4 | 7.90 | TS100N | 16 | MC-32a | MT-32 | 6~9 | 1 | 50 |
| 5.5 | 10.40 | TS100N | 16 | MC-32a | MT-32 | 9~13 | 3 | 50 |
| 7.5 | 13.70 | TS100N | 20 | MC-32a | MT-32 | 12~18 | 3 | 50 |
| 11 | 20.10 | TS100N | 32 | MC-40a | MT-32 | 18~25 | 3 | 50 |
| 15 | 26.50 | TS100N | 40 | MC-40a | MT-32 | 22~32 | 3 | 50 |
| 18.5 | 32.80 | TS100N | 40 | MC-50a | MT-63 | 28~40 | 3 | 50 |
| 22 | 39.00 | TS100N | 50 | MC-50a | MT-63 | 34~50 | 3 | 50 |
| 30 | 51.50 | TS100N | 63 | MC-65a | MT-63 | 45~65 | 3 | 50 |
| 37 | 64.00 | TS100N | 80 | MC-75a | MT-95 | 54~75 | 5 | 50 |
| 45 | 76.00 | TS100N | 100 | MC-85a | MT-95 | 63~85 | 5 | 50 |
| 55 | 90.00 | TS100N | 100 | MC-100a | MT-95 | 70~95 | 5 | 50 |
| 59 | 97.00 | TS160N | 100 | MC-130a | MT-150 | 80~105 | 5 | 50 |
| 75 | 125 | TS160N | 160 | MC-150a | MT-150 | 110~150 | 10 | 50 |
| 90 | 146 | TS160N | 160 | MC-185a | MT-225 | 120~185 | 10 | 50 |
| 110 | 178 | TS250N | 200 | MC-185a | MT-225 | 160~240 | 10 | 50 |
| 132 | 215 | TS250N | 250 | MC-225a | MT-225 | 160~240 | 10 | 65 |
| 160 | 256 | TS400N | 300 | MC-400a | MT-400 | 200~330 | 18 | 65 |
| 200 | 330 | TS400N | 400 | MC-400a | MT-400 | 260~400 | 18 | 65 |
| 220 | 353 | TS400N | 400 | MC-400a | MT-400 | 260~400 | 18 | 65 |
| 250 | 401 | TS630N | 500 | MC-630a | MT-800 | 260~400 | 18 | 65 |
| 300 | 481 | TS630N | 500 | MC-630a | MT-800 | 400~630 | 18 | 65 |

440V

Susol MCCB H-type

| Rated Operational Power | | Circuit Breaker | | Contactor | Thermal Overload Relays | | Short Circuit Breaking Capacity | |
|-------------------------|-------------|-----------------|------------|-----------|-------------------------|-------------------|---------------------------------|---------|
| kW | Current [A] | Type | Rating [A] | Type | Type | Setting Range [A] | Ir [kA] | Iq [kA] |
| | 440V | | | | | | | |
| 1.1 | 2.37 | TS100H | 16 | MC-12b | MT-32 | 2.5~4 | 1 | 50 |
| 1.5 | 3.06 | TS100H | 16 | MC-18b | MT-32 | 2.5~4 | 1 | 50 |
| 2.2 | 4.42 | TS100H | 16 | MC-22b | MT-32 | 4~6 | 1 | 50 |
| 3 | 5.77 | TS100H | 16 | MC-22b | MT-32 | 5~8 | 1 | 50 |
| 4 | 7.90 | TS100H | 16 | MC-32a | MT-32 | 6~9 | 1 | 50 |
| 5.5 | 10.40 | TS100H | 16 | MC-32a | MT-32 | 9~13 | 3 | 50 |
| 7.5 | 13.70 | TS100H | 20 | MC-32a | MT-32 | 12~18 | 3 | 70 |
| 11 | 20.10 | TS100H | 32 | MC-40a | MT-32 | 18~25 | 3 | 70 |
| 15 | 26.50 | TS100H | 40 | MC-40a | MT-32 | 22~32 | 3 | 70 |
| 18.5 | 32.80 | TS100H | 40 | MC-50a | MT-63 | 28~40 | 3 | 70 |
| 22 | 39.00 | TS100H | 50 | MC-50a | MT-63 | 34~50 | 3 | 70 |
| 30 | 51.50 | TS100H | 63 | MC-65a | MT-63 | 45~65 | 3 | 70 |
| 37 | 64.00 | TS100H | 80 | MC-75a | MT-95 | 54~75 | 5 | 70 |
| 45 | 76.00 | TS100H | 100 | MC-85a | MT-95 | 63~85 | 5 | 70 |
| 55 | 90.00 | TS100H | 100 | MC-100a | MT-95 | 70~95 | 5 | 70 |
| 59 | 97.00 | TS160H | 100 | MC-130a | MT-150 | 80~105 | 5 | 70 |
| 75 | 125 | TS160H | 160 | MC-150a | MT-150 | 110~150 | 10 | 70 |
| 90 | 146 | TS160H | 160 | MC-185a | MT-225 | 120~185 | 10 | 70 |
| 110 | 178 | TS250H | 200 | MC-185a | MT-225 | 160~240 | 10 | 70 |
| 132 | 215 | TS250H | 250 | MC-225a | MT-225 | 160~240 | 10 | 70 |
| 160 | 256 | TS400H | 300 | MC-400a | MT-400 | 200~330 | 18 | 85 |
| 200 | 330 | TS400H | 400 | MC-400a | MT-400 | 260~400 | 18 | 85 |
| 220 | 353 | TS400H | 400 | MC-400a | MT-400 | 260~400 | 18 | 85 |
| 250 | 401 | TS630H | 500 | MC-630a | MT-800 | 260~400 | 18 | 85 |
| 300 | 481 | TS630H | 500 | MC-630a | MT-800 | 400~630 | 18 | 100 |

Type 2 Coordination (440V)

440V

Susol MCCB L-type

| Rated Operational Power | | Circuit Breaker | | Contactor | Thermal Overload Relays | | Short Circuit Breaking Capacity | |
|-------------------------|-------------|-----------------|------------|-----------|-------------------------|-------------------|---------------------------------|---------|
| kW | Current [A] | Type | Rating [A] | Type | Type | Setting Range [A] | Ir [kA] | Iq [kA] |
| | 440V | | | | | | | |
| 1.1 | 2.37 | TS100L | 16 | MC-12b | MT-32 | 2.5~4 | 1 | 50 |
| 1.5 | 3.06 | TS100L | 16 | MC-18b | MT-32 | 2.5~4 | 1 | 50 |
| 2.2 | 4.42 | TS100L | 16 | MC-22b | MT-32 | 4~6 | 1 | 50 |
| 3 | 5.77 | TS100L | 16 | MC-22b | MT-32 | 5~8 | 1 | 50 |
| 4 | 7.90 | TS100L | 16 | MC-32a | MT-32 | 6~9 | 1 | 50 |
| 5.5 | 10.40 | TS100L | 16 | MC-32a | MT-32 | 9~13 | 3 | 50 |
| 7.5 | 13.70 | TS100L | 20 | MC-32a | MT-32 | 12~18 | 3 | 100 |
| 11 | 20.10 | TS100L | 32 | MC-40a | MT-32 | 18~25 | 3 | 100 |
| 15 | 26.50 | TS100L | 40 | MC-40a | MT-32 | 22~32 | 3 | 100 |
| 18.5 | 32.80 | TS100L | 40 | MC-50a | MT-63 | 28~40 | 3 | 130 |
| 22 | 39.00 | TS100L | 50 | MC-50a | MT-63 | 34~50 | 3 | 130 |
| 30 | 51.50 | TS100L | 63 | MC-65a | MT-63 | 45~65 | 3 | 130 |
| 37 | 64.00 | TS100L | 80 | MC-75a | MT-95 | 54~75 | 5 | 130 |
| 45 | 76.00 | TS100L | 100 | MC-85a | MT-95 | 63~85 | 5 | 130 |
| 55 | 90.00 | TS100L | 100 | MC-100a | MT-95 | 70~95 | 5 | 130 |
| 59 | 97.00 | TS160L | 100 | MC-130a | MT-150 | 80~105 | 5 | 130 |
| 75 | 125 | TS160L | 160 | MC-150a | MT-150 | 110~150 | 10 | 130 |
| 90 | 146 | TS160L | 160 | MC-185a | MT-225 | 120~185 | 10 | 130 |
| 110 | 178 | TS250L | 200 | MC-185a | MT-225 | 160~240 | 10 | 130 |
| 132 | 215 | TS250L | 250 | MC-225a | MT-225 | 160~240 | 10 | 130 |
| 160 | 256 | TS400L | 300 | MC-400a | MT-400 | 200~330 | 18 | 130 |
| 200 | 330 | TS400L | 400 | MC-400a | MT-400 | 260~400 | 18 | 130 |
| 220 | 353 | TS400L | 400 | MC-400a | MT-400 | 260~400 | 18 | 130 |
| 250 | 401 | TS630L | 500 | MC-630a | MT-800 | 260~400 | 18 | 130 |
| 300 | 481 | TS630L | 500 | MC-630a | MT-800 | 400~630 | 18 | 130 |

440V

Metasol MCCB N-type

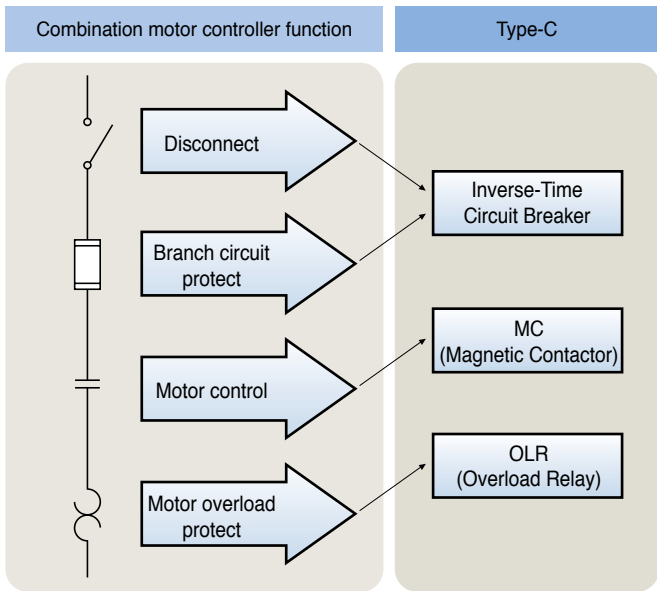
| Rated Operational Power | | Circuit Breaker | | Contactor | Thermal Overload Relays | | Short Circuit Breaking Capacity | |
|-------------------------|-------------|-----------------|------------|-----------|-------------------------|-------------------|---------------------------------|---------------------|
| kW | Current [A] | Type | Rating [A] | Type | Type | Setting Range [A] | I _r [kA] | I _q [kA] |
| | 440V | | | | | | | |
| 1.1 | 2.37 | ABN53c | 15 | MC-12b | MT-32 | 2.5~4 | 1 | 14 |
| 1.5 | 3.06 | ABN53c | 15 | MC-18b | MT-32 | 2.5~4 | 1 | 14 |
| 2.2 | 4.42 | ABN53c | 15 | MC-22b | MT-32 | 4~6 | 1 | 14 |
| 3.0 | 5.77 | ABN53c | 15 | MC-22b | MT-32 | 5~8 | 1 | 14 |
| 4.0 | 7.90 | ABN53c | 15 | MC-32a | MT-32 | 6~9 | 1 | 14 |
| 5.5 | 10.40 | ABN53c | 15 | MC-32a | MT-32 | 9~13 | 3 | 14 |
| 7.5 | 13.70 | ABN53c | 20 | MC-32a | MT-32 | 12~18 | 3 | 14 |
| 11.0 | 20.10 | ABN103c | 30 | MC-40a | MT-32 | 18~25 | 3 | 18 |
| 15.0 | 26.50 | ABN103c | 40 | MC-40a | MT-32 | 22~32 | 3 | 18 |
| 18.5 | 32.80 | ABN103c | 40 | MC-50a | MT-63 | 28~40 | 3 | 18 |
| 22.0 | 39.00 | ABN103c | 50 | MC-50a | MT-63 | 34~50 | 3 | 18 |
| 30.0 | 51.50 | ABN103c | 75 | MC-65a | MT-63 | 45~65 | 3 | 18 |
| 37.0 | 64.00 | ABN103c | 75 | MC-75a | MT-95 | 54~75 | 5 | 18 |
| 45.0 | 76.00 | ABN103c | 100 | MC-85a | MT-95 | 63~85 | 5 | 18 |
| 55.0 | 90.00 | ABN103c | 100 | MC-100a | MT-95 | 70~95 | 5 | 18 |
| 59.0 | 97.00 | ABN103c | 100 | MC-130a | MT-150 | 80~105 | 5 | 18 |
| 75.0 | 125 | ABN203c | 150 | MC-150a | MT-150 | 110~150 | 10 | 26 |
| 90.0 | 146 | ABN203c | 200 | MC-185a | MT-225 | 120~185 | 10 | 26 |
| 110.0 | 178 | ABN203c | 200 | MC-185a | MT-225 | 160~240 | 10 | 26 |
| 132.0 | 215 | ABN203c | 250 | MC-225a | MT-225 | 160~240 | 10 | 26 |
| 160.0 | 256 | ABN403c | 300 | MC-400a | MT-400 | 200~330 | 18 | 37 |
| 200.0 | 330 | ABN403c | 400 | MC-400a | MT-400 | 260~400 | 18 | 37 |
| 220.0 | 353 | ABN403c | 400 | MC-400a | MT-400 | 260~400 | 18 | 37 |
| 250.0 | 401 | ABN803c | 500 | MC-630a | MT-800 | 260~400 | 18 | 37 |
| 300.0 | 481 | ABN803c | 500 | MC-630a | MT-800 | 400~630 | 18 | 37 |

Type 2 Coordination (MCI Series)

| Circuit Breaker (ACB) | | | Contactor(MCI) | | Short Circuit |
|-----------------------|-------------|-----------|----------------|-----------|-------------------------------------|
| ACB Type | CRADLE Type | Rating(A) | Type | Rating(A) | I _r =I _q (kA) |
| AN-16C3-16A | AL-H16C3 | 1600 | MCI-900 | 900 | 42 |
| AN-16C3-16A | AL-H16C3 | 1600 | MCI-1050 | 1050 | 42 |
| AN-16C3-16A | AL-H16C3 | 1600 | MCI-1260 | 1260 | 42 |
| AH-32E3-32A | AL-H06~32E3 | 3200 | MCI-1700 | 1700 | 42 |
| AH-32E3-32A | AL-H06~32E3 | 3200 | MCI-2100 | 2100 | 42 |
| AH-32E3-32A | AL-H06~32E3 | 3200 | MCI-2650 | 2650 | 42 |

* Breaker (ACB) Model AN-16C3-16A when the OCR Override setting is "On"

Rated UL 508 Combination motor controller type-C



240V

Susol UL MCCB C-type

| CB | MC | OLR | kA@240V | Maximum HP | Maximum NEC FLC [A] |
|---------|--------|---------------|---------|------------|---------------------|
| UTE100E | MC-6a | MT-12 0.1~10A | 50 | 3 | 9.6 |
| UTE100N | | | 65 | 3 | |
| UTE100E | MC-9a | MT-12 0.1~10A | 50 | 3 | |
| UTE100N | | | 65 | 3 | |
| UTE100E | MC-12a | MT-12 0.1~18A | 50 | 5 | 15.2 |
| UTE100N | | | 65 | 5 | |
| UTE100E | MC-18a | MT-12 0.1~18A | 50 | 7.5 | 22 |
| UTE100N | | | 65 | 7.5 | |
| UTS150N | | | 65 | 7.5 | |
| UTS150L | | | 100 | 7.5 | |
| UTE100E | MC-9b | MT-32 0.1~10A | 50 | 3 | 9.6 |
| UTE100N | | | 65 | 3 | |
| UTE100E | MC-12b | MT-32 0.1~18A | 50 | 5 | 15.2 |
| UTE100N | | | 65 | 5 | |
| UTE100E | MC-18b | MT-32 0.1~25A | 50 | 7.5 | 22 |
| UTE100N | | | 65 | 7.5 | |
| UTS150N | | | 65 | 7.5 | |
| UTS150L | | | 100 | 7.5 | |

| CB | MC | OLR | kA@240V | Maximum HP | Maximum NEC FLC [A] |
|---------|--------|---------------|---------|------------|---------------------|
| UTE100E | MC-22b | MT-32 0.1~32A | 50 | 10 | 28 |
| UTE100N | | | 65 | 10 | |
| UTS150N | | | 65 | 10 | |
| UTS150L | | | 100 | 10 | |
| UTE100E | MC-32a | MT-32 0.1~32A | 50 | 10 | 28 |
| UTE100N | | | 65 | 10 | |
| UTS150N | | | 65 | 10 | |
| UTS150L | | | 100 | 10 | |
| UTE100E | MC-40a | MT-32 0.1~40A | 50 | 15 | 42 |
| UTE100N | | | 65 | 15 | |
| UTS150N | | | 65 | 15 | |
| UTS150L | | | 100 | 15 | |

Rated UL 508 Combination motor controller type-C

240V

Susol UL MCCB C-type

| CB | MC | OLR | kA@240V | Maximum HP | Maximum NEC FLC [A] |
|---------|--------|------------------|---------|------------|---------------------|
| UTE100E | MC-6a | MT-12 0.1~10A | 50 | 3 | 9.6 |
| UTE100N | | | 65 | 3 | |
| UTE100E | MC-9a | MT-12 0.1~10A | 50 | 3 | |
| UTE100N | | | 65 | 3 | |
| UTE100E | MC-12a | MT-12 0.1~18A | 50 | 5 | 15.2 |
| UTE100N | | | 65 | 5 | |
| UTE100E | MC-18a | MT-12 0.1~18A | 50 | 7.5 | 22 |
| UTE100N | | | 65 | 7.5 | |
| UTS150N | | | 65 | 7.5 | |
| UTS150L | | | 100 | 7.5 | |
| UTE100E | MC-9b | MT-32 0.1~10A | 50 | 3 | 9.6 |
| UTE100N | | | 65 | 3 | |
| UTE100E | MC-12b | MT-32 0.1~18A | 50 | 5 | 15.2 |
| UTE100N | | | 65 | 5 | |
| UTE100E | MC-18b | MT-32 0.1~25A | 50 | 7.5 | 22 |
| UTE100N | | | 65 | 7.5 | |
| UTS150N | | | 65 | 7.5 | |
| UTS150L | | | 100 | 7.5 | |
| UTE100E | MC-22b | MT-32 0.1~32A | 50 | 10 | 28 |
| UTE100N | | | 65 | 10 | |
| UTS150N | | | 65 | 10 | |
| UTS150L | | | 100 | 10 | |
| UTE100E | MC-32a | MT-32 0.1~32A | 50 | 10 | 28 |
| UTE100N | | | 65 | 10 | |
| UTS150N | | | 65 | 10 | |
| UTS150L | | | 100 | 10 | |
| UTE100E | MC-40a | MT-32 0.1~40A | 50 | 15 | 42 |
| UTE100N | | | 65 | 15 | |
| UTS150N | | | 65 | 15 | |
| UTS150L | | | 100 | 15 | |
| UTE100E | MC-50a | MT-63 4~65A | 50 | 25 | 65 |
| UTE100N | | | 65 | 25 | |
| UTS150N | | | 65 | 25 | |
| UTS150L | | | 100 | 25 | |

| CB | MC | OLR | kA@240V | Maximum HP | Maximum NEC FLC [A] |
|---------|---------|-------------------|---------|------------|---------------------|
| UTE100E | MC-65a | MT-63 4~65A | 50 | 30 | 80 |
| UTE100N | | | 65 | 30 | |
| UTS150N | | | 65 | 30 | |
| UTS150L | | | 100 | 30 | |
| UTS150N | MC-75a | MT-95 7~95A | 65 | 30 | 80 |
| UTS150L | | | 100 | 30 | |
| UTS150N | MC-85a | MT-95 7~100A | 65 | 40 | 104 |
| UTS150L | | | 100 | 40 | |
| UTS150N | MC-100a | MT-95 7~100A | 65 | 40 | 104 |
| UTS150L | | | 100 | 40 | |
| UTS150N | MC-130a | MT-150 34~130A | 65 | 40 | 104 |
| UTS150L | | | 100 | 40 | |
| UTS150N | MC-150a | MT-150 34~130A | 65 | 50 | 130 |
| UTS150L | | | 100 | 50 | |
| UTS250N | | | 65 | 50 | |
| UTS250L | | | 100 | 50 | |
| UTS250N | MC-185a | MT-225 65~185A | 65 | 60 | 154 |
| UTS250L | | | 100 | 60 | |
| UTS400N | | | 65 | 60 | |
| UTS400L | MC-225a | MT-225 65~240A | 100 | 60 | 192 |
| UTS400N | | | 65 | 75 | |
| UTS400L | | | 100 | 75 | |
| UTS250N | | | 65 | 75 | |
| UTS250L | MC-265a | MT-400 85~330A | 100 | 75 | 248 |
| UTS400N | | | 65 | 100 | |
| UTS400L | MC-330a | MT-400 85~330A | 100 | 100 | 248 |
| UTS400N | | | 65 | 100 | |
| UTS600N | MC-400a | MT-400 85~400A | 65 | 150 | 360 |
| UTS600L | | | 100 | 150 | |
| UTS800L | MC-500a | MT-800 200~600A | 100 | 200 | 480 |
| UTS800L | MC-630a | MT-800 200~800A | 100 | 250 | 604 |

480V

Susol UL MCCB C-type

| CB | MC | OLR | Voltage (V) | Short Circuit Rating (kA) (4) | Maximum HP | Maximum NEC FLC [A] | |
|---------|--------|------------------|-------------|-------------------------------|------------|---------------------|----|
| UTE100E | MC-6a | MT-12 0.1~10A | 480 | 25 | 5 | 7.6 | |
| UTE100N | | | 480 | 35 | 5 | | |
| UTE100E | MC-9a | MT-12 0.1~10A | 480 | 25 | 5 | | |
| UTE100N | | | 480 | 35 | 5 | | |
| UTE100E | MC-12a | MT-12 0.1~13A | 480 | 25 | 7.5 | | 11 |
| UTE100N | | | 480 | 35 | 7.5 | | |
| UTE100E | MC-18a | MT-12 0.1~18A | 480 | 25 | 10 | 14 | |
| UTE100N | | | 480 | 35 | 10 | | |
| UTS150N | | | 480 | 35 | 10 | | |
| UTS150H | | | 480 | 65 | 10 | | |
| UTS150L | | | 480 | 100 | 10 | | |
| UTE100E | MC-9b | MT-32 0.1~10A | 480 | 25 | 5 | 7.6 | |
| UTE100N | | | 480 | 35 | 5 | | |
| UTE100E | MC-12b | MT-32 0.1~13A | 480 | 25 | 7.5 | 11 | |
| UTE100N | | | 480 | 35 | 7.5 | | |
| UTE100E | MC-18b | MT-32 0.1~18A | 480 | 25 | 10 | 14 | |
| UTE100N | | | 480 | 35 | 10 | | |
| UTE100E | MC-22b | MT-32 0.1~25A | 480 | 25 | 15 | 21 | |
| UTE100N | | | 480 | 35 | 15 | | |
| UTS150N | | | 480 | 35 | 15 | | |
| UTS150H | | | 480 | 65 | 15 | | |
| UTS150L | | | 480 | 100 | 15 | | |
| UTE100E | MC-32a | MT-32 0.1~32A | 480 | 25 | 20 | 27 | |
| UTE100N | | | 480 | 35 | 20 | | |
| UTS150N | | | 480 | 35 | 20 | | |
| UTS150H | | | 480 | 65 | 20 | | |
| UTE100E | MC-40a | MT-32 0.1~40A | 480 | 25 | 30 | 40 | |
| UTE100N | | | 480 | 35 | 30 | | |
| UTS150N | | | 480 | 35 | 30 | | |
| UTS150H | | | 480 | 65 | 30 | | |
| UTS150L | | | 480 | 100 | 30 | | |
| UTE100E | MC-50a | MT-63 4~65A | 480 | 25 | 40 | 52 | |
| UTE100N | | | 480 | 35 | 40 | | |
| UTS150N | | | 480 | 35 | 40 | | |
| UTS150H | | | 480 | 65 | 40 | | |
| UTS150L | | | 480 | 100 | 40 | | |
| UTE100E | MC-65a | MT-63 4~65A | 480 | 25 | 50 | 65 | |
| UTE100N | | | 480 | 35 | 50 | | |
| UTS150N | | | 480 | 35 | 50 | | |
| UTS150H | | | 480 | 65 | 50 | | |
| UTS150L | | | 480 | 100 | 50 | | |

| CB | MC | OLR | Voltage (V) | Short Circuit Rating (kA) (4) | Maximum HP | Maximum NEC FLC [A] |
|---------|---------|--------------------|-------------|-------------------------------|------------|---------------------|
| UTS150N | MC-75a | MT-95 7~75A | 480 | 35 | 50 | 65 |
| UTS150H | | | 480 | 65 | 50 | |
| UTS150L | | | 480 | 100 | 50 | |
| UTS150N | MC-85a | MT-95 7~85A | 480 | 35 | 60 | 77 |
| UTS150H | | | 480 | 65 | 60 | |
| UTS150L | | | 480 | 100 | 60 | |
| UTS150N | MC-100a | MT-95 7~100A | 480 | 35 | 75 | 96 |
| UTS150H | | | 480 | 65 | 75 | |
| UTS150L | | | 480 | 100 | 75 | |
| UTS150N | MC-130a | MT-150 34~130A | 480 | 35 | 75 | 96 |
| UTS150H | | | 480 | 65 | 75 | |
| UTS150L | | | 480 | 100 | 75 | |
| UTS150N | MC-150a | MT-150 34~130A | 480 | 35 | 100 | 124 |
| UTS150H | | | 480 | 65 | 100 | |
| UTS150L | | | 480 | 100 | 100 | |
| UTS250N | | | 480 | 35 | 100 | |
| UTS250H | | | 480 | 65 | 100 | |
| UTS250L | MC-185a | MT-225 65~185A | 480 | 35 | 125 | 156 |
| UTS250N | | | 480 | 65 | 125 | |
| UTS250H | | | 480 | 100 | 125 | |
| UTS400N | | | 480 | 35 | 150 | |
| UTS400H | | | 480 | 65 | 150 | |
| UTS400L | MC-225a | MT-225 65~240A | 480 | 100 | 150 | 180 |
| UTS250N | | | 480 | 35 | 125 | |
| UTS250H | | | 480 | 65 | 125 | |
| UTS250L | | | 480 | 100 | 125 | |
| UTS400N | | | 480 | 35 | 150 | |
| UTS400H | MC-265a | MT-400 85~330A | 480 | 65 | 150 | 240 |
| UTS400L | | | 480 | 100 | 150 | |
| UTS400N | | | 480 | 35 | 200 | |
| UTS400H | MC-330a | MT-400 85~330A | 480 | 65 | 200 | 302 |
| UTS400L | | | 480 | 100 | 200 | |
| UTS600N | | | 480 | 35 | 300 | |
| UTS600H | MC-400a | MT-400 85~400A | 480 | 65 | 300 | 361 |
| UTS600L | | | 480 | 100 | 300 | |
| UTS800H | MC-500a | MT-800 200~600A | 480 | 65 | 400 | 477 |
| UTS800L | | | 480 | 100 | 400 | |
| UTS800H | MC-630a | MT-800 200~800A | 480 | 65 | 500 | 590 |
| UTS800L | MC-630a | | 480 | 100 | 500 | |

Rated UL 508 Combination motor controller type-C

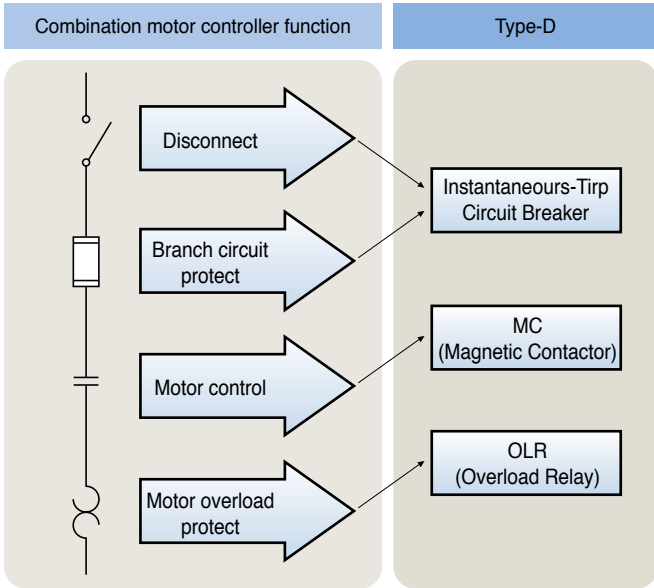
600V

Susol UL MCCB C-type

| CB | MC | OLR | Voltage (V) | Maximum HP | Maximum HP | Maximum NEC FLC [A] | |
|---------|--------|------------------|-------------|------------|------------|---------------------|----|
| UTE100E | MC-6a | MT-12 0.1~10A | 600Y/347 | 14 | 7.5 | 9 | |
| UTE100N | | | 600Y/347 | 18 | 7.5 | | |
| UTE100E | MC-9a | MT-12 0.1~10A | 600Y/347 | 14 | 7.5 | | 11 |
| UTE100N | | | 600Y/347 | 18 | 7.5 | | |
| UTE100E | MC-12a | MT-12 0.1~13A | 600Y/347 | 14 | 10 | 17 | |
| UTE100N | | | 600Y/347 | 18 | 10 | | |
| UTE100E | MC-18a | MT-12 0.1~18A | 600Y/347 | 14 | 15 | | 17 |
| UTE100N | | | 600Y/347 | 18 | 15 | | |
| UTS150N | | | 600 | 18 | 15 | | |
| UTS150H | | | 600 | 35 | 15 | | |
| UTS150L | 600 | 50 | 15 | | | | |
| UTE100E | MC-9b | MT-32 0.1~10A | 600Y/347 | 14 | 7.5 | 9 | |
| UTE100N | | | 600Y/347 | 18 | 7.5 | | |
| UTE100E | MC-12b | MT-32 0.1~13A | 600Y/347 | 14 | 10 | 11 | |
| UTE100N | | | 600Y/347 | 18 | 10 | | |
| UTE100E | MC-18b | MT-32 0.1~18A | 600Y/347 | 14 | 15 | 17 | |
| UTE100N | | | 600Y/347 | 18 | 15 | | |
| UTE100E | MC-22b | MT-32 0.1~25A | 600Y/347 | 14 | 20 | 22 | |
| UTE100N | | | 600Y/347 | 18 | 20 | | |
| UTS150N | | | 600 | 18 | 20 | | |
| UTS150H | | | 600 | 35 | 20 | | |
| UTS150L | | | 600 | 50 | 20 | | |
| UTE100E | MC-32a | MT-32 0.1~32A | 600Y/347 | 14 | 25 | 27 | |
| UTE100N | | | 600Y/347 | 18 | 25 | | |
| UTS150N | | | 600 | 18 | 25 | | |
| UTS150H | | | 600 | 35 | 25 | | |
| UTS150L | | | 600 | 50 | 25 | | |
| UTE100E | MC-40a | MT-32 0.1~32A | 600Y/347 | 14 | 30 | 32 | |
| UTE100N | | | 600Y/347 | 18 | 30 | | |
| UTS150N | | | 600 | 18 | 30 | | |
| UTS150H | | | 600 | 35 | 30 | | |
| UTE100E | MC-50a | MT-63 4~65A | 600Y/347 | 14 | 50 | 52 | |
| UTE100N | | | 600Y/347 | 18 | 50 | | |
| UTS150N | | | 600 | 18 | 50 | | |
| UTS150H | | | 600 | 35 | 50 | | |
| UTS150L | | | 600 | 50 | 50 | | |
| UTE100E | MC-65a | MT-63 4~65A | 600Y/347 | 14 | 60 | 62 | |
| UTE100N | | | 600Y/347 | 18 | 60 | | |
| UTS150N | | | 600 | 18 | 60 | | |
| UTS150H | | | 600 | 35 | 60 | | |
| UTS150L | | | 600 | 50 | 60 | | |

| CB | MC | OLR | Voltage (V) | Maximum HP | Maximum HP | Maximum NEC FLC [A] |
|---------|---------|--------------------|-------------|------------|------------|---------------------|
| UTS150N | MC-75a | MT-95 7~75A | 600 | 18 | 60 | 62 |
| UTS150H | | | 600 | 35 | 60 | |
| UTS150L | | | 600 | 50 | 60 | |
| UTS150N | MC-85a | MT-95 7~85A | 600 | 18 | 75 | 77 |
| UTS150H | | | 600 | 35 | 75 | |
| UTS150L | | | 600 | 50 | 75 | |
| UTS150N | MC-100a | MT-95 7~85A | 600 | 18 | 75 | 77 |
| UTS150H | | | 600 | 35 | 75 | |
| UTS150L | | | 600 | 50 | 75 | |
| UTS150N | MC-130a | MT-150 34~85A | 600 | 18 | 75 | 77 |
| UTS150H | | | 600 | 35 | 75 | |
| UTS150L | | | 600 | 50 | 75 | |
| UTS150N | MC-150a | MT-150 34~85A | 600 | 18 | 75 | 77 |
| UTS150H | | | 600 | 35 | 75 | |
| UTS150L | | | 600 | 50 | 75 | |
| UTS250N | MC-185a | MT-150 65~185A | 600 | 18 | 125 | 125 |
| UTS250H | | | 600 | 35 | 125 | |
| UTS250L | | | 600 | 50 | 125 | |
| UTS400N | | | 600 | 18 | 150 | |
| UTS400H | | | 600 | 35 | 150 | |
| UTS400L | 600 | 50 | 150 | | | |
| UTS250N | MC-225a | MT-225 65~185A | 600 | 18 | 125 | 144 |
| UTS250H | | | 600 | 35 | 125 | |
| UTS250L | | | 600 | 50 | 125 | |
| UTS400N | | | 600 | 18 | 150 | |
| UTS400H | | | 600 | 35 | 150 | |
| UTS400L | 600 | 50 | 150 | | | |
| UTS400N | MC-265a | MT-400 85~240A | 600 | 18 | 200 | 192 |
| UTS400H | | | 600 | 35 | 200 | |
| UTS400L | | | 600 | 50 | 200 | |
| UTS400N | MC-330a | MT-400 85~330A | 600 | 18 | 200 | 242 |
| UTS400H | | | 600 | 35 | 200 | |
| UTS400L | | | 600 | 50 | 200 | |
| UTS600N | MC-400a | MT-400 85~400A | 600 | 18 | 300 | 289 |
| UTS600H | | | 600 | 35 | 300 | |
| UTS600L | | | 600 | 50 | 300 | |
| UTS800H | MC-500a | MT-800 200~400A | 600 | 35 | 400 | 382 |
| UTS800L | | | 600 | 50 | 400 | |
| UTS800H | MC-630a | MT-800 200~600A | 600 | 35 | 500 | 472 |
| UTS800L | | | 600 | 50 | 500 | |

Rated UL 508 Combination motor controller type-D



240V

Susol UL MCCB D-type

| CB | MC | OLR | kA@240V | Maximum HP | Maximum NEC FLC [A] |
|-------------|--------|------------------|---------|------------|---------------------|
| UTS150L MCP | MC-6a | MT-12 0.1~10A | 100 | 3 | 9.6 |
| UTS150L MCP | MC-9a | MT-12 0.1~10A | 100 | 3 | 9.6 |
| UTS150L MCP | MC-12a | MT-12 0.1~18A | 100 | 5 | 15.2 |
| UTS150L MCP | MC-18a | MT-12 0.1~18A | 100 | 7.5 | 22 |
| UTS150L MCP | MC-9b | MT-32 0.1~10A | 100 | 3 | 9.6 |
| UTS150L MCP | MC-12b | MT-32 0.1~18A | 100 | 5 | 15.2 |
| UTS150L MCP | MC-18b | MT-32 0.1~25A | 100 | 7.5 | 22 |
| UTS150L MCP | MC-22b | MT-32 0.1~32A | 100 | 10 | 28 |
| UTS150L MCP | MC-32a | MT-32 0.1~32A | 100 | 10 | 28 |
| UTS150L MCP | MC-40a | MT-32 0.1~40A | 100 | 15 | 42 |
| UTS150L MCP | MC-50a | MT-63 4~65A | 100 | 25 | 65 |
| UTS150L MCP | MC-65a | MT-63 4~65A | 100 | 30 | 80 |
| UTS150L MCP | MC-75a | MT-95 7~95A | 100 | 30 | 80 |

| CB | MC | OLR | kA@240V | Maximum HP | Maximum NEC FLC [A] |
|-------------|---------|--------------------|---------|------------|---------------------|
| UTS150L MCP | MC-85a | MT-95 7~100A | 100 | 40 | 104 |
| UTS150L MCP | MC-100a | MT-95 7~100A | 100 | 40 | 104 |
| UTS150L MCP | MC-130a | MT-150 34~130A | 100 | 40 | 104 |
| UTS250L MCP | MC-150a | MT-150 34~130A | 100 | 50 | 130 |
| UTS250L MCP | MC-185a | MT-225 65~160A | 100 | 60 | 154 |
| UTS400L MCP | MC-185a | MT-225 65~185A | 100 | 60 | 154 |
| UTS250L MCP | MC-225a | MT-225 65~240A | 100 | 75 | 192 |
| UTS400L MCP | MC-225a | MT-225 65~240A | 100 | 75 | 192 |
| UTS400L MCP | MC-265a | MT-400 85~330A | 100 | 100 | 248 |
| UTS400L MCP | MC-330a | MT-400 85~330A | 100 | 100 | 248 |
| UTS600L MCP | MC-400a | MT-400 85~400A | 100 | 150 | 360 |
| UTS800L MCP | MC-500a | MT-800 200~600A | 100 | 200 | 480 |
| UTS800L MCP | MC-630a | MT-800 200~800A | 100 | 250 | 604 |

Rated UL 508 Combination motor controller type-D

480V

Susol UL MCCB D-type

| CB | MC | OLR | kA@400V | Maximum HP | Maximum NEC FLC [A] |
|-------------|---------|------------------|---------|------------|---------------------|
| UTS150L MCP | MC-6a | MT-12 0.1~10A | 65 | 5 | 7.6 |
| UTS150L MCP | MC-9a | MT-12 0.1~10A | 65 | 5 | 7.6 |
| UTS150L MCP | MC-12a | MT-12 0.1~13A | 65 | 7.5 | 11 |
| UTS150L MCP | MC-18a | MT-12 0.1~18A | 65 | 10 | 14 |
| UTS150L MCP | MC-9b | MT-32 0.1~10A | 65 | 5 | 7.6 |
| UTS150L MCP | MC-12b | MT-32 0.1~13A | 65 | 7.5 | 11 |
| UTS150L MCP | MC-18b | MT-32 0.1~18A | 65 | 10 | 14 |
| UTS150L MCP | MC-22b | MT-32 0.1~25A | 65 | 15 | 21 |
| UTS150L MCP | MC-32a | MT-32 0.1~32A | 65 | 20 | 27 |
| UTS150L MCP | MC-40a | MT-32 0.1~40A | 65 | 20 | 40 |
| UTS150H MCP | MC-50a | MT-63 4~65A | 65 | 40 | 52 |
| UTS150L MCP | MC-50a | MT-63 4~65A | 100 | 40 | 52 |
| UTS150H MCP | MC-65a | MT-63 4~65A | 65 | 50 | 65 |
| UTS150L MCP | MC-65a | MT-63 4~65A | 100 | 50 | 65 |
| UTS150H MCP | MC-75a | MT-95 7~75A | 65 | 50 | 65 |
| UTS150L MCP | MC-75a | MT-95 7~75A | 100 | 50 | 65 |
| UTS150H MCP | MC-85a | MT-95 7~85A | 65 | 60 | 77 |
| UTS150L MCP | MC-85a | MT-95 7~85A | 100 | 60 | 77 |
| UTS150H MCP | MC-100a | MT-95 7~100A | 65 | 75 | 96 |
| UTS150L MCP | MC-100a | MT-95 7~100A | 100 | 75 | 96 |

| CB | MC | OLR | kA@400V | Maximum HP | Maximum NEC FLC [A] |
|-------------|---------|--------------------|---------|------------|---------------------|
| UTS150H MCP | MC-130a | MT-150 34~130A | 65 | 75 | 96 |
| UTS150L MCP | MC-130a | MT-150 34~130A | 100 | 75 | 96 |
| UTS250H MCP | MC-150a | MT-150 34~130A | 65 | 100 | 124 |
| UTS250L MCP | MC-150a | MT-150 34~130A | 100 | 100 | 124 |
| UTS250H MCP | MC-185a | MT-225 65~185A | 65 | 125 | 156 |
| UTS250L MCP | MC-185a | MT-225 65~185A | 85 | 125 | 156 |
| UTS400H MCP | MC-185a | MT-225 65~185A | 65 | 125 | 156 |
| UTS400L MCP | MC-185a | MT-225 65~185A | 100 | 125 | 156 |
| UTS250H MCP | MC-225a | MT-225 65~240A | 65 | 150 | 180 |
| UTS250L MCP | MC-225a | MT-225 65~240A | 85 | 150 | 180 |
| UTS400H MCP | MC-225a | MT-225 65~240A | 65 | 150 | 180 |
| UTS400L MCP | MC-225a | MT-225 65~240A | 100 | 150 | 180 |
| UTS400H MCP | MC-265a | MT-400 85~330A | 65 | 200 | 240 |
| UTS400L MCP | MC-265a | MT-400 85~330A | 100 | 200 | 240 |
| UTS400H MCP | MC-330a | MT-400 85~330A | 65 | 200 | 240 |
| UTS400L MCP | MC-330a | MT-400 85~330A | 100 | 200 | 240 |
| UTS600H MCP | MC-400a | MT-400 85~400A | 65 | 300 | 361 |
| UTS600L MCP | MC-400a | MT-400 85~400A | 100 | 300 | 361 |
| UTS800L MCP | MC-500a | MT-800 200~600A | 100 | 400 | 477 |
| UTS800L MCP | MC-630a | MT-800 200~800A | 100 | 500 | 590 |

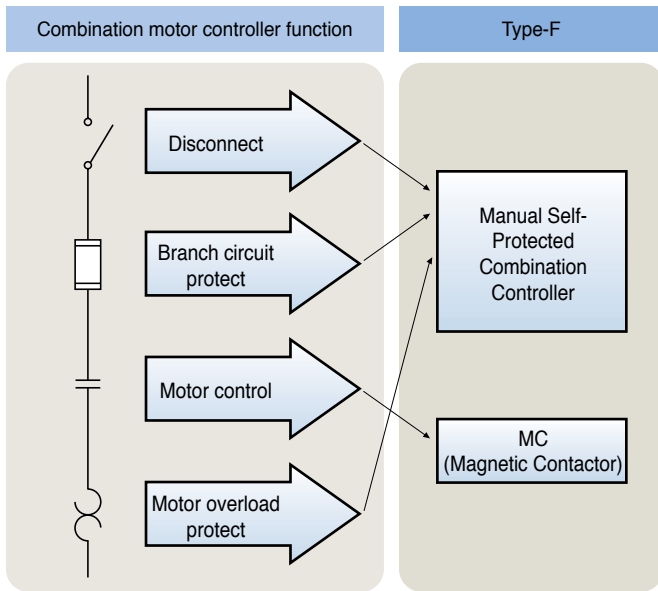
600V

Susol UL MCCB D-type

| CB | MC | OLR | kA@600V | Maximum HP | Maximum NEC FLC [A] |
|-------------|---------|------------------|---------|------------|---------------------|
| UTS150L MCP | MC-6a | MT-12 0.1~10A | 25 | 7.5 | 9 |
| UTS150L MCP | MC-9a | MT-12 0.1~10A | 25 | 7.5 | 9 |
| UTS150L MCP | MC-12a | MT-12 0.1~13A | 25 | 10 | 11 |
| UTS150L MCP | MC-18a | MT-12 0.1~18A | 25 | 15 | 17 |
| UTS150L MCP | MC-9b | MT-32 0.1~10A | 25 | 7.5 | 9 |
| UTS150L MCP | MC-12b | MT-32 0.1~13A | 25 | 10 | 11 |
| UTS150L MCP | MC-18b | MT-32 0.1~18A | 25 | 15 | 17 |
| UTS150L MCP | MC-22b | MT-32 0.1~25A | 25 | 20 | 22 |
| UTS150L MCP | MC-32a | MT-32 0.1~32A | 25 | 25 | 27 |
| UTS150L MCP | MC-40a | MT-32 0.1~32A | 25 | 25 | 32 |
| UTS150H MCP | MC-50a | MT-63 4~65A | 25 | 50 | 52 |
| UTS150L MCP | MC-50a | MT-63 4~65A | 50 | 50 | 62 |
| UTS150H MCP | MC-65a | MT-63 4~65A | 25 | 60 | 62 |
| UTS150L MCP | MC-65a | MT-63 4~65A | 50 | 60 | 62 |
| UTS150H MCP | MC-75a | MT-95 7~75A | 25 | 60 | 77 |
| UTS150L MCP | MC-75a | MT-95 7~75A | 50 | 60 | 77 |
| UTS150H MCP | MC-85a | MT-95 7~85A | 25 | 75 | 77 |
| UTS150L MCP | MC-85a | MT-95 7~85A | 50 | 75 | 77 |
| UTS150H MCP | MC-100a | MT-95 7~85A | 25 | 75 | 77 |
| UTS150L MCP | MC-100a | MT-95 7~85A | 50 | 75 | 77 |

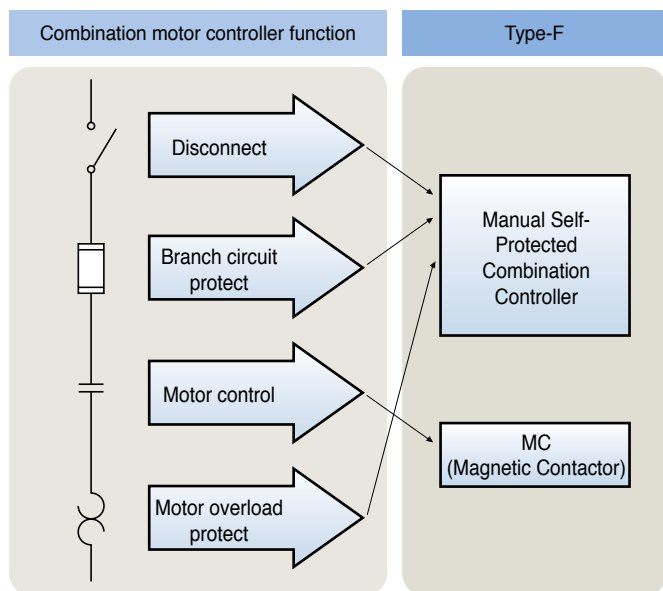
| CB | MC | OLR | kA@600V | Maximum HP | Maximum NEC FLC [A] |
|-------------|---------|--------------------|---------|------------|---------------------|
| UTS150H MCP | MC-130a | MT-150 65~185A | 25 | 75 | 77 |
| UTS150L MCP | MC-130a | MT-150 65~185A | 50 | 75 | 77 |
| UTS150H MCP | MC-150a | MT-150 65~185A | 25 | 75 | 77 |
| UTS150L MCP | MC-150a | MT-150 65~185A | 50 | 75 | 77 |
| UTS250H MCP | MC-185a | MT-225 65~185A | 25 | 125 | 125 |
| UTS250L MCP | MC-185a | MT-225 65~185A | 50 | 125 | 125 |
| UTS400H MCP | MC-185a | MT-225 65~185A | 25 | 125 | 125 |
| UTS400L MCP | MC-185a | MT-225 65~185A | 50 | 125 | 125 |
| UTS250H MCP | MC-225a | MT-225 65~185A | 25 | 150 | 144 |
| UTS250L MCP | MC-225a | MT-225 65~185A | 50 | 150 | 144 |
| UTS400H MCP | MC-225a | MT-225 65~185A | 25 | 150 | 144 |
| UTS400L MCP | MC-225a | MT-225 65~185A | 50 | 150 | 144 |
| UTS400H MCP | MC-265a | MT-400 85~240A | 25 | 200 | 192 |
| UTS400L MCP | MC-265a | MT-400 85~240A | 50 | 200 | 192 |
| UTS400H MCP | MC-330a | MT-400 85~330A | 25 | 200 | 242 |
| UTS400L MCP | MC-330a | MT-400 85~330A | 50 | 200 | 242 |
| UTS600H MCP | MC-400a | MT-400 85~400A | 25 | 300 | 289 |
| UTS600L MCP | MC-400a | MT-400 85~400A | 50 | 300 | 289 |
| UTS800L MCP | MC-500a | MT-800 200~400A | 50 | 400 | 382 |
| UTS800L MCP | MC-630a | MT-800 200~600A | 50 | 500 | 472 |

Rated UL 508 combination motor controller Type-F



32AF Rotary operation, High interruption

| Manual Self-Protected | Adjustment range (A) | Short circuit rating (kA) | | | MC (Applied contactor) |
|-----------------------|----------------------|---------------------------|-----------|-----------|------------------------|
| | | 240V | 480Y/277V | 600Y/347V | Metasol |
| MMS-32H-0.16 | 0.1~0.16 | 100 | 65 | 25 | MC-6a/MC-9a/MC-9b |
| MMS-32H-0.25 | 0.16~0.25 | 100 | 65 | 25 | MC-6a/MC-9a/MC-9b |
| MMS-32H-0.4 | 0.25~0.4 | 100 | 65 | 25 | MC-6a/MC-9a/MC-9b |
| MMS-32H-0.63 | 0.4~0.63 | 100 | 65 | 25 | MC-6a/MC-9a/MC-9b |
| MMS-32H-1 | 0.63~1 | 100 | 65 | 25 | MC-6a/MC-9a/MC-9b |
| MMS-32H-1.6 | 1~1.6 | 100 | 65 | 25 | MC-6a/MC-9a/MC-9b |
| MMS-32H-2.5 | 1.6~2.5 | 100 | 65 | 25 | MC-12a/MC-12b |
| MMS-32H-4 | 2.5~4 | 100 | 65 | 25 | MC-12a/MC-12b |
| MMS-32H-6 | 4~6 | 100 | 65 | 25 | MC-18a/MC-18b |
| MMS-32H-8 | 5~8 | 100 | 65 | 10 | MC-18a/MC-18b |
| MMS-32H-10 | 6~10 | 100 | 65 | 10 | MC-18a/MC-18b |
| MMS-32H-13 | 9~13 | 100 | 65 | 10 | MC-22b/MC-25a |
| MMS-32H-17 | 11~17 | 100 | 30 | 10 | MC-22b/MC-25a |
| MMS-32H-22 | 14~22 | 100 | 30 | 10 | MC-22b/MC-25a |
| MMS-32H-26 | 18~26 | 100 | 30 | 10 | MC-32a |
| MMS-32H-32 | 22~32 | 100 | 30 | 10 | MC-32a |
| MMS-32H-40 | 28~40 | 100 | 30 | 10 | MC-35a/MC-40a |



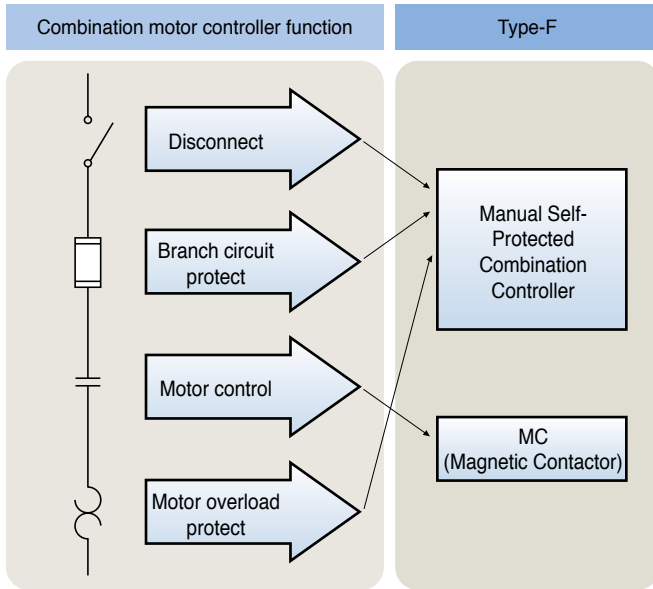
63AF Rotary operation, standard interruption

| Manual Self-Protected | Adjustment range (A) | Short circuit rating (kA) | | | MC (Applied contactor) |
|-----------------------|----------------------|---------------------------|-----------|-----------|------------------------|
| | | 240V | 480Y/277V | 600Y/347V | Metasol |
| MMS-63S-10 | 6~10 | 100 | 50 | 10 | MC-50a |
| MMS-63S-13 | 9~13 | 100 | 50 | 10 | MC-50a |
| MMS-63S-17 | 11~17 | 100 | 40 | 10 | MC-50a |
| MMS-63S-22 | 14~22 | 100 | 40 | 10 | MC-50a |
| MMS-63S-26 | 18~26 | 100 | 40 | 10 | MC-50a |
| MMS-63S-32 | 22~32 | 100 | 40 | 10 | MC-50a |
| MMS-63S-40 | 28~40 | 100 | 40 | 10 | MC-50a |
| MMS-63S-40 | 28~40 | 100 | 40 | 10 | MC-50a |
| MMS-63S-50 | 34~50 | 100 | 40 | 10 | MC-50a |
| MMS-63S-63 | 45~63 | 100 | 40 | 10 | MC-65a |
| MMS-63S-65 | 47~65 | 100 | 40 | 10 | MC-65a |

63AF Rotary operation, High interruption

| Manual Self-Protected | Adjustment range (A) | Short circuit rating (kA) | | | MC (Applied contactor) |
|-----------------------|----------------------|---------------------------|-----------|-----------|------------------------|
| | | 240V | 480Y/277V | 600Y/347V | Metasol |
| MMS-63H-10 | 6~10 | 100 | 65 | 25 | MC-50a |
| MMS-63H-13 | 9~13 | 100 | 65 | 25 | MC-50a |
| MMS-63H-17 | 11~17 | 100 | 50 | 10 | MC-50a |
| MMS-63H-22 | 14~22 | 100 | 50 | 10 | MC-50a |
| MMS-63H-26 | 18~26 | 100 | 50 | 10 | MC-50a |
| MMS-63H-32 | 22~32 | 100 | 50 | 10 | MC-50a |
| MMS-63H-40 | 28~40 | 100 | 50 | 10 | MC-50a |
| MMS-63H-50 | 34~50 | 100 | 50 | 10 | MC-50a |
| MMS-63H-63 | 45~63 | 100 | 50 | 10 | MC-50a |
| MMS-63H-65 | 47~65 | 100 | 40 | 10 | MC-65a |

Rated UL 508 combination motor controller Type-F



100AF Rotary operation, Standard interruption

| Manual Self-Protected | Adjustment range (A) | Short circuit rating (kA) | | | MC (Applied contactor) |
|-----------------------|----------------------|---------------------------|-----------|-----------|------------------------|
| | | 240V | 480Y/277V | 600Y/347V | Metasol |
| MMS-100S-17 | 11~17 | 100 | 50 | 10 | MC-75a |
| MMS-100S-22 | 14~22 | 100 | 50 | 10 | MC-75a |
| MMS-100S-26 | 18~26 | 100 | 50 | 10 | MC-75a |
| MMS-100S-32 | 22~32 | 100 | 50 | 10 | MC-75a |
| MMS-100S-40 | 28~40 | 100 | 50 | 10 | MC-75a |
| MMS-100S-50 | 34~50 | 100 | 50 | 10 | MC-75a |
| MMS-100S-63 | 45~63 | 100 | 40 | 10 | MC-75a |
| MMS-100S-75 | 55~75 | 100 | 40 | 10 | MC-75a |
| MMS-100S-90 | 70~90 | 100 | 40 | 10 | MC-85a |
| MMS-100S-100 | 80~100 | 100 | 40 | 10 | MC-100a |

100AF Rotary operation, High interruption

| Manual Self-Protected | Adjustment range (A) | Short circuit rating (kA) | | | MC (Applied contactor) |
|-----------------------|----------------------|---------------------------|-----------|-----------|------------------------|
| | | 240V | 480Y/277V | 600Y/347V | Metasol |
| MMS-100H-17 | 11~17 | 100 | 65 | 25 | MC-75a |
| MMS-100H-22 | 14~22 | 100 | 65 | 20 | MC-75a |
| MMS-100H-26 | 18~26 | 100 | 65 | 20 | MC-75a |
| MMS-100H-32 | 22~32 | 100 | 65 | 20 | MC-75a |
| MMS-100H-40 | 28~40 | 100 | 65 | 20 | MC-75a |
| MMS-100H-50 | 34~50 | 100 | 65 | 20 | MC-75a |
| MMS-100H-63 | 45~63 | 100 | 50 | 10 | MC-75a |
| MMS-100H-75 | 55~75 | 100 | 50 | 10 | MC-75a |
| MMS-100H-90 | 70~90 | 100 | 50 | 10 | MC-85a |
| MMS-100H-100 | 80~100 | 100 | 50 | 10 | MC-100a |

LS contactor ready for IE3-rated motors



What is the IE3?

Motor is rated from IE1 through IE4 depends on its energy efficiency which means IE3 is more efficient compared to IE1 and IE2-rated motors. IE3-rated motor is not only more efficient than IE2-rated motor but it also has lower rated current and higher starting current & inrush current.



WHY IE3?

As part of the EU Environmental policy "20/30-20-20" strategy, the EU is committed to achieve the followings by 2020

- Reduce greenhouse gas emissions by up to 30 %
- Increase the share of renewable energy to 20 % and
- Boost energy efficiency by 20% in general. IEC 60034-30 standard specifies IE classes for motors in accordance with the above requirements.
- IEC 60034-30-1 standard
 - IE1 Standard Efficiency
 - IE2 High Efficiency
 - **IE3 Premium Efficiency**
 - IE4 Super Premium Efficiency



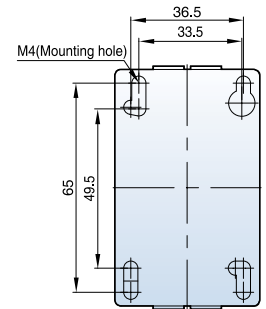
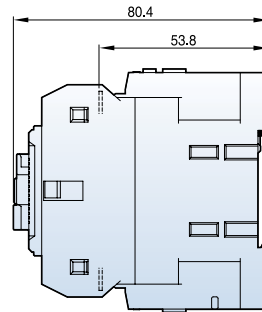
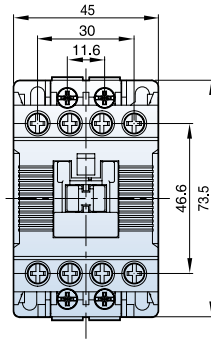
IE3 motors can be associated with standard starter solutions, like contactor, manual motor starter. During the starting the IE3 motor, Inrush and starting current are increased compared with IE2 motor. The increased inrush and starting current can affect the selection of the electrical device. In order to secure the highest efficiency in your electrical system, it is strongly recommended to use the more efficient IE3 class product. LS contactors are already compliant with IE3.



3-pole contactors dimension (18AF/22AF)

MC-6a~18a AC

1NO or 1NC

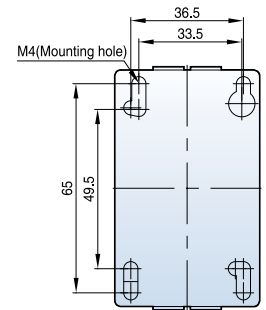
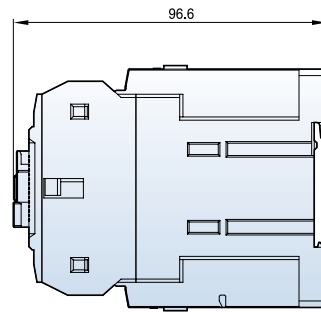
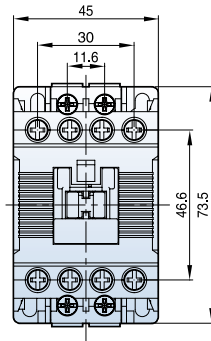


[mm]

0.3kg

MC-6a~18a DC

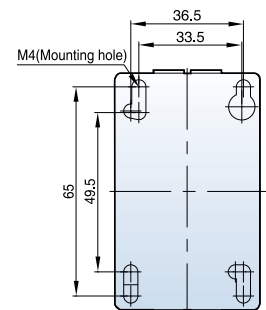
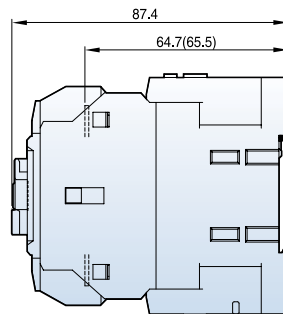
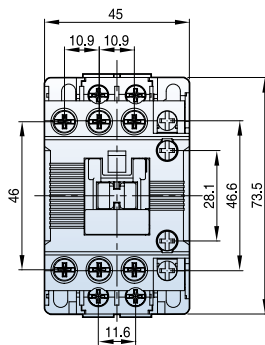
1NO or 1NC



0.5kg

MC-9b~22b AC

1NO1NC

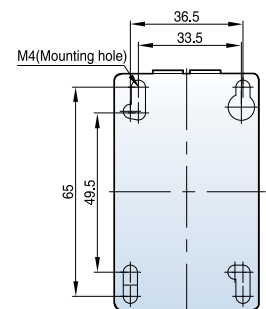
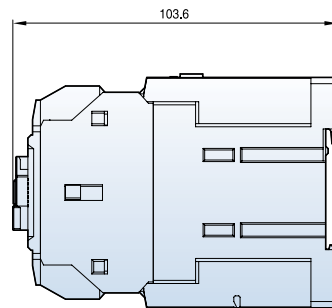
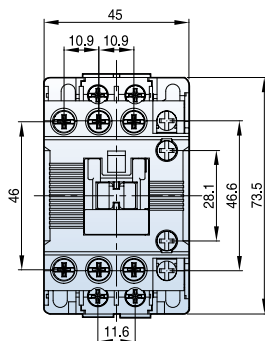


* () MC-18b, 22b

0.3kg

MC-9b~22b DC

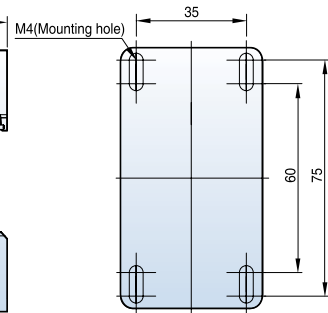
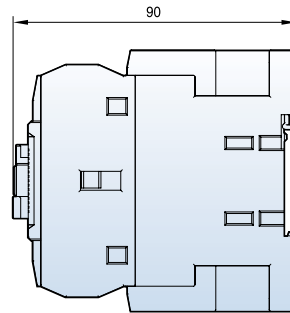
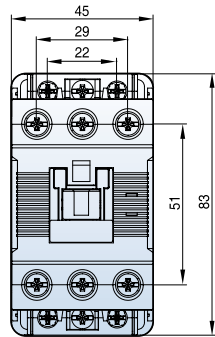
1NO1NC



0.5kg

3-pole contactors dimension (40AF)

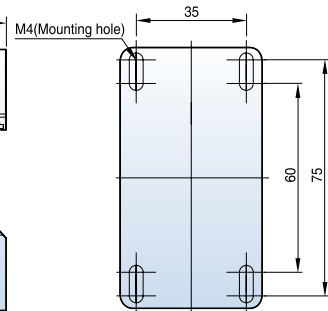
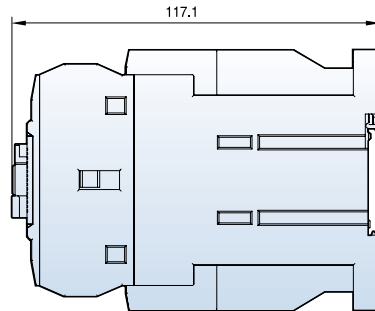
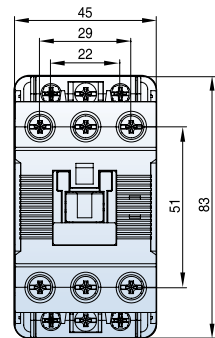
MC-32a~40a AC



[mm]

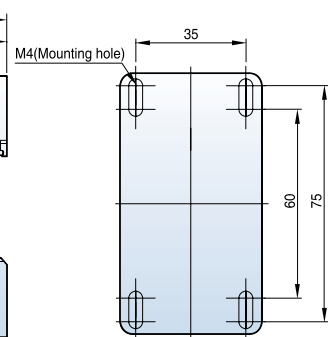
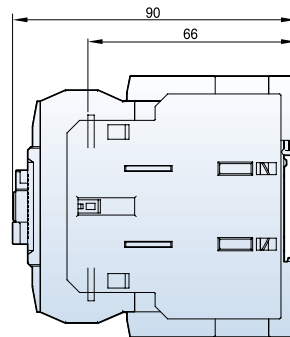
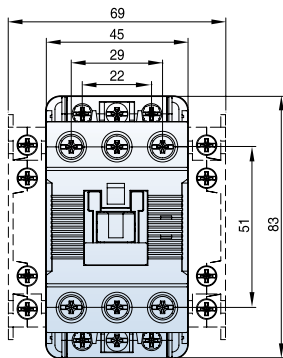
0.4kg

MC-32a~40a DC



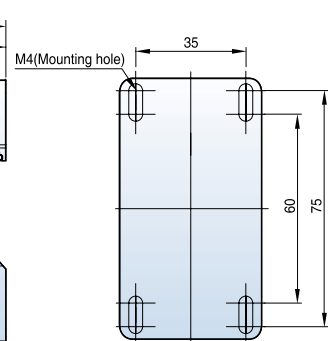
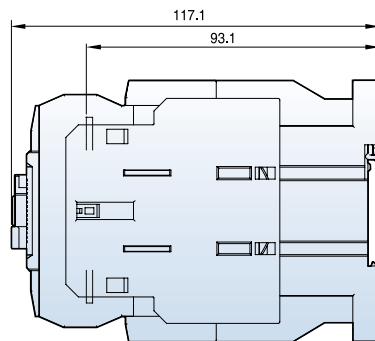
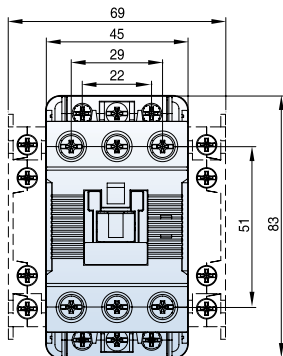
0.6kg

MC-32a~40a AC
2NO2NC



0.5kg

MC-32a~40a DC
2NO2NC

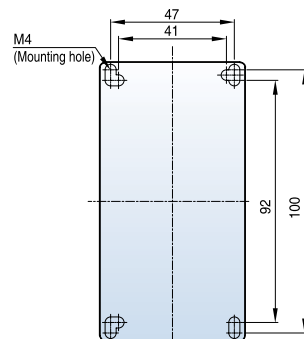
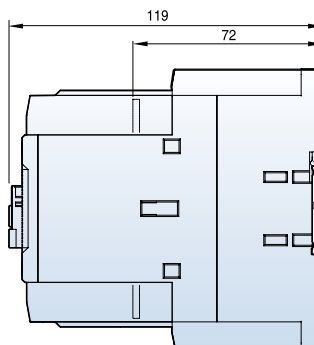
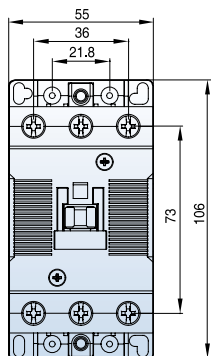


0.8kg

3-pole contactors dimension (65AF)

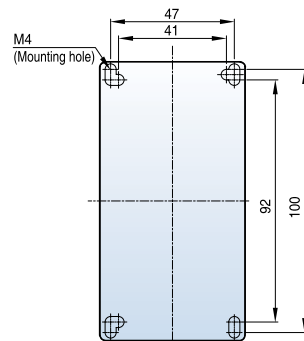
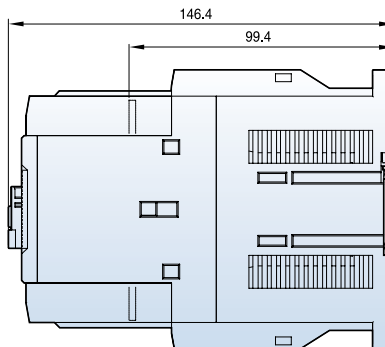
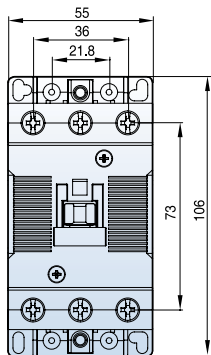
[mm]

MC-50a~65a AC



0.9kg

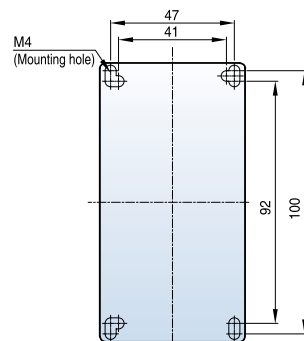
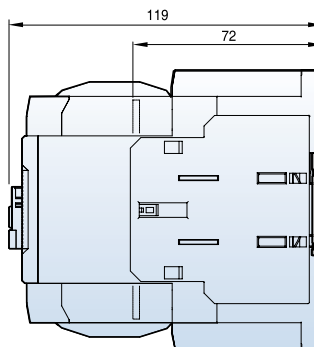
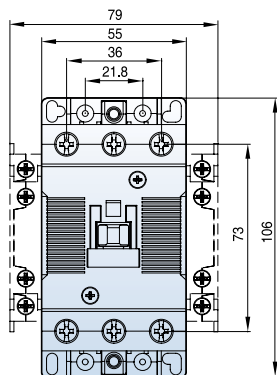
MC-50a~65a DC



1.2kg

MC-50a~65a AC

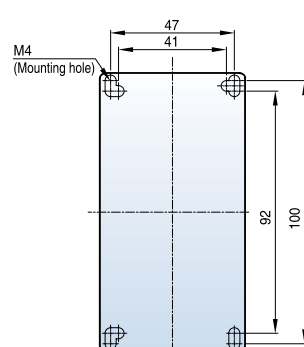
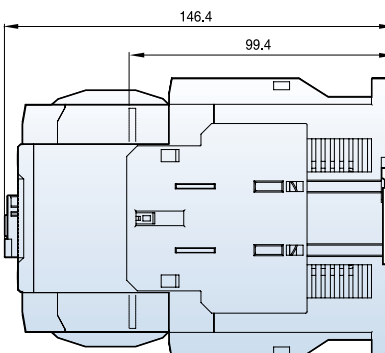
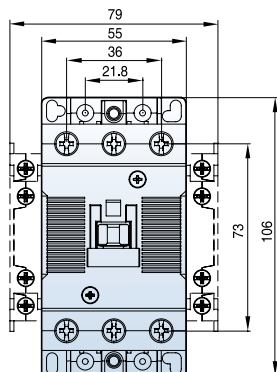
2NO2NC



1kg

MC-50a~65a DC

2NO2NC

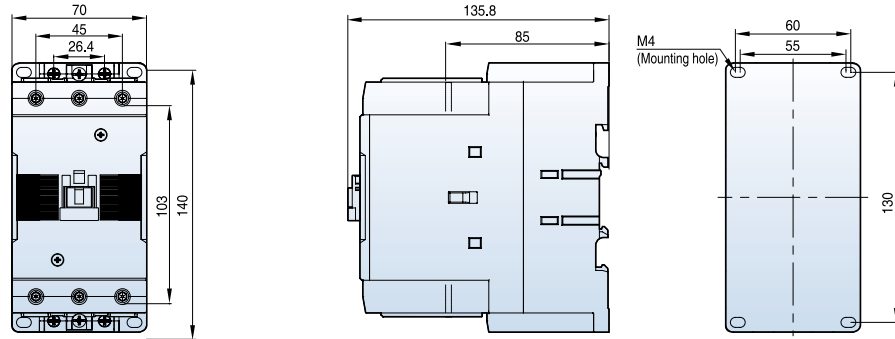


1.3kg

3-pole contactors dimension (100AF)

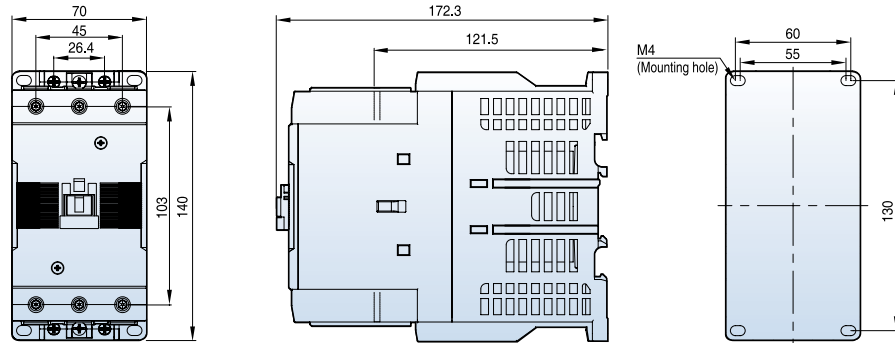
[mm]

MC-75a~100a AC



1.8kg

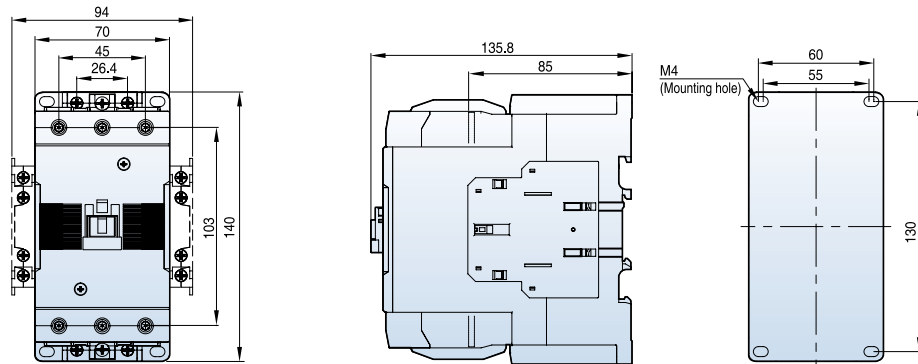
MC-75a~100a DC



2.7kg

MC-75a~100a AC

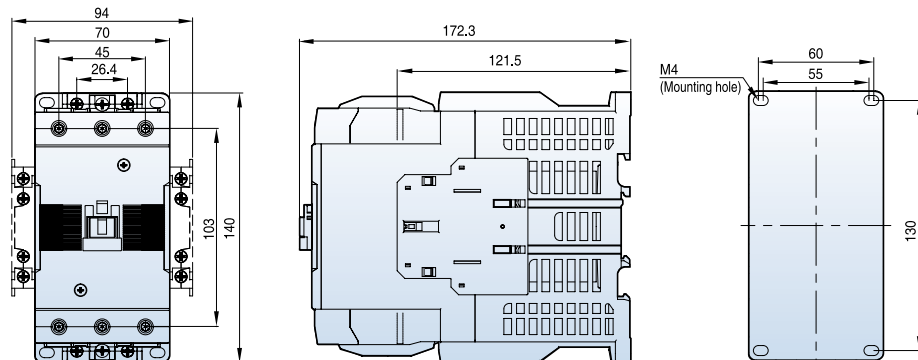
2NO2NC



1.9kg

MC-75a~100a DC

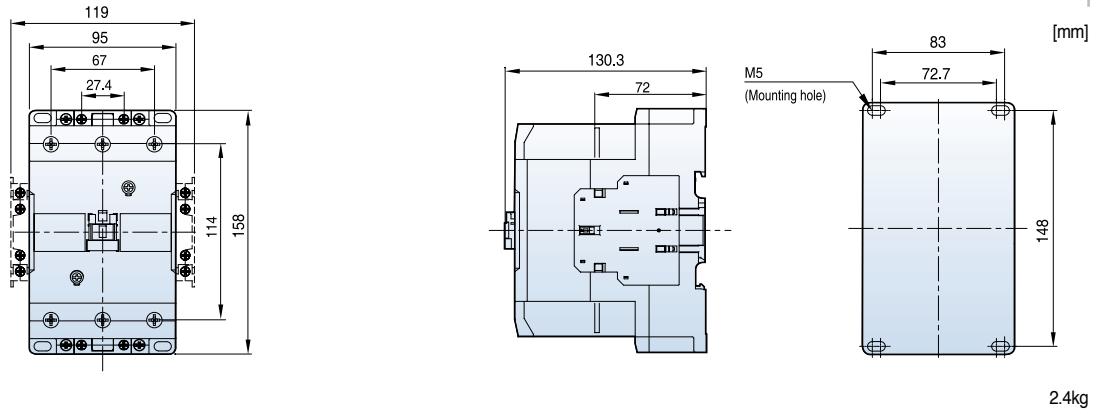
2NO2NC



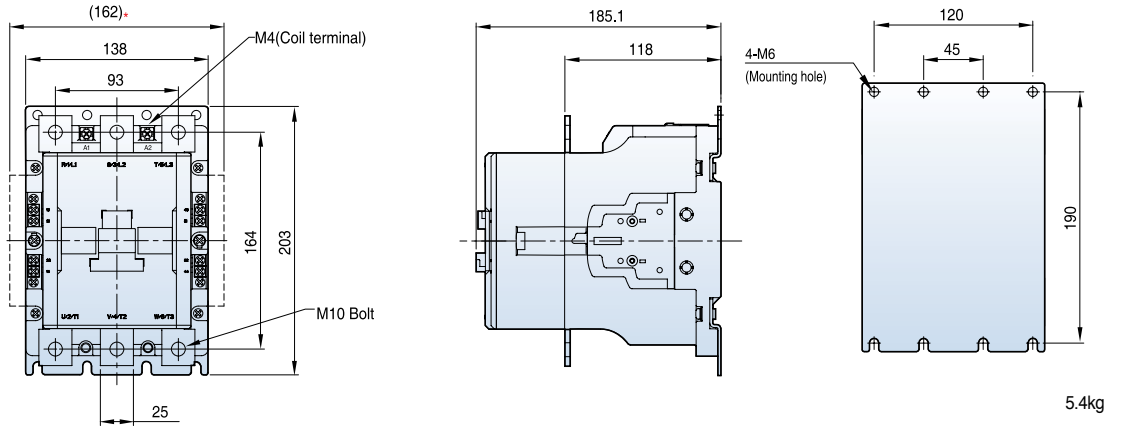
2.8kg

3-pole contactors dimension (150AF~400AF)

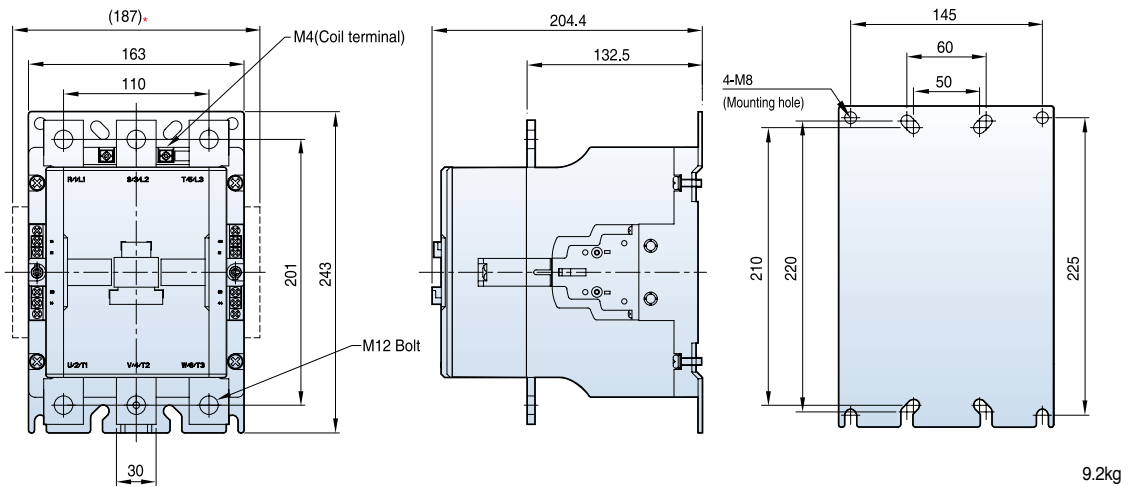
- MC-130a
- MC-150a



- MC-185a
- MC-225a



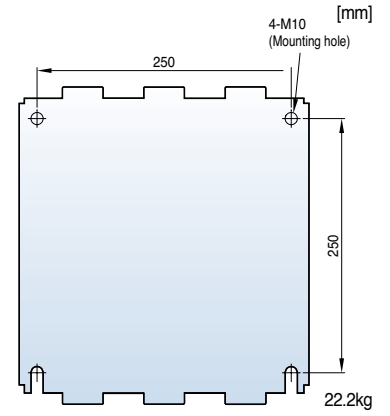
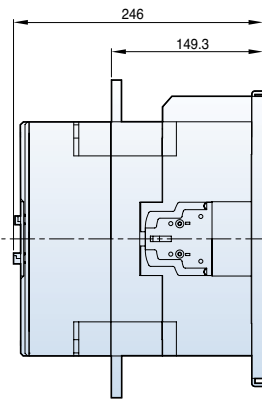
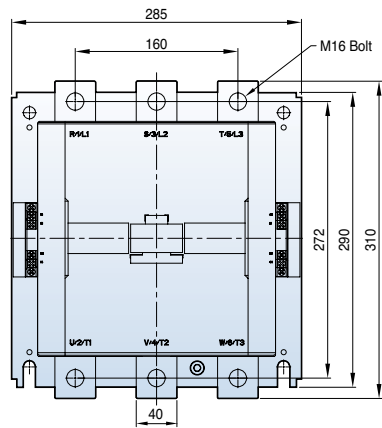
- MC-265a
- MC-330a
- MC-400a



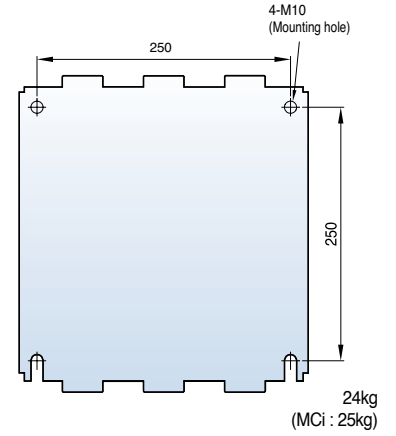
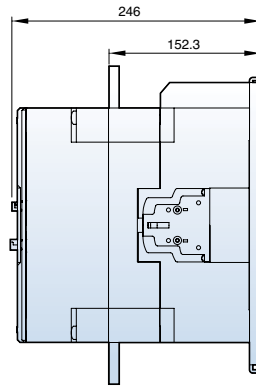
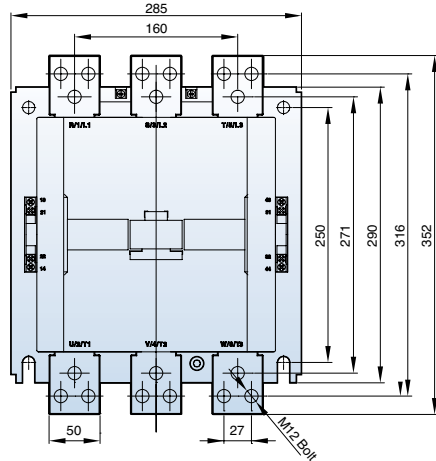
* Optional auxiliary contact unit (side mount type)

3-pole contactors dimension (800AF~2650AF)

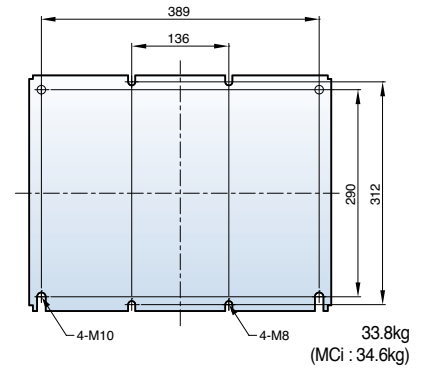
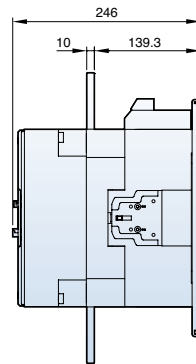
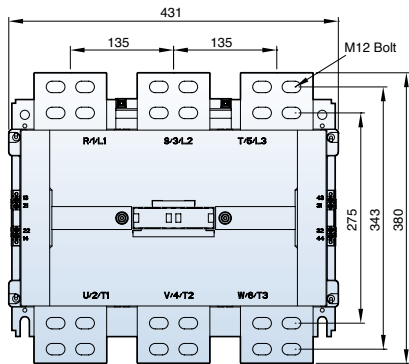
- MC-500a
- MC-630a
- MC-800a
- MCI-900
- MCI-1050



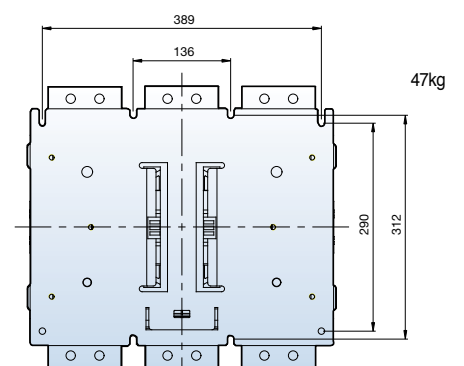
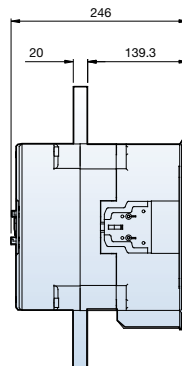
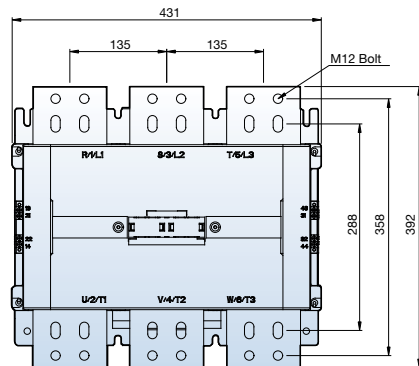
- MC-1260a
- MCI-1260



- MC-1400a
- MC-1700a
- MC-2100a
- MCI-1700
- MCI-2100

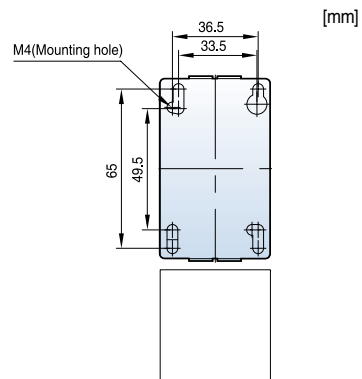
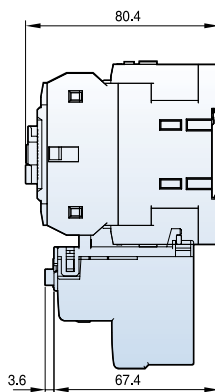
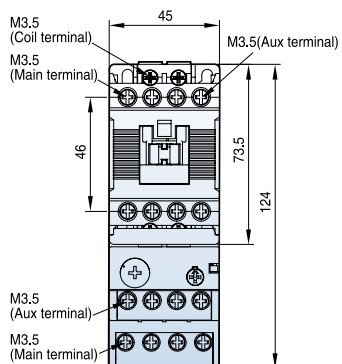


- MC-2650a
- MCI-2650



Motor starters dimension (18AF~40AF)

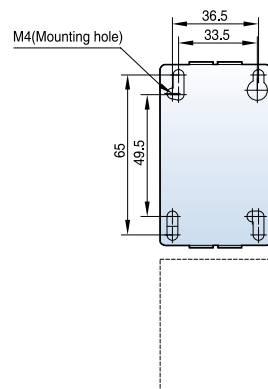
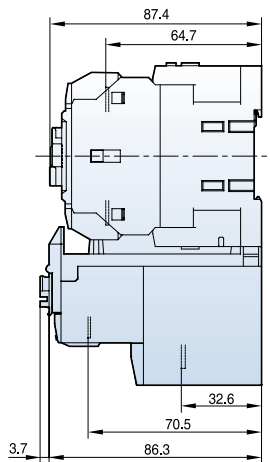
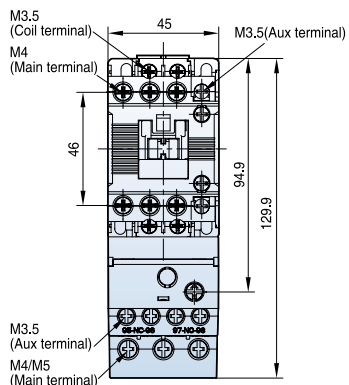
MS-6a~18a



[mm]

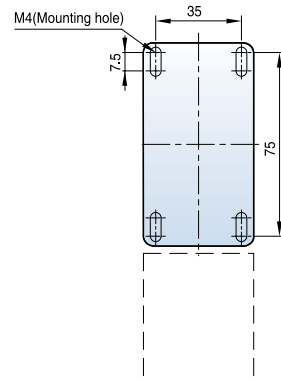
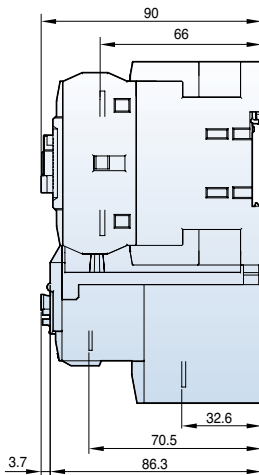
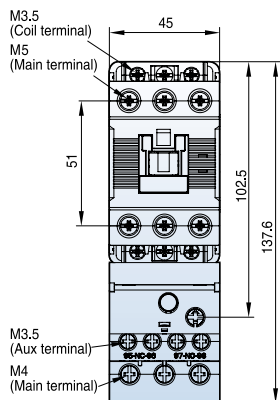
0.5kg

MS-9b~22b



0.5kg

MS-32a~40a

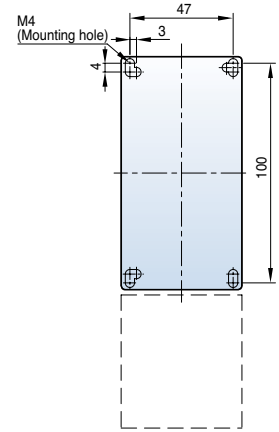
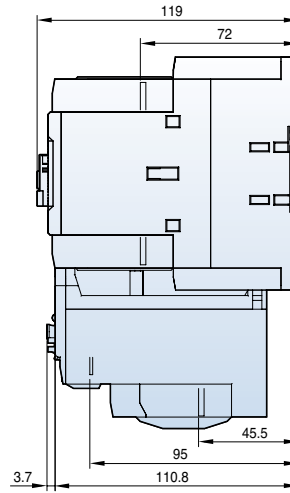
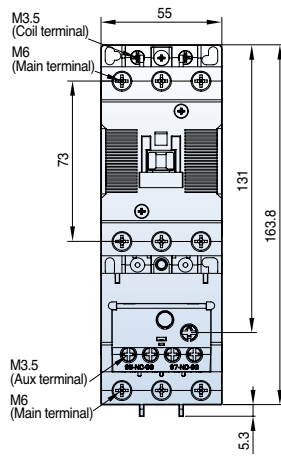


0.6kg

Motor starters dimension (65AF~150AF)

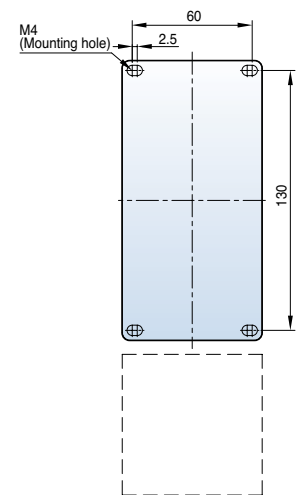
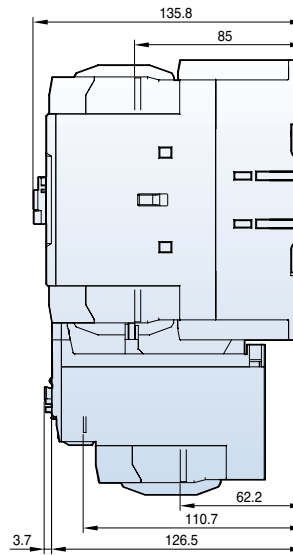
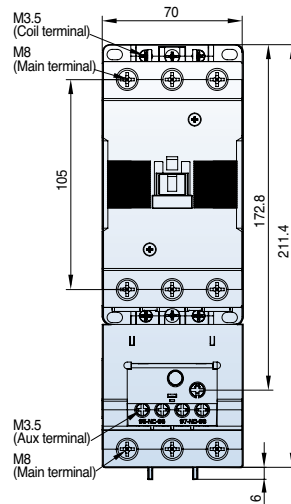
[mm]

MS-50a~65a



1.3kg

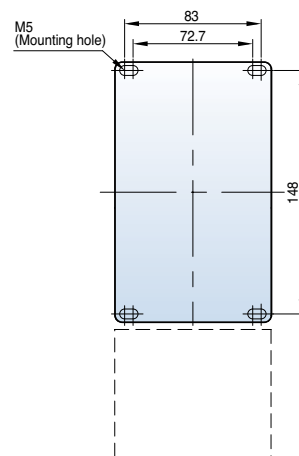
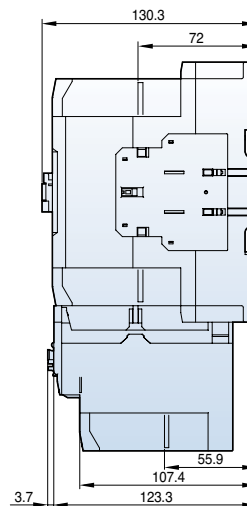
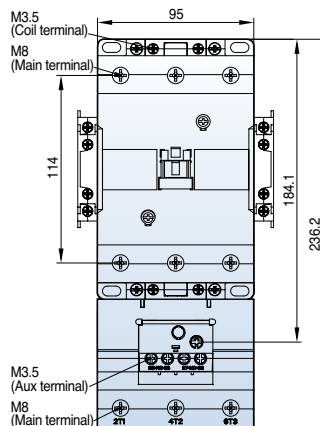
MS-75a~100a



2.3kg

MS-130a

MS-150a

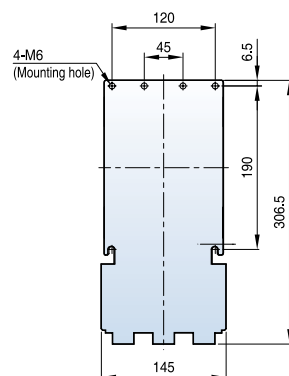
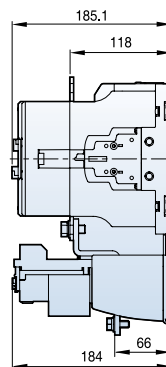
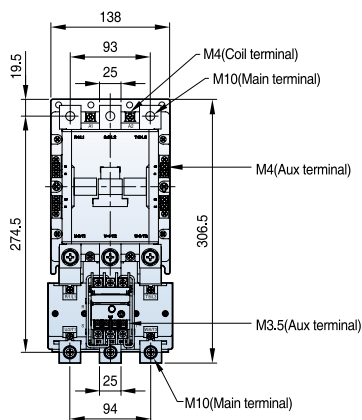


2.9kg

Motor starters dimension (185AF~800AF)

MS-185a

MS-225a



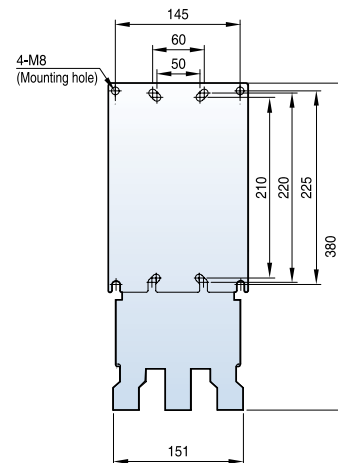
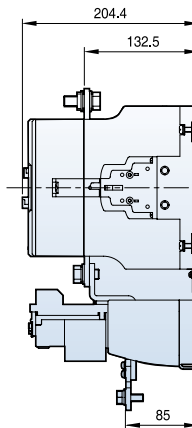
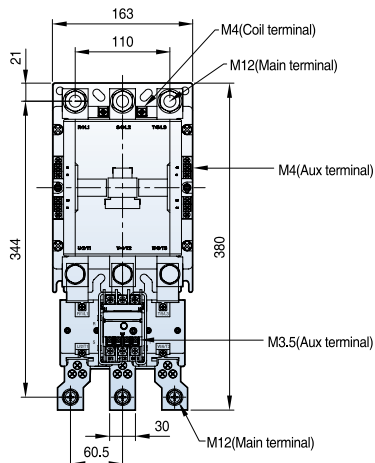
[mm]

7.9kg

MS-265a

MS-330a

MS-400a

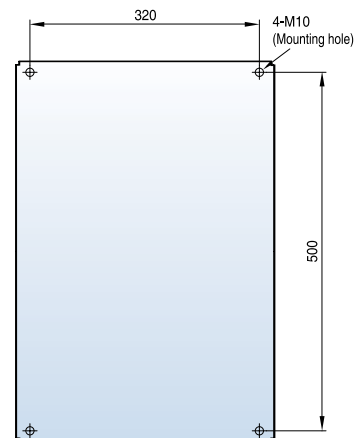
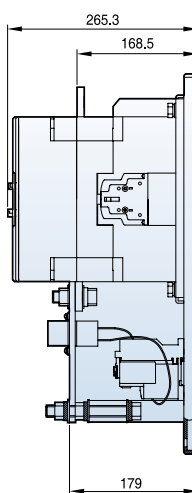
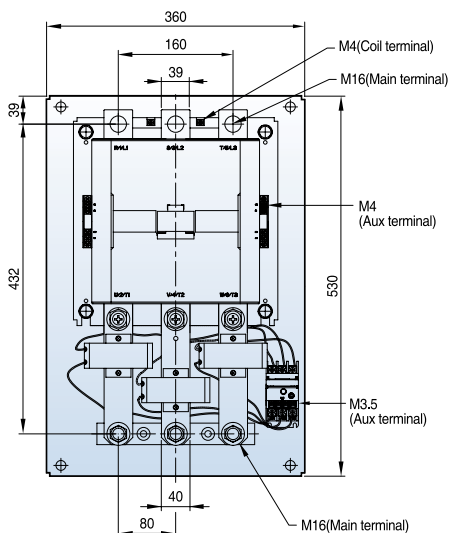


11.8kg

MS-500a

MS-630a

MS-800a

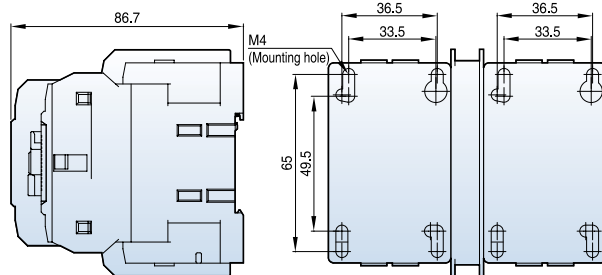
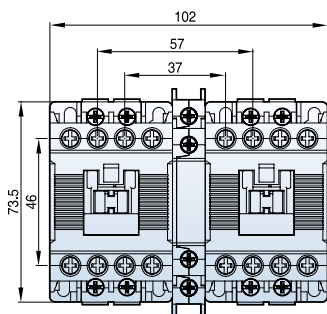


28kg

Reversing contactors and starters dimension (18AF)

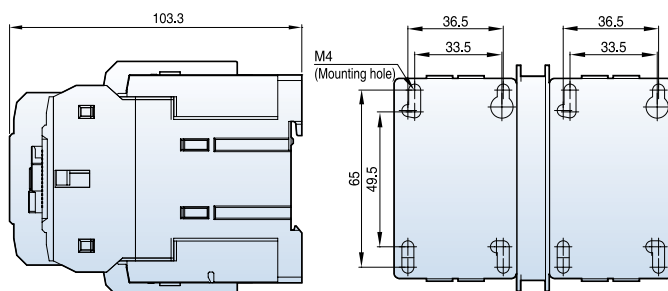
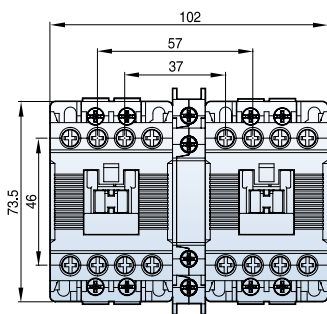
[mm]

MC-6aR~18aR AC



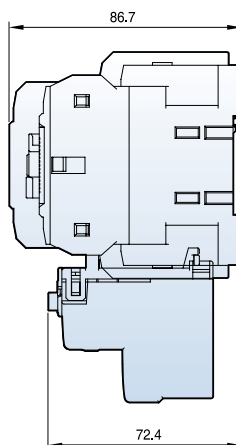
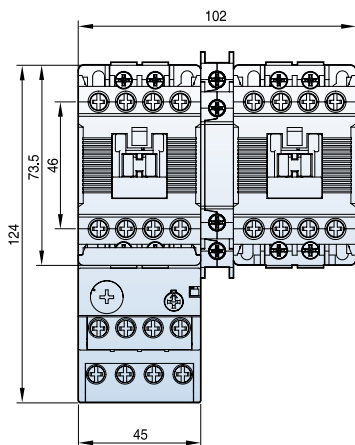
0.7kg

MC-6aR~18aR DC



1kg

MS-6aR~18aR AC

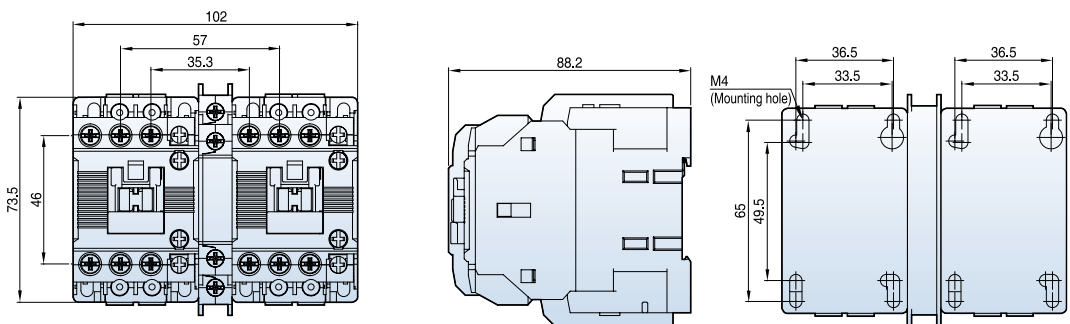


0.9kg

Reversing contactors and starters dimension (22AF)

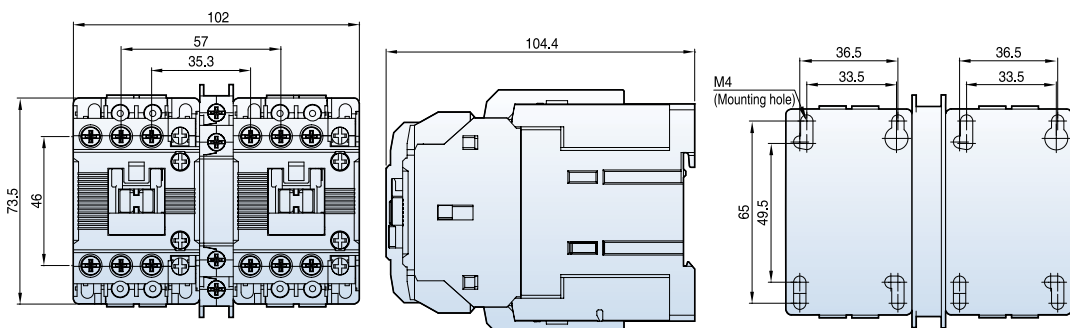
[mm]

MC-9bR~22bR AC



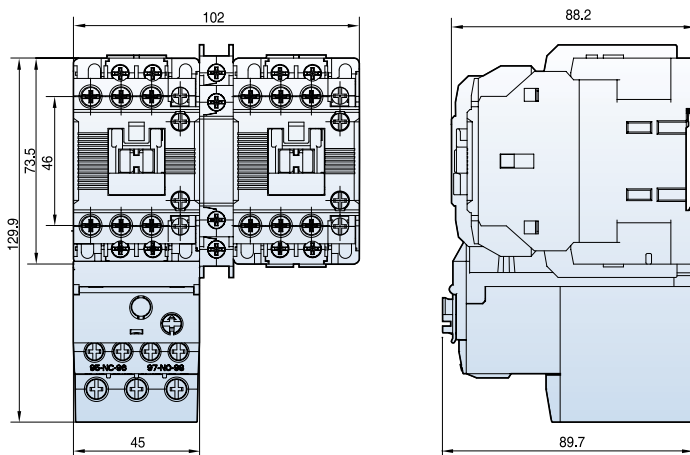
0.7kg

MC-9bR~22bR DC



1.1kg

MS-9bR~22bR AC

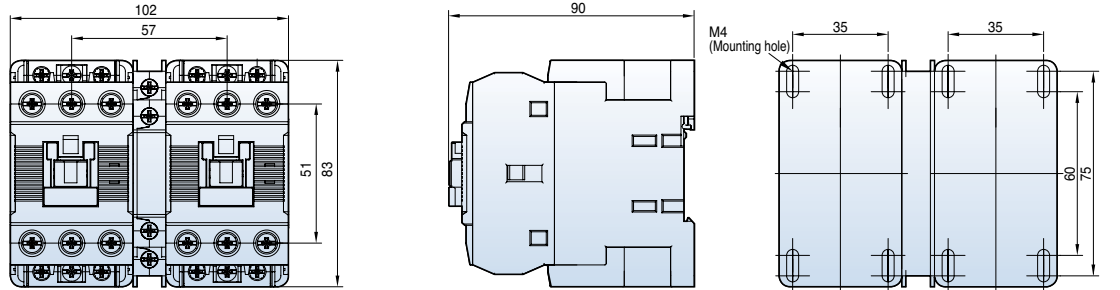


1.3kg

Reversing contactors and starters dimension (40AF)

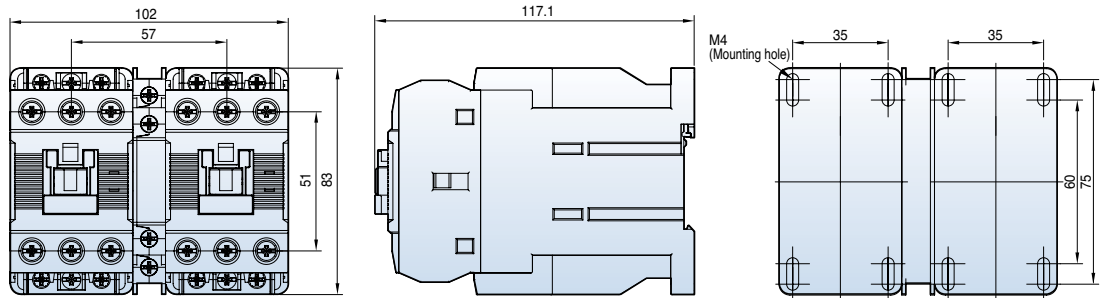
[mm]

MC-32aR~40aR AC



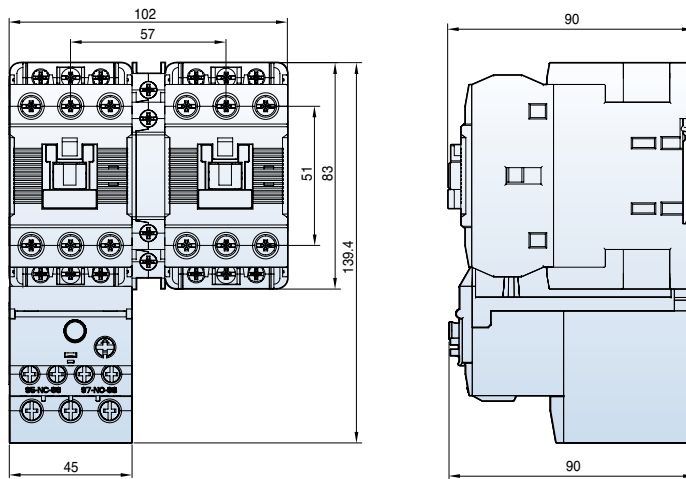
0.9kg

MC-32aR~40aR DC



1.4kg

MS-32aR~40aR AC

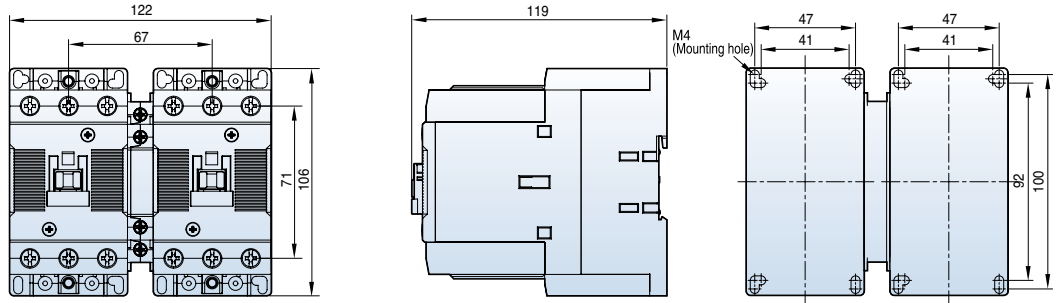


1.1kg

Reversing contactors and starters dimension (65AF)

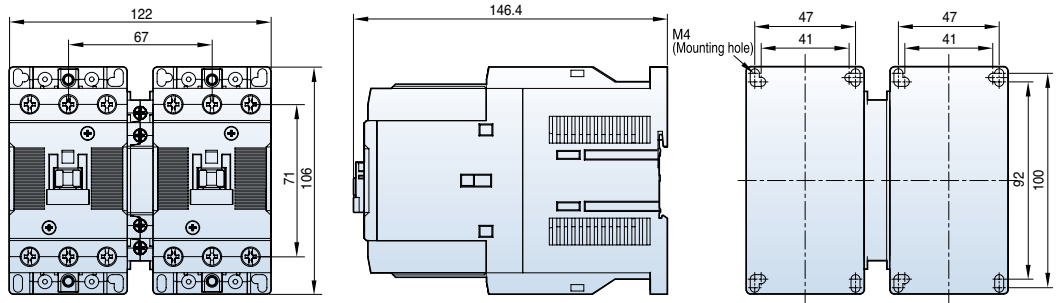
[mm]

MC-50aR~65aR AC



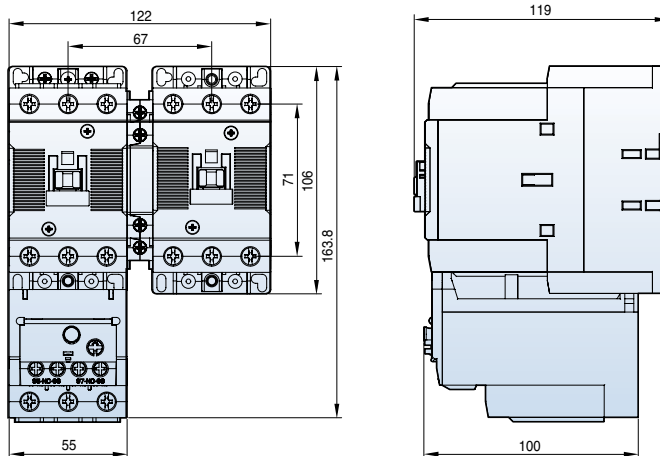
1.8kg

MC-50aR~65aR DC



2.4kg

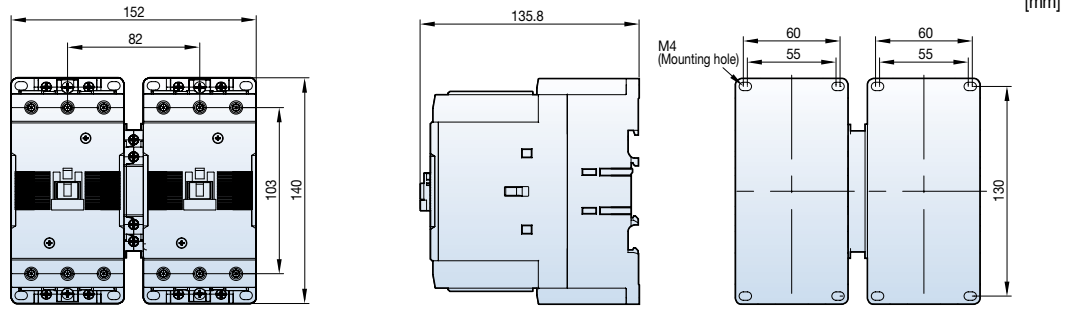
MS-50aR~65aR AC



1.9kg

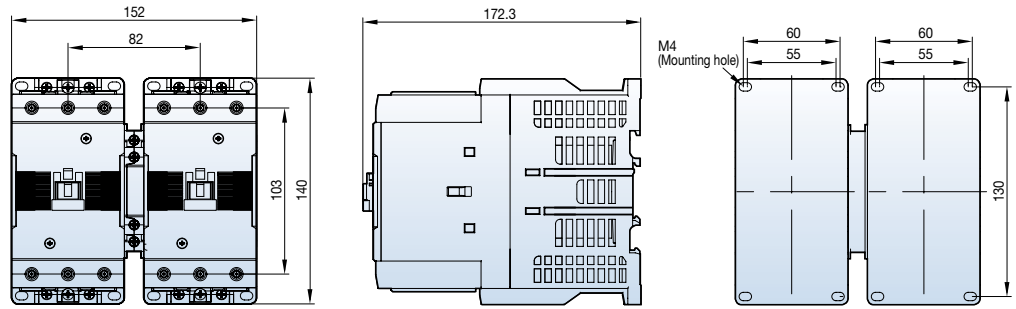
Reversing contactors and starters dimension (100AF)

MC-75aR~100aR AC



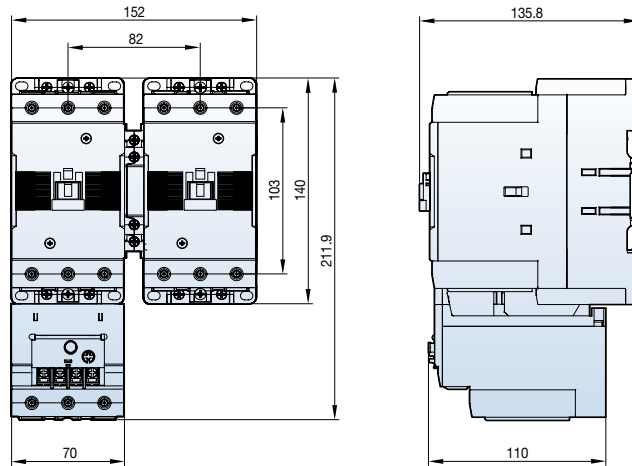
3.3kg

MC-75aR~100aR DC



5.2kg

MS-75aR~100aR AC

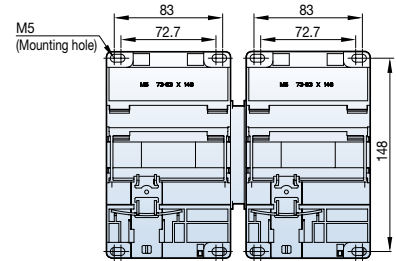
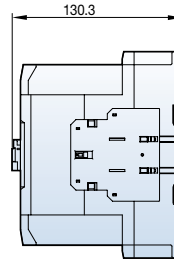
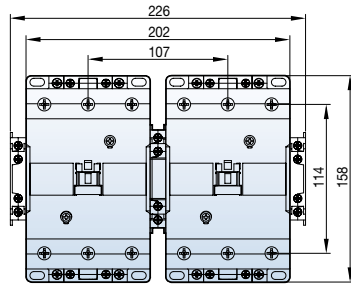


3.8kg

Reversing contactors and starters dimension (150~800AF)

MC-130aR

MC-150aR

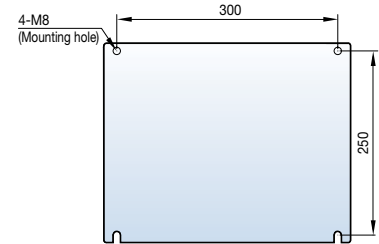
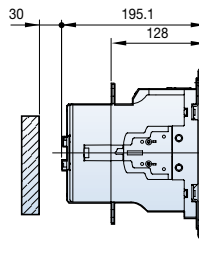
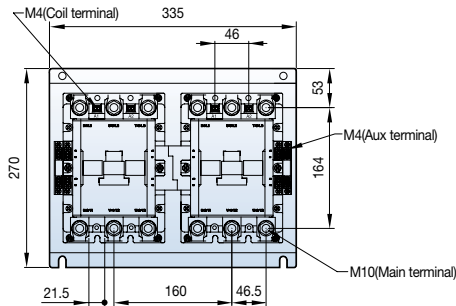


[mm]

4.3kg

MC-185aR

MC-225aR

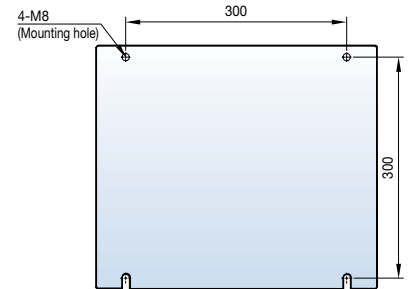
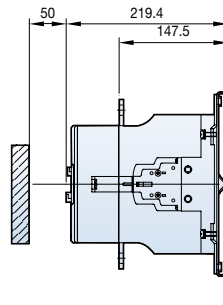
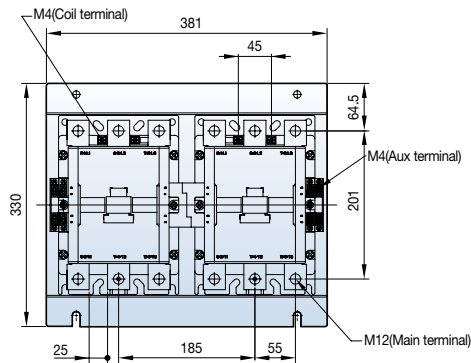


12.9kg

MC-265aR

MC-330aR

MC-400aR

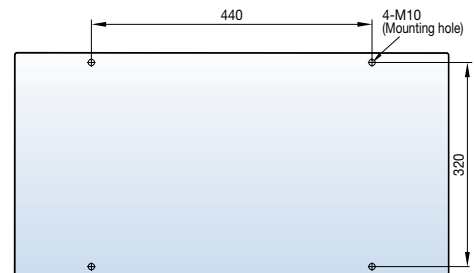
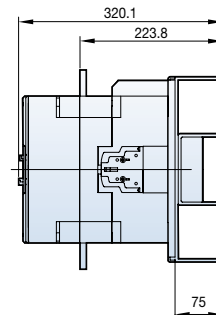
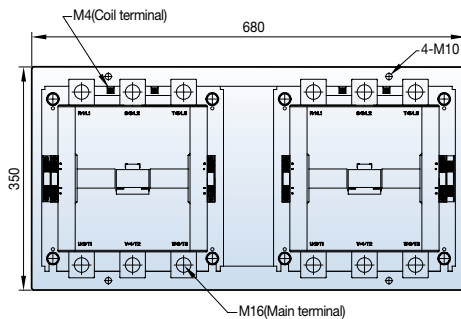


21.4kg

MC-500aR

MC-630aR

MC-800aR

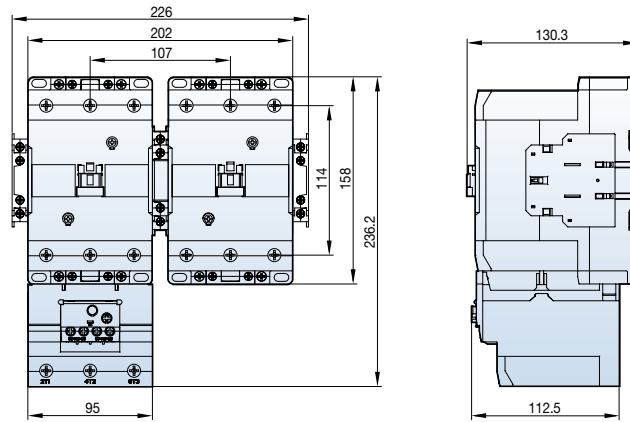


60kg

Reversing contactors and starters dimension (150~400AF)

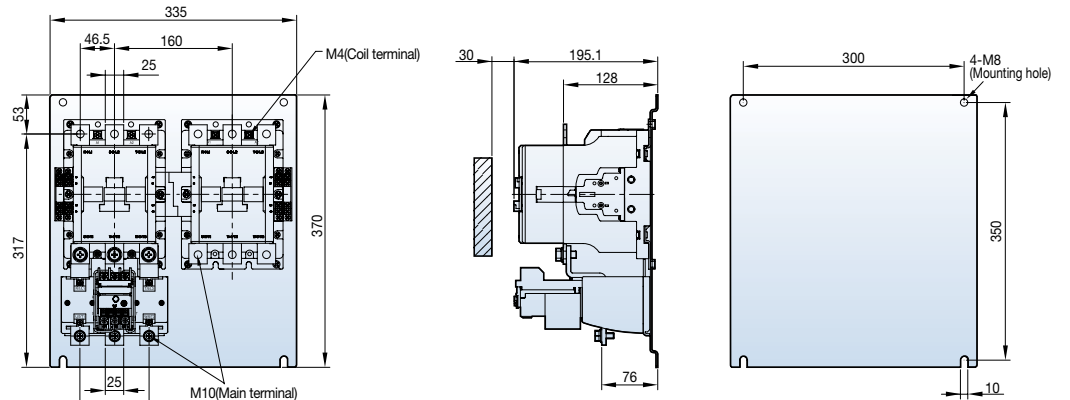
[mm]

- MS-130aR AC
- MS-150aR AC



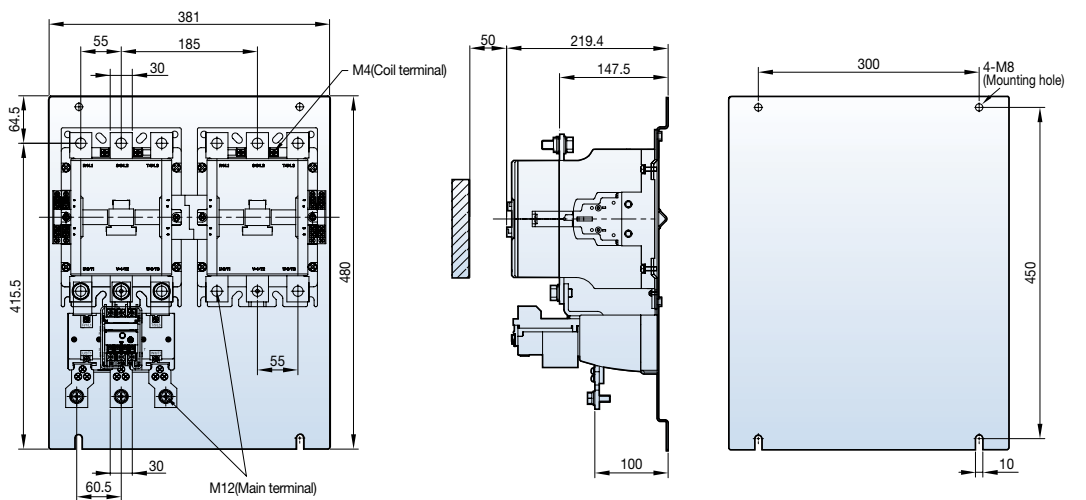
5kg

- MS-185aR AC
- MS-225aR AC



15.5kg

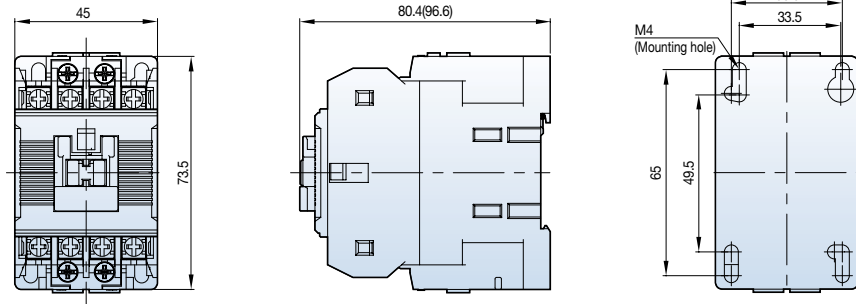
- MS-265aR DC
- MS-330aR DC
- MS-400aR DC



23kg

Contactor relays dimension

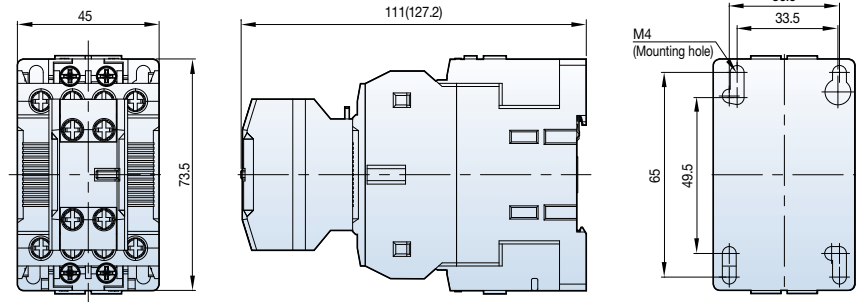
MR-4 (D)



[mm]

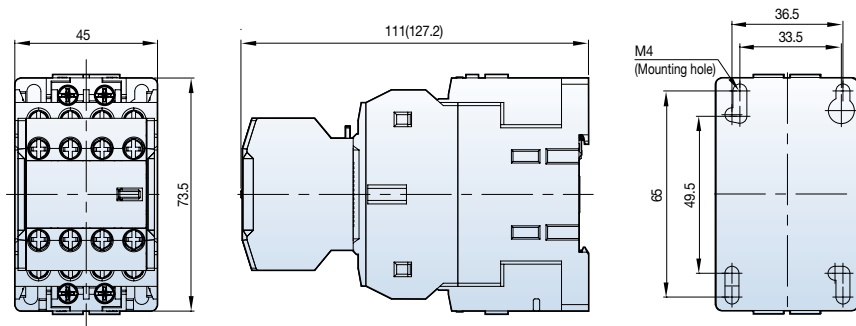
284g

MR-6 (D)



315g

MR-8 (D)



339g

Composition

| | |
|-------------|--|
| MR-4 | |
| MR-6 | |
| MR-8 | |

Note) 1. UA-2: Auxiliary contact units 2. UA-4: Auxiliary contact units

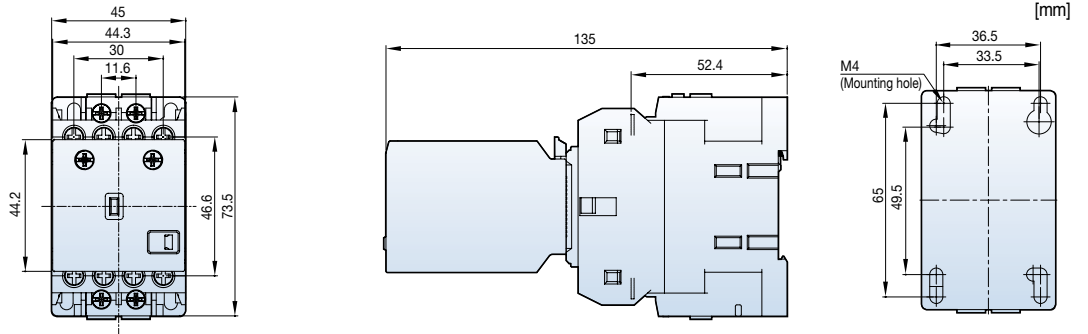
• Please refer to the contact diagram represented on catalog when contactor relays MR-4, 4D and auxiliary contact units UA-2,4 are purchased separately.

• Be sure to order the auxiliary contact units separately except for the above contact units. • () : Dimension for DC control contactor relays

Latching contactors dimension (18AF/22AF)

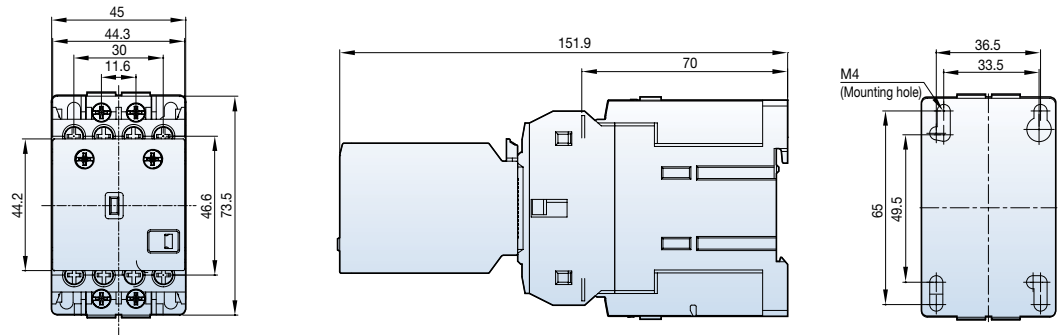
MC-6a~18a AC

1NO or 1NC + ML-65



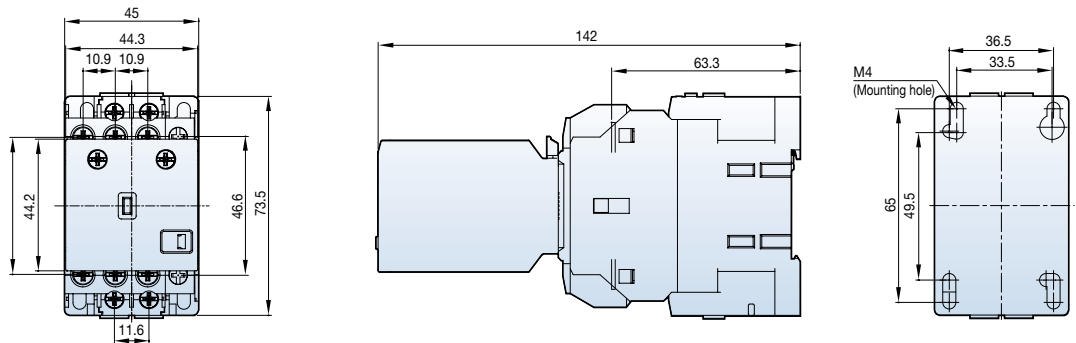
MC-6a~18a DC

1NO or 1NC + ML-65



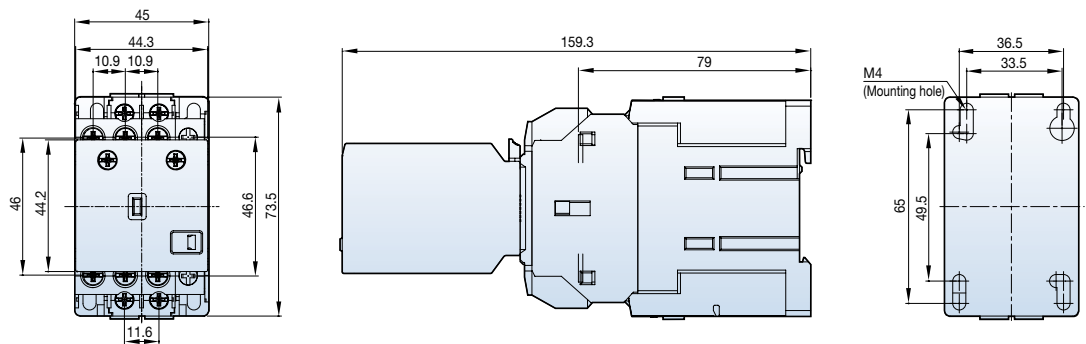
MC-9b~22b AC

1NO1NC + ML-65



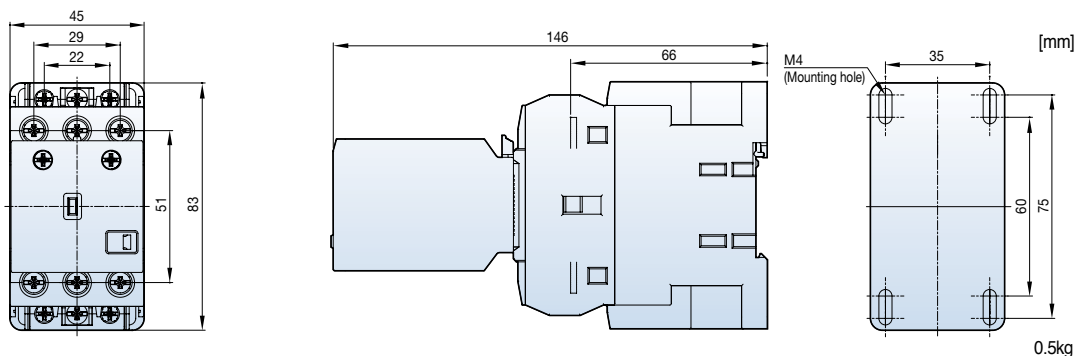
MC-9b~22b DC

1NO1NC + ML-65

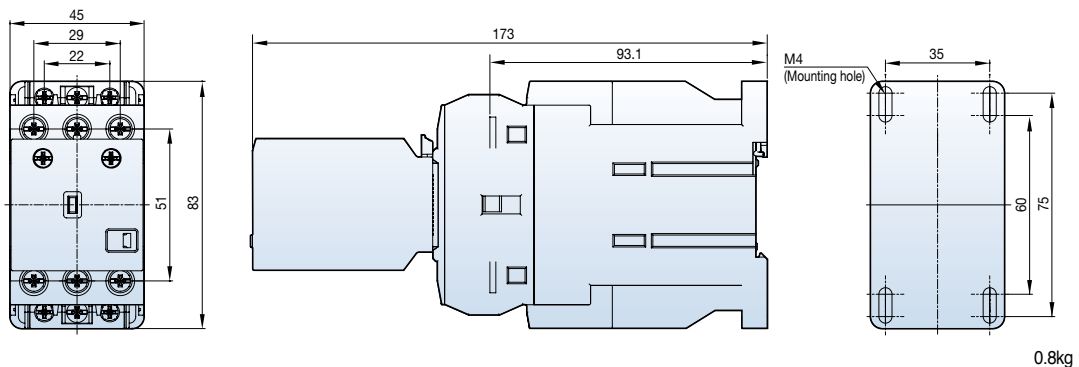


Latching contactors dimension (40AF)

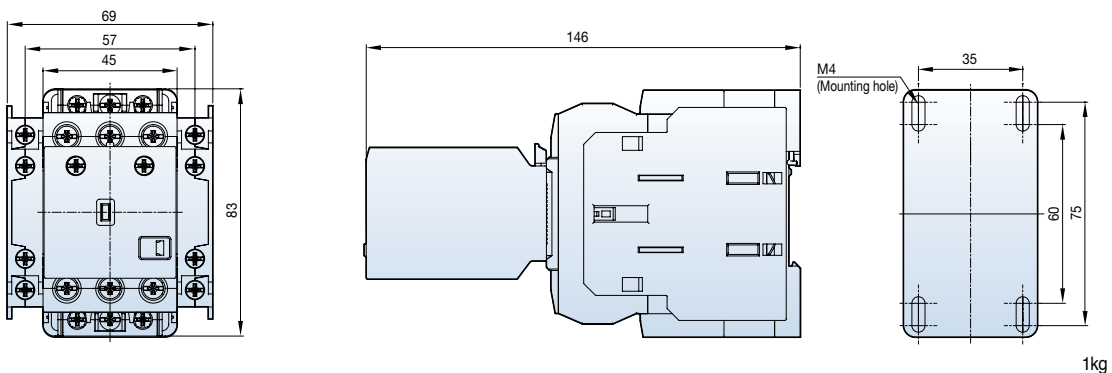
MC-32a~40a AC
+ML-65



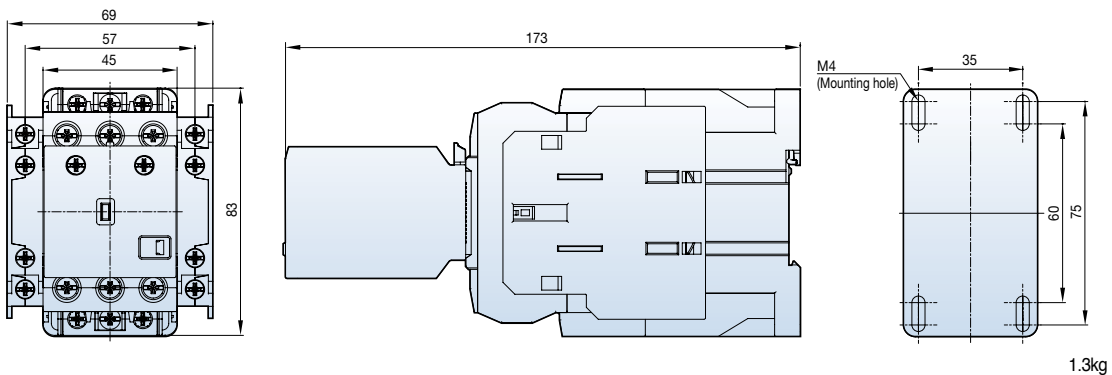
MC-32a~40a DC
+ ML-65



MC-32a~40a AC
2NO2NC + ML-65



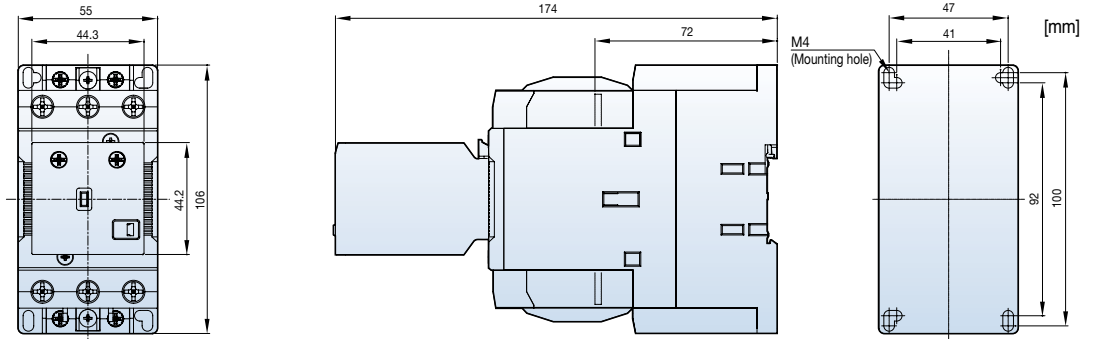
MC-32a~40a DC
2NO2NC + ML-65



Latching contactors dimension (65AF)

MC-50a~65a AC

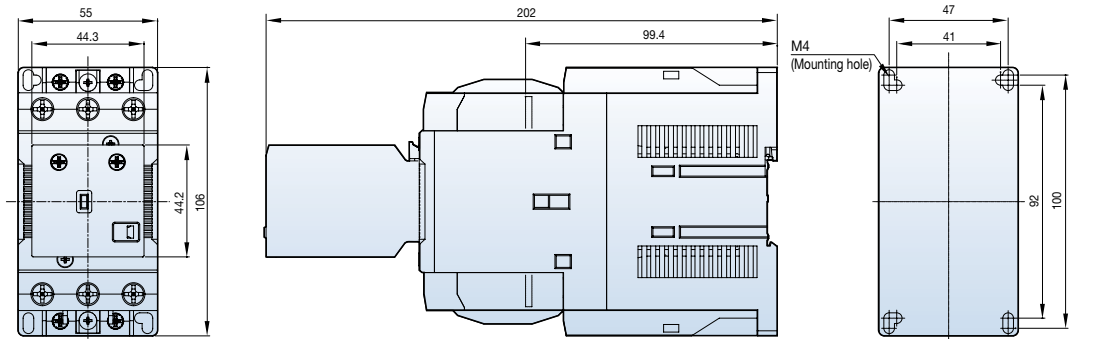
+ ML-65



1.9kg

MC-50a~65a DC

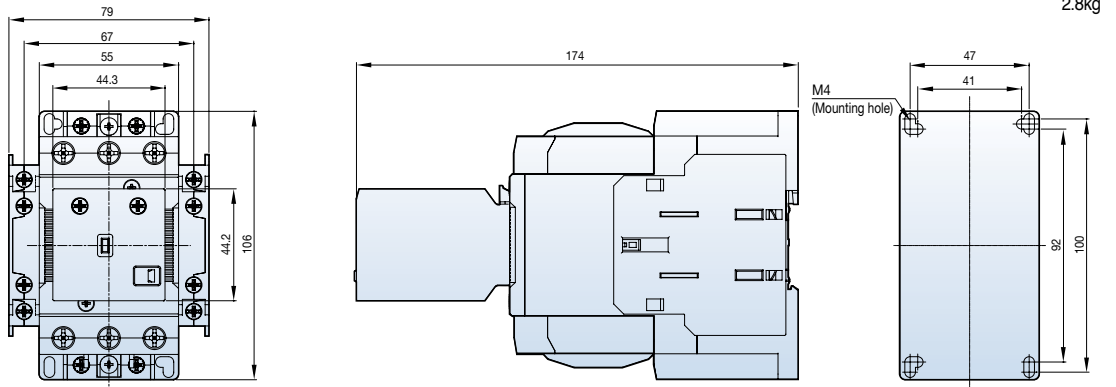
+ ML-65



2.8kg

MC-50a~65a AC

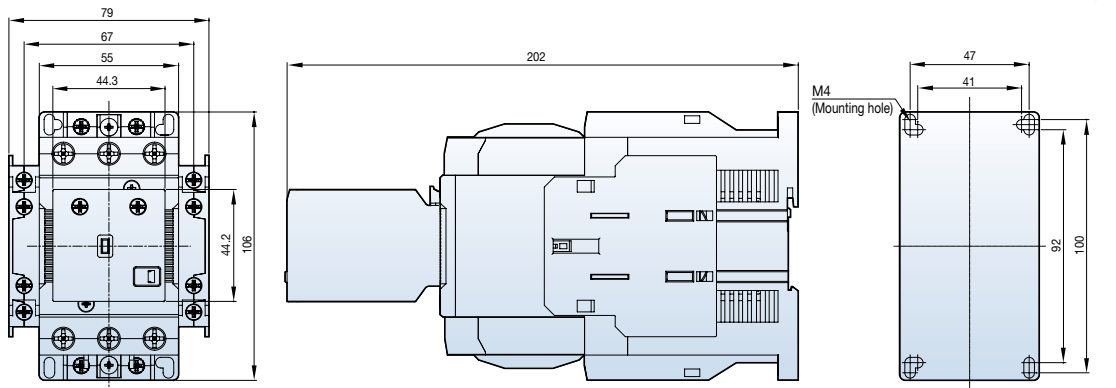
2NO2NC + ML-65



2.4kg

MC-50a~65a DC

2NO2NC + ML-65

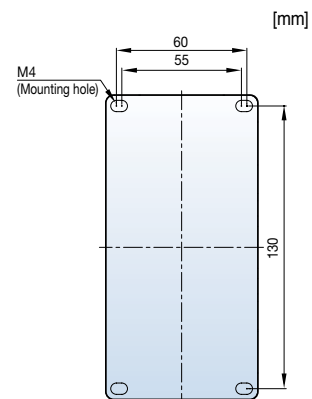
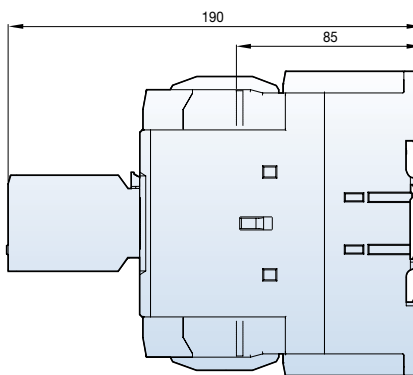
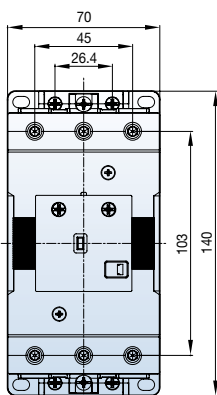


2.4kg

Latching contactors dimension (100AF)

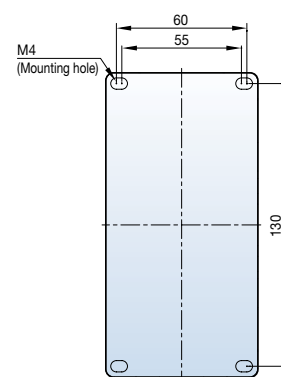
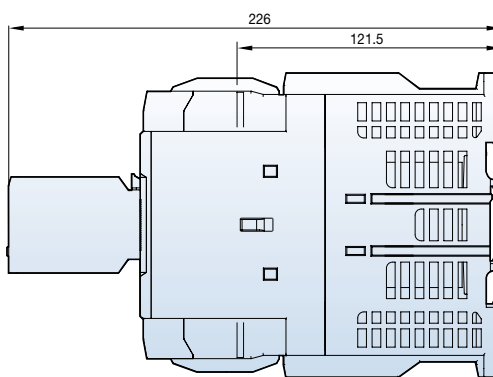
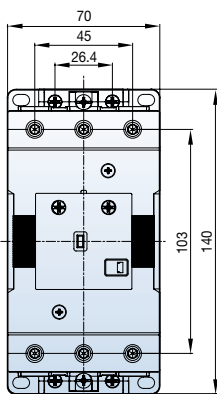
MC-75a~100a AC

+ ML-150



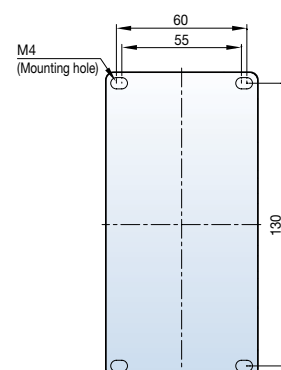
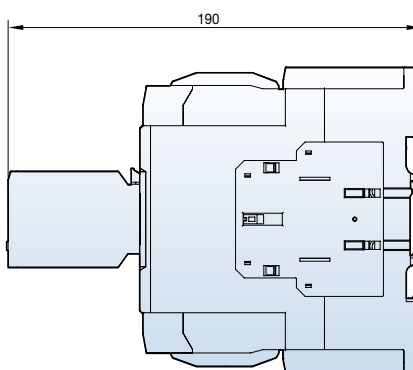
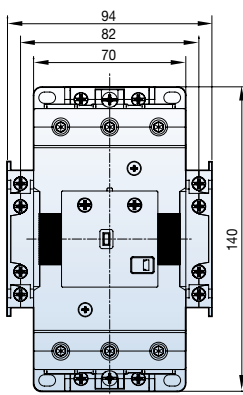
MC-75a~100a DC

+ ML-150



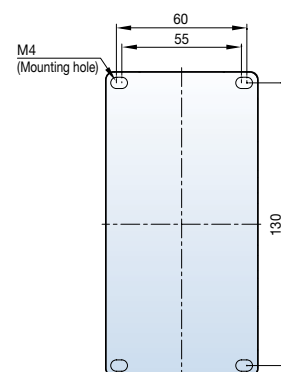
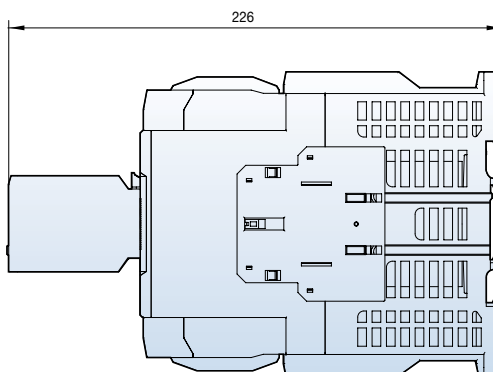
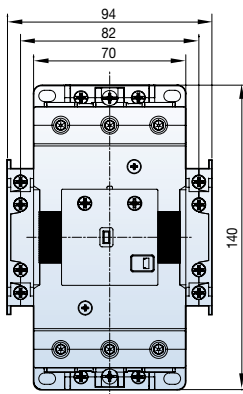
MC-75a~100a AC

2NO2NC + ML-150



MC-75a~100a DC

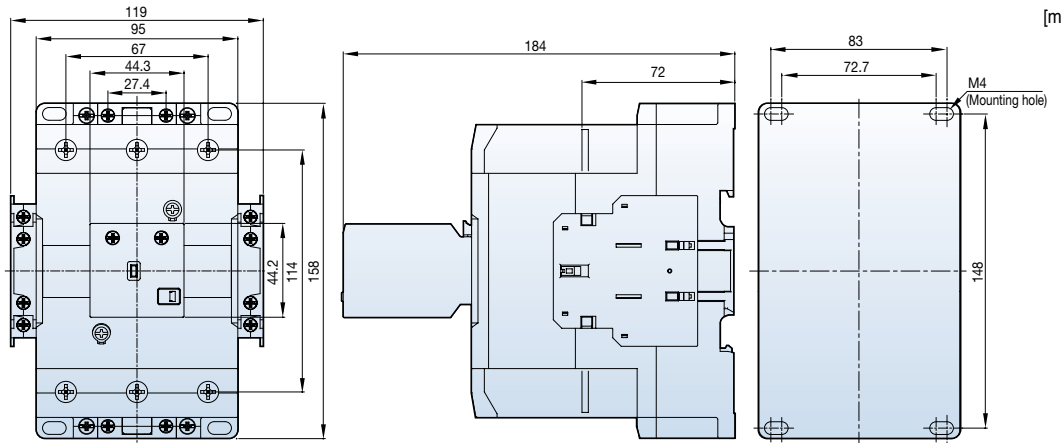
2NO2NC + ML-150



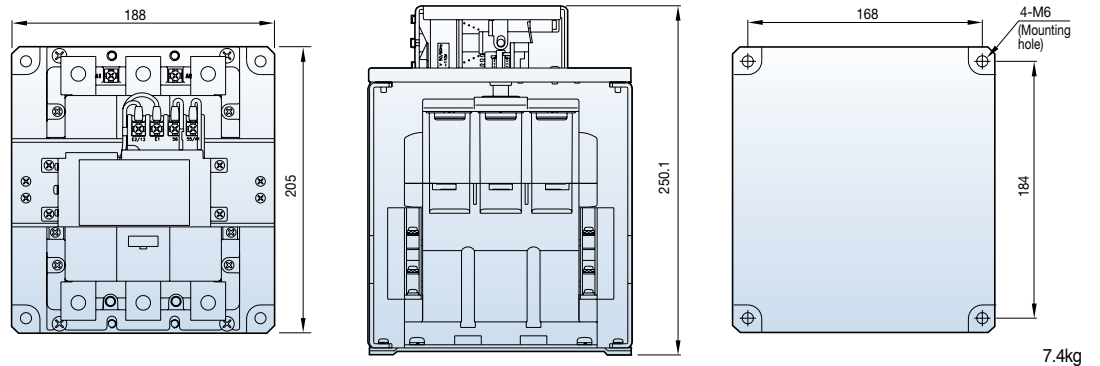
Latching contactors dimension (150AF~400AF)

[mm]

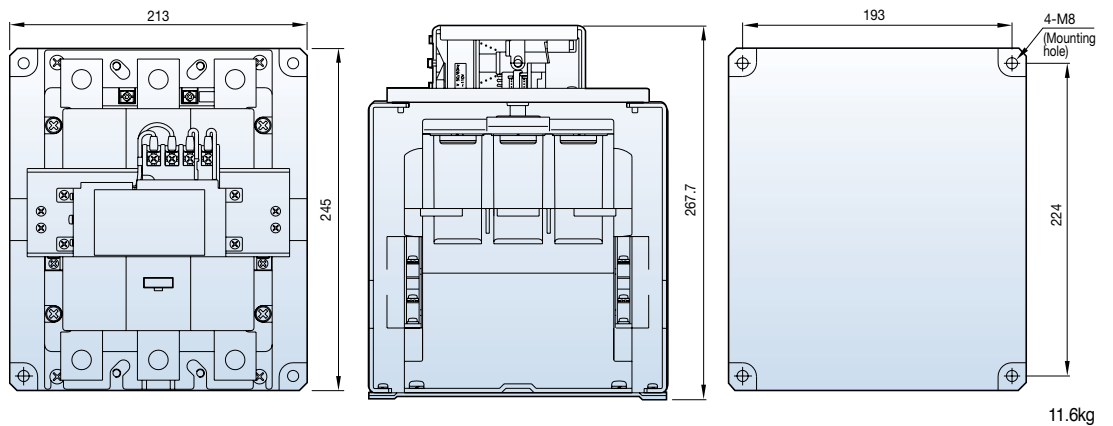
MC-130a~150a
2NO2NC + ML-150



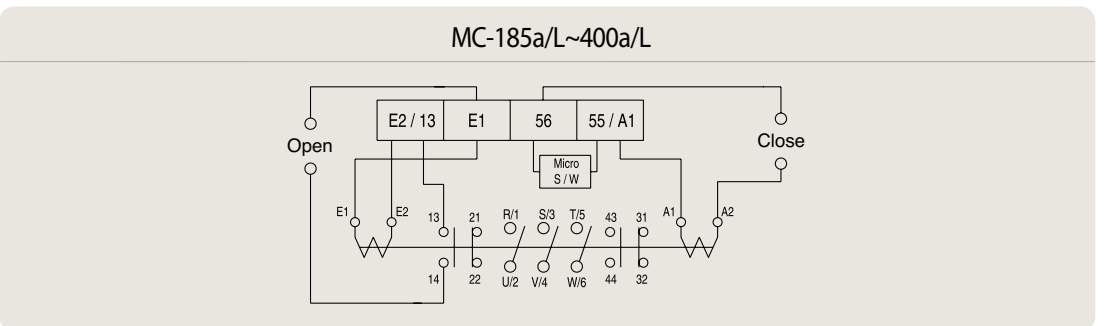
MC-185a
MC-225a



MC-265a
MC-330a
MC-400a

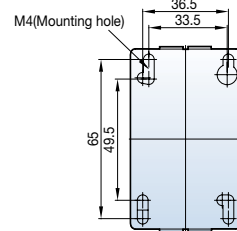
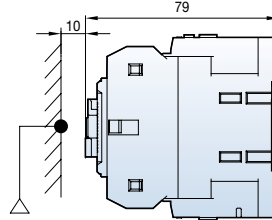
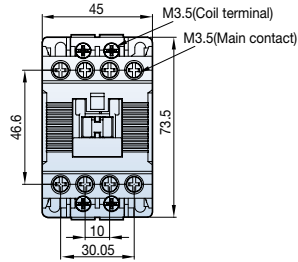


Composition



4-pole contactors dimension (MC-6a/4~22a/4)

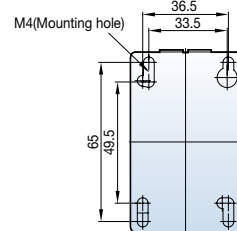
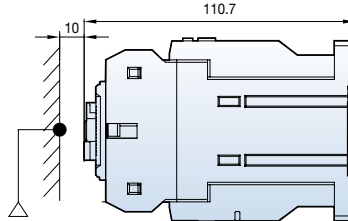
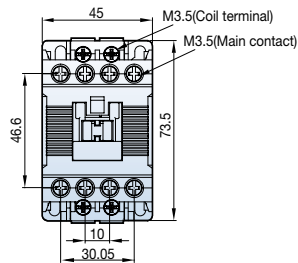
MC-6a/4~18a/4 AC



[mm]

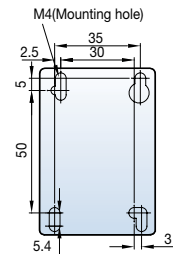
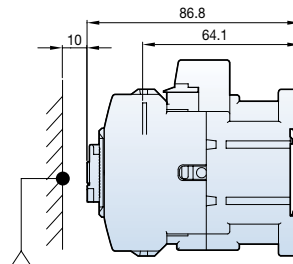
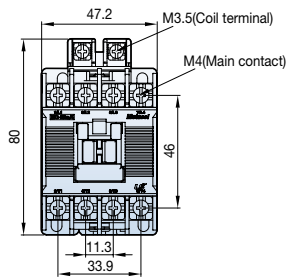
0.3kg

MC-6a/4~18a/4 DC



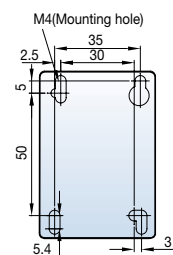
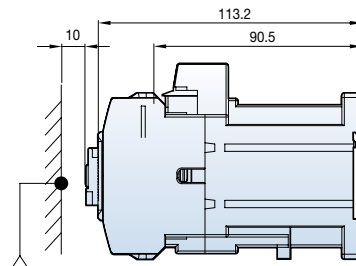
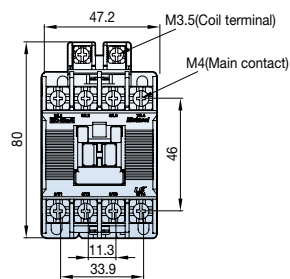
0.45kg

MC-22a/4 AC



0.4kg

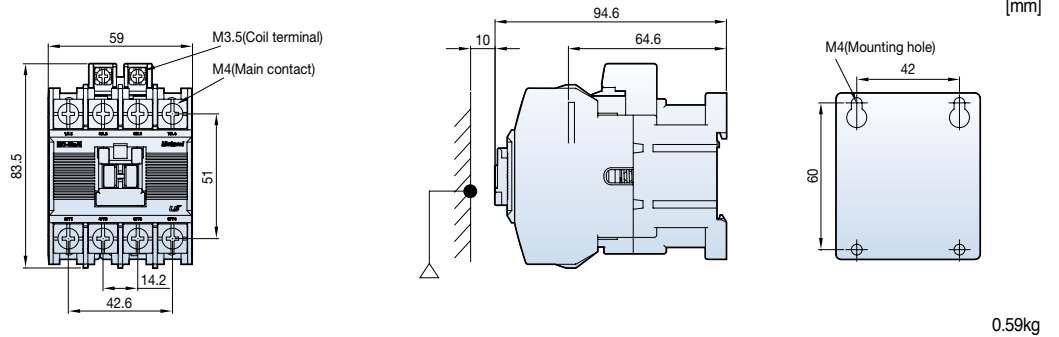
MC-22a/4 DC



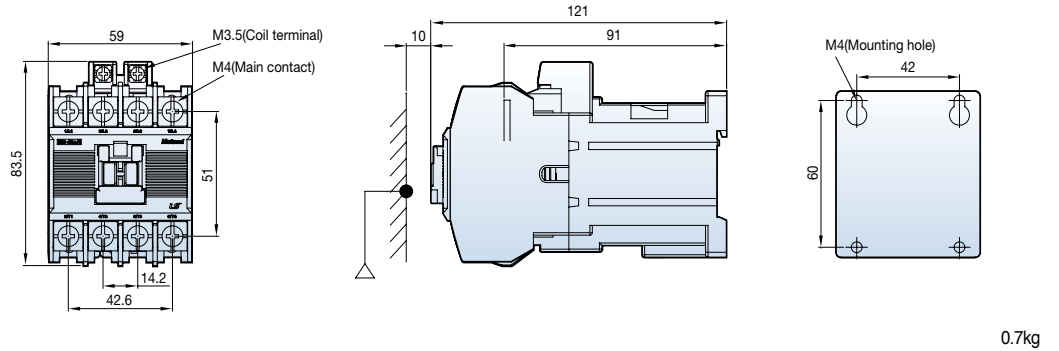
0.5kg

4-pole contactors dimension (MC-32a/4~85a/4)

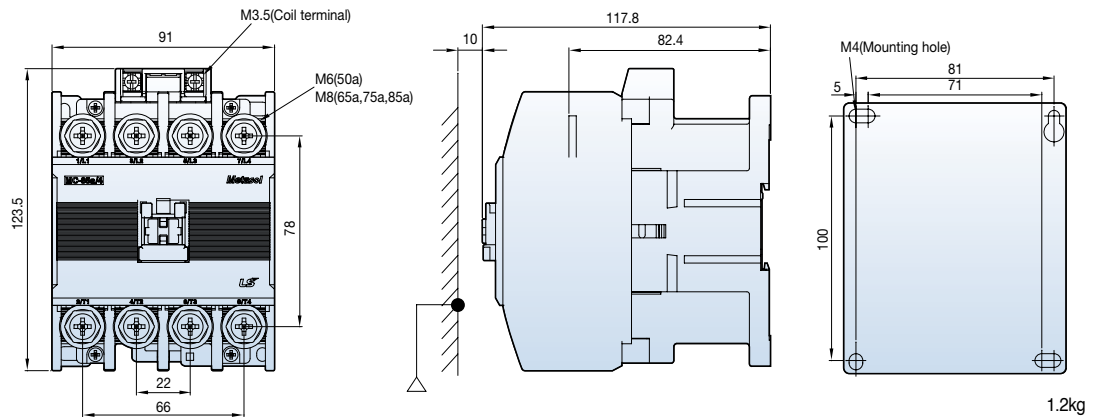
MC-32a/4~40a/4 AC



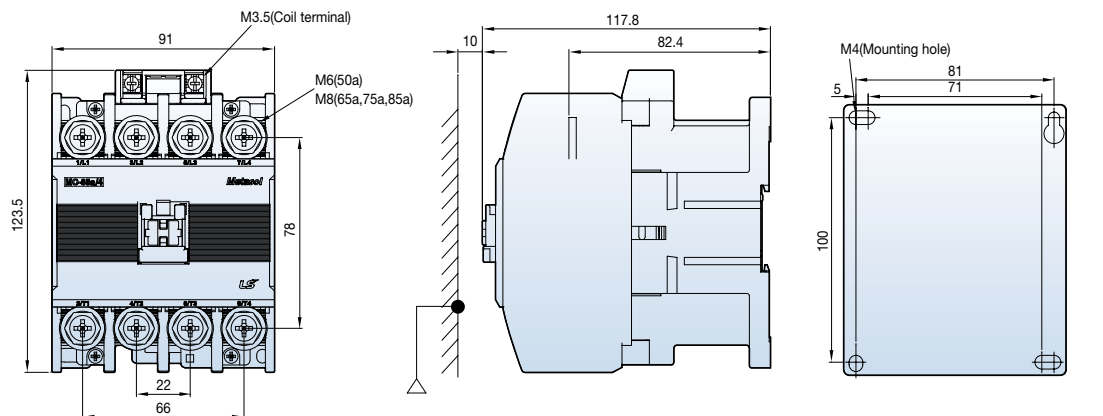
MC-32a/4~40a/4 DC



MC-50a/4~85a/4 AC

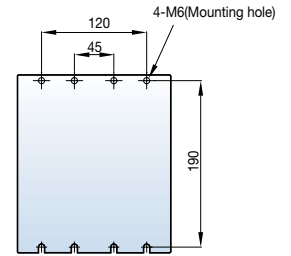
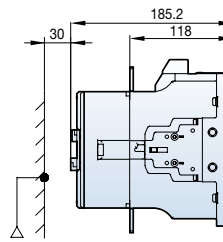
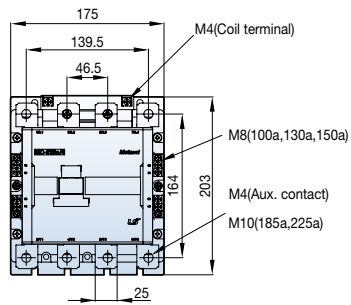


MC-50a/4~85a/4 DC



4-pole contactors dimension (MC-100a/4~800a/4)

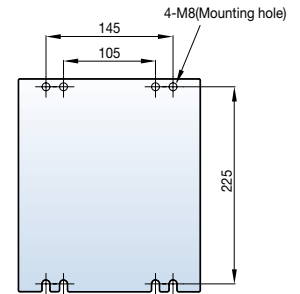
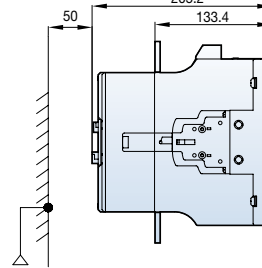
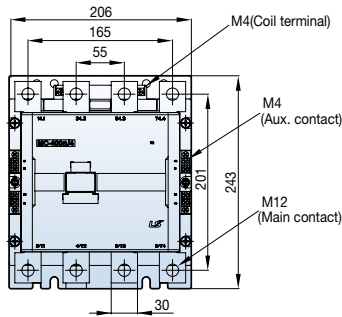
- MC-100a/4
- MC-130a/4
- MC-150a/4
- MC-185a/4
- MC-225a/4



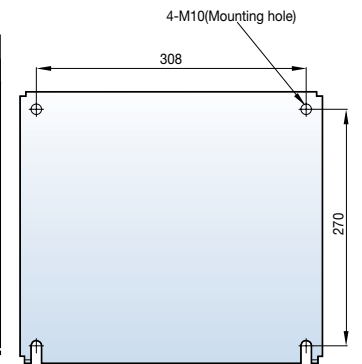
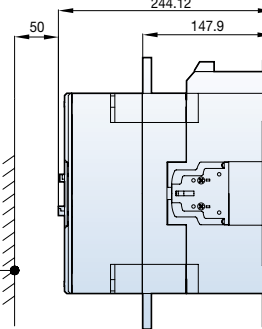
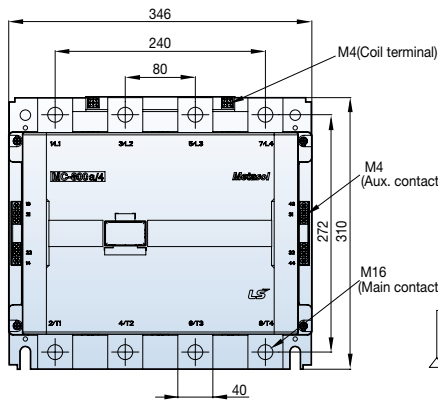
[mm]

5.6kg

- MC-265a/4
- MC-330a/4
- MC-400a/4



- MC-500a/4
- MC-630a/4
- MC-800a/4



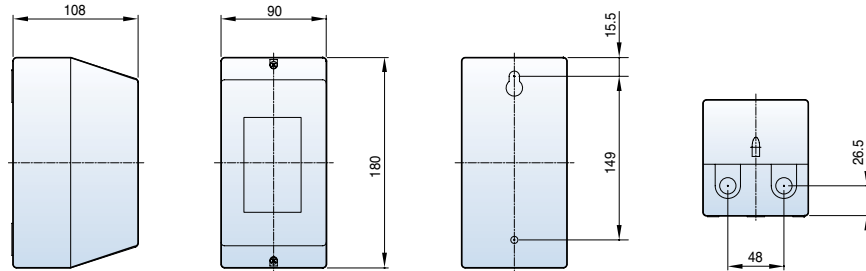
9.9kg

26.3kg

Enclosed motor starters, Mold enclosure dimension

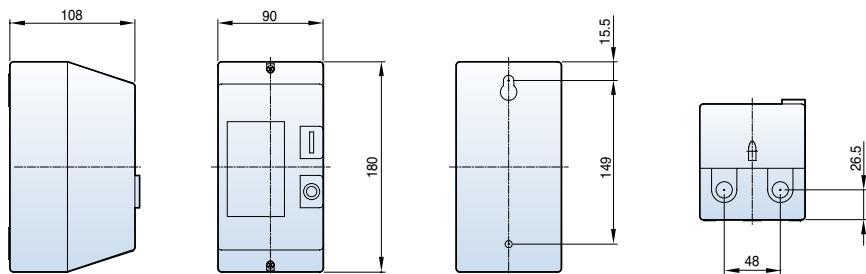
MW-9bM~22bM

[mm]



0.8kg

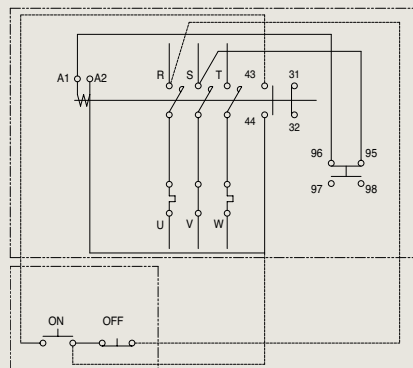
MW-9bMB~22bMB



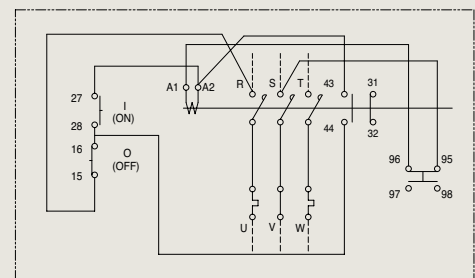
0.8kg

Circuit diagram

MW-9bM~22bM



MW-9bMB~22bMB

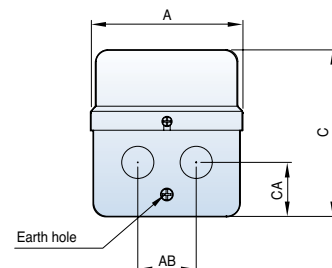
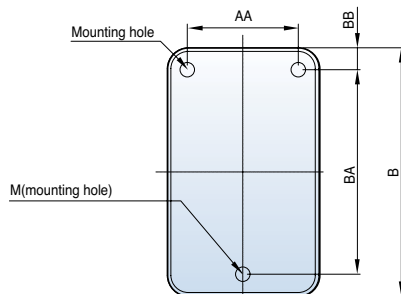


Enclosed motor starters, Steel enclosure dimension

MW-6a~100a

MW-9b~22b

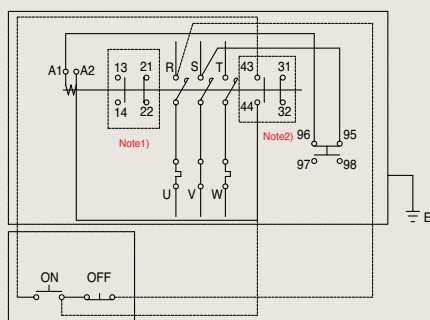
[mm]



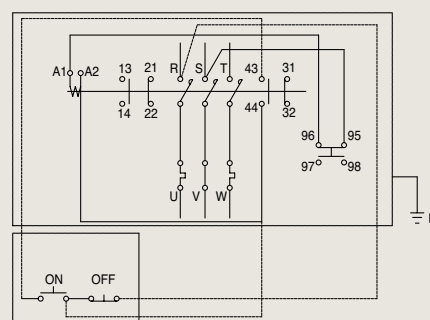
| Type | A | AA | AB | B | BA | BB | C | CA | M | N | Weight(kg) |
|-------------------|-----|-----|----|-----|-----|----|-----|----|----|-----|------------|
| MW-9b~22b, 6a~18a | 104 | 76 | 40 | 170 | 140 | 15 | 114 | 41 | M5 | Ø22 | 1.1 |
| MW-32a, 40a | 145 | 95 | 55 | 245 | 165 | 40 | 130 | 50 | M5 | Ø35 | 1.6 |
| MW-50a, 65a | 160 | 120 | 74 | 290 | 220 | 35 | 141 | 50 | M5 | Ø35 | 2.7 |
| MW-75a, 85a, 100a | 160 | 120 | 74 | 290 | 220 | 35 | 161 | 67 | M5 | Ø35 | 3.6 |

Circuit diagram

MW-6a~18a, MW-9b~22b



MW-32a~100a



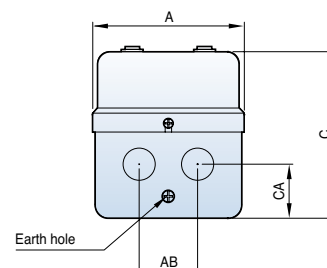
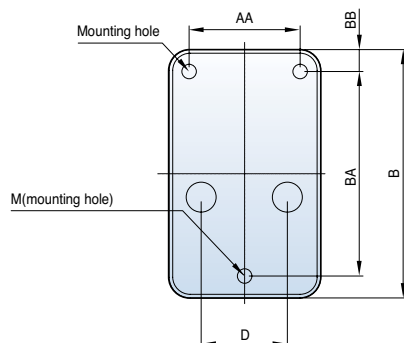
Note) 1. In case of adding the auxiliary contact unit(1NO1NC).
2. See below for MC-6a~18a(1NO)



[mm]

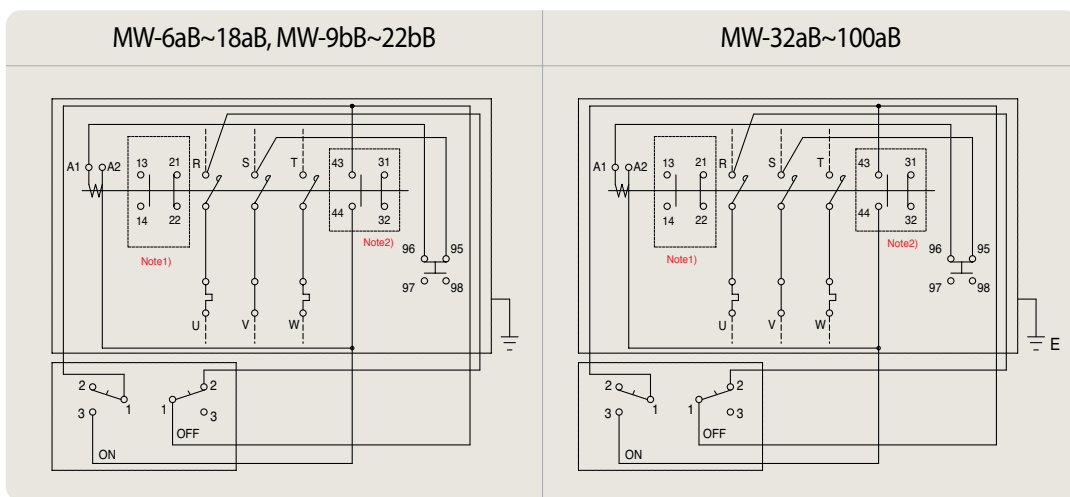
MW-6aB~100aB

MW-9bB~22bB



| Type | A | AA | AB | B | BA | BB | C | CA | D | M | N | Weight(kg) |
|-----------------------|-----|-----|----|-----|-----|----|-----|----|-----|----|-----|------------|
| MW-9bB~22bB, 6aB~18aB | 104 | 76 | 40 | 170 | 140 | 15 | 114 | 41 | 59 | M5 | Ø22 | 1.1 |
| MW-32aB, 40aB | 145 | 95 | 55 | 245 | 165 | 40 | 130 | 50 | 97 | M5 | Ø35 | 1.6 |
| MW-50aB, 65aB | 160 | 120 | 74 | 290 | 220 | 35 | 141 | 50 | 114 | M5 | Ø35 | 2.7 |
| MW-75aB, 85aB, 100aB | 160 | 120 | 74 | 290 | 220 | 35 | 161 | 67 | 114 | M5 | Ø35 | 3.6 |

Circuit diagram



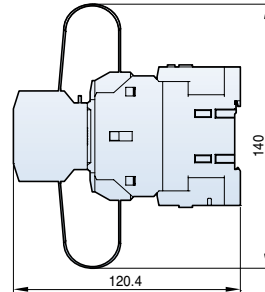
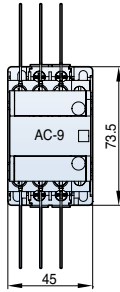
Note 1. In case of adding the auxiliary contact unit(1NO1NC).
 2. See below for MC-6a~18a(1NO)



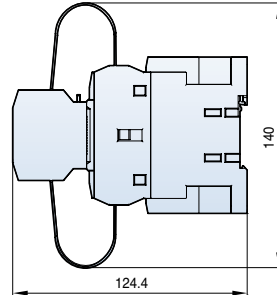
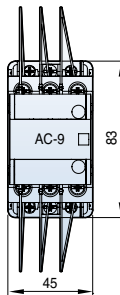
Capacitor contactors (MC-9b~40a with AC-9, MC 50a~100a with AC-50)

[mm]

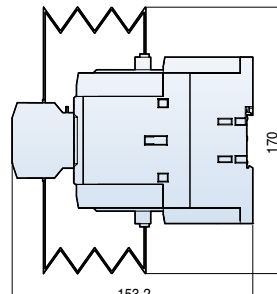
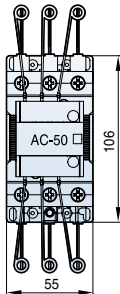
MC-9b~22b with AC-9



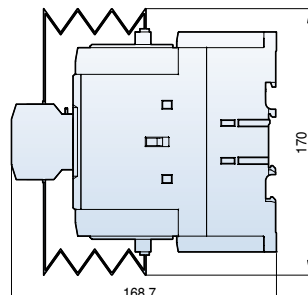
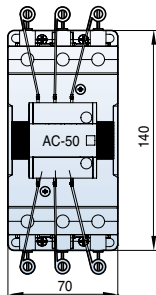
MC-32a,40a with AC-9



MC-50a,65a with AC-50

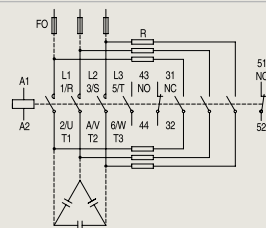


MC-75a~100a with AC-50

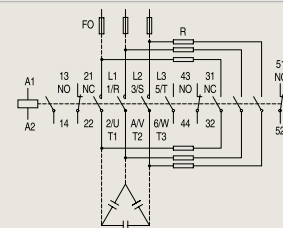


Circuit diagram

MC-9b~22b with AC-9

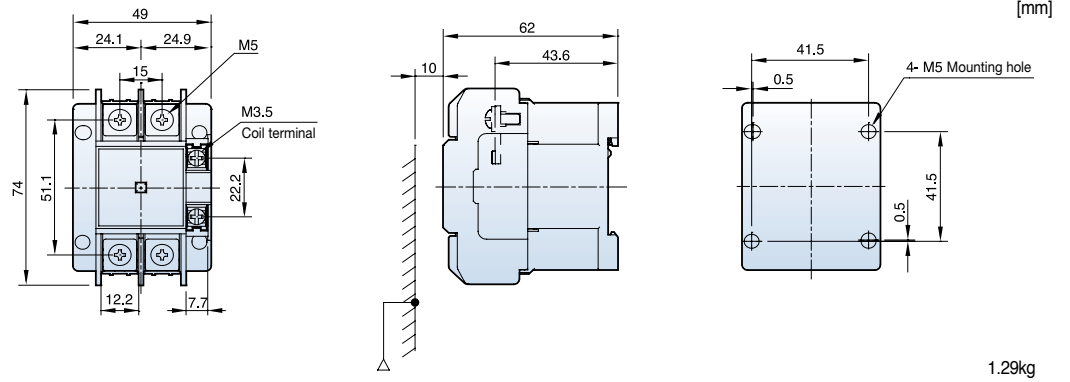


MC-32a, 40a with AC-9 MC 50a~100a with AC-50

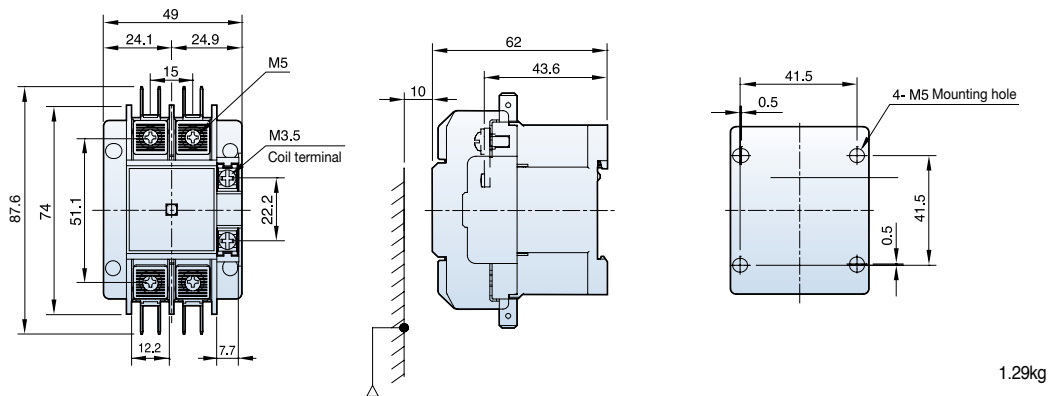


2-pole AC Contactors dimension (GMC-10P2~40P2)

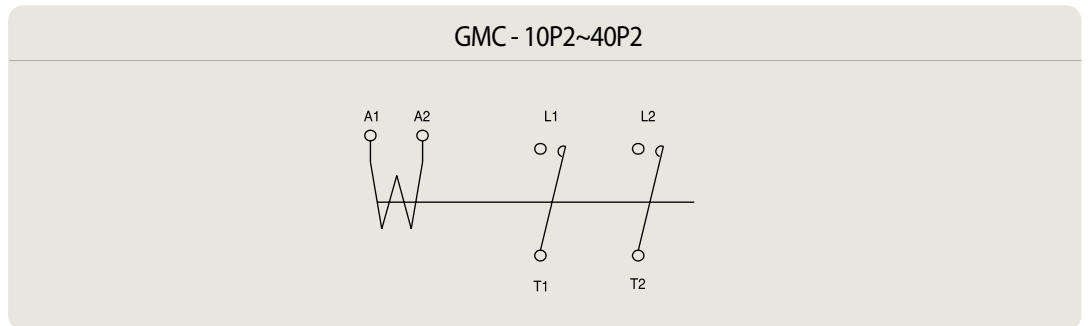
- GMC-10P2
- GMC-20P2
- GMC-25P2
- GMC-30P2
- GMC-35P2
- GMC-40P2
- (TSBS Type)



- GMC-10P2
- GMC-20P2
- GMC-25P2
- GMC-30P2
- GMC-35P2
- GMC-40P2
- (TQBS Type)

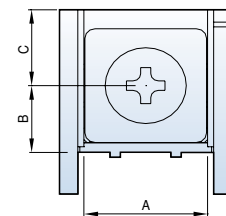


Composition



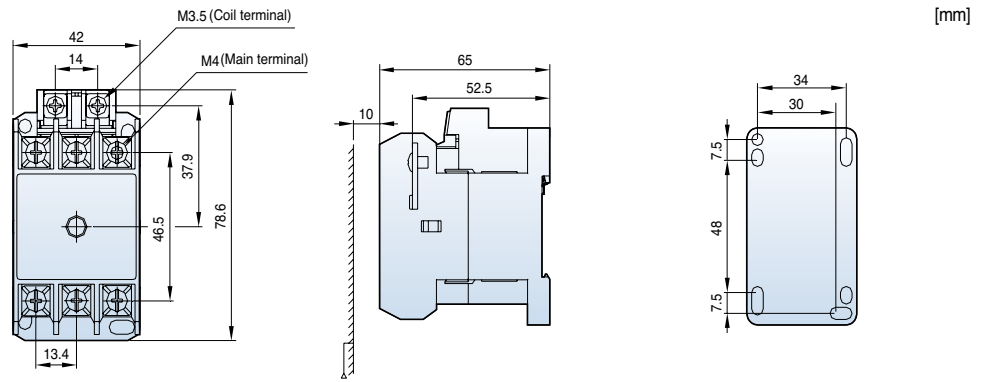
Terminal

| Type | Terminals | Screw | Wire (mm ²) | Torque (kgf·cm) | A×B×C (mm) |
|---------------|-----------|-------|-------------------------|-----------------|-------------|
| GMC-10P2~40P2 | Main | M5 | 1-16 | 26 | 12.2×7×8 |
| | Coil | M3.5 | 1-2.5 | 12 | 7.7×7.5×4.5 |

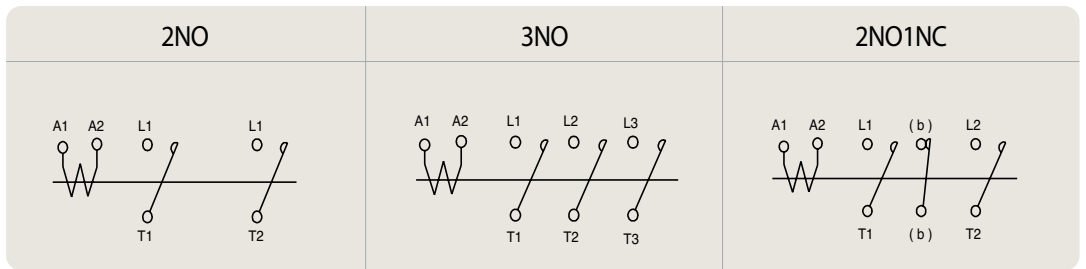


3-pole AC Contactors dimension (GMC-20D, 25D)

- GMC-20D
- GMC-25D

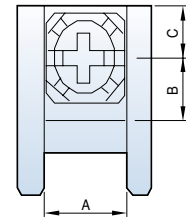


Contact arrangement



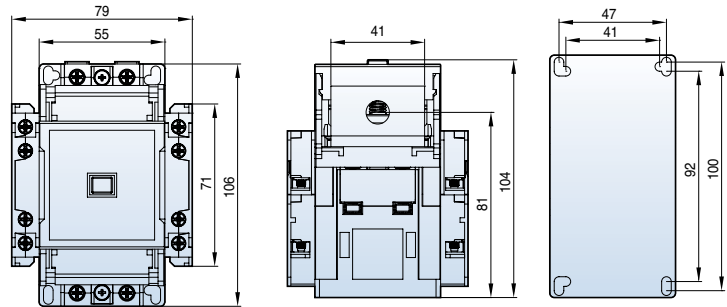
Terminal

| Type | Screw | Wire (mm ²) | Torque (kgf-cm) | A×B×C (mm) |
|-------------|-------|-------------------------|-----------------|------------|
| GMC-20D~25D | M4 | 1-10 | 15 | 9.4×5×85.1 |
| Coil~ | M3.5 | 1.25~2 | 12 | 8×5×4.9 |

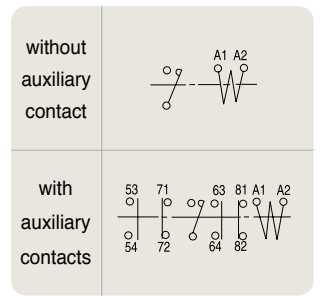


Single-pole AC Contactors (MC-65aSP)

MC-65aSP



Composition

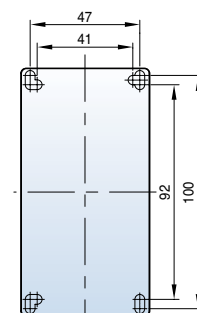
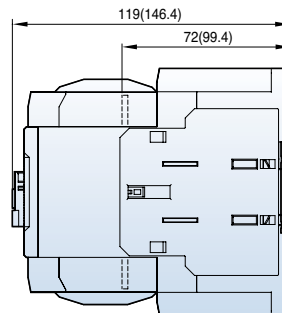
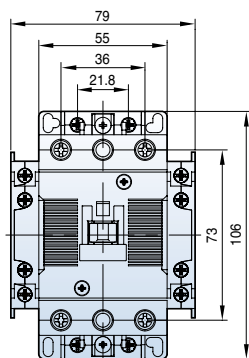


0.65kg

DC Contactors dimension (MD-30a, 60a,100a)

MD-30a AC(DC)

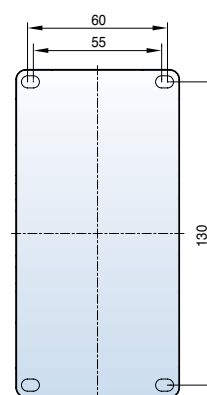
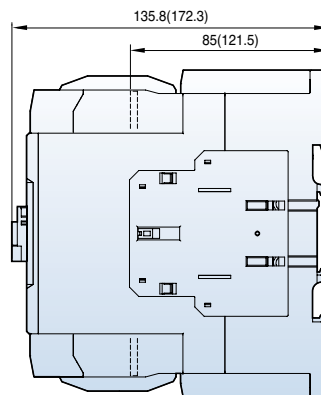
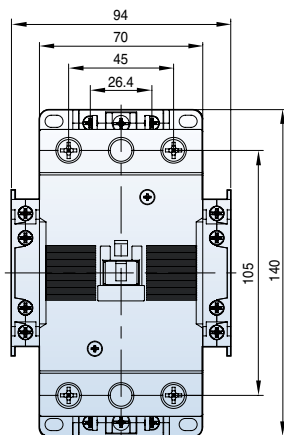
2NO2NC



[mm]

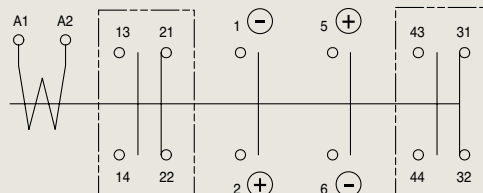
MD-60a,100a AC(DC)

2NO2NC

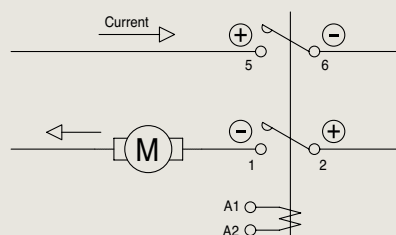


Composition

MD-30a, 60a, 100a

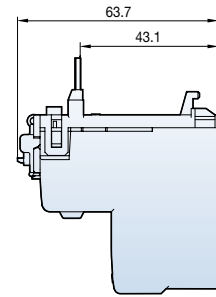
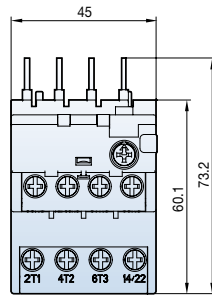


Contact arrangement



Overload relays dimension

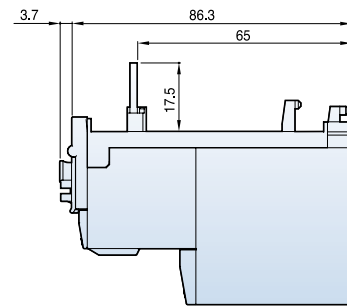
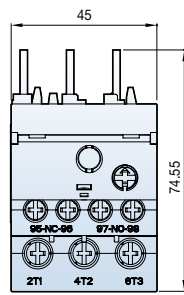
MT-12



[mm]

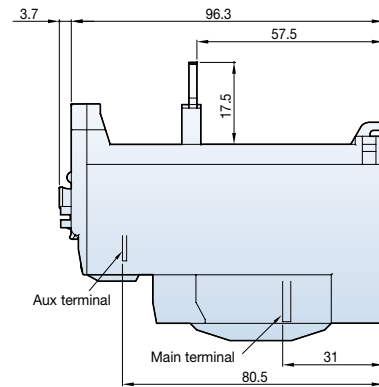
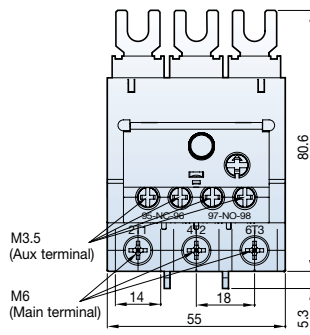
100g

MT-32



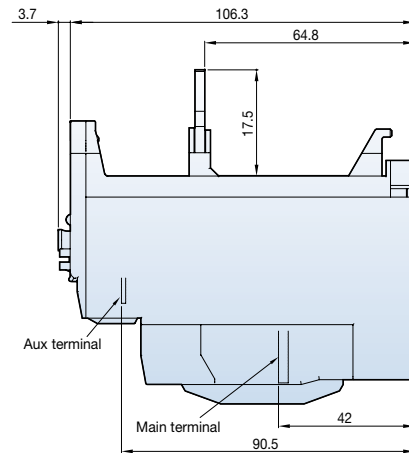
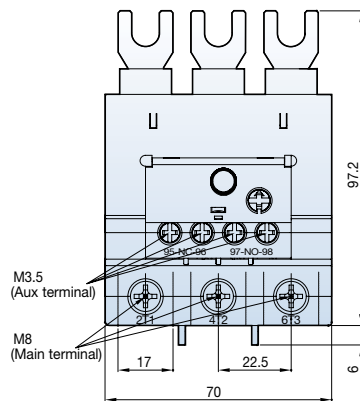
167g

MT-63



303g

MT-95

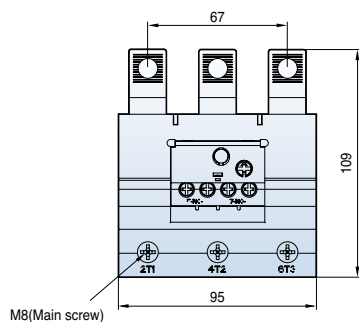


474g

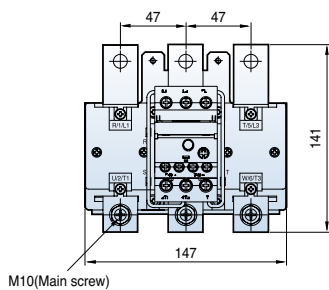
[mm]

0.7kg

MT-150

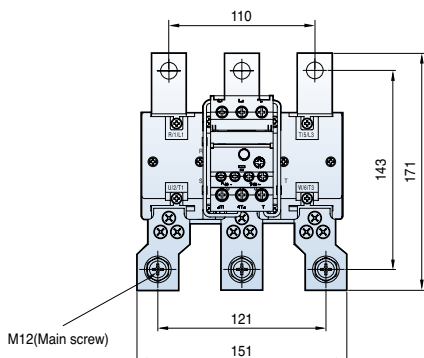


MT-225



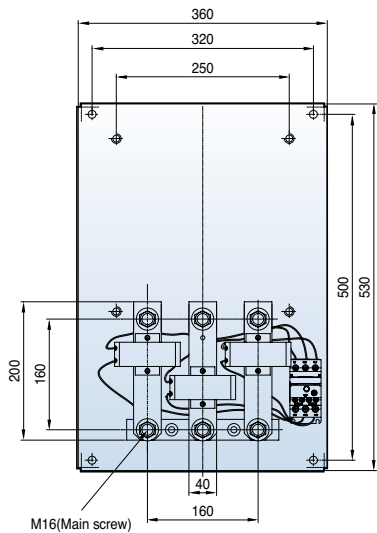
2.5kg

MT-400



2.6kg

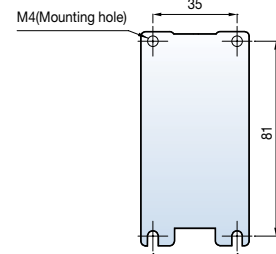
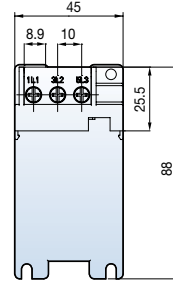
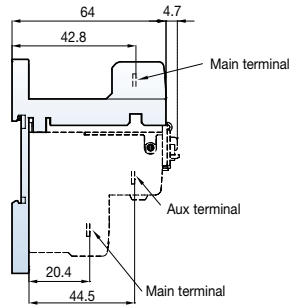
MT-800



11.5kg

Overload relays dimension (Separate mount)

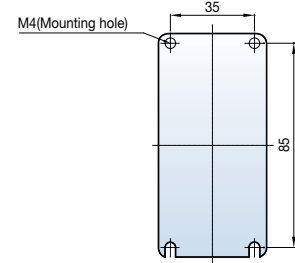
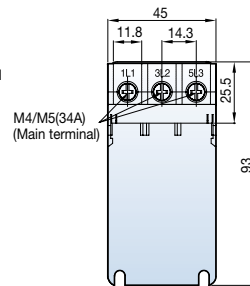
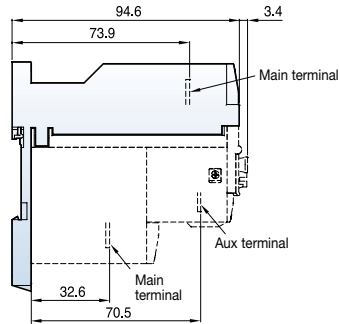
UZ-12



[mm]

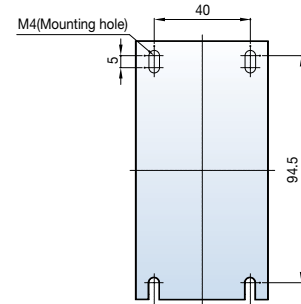
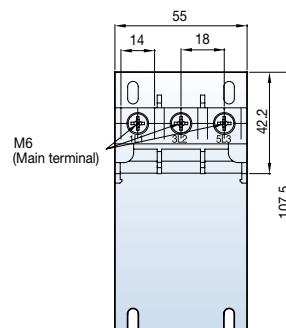
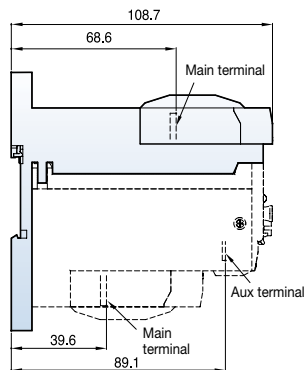
35g

UZ-32



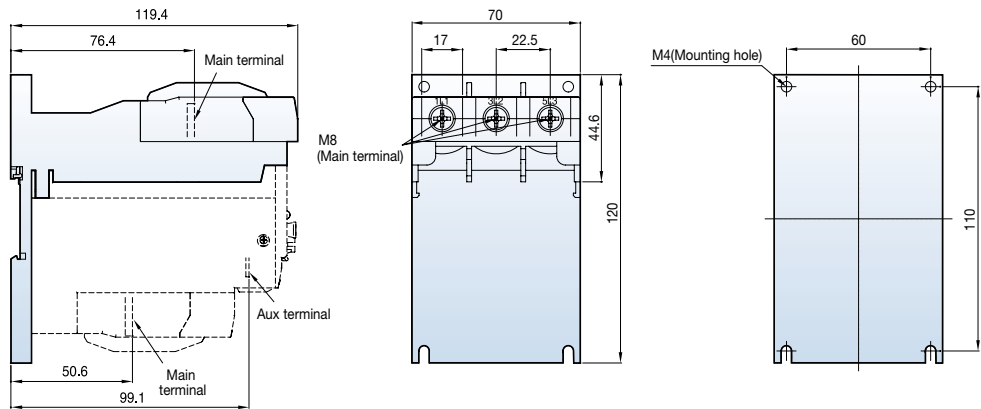
68g

UZ-63



134g

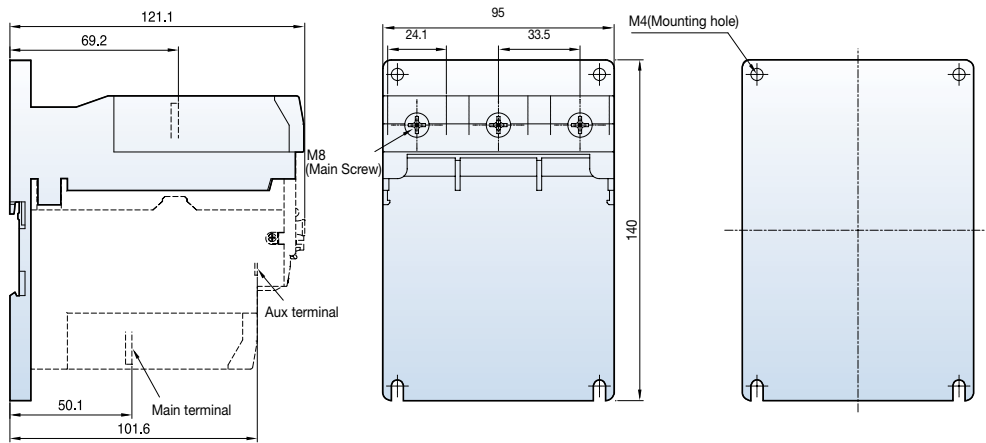
UZ-95



[mm]

230g

UZ-150

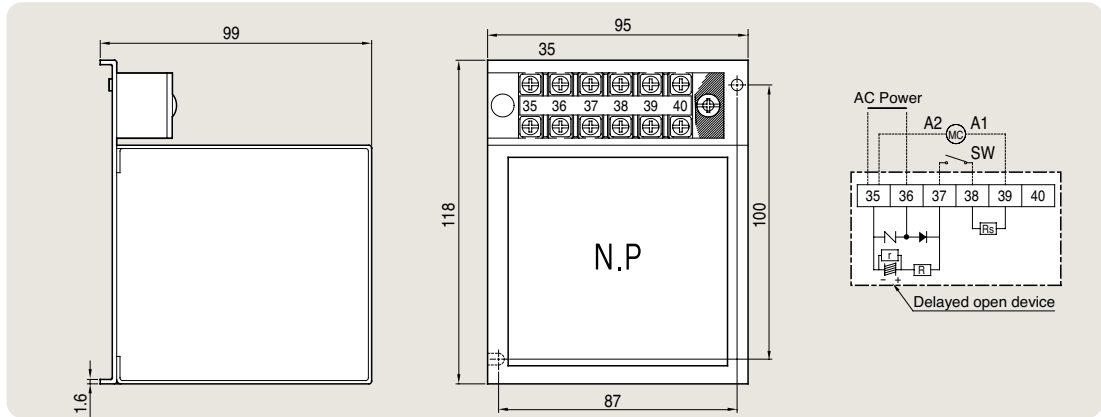


284g

Delayed Opening Device

Dimension

AD - 9

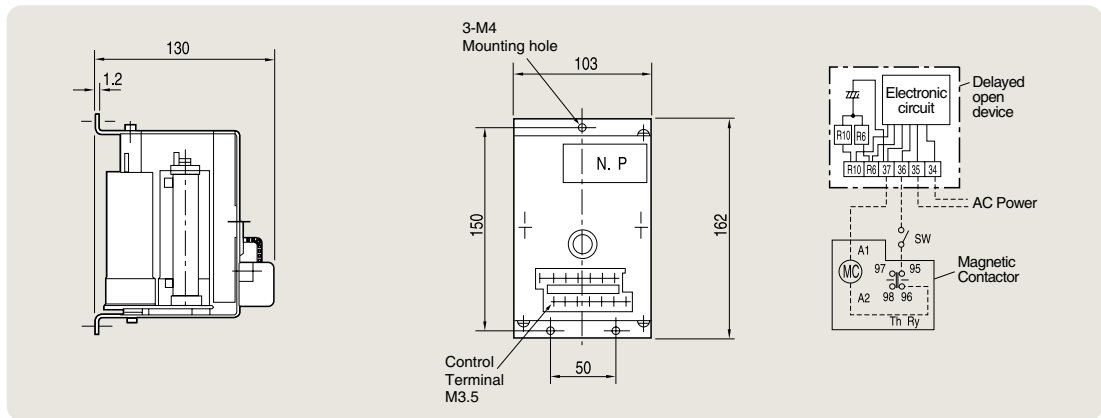


AD - 50

AD - 100

AD - 300

AD - 600

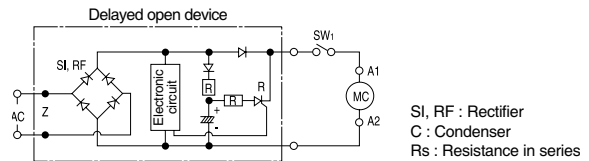
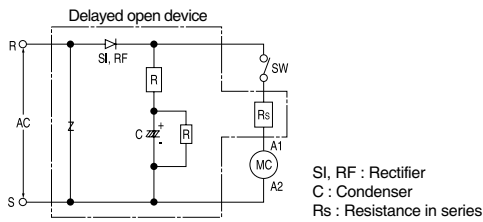


0.5kg

Control Circuit Diagram

AD - 9

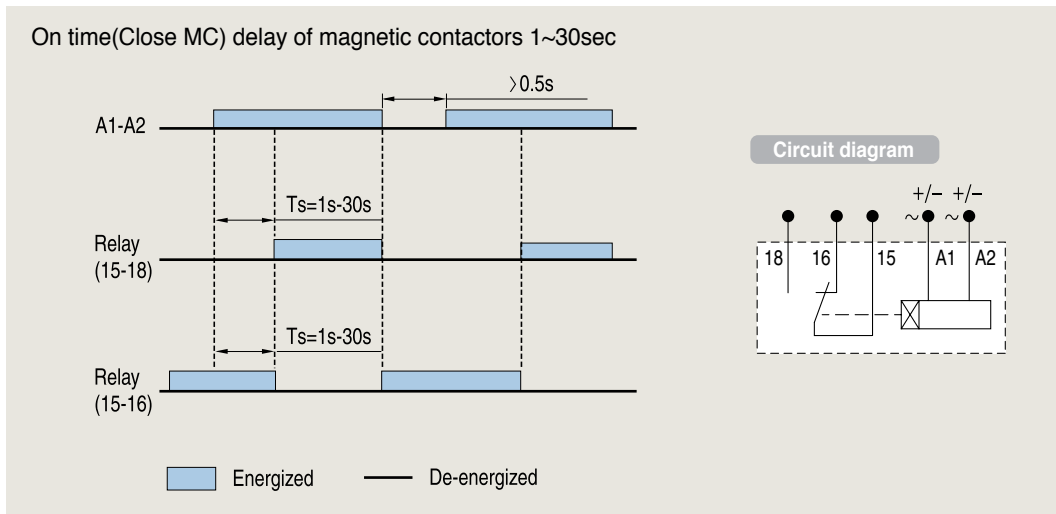
AD - 50~600



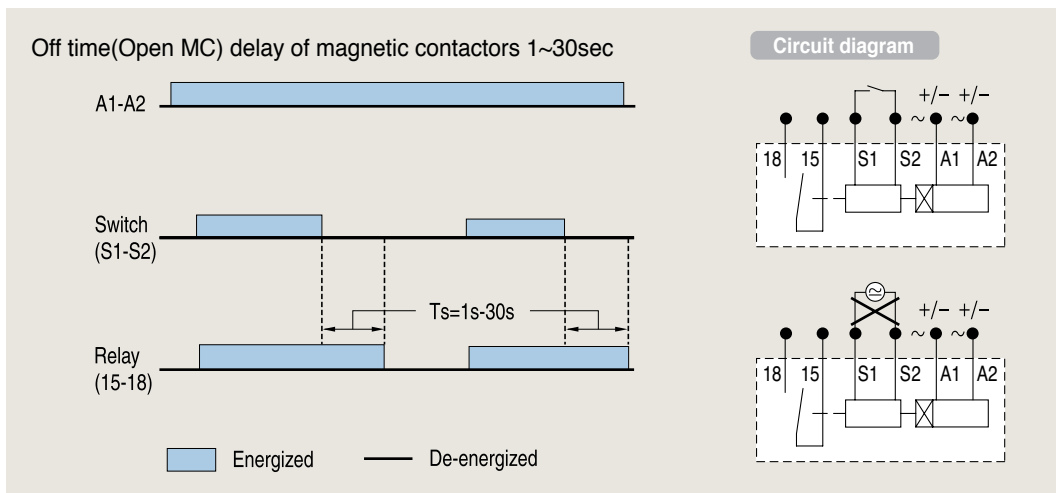
Electronic timer unit

Electronic timer unit

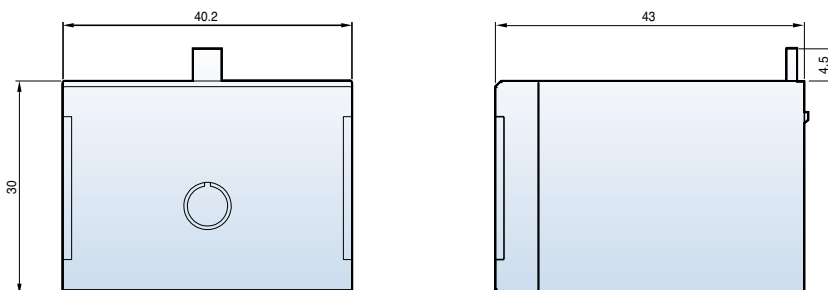
ON delay timer



OFF delay timer



Dimension



Contact arrangement

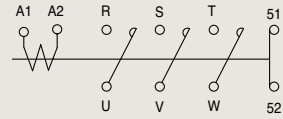
Contactors

MC-6a~18a

1NO

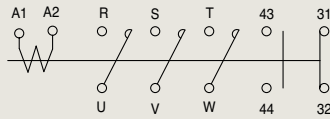


1NC



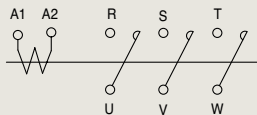
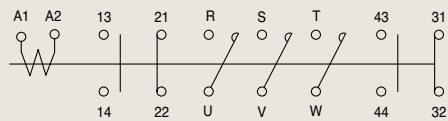
MC-9b~22b

1NO1NC



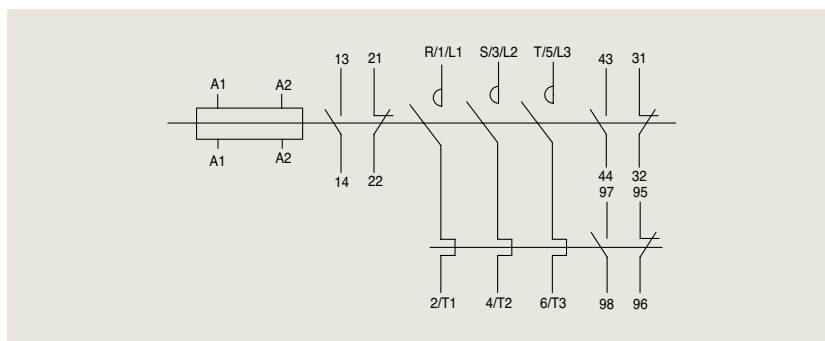
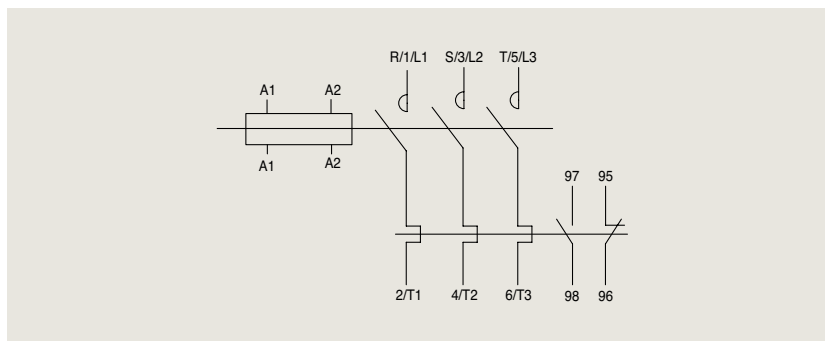
MC-32a~150a

2NO2NC

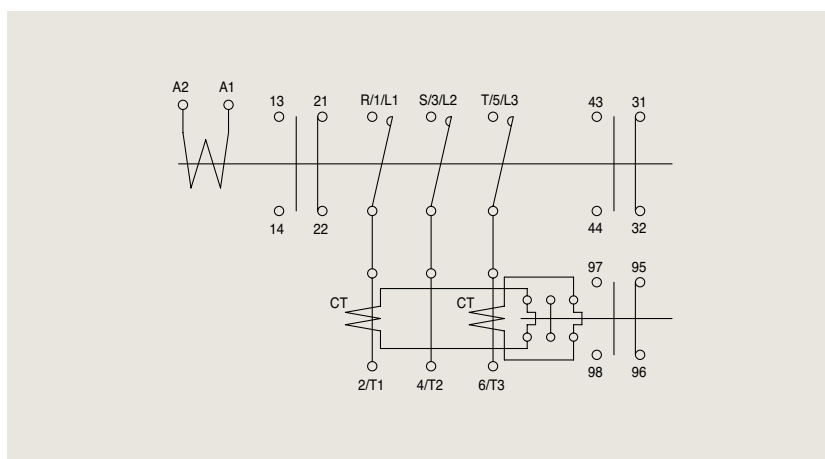


Motor starters

MS-6a~150a



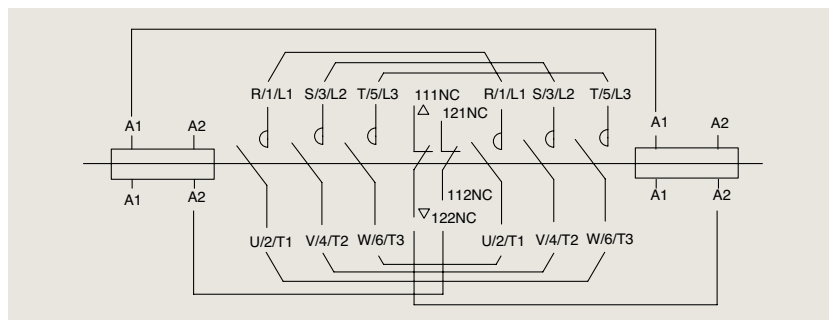
MS-185a~800a



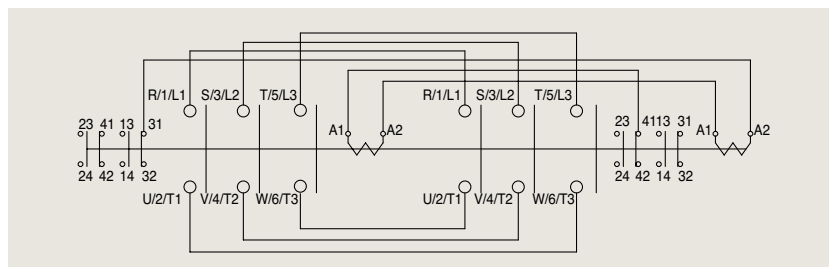
Contact arrangement

Reversing contactors

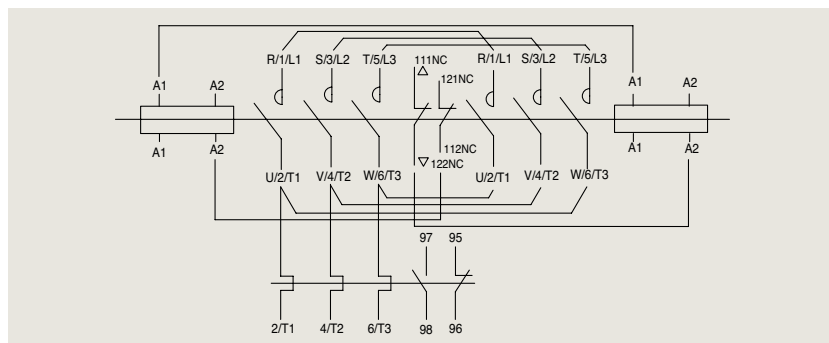
MC-6aR~150aR



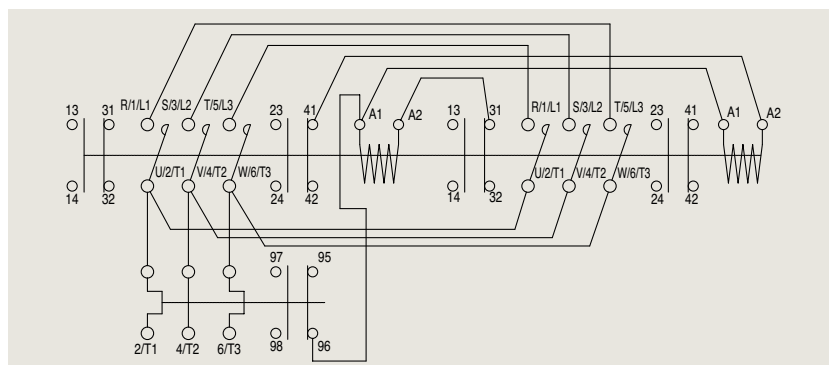
MC-185aR~800aR



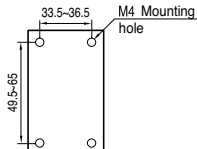
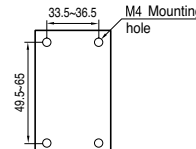
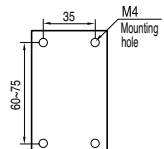
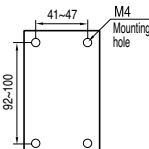
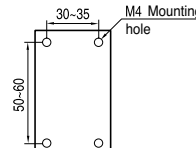
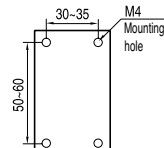
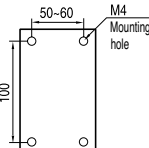
MS-6aR~150aR



MS-185aR~400aR



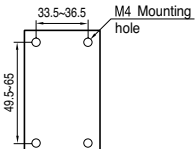
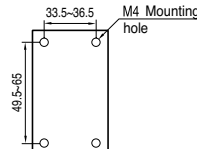
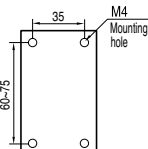
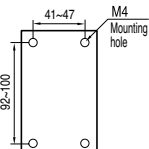
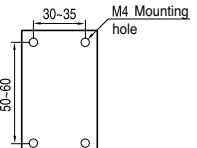
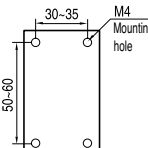
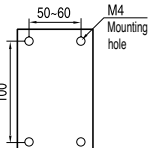
Meta-MEC and Metasol MC comparison table

| | | Type | MC-6a | MC-9a | MC-12a | MC-18a | MC-9b | MC-12b | MC-18b | MC-22b | MC-32a | MC-40a | MC-50a | MC-65a | |
|-----------------------|----------------------------|-----------------------|-----------------------------------------------------------------------------------|-------------|--------------|--------------|--------------------------------------------------------------------------------------|--------------|--------------|---------------|---------------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------------|---------------|---------------|
| Manufactured products | Metasol MC | Current and power AC3 | 200~240V | 2.2kW 9A | 2.5kW 11A | 3.5kW 13A | 4.5kW 18A | 2.5kW 11A | 3.5kW 13A | 4.5kW 18A | 5.5kW 22A | 7.5kW 32A | 11kW 40A | 15kW 55A | 18.5kW 65A |
| | | | 380~440V | 3kW 7A | 4kW 9A | 5.5kW 12A | 7.5kW 18A | 4kW 9A | 5.5kW 12A | 7.5kW 18A | 11kW 22A | 15kW 32A | 18.5kW 40A | 22kW 50A | 30kW 65A |
| | | | 500~550V | 3kW 6A | 4kW 7A | 7.5kW 12A | 7.5kW 13A | 4kW 7A | 7.5kW 12A | 7.5kW 13A | 15kW 20A | 18.5kW 28A | 22kW 32A | 30kW 43A | 33kW 60A |
| | | Auxiliary (Standard) | 1NO or 1NC | | | | 1NO1NC | | | | - | | - | | |
| | | Mounting size |  | | | |  | | | |  | |  | | |
| | | Weight (kg) | 0.33 | | | | 0.34 | | | | 0.4 | | 0.9 | | |
| | Demension (WxHxD) | 45×73.5×80.4 | | | | 45×73.5×87.4 | | | | 45×83×90 | | 55×106×119 | | | |
| Discontinued products | Meta-MEC MC | Current and power AC3 | 200~220V | - | - | - | 2.5kW 11A | 3.5kW 13A | 4.5kW 18A | 5.5kW 22A | 7.5kW 32A | 11kW 40A | 15kW 55A | 18.5kW 65A | |
| | | | 380~440V | - | - | - | 4kW 9A | 5.5kW 12A | 7.5kW 18A | 11kW 22A | 15kW 32A | 18.5kW 40A | 22kW 50A | 30kW 65A | |
| | | | 500~550V | - | - | - | 4kW 7A | 7.5kW 12A | 15kW 13A | 18.5kW 22A | 22kW 28A | 30kW 32A | 33kW 43A | 60A | |
| | | Auxiliary (Standard) | - | | | | 1NO1NC | 1NO1NC | 1NO1NC | 1NO1NC | 2NO2NC | 2NO2NC | 2NO2NC | 2NO2NC | |
| | | Mounting size | - | | | |  | | | |  | |  | | |
| | | Weight (kg) | - | | | | 0.33 | | 0.37 | | 0.45 | | 1 | | |
| | Demension (WxHxD) | - | | | | 44×80×86.8 | | | | 68×82×94.6 | | 94×122×115.7 | | | |
| | Compatibility with Metasol | - | | | | ○ | | | | ▲ | | ▲ | | | |

Note) Marks of compatibility
 ○: can be compatible
 ▲: compatible when applied the bracket
 ×: can't be compatible(have to use bracket)

Meta-MEC and Metasol MS comparison table

| MC-75a | MC-85a | MC-100a | MC-130a | MC-150a | MC-185a | MC-225a | MC-265a | MC-330a | MC-400a | MC-500a | MC-630a | MC-800a |
|--------------|--------------|-----------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 22 kW 75A | 25kW 85A | 30kW 105A | 37kW 130A | 45kW 150A | 55kW 185A | 75kW 225A | 80kW 265A | 90kW 330A | 125kW 400A | 147kW 500A | 190kW 630A | 220kW 800A |
| 37 kW 75A | 45kW 85A | 55kW 105A | 60kW 130A | 75kW 150A | 90kW 185A | 132kW 225A | 147kW 265A | 160kW 330A | 200kW 400A | 265kW 500A | 330kW 630A | 440kW 800A |
| 37 kW 64A | 45 kW 75A | 55kW 85A | 60kW 90A | 70kW 100A | 110kW 180A | 132kW 200A | 147kW 225A | 160kW 280A | 225kW 350A | 265kW 400A | 330kW 500A | 500kW 720A |
| - | - | 2NO2NC | | 2NO2NC | | 2NO2NC | | 2NO2NC | | 2NO2NC | | |
| | | | | | | | | | | | | |
| 1.6 | 2.4 | 5.4 | | 9.2 | | 22.4 | | | | | | |
| 70x140x135.8 | | 95x158x130.3 | | 138x203x185.1 | | 163x243x204.4 | | 285x312x245.3 | | | | |
| GMC-75 | GMC-85 | GMC-100 | GMC-125 | GMC-150 | GMC-180 | GMC-220 | - | GMC-300 | GMC-400 | - | GMC-600 | GMC-800 |
| 22kW 75A | 25kW 85A | 30kW 105A | 37kW 125A | 45kW 150A | 55kW 180A | 75kW 250A | - | 90kW 300A | 125kW 400A | - | 190kW 630A | 220kW 800A |
| 37kW 75A | 45kW 85A | 55kW 105A | 60kW 120A | 75kW 150A | 90kW 180A | 132kW 250A | - | 160kW 300A | 200kW 400A | - | 330kW 630A | 440kW 800A |
| 37kW 64A | 45kW 75A | 55kW 85A | 60kW 90A | 90kW 140A | 110kW 180A | 132kW 200A | - | 160kW 250A | 225kW 350A | - | 330kW 500A | 500kW 720A |
| 2NO2NC | 2NO2NC | 2NO2b | 2NO2NC | 2NO2NC | 2NO2NC | 2NO2NC | - | 2NO2NC | 2NO2NC | - | 2NO2NC | 2NO2NC |
| | | | | | | | | | | | | |
| 1 | 2.9 | 3.4 | 5.4 | - | 9.2 | - | 22 | | | | | |
| 94x122x115.7 | | 100x157.4x146.5 | | 120x166x157 | | 138x203x181 | | 163x243x198 | | 285x290x242 | | |
| ▲ | × | × | ○ | - | ○ | - | ○ | | | | | |

| | | Type | MS-6a | MS-9a | MS-12a | MS-18a | MS-9b | MS-12b | MS-18b | MS-22b | MS-32a | MS-40a | MS-50a | MS-65a | |
|----------------------------|----------------------|-----------------------|-----------------------------------------------------------------------------------|-------------|--------------|--------------|--------------------------------------------------------------------------------------|--------------|--------------|--------------|---------------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------------|-------------|---------------|
| Manufactured products | Metasol MC | Current and power AC3 | 200~240V | 2.2kW 9A | 2.5kW 11A | 3.5kW 13A | 4.5kW 18A | 2.5kW 11A | 3.5kW 13A | 4.5kW 18A | 5.5kW 22A | 7.5kW 32A | 11kW 40A | 15kW 55A | 18.5kW 65A |
| | | | 380~440V | 3kW 7A | 4kW 9A | 5.5kW 12A | 7.5kW 18A | 4kW 9A | 5.5kW 12A | 7.5kW 18A | 11kW 22A | 15kW 32A | 18.5kW 40A | 22kW 50A | 30kW 65A |
| | | | 500~550V | 3kW 6A | 4kW 7A | 7.5kW 12A | 7.5kW 13A | 4kW 7A | 7.5kW 12A | 7.5kW 13A | 15kW 20A | 18.5kW 28A | 22kW 32A | 30kW 43A | 33kW 60A |
| | Auxiliary (Standard) | | 1NO or 1NC | | | | 1NO1NC | | | | - | | - | | |
| | Mounting size | |  | | | |  | | | |  | |  | | |
| | Weight (kg) | | 0.5 | | | | 0.5 | | | | 0.7 | | 1.5 | | |
| | Demension (WxHxD) | | 45×124×80.4 | | | | 45×129.9×87.4 | | | | 45×139.4×90 | | 55×163.8×119 | | |
| Discontinued products | Meta-MEC MC | Current and power AC3 | 200~220V | - | | | | 2.5kW 11A | 3.5kW 13A | 4.5kW 18A | 5.5kW 22A | 7.5kW 32A | 11kW 40A | 15kW 55A | 18.5kW 65A |
| | | | 380~440V | - | | | | 4kW 9A | 5.5kW 12A | 7.5kW 18A | 11kW 22A | 15kW 32A | 18.5kW 40A | 22kW 50A | 30kW 65A |
| | | | 500~550V | - | | | | 4kW 7A | 7.5kW 12A | 7.5kW 13A | 15kW 22A | 18.5kW 28A | 22kW 32A | 30kW 43A | 33kW 60A |
| | Auxiliary (Standard) | | - | | | | 1NO1NC | 1NO1NC | 1NO1NC | 1NO1NC | 2NO2NC | 2NO2NC | 2NO2NC | 2NO2NC | |
| | Mounting size | | - | | | |  | | | |  | |  | | |
| | Weight (kg) | | - | | | | 0.46 | | 0.5 | | 0.45 | | 1.12 | | |
| | Demension (WxHxD) | | - | | | | 44×128.9×86.8 | | | | 68×136.5×94.6 | | 94×181.5×115.7 | | |
| Compatibility with Metasol | | - | | | | ○ | | | | × | | × | | | |

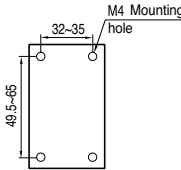
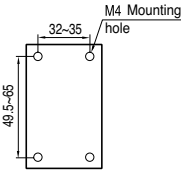
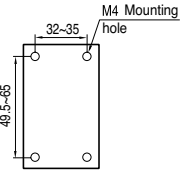
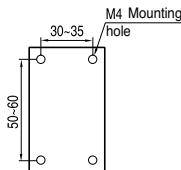
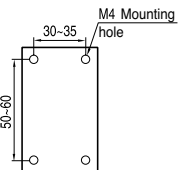
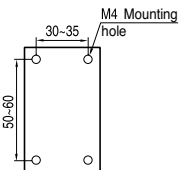
Note) Marks of compatibility

○: can be compatible

×: can't be compatible(have to use bracket)

Meta-MEC and Metasol relays comparison table

| MS-75a | MS-85a | MS-100a | MS-130a | MS-150a | MS-185a | MS-225a | MS-265a | MS-330a | MS-400a | MS-500a | MS-630a | MS-800a | |
|----------------|--------------|-----------------|--------------|-----------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|--|
| 22 kW 75A | 25kW 85A | 30kW 105A | 37kW 130A | 45kW 150A | 55kW 185A | 75kW 225A | 80kW 265A | 90kW 330A | 125kW 400A | 147kW 500A | 190kW 630A | 220kW 800A | |
| 37 kW 75A | 45kW 85A | 55kW 105A | 60kW 130A | 75kW 150A | 90kW 185A | 132kW 225A | 147kW 265A | 160kW 330A | 200kW 400A | 265kW 500A | 330kW 630A | 440kW 800A | |
| 37 kW 64A | 45 kW 75A | 55kW 85A | 60kW 90A | 70kW 100A | 110kW 180A | 132kW 200A | 147kW 225A | 160kW 280A | 225kW 350A | 265kW 400A | 330kW 500A | 500kW 720A | |
| - | - | 2NO2NC | | 2NO2NC | | 2NO2NC | | 2NO2NC | | 2NO2NC | | | |
| | | | | | | | | | | | | | |
| 2.4 | 3 | 7.9 | | 11.8 | | 28 | | | | | | | |
| 70x211.4x135.8 | | 95x236.2x130.3 | | 138x306.5x185.1 | | 163x380x204.4 | | 360x530x245.3 | | | | | |
| GMC-75 | GMC-85 | GMC-100 | GMC-125 | GMC-150 | GMC-180 | GMC-220 | - | GMC-300 | GMC-400 | - | GMC-600 | GMC-800 | |
| 22kW 75A | 25kW 85A | 30kW 105A | 37kW 125A | 45kW 150A | 55kW 180A | 75kW 250A | - | 90kW 300A | 125kW 400A | - | 190kW 630A | 220kW 800A | |
| 37kW 75A | 45kW 85A | 55kW 105A | 60kW 120A | 75kW 150A | 90kW 180A | 132kW 250A | - | 160kW 300A | 200kW 400A | - | 330kW 630A | 440kW 800A | |
| 37kW 64A | 45kW 75A | 55kW 85A | 60kW 90A | 90kW 140A | 110kW 180A | 132kW 200A | - | 160kW 250A | 225kW 350A | - | 330kW 500A | 500kW 720A | |
| 2NO2NC | 2NO2NC | 2NO2NC | 2NO2NC | 2NO2NC | 2NO2NC | 2NO2NC | - | 2NO2NC | 2NO2NC | - | 2NO2NC | 2NO2NC | |
| | | | | | | | | | | | | | |
| 1.12 | 3.4 | 4 | 7.9 | - | 11.8 | - | 28 | | | | | | |
| 94x181.5x115.7 | | 114x231.4x146.5 | | 120x206.4x157 | | 138x306.54x181 | | 163x380x198 | | 360x530x262 | | | |
| x | | x | | o | | - | | o | | - | | o | |

| | | Type | | MR-4 | MR-6 | MR-8 | |
|-----------------------|---------------|---------------------------|------------|------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Manufactured products | Metasol MR | Auxiliary (kW) | | 4NO, 3NO1NC, 2NO2NC 1NO3NC, 4NC | 6NO, 5NO1NC, 4NO2NC 3NO3NC, 2NO4NC | 8NO, 7NO1NC, 6NO2NC 5NO3NC, 4NO4NC | |
| | | Rated current (A) AC15 | 120 V | 6 | 6 | 6 | |
| | | | 240 V | 3 | 3 | 3 | |
| | | Mounting size | | |  |  |  |
| | | Demension (WxHxD) | | | 45×73.5×79(96.6) | 45×73.5×109.6(127.2) | 45×73.5×109.6(127.2) |
| | | Weight (kg) | | | 0.284 | 0.315 | 0.339 |
| Discontinued products | GMR | Type | | GMR-4(D) | GMR-6(D) | GMR-8(D) | |
| | | Auxiliary (kW) | | 4NO, 3NO1NC, 2NO2NC 1NO3NC, 4NC | 6NO, 5NO1NC, 4NO2NC 3NO3NC, 2NO4NC | 8NO, 7NO1NC, 6NO2NC 5NO3NC, 4NO4NC | |
| | | Rated current (A) AC11 | AC110V | 6 | 6 | 6 | |
| | | | AC220V | 5 | 5 | 5 | |
| | | Mounting size | | |  |  |  |
| | | Demension (WxHxD) | | | 44×80×86.8(113.2) | 44×80×118.6(145) | 44×80×118.6(145) |
| Weight (kg) | | | 0.34(0.56) | 0.37(0.59) | 0.39(0.61) | | |

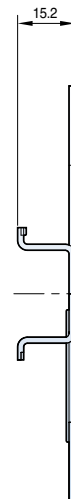
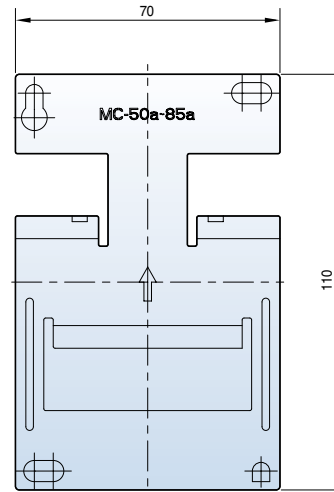
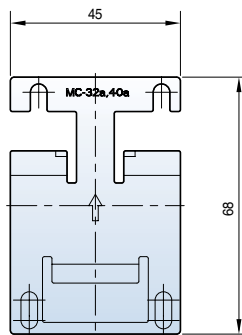
Meta-MEC and Metasol TOR comparison table

| Manufactured products | | Discontinued products | |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MT | | GTH (K) | |
| MT-12 | 0.14(0.1~0.16), 0.21(0.16~0.25), 0.33(0.25~0.4), 0.52(0.4~0.63), 0.82(0.63~1), 1.3(1~1.6), 2.1(1.6~2.5), 3.3(2.5~4), 5(4~6), 6.5(5~8), 7.5(6~9), 8.5(7~10), 11(9~13), 15(12~18), 19(16~22) | GTH(K)-22 | 0.14(0.1~0.16), 0.21(0.16~0.25), 0.33(0.25~0.4), 0.52(0.4~0.63), 0.82(0.63~1), 1.3(1~1.6), 2.1(1.6~2.5), 3.3(2.5~4), 5(4~6), 6.5(5~8), 7.5(6~9), 8.5(7~10), 11(9~13), 15(12~18), 19(16~22) |
| MT-32 | 0.14(0.1~0.16), 0.21(0.16~0.25), 0.33(0.25~0.4), 0.52(0.4~0.63), 0.82(0.63~1), 5(4~6), 6.5(5~8), 7.5(6~9), 8.5(7~10), 11(9~13), 15(12~18), 19(16~22), 22(18~26), 34(28~40) | GTH(K)-40 | 5(4~6), 6.5(5~8), 7.5(6~9), 8.5(7~10), 11(9~13), 15(12~18), 19(16~22), 22(18~26), 30(24~36), 34(28~40) |
| MT-63 | 5(4~6), 6.5(5~8), 7.5(6~9), 8.5(7~10), 11(9~13), 15(12~18), 19(16~22), 22(18~26), 30(24~36), 34(28~40), 42(34~50), 54(45~65) | GTH(K)-85 | 8.5(7~10), 11(9~13), 15(12~18), 19(16~22), 22(18~26), 30(24~36), 34(28~40), 42(34~50), 55(45~65), 65(54~75), 74(63~85) |
| MT-95 | 8.5(7~10), 11(9~13), 15(12~18), 19(16~22), 22(18~26), 30(24~36), 34(28~40), 42(34~50), 54(45~65), 65(54~75), 74(63~85), 83(70~95), 90(80~100) | GTH(K)-100 | 41(34~50), 48(39~57), 56(43~65), 67(54~80), 80(65~100), 107(85~125) |
| MT-150 | 42(34~50), 55(45~65), 65(54~75), 74(63~85), 93(80~105), 113(95~130), 130(110~150) | GTH(K)-150 | 41(34~50), 48(39~57), 56(43~65), 67(54~80), 80(65~100), 107(85~125), 130(100~150) |
| MT-225 | 80(65~100), 107(85~125), 130(100~160), 153(120~185), 200(160~240) | GTH(K)-220 | 80(65~100), 107(85~125), 130(100~160), 150(120~180), 200(160~240) |
| MT-400 | 107(85~125), 130(100~160), 153(120~185), 200(160~240), 265(200~330), 350(260~400) | GTH(K)-400 | 107(85~125), 130(100~160), 150(120~180), 200(160~240), 250(200~300), 350(260~400) |
| MT-800 | 265(200~300), 350(260~400), 515(400~630), 660(520~800) | GTH(K)-600 | 250(200~300), 350(260~400), 500(400~600), 660(520~800) |









Compatibility bracket

- Mounting Metasol MC on Din-Rail of bracket after install the bracket on panel
- Please use compatibility bracket when replace from Meta-MEC to Metasol MC without to change of panel size

| | MP-40 | MP-85 |
|-----------------------|------------|------------|
| Manufactured products | MC-32a~40a | MC-50a~85a |
| Discontinued products | GMC-32~40 | GMC-50~85 |











Certifications

| Type | | Approvals | | | | | Certificates | | |
|----------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Certificate | | - | IEC | UL | CSA | GB | IEC | | KEPIC |
| Mark and name | |  |  |  |  |  |  |  |  |
| Type | | Korea | CE Europe | U.S.A & cUL U.S.A & Canada | CSA Canada | CCC China | KEMA Netherlands | DEMKO Denmark | Korea |
| Metasol Contactors | MC-6a | ● | ● | ● | ● | ● | ● | | ● |
| | MC-9a | ● | ● | ● | ● | ● | ● | | ● |
| | MC-12a | ● | ● | ● | ● | ● | ● | | ● |
| | MC-18a | ● | ● | ● | ● | ● | ● | | ● |
| | MC-9b | ● | ● | ● | ● | ● | ● | | ● |
| | MC-12b | ● | ● | ● | ● | ● | ● | | ● |
| | MC-18b | ● | ● | ● | ● | ● | ● | | ● |
| | MC-22b | ● | ● | ● | ● | ● | ● | | ● |
| | MC-32a | ● | ● | ● | ● | ● | ● | | ● |
| | MC-40a | ● | ● | ● | ● | ● | ● | | ● |
| | MC-50a | ● | ● | ● | ● | ● | ● | | ● |
| | MC-65a | ● | ● | ● | ● | ● | ● | | ● |
| | MC-75a | ● | ● | ● | ● | ● | ● | | ● |
| | MC-85a | ● | ● | ● | ● | ● | ● | | ● |
| | MC-100a | ● | ● | ● | ● | ● | ● | | ● |
| | MC-130a | ● | ● | ● | ● | ● | ● | | ● |
| | MC-150a | ● | ● | ● | ● | ● | ● | | ● |
| | MC-185a | ● | ● | ● | ● | ● | ● | | ● |
| | MC-225a | ● | ● | ● | ● | ● | ● | | ● |
| | MC-265a | ● | ● | ● | ● | ● | ● | | ● |
| | MC-330a | | ● | ● | ● | ● | ● | | ● |
| | MC-400a | | ● | ● | ● | ● | ● | | ● |
| | MC-500a | | ● | ● | ● | ● | ● | | ● |
| | MC-630a | | ● | ● | ● | ● | ● | | ● |
| MC-800a | | ● | ● | ● | ● | ● | | ● | |
| MC-1260a | | ● | ● | ● | ● | ● | | ● | |
| MC-1400a | | ● | ● | ● | ● | ● | ● | ● | |
| MC-1700a | | ● | ● | ● | ● | ● | ● | ● | |
| MC-2100a | | ● | ● | ● | ● | ● | ● | ● | |
| Thermal Overload Relays Nondifferential (2-heater) | MT-12/2H | | ● | ● | ● | ● | ● | | ● |
| | MT-32/2H | | ● | ● | ● | ● | ● | | ● |
| | MT-63/2H | | ● | ● | ● | ● | ● | | ● |
| | MT-95/2H | | ● | ● | ● | ● | ● | | ● |
| | MT-150/2H | | ● | ● | ● | ● | ● | | ● |
| | MT-225/2H | | ● | ● | ● | ● | ● | | ● |
| | MT-400/2H | | ● | ● | ● | ● | ● | | ● |
| Thermal Overload Relays Nondifferential (3-heater) | MT-12/3H | | ● | ● | ● | ● | ● | | ● |
| | MT-32/3H | | ● | ● | ● | ● | ● | | ● |
| | MT-63/3H | | ● | ● | ● | ● | ● | | ● |
| | MT-95/3H | | ● | ● | ● | ● | ● | | ● |
| | MT-150/3H | | ● | ● | ● | ● | ● | | ● |
| | MT-225/3H | | ● | ● | ● | ● | ● | | ● |
| | MT-400/3H | | ● | ● | ● | ● | ● | | ● |
| Thermal Overload Relays Differential | MT-12/3K | | ● | ● | ● | ● | ● | | ● |
| | MT-32/3K | | ● | ● | ● | ● | ● | | ● |
| | MT-63/3K | | ● | ● | ● | ● | ● | | ● |
| | MT-95/3K | | ● | ● | ● | ● | ● | | ● |
| | MT-150/3K | | ● | ● | ● | ● | ● | | ● |
| | MT-225/3K | | ● | ● | ● | ● | ● | | ● |
| | MT-400/3K | | ● | ● | ● | ● | ● | | ● |
| Thermal Overload Relays Class 20 | MT-800/3K | | ● | ● | ● | ● | ● | | ● |
| | MT-12/3D | | ● | ● | ● | ● | ● | | ● |
| | MT-32/3D | | ● | ● | ● | ● | ● | | ● |
| | MT-63/3D | | ● | ● | ● | ● | ● | | ● |
| | MT-95/3D | | ● | ● | ● | ● | ● | | ● |
| | MT-150/3D | | ● | ● | ● | ● | ● | | ● |
| MT-225/3D | | ● | ● | ● | ● | ● | | ● | |
| MT-400/3D | | ● | ● | ● | ● | ● | | ● | |
| MT-800/3D | | ● | ● | ● | ● | ● | | ● | |

Note) ● : Completion

Marine certifications

| Type | | Approvals | | | | | | | |
|----------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| | |  KR Korea |  LR U.K |  BV France |  GL Germany |  DNV Norway |  ABS U.S.A |  NK Japan |  RINA Italy |
| Metasol Contactors | MC-6a | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-9a | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-12a | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-18a | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-9b | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-12b | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-18b | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-22b | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-32a | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-40a | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-50a | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-65a | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-75a | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-85a | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-100a | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-130a | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-150a | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-185a | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-225a | ● | ● | ● | ● | ● | ● | ● | ● |
| | MC-265a | ● | ● | ● | ● | ● | ● | ● | ● |
| Thermal Overload Relays Nondifferential (2-heater) | MT-12/2H | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-32/2H | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-63/2H | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-95/2H | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-150/2H | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-225/2H | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-400/2H | ● | ● | ● | ● | ● | ● | ● | ● |
| Thermal Overload Relays Nondifferential (3-heater) | MT-12/3H | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-32/3H | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-63/3H | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-95/3H | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-150/3H | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-225/3H | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-400/3H | ● | ● | ● | ● | ● | ● | ● | ● |
| Thermal Overload Relays Differential | MT-12/3K | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-32/3K | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-63/3K | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-95/3K | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-150/3K | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-225/3K | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-400/3K | ● | ● | ● | ● | ● | ● | ● | ● |
| Thermal Overload Relays Class 20 | MT-12/3D | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-32/3D | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-63/3D | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-95/3D | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-150/3D | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-225/3D | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-400/3D | ● | ● | ● | ● | ● | ● | ● | ● |
| | MT-800/3D | ● | ● | ● | ● | ● | ● | ● | ● |

Note) ●: Completion

Memo



Safety Instructions

- For your safety, please read user's manual thoroughly before operating.
- Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact qualified service technician when you need maintenance. Do not disassemble or repair by yourself!
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.



- According to The WEEE Directive, please do not discard the device with your household waste.



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