

Mini contactors

CARLO GAVAZZI

Mini contactors providing various connections and Accessories

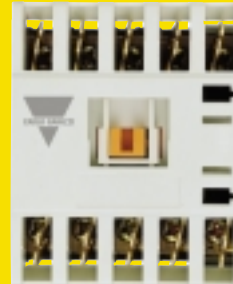
Ratings

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith
	220 ~ 240V	280 ~ 440V	500 ~ 550V	690V	
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A
16A	4kW 15A	7.5kW 16A	5.5kW 9A	4kW 5A	20A

Screw clamps



Fast-on



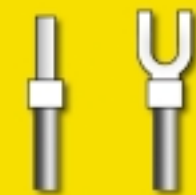
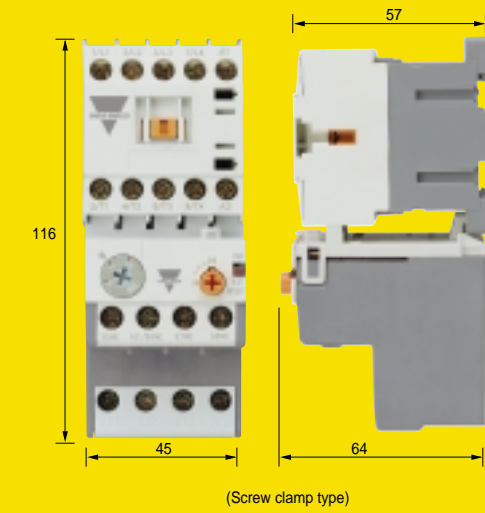
Cage clamps



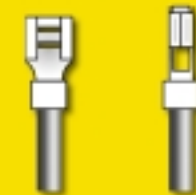
Solder pins



Dimensions,mm



For conventional screw connections



For fast-on connections



For screwless connections



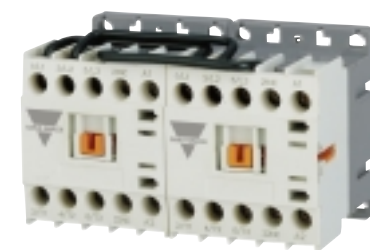
To mount on printed circuit boards



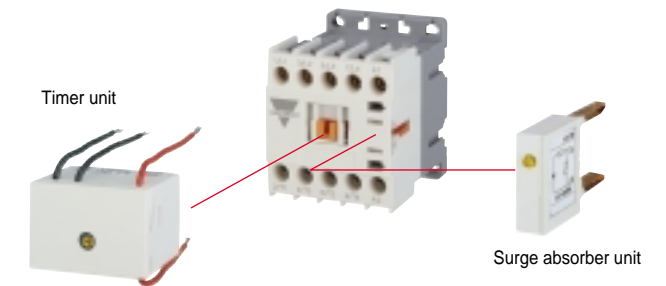
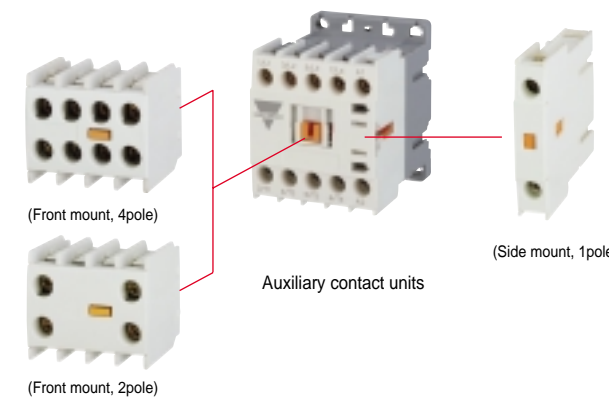
Mini-overload relay



Overload relay separately mounted



Reversing contactor



Mini contactors

CARLO GAVAZZI

Mini contactors providing various connections and Accessories

Ratings

Frame size	AC3 ratings (IEC60947-4)				AC1 rating Ith
	220 ~ 240V	280 ~ 440V	500 ~ 550V	690V	
6A	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	20A
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A
16A	4kW 15A	7.5kW 16A	5.5kW 9A	4kW 5A	20A

Screw clamps



Fast-on



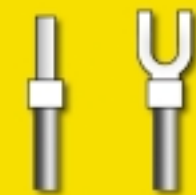
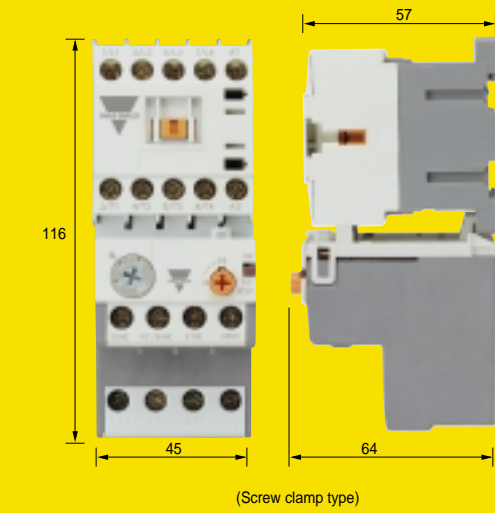
Cage clamps



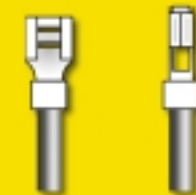
Solder pins



Dimensions,mm



For conventional screw connections



For fast-on connections



For screwless connections



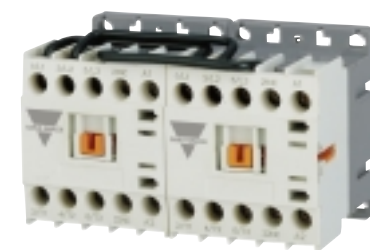
To mount on printed circuit boards



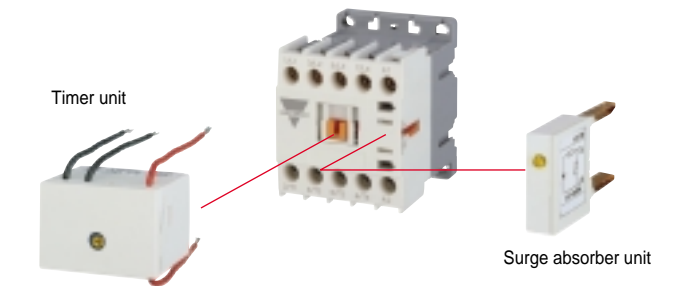
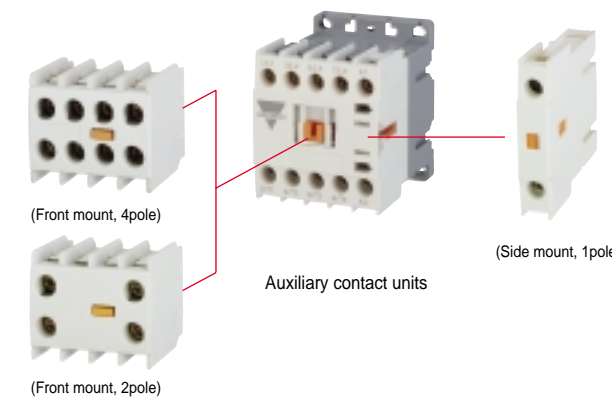
Mini-overload relay



Overload relay separately mounted



Reversing contactor



Quick selection table

Mini contactors & overloads

Mini contactors

3NO main contacts
1 auxiliary contacts

Frame size	6A	9A	12A	16A
Screw clamp type				
AC coil	CGMS-6A	CGMS-9A	CGMS-12A	CGMS-16A
DC coil	CGMS-6D	CGMS-9D	CGMS-12D	CGMS-16D
Fast-on type				
AC coil	CGMF-6A	CGMF-9A	CGMF-12A	CGMF-16A
DC coil	CGMF-6D	CGMF-9D	CGMF-12D	CGMF-16D
Cage clamp type				
AC coil	CGMC-6A	CGMC-9A	CGMC-12A	CGMC-16A
DC coil	CGMC-6D	CGMC-9D	CGMC-12D	CGMC-16D
Solder pin type				
AC coil	CGMP-6A	CGMP-9A	CGMP-12A	CGMP-16A
DC coil	CGMP-6D	CGMP-9D	CGMP-12D	CGMP-16D

Ratings / IEC60947-4		6A		9A		12A		16A	
		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	15
	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		6A		9A		12A		16A	
		hp	A	hp	A	hp	A	hp	A
continuous current			20		25		30		32
single phase	115V	0.5		0.5		1		2	
	230V	1		2		3		3	
three phase	200V	2		3		5		7	
	230V	2		3		5		7.5	
	460V	5		7.5		10		10	
	575V	7.5		10		15		15	
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	AX-2MS	AX-2MF	AX-2MC	
4-pole, Front mount	AX-4MS	AX-4MF	AX-4MC	AX-1MP
2-pole, Side mount	AX-1MS	AX-1MF	AX-1MC	

See page 30 for more details

Overload Relays

Bimetallic style
Type CGT
Class 10A

Setting ranges (A)	4-6	5-8	6-9	7-10	9-13	12-16
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						

Base for separate mount. See page 27 for more details

	CGT-12M	CGTH-12M/3	CGTH-12M
Differential			
Non-differential (3-heater)			
Non-differential (2-heater)			

Catalog numbering system

CARLO GAVAZZI

Contactor & Starters

CGM - S - 9 - A - 120 - 10

Contactor / Starter
Magnetic Mini Contactor

Application
Blank Standard
S Starter
U Reversing

Termination Style
S Screw Terminal
F Fast On
C Cage Clamp
P Solder Pin

Frame Size
6
9
12
16

Coil Type
A AC Coil
D DC Coil

Coils

AC	DC
24	12
48	24
115	48
:	:
:	:
480	250

TOR for Starter

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

Aux Contact
10 1 NO Aux
01 1 NC Aux

CG - C - 9 - A - 120

Contactor / Starter
Magnetic Contactor

Type
C Contactor
S Starter
W Enclosed Starter

Application
Blank Standard
U Reversing

Ampere Frame

9	65	220
12	75	300
18	85	400
22	100	600
32	125	800
40	150	
50	180	

Coil Type
A AC
D DC
Blank AC/DC (Only on 100+ amp frame)

Enclosure Type
(when applicable)
S Metal
SB Metal w/push buttons
P Plastic
PB Plastic w/pushbuttons

Coils
Coil Voltage
See catalog pages for options

TOR for Starter
Reference Max. setting range

CGT - 22 - 0.16

Thermal Overload Relay

Protection Type
Blank Differential
H Non Diff. 2 heaters
H3 Non Diff. 3 heaters

Type

12M	85	220
22	125	400
40	150	800

Setting Ranges

Type	12M	22	40	85	125	150	220	400	800
Ref. Max. setting range	0.1 - 0.16	0.1 - 0.16	4-6	7-10	34-50	34-50	65-100	85-150	200-300
	0.16-0.25	0.16-0.25	5-8	9-13	39-57	39-57	85-125	100-160	250-400
	0.25-0.4	0.25-0.4	6-9	12-18	43-65	43-65	100-160	120-180	400-600
	0.4-0.63	0.4-0.63	7-10	16-22	54-80	54-80	120-180	160-240	520-800
	0.63-1	0.63-1	9-13	18-26	65-100	65-100	160-240	220-300	
	1-1.6	1-1.6	12-18	24-36	85-125	85-125	260-400		
	1.6-2.5	1.6-2.5	16-22	28-40	100-150				
	2.5-4	2.5-4	18-26	34-50					
	4-6	4-6	24-36	45-65					
	5-8	5-8	28-40	54-75					
	6-9	6-9		63-85					
	7-10	7-10							
	9-13	9-13							
	12-16	12-16							
		16-22							

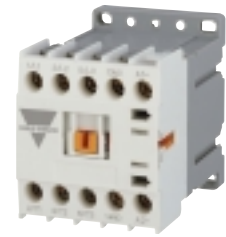
Mini contactors

DC coil

CARLO GAVAZZI

Contactors

- For motor control
- 3 main plus 1 auxiliary contacts
- Coil voltage : D.C.



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	2.2kW	3kW	3kW	20A	1NO or 1NC	CGMS-6D
	7A	6A	5A	4A			
9A	2.2kW	4kW	3.7kW	4kW	20A	1NO or 1NC	CGMS-9D
	9A	9A	6A	5A			
12A	3kW	5.5kW	4kW	4kW	20A	1NO or 1NC	CGMS-12D
	12A	12A	7A	5A			
16A	4kW	7.5kW	5.5kW	4kW	20A	1NO or 1NC	CGMS-16D
	15A	16A	9A	5A			



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	2.2kW	3kW	3kW	20A	1NO or 1NC	CGMF-6D
	7A	6A	5A	4A			
9A	2.2kW	4kW	3.7kW	4kW	20A	1NO or 1NC	CGMF-9D
	9A	9A	6A	5A			
12A	3kW	5.5kW	4kW	4kW	20A	1NO or 1NC	CGMF-12D
	12A	12A	7A	5A			
16A	4kW	7.5kW	5.5kW	4kW	20A	1NO or 1NC	CGMF-16D
	15A	16A	9A	5A			

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

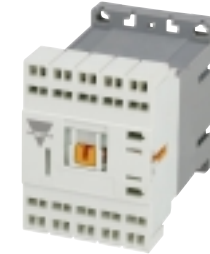
Coil characteristic

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

Contactors

- For motor control
- 3 main plus 1 auxiliary contacts
- Coil voltage : D.C.



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	2.2kW	3kW	3kW	20A	1NO or 1NC	CGMC-6D
	7A	6A	5A	4A			
9A	2.2kW	4kW	3.7kW	4kW	20A	1NO or 1NC	CGMC-9D
	9A	9A	6A	5A			
12A	3kW	5.5kW	4kW	4kW	20A	1NO or 1NC	CGMC-12D
	12A	12A	7A	5A			
16A	4kW	7.5kW	5.5kW	4kW	20A	1NO or 1NC	CGMC16D
	15A	16A	9A	5A			



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	2.2kW	3kW	3kW	20A	1NO or 1NC	CGMP-6D
	7A	6A	5A	4A			
9A	2.2kW	4kW	3.7kW	4kW	20A	1NO or 1NC	CGMP-9D
	9A	9A	6A	5A			
12A	3kW	5.5kW	4kW	4kW	20A	1NO or 1NC	CGMP-12D
	12A	12A	7A	5A			
16A	4kW	7.5kW	5.5kW	4kW	20A	1NO or 1NC	CGMP-16D
	15A	16A	9A	5A			

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 more information

- Drawings → page 34
- Reversing contactors → page 25
- Overload relays → page 27
- Optional accessories → page 29~33

Certificate
CE, ULcUL

Starters

Direct starters

Starters

- Open types
- Direct (Full voltage) types
- Coil voltage : A.C.
- 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		
CGMS-6A	CGT-12M	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	1NO or 1NC	CGMSS-6A
CGMS-9A	CGT-12M	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	1NO or 1NC	CGMSS-9A
CGMS-12A	CGT-12M	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	1NO or 1NC	CGMSS-12A
CGMS-16A	CGT-12M	4kW 15A	7.5kW 16A	5.5kW 9A	4kW 5A	1NO or 1NC	CGMSS-16A

AC coil contactor + Non-differential type overload relay

Devices combined		AC3 ratings (IEC60947-4)				Auxiliary contacts	Starter Type
Contactor (AC coil)	Overload (Non-differential)	220 ~ 240V	380 ~ 440V	500 ~ 550V	690V		
CGMS-6A	CGTH-12M/3	1.5kW 7A	2.2kW 6A	3kW 5A	3kW 4A	1NO or 1NC	CGMSS-6AH
CGMS-9A	CGTH-12M/3	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	1NO or 1NC	CGMSS-9AH
CGMS-12A	CGTH-12M/3	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	1NO or 1NC	CGMSS-12AH
CGMC-16A	CGTH-12M/3	4kW 15A	7.5kW 16A	5.5kW 9A	4kW 5A	1NO or 1NC	CGMSS-16AH

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 (→ page 27)

For more information

Drawings → page 37
Mini Contactors → page 21
Mini Overload relays → page 27
Optional accessories → page 29~33

Certificate
CE, ULcUL

Mini contactors

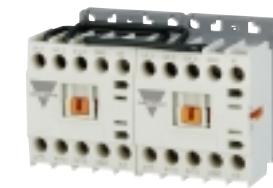
Reversing / AC coil



Reversing contactors

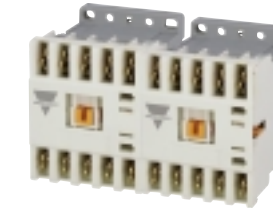
- For motor control
- Mechanically interlocked
- Coil voltage : A.C.

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	CGMUS-6A
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	CGMUS-9A
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	CGMUS-12A
16A	4kW 15A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	CGMUS-16A

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	CGMUF-6A
9A	2.2kW 9A	4kW 9A	3.7kW 6A	4kW 5A	20A	1NO or 1NC	CGMUF-9A
12A	3kW 12A	5.5kW 12A	4kW 7A	4kW 5A	20A	1NO or 1NC	CGMUF-12A
16A	4kW 15A	7.5kW 16A	5.5kW 9A	4kW 5A	20A	1NO or 1NC	CGMUF-16A

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 more information

Drawings → page 34
Overload relays → page 27
Optional accessories → page 29~33

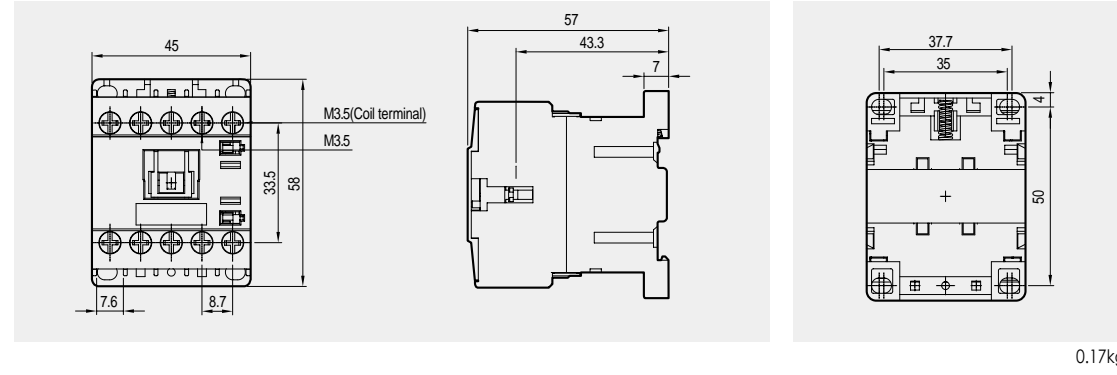
Certificate
CE, ULcUL

Mini contactors

Dimensions



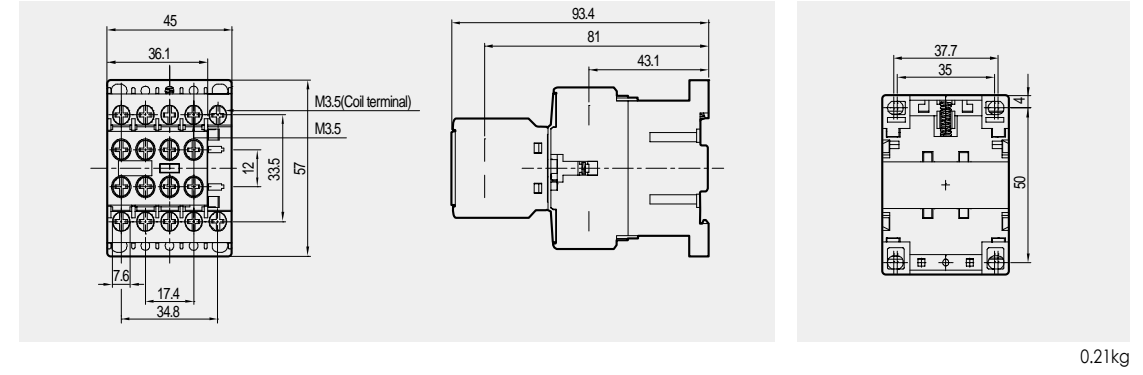
CGMS-12A



0.17kg

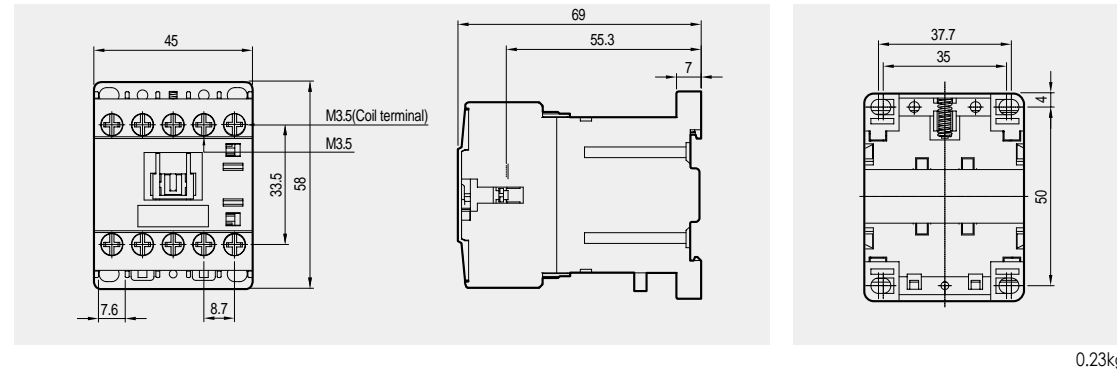
CGMS-12A

+
AX-4MS



0.21kg

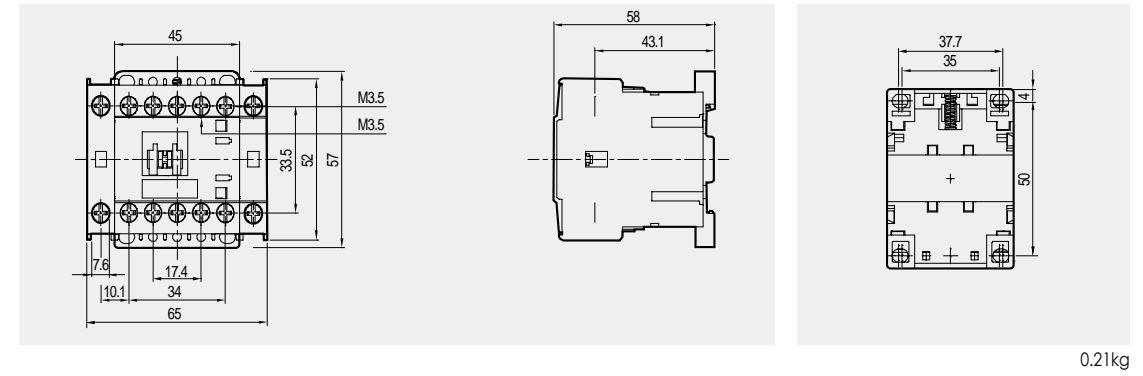
CGMS-12D



0.23kg

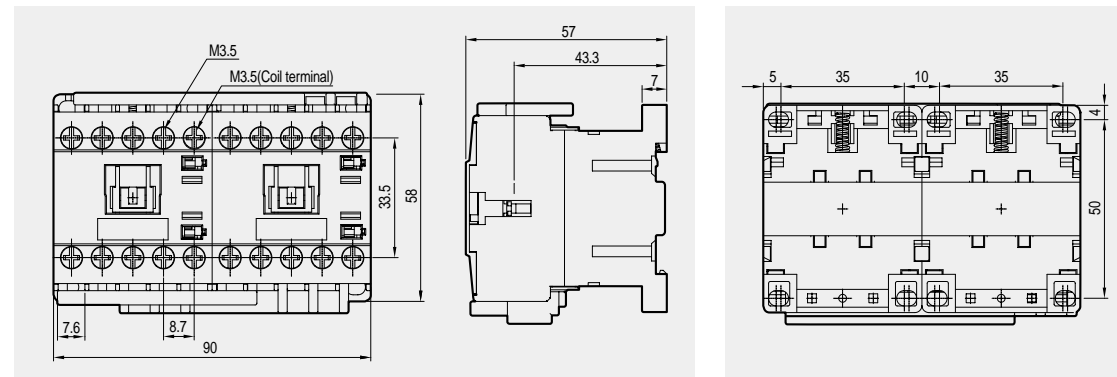
CGMS-12D

+
2 × **AX-1MS**



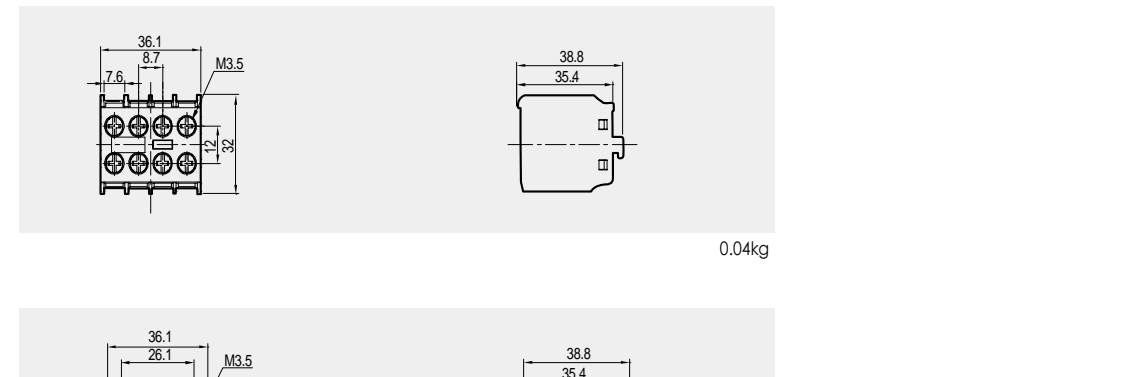
0.21kg

CGMUS-12A



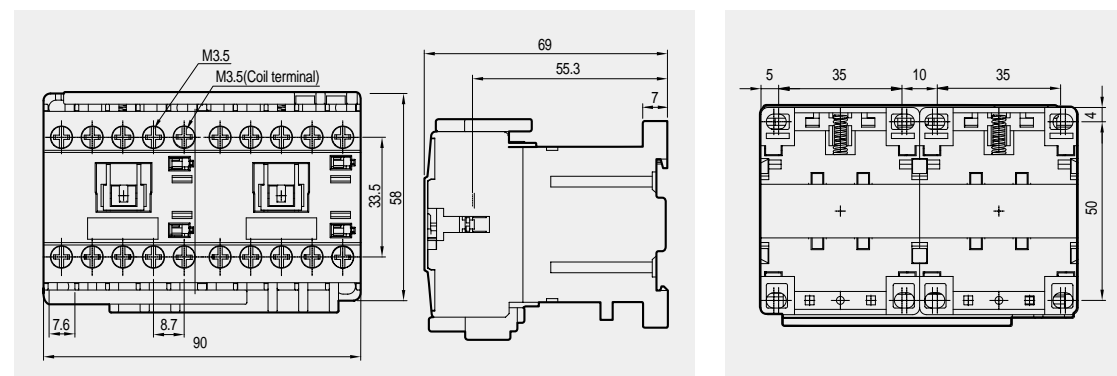
0.36kg

AX-4MS



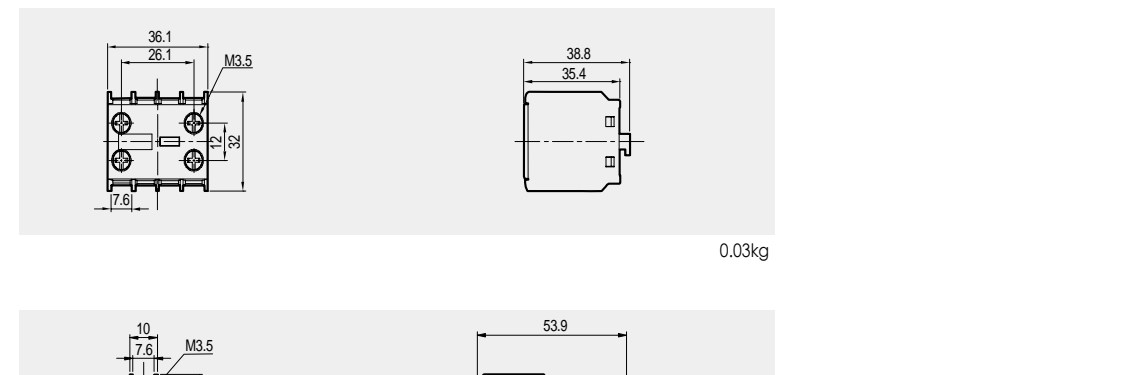
0.04kg

CGMUS-12D



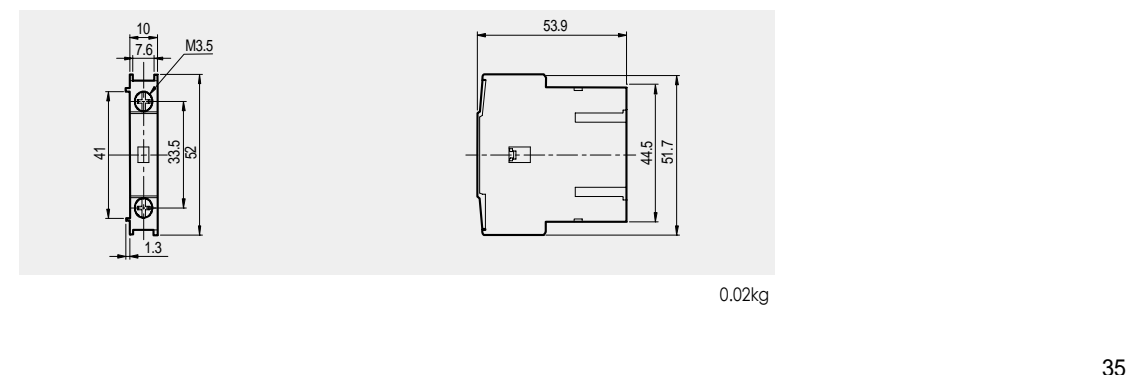
0.48kg

AX-2MS



0.03kg

AX-1MS



0.02kg

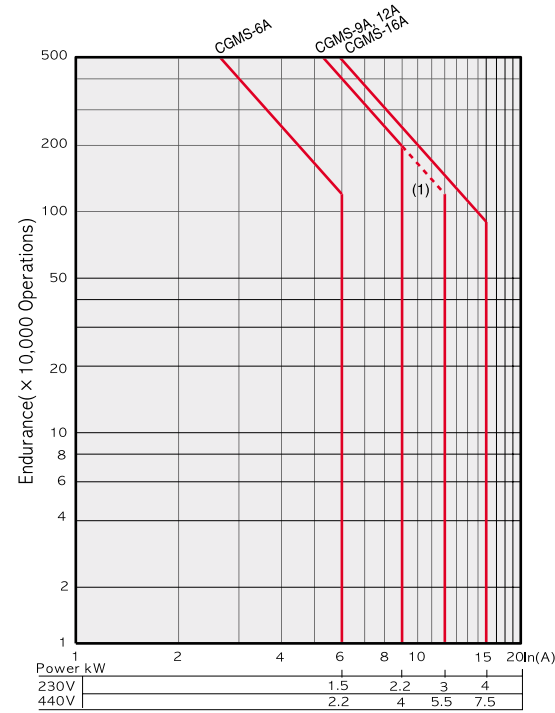
Mini contactors

Characteristic



Electrical lifespan of contactors

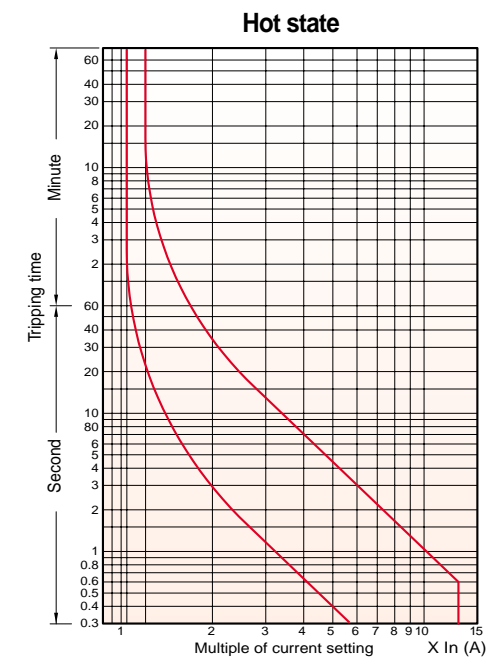
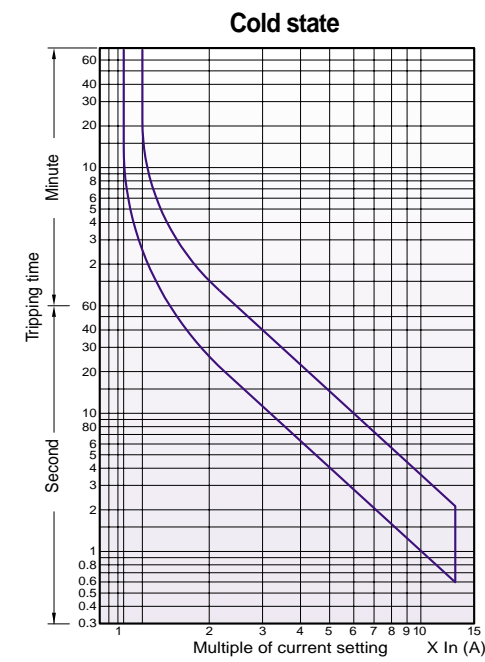
Use in category AC-3
($U_e \geq 440V$)



(1) The dotted lines are only applicable to CGMS-12A contactors.

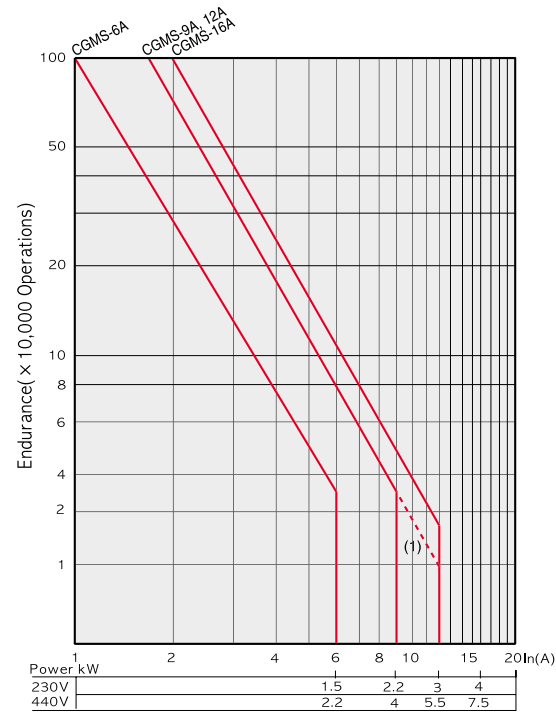
Overload relay curves

Non-Differential type
CGTH-12M



Use in category AC-4

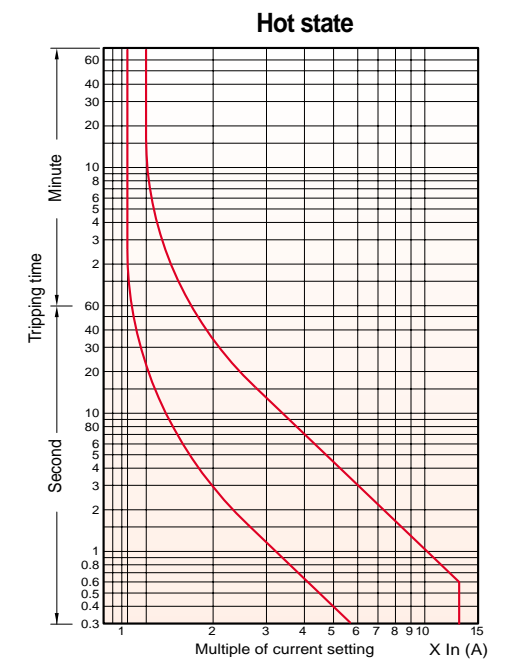
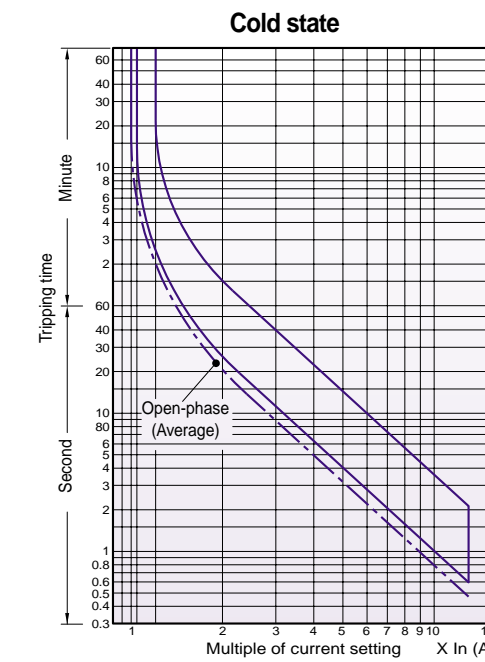
($U_e \geq 440V$)



(1) The dotted lines are only applicable to CGMS-12A contactors.

Differential type

CGT-12M



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