

Beyond X™

Meta-MEC Mini Contactors & Overload Relays



vector Energy

LS ELECTRIC

Meta-MEC
Mini Contactors & Overload Relays

Customer satisfaction with world-class products and services: LS Electric is committed to excellence!

We are committed to global product development and market expansion, driving future growth, as well as consolidating existing business.
Join us in a future where LS Electric will become a genuine global leader.



Screw clamp type

Fast-on type

Cage clamp type



Solder pin type



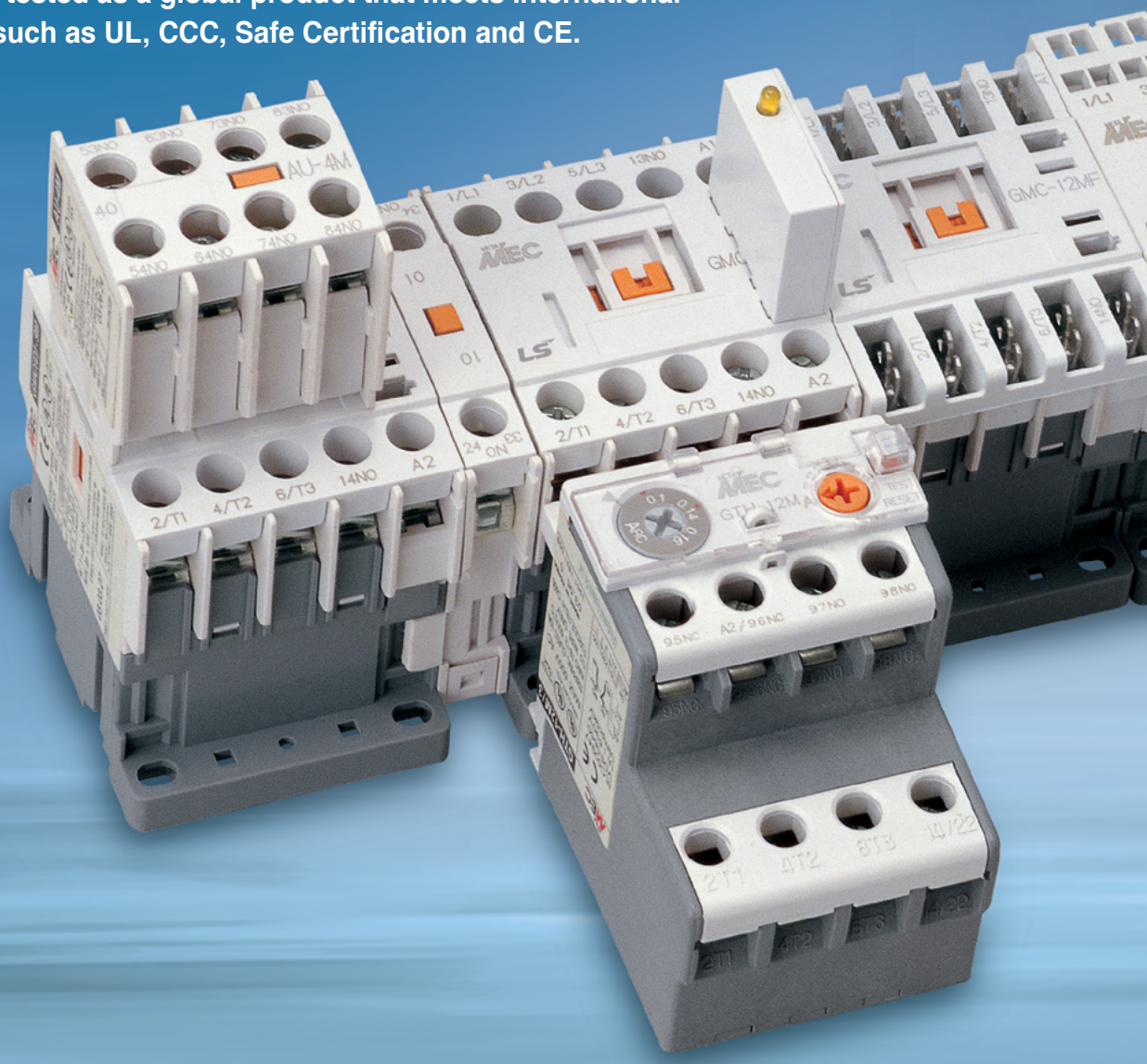
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Compact & Space Saving

LS Mini contactors & starters

LS Mini contactors and starters are suitable for switching and protection of small motors up to 7.5kW, lights and electric heating circuits. KEMA type tested as a global product that meets international standards such as UL, CCC, Safe Certification and CE.





LS Mini -contactors and starters

Suitable for switching and protection of motors, capacitor banks, lights and more in AC circuit.

The products provide the convenience of connection and mounting by terminal options such as Cage clamp, Fast-on, Solder pin and Screw Terminal.
Dedicated thermal style overload relay can be easily attached for motor protection.
Various accessories are also available, including surge unit, timer unit and auxiliary contact unit.

These products can be driven from the output of PLC.
Low power consumption type contactor is available for this purpose, which requires no relay between contactor and PLC.



Environmental conditions

- Ambient temperature: -5 ~ 40°C (standard 20°C)
- Max. temp. inside a panel: 55°C
- Relative humidity: 45 ~ 85% RH
  Altitude: max. 2,000m
- Vibration: 10 ~ 55Hz, 2g
- Shock resistance: 5g
- Storage temperature: -30 ~ 65°C

Reference standards

- IEC 60947-4-1
- IEC 60947-5-1
- IEC 60947-1
- UL 508

Certification

- ISO 9001, ISO 14001
- UL, CE, safety certification, CCC

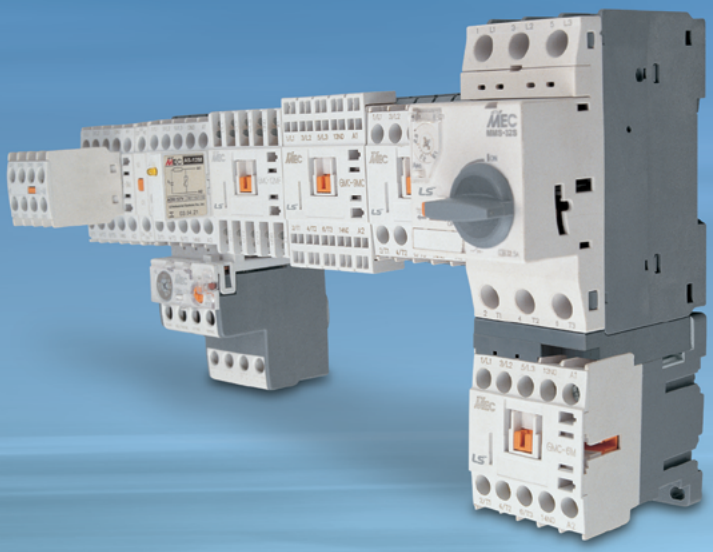


Low Consumption

**The low power consumption type contactor, a product that combines the advantages of the relay and the magnetic contactor, can be driven directly by the small output of the PLC.
As a result, the relay and space in the panel are not required.**

Direct driving by:

- **PLC output contact**
- **Photoelectric switch and proximity switch**
- **Transistor output of various detection**

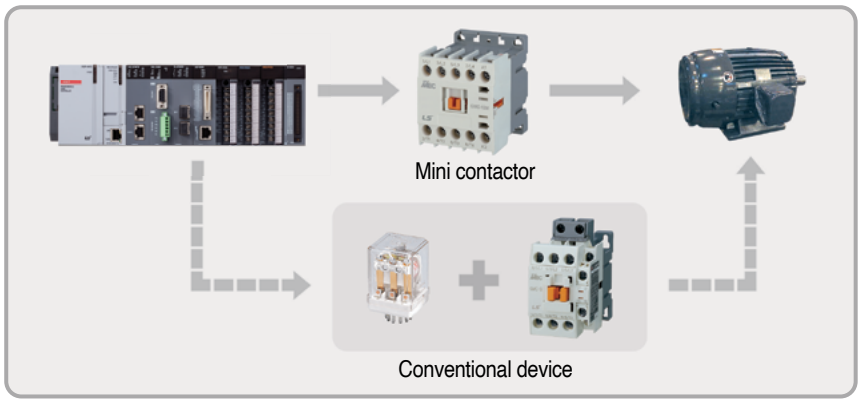


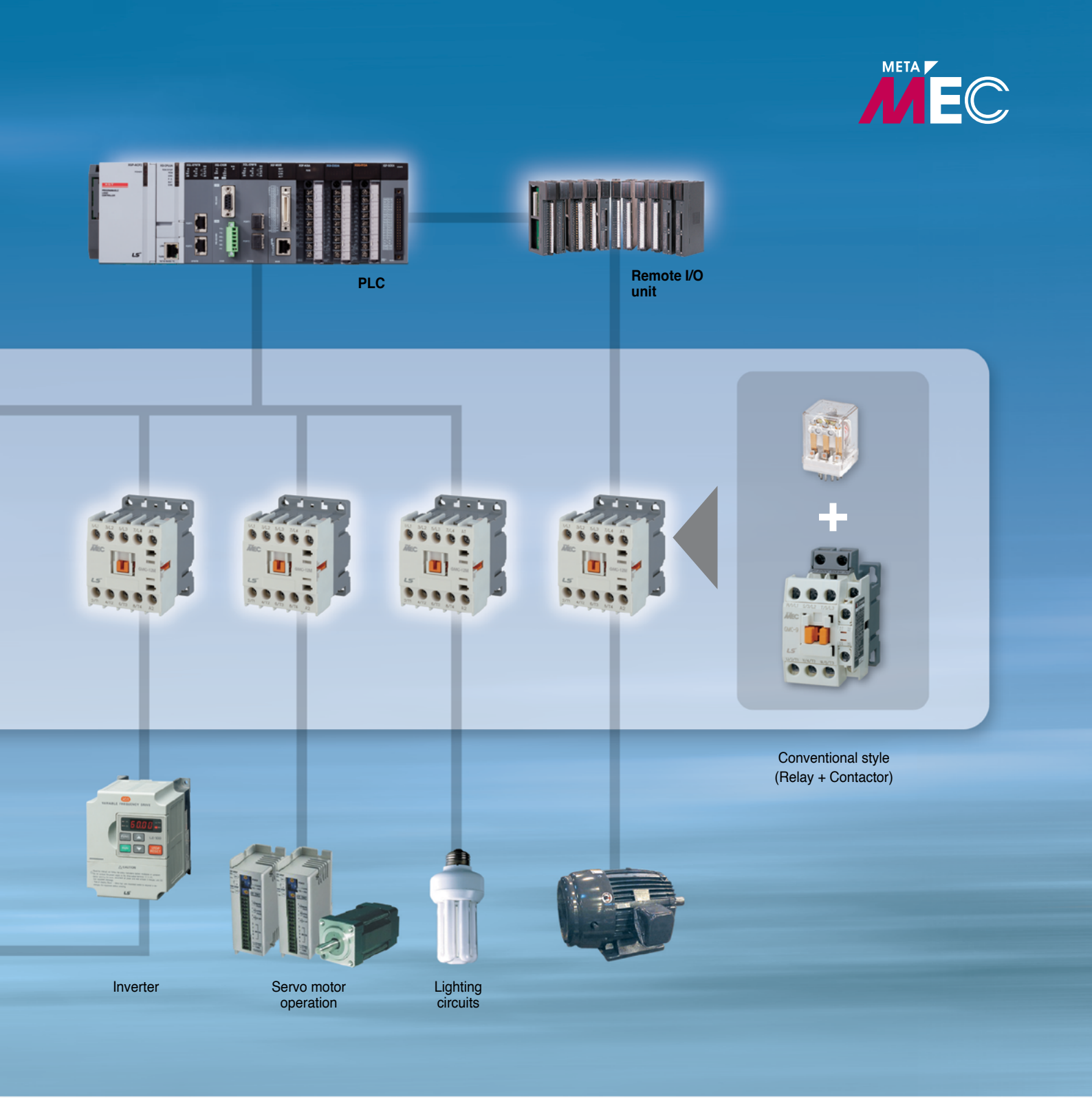




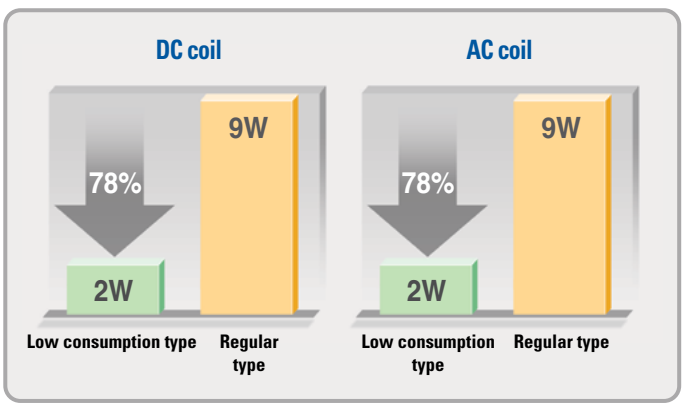
AC 380V
7.5kW
16A
or under

Direct driving by PLC output





Reduced power consumption rate

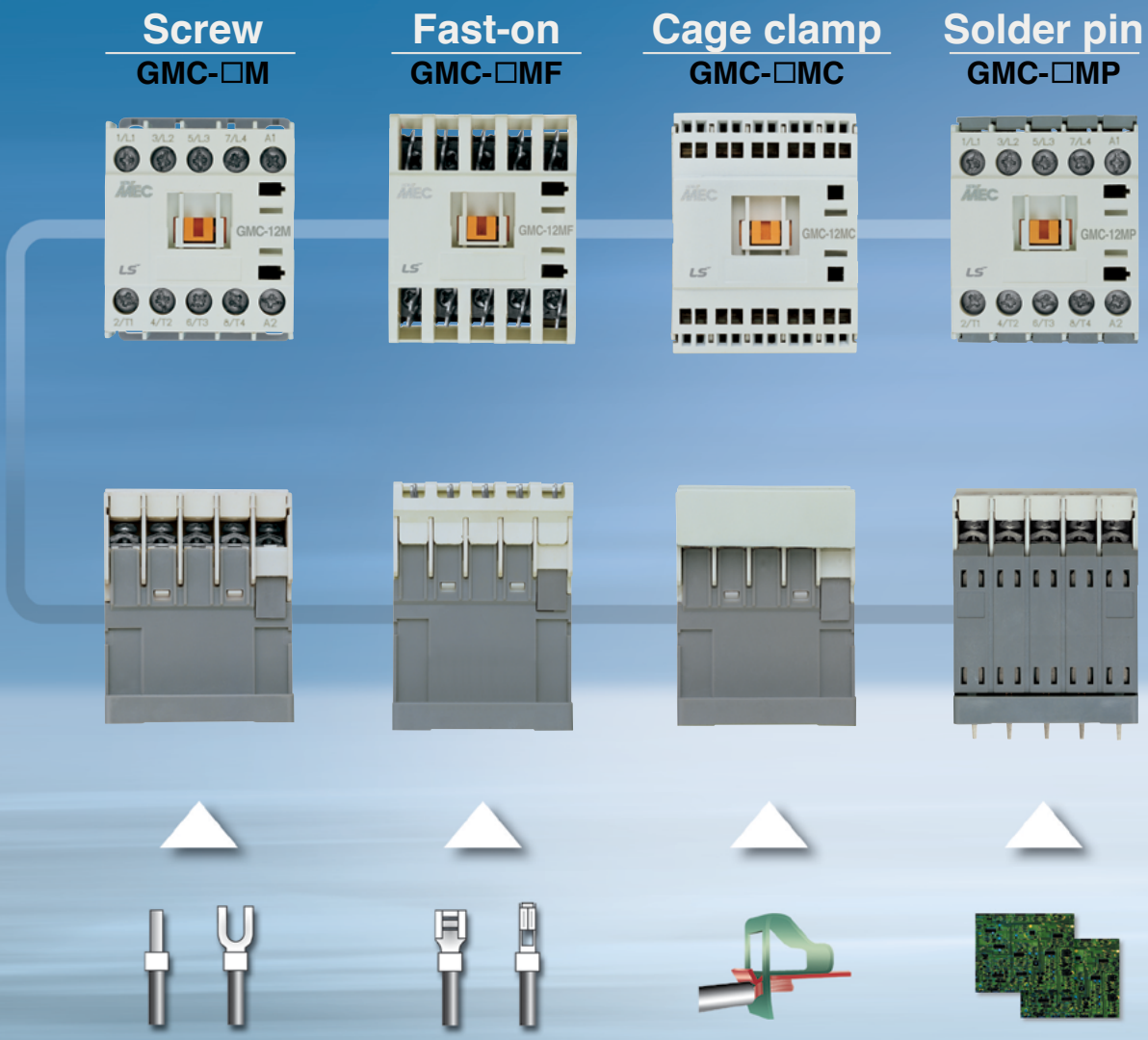


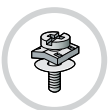
Control coil characteristics

Coil Type		AC coil (50/60Hz)	DC	
			Regular	Wide
Power consumption (W)		2	3	2
Control voltage (V)		24~550	12~550	12, 20, 24, 48, 72, 110, 120
Operation voltage (%)	Pick-up	80 or under	75 or under	70 or under
	Release	20 or over	12 or over	12 or over
Operation time (ms)	Coil ON ➡ Contact ON	20 or under	50 or under	50 or under
	Coil OFF ➡ Contact OFF	45 or under	45 or under	45 or under

Convenience

Four terminal options for various applications





Screw terminal
Standard type with M3 screw for connection with a ring or U type terminal



Fast-on terminal
Plug-in style for connection with a quick-connector. (2.8×0.8t/6.3×0.8t common)



Cage clamp terminal
Suitable for direct wire connection



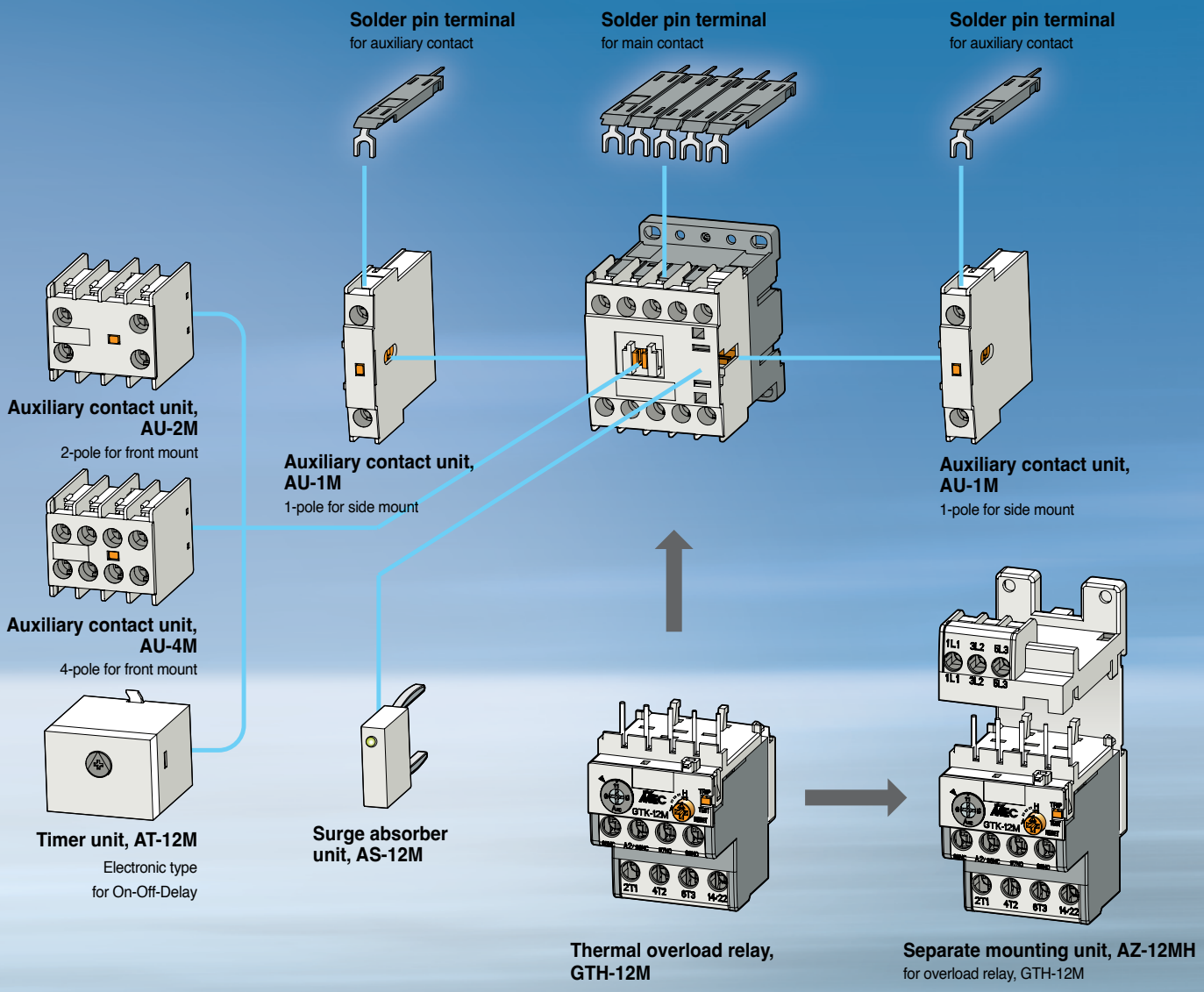
Solder pin terminal
For mounting on PCB

Auxiliary contact units

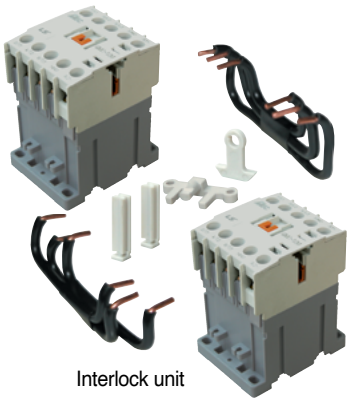
Item	Screw	Fast-on	Cage clamp	Solder pin
Side mount				
2-pole, Front mount				×
4-pole, Front mount				×

Variety

Accessories



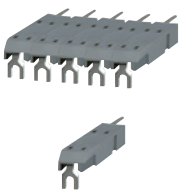

Surge absorber unit


Interlock unit


Timer unit

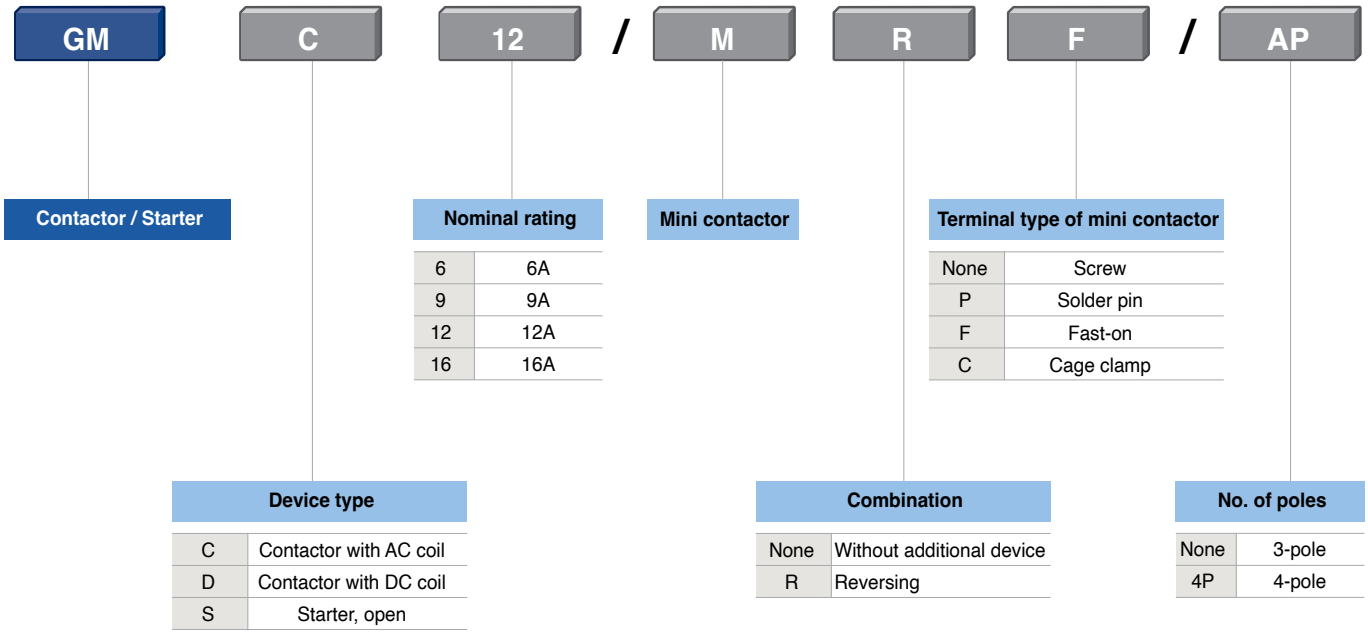


Relay separate mounting unit


Solder pin terminal

Catalog numbering system

Contactors & Starters



Nominal rating	
6	6A
9	9A
12	12A
16	16A

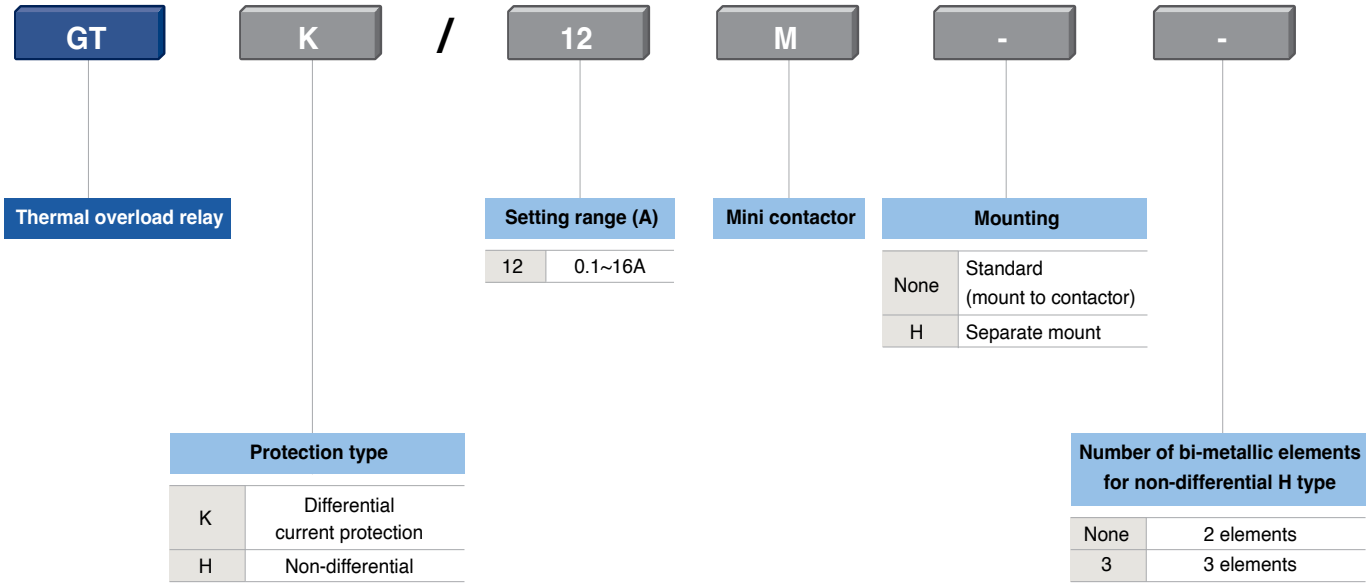
Terminal type of mini contactor	
None	Screw
P	Solder pin
F	Fast-on
C	Cage clamp

Device type	
C	Contactor with AC coil
D	Contactor with DC coil
S	Starter, open

Combination	
None	Without additional device
R	Reversing

No. of poles	
None	3-pole
4P	4-pole

Thermal overload relay



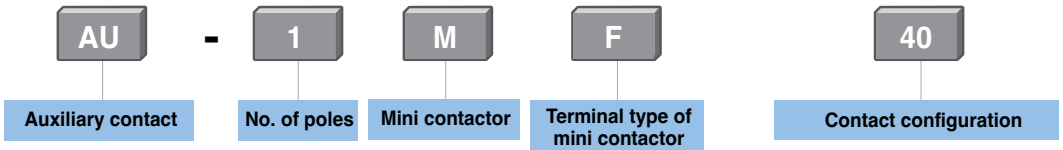
Setting range (A)	
12	0.1~16A

Mounting	
None	Standard (mount to contactor)
H	Separate mount

Protection type	
K	Differential current protection
H	Non-differential

Number of bi-metallic elements for non-differential H type	
None	2 elements
3	3 elements

Auxiliary contact



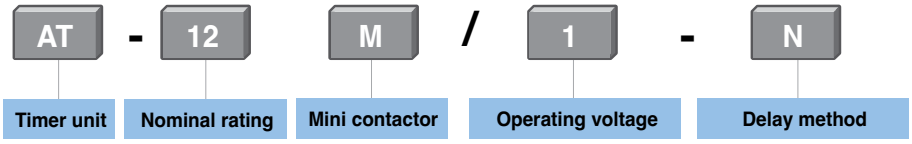
1	1-pole
2	2-pole
3	3-pole

None	Screw
F	Fast-on
C	Cage clamp

10	1a	40	4a
01	1b	31	3a1b
20	2a	22	2a2b
11	1a1b	13	1a3b
02	2b	04	4b

Note) 1. Solder pin unit (AP-1M (D)) must be purchased separately for the auxiliary contact for solder pin mini contactor.

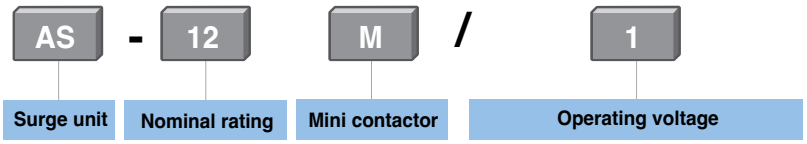
Timer unit



1	AC/DC 24~48V
2	AC 100~200V

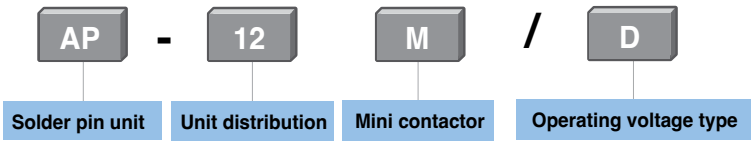
N	ON Delay
F	OFF Delay

Surge unit



1	AC 24~48V	4	DC 12~24V
2	AC 60~127V	5	DC 30~72V
3	AC 200~240V	6	DC 100~127V
		7	DC 200~250V

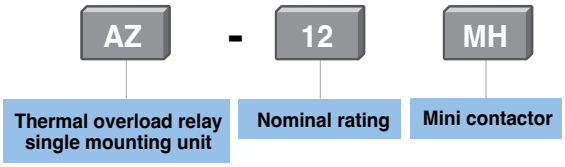
Solder pin unit



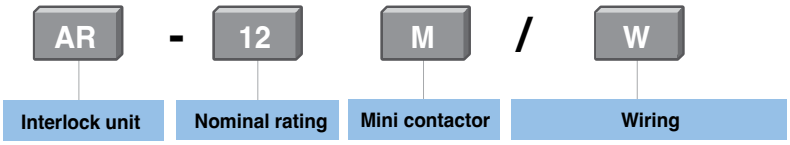
1	Auxiliary
12	Contactor

None	AC
D	DC

Single mounting unit



Interlock unit



None	No wiring
W	Wiring Included

Quick selection table

Mini contactors

- 3NO main contacts
  (with 1 aux. contact)
- 4NO main contacts
- 2NO2NC main contacts


Screw clamp type


Fast-on type


Cage clamp type


Solder pin type

Frame size		6A		9A		12A		16A	
Screw clamp type	AC coil	GMC-6M		GMC-9M		GMC-12M		GMC-16M	
	DC coil	GMD-6M		GMD-9M		GMD-12M		GMD-16M	
Fast-on type	AC coil	GMC-6MF		GMC-9MF		GMC-12MF		GMC-16MF	
	DC coil	GMD-6MF		GMD-9MF		GMD-12MF		GMD-16MF	
Cage clamp type	AC coil	GMC-6MC		GMC-9MC		GMC-12MC		GMC-16MC	
	DC coil	GMD-6MC		GMD-9MC		GMD-12MC		GMD-16MC	
Solder pin type	AC coil	GMC-6MP		GMC-9MP		GMC-12MP		GMC-16MP	
	DC coil	GMD-6MP		GMD-9MP		GMD-12MP		GMD-16MP	
Ratings / IEC60947-4		kW	A	kW	A	kW	A	kW	A
AC1			**20**		**20**		**20**		**20**
AC3	200/240V	1.5	7	2.2	9	3	12	4	16
	380/440V	**2.2**	**6**	**4**	**9**	**5.5**	**12**	**7.5**	**16**
	500/550V	3	5	3.7	6	4	7	5.5	9
	690V	3	4	4	5	4	5	4	5
Ratings / UL508		hp	A	hp	A	hp	A	hp	A
Continuous current		Ith = 20A (maximum for cage clamp type is 10A)							
Single phase	120V	1/2		1/2		1 *		-	
	230V/240V	1		1.5		2 * *		-	
Three phase	240V	1.5		3		3		-	
	480V	3		5		7.5 * * *		-	
	600V	3		5		7.5		-	
		Wire Range : Copper, 75°C, Stranded, 18-12AWG							
NEMA size		00		00		00		0	

Additional auxiliary contacts

	Screw clamp type	Fast-on type	Cage clamp type	Solder pin type
2-pole, Front mount	AU-2M 	AU-2MF 	AU-2MC 	
4-pole, Front mount	AU-4M 	AU-4MF 	AU-4MC 	AU-1MP 
2-pole, Side mount	AU-1M 	AU-1MF 	AU-1MC 	

*0.5 hp for Cage clamp type
**1.5 hp for Cage clamp type
***5 hp for Cage clamp type
16AF: Not UL approved

Overload Relays

Bimetallic style Type GT Class 10A	 GT-12M	**Setting ranges (A)**: 0.1 - 0.16, 0.16 - 0.25, 0.25 - 0.4, 0.4 - 0.63, 0.63 - 1, 1 - 1.6, 1.6 - 2.5, 2.5 - 4, 4 - 6, 5 - 8, 6 - 9, 7 - 10, 9 - 13, 12 - 16  Base for separate mount
Differential	GTK-12M	
Non-differential (3-heater)	GTH-12M/3	
Non-differential (2-heater)	GTH-12M	

AC coil

Contactors

- Motor control applications
- 3NO main contacts (with 1 aux. contact)
- 4NO main contacts
- 2NO2NC main contacts
- AC coil voltage



Screw clamp connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMC-6M
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMC-9M
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMC-12M
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMC-16M



Fast-on connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMC-6MF
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMC-9MF
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMC-12MF
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMC-16MF

Coil voltage, AC 50/60Hz
24, 36, 42, 48, 110, 115, 120, 127, 200 / 208, 220, 220 / 230, 230 / 240, 256, 277, 380 / 400
400, 440, 480, 500, 550V AC

Performance (at 440VAC)

Frame size	6A	9A	12A	16A
Operation current	6A	9A	12A	16A
Making current	72A	108A	144A	180A
Breaking current	60A	90A	120A	150A
Operation cycle	1800 operations/hour			
Endurance	• Electrical : 1 mil. operations • Mechanical : 10 mil. operations			

Note: 16A frame is not UL listed item.

Coil characteristics

Coil voltage		AC
Coil consumption	(W)	2
Inrush		32VA
Sealed		6VA
Closing voltage	(%)	80~110
Opening voltage	(%)	20~40
Closing time	(ms)	10~20
Opening time	(ms)	35~45

Certificate
CE, ULcUL

AC coil

Contactors

- Motor control applications
- 3NO main contacts (with 1 aux. contact)
- 4NO main contacts
- 2NO2NC main contacts
- AC coil voltage



Cage clamp connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMC-6MC
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMC-9MC
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMC-12MC
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMC-16MC



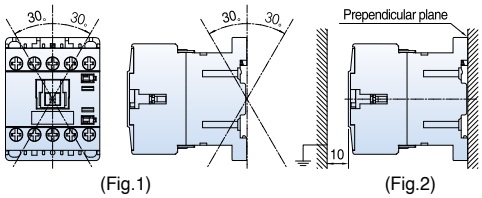
Solder pin connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMC-6MP
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMC-9MP
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMC-12MP
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMC-16MP

Coil voltage, AC 50/60Hz
24, 36, 42, 48, 110, 115, 120, 127, 200 / 208, 220, 220 / 230, 230 / 240, 256, 277, 380 / 400
400, 440, 480, 500, 550V AC

Ordering information
Type, Auxiliary contact and Coil voltage

Caution



(Fig.1) (Fig.2)

* For even installation direction refer to Fig.1
Keep the distance more than 0.39 in.(10mm) with arc space, as shown in Fig.2

Certificate
CE, ULcUL

DC coil

Contactors

- Motor control applications
- 3NO main contacts (with 1 aux. contact)
- 4NO main contacts
- 2NO2NC main contacts
- DC coil voltage



Screw clamp connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMD-6M
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMD-9M
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMD-12M
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMD-16M



Fast-on connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMD-6MF
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMD-9MF
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMD-12MF
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMD-16MF

Coil voltage, DC
① Standard type : 12, 20, 24, 36, 42, 48, 60, 72, 110, 120, 125, 220, 240, 250V DC
② Wide Voltage : 12, 20, 24, 48, 72, 110, 12V DC(Wide)

Ordering information
Type, Auxiliary contact and Coil voltage

Coil characteristics

Coil voltage		DC		
		Standard	Low consumption	Wide voltage
Coil consumption	(W)	3	1.2	2
Inrush		3W	1.2W	2W
Sealed		3W	1.2W	2W
Closing voltage	(%)	80~110	80~125	70~125
Opening voltage	(%)	10~30	10~30	10~30
Closing time	(ms)	40~50	40~50	40~50
Opening time	(ms)	35~45	35~45	35~45

Certificate
CE, ULcUL

DC coil

Contactors

- Motor control applications
- 3NO main contacts (with 1 aux. contact)
- 4NO main contacts
- 2NO2NC main contacts
- DC coil voltage



Cage clamp connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMD-6MC
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMD-9MC
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMD-12MC
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMD-16MC



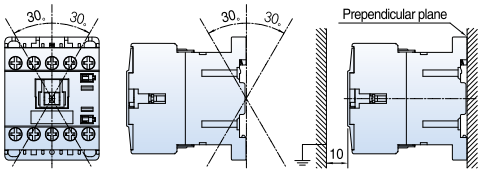
Solder pin connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMD-6MP
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMD-9MP
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMD-12MP
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMD-16MP

Coil voltage, DC
① Standard type : 12, 20, 24, 36, 42, 48, 60, 72, 110, 120, 125, 220, 240, 250V DC
② Wide Voltage : 12, 20, 24, 48, 72, 110, 12V DC(Wide)

Ordering information
Type, Auxiliary contact and Coil voltage

⚠ Caution



(Fig.1) (Fig.2)

*For even installation direction refer to Fig.1
Keep the distance more than 0.39 in.(10mm) with arc space, as shown in Fig.2

Certificate
CE, ULcUL

Motor starters, open

2.2kW ~ 7.5kW

Starters

- Open types
- Direct (Full voltage) types
- AC coil voltage
- Contactors : screw clamp connection types
- Overload relays : differential or non-differential types



AC coil contactor + Differential type overload relay

Devices combined		AC3 ratings (IEC60947-4)				Auxiliary contacts
Contactor (AC coil)	Overload (differential)	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V	
GMC-6M	GTK-12M	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	1NO or 1NC
GMC-9M	GTK-12M	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	1NO or 1NC
GMC-12M	GTK-12M	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	1NO or 1NC
GMC-16M	GTK-12M	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	1NO or 1NC

AC coil contactor + Non-differential type overload relay

Devices combined		AC3 ratings (IEC60947-4)				Auxiliary contacts
Contactor (AC coil)	Overload (differential)	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V	
GMC-6M	GTH-12M/3	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	1NO or 1NC
GMC-9M	GTH-12M/3	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	1NO or 1NC
GMC-12M	GTH-12M/3	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	1NO or 1NC
GMC-16M	GTH-12M/3	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	1NO or 1NC

Coil voltage, AC 50/60Hz
24, 36, 42, 48, 110, 115, 120, 127, 200 / 208, 220, 220 / 230, 230 / 240, 256, 277, 380 / 400
400, 440, 480, 500, 550V AC

Certificate
CE, ULcUL

Ordering information
Type, Auxiliary contact and Coil voltage
Overload relay setting range

Note: Pre-assembled starters are not available.
The contactor and overload relay must be purchased separately and assembled before use.

Mini contactors, Reversing type

6A ~ 16A / AC coil

Reversing contactors

- Motor control applications
- Mechanically interlocked
- AC coil voltage



Screw clamp connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMC-6MFR
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMC-9MFR
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMC-12MFR
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMC-16MFR



Fast-on connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMC-6MFR
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMC-9MFR
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMC-12MFR
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMC-16MFR

Coil voltage, AC 50/60Hz
24, 36, 42, 48, 110, 115, 120, 127, 200 / 208, 220, 220 / 230, 230 / 240, 256, 277, 380 / 400
400, 440, 480, 500, 550V AC

Ordering information
Type, Auxiliary contact and Coil voltage

Certificate
CE, ULcUL

Reversing contactors

- Motor control applications
- Mechanically interlocked
- AC coil voltage



Cage clamp connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMC-6MCR
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMC-9MCR
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMC-12MCR
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMC-16MCR



Solder pin connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMC-6MPR
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMC-9MPR
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMC-12MPR
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMC-16MPR

Coil voltage, AC 50/60Hz
24, 36, 42, 48, 110, 115, 120, 127, 200 / 208, 220, 220 / 230, 230 / 240, 256, 277, 380 / 400
400, 440, 480, 500, 550V AC

Ordering information
Type, Auxiliary contact and Coil voltage

Certificate
CE, ULcUL

Mini contactors, Reversing type 6A ~ 16A / DC coil

Reversing contactors

- Motor control applications
- Mechanically interlocked
- DC coil voltage



Screw clamp connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMD-6MR
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMD-9MR
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMD-12MR
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMD-16MR



Fast-on connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMD-6MFR
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMD-9MFR
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMD-12MFR
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMD-16MFR

Coil voltage, DC
① Standard type : 12, 20, 24, 36, 42, 48, 60, 72, 110, 120, 125, 220, 240, 250V DC
② Low consumption type : 12, 20, 24, 48, 72, 110, 120V DC(Low)
③ Wide Voltage : 12, 20, 24, 48, 72, 110, 12V DC(Wide)

Ordering information
Type, Auxiliary contact and Coil voltage

Certificate
CE, ULcUL

Reversing contactors

- Motor control applications
- Mechanically interlocked
- DC coil voltage



Cage clamp connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMD-6MCR
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMD-9MCR
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMD-12MCR
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMD-16MCR



Solder pin connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMD-6MSR
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMD-9MSR
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMD-12MSR
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMD-16MSR

Coil voltage, DC

① Standard type : 12, 20, 24, 36, 42, 48, 60, 72, 110, 120, 125, 220, 240, 250V DC
② Low consumption type : 12, 20, 24, 48, 72, 110, 120V DC(Low)
③ Wide Voltage : 12, 20, 24, 48, 72, 110, 12V DC(Wide)

Certificate
CE, ULcUL

Ordering information
Type, Auxiliary contact and Coil voltage

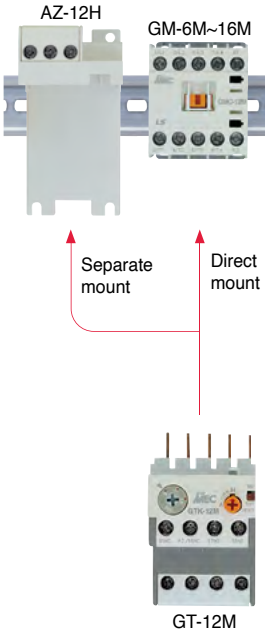
Bimetallic style



GT-12M

Description

- Direct mount on mini contactors with screw clamp connection
  Contactortypes: GMC(D)-6M,GMC(D)-9M,
  GMC(D)-12M,GMC(D)-16M
- DIN rail or screw mountable with AZ-22H optional base
- Small physical size: 1.73 in. (44mm) wide
- 1NO+1NC trip contacts
- Trip class: 10A (IEC60947-4-1)
- Differential current/Phase failure protection: GTK types
- Non-differential GTH types are available for economical solution
- Ambient compensated: -5 to 40 □
- Manual/Automatic reset convertible
- Remote reset is optional
- Trip-free design



GT-12M

Catalog No.

Setting ranges(A)	Differential type	Non-differential type	
	3-heater	3-heater	2-heater
0.1 - 0.16	GTK-12M • 0.14	GTH-12M/3 • 0.14	GTH-12M • 0.14
0.16 - 0.25	GTK-12M • 0.21	GTH-12M/3 • 0.21	GTH-12M • 0.21
0.25 - 0.4	GTK-12M • 0.33	GTH-12M/3 • 0.33	GTH-12M • 0.33
0.4 - 0.63	GTK-12M • 0.52	GTH-12M/3 • 0.52	GTH-12M • 0.52
0.63 - 1	GTK-12M • 0.82	GTH-12M/3 • 0.82	GTH-12M • 0.82
1 - 1.6	GTK-12M • 1.3	GTH-12M/3 • 1.3	GTH-12M • 1.3
1.6 - 2.5	GTK-12M • 2.1	GTH-12M/3 • 2.1	GTH-12M • 2.1
2.5 - 4	GTK-12M • 3.3	GTH-12M/3 • 3.3	GTH-12M • 3.3
4 - 6	GTK-12M • 5	GTH-12M/3 • 5	GTH-12M • 5
5 - 8	GTK-12M • 6.5	GTH-12M/3 • 6.5	GTH-12M • 6.5
6 - 9	GTK-12M • 7.5	GTH-12M/3 • 7.5	GTH-12M • 7.5
7 - 10	GTK-12M • 8.5	GTH-12M/3 • 8.5	GTH-12M • 8.5
9 - 13	GTK-12M • 12	GTH-12M/3 • 12	GTH-12M • 12
12 - 16	GTK-12M • 14	GTH-12M/3 • 14	GTH-12M • 14

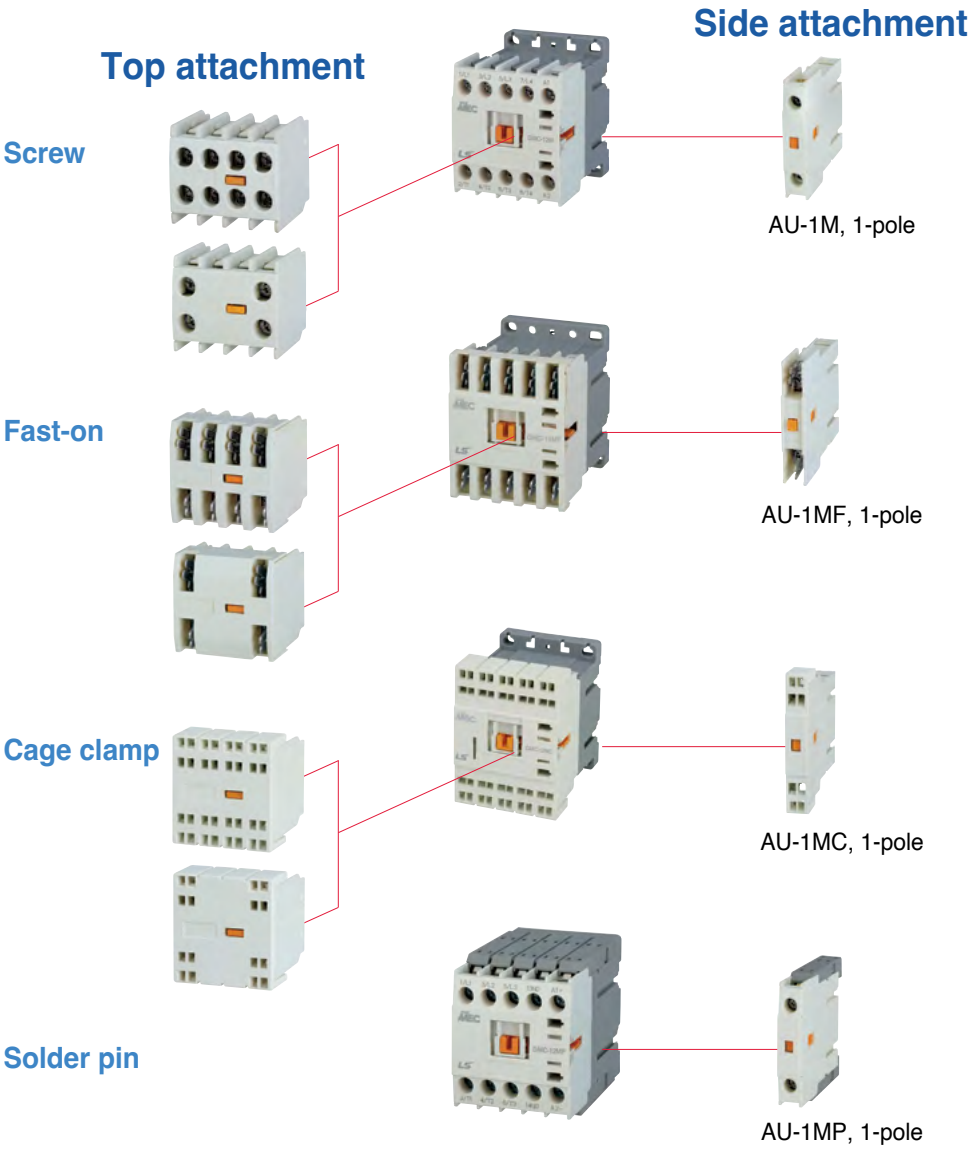
Certificate
CE, ULcUL

Auxiliary (Trip) contact rating

AC15(11) duty			DC13(11) duty	
110V	220V	550V	110V	220V
2.5(0.3)A	2(0.3)A	1(0.3)A	0.28A	0.14A

Note: Valuesin parentheses are NO contact rating sunder auto reset mode

Auxiliary contacts



Note:
1. Auxiliary contacts for side attachment can be extended up to 2 contacts
2. DC 3W operation coil can be extended up to 6 contacts
3. DC 2W operation coil can be extended up to 2 contacts

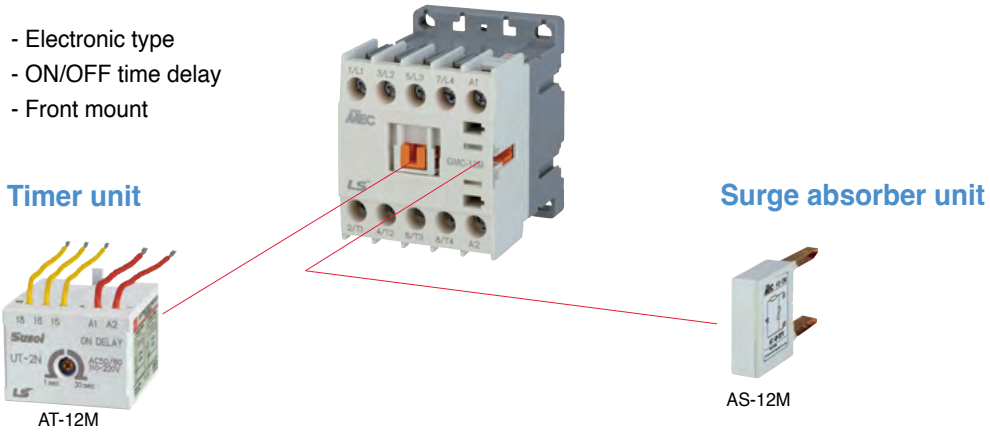
Auxiliary contact specifications

Type	Rated operating current(A)													Lifetime (10,000 times)		Notes
	AC-15							DC-13								
	120V	240V	380V	480V	500V	600V	Ithe	125V	250V	400V	500V	600V	Ithe	Mechanical	Electrical	
AU-1M	6	3	1.9	1.5	1.4	1.2	10	0.55	0.27	0.15	0.13	0.1	2.5	1000	50	A600 Q600
AU-2M	6	3	1.9	1.5	1.4	1.2	10	0.55	0.27	-	-	-	2.5	1000	50	A600 Q300
AU-4M	6	3	1.9	1.5	1.4	1.2	10	0.55	0.27	-	-	-	2.5	1000	50	A600 Q300
GMR-4M	6	3	1.9	1.5	1.4	1.2	10	0.55	0.27	0.15	0.13	0.1	2.5	1000	50	A600 Q600
GMC-☐M Inside contact	6	3	1.9	1.5	1.4	1.2	10	0.55	0.27	0.15	0.13	0.1	2.5	1000	50	A600 Q600

Accessories

Timer unit, AT-12M

- Electronic type
- ON/OFF time delay
- Front mount



Electronic timer

Type	Control voltage	Delay	Time	Applied contactors
AT-12M / IN	AC/DC 24~48V	ON	0.1~30s	GMC-6M~16M GMD-6M~16M
AT-12M / IF	AC/DC 24~48V	OFF	0.1~30s	GMC-6M~16M GMD-6M~16M
AT-12M / 2N	AC 100~220V	ON	0.1~30s	GMC-6M~16M GMD-6M~16M
AT-12M / 2F	AC 100~220V	OFF	0.1~30s	GMC-6M~16M GMD-6M~16M

Surge absorber unit, AS-12M

- Coil surge suppressor

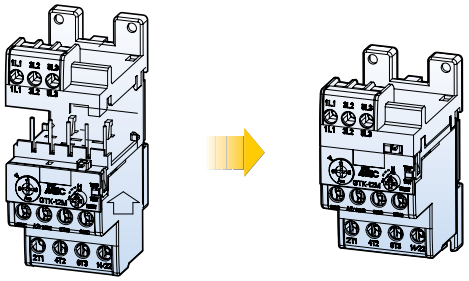


Surge absorber unit

Type	Internal element	Operating voltage	Applied contactors
AS-12M / 1	Varistor	AC24~48V	GMC-6M~16M
AS-12M / 2		AC60~127V	
AS-12M / 3		AC200~240V	
AS-12M / 4		DC12~24V	GMD-6M~16M
AS-12M / 5		DC30~72V	
AS-12M / 6		DC100~127V	
AS-12M / 7		DC200~250V	

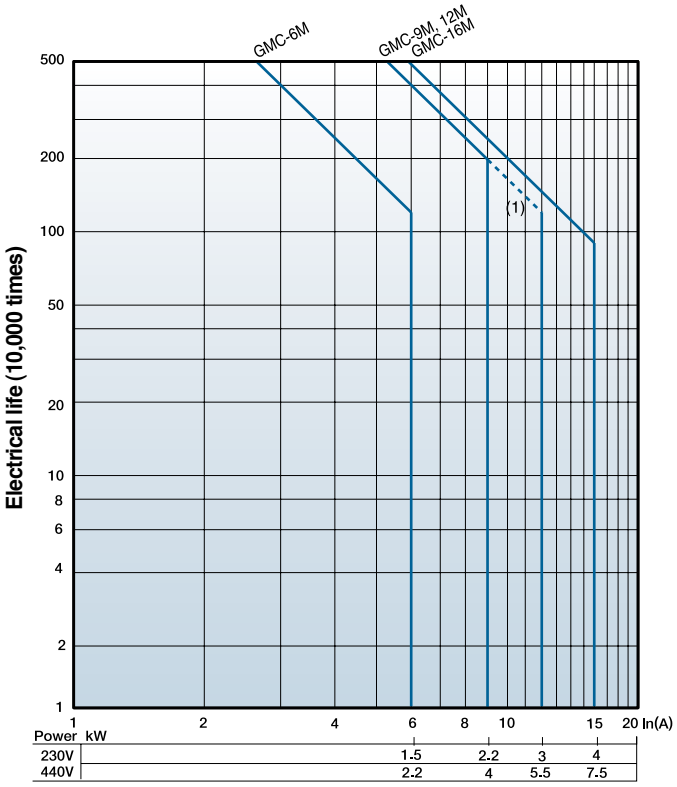
Separate mounting unit, AZ-12MH

- Mount a relay separately from a contactor
- Mountable on DIN rail or by screws



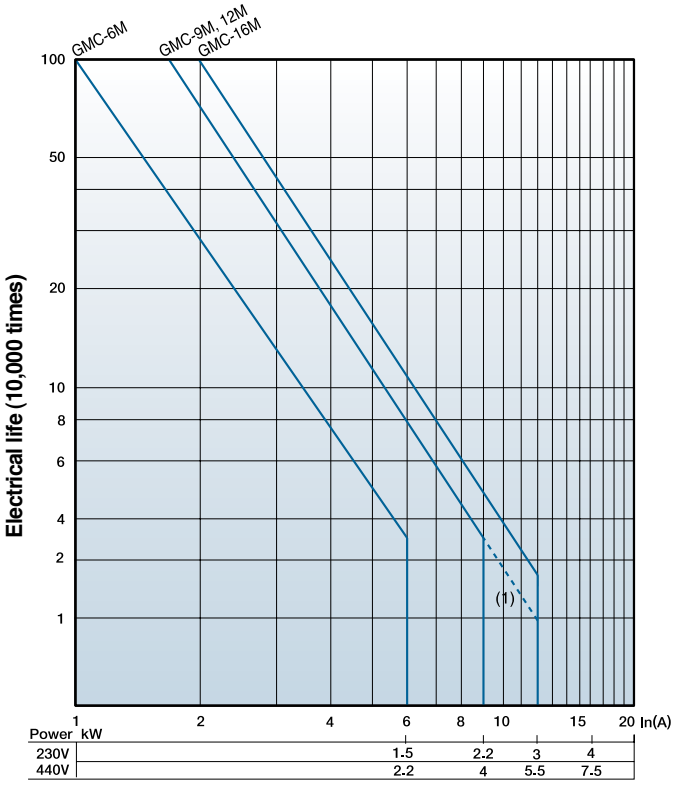
Electrical life of mini contactors

Use in category AC-3 (Ue ≥ 440V)



(1) The dotted lines are only applicable to GMC-12M contactors.

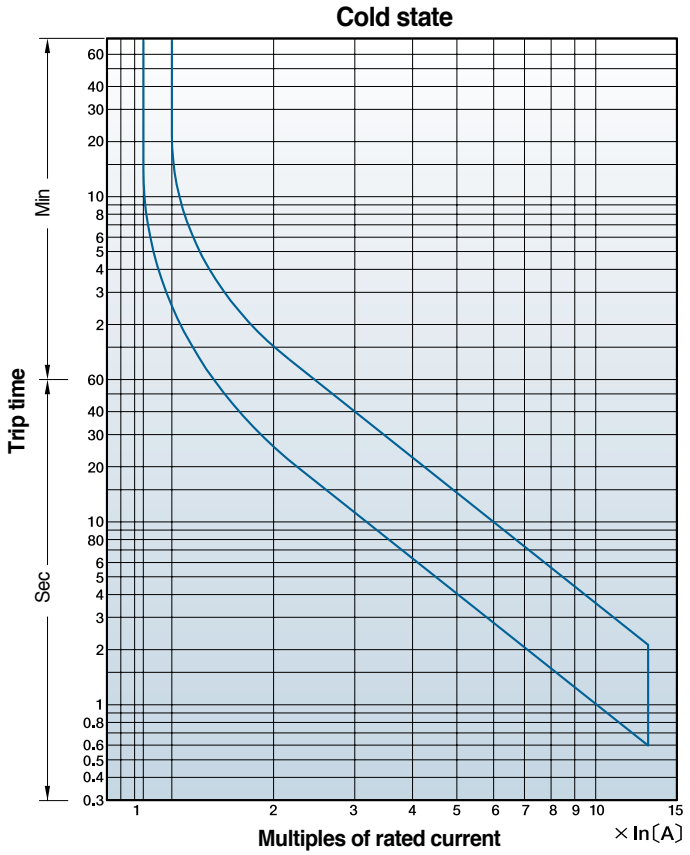
Use in category AC-4 (Ue ≥ 440V)

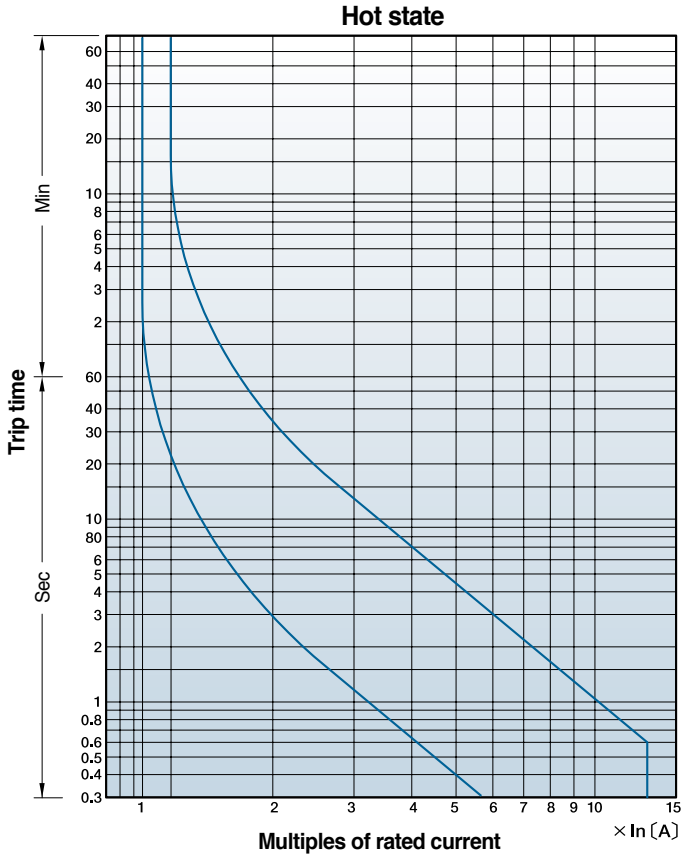


(1) The dotted lines are only applicable to GMC-12M contactors.

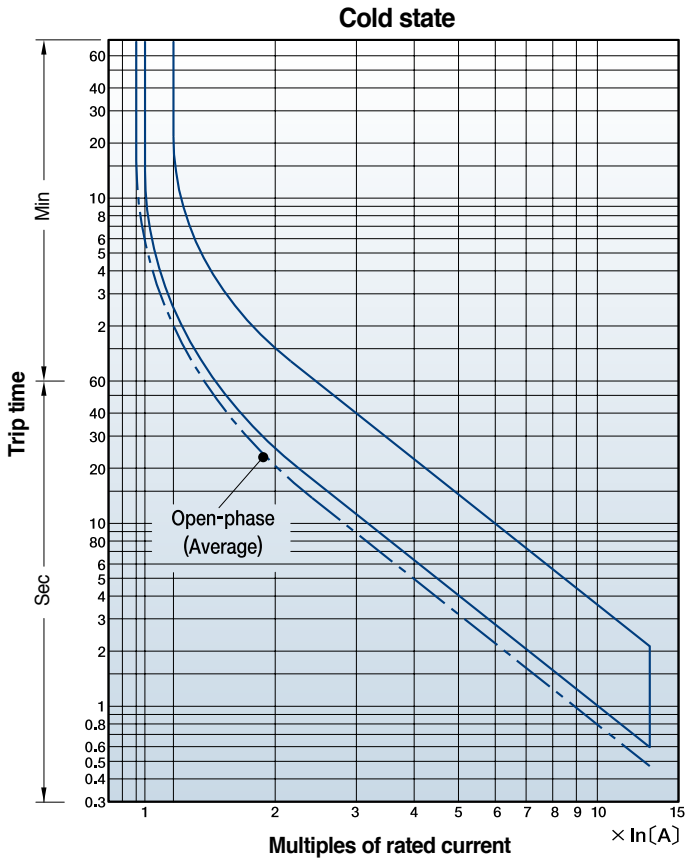
Characteristic curve of thermal overload relay

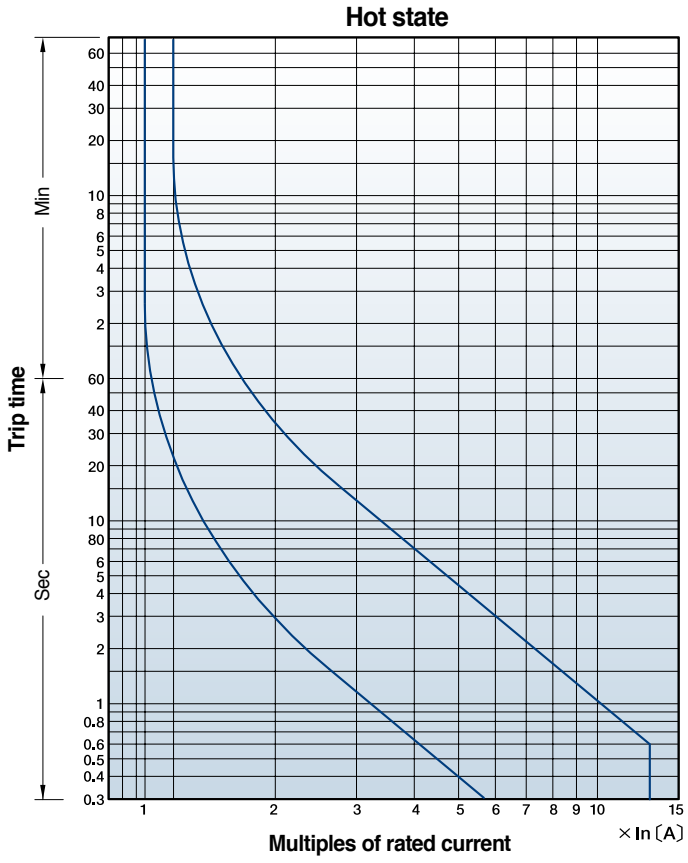
Non-differential type
GTH-12M



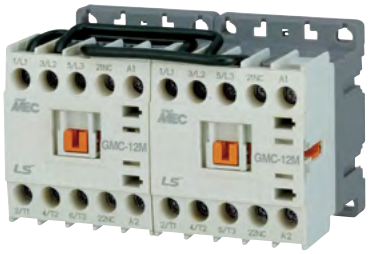


Differential type
GTK-12M





Accessories



Interlock unit, AR-12M

Components

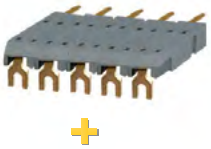
- Mechanical interlock components
- Cable kits for line and load sides



* Wire kit Included in AR-□ MW
Wire kit not included in AR-□M

Solder pin terminals

Designed to modify the connection from Screw clamp type to Solder pin type (available for contactors and auxiliary contact blocks)



DC Control









AC Control

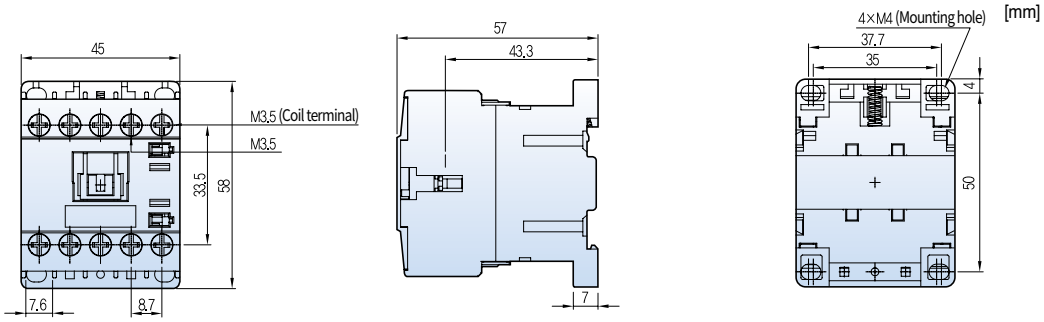


Dimensions

Mini contactors with Screw clamp type

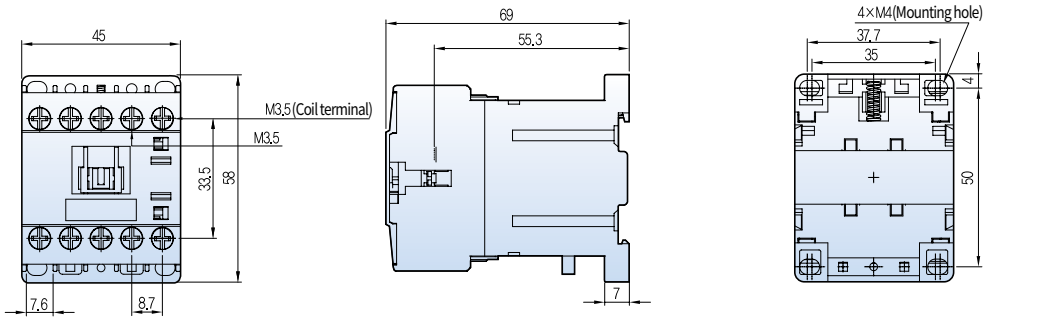
GMC-6M
GMC-9M
GMC-12M
GMC-16M
GMC-6M/4
GMC-9M/4
GMC-12M/4
GMC-16M/4

[mm]



0.17kg

GMD-6M
GMD-9M
GMD-12M
GMD-16M
GMD-6M/4
GMD-9M/4
GMD-12M/4
GMD-16M/4



0.23kg

Circuit diagram

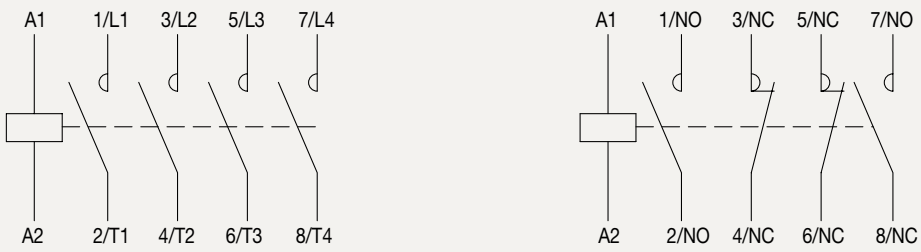
GMC-6M~16M, GMD-6M~16M

3-Pole contactors



GMC-6M/4~16M/4, GMD-6M/4~16M/4

4-Pole contactors



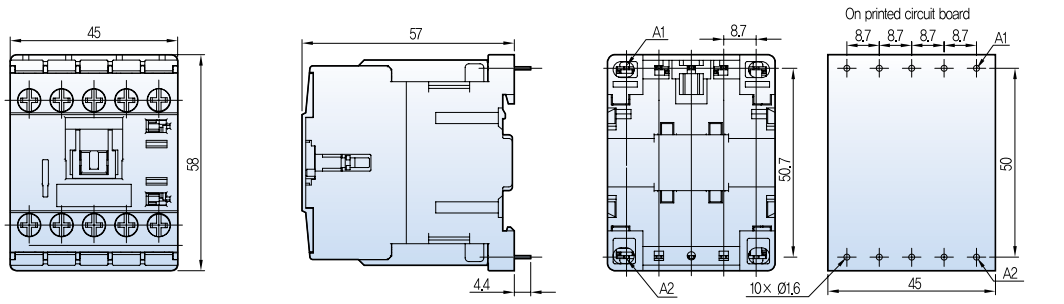
Dimensions

Mini contactors with Solder pin type

GMC-6MP
GMC-9MP
GMC-12MP
GMC-16MP

GMC-6MP/4
GMC-9MP/4
GMC-12MP/4
GMC-16MP/4

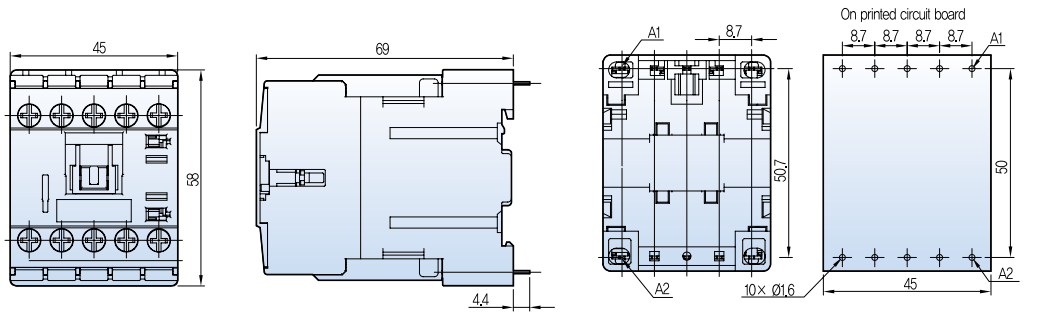
[mm]



0.17kg

GMD-6MP
GMD-9MP
GMD-12MP
GMD-16MP

GMD-6MP/4
GMD-9MP/4
GMD-12MP/4
GMD-16MP/4

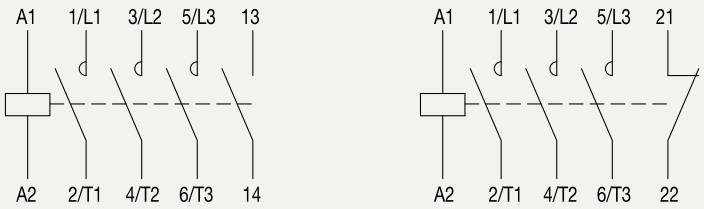


0.23kg

Circuit diagram

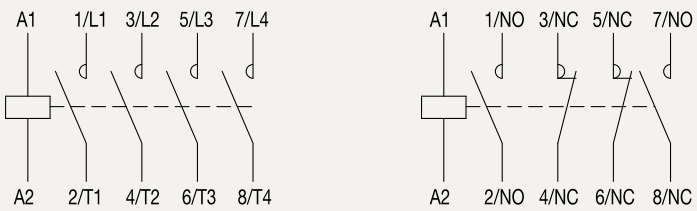
GMC-6MP~16MP, GMD-6MP~16MP

3-Pole contactors



GMC-6MP/4~16MP/4, GMD-6MP/4~16MP/4

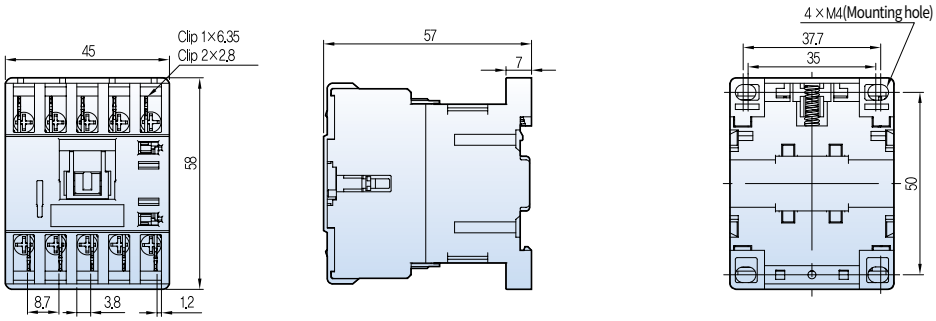
4-Pole contactors



Mini contactors with Fast-on type

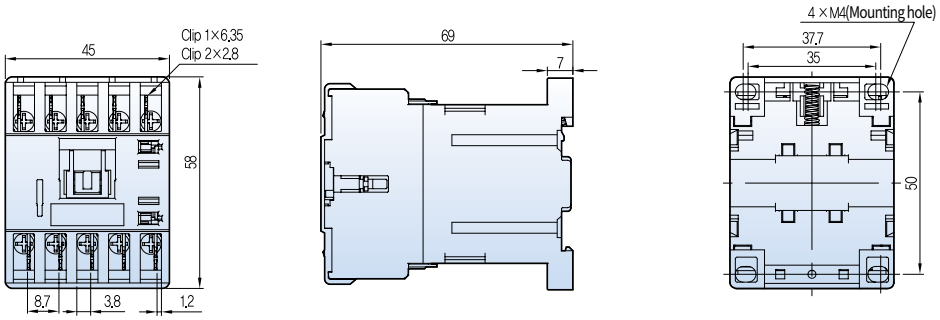
[mm]

GMC-6MF
GMC-9MF
GMC-12MF
GMC-16MF
GMC-6MF/4
GMC-9MF/4
GMC-12MF/4
GMC-16MF/4



0.18kg

GMD-6MF
GMD-9MF
GMD-12MF
GMD-16MF
GMD-6MF/4
GMD-9MF/4
GMD-12MF/4
GMD-16MF/4

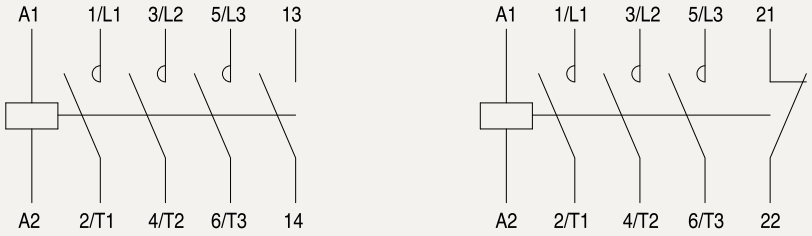


0.27kg

Circuit diagram

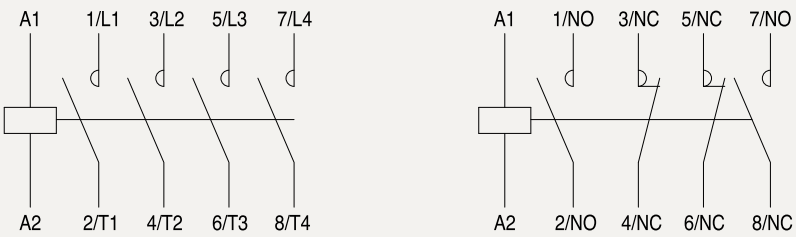
GMC-6MF~16MF, GMD-6MF~16MF

3-Pole contactors



GMC-6MF/4~16MF/4, GMD-6MF/4~16MF/4

4-Pole contactors

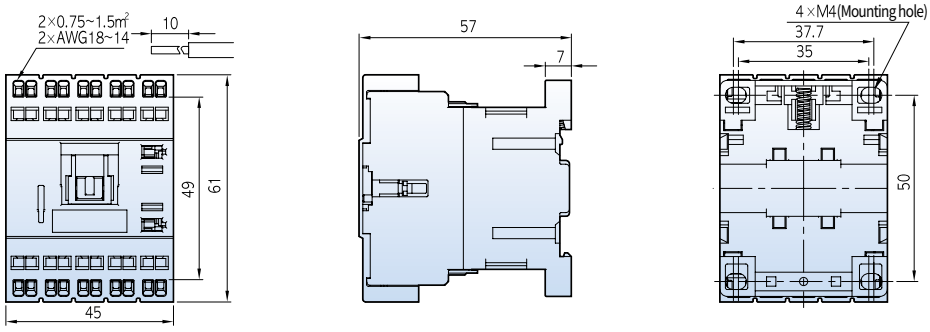


Dimensions

Mini contactors with Cage clamp type

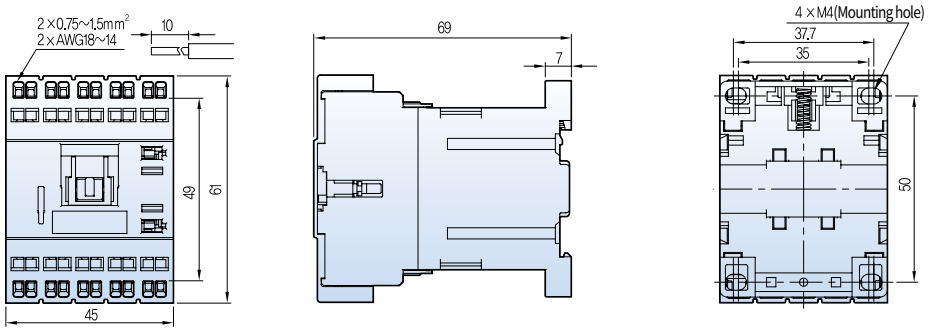
[mm]

GMC-6MC
GMC-9MC
GMC-12MC
GMC-16MC
GMC-6MC/4
GMC-9MC/4
GMC-12MC/4
GMC-16MC/4



0.19kg

GMD-6MC
GMD-9MC
GMD-12MC
GMD-16MC
GMD-6MC/4
GMD-9MC/4
GMD-12MC/4
GMD-16MC/4

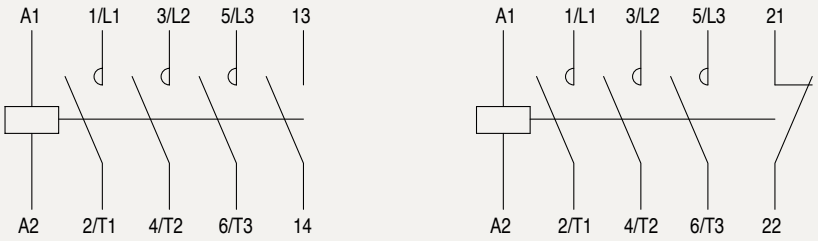


0.28kg

Circuit diagram

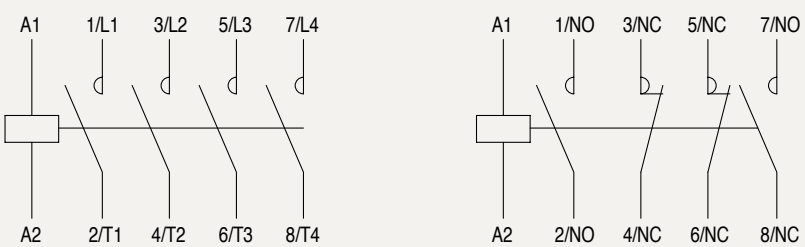
GMC-6MC~16MC, GMD-6MC~16MC

3-Pole contactors



GMC-6MC/4~16MC/4, GMD-6MC/4~16MC/4

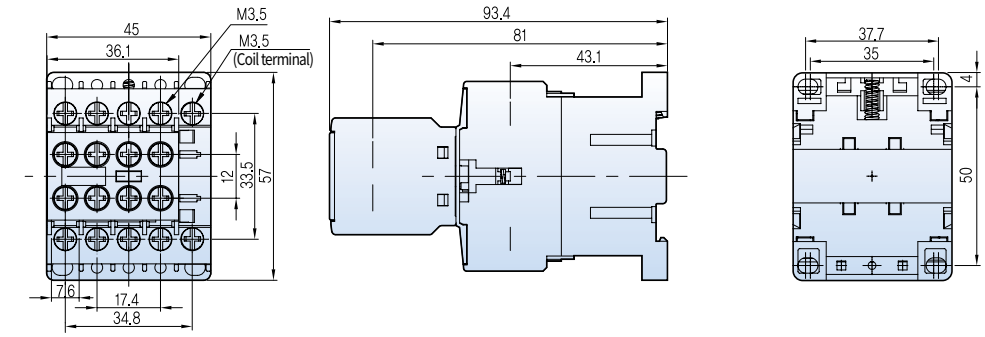
4-Pole contactors



Mini contactors with Auxiliary contacts

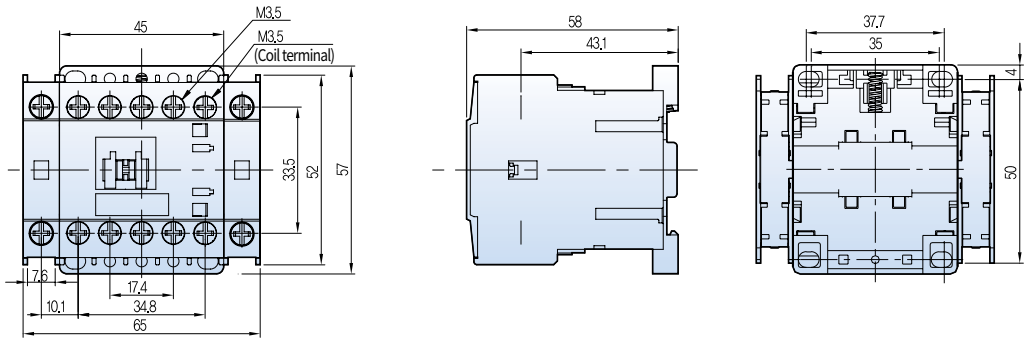
[mm]

GMC-6M
GMC-9M
GMC-12M
GMC-16M
+
AU-4M



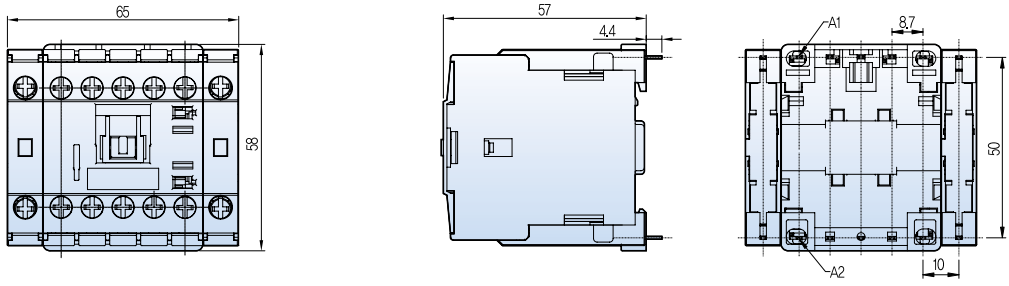
0.21kg

GMC-6M
GMC-9M
GMC-12M
GMC-16M
+
2× AU-1M

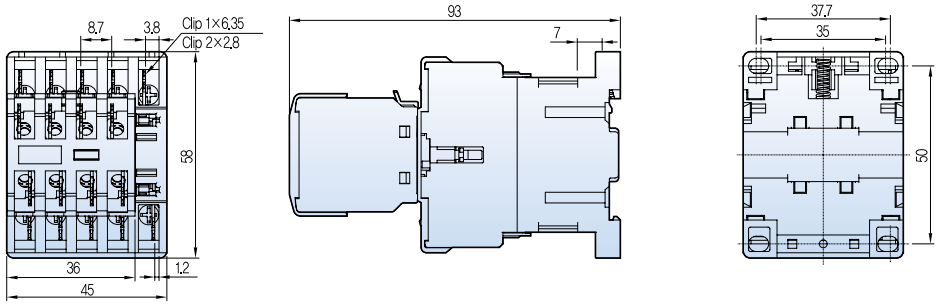


0.21kg

GMC-6MP
GMC-9MP
GMC-12MP
GMC-16MP
+
2× AU-1MP



GMC-6MF
GMC-9MF
GMC-12MF
GMC-16MF
+
AU-4MF

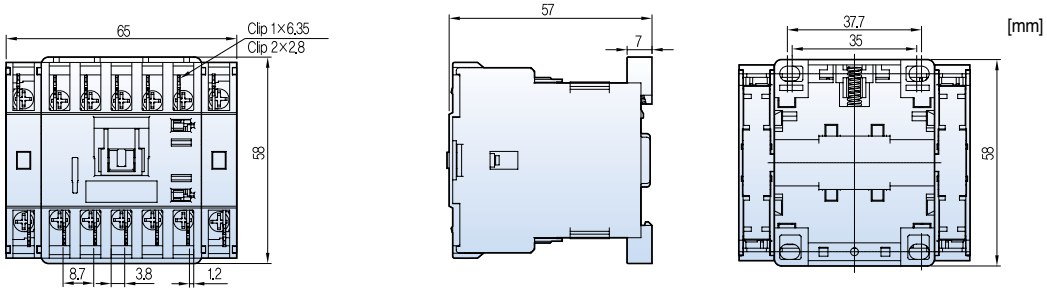


0.23kg

Dimensions

Mini contactors with Auxiliary contacts

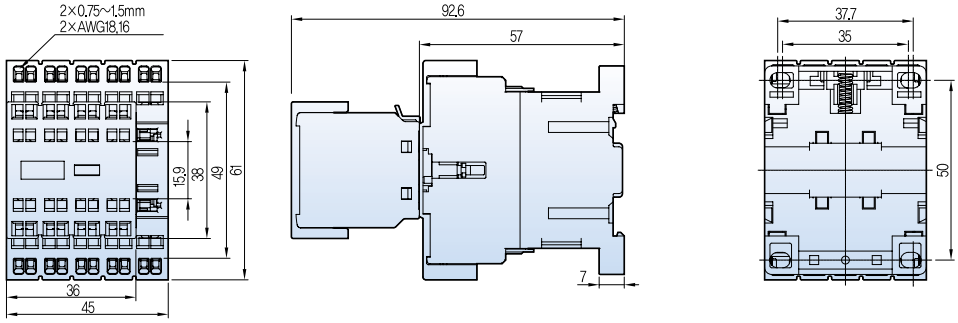
GMC-6MF
GMC-9MF
2×GMC-12MF
GMC-16MF
+
2× AU-1MF



[mm]

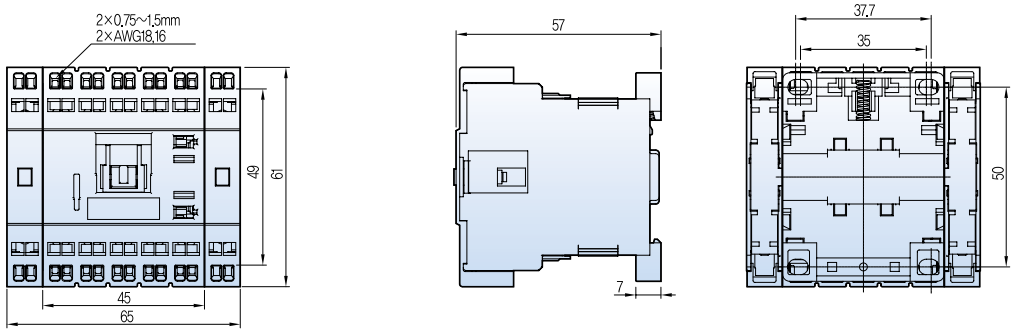
0.32kg

GMC-6MC
GMC-9MC
GMC-12MC
GMC-16MC
+
AU-4MC



0.24kg

GMC-6MC
GMC-9MC
2×GMC-12MC
GMC-16MC
+
2× AU-1MC

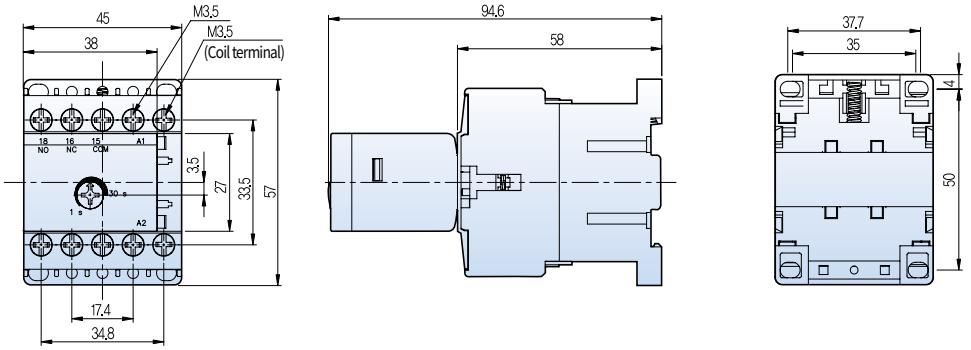


0.23kg

Mini contactors with external accessories

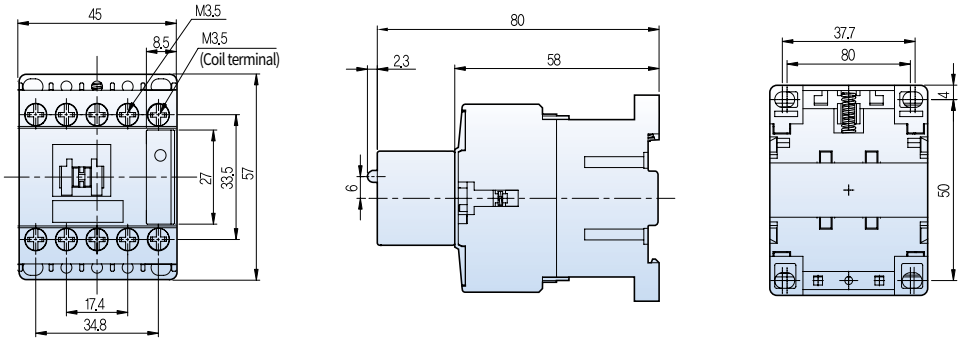
[mm]

GMC-6M
GMC-9M
GMC-12M
GMC-16M
+
AT-12M



0.21kg

GMD-6M
GMD-9M
GMD-12M
GMD-16M
+
AS-12M



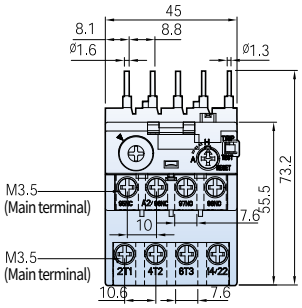
0.175kg

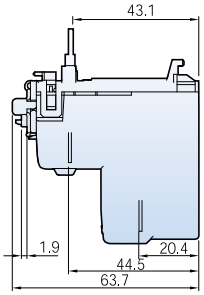
Dimensions

Thermal overload relays for Mini contactors

[mm]

GTH(K)-12M

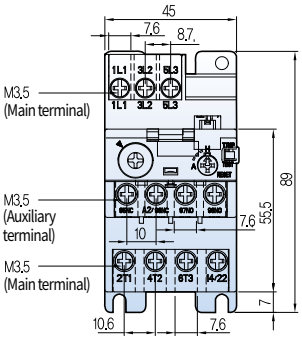


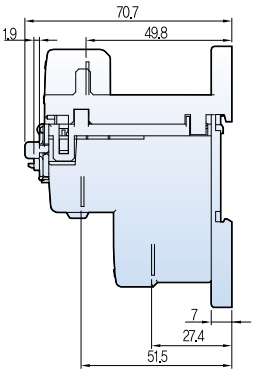


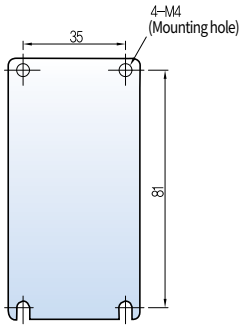


0.1kg

GTH(K)-12MH





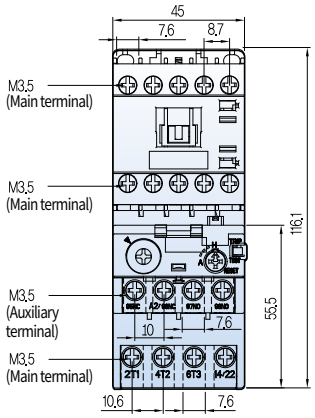


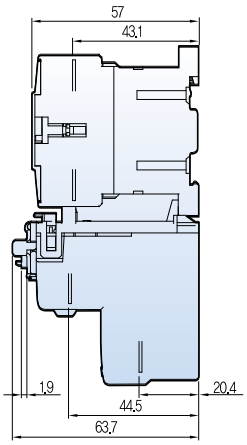
0.4kg

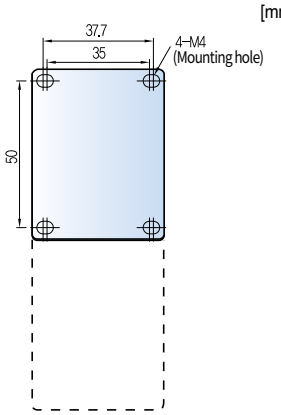
Mini motor starters, open

GMS-6M
GMS-9M
GMS-12M
GMS-16M

[mm]

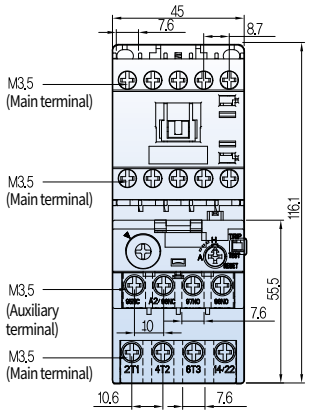


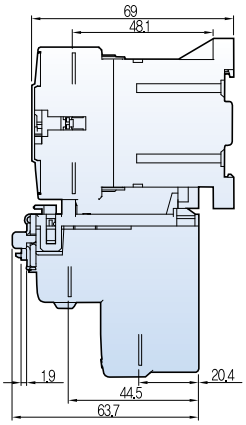


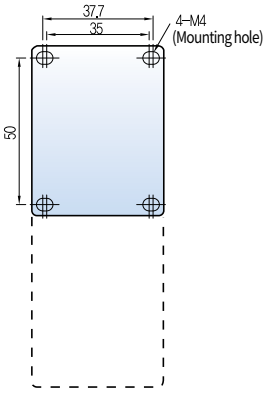


0.26kg

GMS-6MD
GMS-9MD
GMS-12MD
GMS-16MD







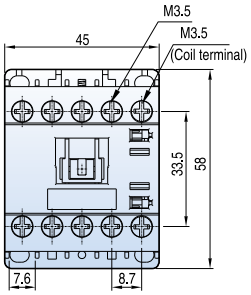
0.39kg

Dimensions

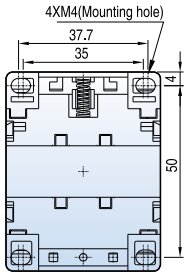
Mini contactor relays

[mm]

GMR-4M

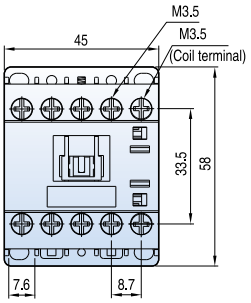


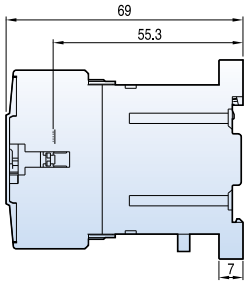


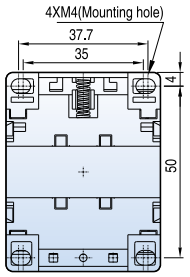


0.17kg

GMR-4MD

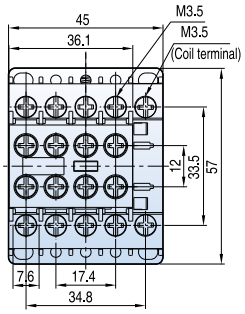


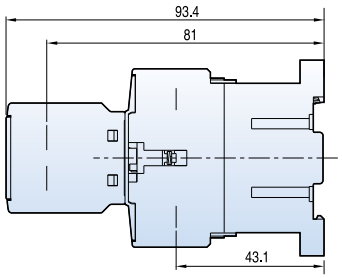


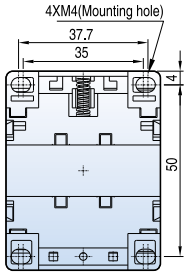


0.23kg

GMR-4M
GMR-8M

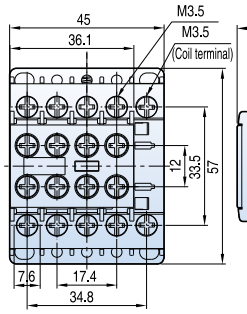


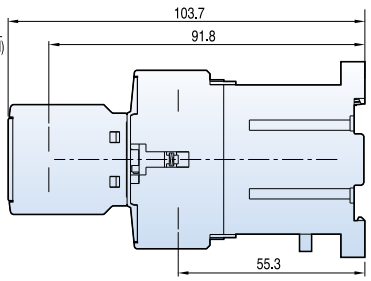


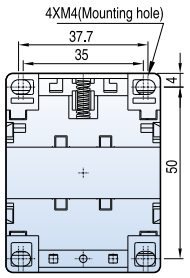


0.21kg

GMR-4M
GMR-8M

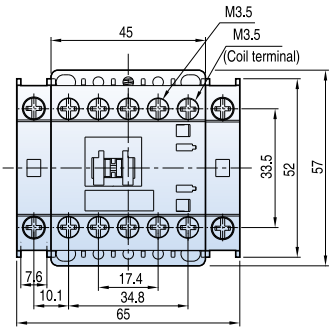


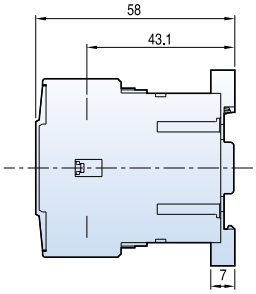


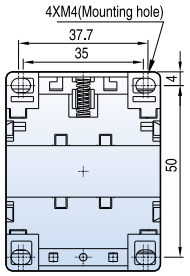


0.21kg

GMR-4M
\+
2× **AU-1M**





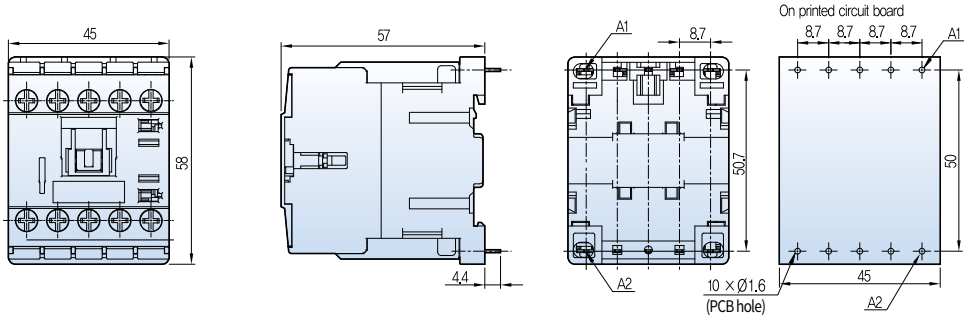


0.21kg

Mini contactor relays

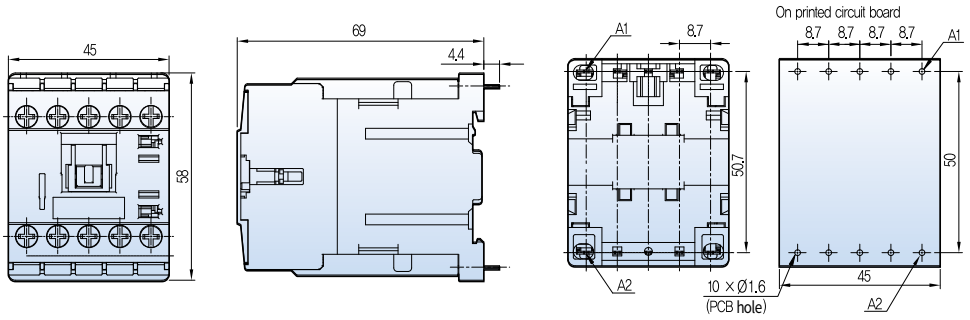
[mm]

GMR-4MP



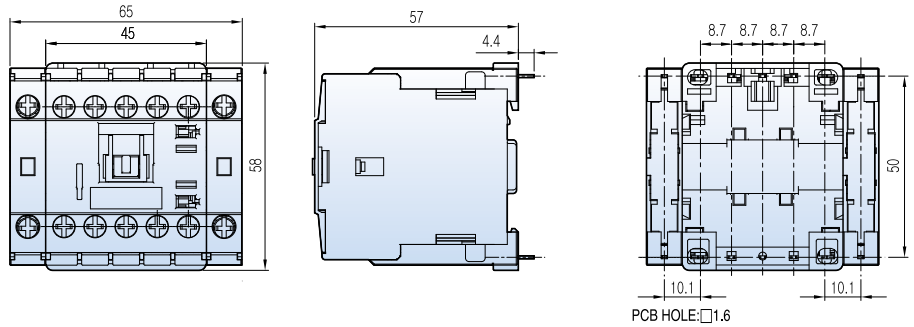
0.19kg

GMR-4MPD



0.28kg

GMR-4MP
\+
2× **AU-1M**

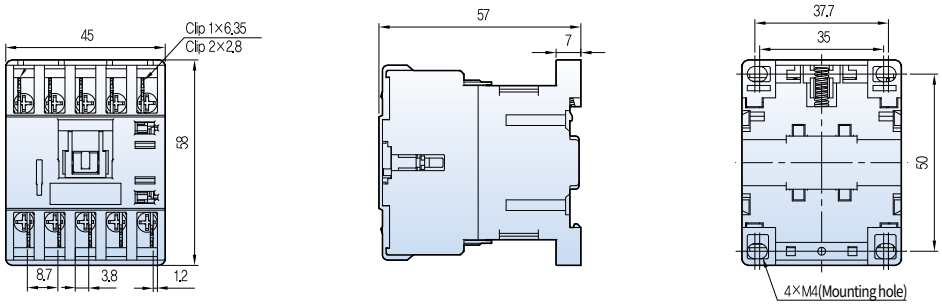


Dimensions

Mini contactor relays

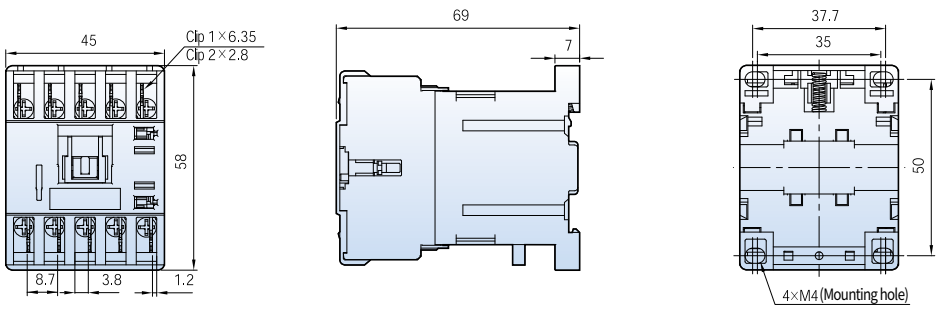
[mm]

GMR-4MF



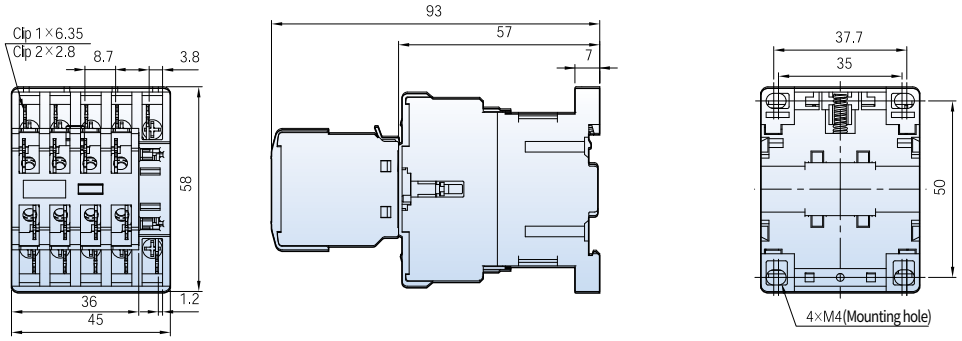
0.18kg

GMR-4MFD



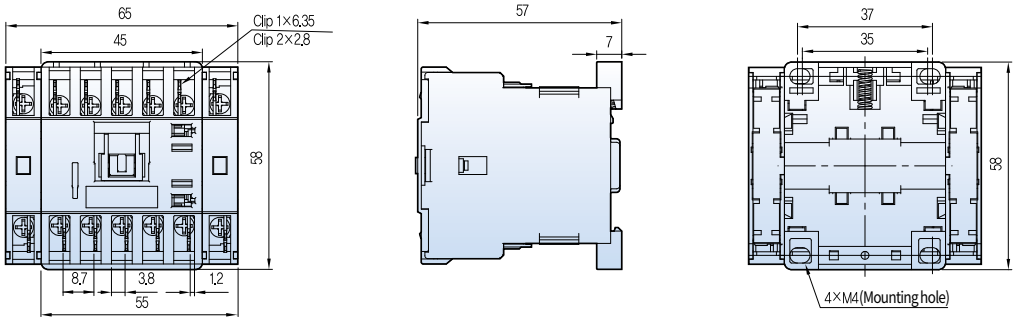
0.27kg

GMR-6MF
GMR-8MF



0.23kg

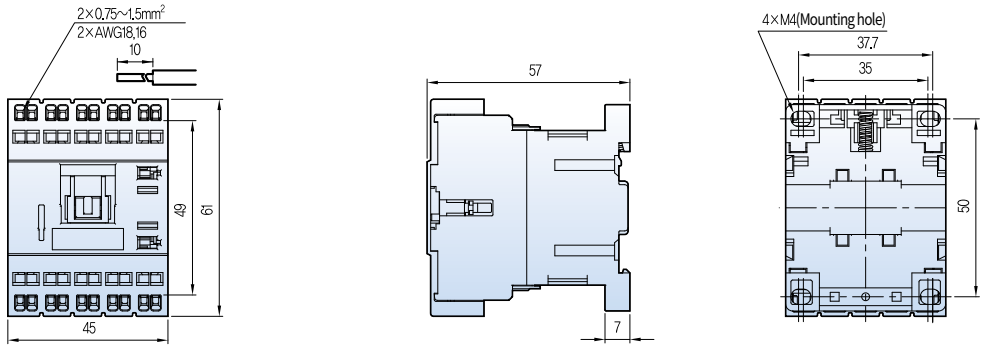
GMR-4MF
+
2× **AU-1MF**



0.32kg

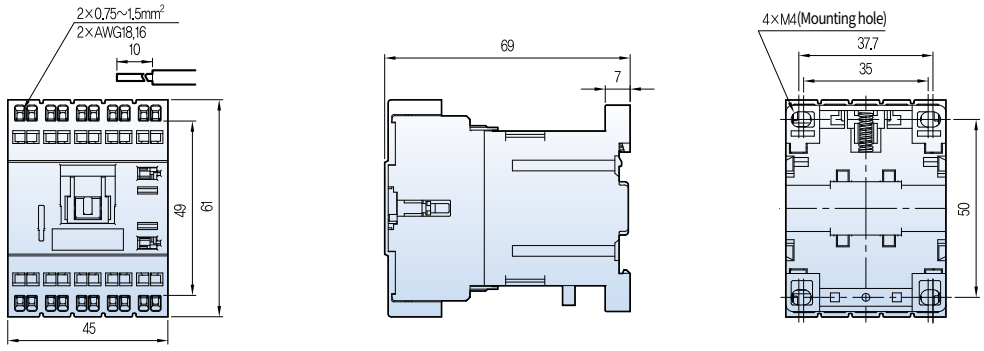
[mm]

GMR-4MC



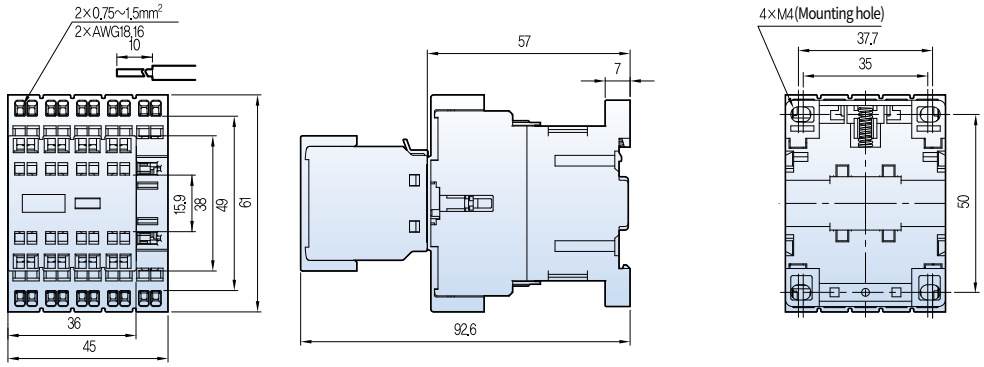
0.18kg

GMR-4MCD



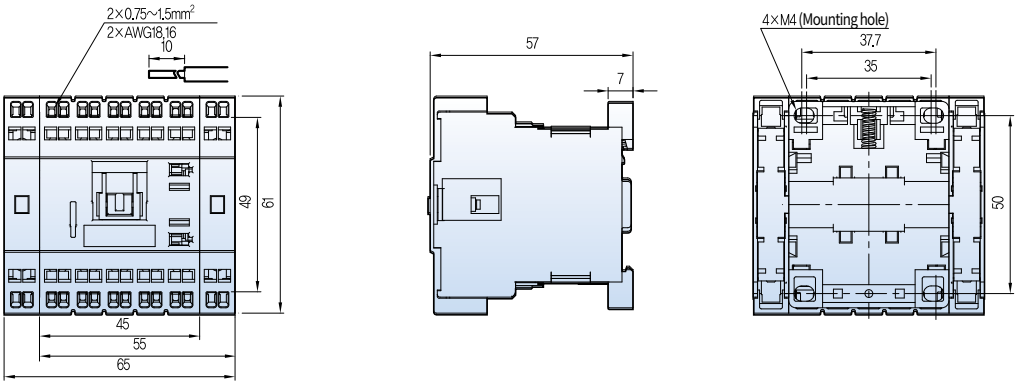
0.27kg

GMR-6MC
GMR-8MC



0.23kg

GMR-4MC
\+
2× **AU-1MC**



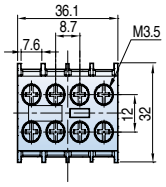
0.32kg

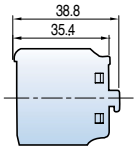
Dimensions

Accessories for Mini contactors

[mm]

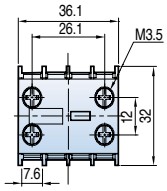
AU-4M

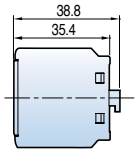




0.04kg

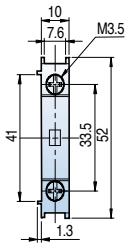
AU-2M

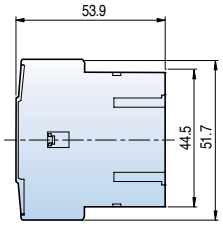




0.03kg

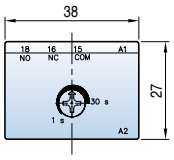
AU-1M

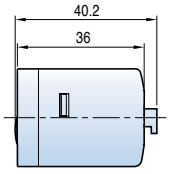




0.02kg

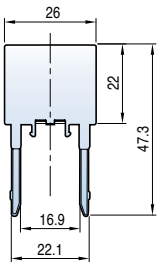
AT-12M

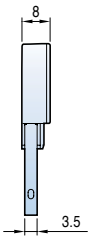




0.04kg

AS-12M





0.005kg

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