Derwent
Top 100
Global
Innovator
2020

Meta-MEC

Mini Contactors and Overload Relays

LS ELECTRIC

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

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

Contents

Features ····· 04
Catalog numbering system ····· 10
Quick selection table ····· 12
AC coil ····· 13
DC coil ····· 15
Motor starters, open ····· 17
Mini contactors, Reversing type ····· 18
Bimetallic style ····· 22
Accessories ····· 24
Dimensions ····· 29

tactors
and Overload Relays

Compact & Space Saving

LS Mini contactors & starters

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

LS Mini -contactors and starters

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

Providing the convenience of connection and mounting by terminal options such as Cage clamp, Fast-on, Solder pin as well as Screw Terminal. In addition dedicated thermal style overload realys can be easily attached for motor protection and various accessories are also available - surge unit, timer unit, auxiliary contact unit.

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
- UL 508

Certification

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

Low Consumption

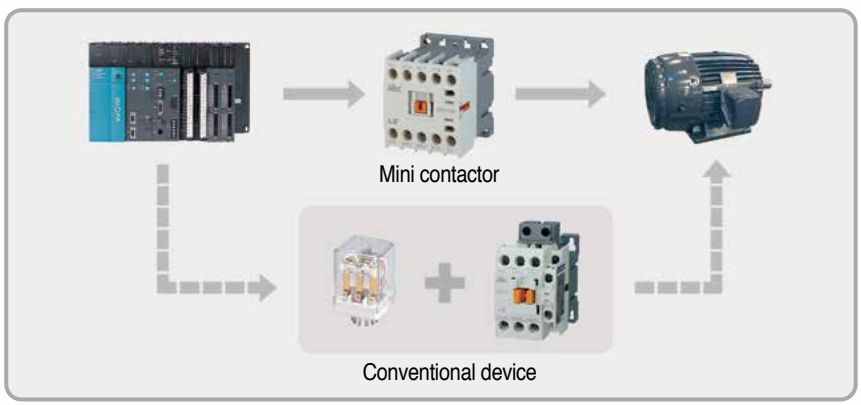
The low power consumption type contactor, a product that combines the advantages of the relay and the magnetic contactor, can be driven directly by the small output of the PLC. The relay and its space in the panel are not necessary any more.

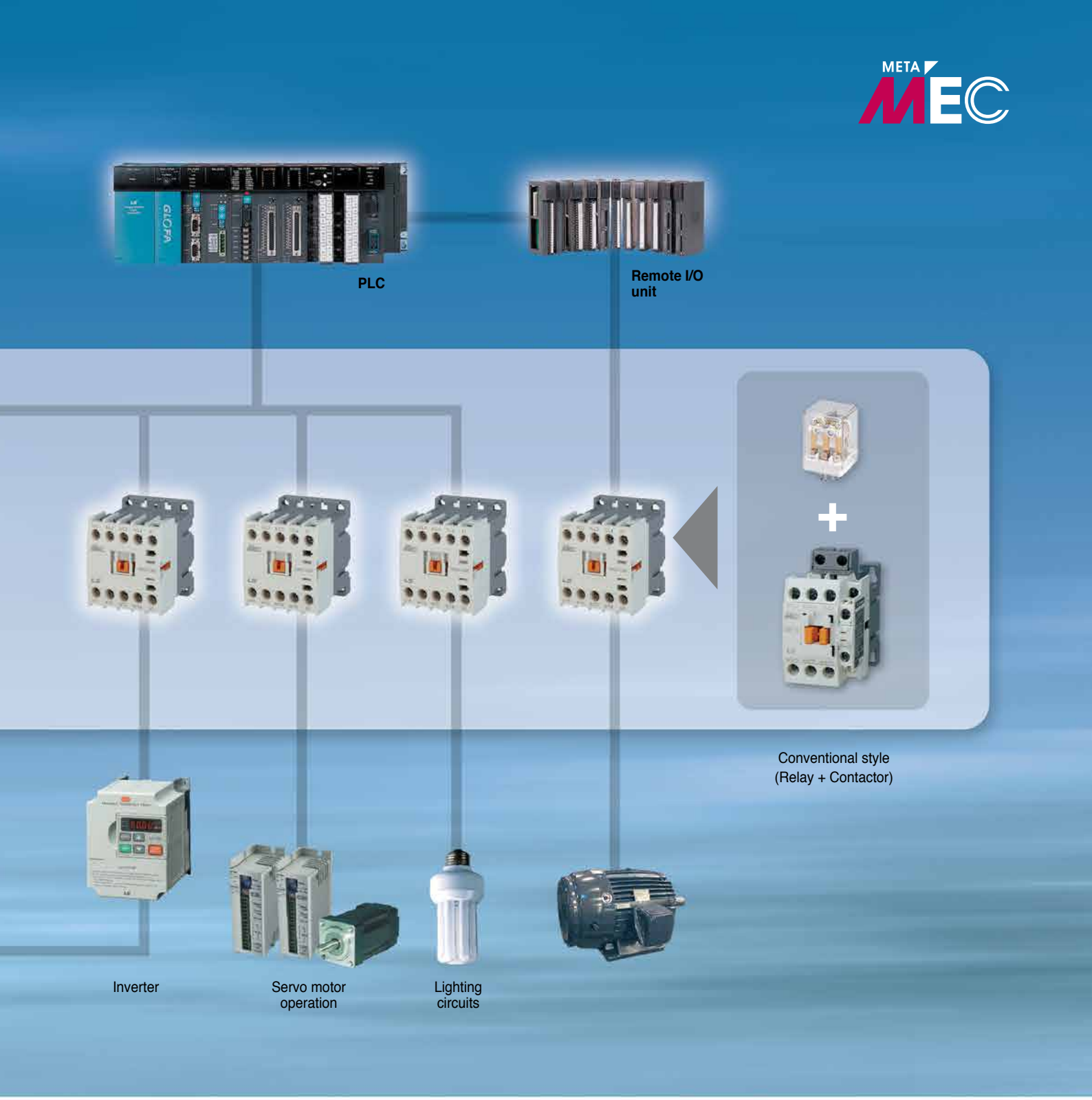
Direct driving by

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

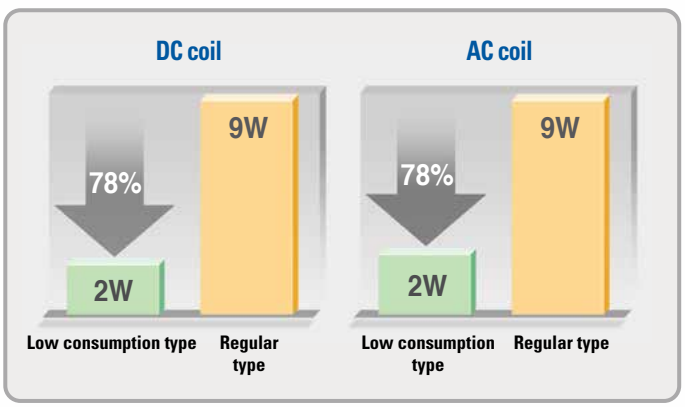
AC 380V
7.5kW
16A
or under

Direct driving by PLC output





Reduction rate of power consumption

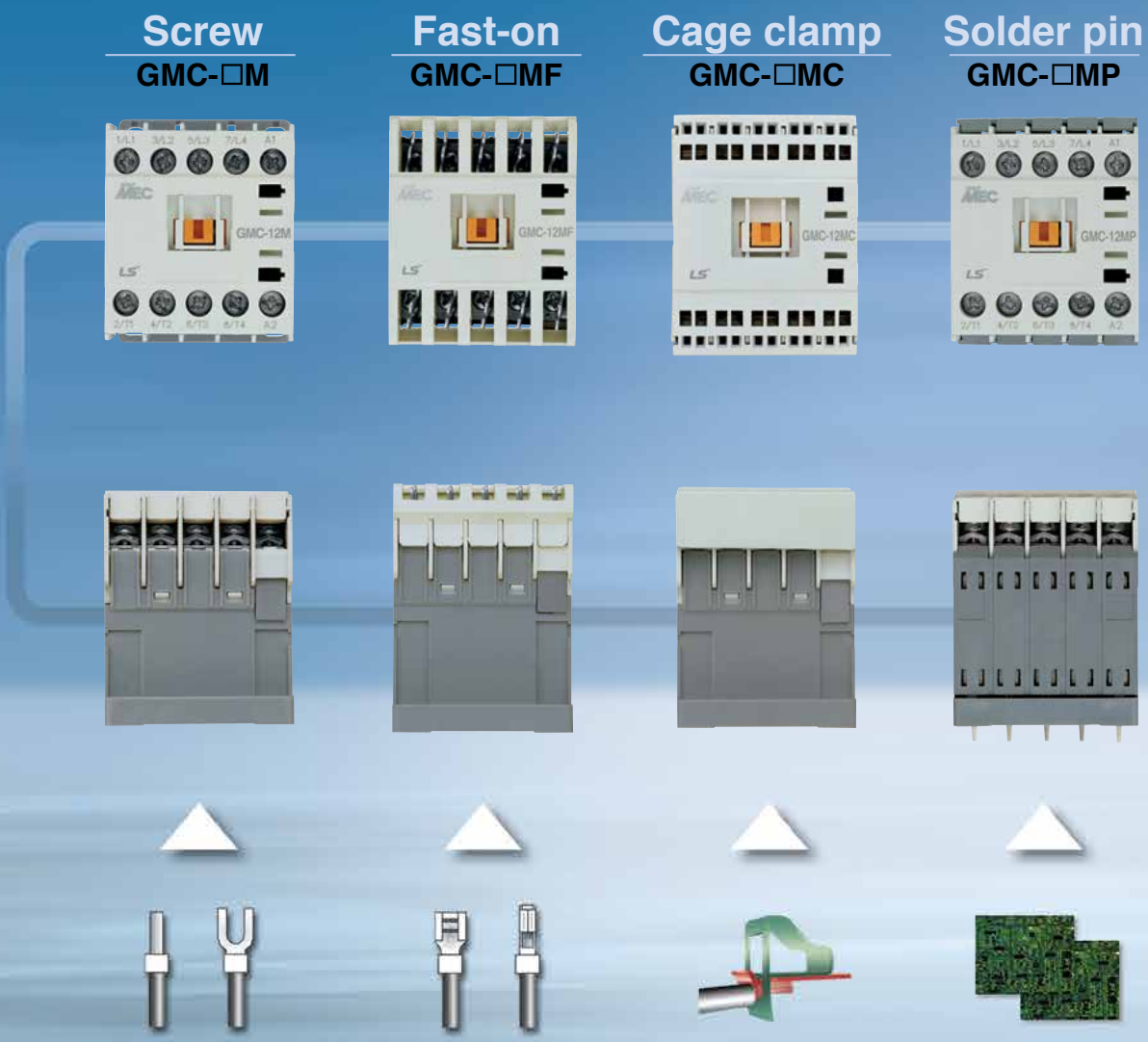


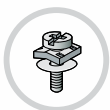
Characteristic of control coil

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	30 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

4 terminal options for a variety of applications





Screw terminal
Standard type with M3 screw for connetion 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 connection with wires directly

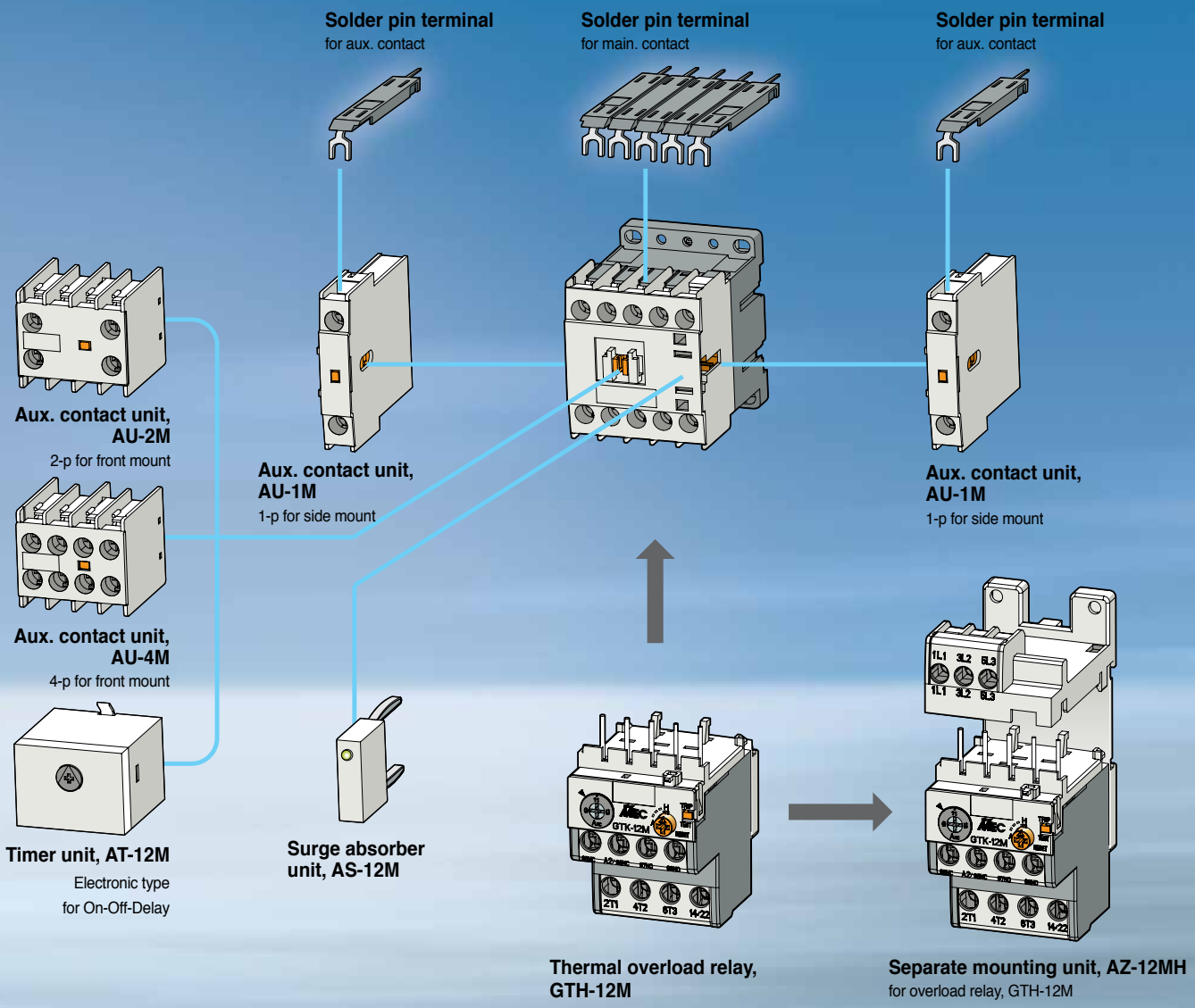
Solder pin terminal
for mounting on PCB

Auxiliary contact units

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

Variety

Accessories ...

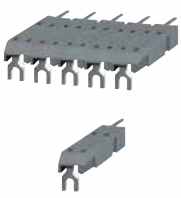


Surge absorber unit

Interlock unit

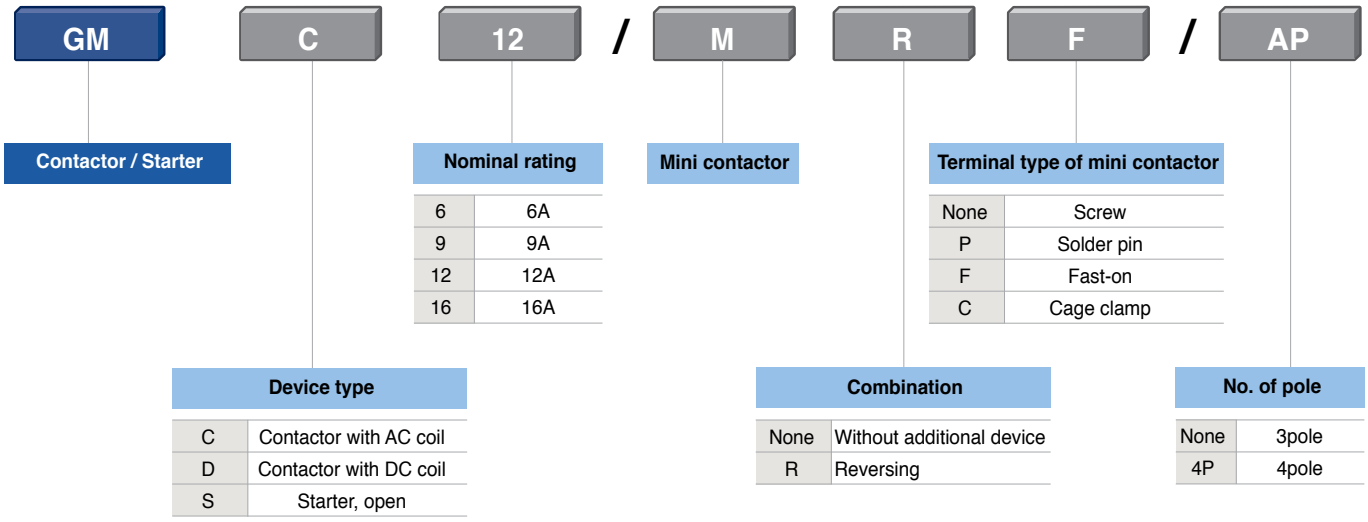
Timer unit

Relay separate mounting unit


Solder pin terminal

Catalog numbering system

Contactors & Starters



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

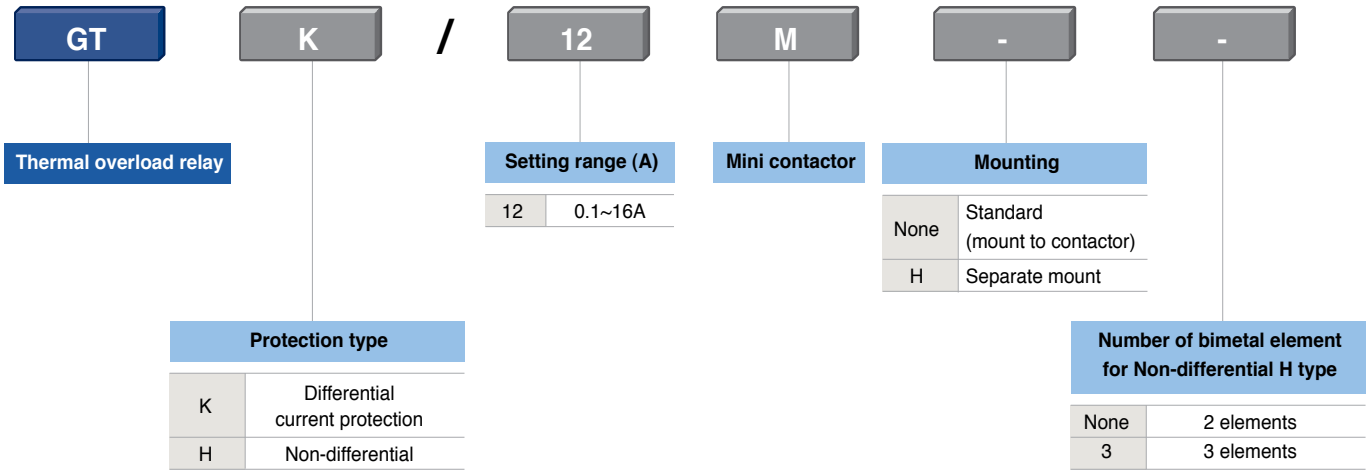
Terminal type of mini contactor	
None	Screw
P	Solder pin
F	Fast-on
C	Cage clamp

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

Combination	
None	Without additional device
R	Reversing

No. of pole	
None	3pole
4P	4pole

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 bimetal element for Non-differential H type	
None	2 elements
3	3 elements

2-pole contactors

Ampere frame (A)	
10P	10
20P	20
25P	25
30P	30
35P	35
40P	40

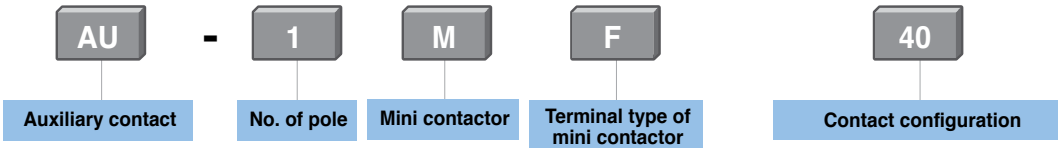
Number of poles	
2	2Pole

Terminal connection	
TS	Screw clamp
TQ	Quick connect

Coil connection	
BS	Screw clamp
BQ	Quick connect

Operational voltage (AC)	
20V	24V
48V	24~240V
110V	100~120V
220V	208~240V

Auxiliary contact



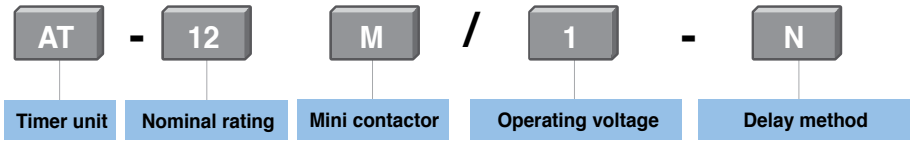
1	1pole
2	2pole
3	3pole

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.

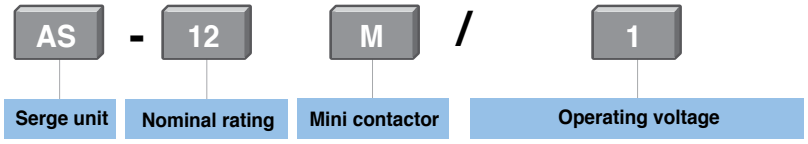
Timer unit



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

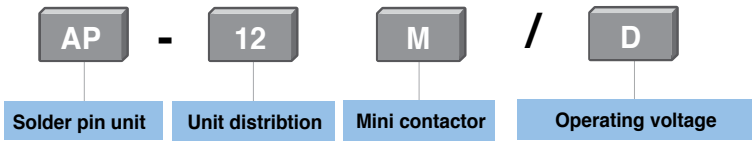
N	ON Delay
F	OFF Delay

Serge unit



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

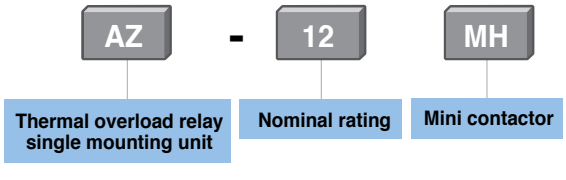
Solder pin unit



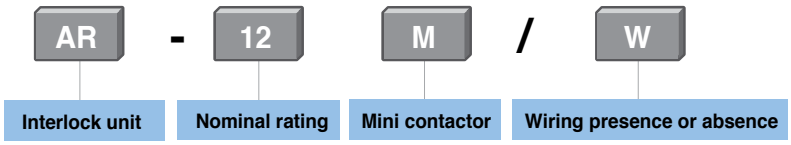
1	Auxiliary
12	Contactor

None	AC Operated type
D	DC Operated type

Single mounting unit



Interlock unit



None	Absence
W	Presence

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			**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	AU-1MP
4-pole, Front mount	AU-4M	AU-4MF	AU-4MC	
2-pole, Side mount	AU-1M	AU-1MF	AU-1MC	

Note) * = 1/2 for cage clamp type, ** = 1.5hp for cage clamp type, *** = 5hp for cage clamp type
16AF : not approved from UL

Overload Relays

Bimetallic style
Type GT
Class 10A

GT-12M

Setting ranges (A)

0.1 - 0.16	4 - 6
0.16 - 0.25	5 - 8
0.25 - 0.4	6 - 9
0.4 - 0.63	7 - 10
0.63 - 1	9 - 13
1 - 1.6	12 - 16
1.6 - 2.5	
2.5 - 4	

Base for separate mount

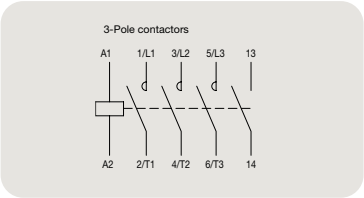
Differential	GTK-12M
Non-differential (3-heater)	GTH-12M/3
Non-differential (2-heater)	GTH-12M

AC coil

Contactors

- For motor control
- 3 main plus 1 auxiliary contacts
- Coil voltage : AC

Circuit diagram



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 : 12 mil. operations			

Note) 16A frame is not UL listed item.

Coil characteristic

Coil voltage		AC
Coil consumption	(W)	2
Inrush		32VA
Sealed		6VA
Closing voltage	(%)	80~110
Opening voltage	(%)	30~40
Closing time	(ms)	10~20
Opening time	(ms)	35~45

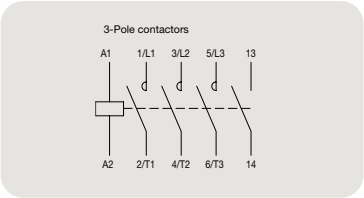
Certificate
CE, ULcUL

AC coil

Contactors

- For motor control
- 3 main plus 1 auxiliary contacts
- Coil voltage : AC

Circuit diagram



Cage clamp connection types

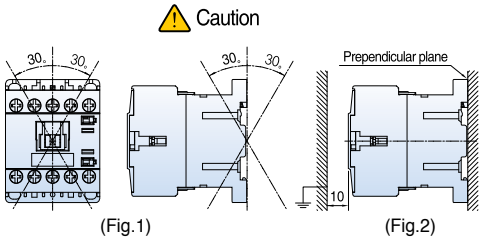
Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMC-6MC
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMC-9MC
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMC-12MC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



(Fig.1) (Fig.2)

*Even installing direction takes the direction of Fig.1 to prependicular, ip to the direction of the 30° .
Keep the distance more than 10mm with arc space shown Fig.2

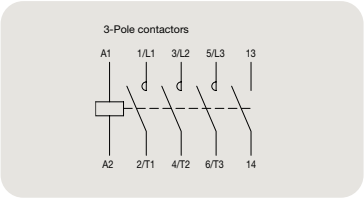
Certificate
CE, ULcUL

DC coil

Contactors

- For motor control
- 3 main plus 1 auxiliary contacts
- Coil voltage : DC

Circuit diagram



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 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 characteristic

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

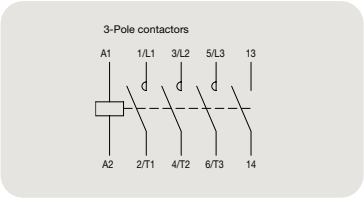
Certificate
CE, ULcUL

DC coil

Contactors

- For motor control
- 3 main plus 1 auxiliary contacts
- Coil voltage : DC

Circuit diagram



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

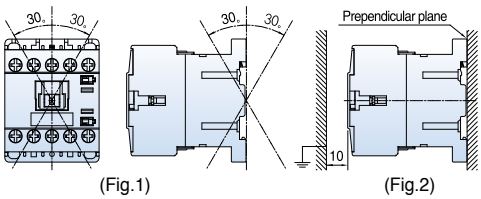
Coil voltage, DC

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

*Even installing direction takes the direction of Fig.1 to prependicular, ip to the direction of the 30□.
Keep the distance more than 10mm with arc space shown Fig.2

Certificate
CE, ULcUL

Motor starters, open

2.2kW ~ 7.5kW

Starters

- Open types
- Direct (Full voltage) types
- Coil voltage : AC
- 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

Certificate
CE, ULcUL

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

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

Reversing contactors

- For motor control
- Mechanically interlocked
- Coil voltage : AC

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-6MR
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMC-9MR
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMC-12MR
16A	4kW 16A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	GMC-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	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

- For motor control
- Mechanically interlocked
- Coil voltage : AC

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

- For motor control
- Mechanically interlocked
- Coil voltage : DC

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

- For motor control
- Mechanically interlocked
- Coil voltage : DC

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

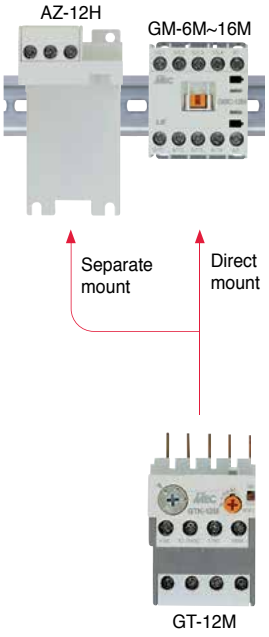
Ordering information
Type, Auxiliary contact and Coil voltage

Bimetallic style

GT-12M

Description

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



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

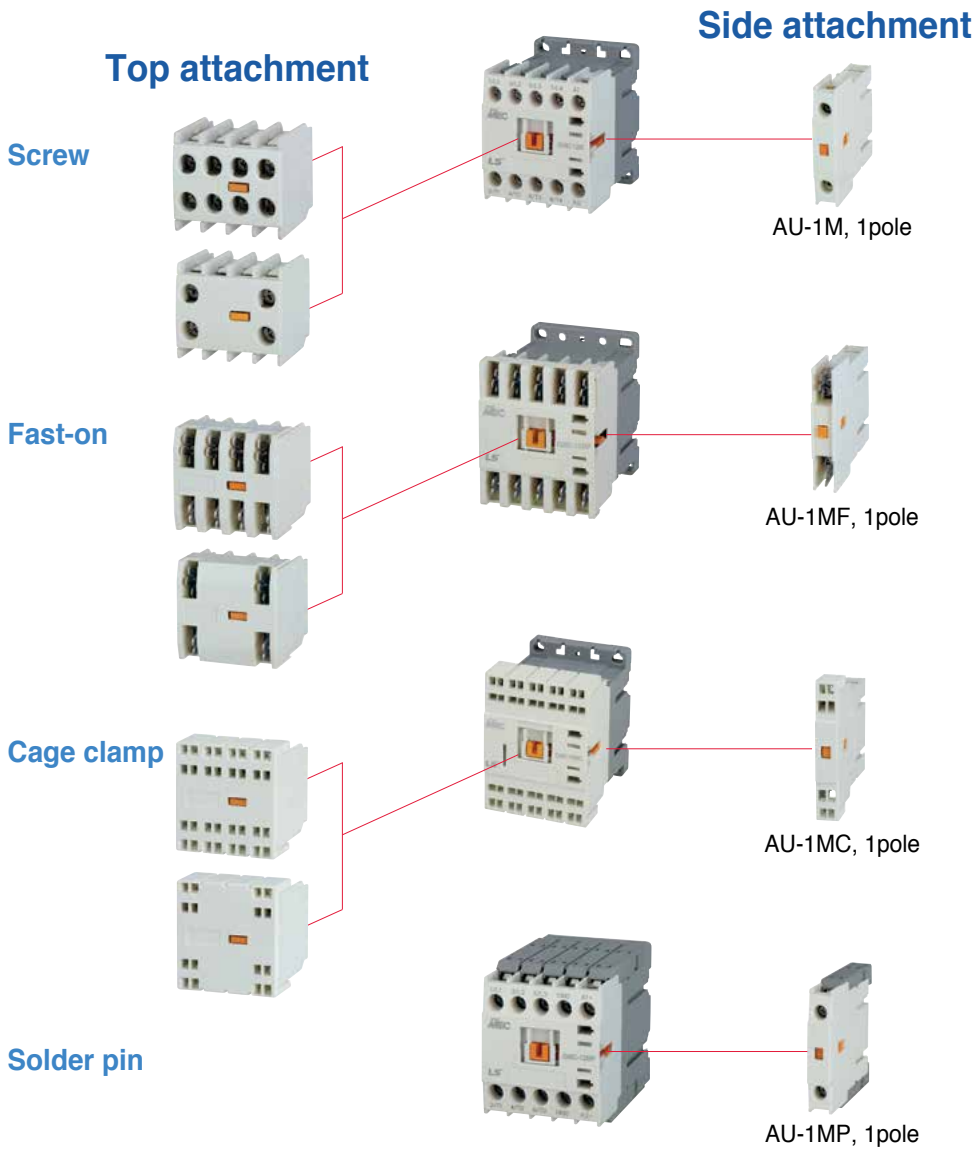
Certificate
CE, ULcUL

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) Values of ( ) are the ratings of NO contact under 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 to 6 contacts,
DC 2W operation coil can extend to 2 contacts,
and DC 1.2W operation coil can not extend auxiliary contact.

Performance of Auxiliary Contact

Type	Rated Voltage(V)	Rated Current(V)	Closing and breaking capacity(A)		Lifetime(10,000 times)	
			Closing	Breaking	Mechanical	Electrical
AU-1M	440	3	38	38	100	1200
AU-2M	440	3	38	38	100	1200
AU-4M	440	3	38	38	100	1200

Auxiliary contact rating

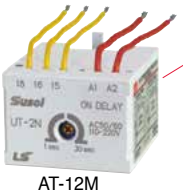
Rated operating current											Rated current
AC15				DC13			AC12		DC12		
110V	220V	500V	600V	48V	110V	220V	110V	220V	110V	220V	
6	3	1.5	1.2	1.5	0.55	0.27	10	8	2.5	1	10

Accessories

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

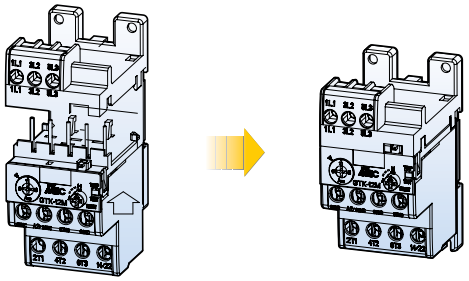
- Coil surge suppressor

Surge absorber unit

Type	Internal element	Operational 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	

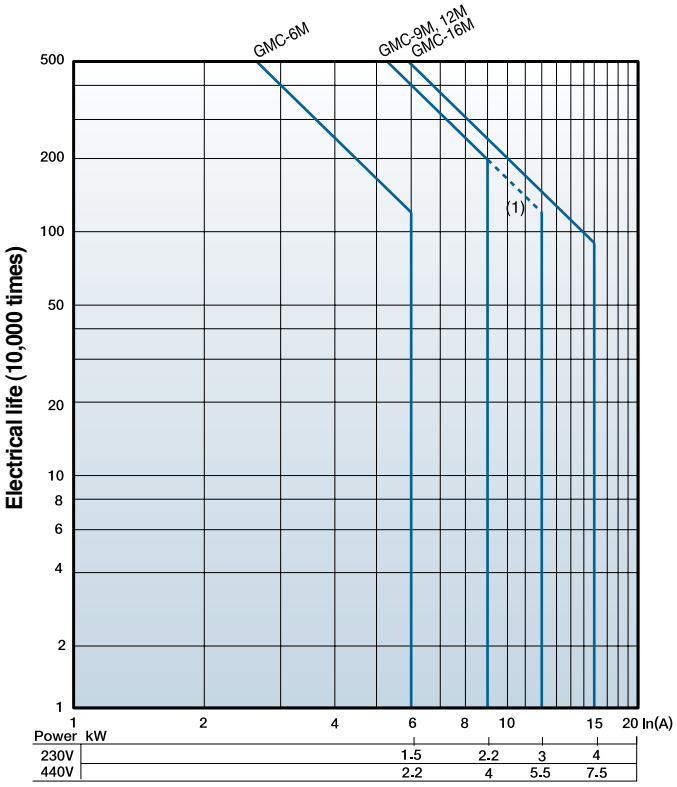
Separate mounting unit, AZ-12MH

- To mount a relay separately from a contactor
- Mountable on DIN rail or by screw fixing



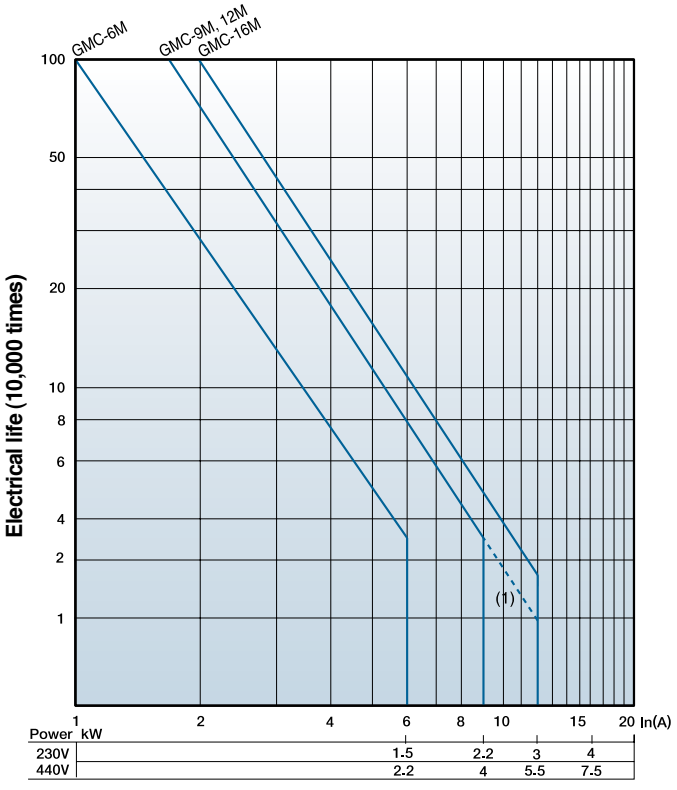
Electrical life of mini contactors

Use in category AC-3 (Ue ≥ 440V)



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

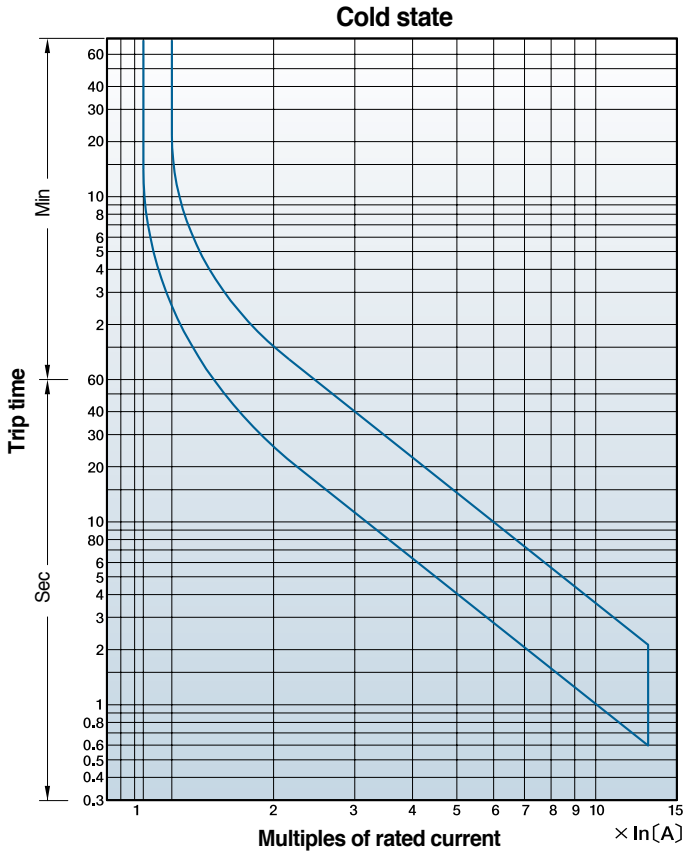
Use in category AC-4 (Ue ≥ 440V)

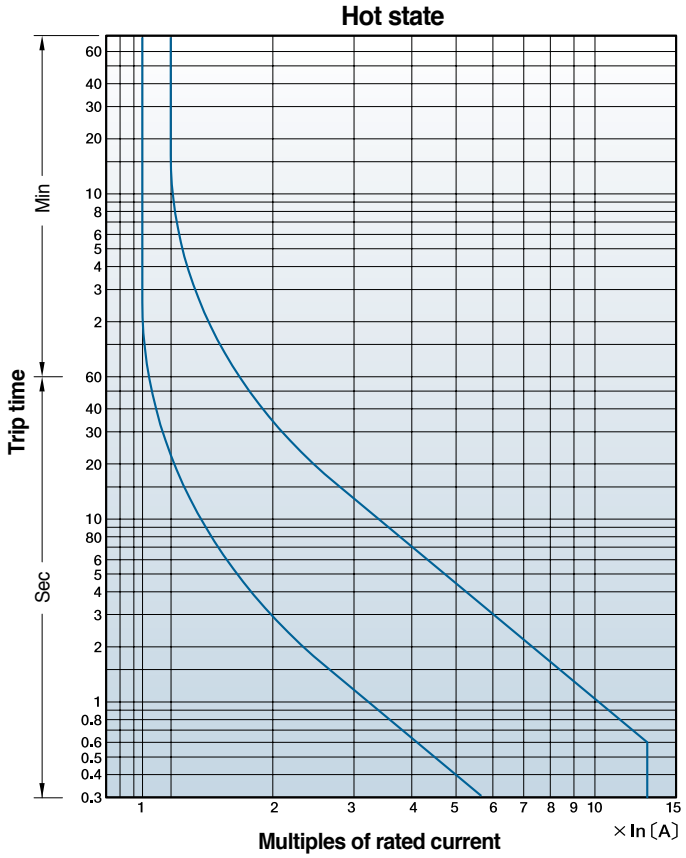


(1) The dotted lines are only applicable to GMC-12M contactors.

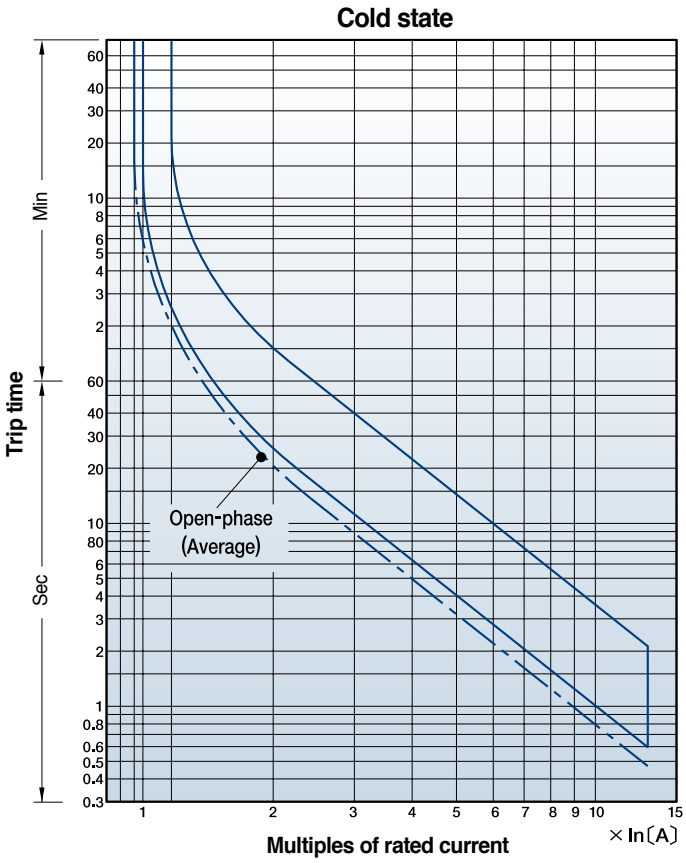
Characteristic curve of thermal overload relay

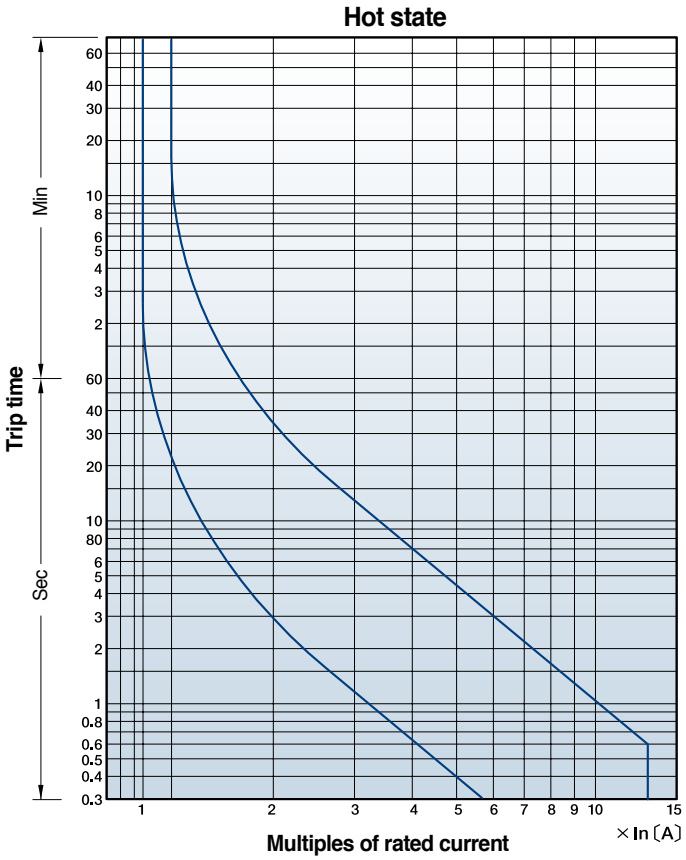
Non-differential type
GTH-12M





Differential type
GTK-12M





Accessories

Interlock unit, AR-12M

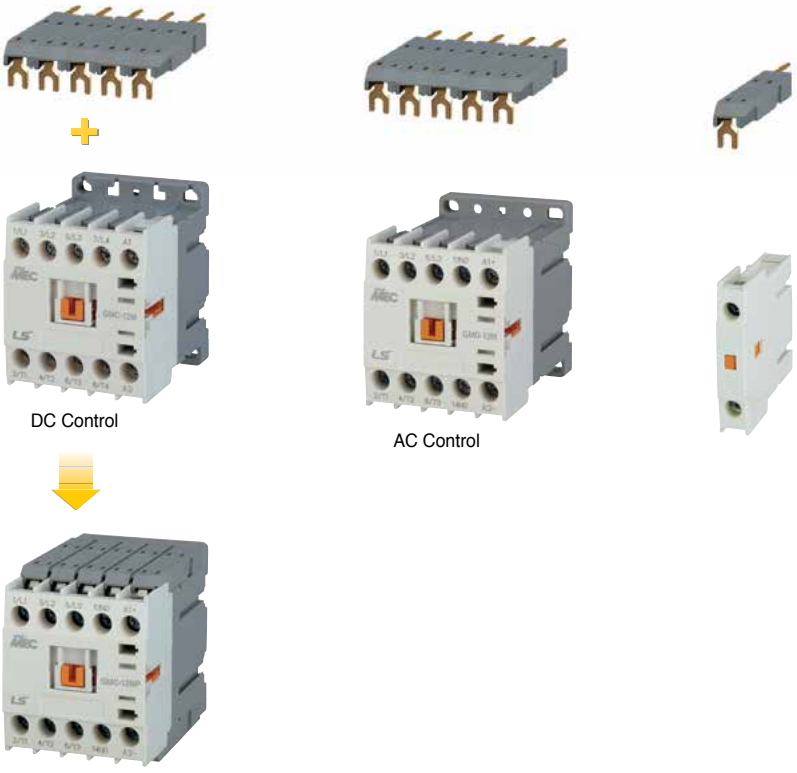
consists of

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

* Wire kit Included model name is AR-□MW,
not included model name is AR-□M.

Solder pin terminals

To modify the connection to Solder pin type from Screw clamp type
Available for contactors and auxiliary contact blocks

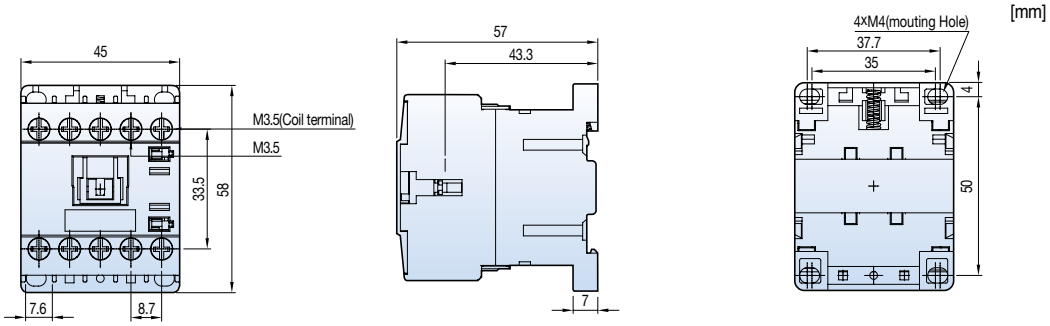


Dimensions

Mini contactors with Screw clamp type

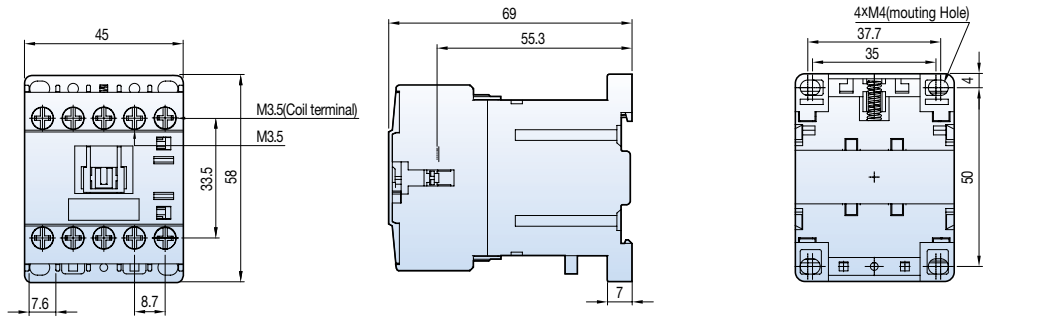
[mm]

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

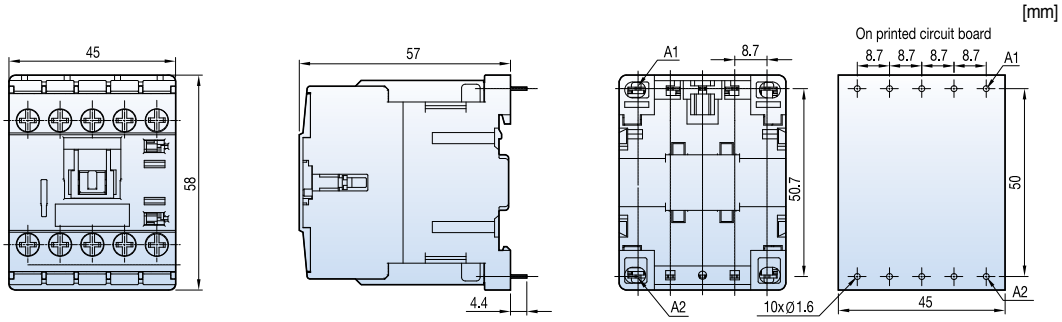
Dimensions

Mini contactors with Solder pin type

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

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

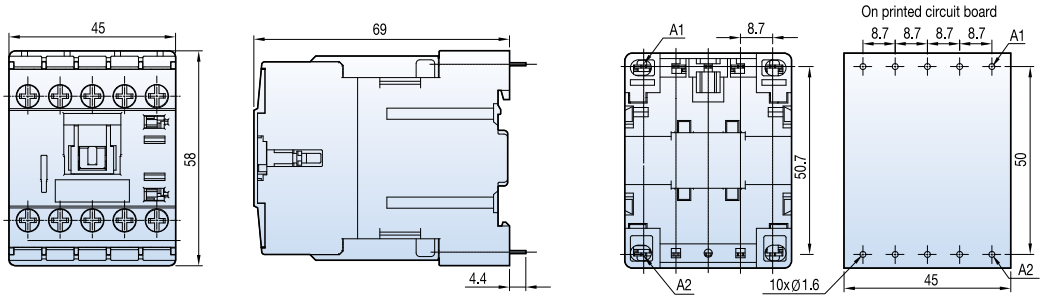
[mm]



0.17kg

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

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

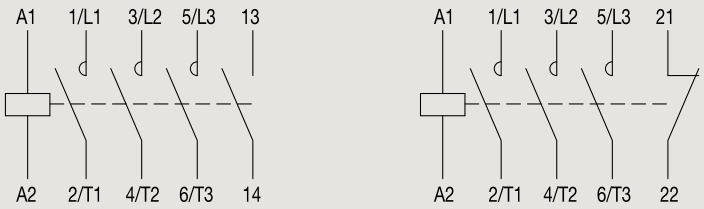


0.23kg

Circuit diagram

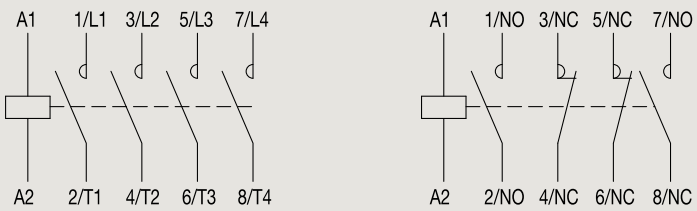
GMC-6MP~16MP, GMD-6MP~16MP

3-Pole contactors



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

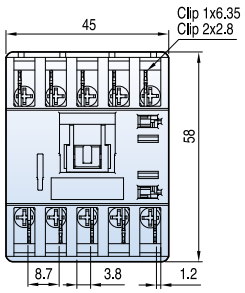
4-Pole contactors

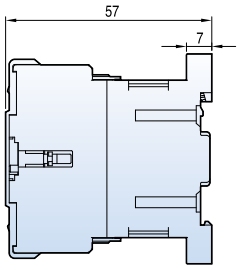


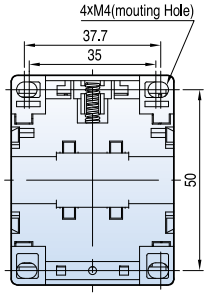
Mini contactors with Fast-on type

[mm]

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

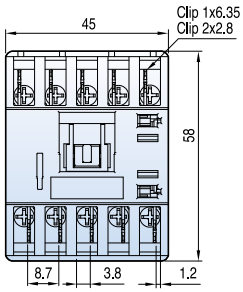


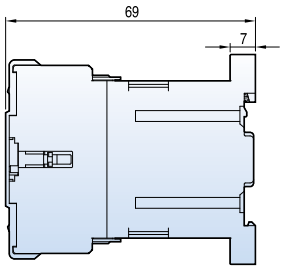


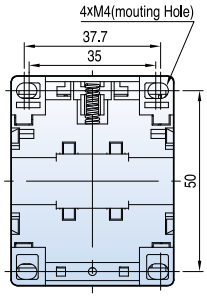


0.18kg

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





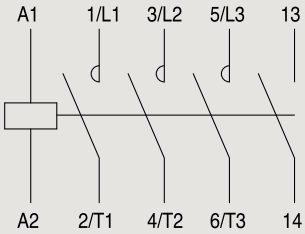


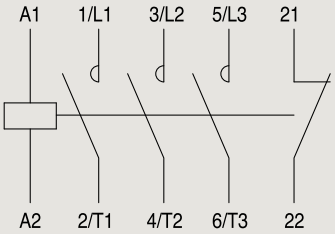
0.27kg

Circuit diagram

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

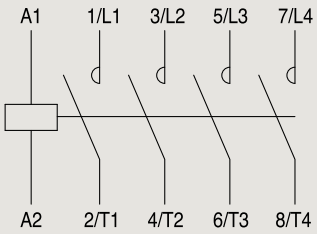
3-Pole contactors

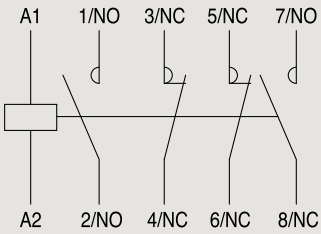




GMC-6MF/4~16MF/4, GMD-6MF/4~16MF/4

4-Pole contactors



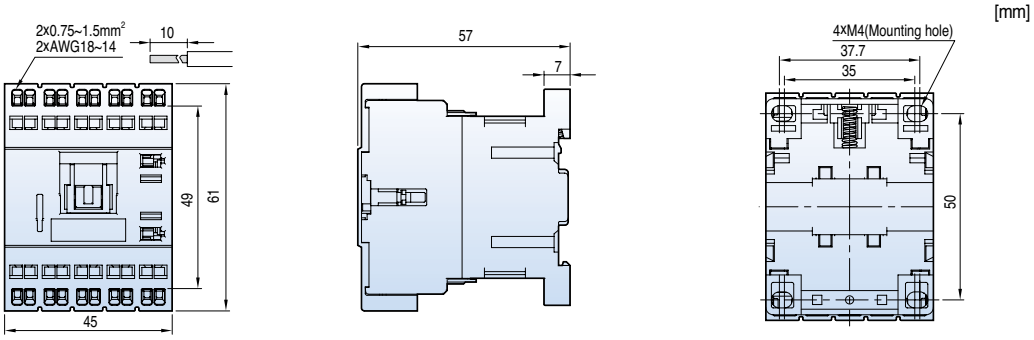


Dimensions

Mini contactors with Cage clamp type

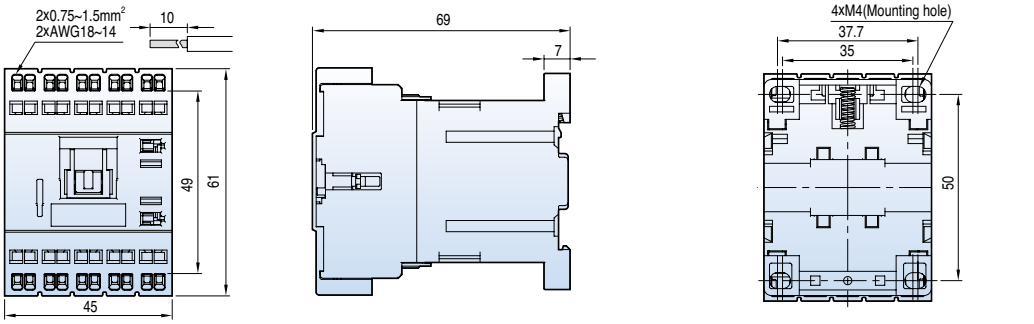
[mm]

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

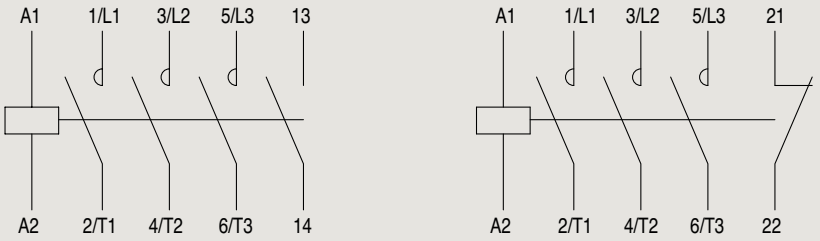


0.28kg

Circuit diagram

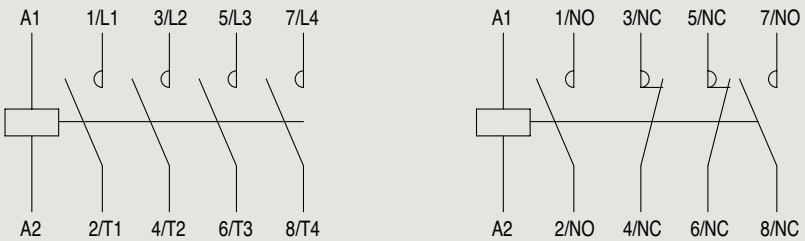
GMC-6MC~16MC, GMD-6MC~16MC

3-Pole contactors



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

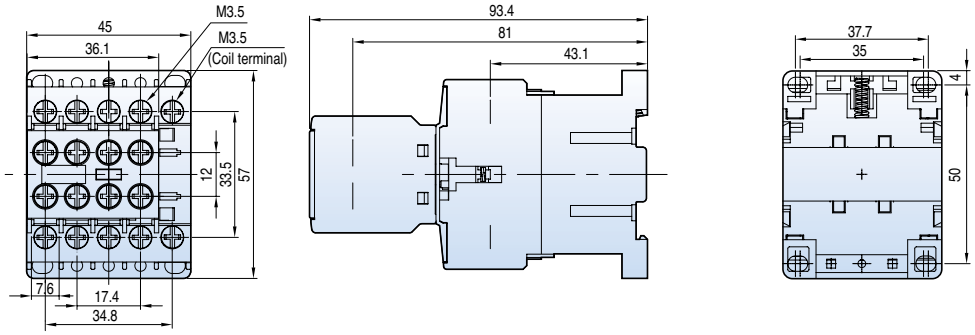
4-Pole contactors



Mini contactors with Auxiliary contacts

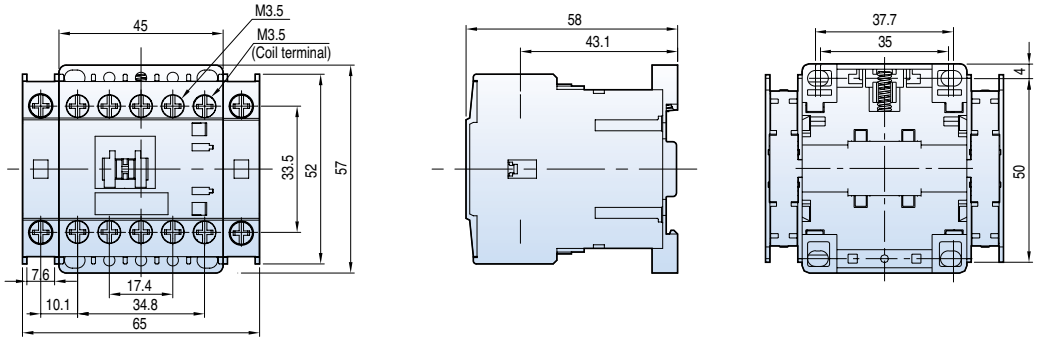
[mm]

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



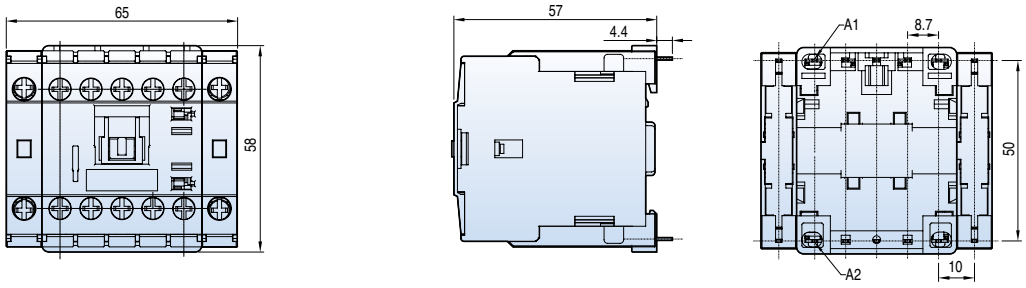
0.21kg

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

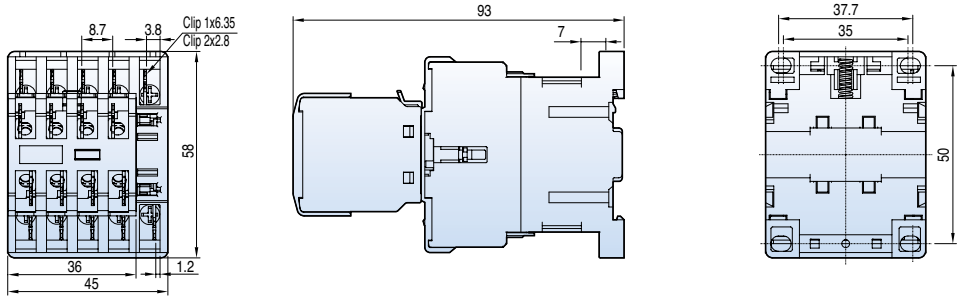


0.21kg

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



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

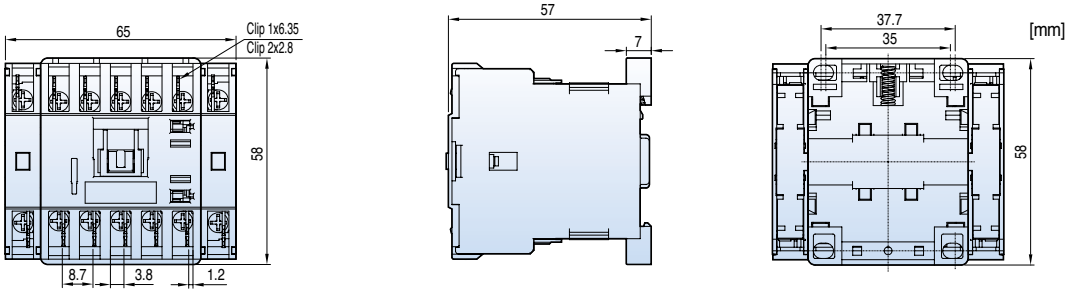


0.23kg

Dimensions

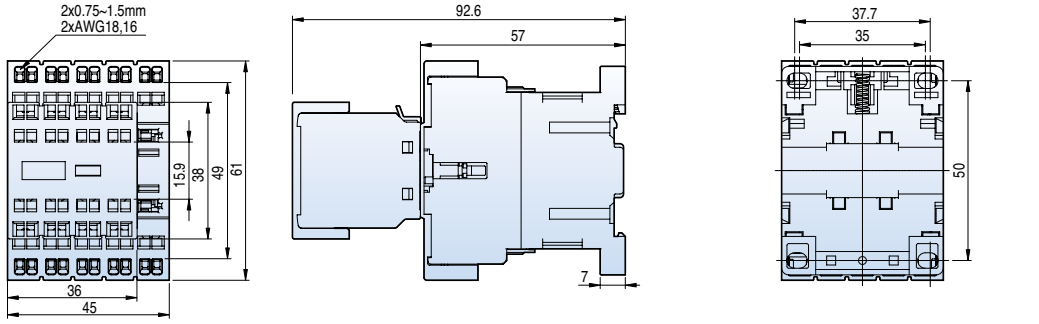
Mini contactors with Auxiliary contacts

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



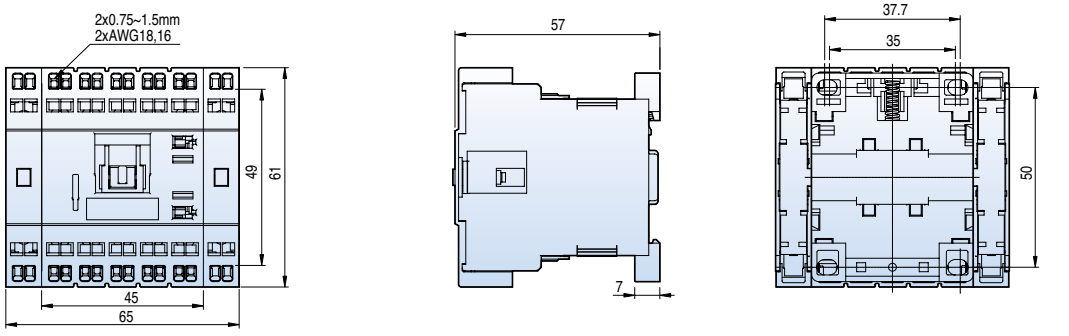
0.32kg

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



0.24kg

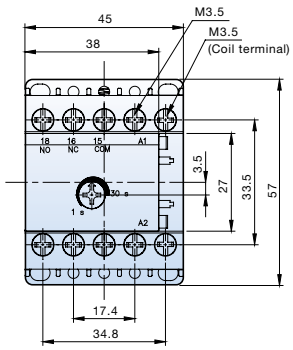
GMC-6MC
GMC-9MC
2×GMC-12MC
GMC-16MC
+
AU-1MC

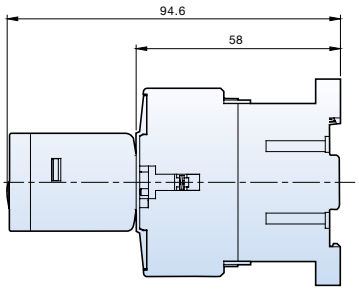


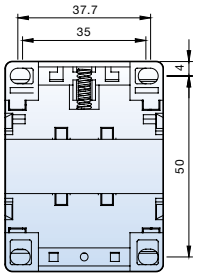
0.23kg

Mini contactors with external accessories

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



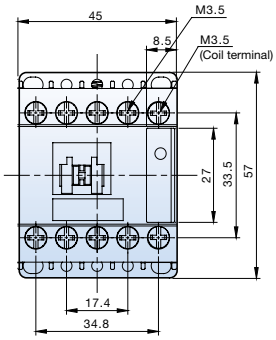


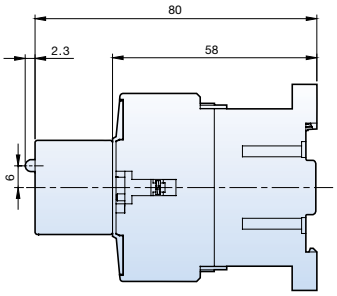


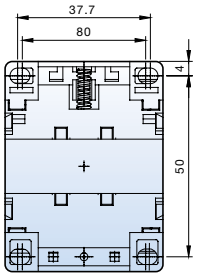
[mm]

0.21kg

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







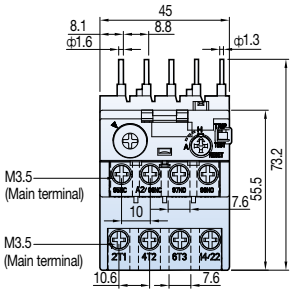
0.175kg

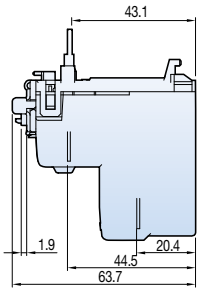
Dimensions

Thermal overload relays for Mini contactors

[mm]

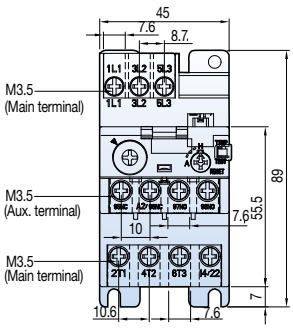
GTH(K)-12M

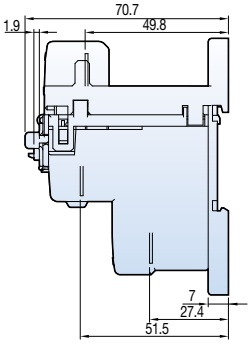


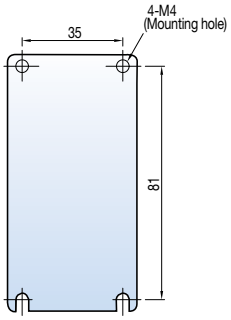


0.1kg

GTH(K)-12MH





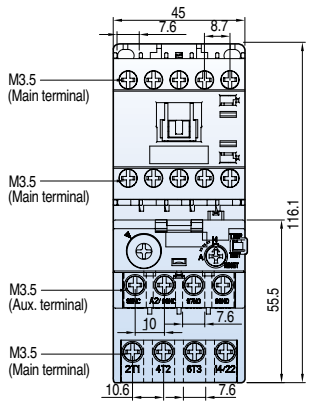


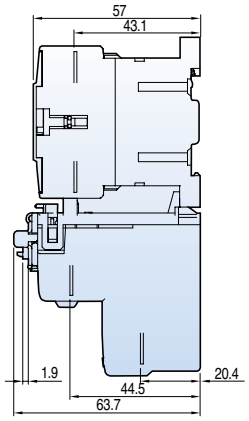
0.4kg

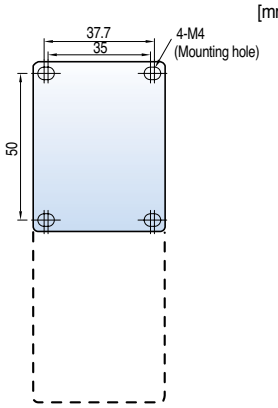
Mini motor starters, open

[mm]

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

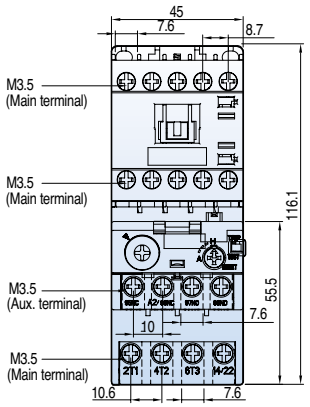


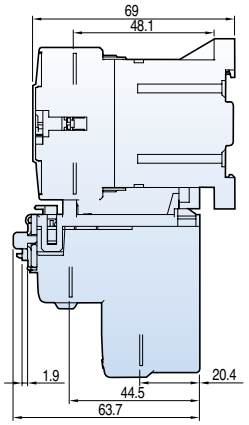


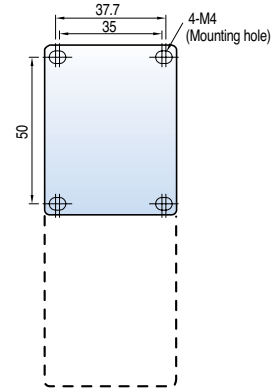


0.26kg

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







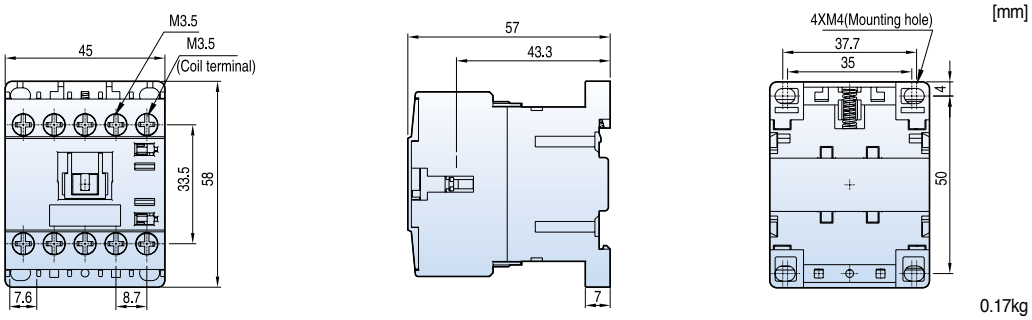
0.39kg

Dimensions

Mini contactor relays

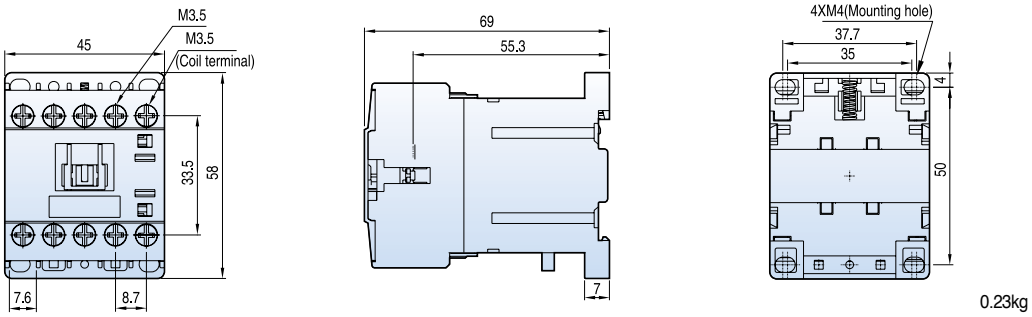
[mm]

GMR-4M



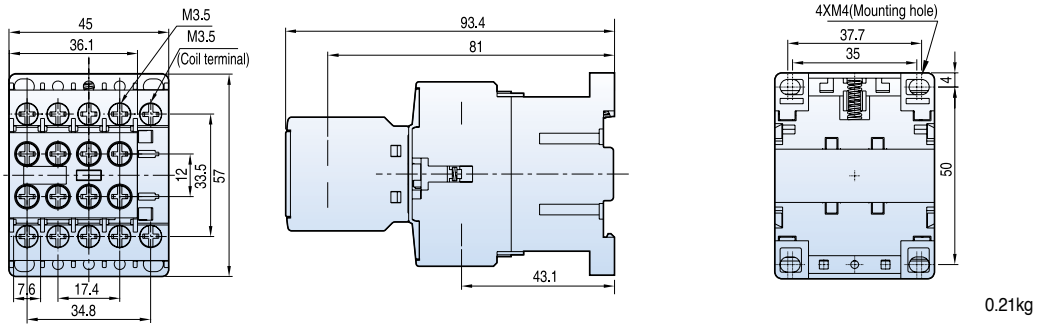
0.17kg

GMR-4MD



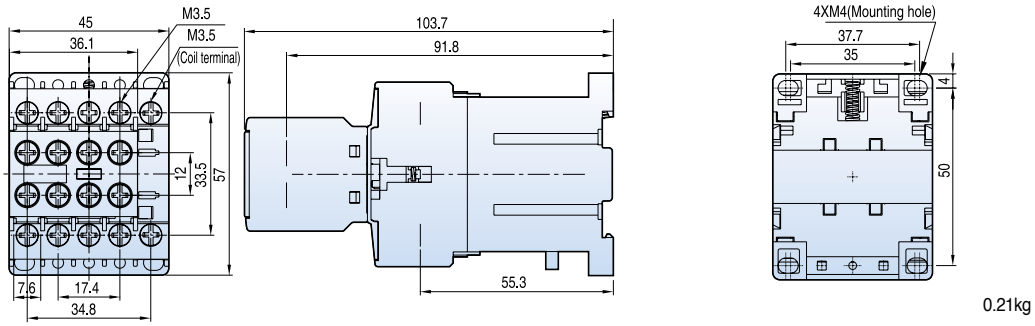
0.23kg

GMR-4M
GMR-8M



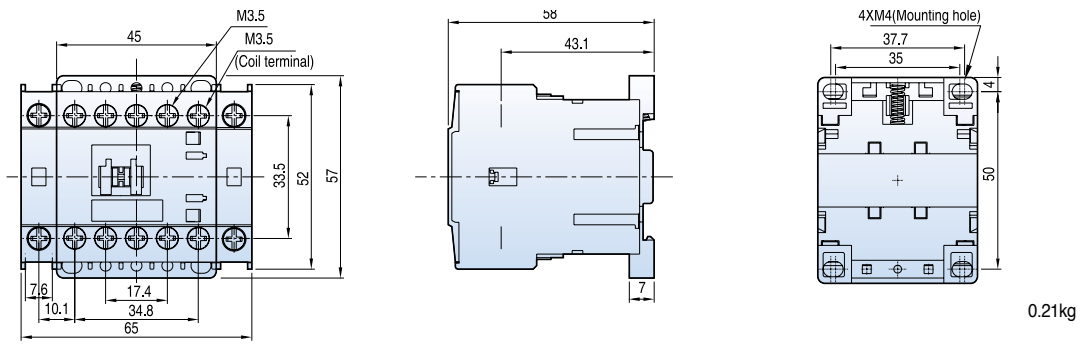
0.21kg

GMR-4M
GMR-8M



0.21kg

GMR-4M
+
2× **AU-1M**

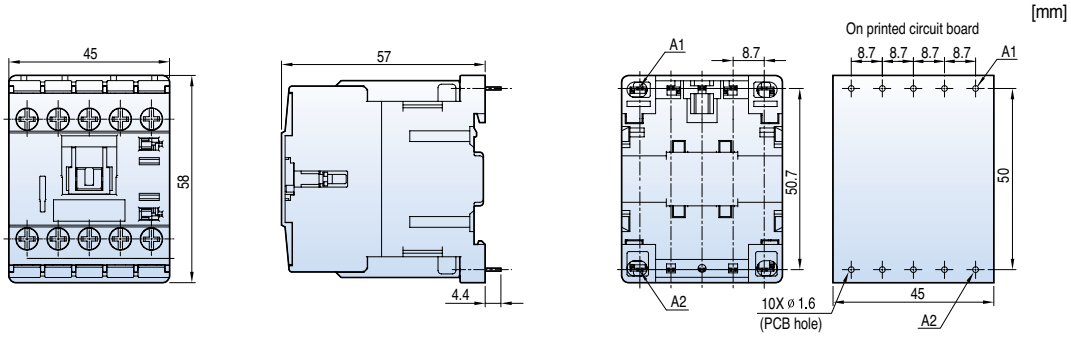


0.21kg

Mini contactor relays

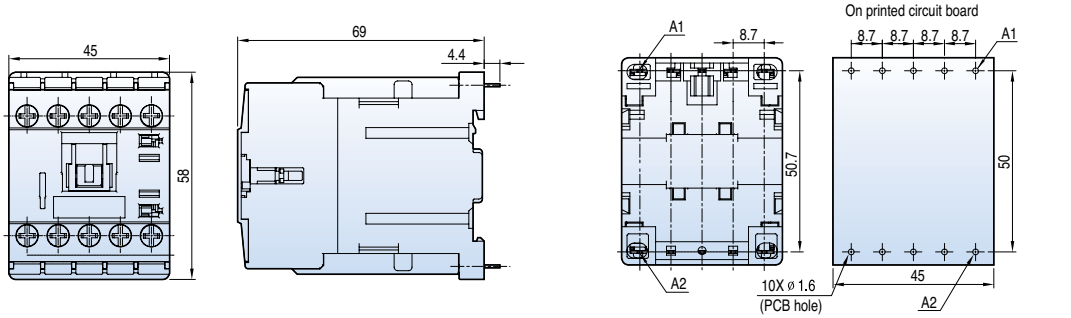
[mm]

GMR-4MP



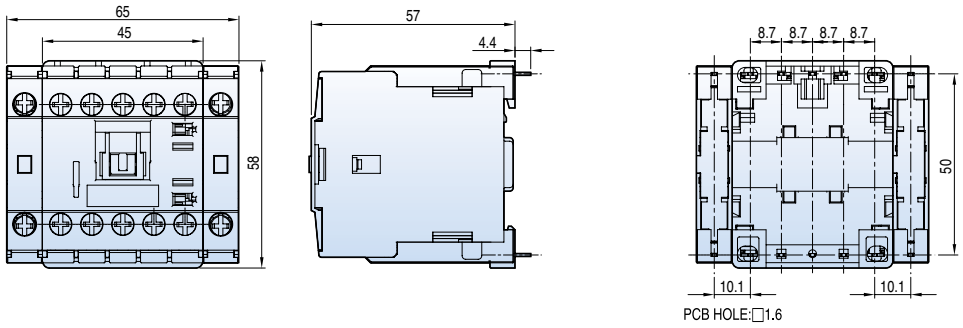
0.19kg

GMR-4MPD



0.28kg

GMR-4MP
\+
2× **AU-1M**

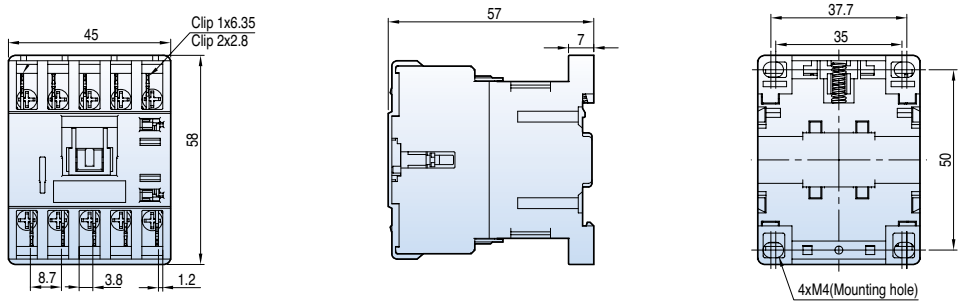


Dimensions

Mini contactor relays

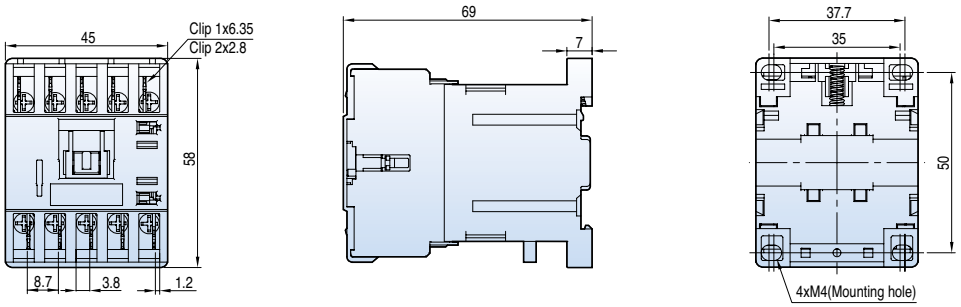
[mm]

GMR-4MF



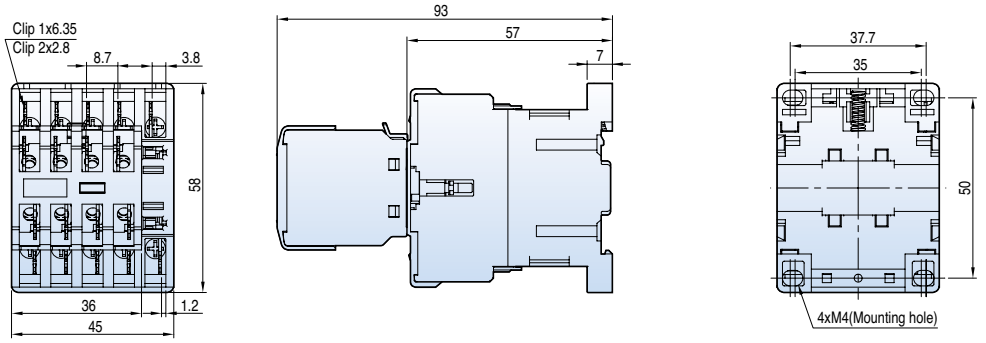
0.18kg

GMR-4MFD



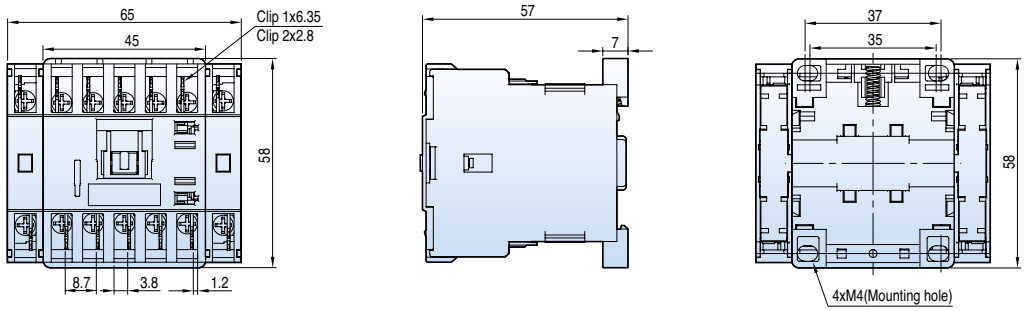
0.27kg

GMR-6MF
GMR-8MF



0.23kg

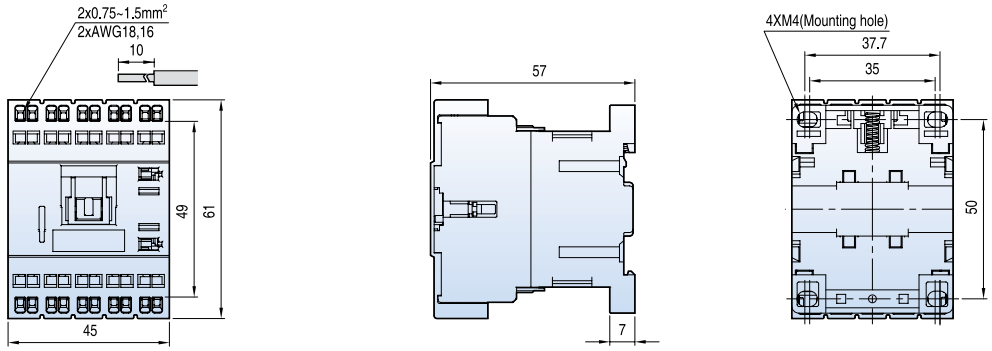
GMR-4MF
+ 2× AU-1MF



0.32kg

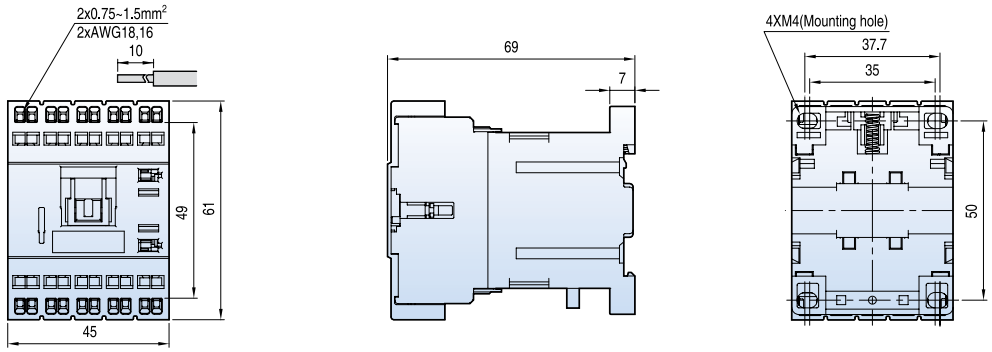
[mm]

GMR-4MC



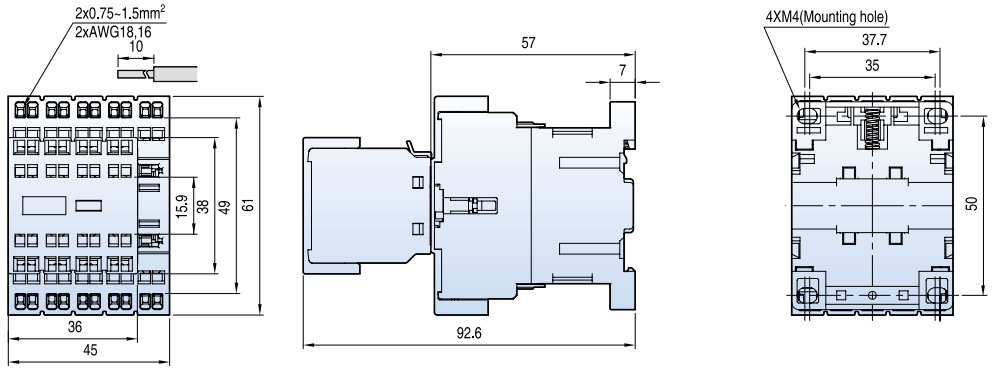
0.18kg

GMR-4MCD



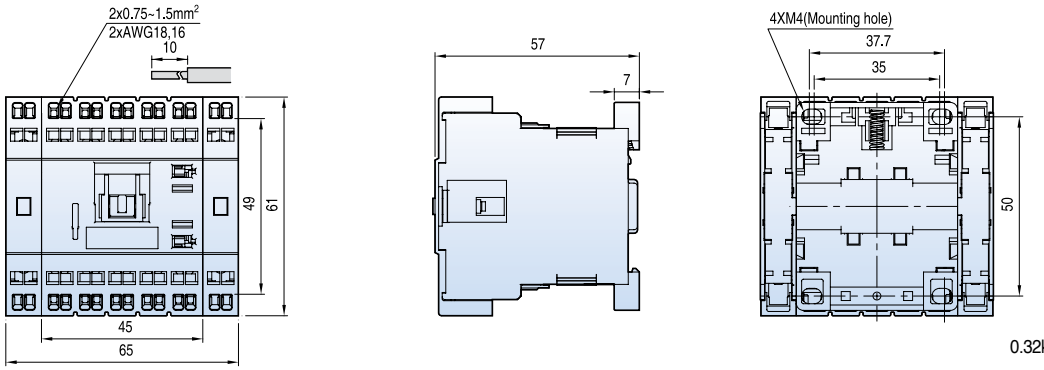
0.27kg

GMR-6MC
GMR-8MC



0.23kg

2×
GMR-4MC
+
AU-1MC



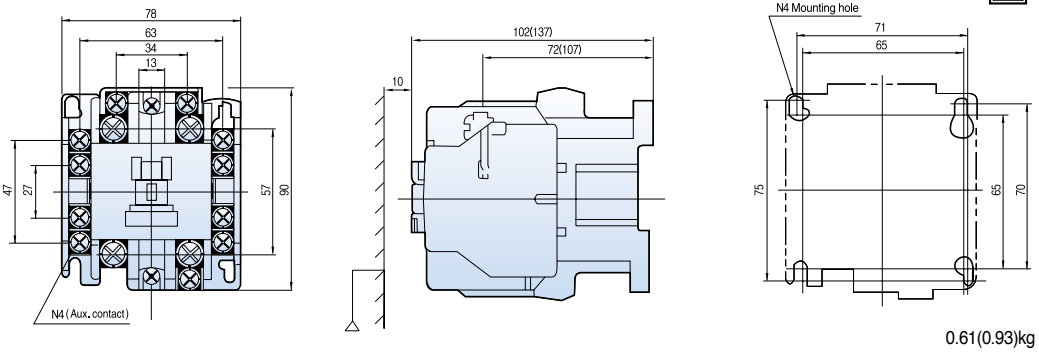
0.32kg

Dimensions

2-pole DC Contactors

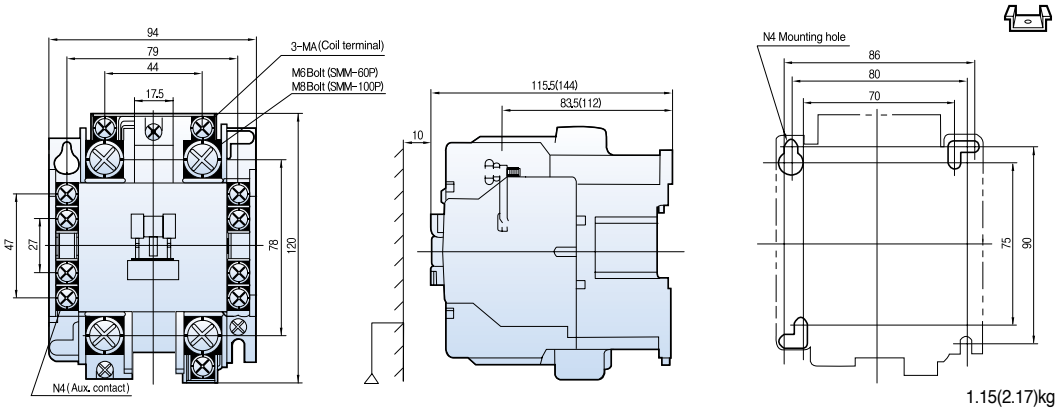
[mm]

SMM-30P
SMM-30DP



0.61(0.93)kg

SMM-60P
SMM-100P
SMM-60DP
SMM-100DP

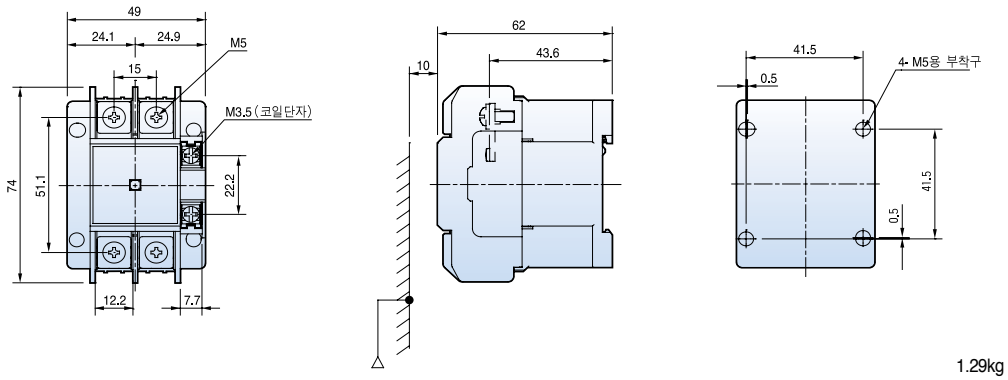


1.15(2.17)kg

2-pole AC Contactors

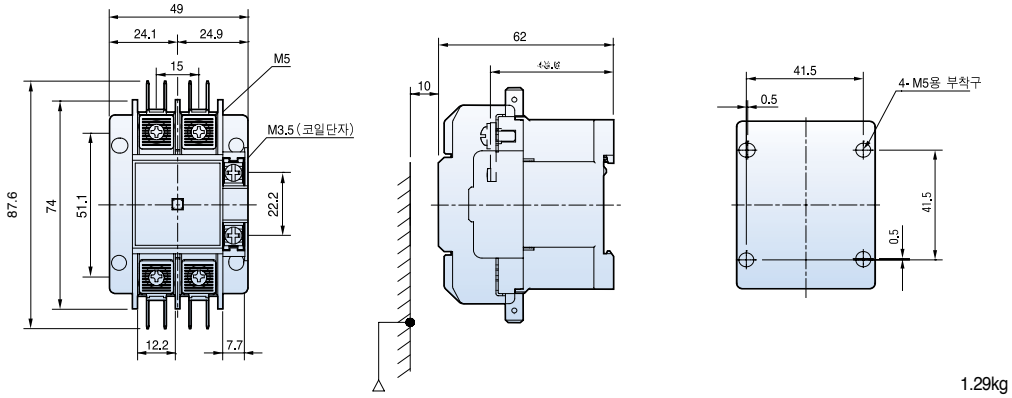
GMC-10P2
GMC-20P2
GMC-25P2
GMC-30P2
GMC-35P2
GMC-40P2
(TSBS Type)

[mm]



1.29kg

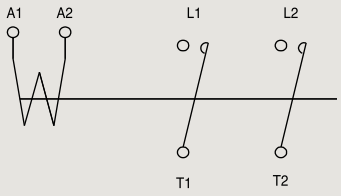
GMC-10P2
GMC-20P2
GMC-25P2
GMC-30P2
GMC-35P2
GMC-40P2
(TQBS Type)



1.29kg

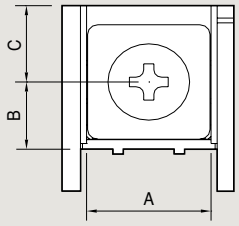
Circuit diagram

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

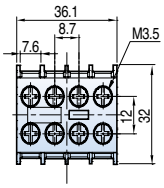


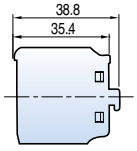
Dimensions

Accessories for Mini contactors

[mm]

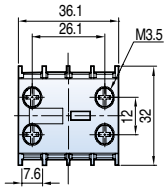
AU-4M

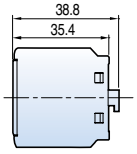




0.04kg

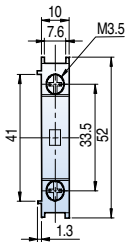
AU-2M

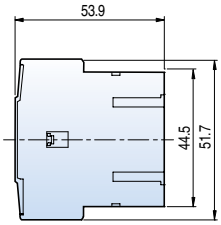




0.03kg

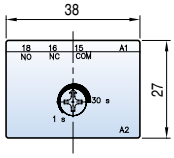
AU-1M

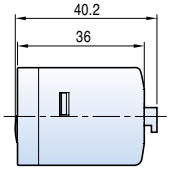




0.02kg

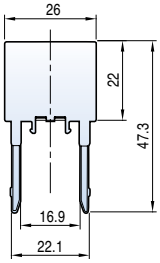
AT-12M

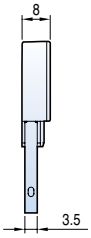




0.04kg

AS-12M





0.005kg

Memo

Memo

FUTURING SMART ENERGY

We open up a brighter future through
efficient and convenient energy solutions.

Safety Instructions

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

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

LS ELECTRIC

www.lselectric.co.kr

■ Headquarter

LS-ro 127(Hogye-dong) Dongan-gu, Anyang-si, Gyeonggi-Do, 14119, Korea

■ Seoul Office

LS Yongsan Tower, 92, Hangang-daero, Yongsan-gu, Seoul, 04386, Korea
Tel: 82-2-2034-4916, 4684, 4429

■ Overseas Subsidiaries

•LS ELECTRIC Japan Co., Ltd. (Tokyo, Japan)
Tel: 81-3-6268-8241 E-Mail: jschuna@lselectric.biz

•LS ELECTRIC (Dalian) Co., Ltd. (Dalian, China)
Tel: 86-411-8730-5872 E-Mail: jiheo@lselectric.com.cn

•LS ELECTRIC (Wuxi) Co., Ltd. (Wuxi, China)
Tel: 86-510-6851-6666 E-Mail: sblee@lselectric.co.kr

•LS ELECTRIC Vietnam Co., Ltd.
Tel: 84-93-631-4099 E-Mail: jhchoi4@lselectric.biz (Hanoi)
Tel: 84-28-3823-7890 E-Mail: sjbaik@lselectric.biz (Hochiminh)

•LS ELECTRIC Middle East FZE (Dubai, U.A.E.)
Tel: 971-4-886-5360 E-Mail: hschoib@lselectric.biz

•LS ELECTRIC Europe B.V. (Hoofddorf, Netherlands)
Tel: 31-20-654-1424 E-Mail: europartner@lselectric.biz

•LS ELECTRIC America Inc. (Chicago, USA)
Tel: 1-800-891-2941 E-Mail: sales.us@lselectricamerica.com

■ Overseas Branches

•LS ELECTRIC Tokyo Office (Japan)
Tel: 81-3-6268-8241 E-Mail: jschuna@lse lectric.biz

•LS ELECTRIC Beijing Office (China)
Tel: 86-10-5095-1631 E-Mail: chendm@khpaek.com.cn

•LS ELECTRIC Shanghai Office (China)
Tel: 86-21-5237-9977 E-Mail: khpaek@lselectric.com.cn

•LS ELECTRIC Guangzhou Office (China)
Tel: 86-20-3818-2883 E-Mail: chenxs@lselectric.com.cn

•LS ELECTRIC Chengdu Office (China)
Tel: 86-28-8670-3201 E-Mail: yangcf@lselectric.com.cn

•LS ELECTRIC Qingdao Office (China)
Tel: 86-532-8501-2065 E-Mail: wangzy@lselectric.com.cn

•LS ELECTRIC Nanjing Office (China)
Tel: 86-25-8467-0005 E-Mail: ylong@lselectric.com.cn

•LS ELECTRIC Bangkok Office (Thailand)
Tel: 66-90-950-9683 E-Mail: sjleet@lselectric.biz

•LS ELECTRIC Jakarta Office (Indonesia)
Tel: 62-21-2933-7614 E-Mail: yjleee@lselectric.biz

•LS ELECTRIC Moscow Office (Russia)
Tel: 7-499-682-6130 E-Mail: jdpark1@lselectric.biz

•LS ELECTRIC America Western Office (Irvine, USA)
Tel: 1-949-333-3140 E-Mail: jwyun@lselectricamerica.com

Technical Question or After-sales Service

Customer Center-Quick Responsive Service, Excellent technical support | **82-1644-5481**

2020. 07

Specifications in this catalog are subject to change without notice due to continuous product development and improvement.

ⓒ 2003.12 LS ELECTRIC Co.,Ltd. All rights reserved. / (07) 2020. 07 Human Power