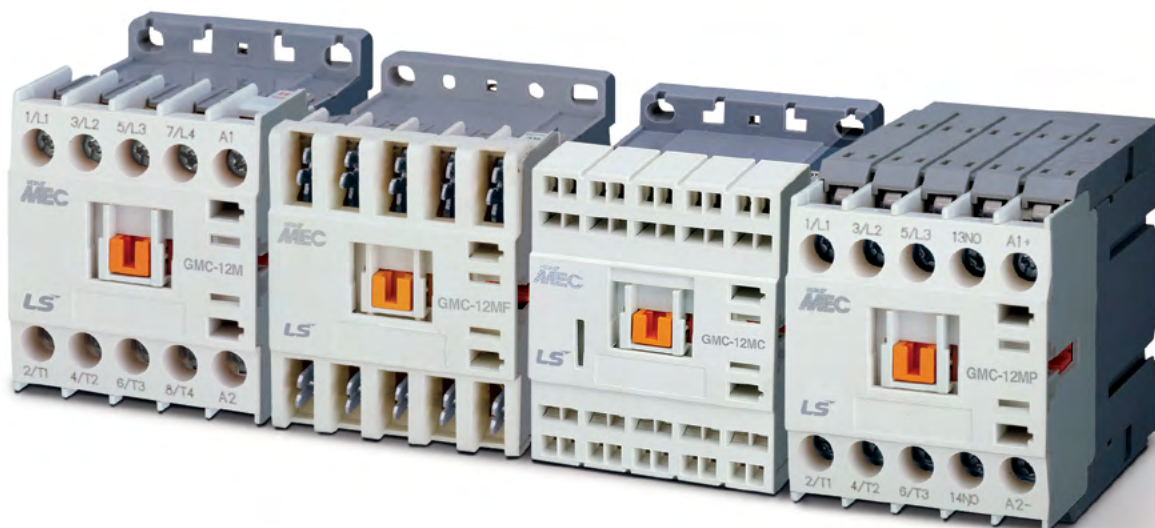


Beyond

TM Meta-MEC
Mini Contactors &
Overload Relays



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



Contents

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Mini contactors, Reversing type	18
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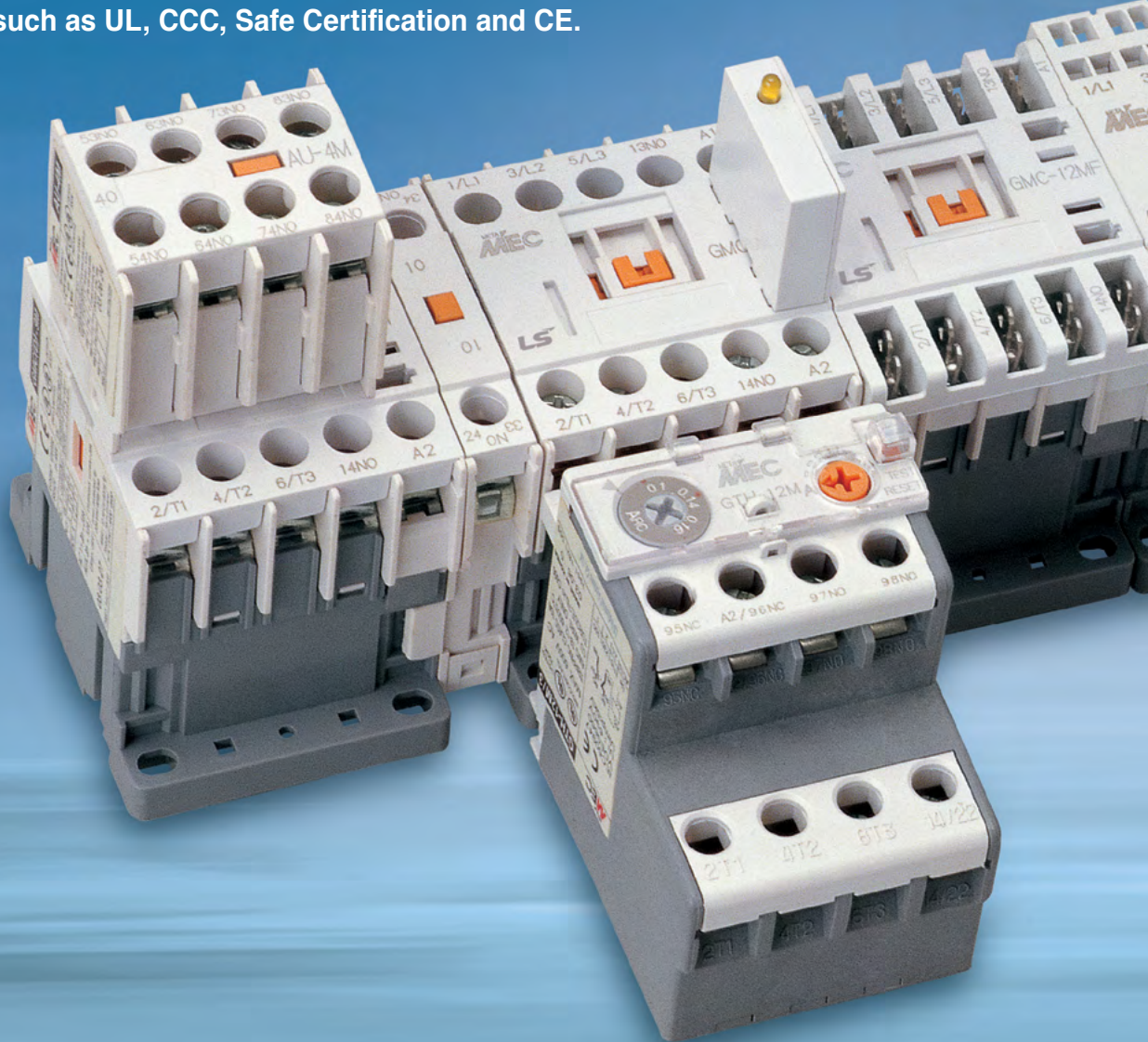
Compact & Space Saving

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 relays 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.



Contactors

Environmental conditions

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

Reference standards

- IEC 60947-4
- UL 508

Certification

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

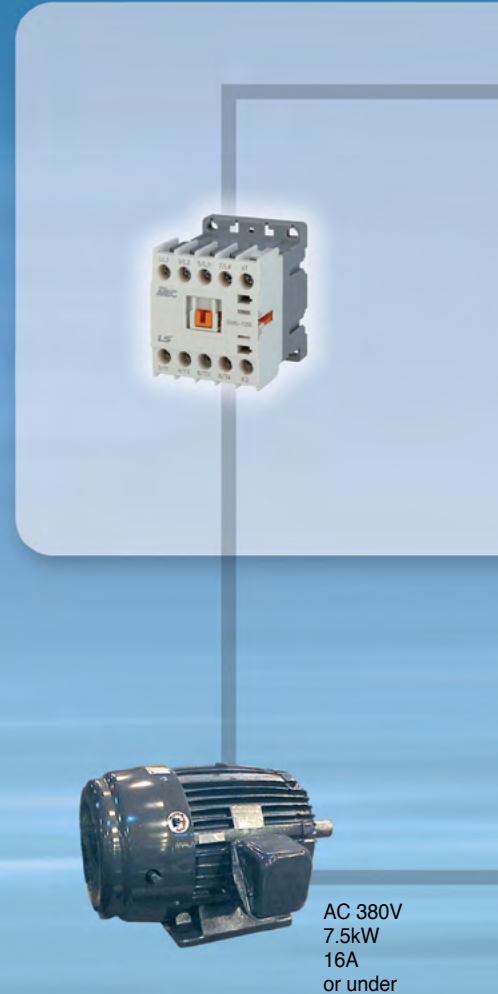


Low Consumption

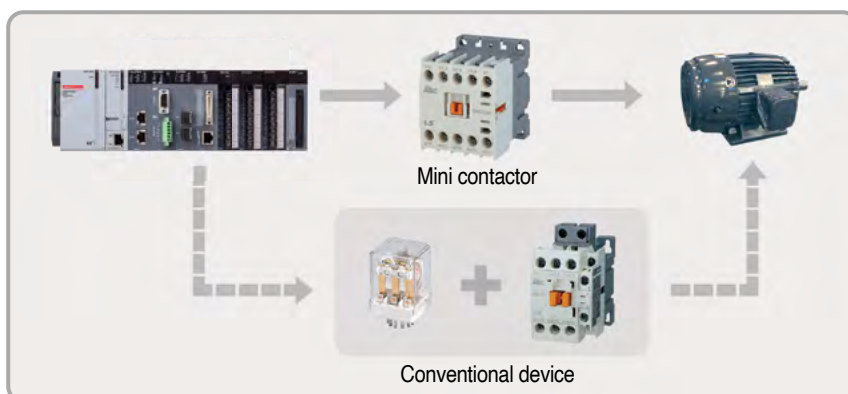
The low power consumption type contactor, a product that combines the advantages of the relay and the magnetic contactor, can be driven directly by the small output of the PLC. As a result, the relay and space in the panel are not required.

Direct driving by:

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



Direct driving by PLC output

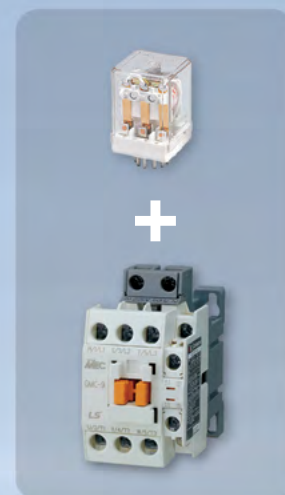




PLC



Remote I/O unit



Conventional style
(Relay + Contactor)



Inverter



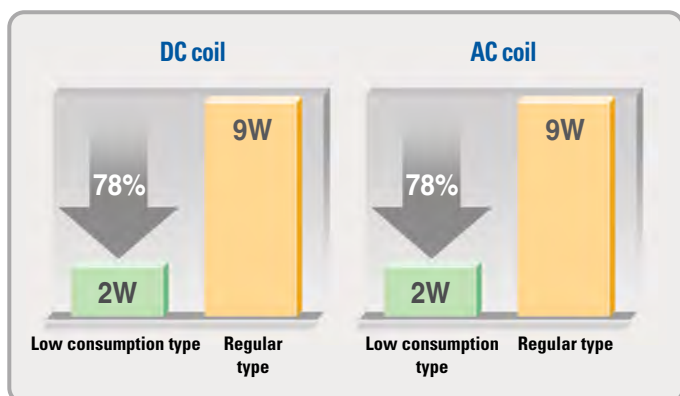
Servo motor operation



Lighting circuits



Reduced power consumption rate

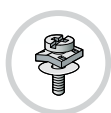
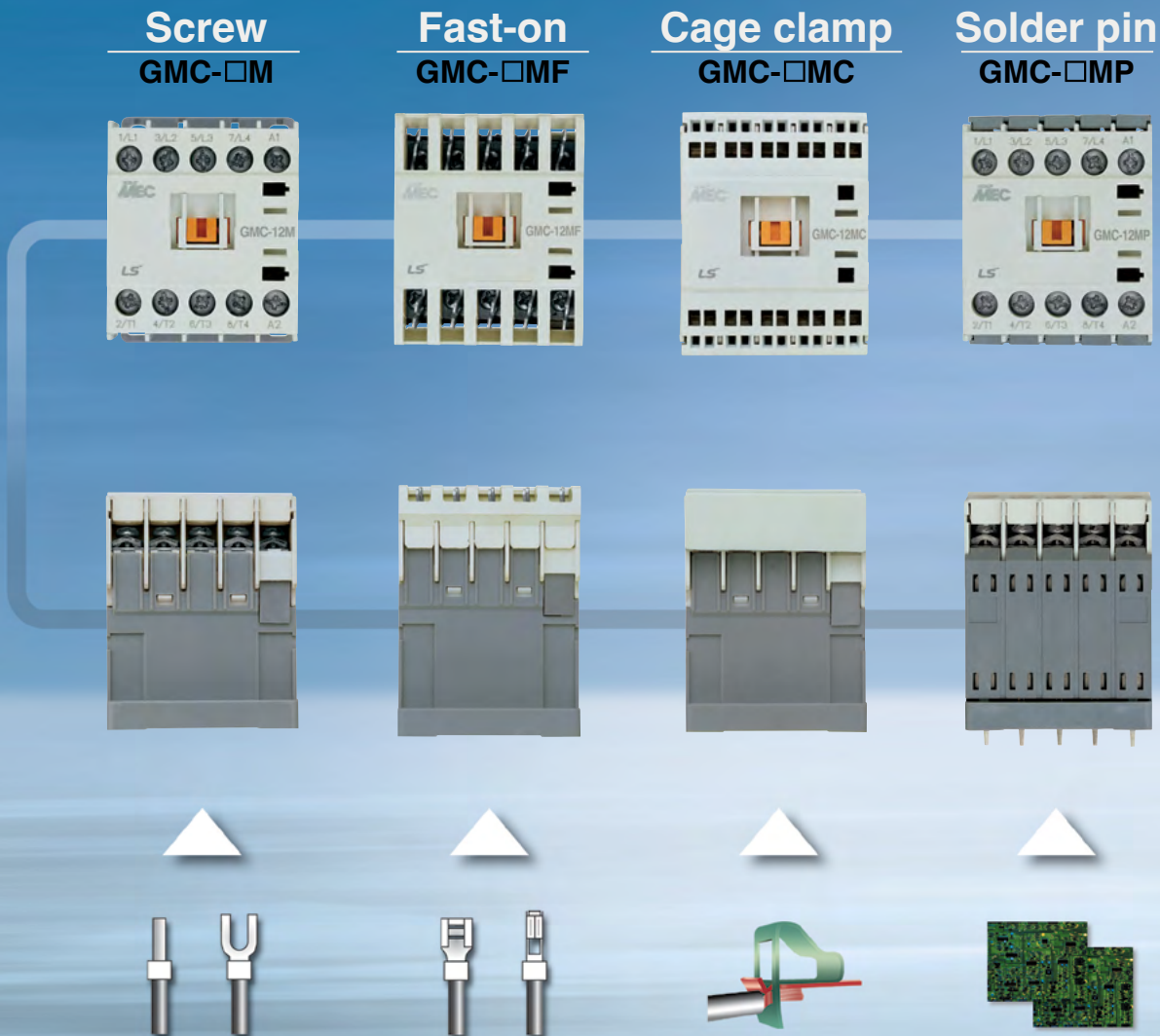


Control coil characteristics

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
	Release	20 or over	12 or over
Operation time (ms)	Coil ON → Contact ON	20 or under	50 or under
	Coil OFF → Contact OFF	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



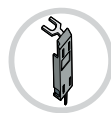
Fast-on terminal

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



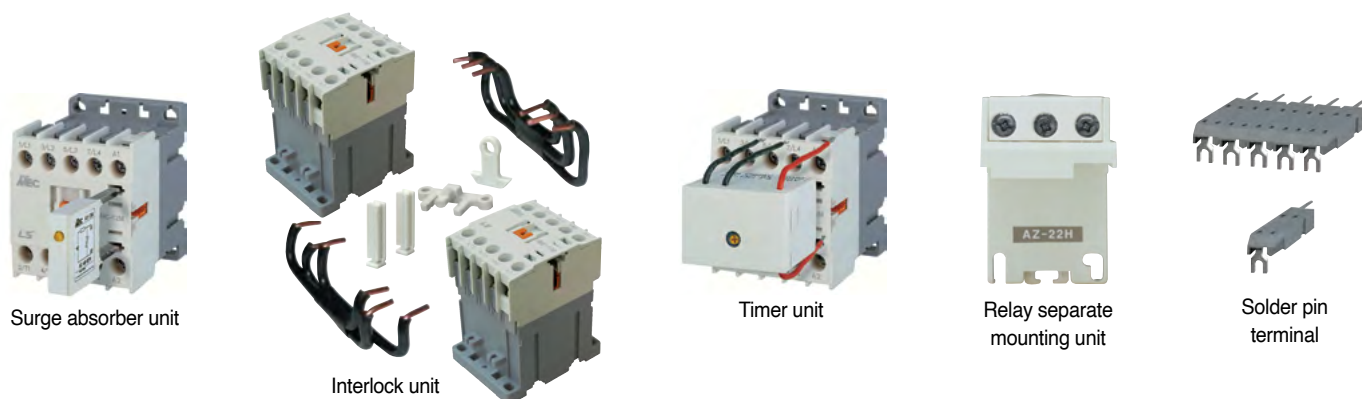
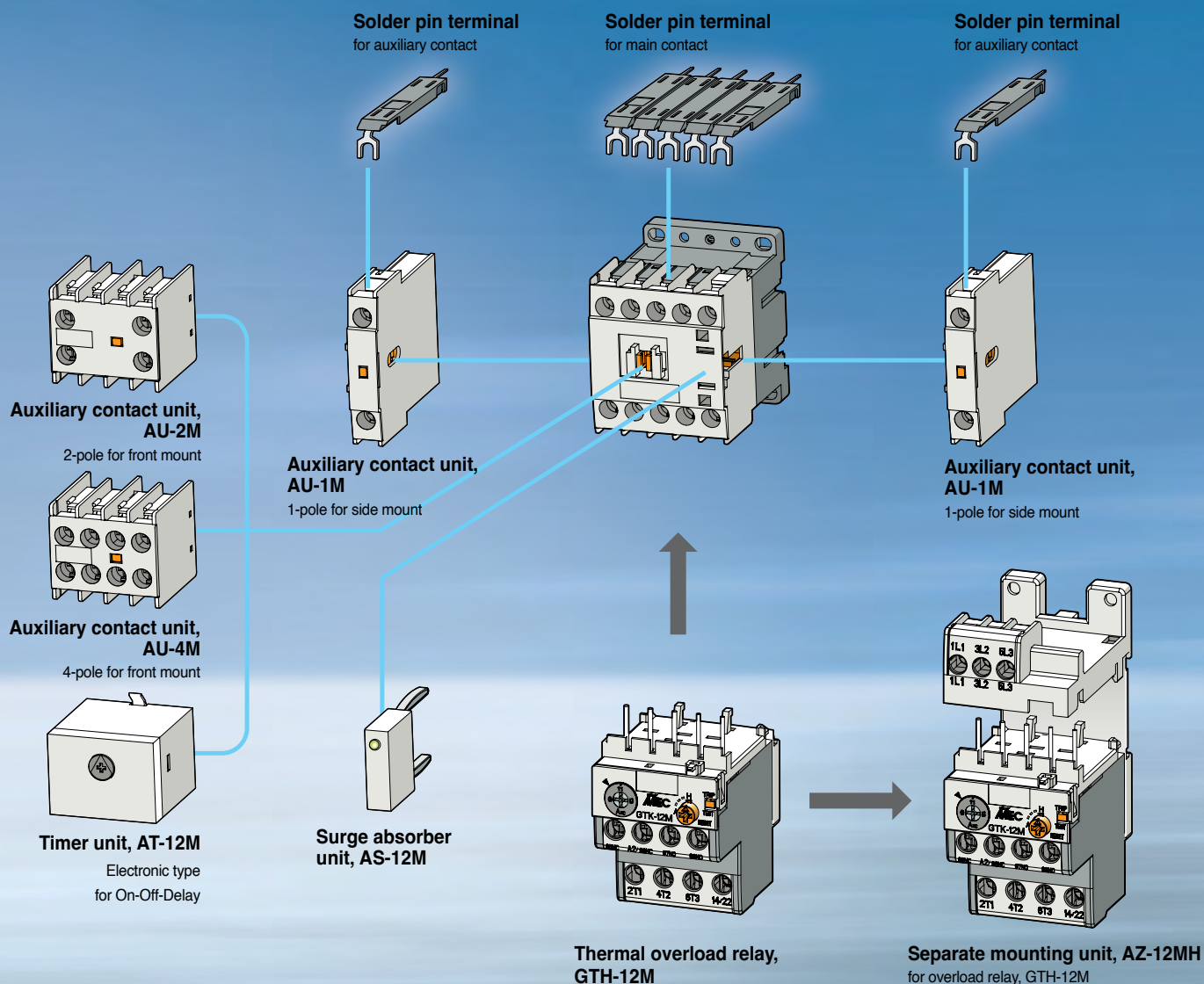
Solder pin terminal

For mounting on PCB

Auxiliary contact units

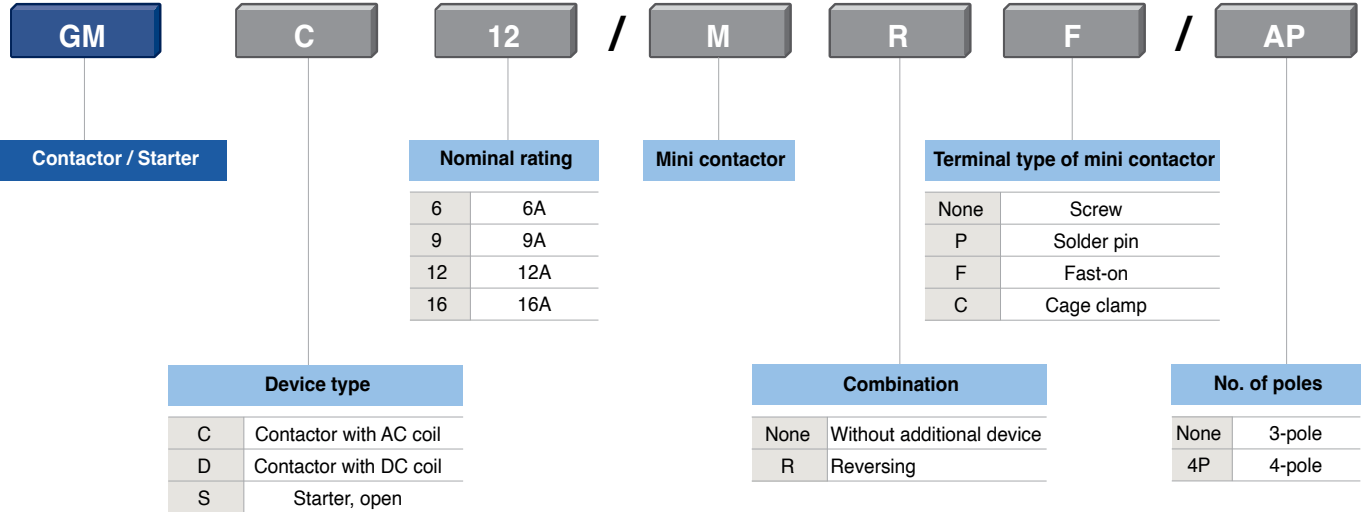
Item	Screw	Fast-on	Cage clamp	Solder pin
Side mount				
2-pole, Front mount				×
4-pole, Front mount				×

Accessories

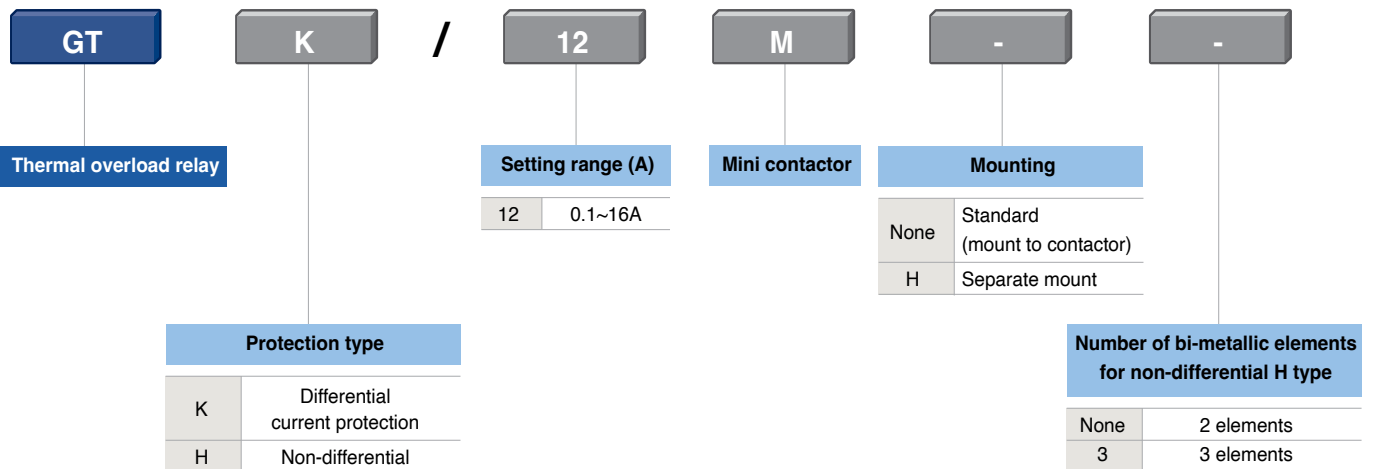


Catalog numbering system

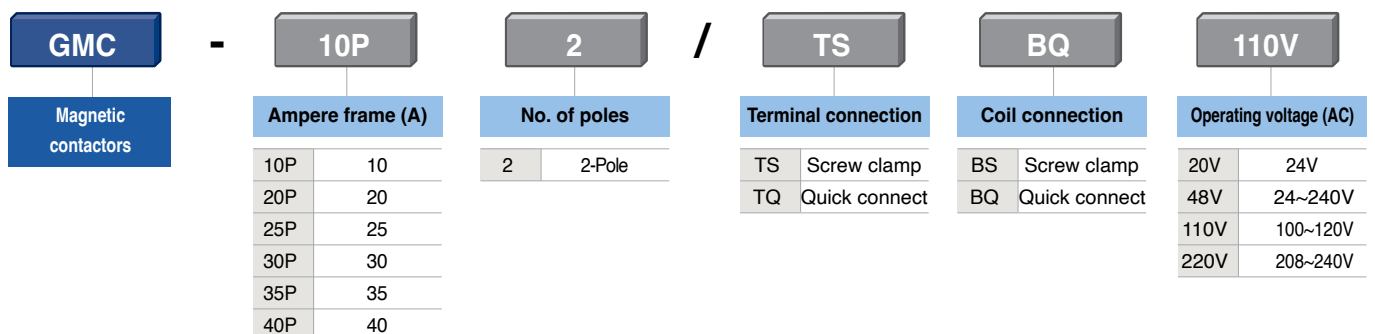
Contactors & Starters



Thermal overload relay



2-pole contactors



Auxiliary contact

AU	-	1	M	F	40
Auxiliary contact		No. of poles	Mini contactor	Terminal type of mini contactor	Contact configuration
		1 1-pole		None Screw	10 1a 40 4a
		2 2-pole		F Fast-on	01 1b 31 3a1b
		3 3-pole		C Cage clamp	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

AT	-	12	M	/	1	-	N
Timer unit		Nominal rating	Mini contactor		Operating voltage		Delay method
					1 AC/DC 24~48V	N	ON Delay
					2 AC 100~200V	F	OFF Delay

Serge unit

AS	-	12	M	/	1
Serge unit		Nominal rating	Mini contactor		Operating voltage
					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

AP	-	12	M	/	D
Solder pin unit		Unit distribution	Mini contactor		Operating voltage type
		1 Auxiliary			None AC
		12 Contactor			D DC

Single mounting unit

AZ	-	12	MH
Thermal overload relay single mounting unit		Nominal rating	Mini contactor

Interlock unit

AR	-	12	M	/	W
Interlock unit		Nominal rating	Mini contactor		Wiring
					None No wiriang
					W Wiring Included

Quick selection table

Mini contactors

3NO main contacts
1 auxiliary 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	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		I _{th} = 20A (maximum for cage clamp type is 10A)							
Single phase	120V	1/2		1/2		1 *		-	
	230V/240V	1		1.5		2 **		-	
	240V	1.5		3		3		-	
Three phase	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-4M								
	AU-1M								
4-pole, Front mount									
2-pole, Side mount									

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

Overload Relays

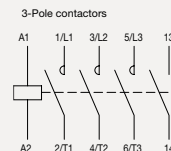
Bimetallic style Type GT Class 10A		Setting ranges (A) 0.1 - 0.16 0.16 - 0.25 0.25 - 0.4 0.4 - 0.63 0.63 - 1 1 - 1.6 1.6 - 2.5 2.5 - 4	4 - 6 5 - 8 6 - 9 7 - 10 9 - 13 12 - 16		Base for separate mount
	Differential	GTK-12M			
	Non-differential (3-heater)	GTH-12M/3			
	Non-differential (2-heater)	GTH-12M			

AC coil

Contactors

- Motor control applications
- 3 main + 1 auxiliary contacts
- AC coil voltage

Circuit diagram



Screw clamp connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating lth	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 lth	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

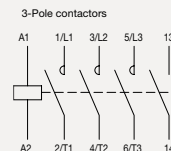
Certificate
CE, ULcUL

AC coil

Contactors

- Motor control applications
- 3 main + 1 auxiliary contacts
- AC coil voltage

Circuit diagram



Cage clamp connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating lth	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

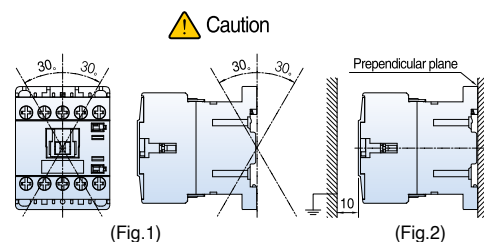
Frame size	AC3 ratings (IEC60947-4)				AC1 rating lth	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMC-6MP
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMC-9MP
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMC-12MP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

Certificate
CE, ULcUL

* For even installation direction refer to Fig.1

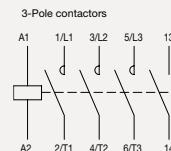
Keep the distance more than 0.39 in.(10mm) with arc space, as shown in Fig.2

DC coil

Contactors

- Motor control applications
- 3 main + 1 auxiliary contacts
- DC coil voltage

Circuit diagram



Screw clamp connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating lth	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 lth	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 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

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

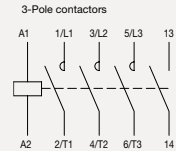
Certificate
CE, ULcUL

DC coil

Contactors

- Motor control applications
- 3 main + 1 auxiliary contacts
- DC coil voltage

Circuit diagram



Cage clamp connection types



Frame size	AC3 ratings (IEC60947-4)				AC1 rating lth	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



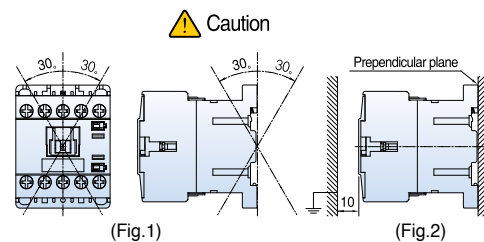
Frame size	AC3 ratings (IEC60947-4)				AC1 rating lth	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMD-6MP
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMD-9MP
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMD-12MP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



Caution

(Fig.1)

(Fig.2)

Certificate
CE, ULcUL

*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

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	Starter Type
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	GMS-6M/K
GMC-9M	GTK-12M	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	1NO or 1NC	GMS-9M/K
GMC-12M	GTK-12M	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	1NO or 1NC	GMS-12M/K
GMC-16M	GTK-12M	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	1NO or 1NC	GMS-16M/K

AC coil contactor + Non-differential type overload relay

Devices combined		AC3 ratings (IEC60947-4)				Auxiliary contacts	Starter Type
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	GMS-6M
GMC-9M	GTH-12M/3	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	1NO or 1NC	GMS-9M
GMC-12M	GTH-12M/3	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	1NO or 1NC	GMS-12M
GMC-16M	GTH-12M/3	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	1NO or 1NC	GMS-16M

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
Overload relay setting range

Certificate
CE, ULcUL

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

Certificate
CE, ULcUL

Ordering information

Type, Auxiliary contact and Coil voltage

Reversing contactors

- Motor control applications
- Mechanically interlocked
- AC coil voltage



Cage clamp connection types

Frame size	AC3 ratings (IEC60947-4)				AC1 rating lth	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 lth	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

Certificate
CE, ULcUL

Ordering information

Type, Auxiliary contact and Coil voltage

Reversing contactors

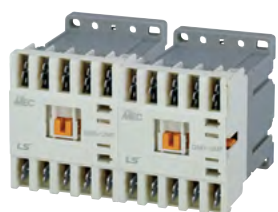
- Motor control applications
- Mechanically interlocked
- DC coil voltage

Screw clamp connection types



Frame size	AC3 ratings (IEC60947-4)				AC1 rating lth	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 lth	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)

Ordering information

Type, Auxiliary contact and Coil voltage

Certificate
CE, ULcUL

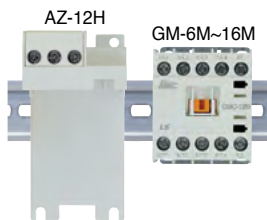
Bimetallic style

Description



GT-12M

- 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 °C
- Manual/Automatic reset convertible
- Remote reset is optional
- Trip-free design



Separate
mount

Direct
mount



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

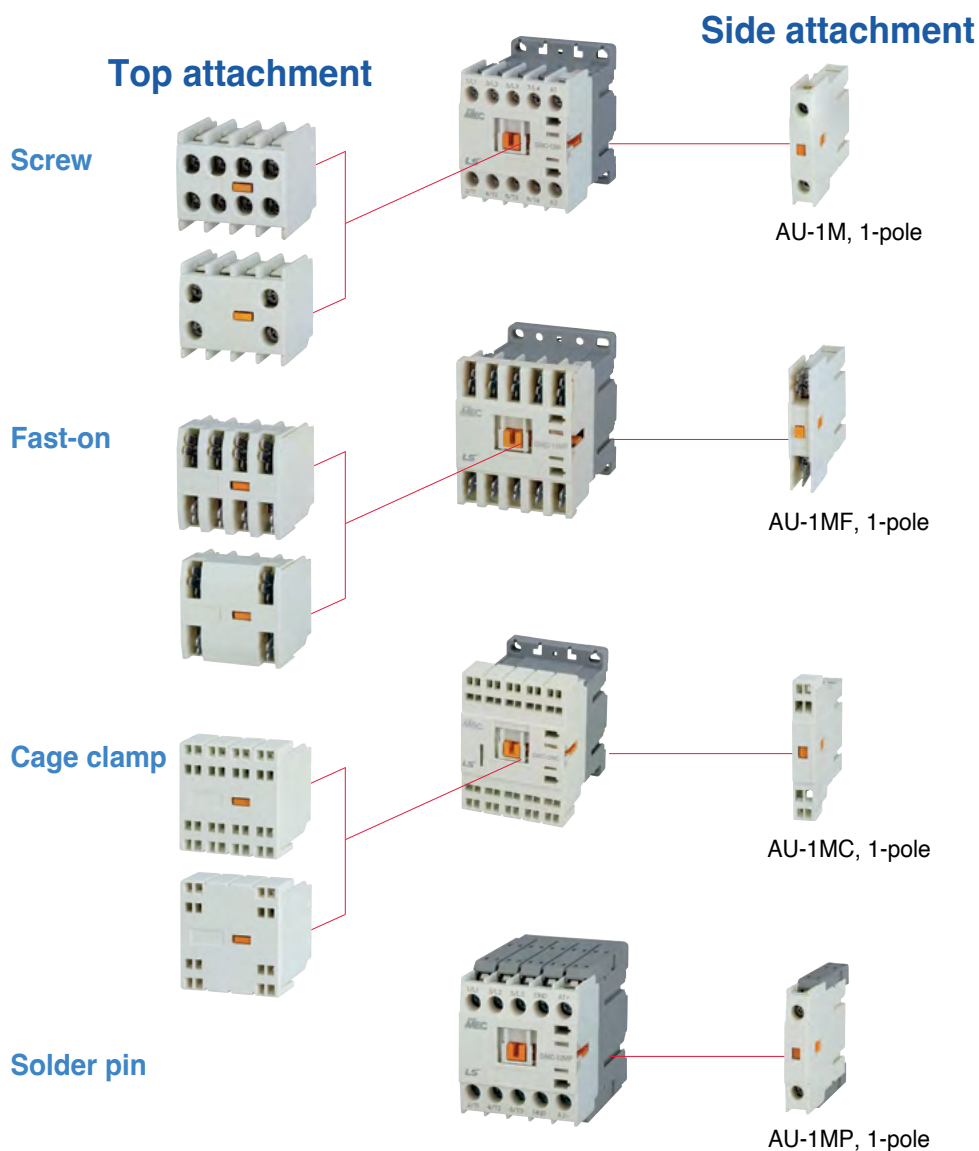
Auxiliary (Trip) contact rating

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: Values in parentheses are NO contact rating sunder auto reset mode

Certificate
CE, ULcUL

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

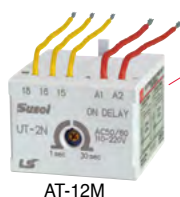
Auxiliary contact specifications

Type	Rated operating current(A)													Lifetime (10,000 times)		Notes
	AC-15							DC-13								
	120V	240V	380V	480V	500V	600V	lthe	125V	250V	400V	500V	600V	lthe	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

Timer unit, AT-12M

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

Timer unit



AT-12M



Surge absorber unit



AS-12M

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

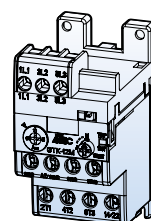
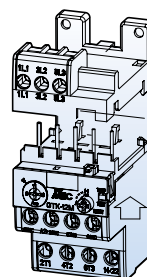
Surge absorber unit



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	

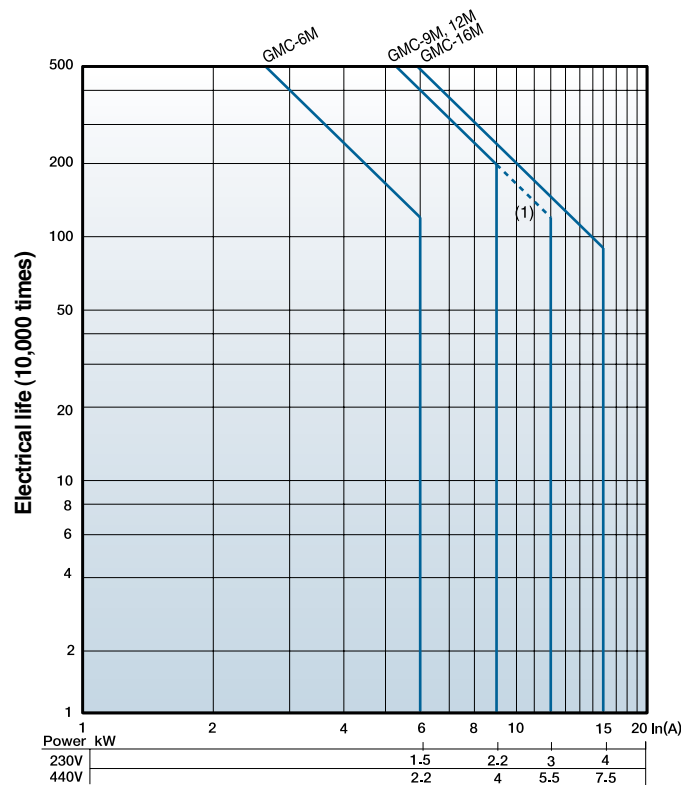
Separate mounting unit, AZ-12MH

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



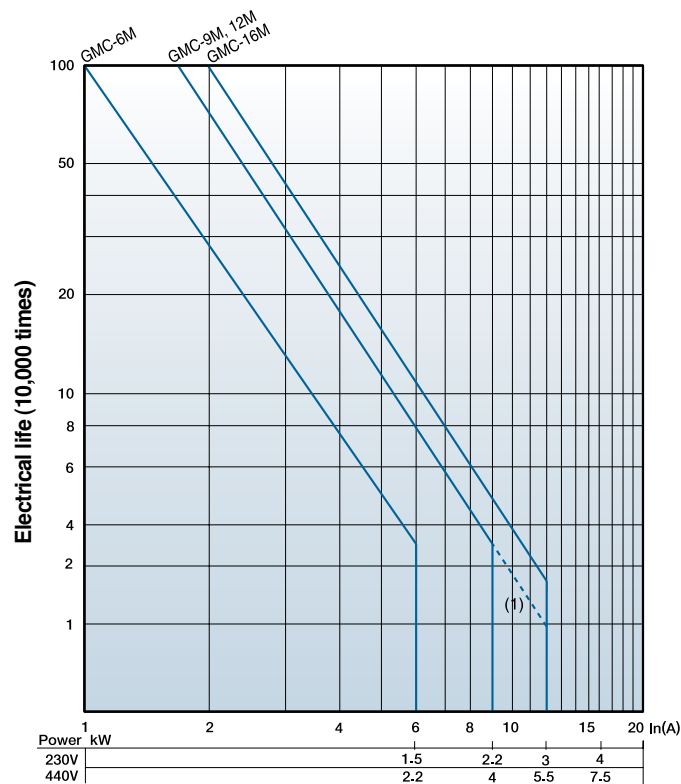
Electrical life of mini contactors

Use in category AC-3
($U_e \geq 440V$)



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

Use in category AC-4
($U_e \geq 440V$)

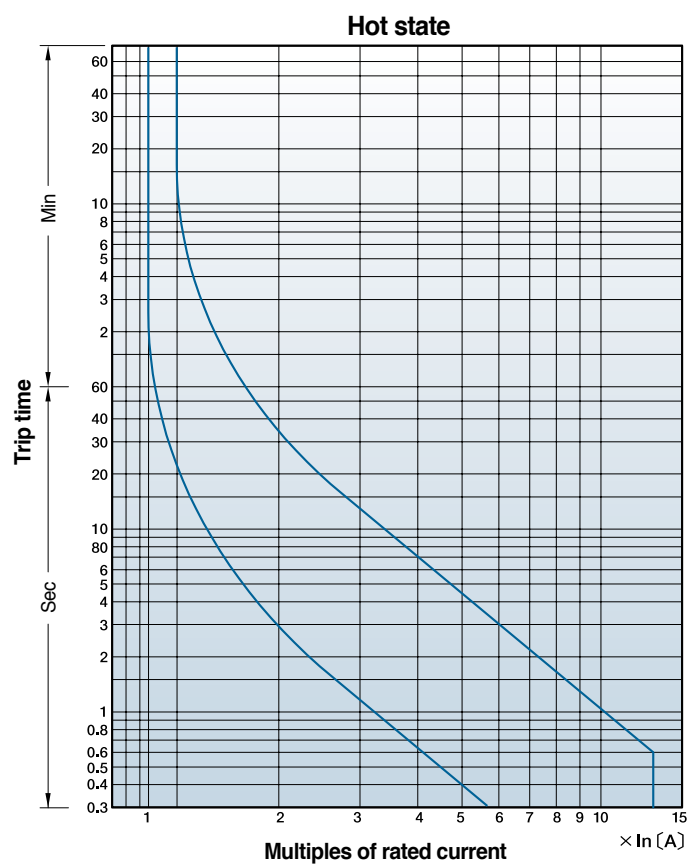
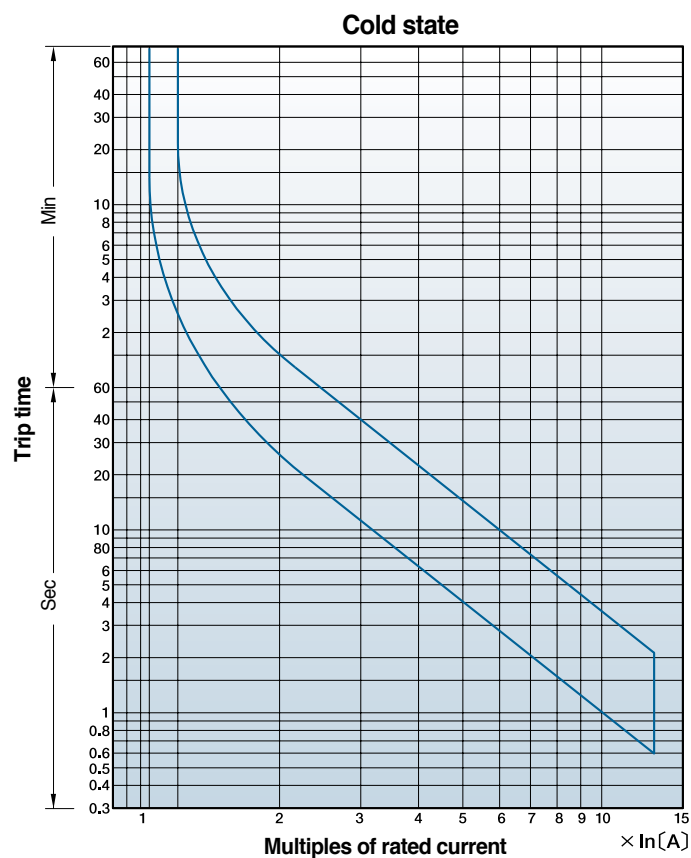


(1) The dotted lines are only applicable to GMC-12M contactors.

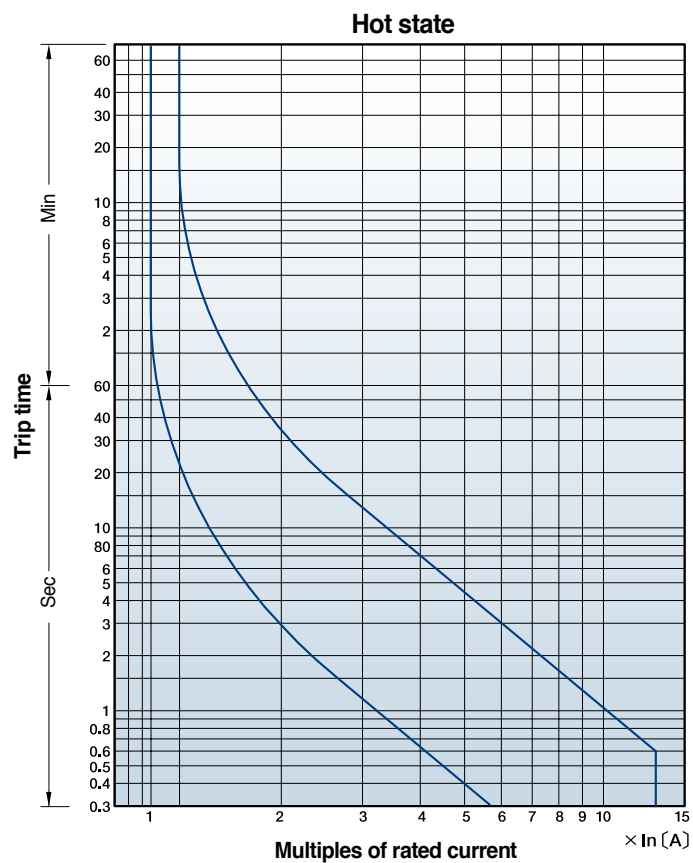
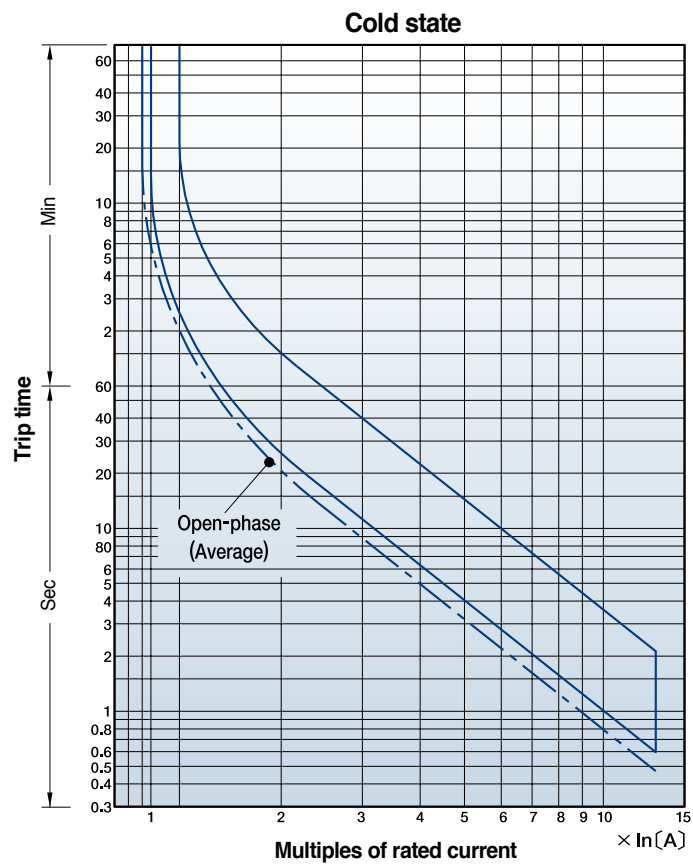
Characteristic curve of thermal overload relay

META-MEC

Non-differential type
GTH-12M



Differential type GTK-12M

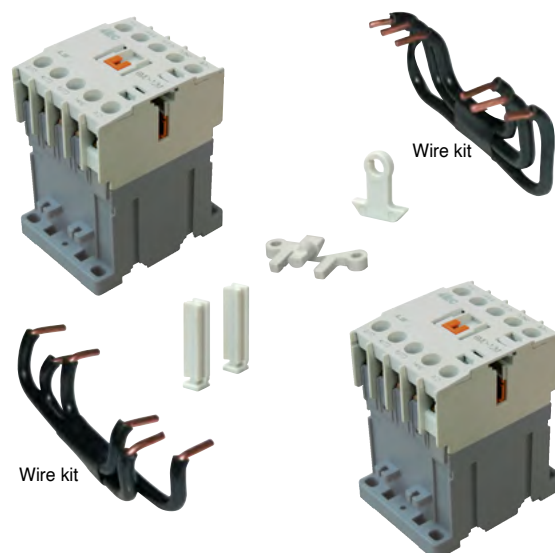




Interlock unit, AR-12M

Components

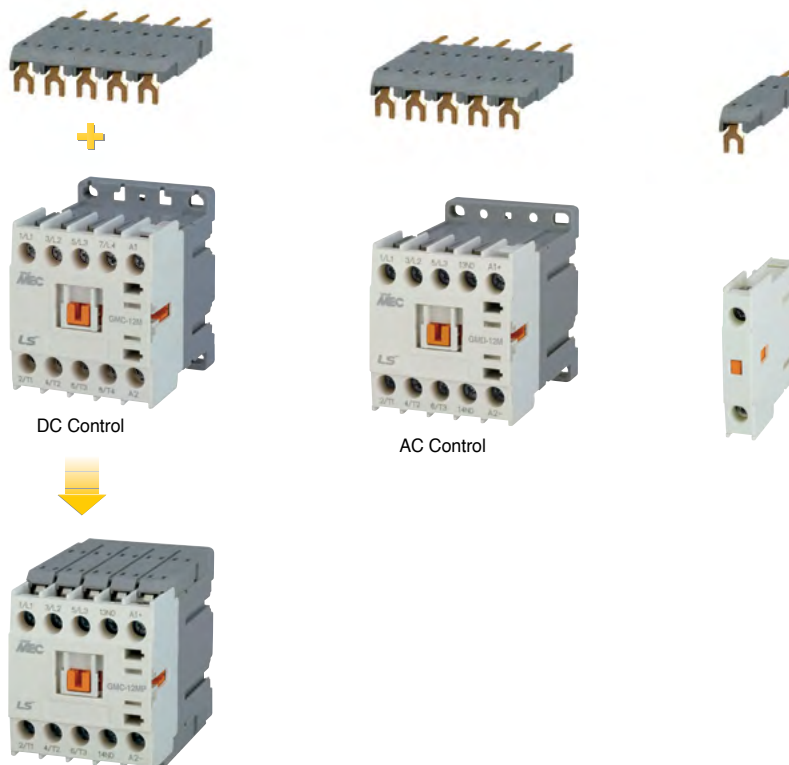
- Mechanical interlock components
- Cable kits for line and load sides



* Wire kit Included in AR-D MW
Wire kit not included in AR-DM

Solder pin terminals

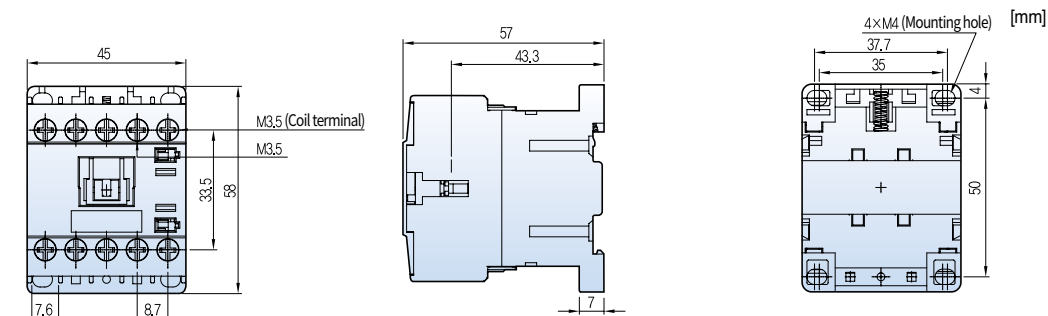
Designed to modify the connection from Screw clamp type to Solder pin type
(available for contactors and auxiliary contact blocks)



Dimensions

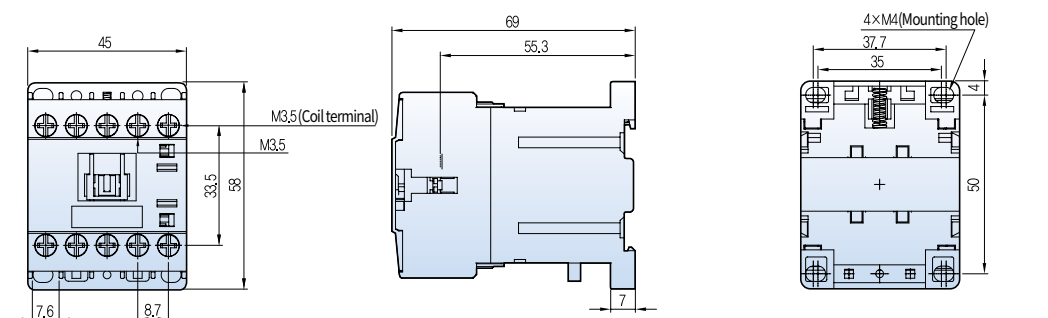
Mini contactors with Screw clamp type

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



0.17kg

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

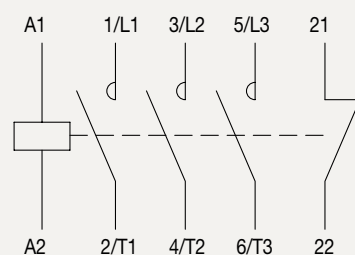
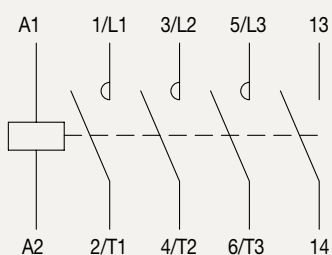


0.23kg

Circuit diagram

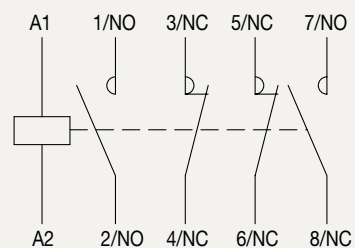
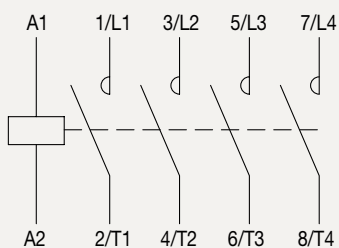
GMC-6M~16M, GMD-6M~16M

3-Pole contactors



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

4-Pole contactors



Dimensions

Mini contactors with Solder pin type

[mm]

GMC-6MP

GMC-9MP

GMC-12MP

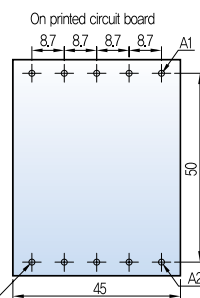
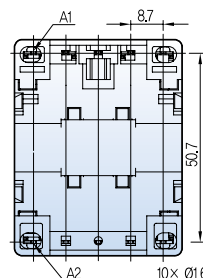
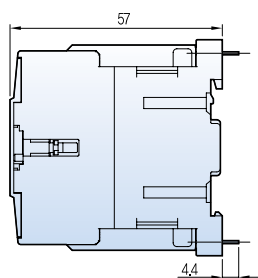
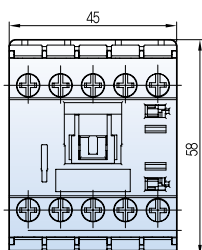
GMC-16MP

GMC-6MP/4

GMC-9MP/4

GMC-12MP/4

GMC-16MP/4



0.17kg

GMD-6MP

GMD-9MP

GMD-12MP

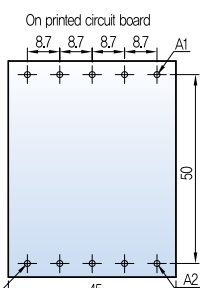
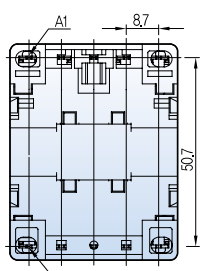
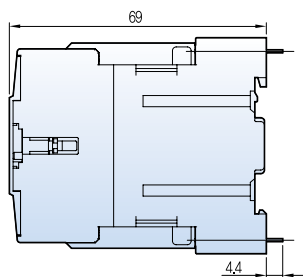
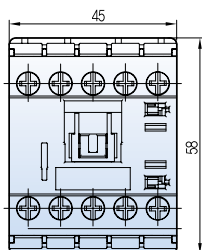
GMD-16MP

GMD-6MP/4

GMD-9MP/4

GMD-12MP/4

GMD-16MP/4

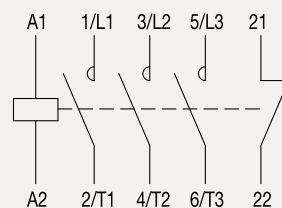
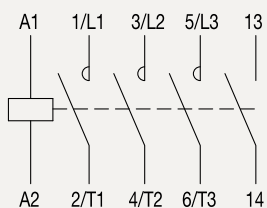


0.23kg

Circuit diagram

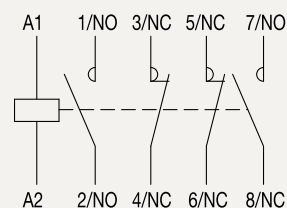
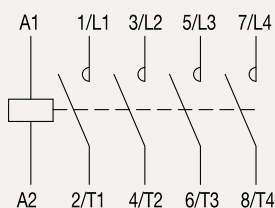
GMC-6MP~16MP, GMD-6MP~16MP

3-Pole contactors



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

4-Pole contactors



Mini contactors with Fast-on type

GMC-6MF

GMC-9MF

GMC-12MF

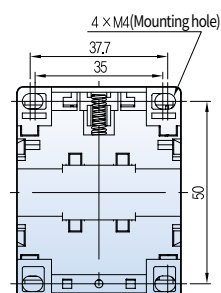
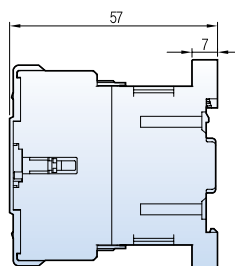
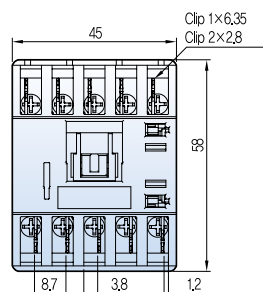
GMC-16MF

GMC-6MF/4

GMC-9MF/4

GMC-12MF/4

GMC-16MF/4



[mm]

0.18kg

GMD-6MF

GMD-9MF

GMD-12MF

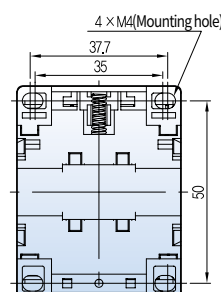
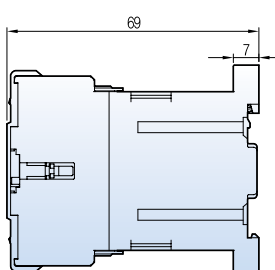
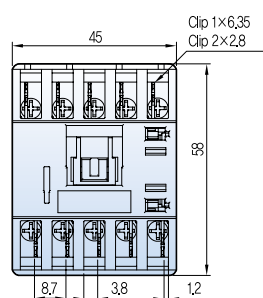
GMD-16MF

GMD-6MF/4

GMD-9MF/4

GMD-12MF/4

GMD-16MF/4

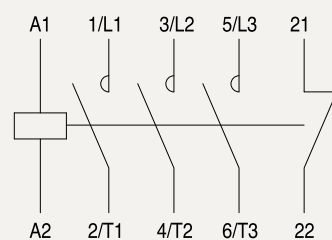
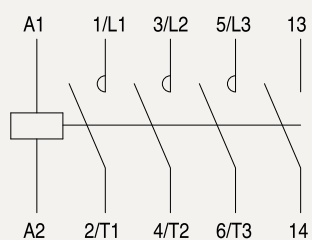


0.27kg

Circuit diagram

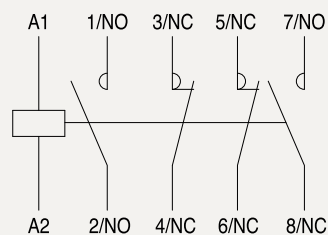
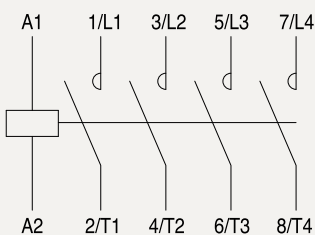
GMC-6MF~16MF, GMD-6MF~16MF

3-Pole contactors



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

4-Pole contactors



Dimensions

Mini contactors with Cage clamp type

GMC-6MC

GMC-9MC

GMC-12MC

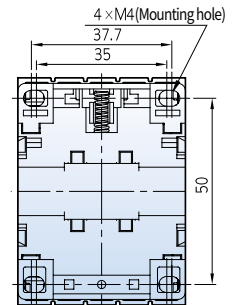
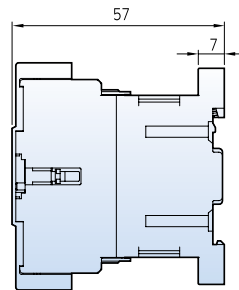
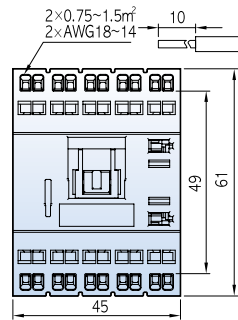
GMC-16MC

GMC-6MC/4

GMC-9MC/4

GMC-12MC/4

GMC-16MC/4



[mm]

0.19kg

GMD-6MC

GMD-9MC

GMD-12MC

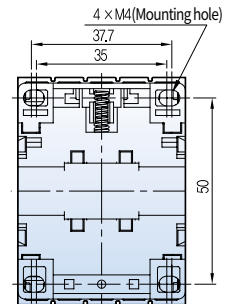
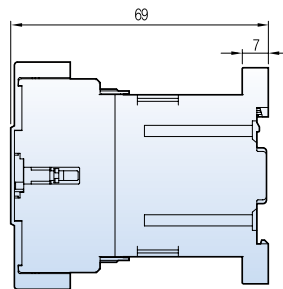
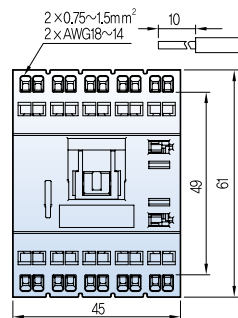
GMD-16MC

GMD-6MC/4

GMD-9MC/4

GMD-12MC/4

GMD-16MC/4

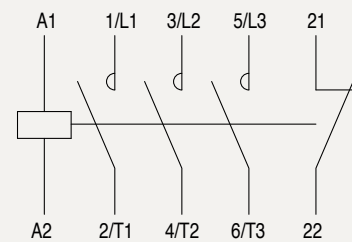
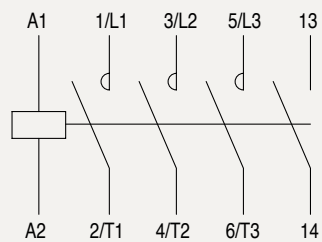


0.28kg

Circuit diagram

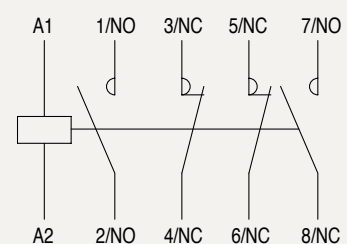
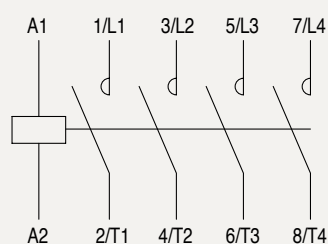
GMC-6MC~16MC, GMD-6MC~16MC

3-Pole contactors



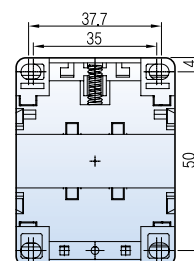
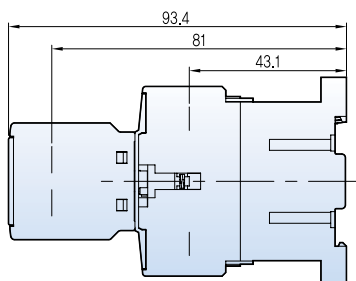
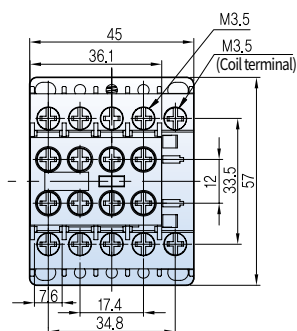
GMC-6MC/4~16MC/4, GMD-6MC/4~16MC/4

4-Pole contactors



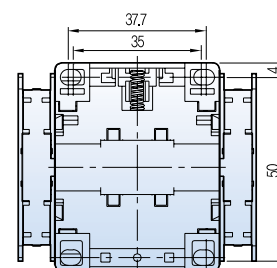
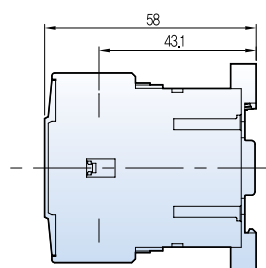
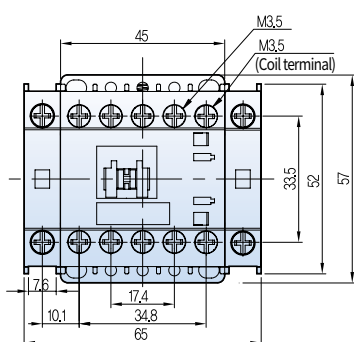
Mini contactors with Auxiliary contacts

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



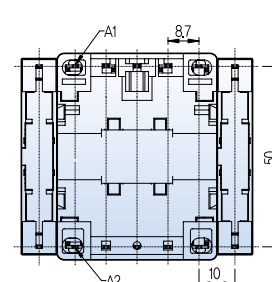
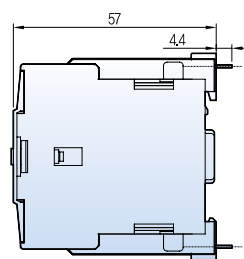
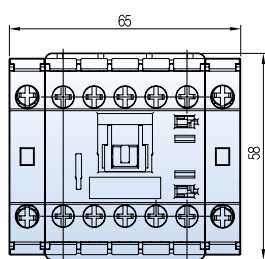
[mm]

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



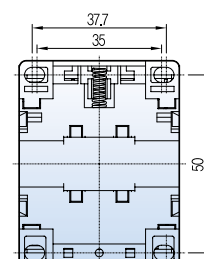
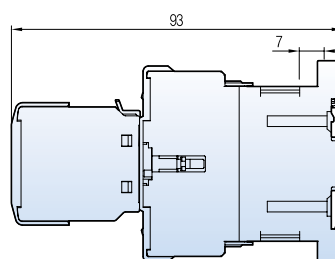
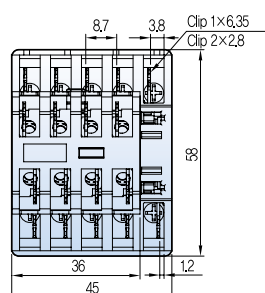
0.21kg

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



0.21kg

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

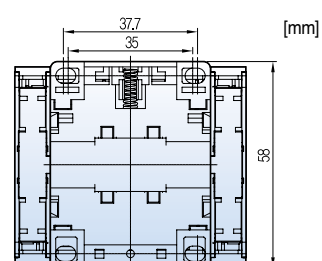
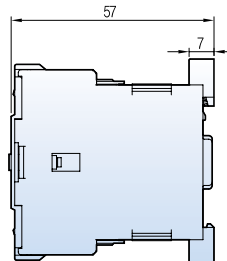
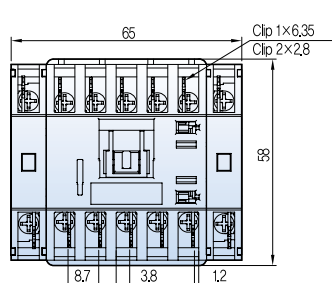


0.23kg

Dimensions

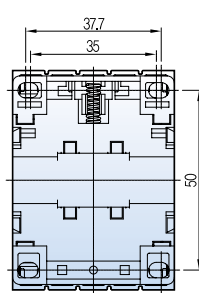
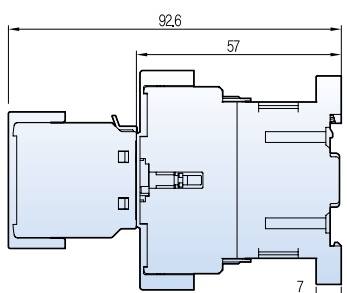
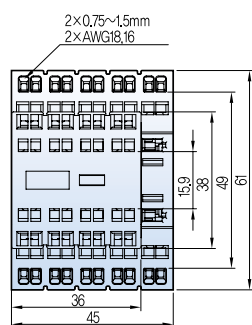
Mini contactors with Auxiliary contacts

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



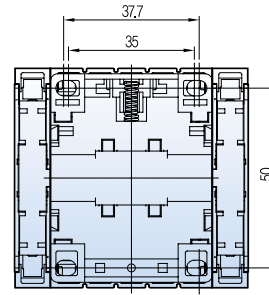
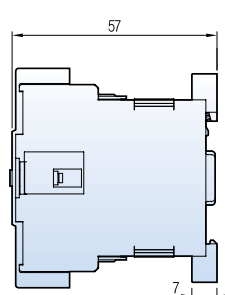
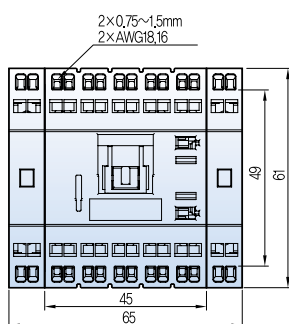
0.32kg

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

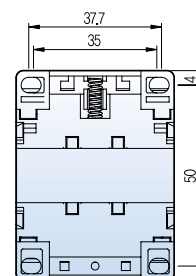
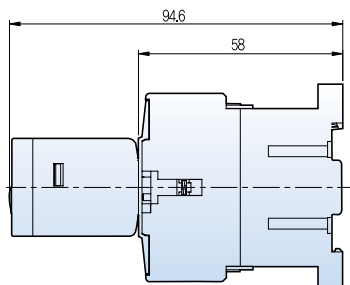
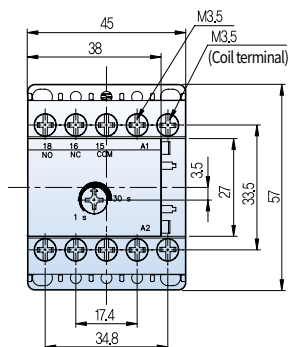
Mini contactors with external accessories

[mm]

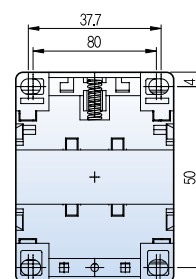
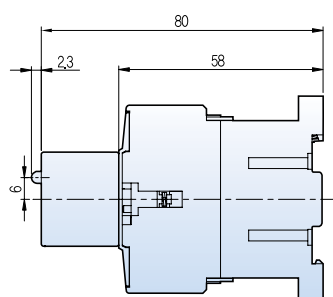
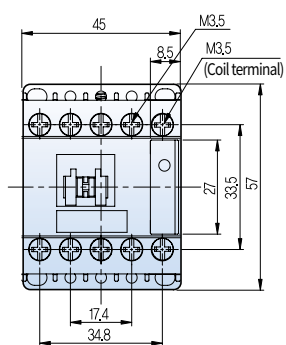
0.21kg

0.175kg

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



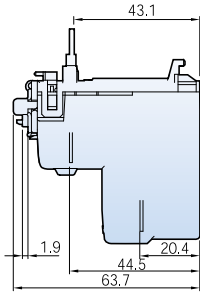
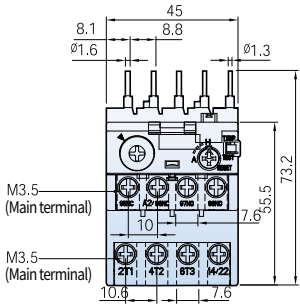
GMD-6M
GMD-9M
GMD-12M
GMD-16M
+
AS-12M



Dimensions

Thermal overload relays for Mini contactors

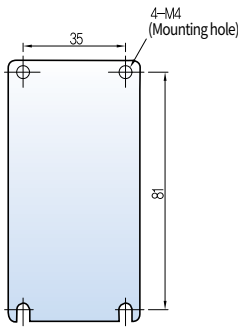
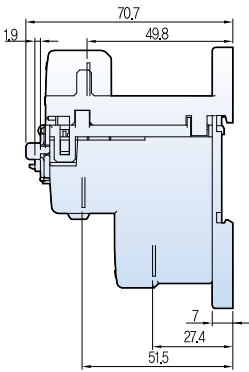
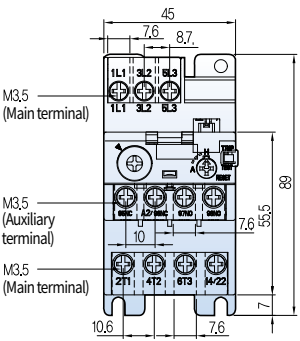
GTH(K)-12M



[mm]

0.1kg

GTH(K)-12MH



0.4kg

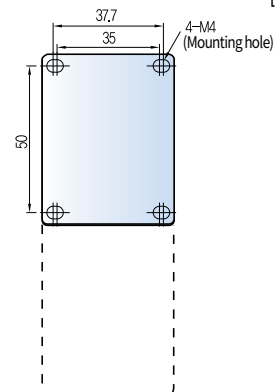
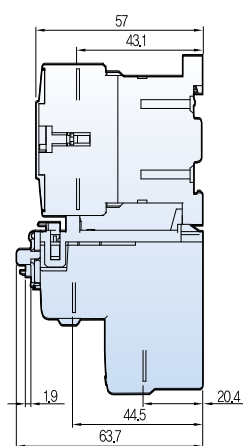
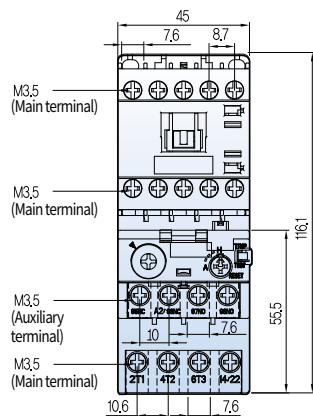
Mini motor starters, open

GMS-6M

GMS-9M

GMS-12M

GMS-16M



[mm]

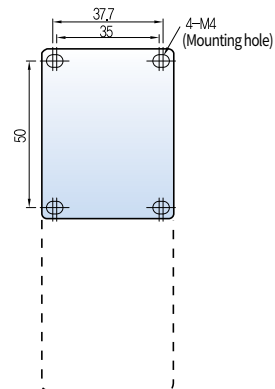
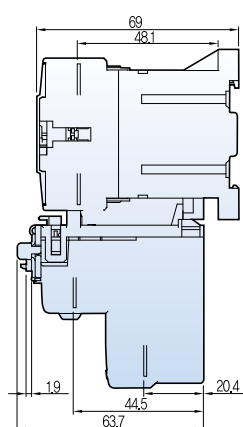
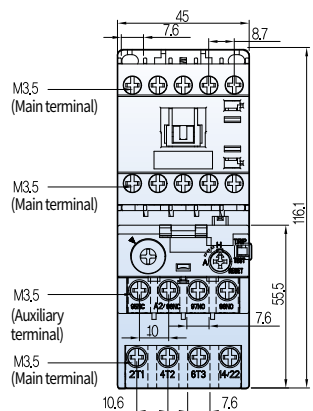
0.26kg

GMS-6MD

GMS-9MD

GMS-12MD

GMS-16MD



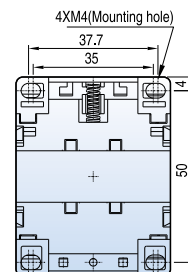
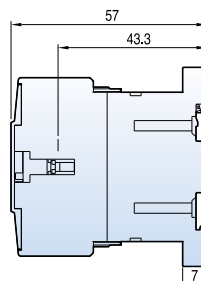
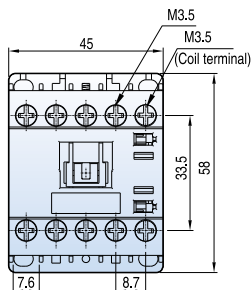
0.39kg

Dimensions

Mini contactor relays

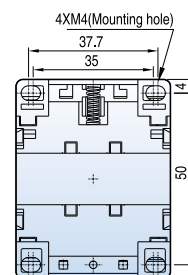
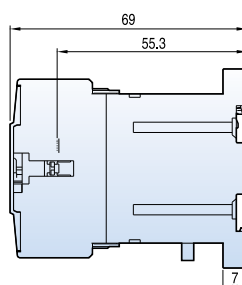
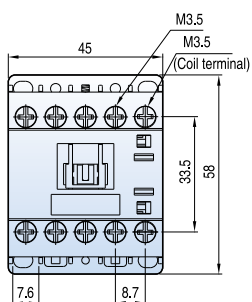
[mm]

GMR-4M



0.17kg

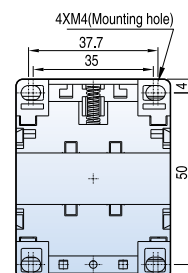
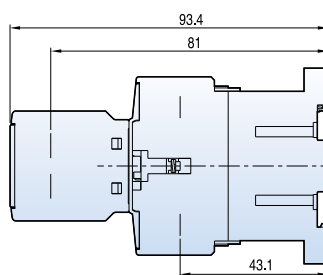
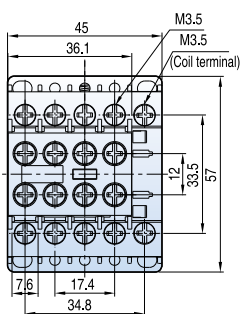
GMR-4MD



0.23kg

GMR-4M

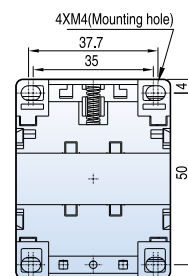
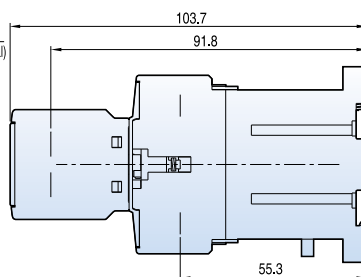
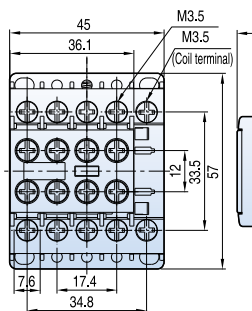
GMR-8M



0.21kg

GMR-4M

GMR-8M

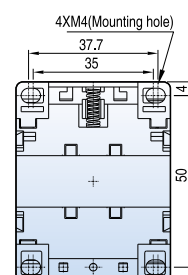
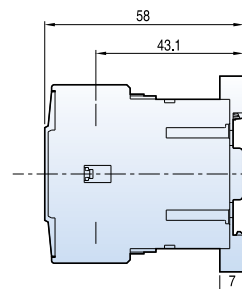
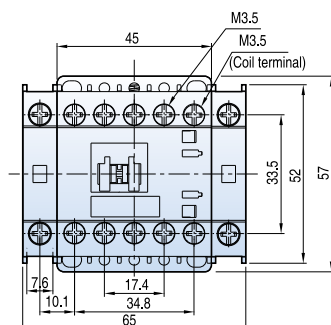


0.21kg

GMR-4M

+

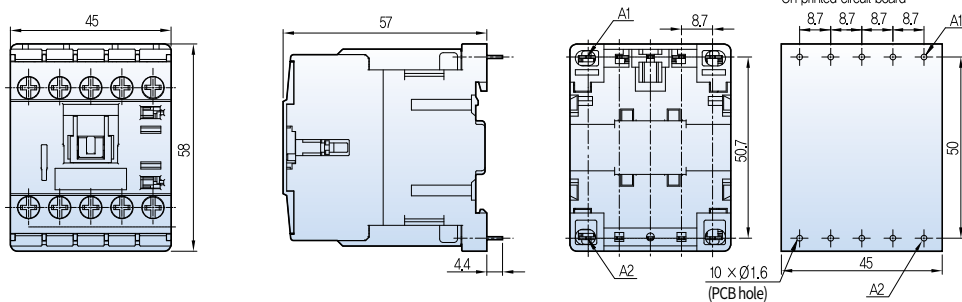
2× AU-1M



0.21kg

Mini contactor relays

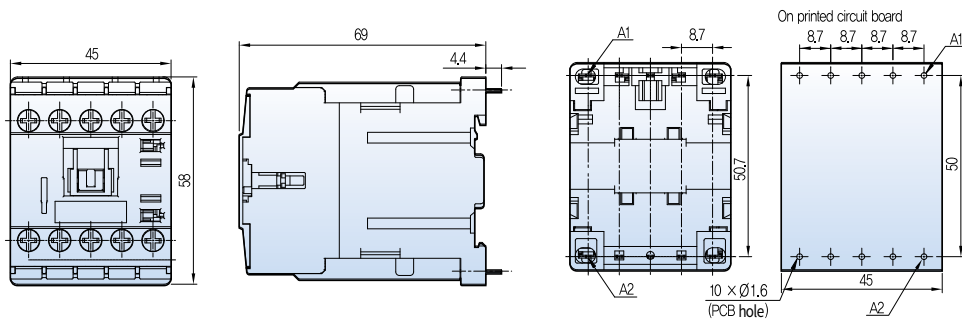
GMR-4MP



[mm]

0.19kg

GMR-4MPD

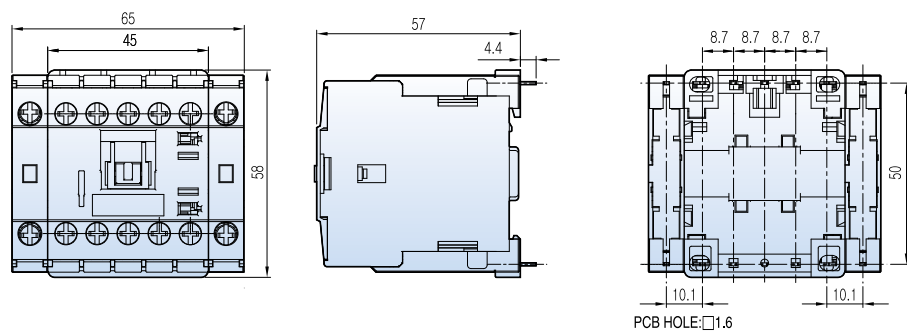


0.28kg

GMR-4MP

+

2 × AU-1M



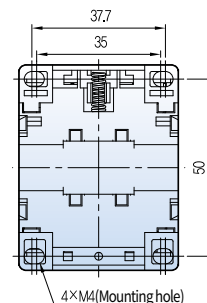
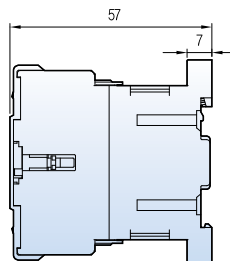
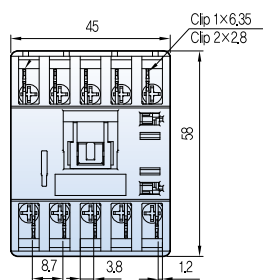
Dimensions

META-MEC

Mini contactor relays

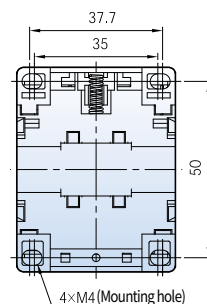
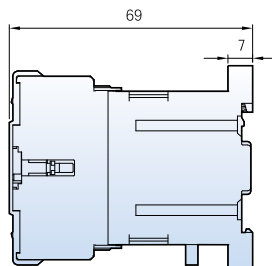
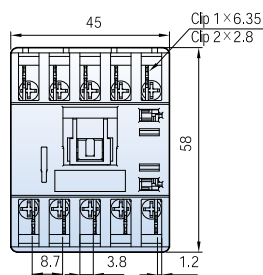
[mm]

GMR-4MF



0.18kg

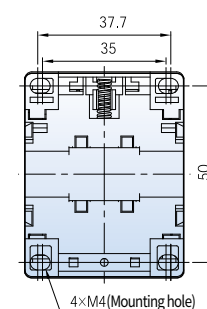
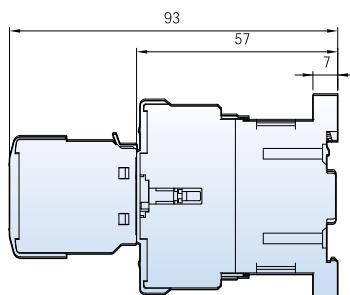
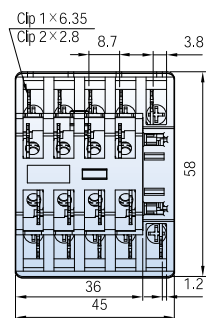
GMR-4MFD



0.27kg

GMR-6MF

GMR-8MF

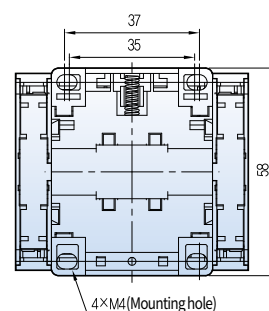
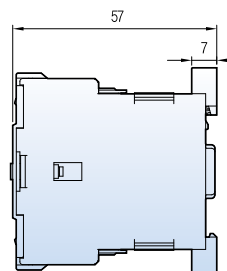
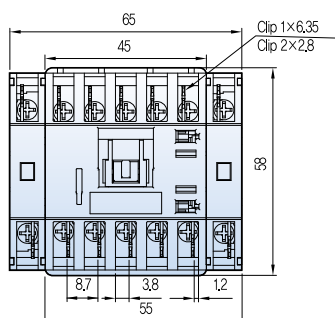


0.23kg

GMR-4MF

+

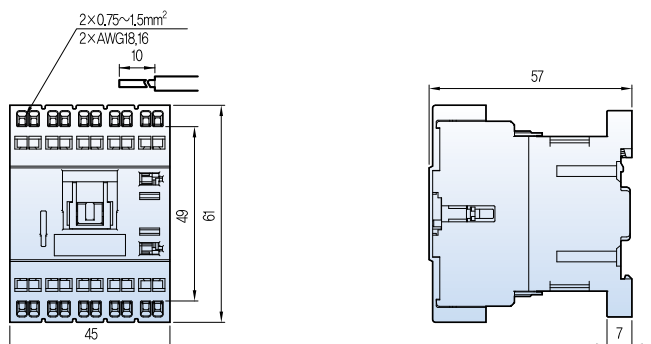
2x AU-1MF



0.32kg

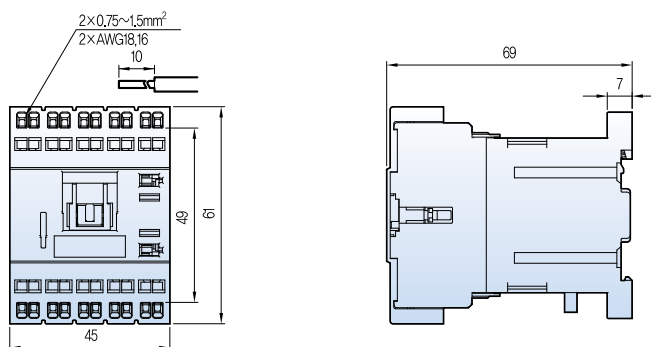
[mm]

GMR-4MC



0.18kg

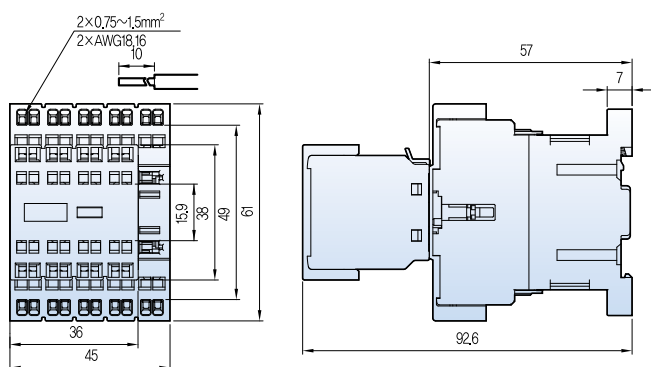
GMR-4MCD



0.27kg

GMR-6MC

GMR-8MC

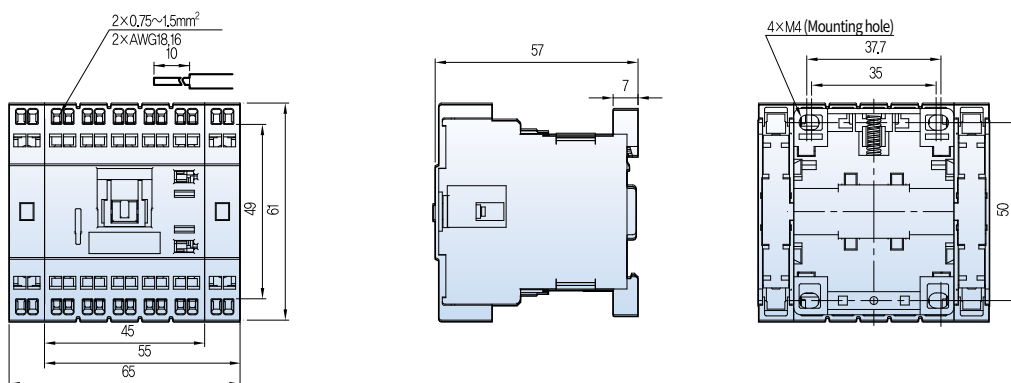


0.23kg

GMR-4MC

+

2 × AU-1MC



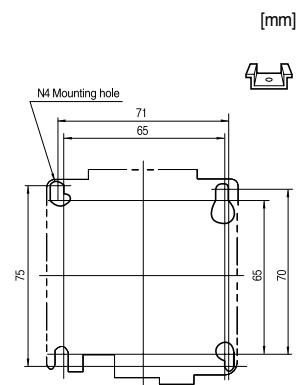
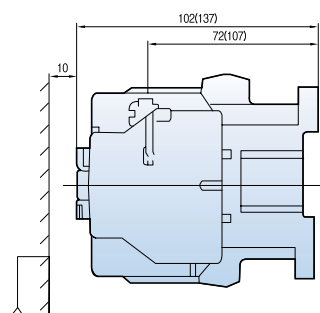
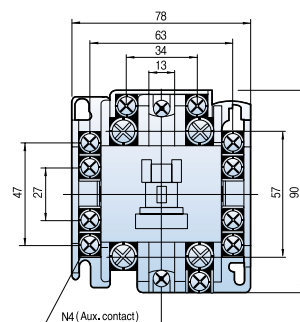
0.32kg

Dimensions

2-pole DC Contactors

SMM-30P

SMM-30DP



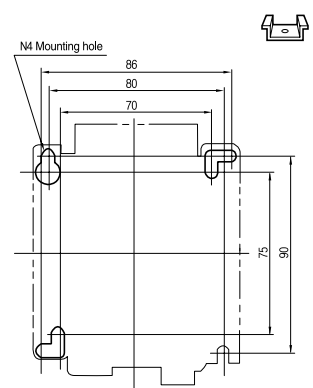
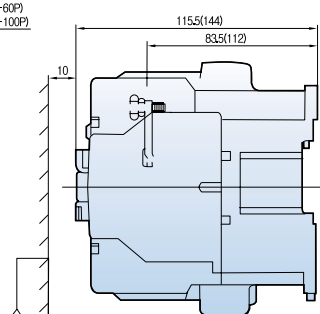
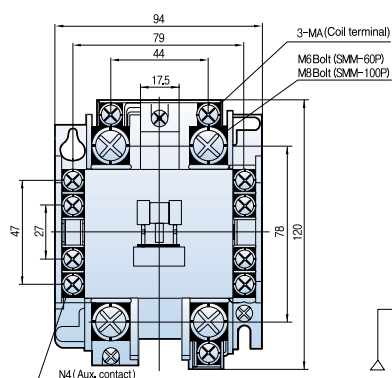
0.61(0.93)kg

SMM-60P

SMM-100P

SMM-60DP

SMM-100DP



1.15(2.17)kg

2-pole AC Contactors

GMC-10P2

GMC-20P2

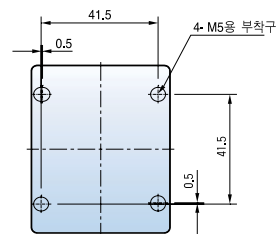
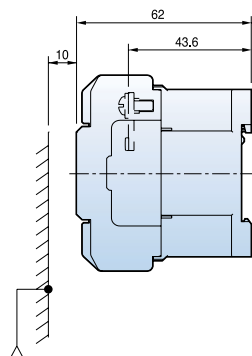
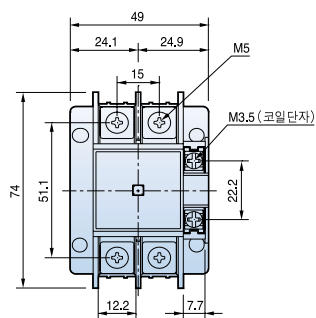
GMC-25P2

GMC-30P2

GMC-35P2

GMC-40P2

(TSBS Type)



[mm]

1.29kg

GMC-10P2

GMC-20P2

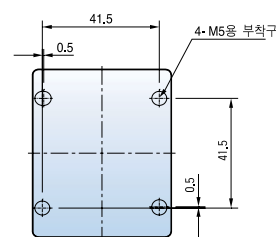
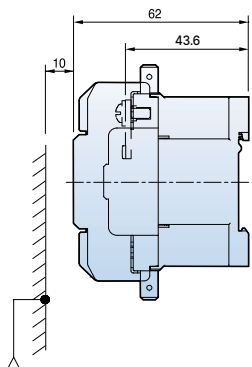
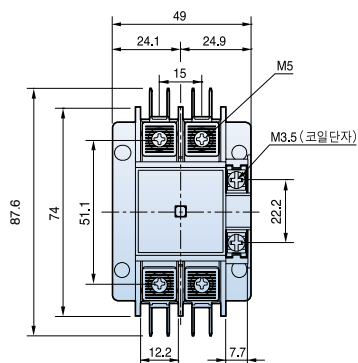
GMC-25P2

GMC-30P2

GMC-35P2

GMC-40P2

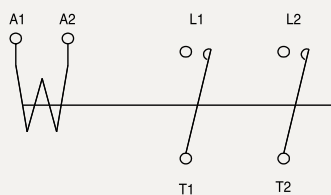
(TQBS Type)



1.29kg

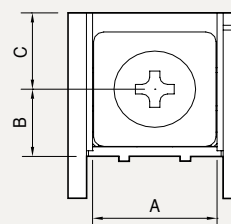
Circuit diagram

GMC-10P2~40P2



Terminal

Type	Terminal	Screw (mm ²)	Wire (kgf·cm)	Torque (mm)	A×B×C
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

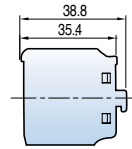
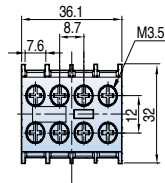


Dimensions

Accessories for Mini contactors

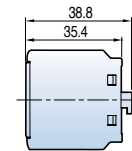
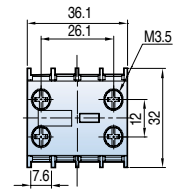
[mm]

AU-4M



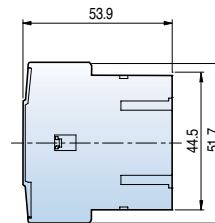
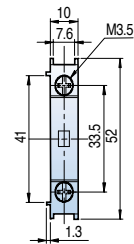
0.04kg

AU-2M



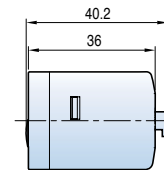
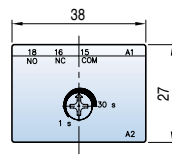
0.03kg

AU-1M



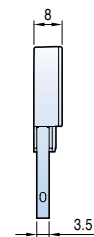
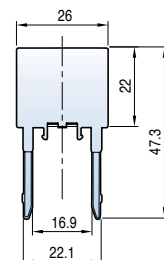
0.02kg

AT-12M



0.04kg

AS-12M



0.005kg

Memo

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