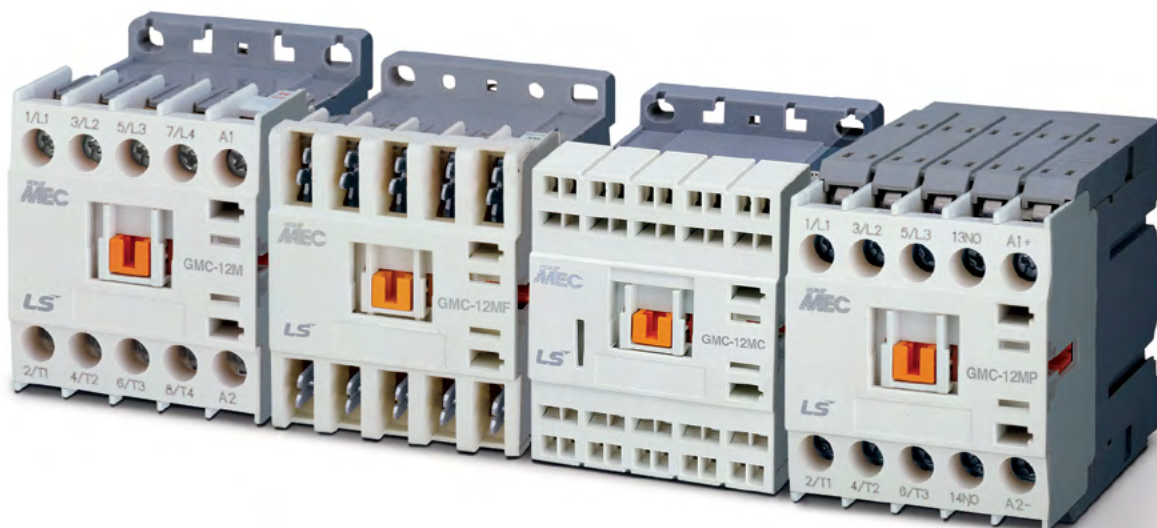


*Beyond*

<sup>TM</sup> **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

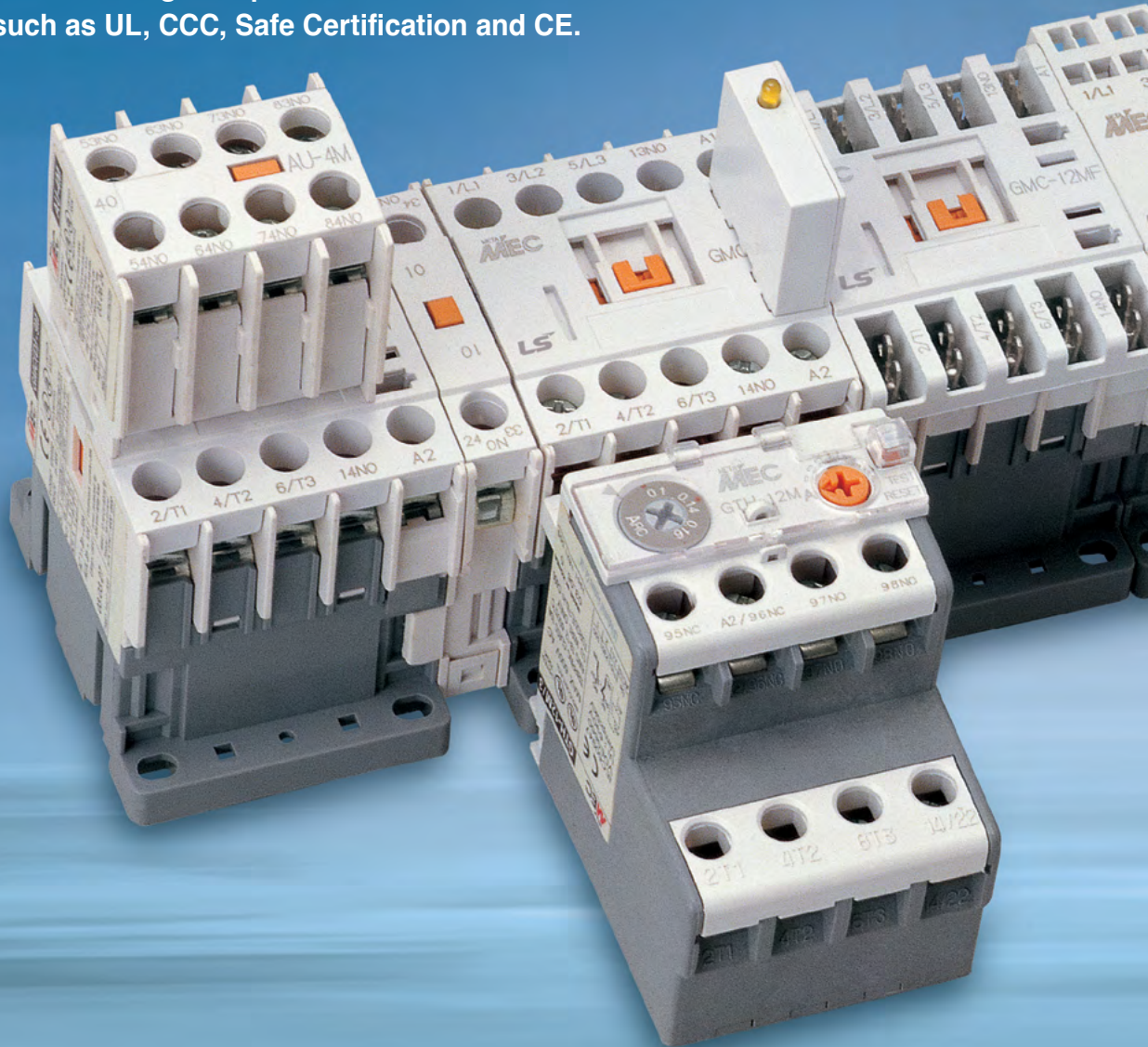
Features	4
Catalog numbering system	10
Quick selection table	12
AC coil	13
DC coil	15
Motor starters, open	17
Mini contactors, Reversing type	18
Bimetallic style	22
Accessories	24
Dimensions	29

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 ~ 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

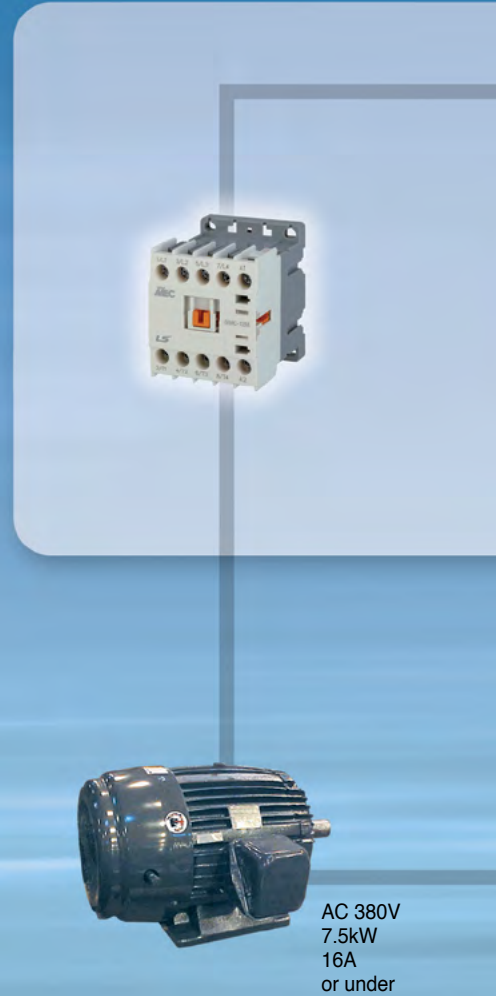
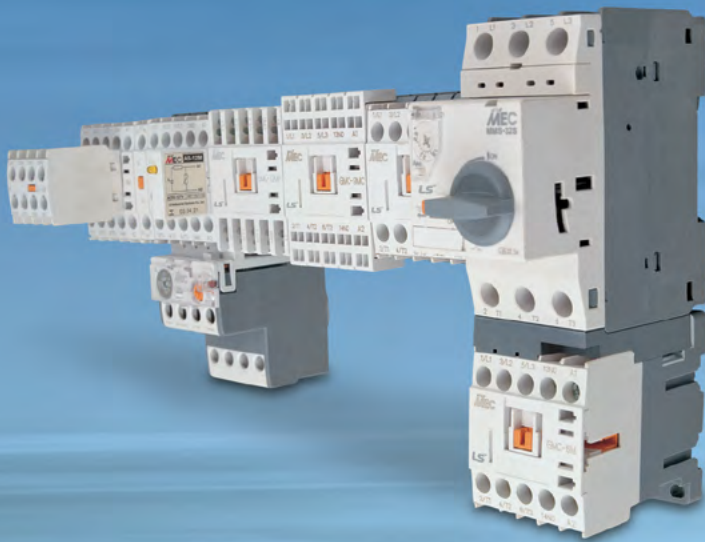


# Low Consumption

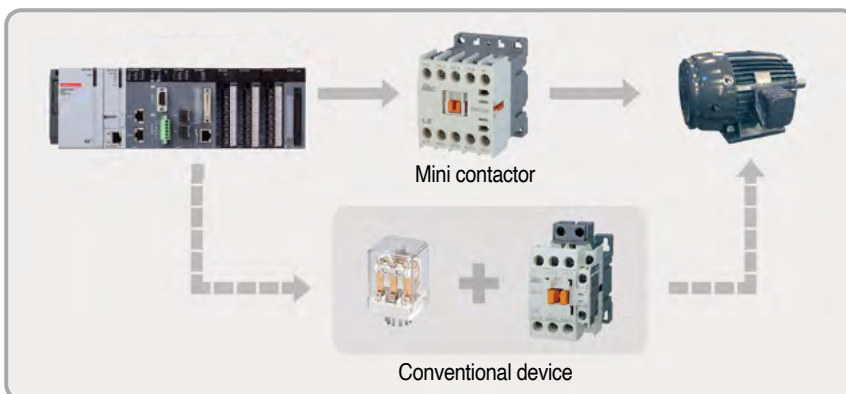
The low power consumption type contactor, a product that combines the advantages of the relay and the magnetic contactor, can be driven directly by the small output of the PLC. As a result, the relay and space in the panel are not required.

### 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



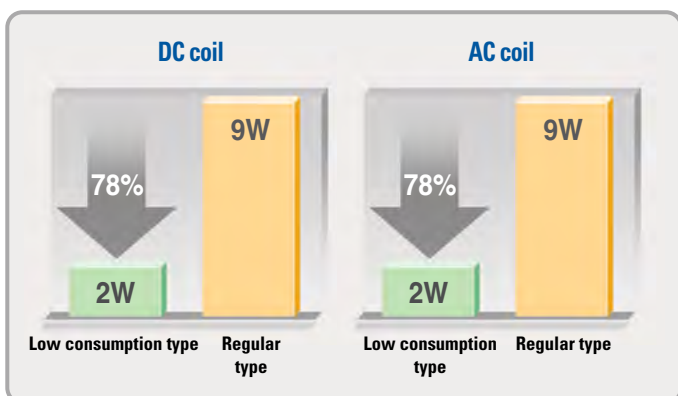
Servo motor operation



Lighting circuits



### Reduced power consumption rate

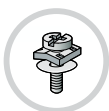
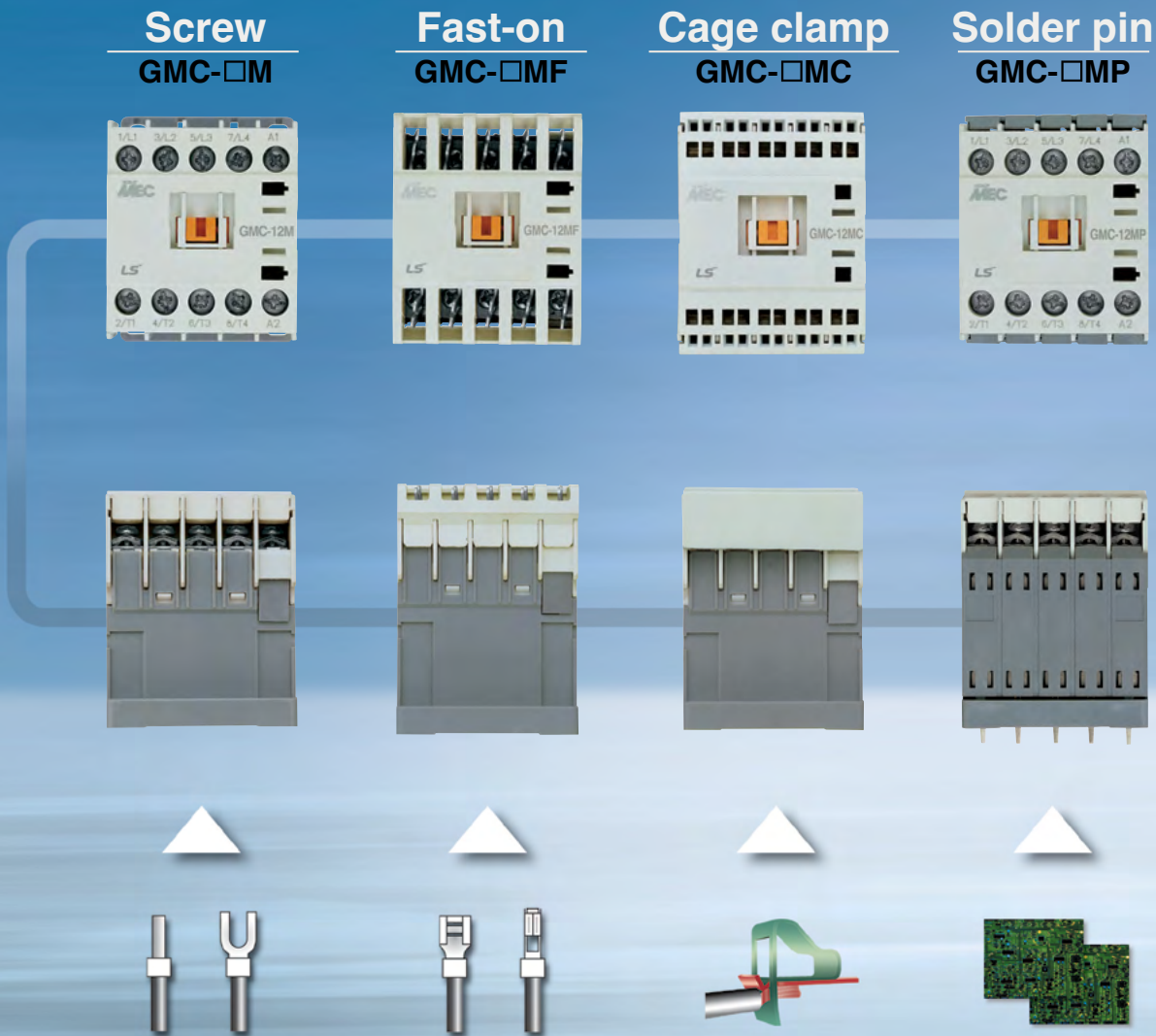


### Control coil characteristics

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



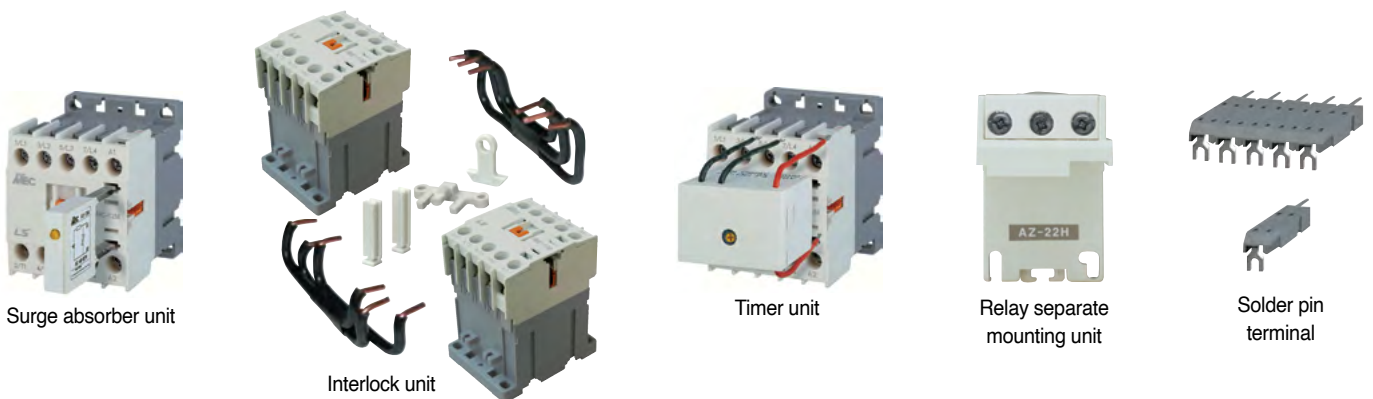
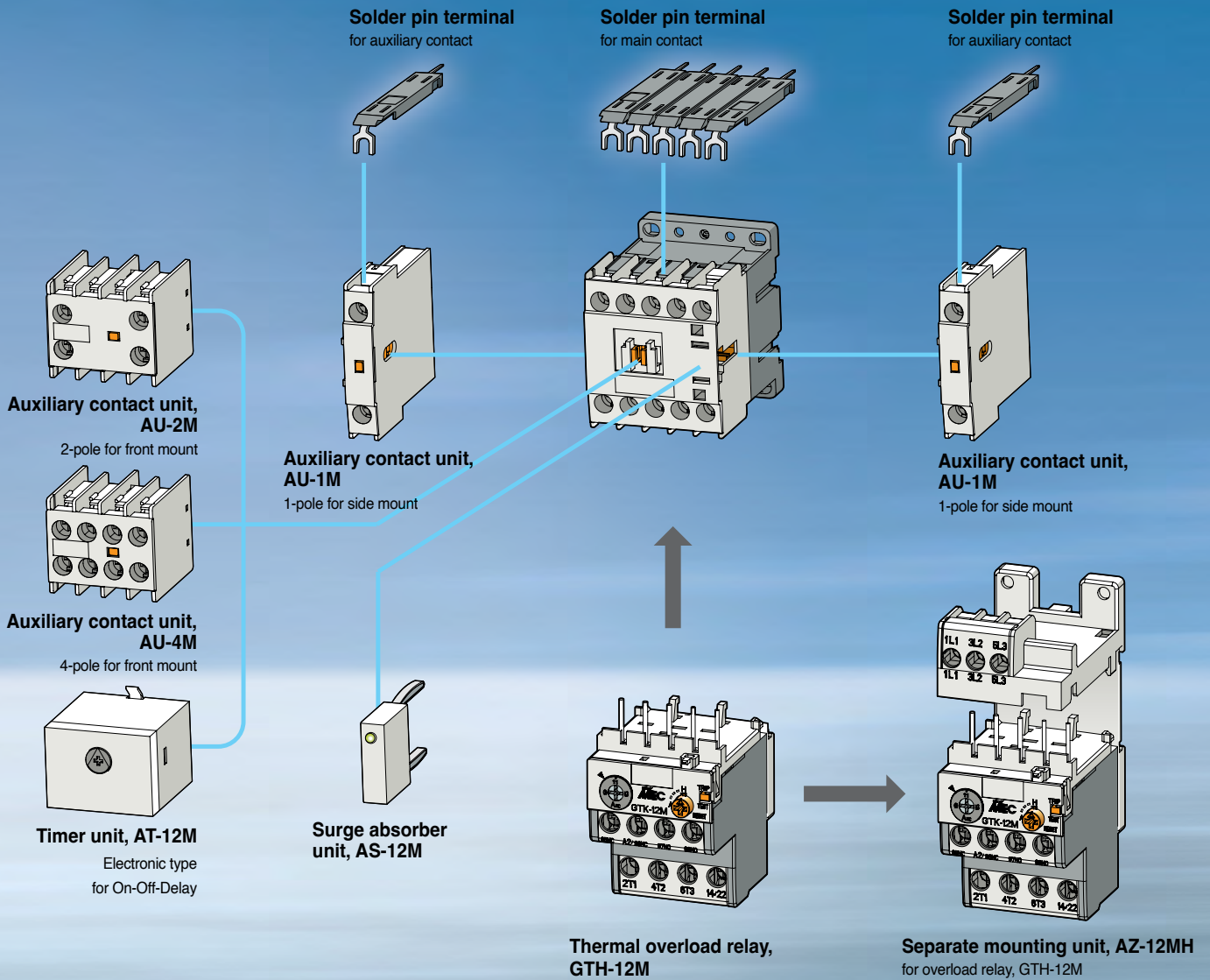
### Solder pin terminal

For mounting on PCB

### Auxiliary contact units

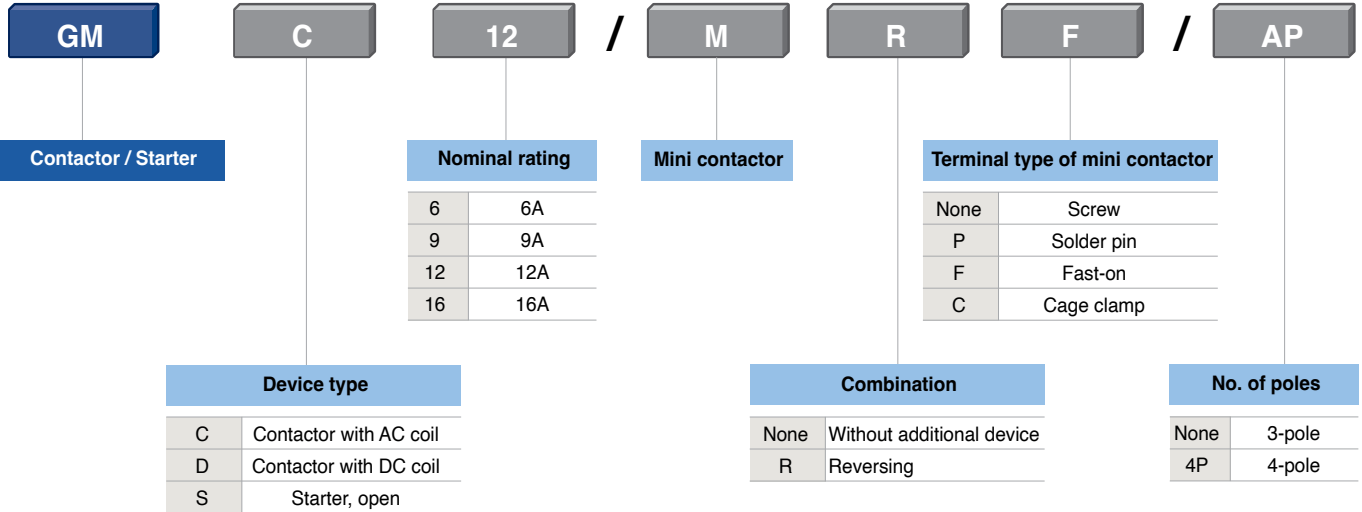
Item	Screw	Fast-on	Cage clamp	Solder pin
Side mount				
2-pole, Front mount				×
4-pole, Front mount				×

## Accessories

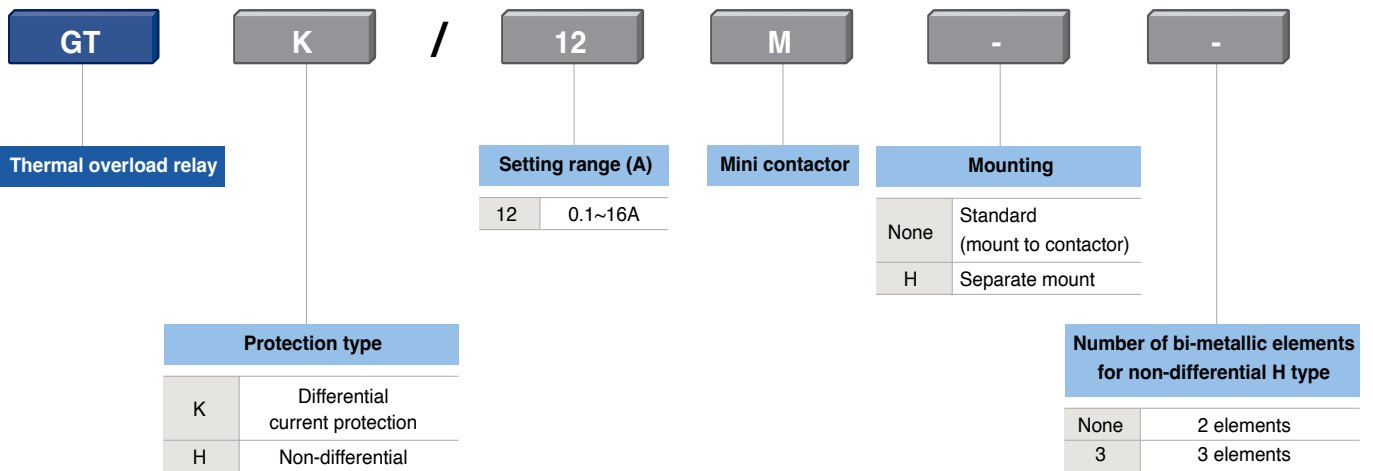


# Catalog numbering system

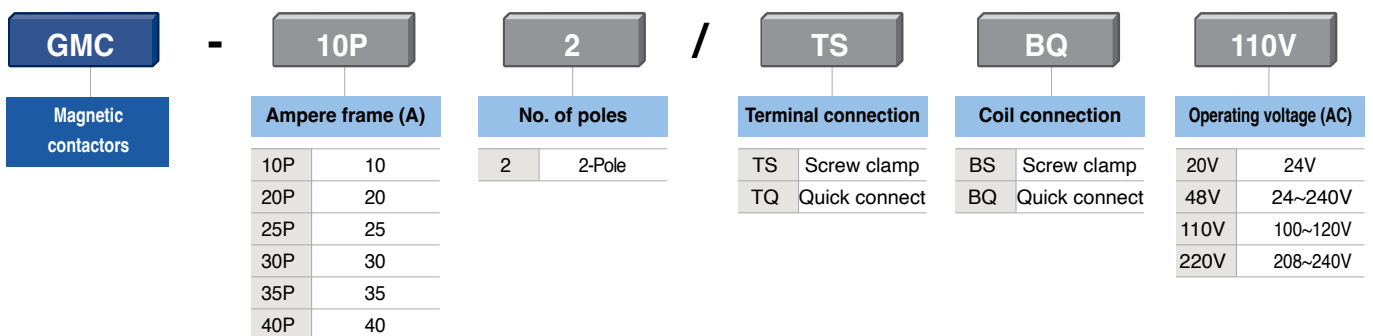
## Contactors & Starters



## Thermal overload relay



## 2-pole contactors



### Auxiliary contact

<b>AU</b>	-	<b>1</b>	<b>M</b>	<b>F</b>	<b>40</b>
<b>Auxiliary contact</b>		<b>No. of poles</b>	<b>Mini contactor</b>	<b>Terminal type of mini contactor</b>	<b>Contact configuration</b>
		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

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

### Serge unit

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

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

### Single mounting unit

<b>AZ</b>	-	<b>12</b>	<b>MH</b>
<b>Thermal overload relay single mounting unit</b>		<b>Nominal rating</b>	<b>Mini contactor</b>

### Interlock unit

<b>AR</b>	-	<b>12</b>	<b>M</b>	/	<b>W</b>
<b>Interlock unit</b>		<b>Nominal rating</b>	<b>Mini contactor</b>		<b>Wiring</b>
					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	
<b>Ratings / IEC60947-4</b>		kW	A	kW	A	kW	A	kW	A
AC1		<b>20</b>		<b>20</b>		<b>20</b>		<b>20</b>	
	200/240V	1.5	7	2.2	9	3	12	4	16
AC3	<b>380/440V</b>	<b>2.2</b>	<b>6</b>	<b>4</b>	<b>9</b>	<b>5.5</b>	<b>12</b>	<b>7.5</b>	<b>16</b>
	500/550V	3	5	3.7	6	4	7	5.5	9
	690V	3	4	4	5	4	5	4	5
<b>Ratings / UL508</b>		hp	A	hp	A	hp	A	hp	A
Continuous current		I <sub>th</sub> = 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	
<b>Additional auxiliary contacts</b>		<b>Screw clamp type</b>		<b>Fast-on type</b>		<b>Cage clamp type</b>		<b>Solder pin type</b>	
2-pole, Front mount	AU-2M			AU-2MF		AU-2MC			
	AU-4M			AU-4MF		AU-4MC			
4-pole, Front mount			AU-1M		AU-1MF		AU-1MC		
2-pole, Side mount			AU-1M		AU-1MF		AU-1MC		

\*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

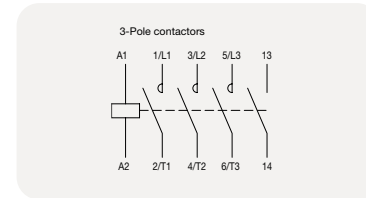
<b>Bimetallic style</b> Type GT Class 10A	GT-12M	<b>Setting ranges (A)</b> 0.1 - 0.16 0.16 - 0.25 0.25 - 0.4 0.4 - 0.63 0.63 - 1 1 - 1.6 1.6 - 2.5 2.5 - 4	4 - 6 5 - 8 6 - 9 7 - 10 9 - 13 12 - 16	Base for separate mount
	Differential	GTK-12M		
	Non-differential (3-heater)	GTH-12M/3		
	Non-differential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

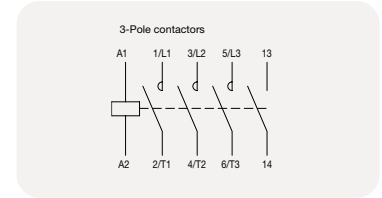
Certificate  
CE, ULcUL

# 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



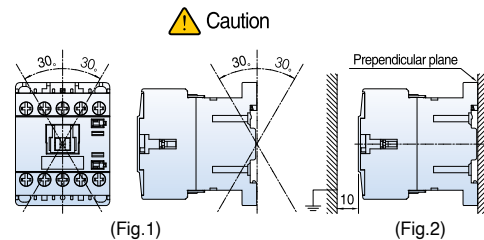
Frame size	AC3 ratings (IEC60947-4)				AC1 rating lth	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMC-6MP
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMC-9MP
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMC-12MP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



\* For even installation direction refer to Fig.1

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

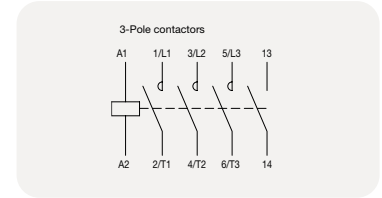
Certificate  
CE, ULcUL

# DC coil

## Contactors

- Motor control applications
- 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

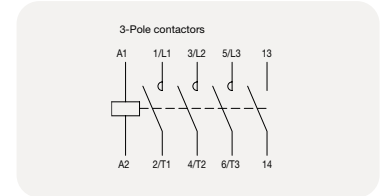
Certificate  
CE, ULcUL

# 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

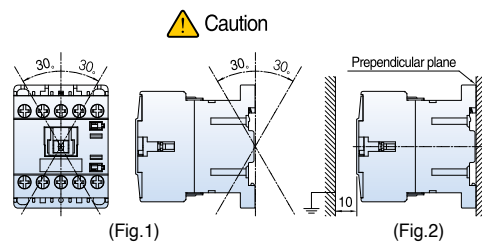
Frame size	AC3 ratings (IEC60947-4)				AC1 rating lth	Auxiliary contact (standard)	Type
	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V			
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A	1NO or 1NC	GMD-6MP
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	GMD-9MP
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	GMD-12MP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



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

Certificate  
CE, ULcUL

## Starters

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

### AC coil contactor + Differential type overload relay



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

### AC coil contactor + Non-differential type overload relay

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

#### Coil voltage, AC 50/60Hz

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

#### Ordering information

Type, Auxiliary contact and Coil voltage  
Overload relay setting range

Note: Pre-assembled starters are not available.

The contactor and overload relay must be purchased separately and assembled before use.

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 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-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 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-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)

Certificate  
CE, ULcUL

#### Ordering information

Type, Auxiliary contact and Coil voltage

## Reversing contactors

- Motor control applications
- Mechanically interlocked
- DC 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	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 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-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

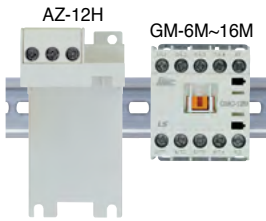
# Bimetallic style

## 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
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

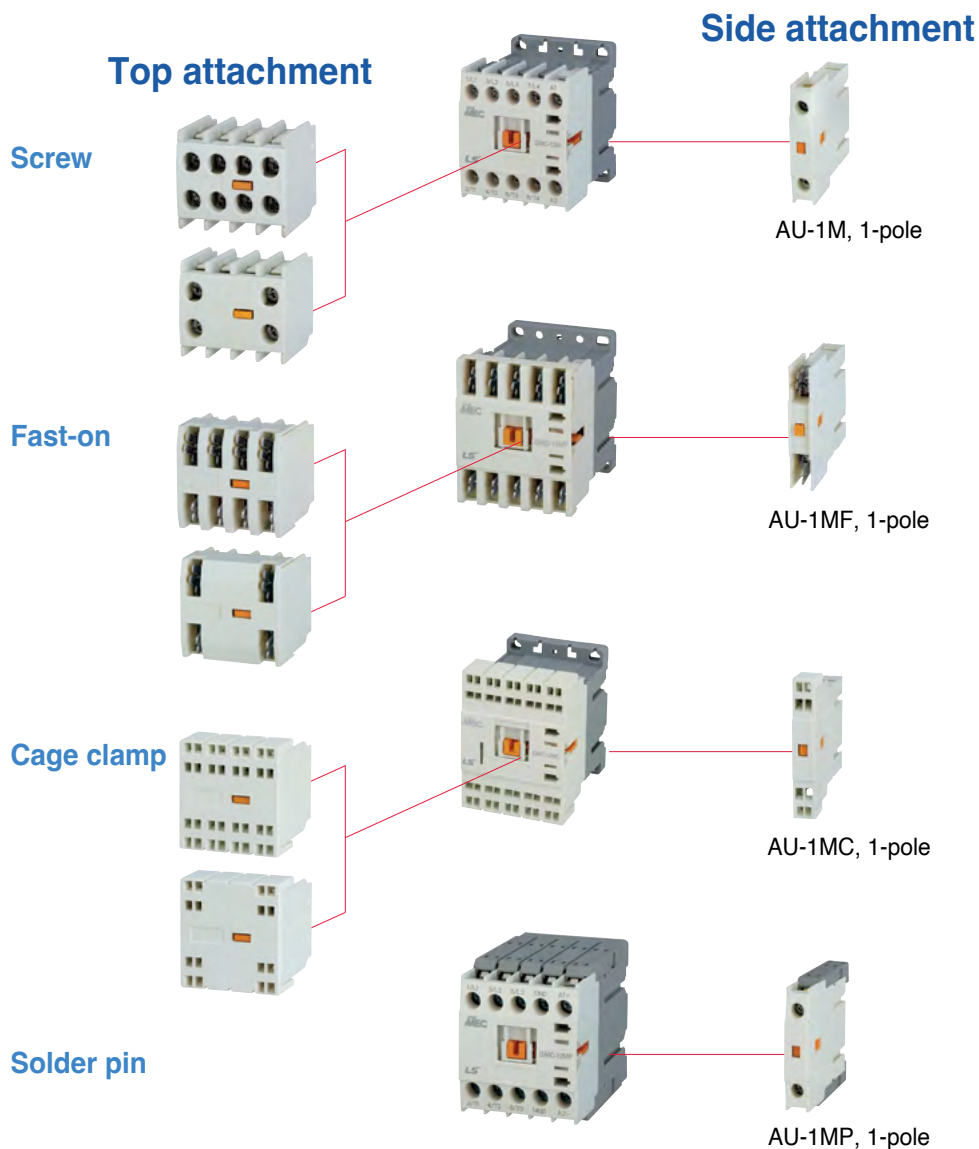
## Auxiliary (Trip) contact rating

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

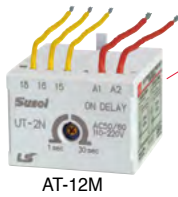
## Auxiliary contact specifications

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



### Surge absorber unit



### 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

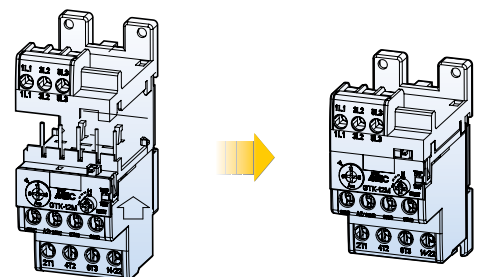
### Surge absorber unit



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	

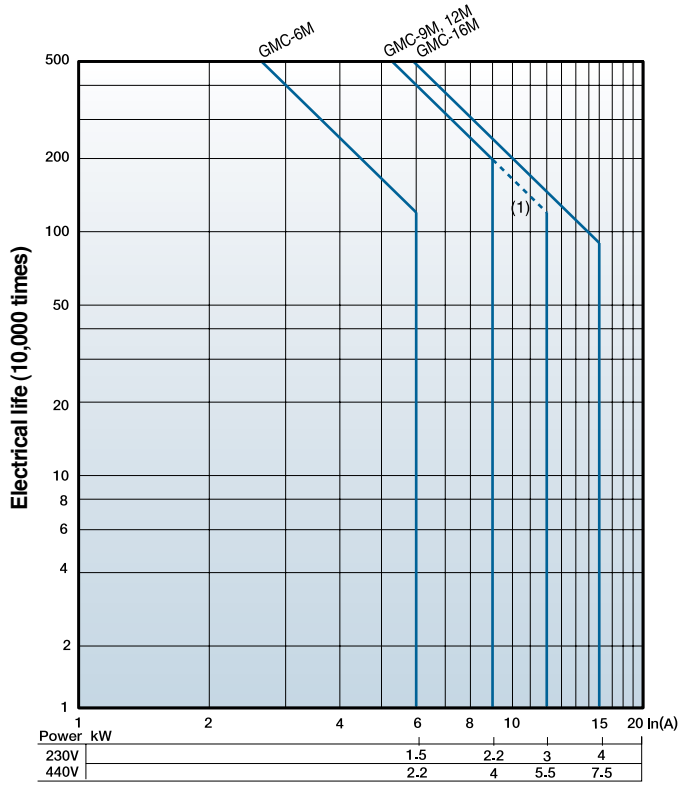
## Separate mounting unit, AZ-12MH

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



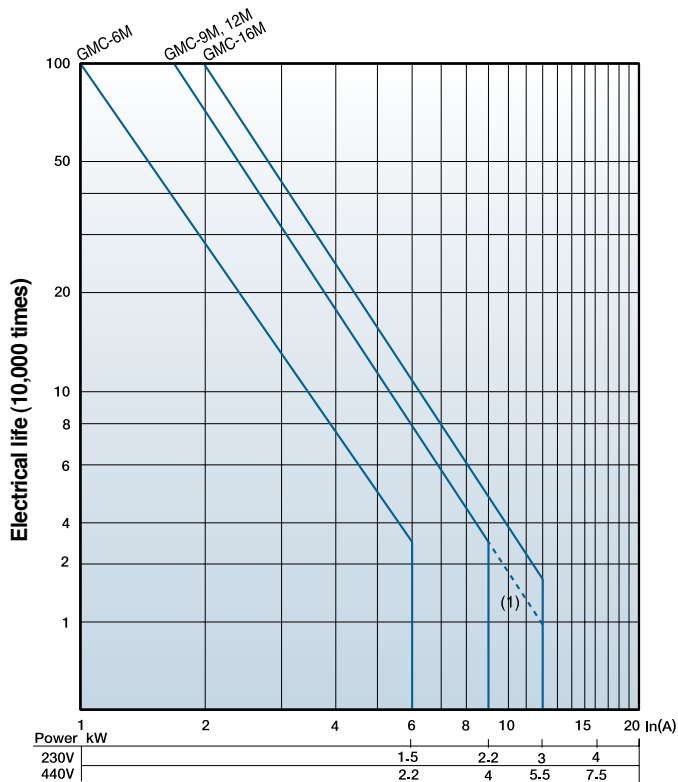
# Electrical life of mini contactors

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



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

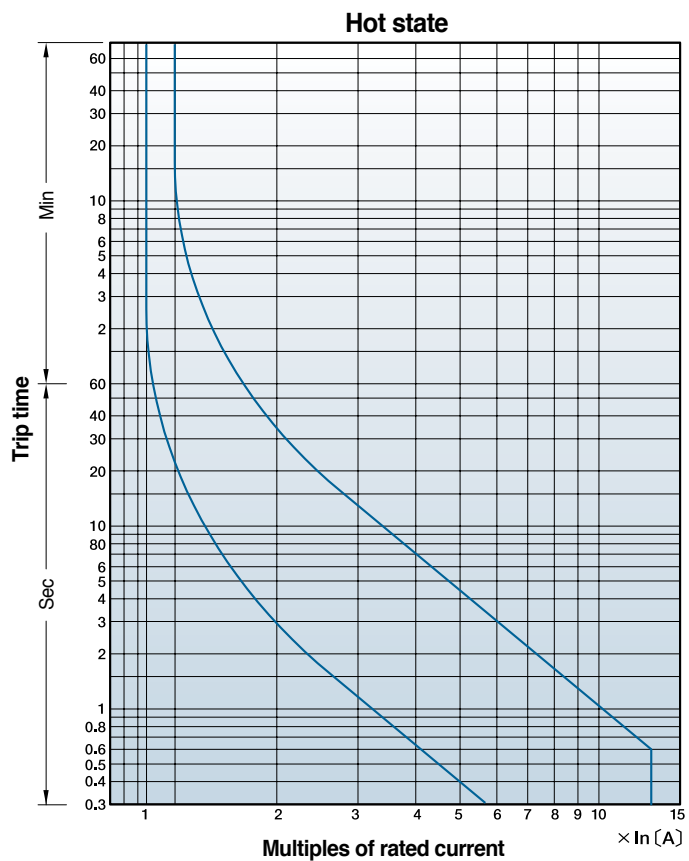
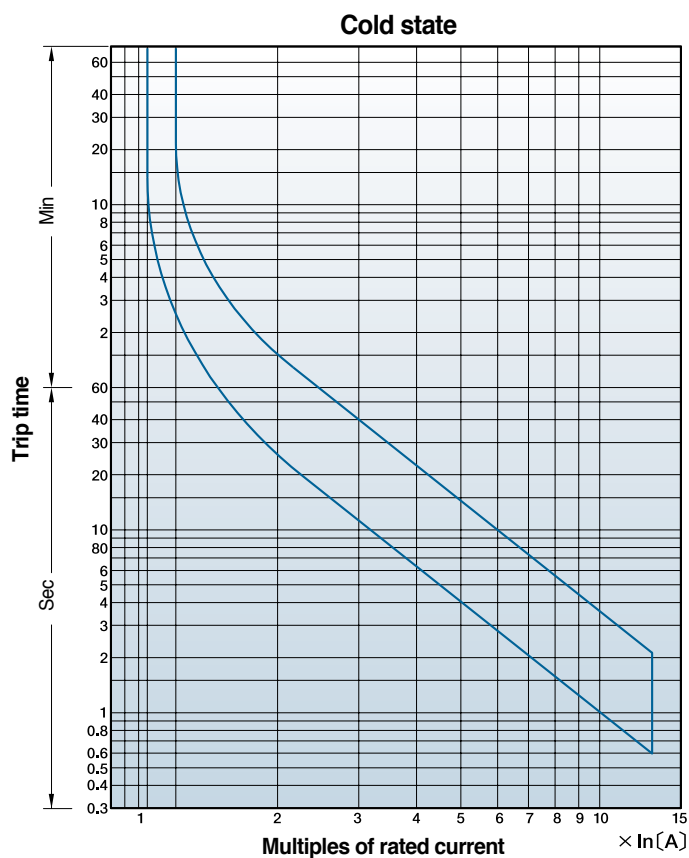
Use in category AC-4  
( $U_e \geq 440V$ )



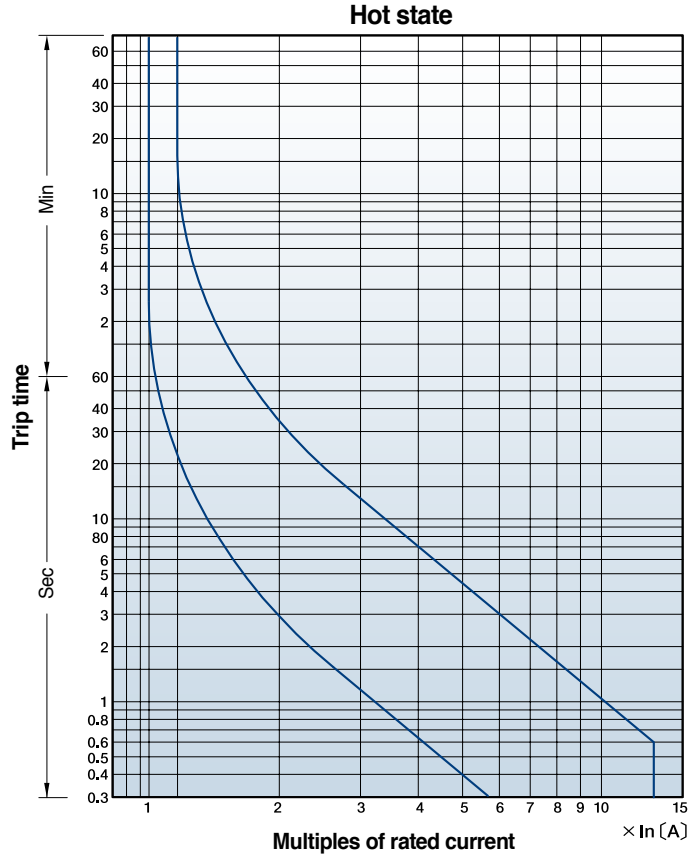
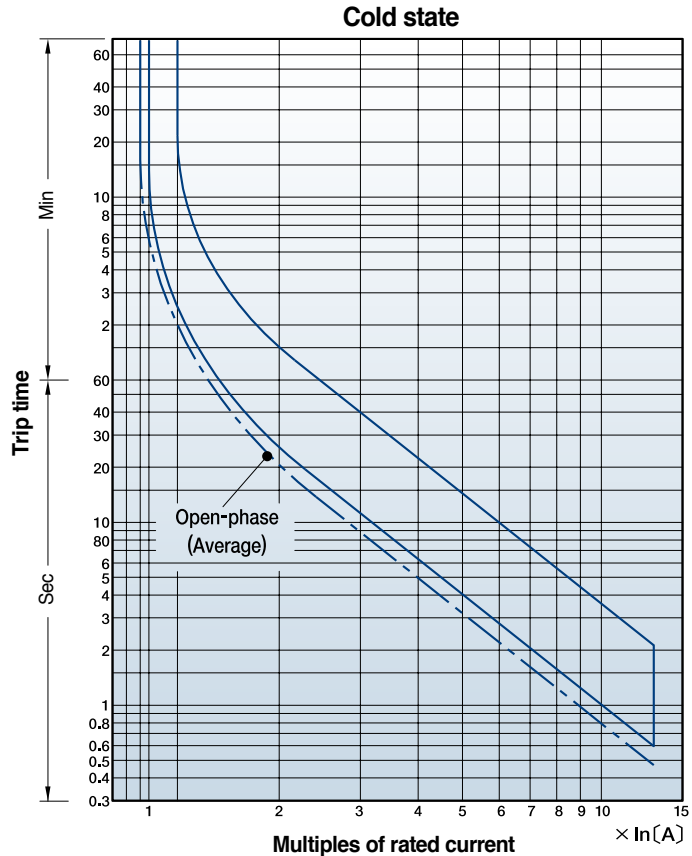
(1) The dotted lines are only applicable to GMC-12M contactors.

# Characteristic curve of thermal overload relay

Non-differential type  
GTH-12M



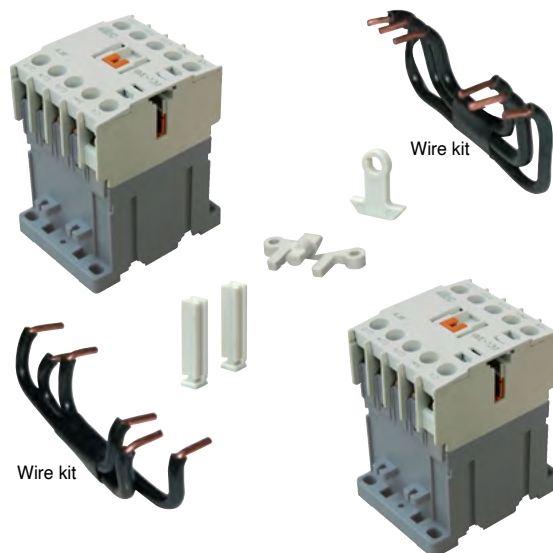
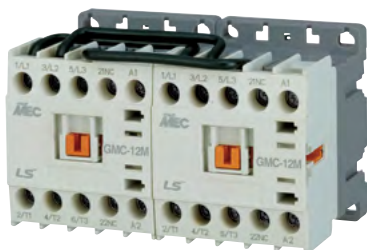
# Differential type GTK-12M



## Interlock unit, AR-12M

### Components

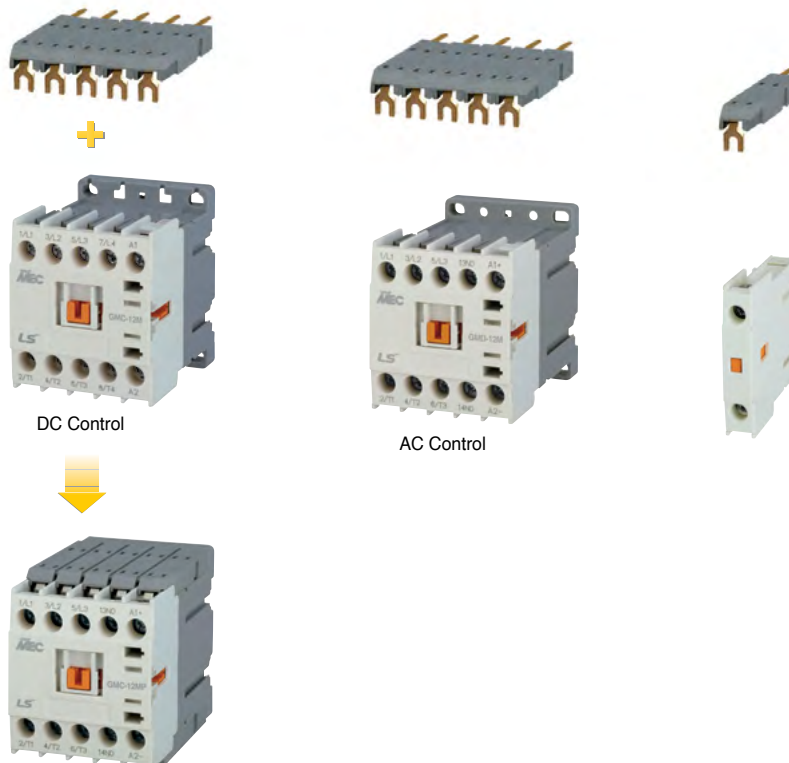
- Mechanical interlock components
- Cable kits for line and load sides



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

## Solder pin terminals

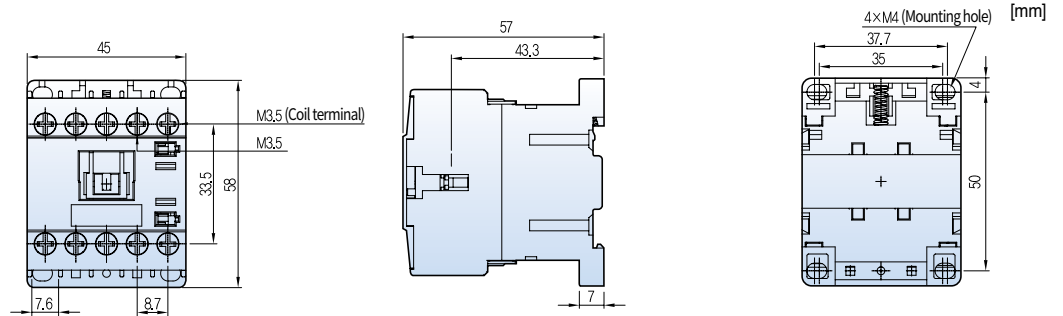
Designed to modify the connection from Screw clamp type to Solder pin type (available for contactors and auxiliary contact blocks)



# Dimensions

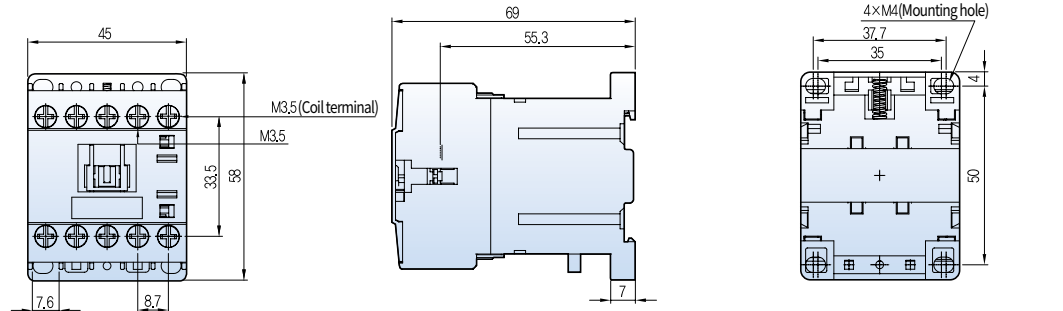
## Mini contactors with Screw clamp type

- 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

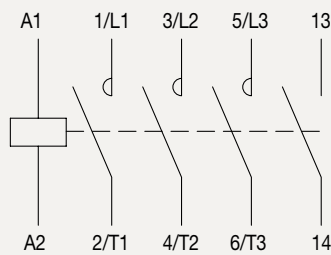


0.23kg

## Circuit diagram

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

#### 3-Pole contactors



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

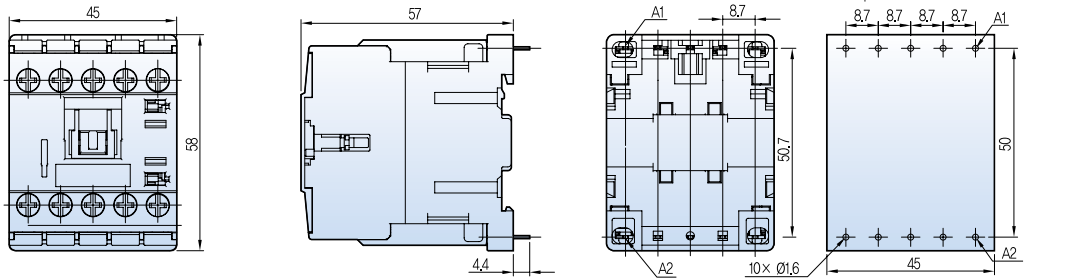
#### 4-Pole contactors



# Dimensions

## Mini contactors with Solder pin type

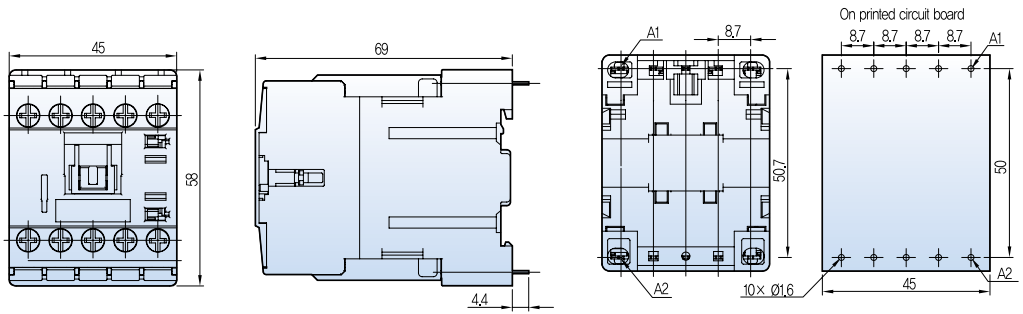
- GMC-6MP
- GMC-9MP
- GMC-12MP
- GMC-16MP
- GMC-6MP/4
- GMC-9MP/4
- GMC-12MP/4
- GMC-16MP/4



[mm]

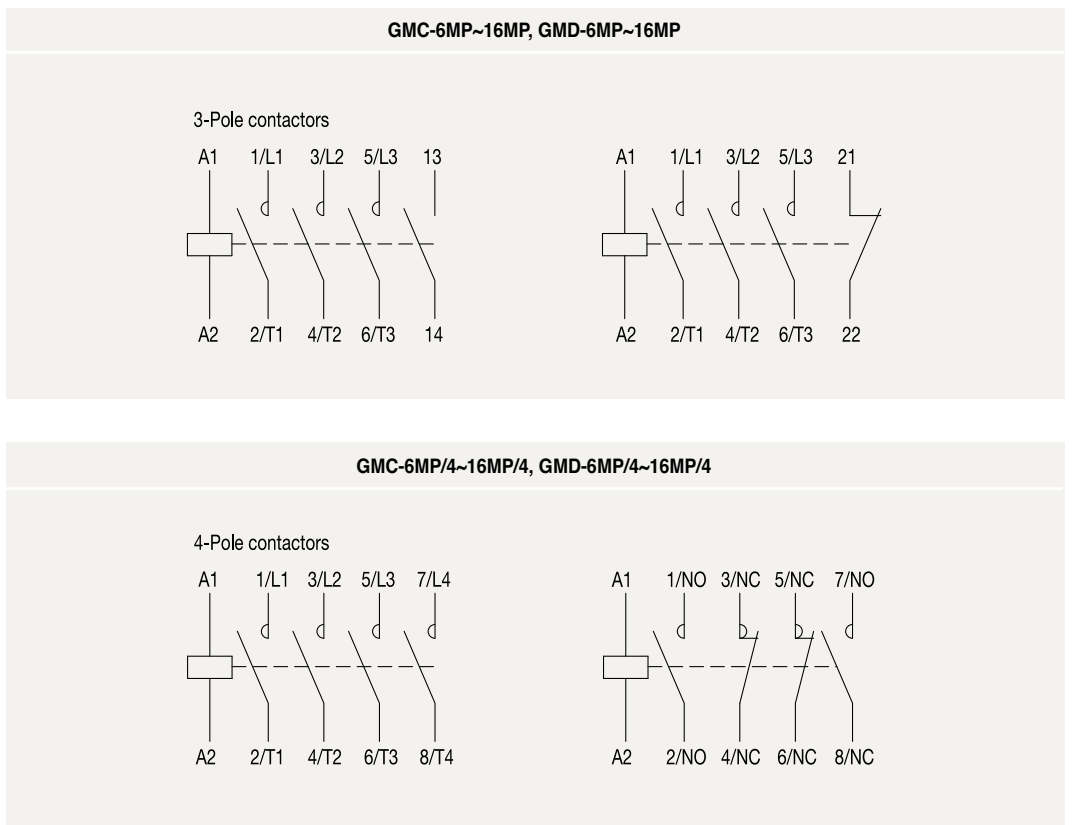
0.17kg

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



0.23kg

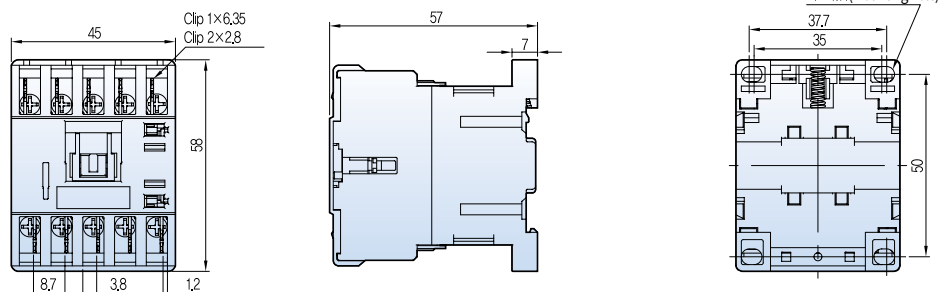
## Circuit diagram



## Mini contactors with Fast-on type

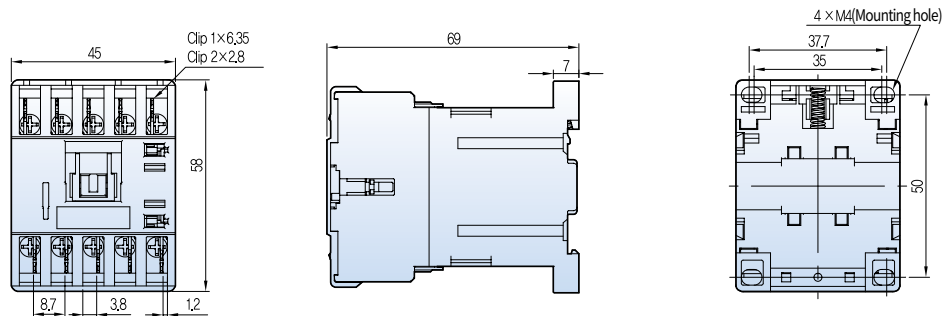
[mm]

- 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

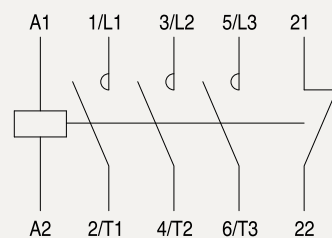
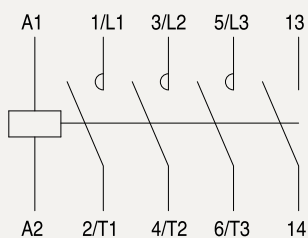


0.27kg

## Circuit diagram

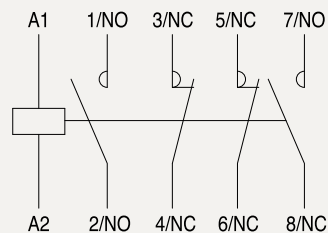
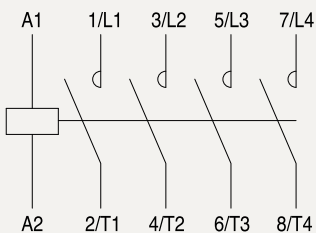
### GMC-6MF~16MF, GMD-6MF~16MF

#### 3-Pole contactors



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

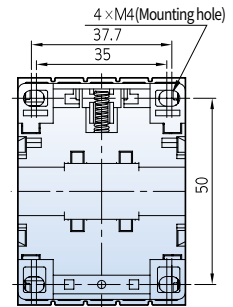
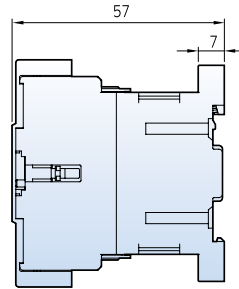
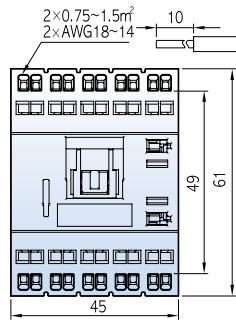
#### 4-Pole contactors



# Dimensions

## Mini contactors with Cage clamp type

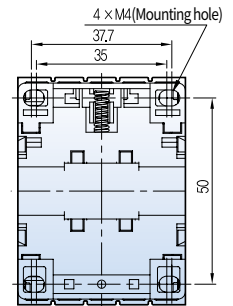
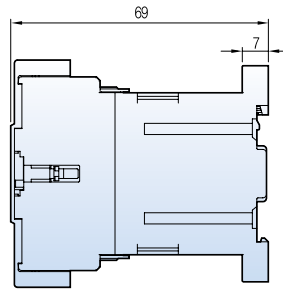
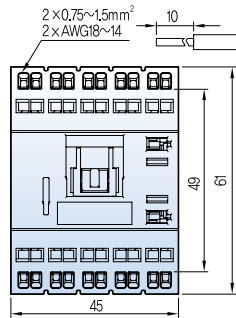
- GMC-6MC
- GMC-9MC
- GMC-12MC
- GMC-16MC
- GMC-6MC/4
- GMC-9MC/4
- GMC-12MC/4
- GMC-16MC/4



[mm]

0.19kg

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

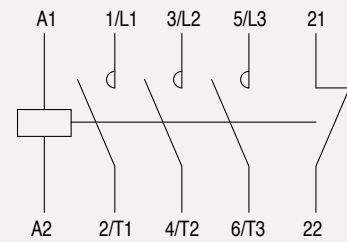
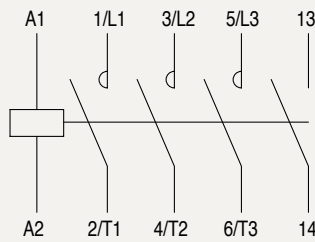


0.28kg

## Circuit diagram

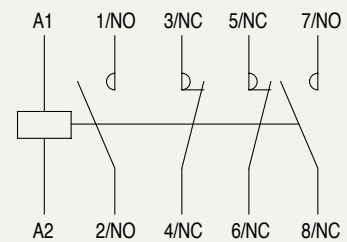
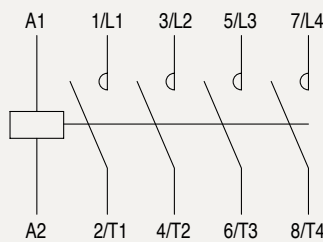
### GMC-6MC~16MC, GMD-6MC~16MC

#### 3-Pole contactors



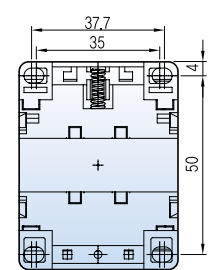
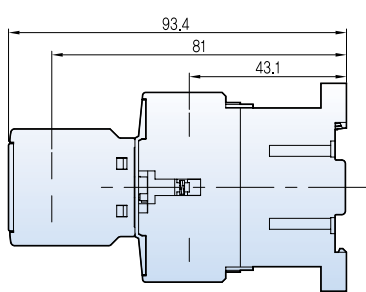
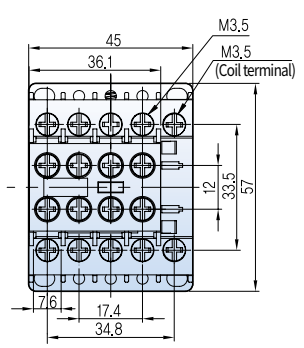
### GMC-6MC/4~16MC/4, GMD-6MC/4~16MC/4

#### 4-Pole contactors



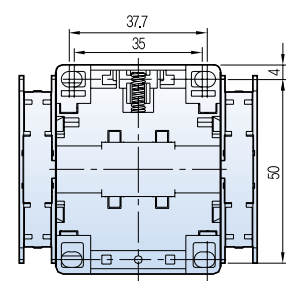
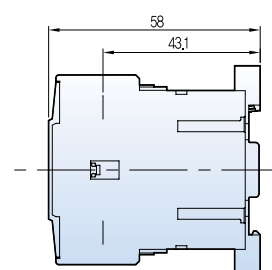
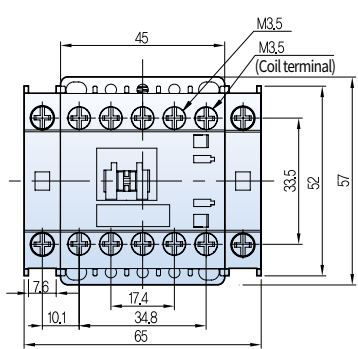
## Mini contactors with Auxiliary contacts

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



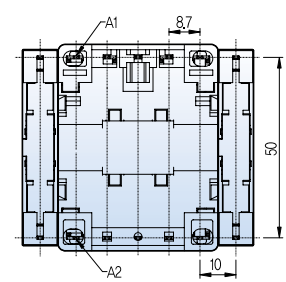
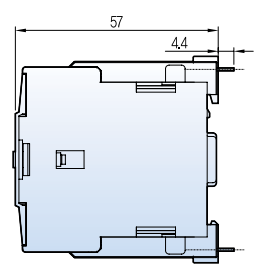
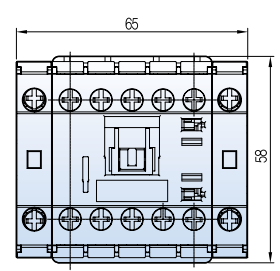
[mm]

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



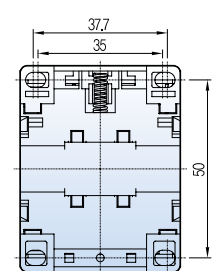
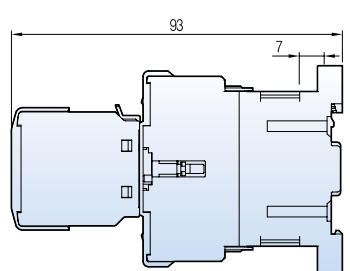
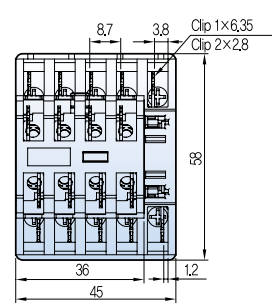
0.21kg

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



0.21kg

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

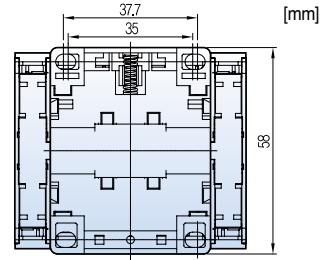
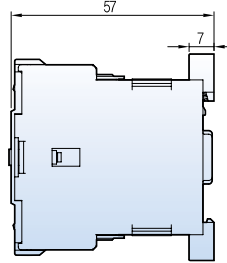
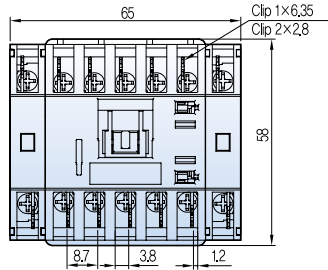


0.23kg

# Dimensions

## Mini contactors with Auxiliary contacts

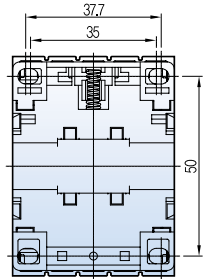
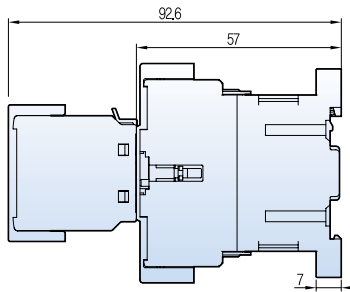
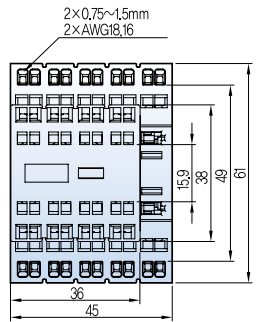
- GMC-6MF
- GMC-9MF
- 2×GMC-12MF
- GMC-16MF
- +
- 2× AU-1MF



[mm]

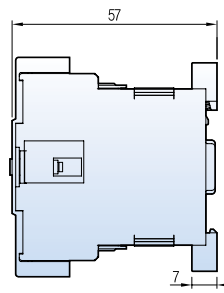
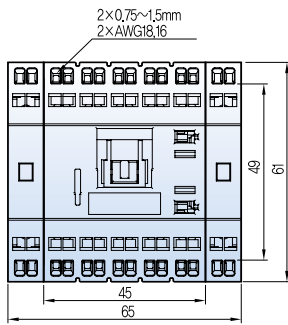
0.32kg

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



0.24kg

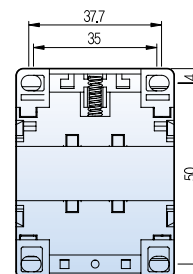
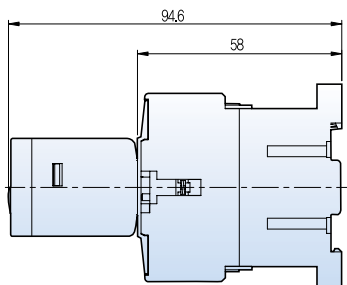
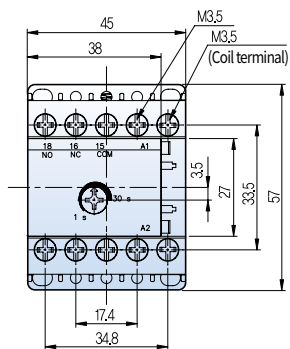
- GMC-6MC
- GMC-9MC
- 2×GMC-12MC
- GMC-16MC
- +
- 2× AU-1MC



0.23kg

## Mini contactors with external accessories

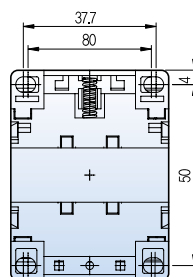
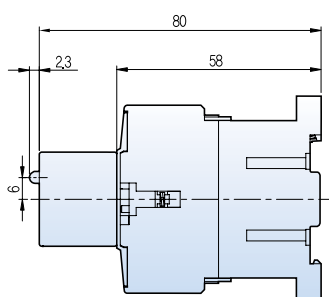
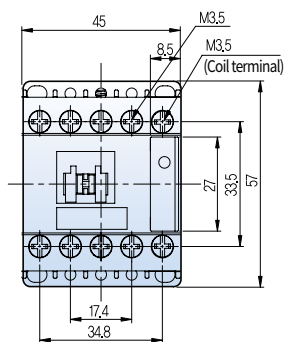
- GMC-6M
- GMC-9M
- GMC-12M
- GMC-16M
- +
- AT-12M



[mm]

0.21kg

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

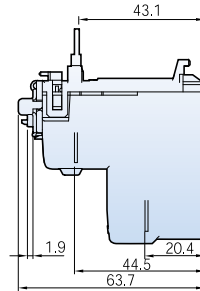
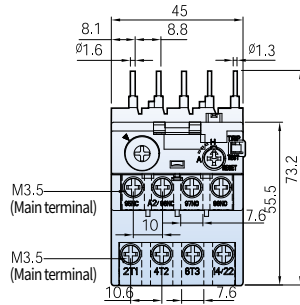


0.175kg

# Dimensions

## Thermal overload relays for Mini contactors

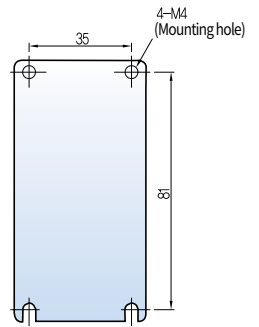
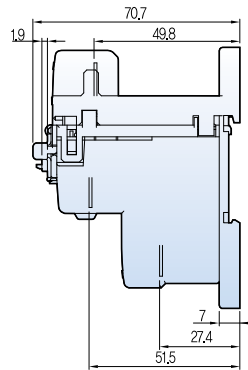
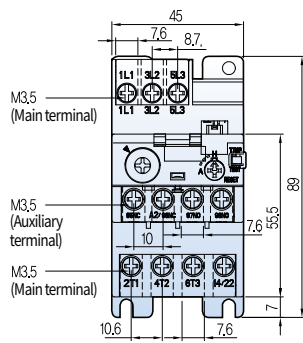
**GTH(K)-12M**



[mm]

0.1kg

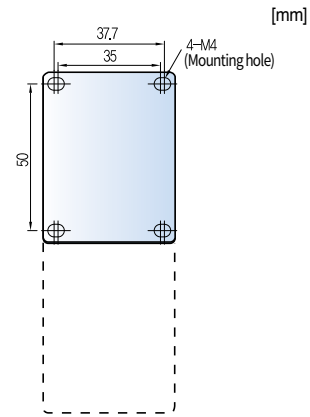
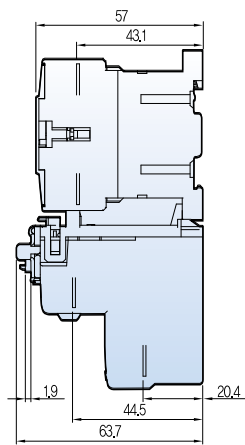
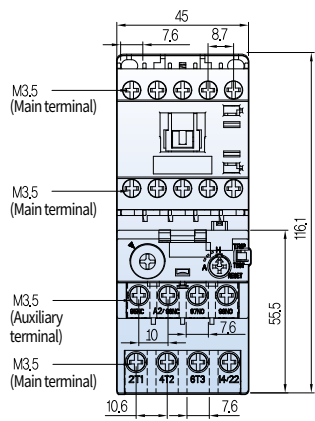
**GTH(K)-12MH**



0.4kg

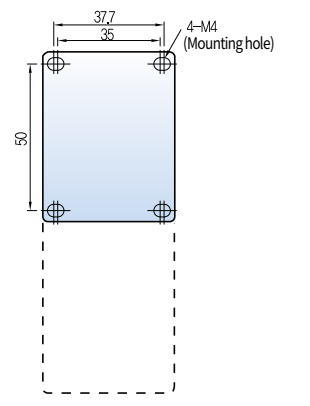
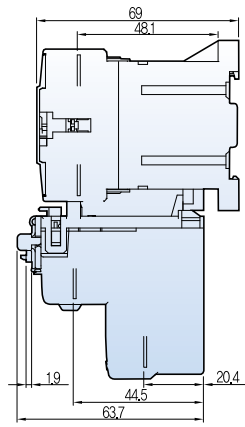
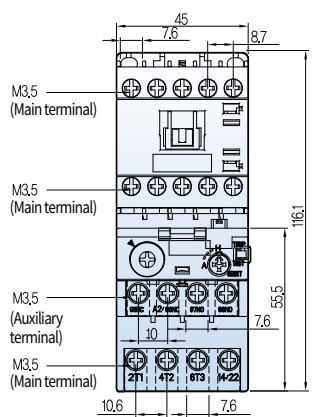
## Mini motor starters, open

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



[mm]  
0.26kg

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



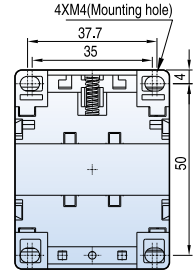
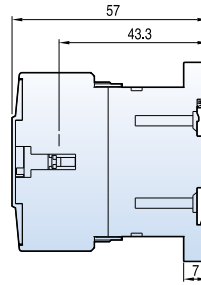
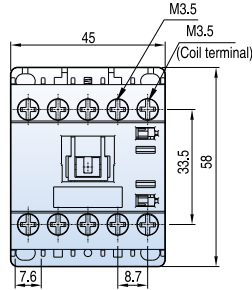
0.39kg

# Dimensions

## Mini contactor relays

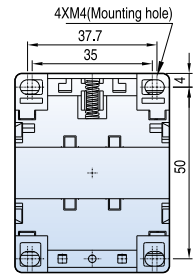
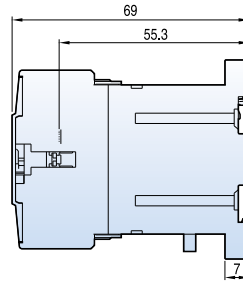
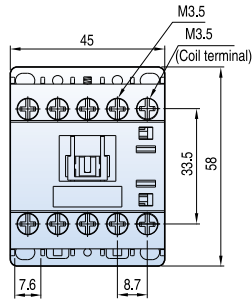
[mm]

**GMR-4M**



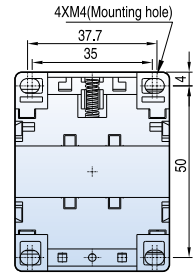
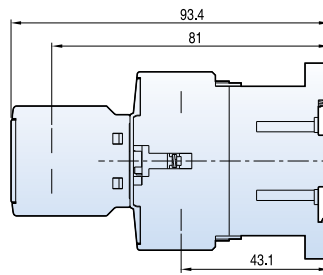
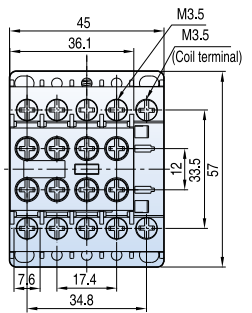
0.17kg

**GMR-4MD**



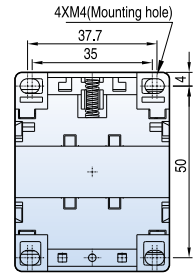
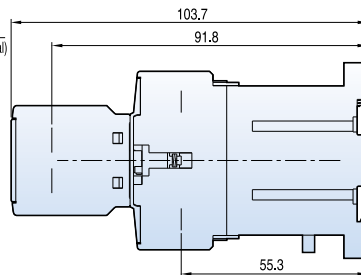
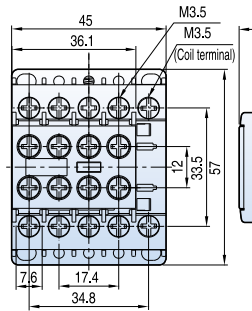
0.23kg

**GMR-4M**  
**GMR-8M**



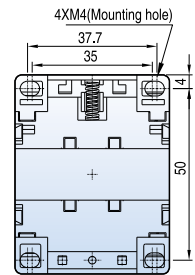
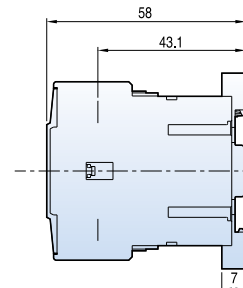
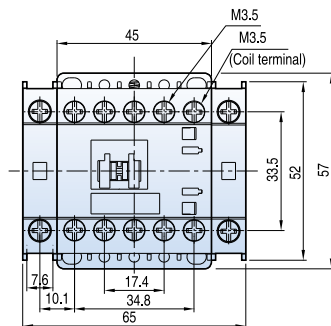
0.21kg

**GMR-4M**  
**GMR-8M**



0.21kg

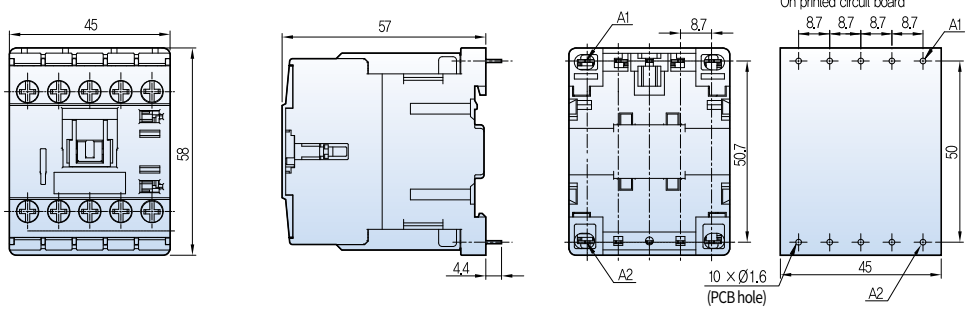
**GMR-4M**  
+  
**2 × AU-1M**



0.21kg

## Mini contactor relays

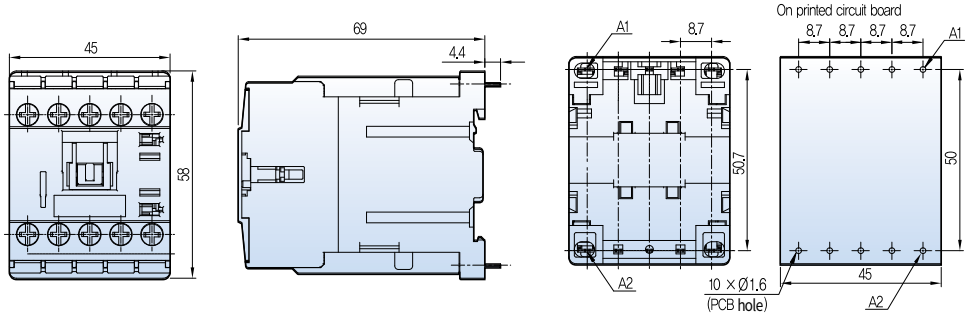
GMR-4MP



[mm]

0.19kg

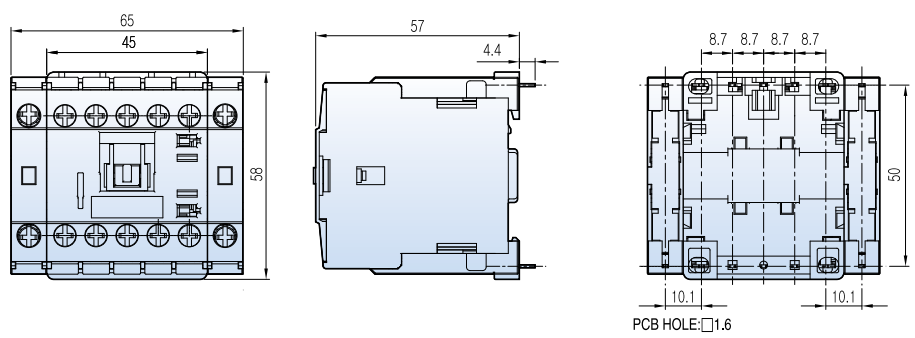
GMR-4MPD



0.28kg

GMR-4MP

+  
2x AU-1M

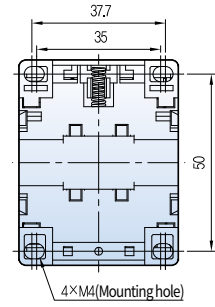
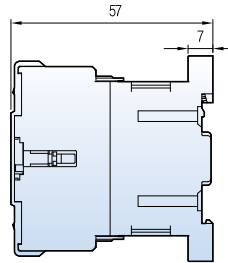
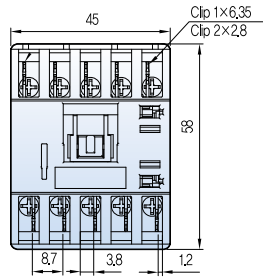


# Dimensions

## Mini contactor relays

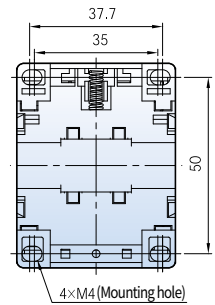
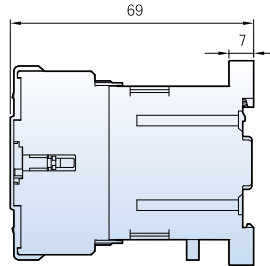
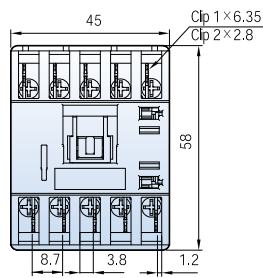
[mm]

GMR-4MF



0.18kg

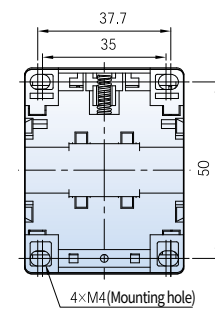
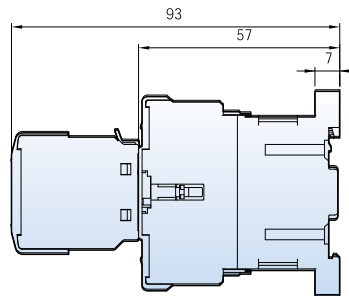
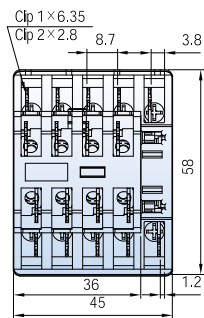
GMR-4MFD



0.27kg

GMR-6MF

GMR-8MF

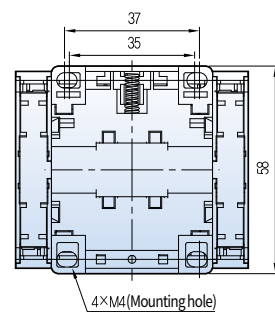
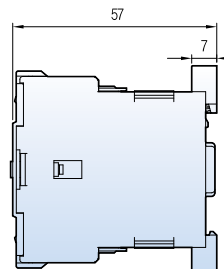
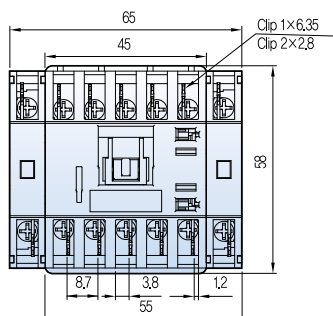


0.23kg

GMR-4MF

+

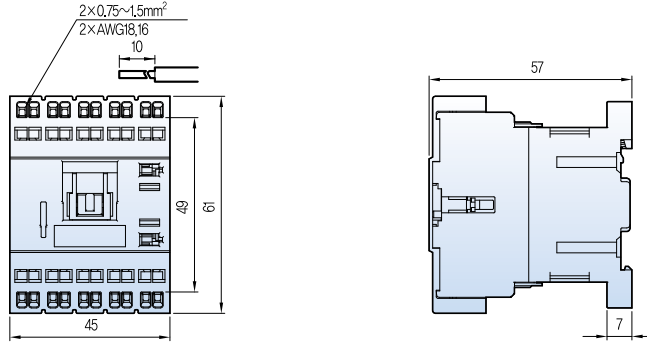
2x AU-1MF



0.32kg

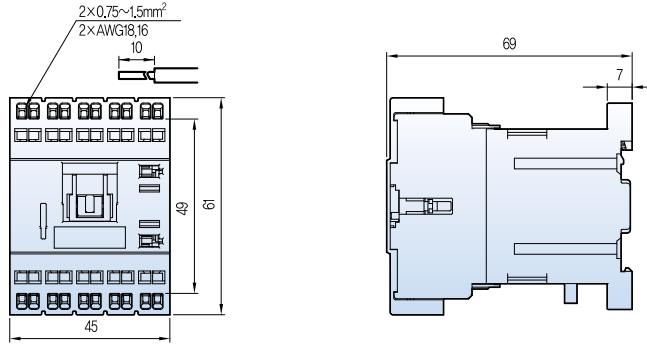
[mm]

GMR-4MC



0.18kg

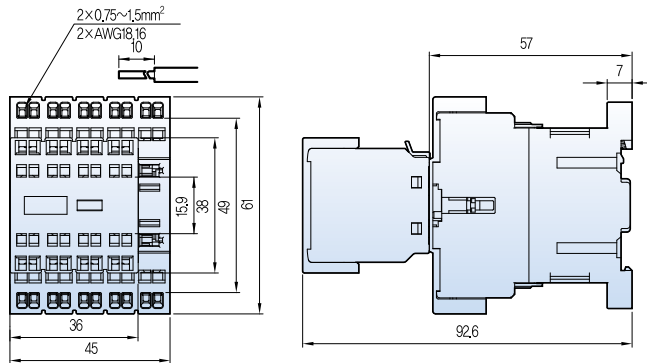
GMR-4MCD



0.27kg

GMR-6MC

GMR-8MC

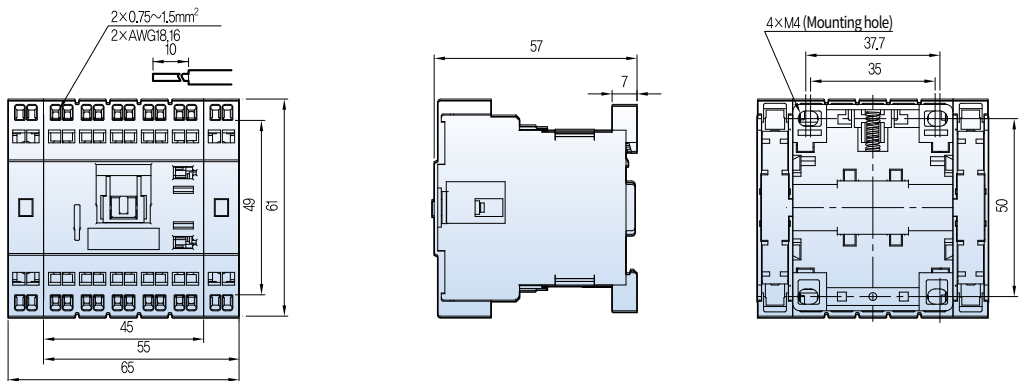


0.23kg

GMR-4MC

+

2 × AU-1MC



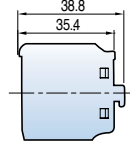
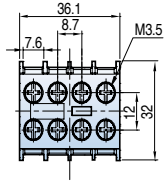
0.32kg

# Dimensions

## Accessories for Mini contactors

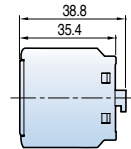
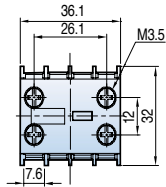
[mm]

AU-4M



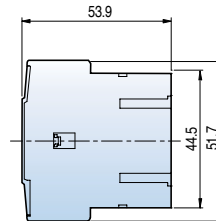
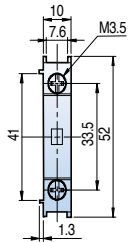
0.04kg

AU-2M



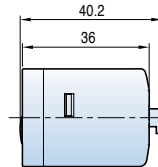
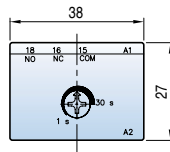
0.03kg

AU-1M



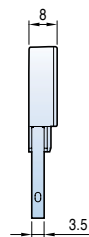
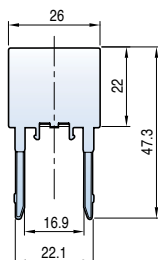
0.02kg

AT-12M



0.04kg

AS-12M



0.005kg

# DIGITAL SUPPORT HUB

SCAN THE QR CODE FOR INSTANT PRODUCT INFORMATION AND EXPERT SUPPORT

**BeyondX™**  
Beyond Expectations



## LSE LENS

One Scan,  
More Materials

Scan the QR code to instantly  
access product materials



## Product Finder

Search Smarter.  
Find Faster

Quickly discover the best-fit  
product for your needs



## Download Center

Download with  
Ease and Speed

Instantly access datasheets,  
manuals, and CAD files



## Tech Hub-YouTube

Expert Guidance,  
Now on YouTube

Watch trusted tutorials and  
product guides from real experts



## Headquarter

127 LS-ro (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

## China

LS ELECTRIC (Dalian) Co., Ltd.  
+86-411-8730-5872  
china.dalian@lselectric.com.cn

LS ELECTRIC (Wuxi) Co., Ltd.  
+86-510-6851-6666  
china.wuxi@lselectric.com.cn

LS ELECTRIC (Lishui) Co., Ltd.  
+86-578-6866-780  
china.lishui@lselectric.com.cn

Shanghai Office  
+86-21-5237-9977  
china@lselectric.com.cn

Beijing Office  
+86-10-5095-1631  
china@lselectric.com.cn

Guangzhou Office  
+86-20-3818-2883  
china@lselectric.com.cn

Qingdao Office  
+86-532-8501-2065  
china@lselectric.com.cn

Chengdu Office  
+86-28-8670-3201  
china@lselectric.com.cn

Nanjing Office  
+86-25-84 67-0005  
china@lselectric.com.cn

## India

India Office  
+91-80-6142-9108  
Info\_india@ls-electric.com

## Indonesia

PT. LS ELECTRIC INDONESIA  
+62-21-2933-7614  
indonesia@ls-electric.com

## Italy

Italy office  
+39-030-8081-833  
italia@ls-electric.com

## Japan

LS ELECTRIC Japan Co., Ltd.  
+81-3-6268-8241  
japan@ls-electric.com

Tokyo Office  
+81-3-6268-8241  
tokyo@ls-electric.com

## Netherlands

LS ELECTRIC Europe B.V.  
+31-20-654-1424  
europartner@ls-electric.com

## Russia

Moscow Office  
+7-499-682-6130  
info@lselectric-ru.com

## Singapore

Singapore Office  
+65-6958-8162  
singapore@ls-electric.com

## Spain

LS ELECTRIC IBERIA S.L.U.  
+34-910-28-02-74  
iberia@ls-electric.com

## Thailand

Bangkok Office  
+66-2-128-0295  
thailand@ls-electric.com

## Türkiye

LS ELECTRIC Türkiye Co., Ltd.  
+90-212-806-1252  
turkiye@ls-electric.com

## U.A.E

LS ELECTRIC Middle East FZE (Dubai)  
+971-4-886-5360  
middleeast@ls-electric.com

## USA

LS ELECTRIC America Inc.  
+1-800-891-2941  
sales.us@lselectricamerica.com

LS ENERGY SOLUTIONS LLC  
+1-980-221-0654  
info@ls-es.com

MCM Engineering II  
+1-435-865-0125  
sales.us@lselectricamerica.com

America Western Office  
+1-949-333-3140  
america@ls-electric.com  
America Bastrop Campus  
+1-800-891-2941 EXT 2  
power\_support.us@lselectricamerica.com

## Vietnam

LS ELECTRIC Vietnam Co., Ltd.  
+84-222-2221-110  
vietnam@ls-electric.com

Hanoi Office  
+84-24-6275-8054  
vietnam@ls-electric.com

Ho Chi Minh Office  
+84-3823-7890  
vietnam@ls-electric.com