



# Contactors, Starters and Overloads Overview



**With  
Extended  
Warranty**



Switch

# TYPE DESIGNATIONS

## Magnetic Mini Contactors

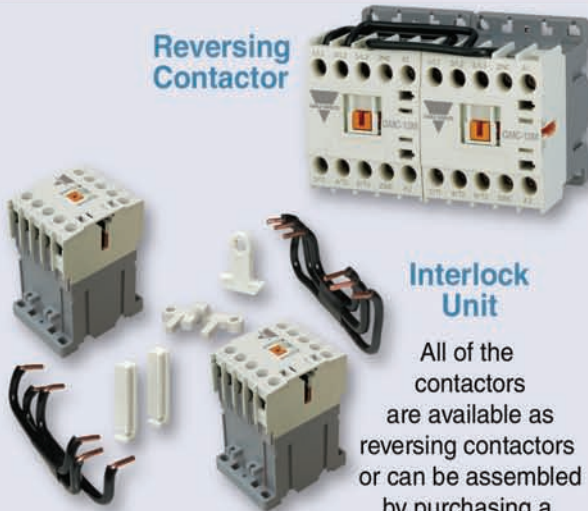
<b>CGM</b>	Magnetic Mini Contactors	<b>CGM</b>	<b>S</b>	<b>9</b>	<b>A</b>	
<b>Style</b>						
S	Screw Terminals					
P	Solder Pins					
F	Fast on					
C	Cage Clamp					
<b>Application</b>						
BLANK	General / Standard					
U	Reversing					
<b>Ampere Frame</b>						
6	12					
9						
<b>Coil Type</b>						
A	AC Coil					
D	DC Coil					
<b>Coils</b>						
AC 50/60 Hz	DC					
24	12					
48	24					
115	48					
208	110					
240	220					
277						
480						

## Thermal Overload Relays (Differential Tripping)

<b>CGT</b>	Differential Tripping	<b>CGT</b>	<b>12M</b>	<b>16</b>
<b>Type</b>				
Type	Applied contactor	Setting Range		
12M	CGM-6,9,12,16	0.1...16		
<b>Setting Ranges (A)</b>				
CGT-12M				
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				

## REVERSING CONTACTORS

Reversing Contactor



Interlock Unit

All of the contactors are available as reversing contactors or can be assembled by purchasing a mechanical interlock kit.

## Magnetic Contactors

<b>CG</b>	Magnetic Contactors	<b>CG</b>	<b>C</b>	<b>9</b>	<b>A</b>	<b>120</b>
<b>Type</b>						
C	Contactors					
S	Starter					
W	Enclosed Starter					
<b>Ampere Frame</b>						
9	40	100	300			
12	50	125	400			
18	65	150	600			
22	75	180	800			
32	85	220				
<b>Application</b>						
BLANK	General Standard					
U	Reversing					
<b>Coil Type</b>						
A	AC Coil					
D	DC Coil					
BLANK	AC/DC (Only on 100+ ampere frame)					

• Low AF

• High AF

Type	Ac coil AC 60Hz	Dc coil DC	Type	Normal voltage	AC / DC common coil AC 50Hz/60Hz	DC
CGC 9-85	24V	12V	GMC-100 -400	24V (Note1)	24-25V	24V
	48V	24V		48V (Note1)	48-50V	48V
	110V	48V		100-200V	100-240V	100-220V
	120V	100V		300V	265-347V	-
	208V	110V		400V	380-450V	-
	220V	125V		500V	440-575V	-
GMC-600 -800	240V	200V	GMC-600 -800	100V	100-127V	100-110V
	277V	220V		200V	200-240V	200-220V
	380V	250V		300V	265-347V	-
	440V	20V		400V	280-450V	-
	480V	60V		500V	440-575V	-
	600V	80V				

Note1. Available in CGC-100-220 only.  
50/60Hz Coils available on request.

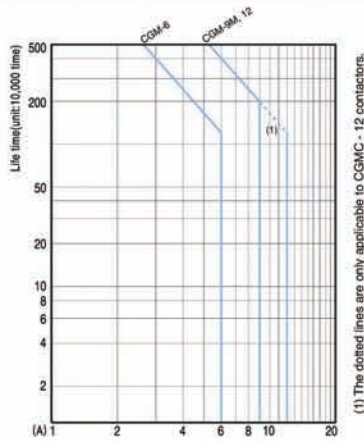
<b>Enclosure Type</b>	
S	Metal
SB	Metal w/push buttons
P	Plastic
PB	Plastic w/push buttons

## Thermal Overload Relays (Differential Tripping)

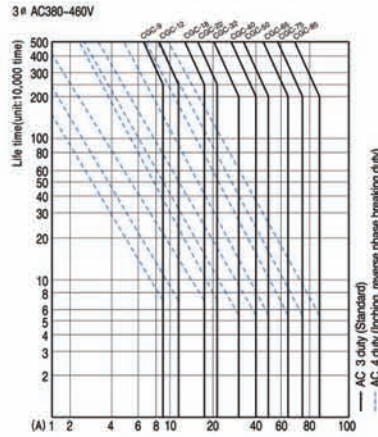
<b>CGT</b>	Differential Tripping	<b>CGT</b>	<b>22</b>	<b>18</b>				
<b>Type</b>								
Type	Applied contactor	Setting range						
22	CGC-9, 12, 18, 22	0.1...22A						
40	CGC-32, 40	4...40A						
85	CGC-50, 65, 75, 85	7...85A						
125	CGC-100, 125	34...125A						
150	CGC-150	34...150A						
220	CGC-180, 220	65...240A						
400	CGC-300, 400	85...400A						
800	CGC-600, 800	200...800A						
<b>Setting ranges (A)</b>								
Type	CGT-22	CGT-40	CGT-85	CGT-125	CGT-150	CGT-220	CGT-400	CGT-800
Setting ranges (A)	0.1...0.16	4...6	7...10	34...50	34...50	65...100	85...125	200...300
	0.16...0.25	5...8	9...13	39...57	39...57	85...125	100...160	260...400
	0.25...0.4	6...9	12...18	43...65	43...65	100...160	120...180	400...600
	0.4...0.63	7...10	16...22	54...80	54...80	120...180	160...240	520...800
	0.63...1	9...13	18...26	65...100	65...100	160...240	220...300	
	1...1.6	12...18	24...36	85...125	85...125	260...400		
	1.6...2.5	16...22	28...40		100...150			
	2.5...4	18...26	34...50					
	4...6	24...36	45...65					
	5...8	28...40	54...75					
	6...9		63...85					
	7...10							
	9...13							
	12...18							
16...22								

# ELECTRICAL LIFETIME

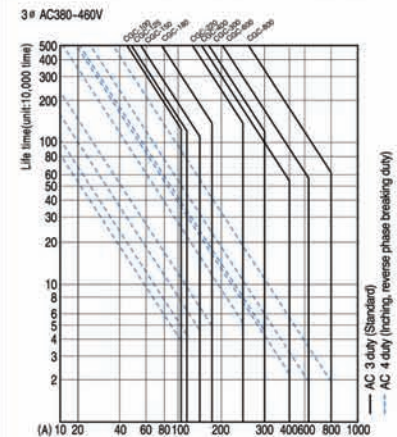
## CGM - 6 - 12



## CGC - 9 - 85



## CGC - 100 - 800



# ACCESSORIES

## Mechanical Interlock Unit



Type	Applied contactors
AR- 85W	CGC - 9 ~ CGC - 85
AR- 150W	CGC - 100 ~ CGC - 150
AR- 400W	CGC - 180 ~ CGC - 400
AR- 800W	CGC - 600 ~ CGC - 800

## Mechanical Latch Unit



Type	Applied Contactors	Type	Applied Contactors
AL - 40	CGC - 9 ~ 40	AL - 150	CGC - 150
AL - 85	CGC - 50 ~ 85	AL - 220	CGC - 180, 220
AL - 125	CGC - 100, 125	AL - 400	CGC - 300, 400

## Surge Absorber Unit



Type	Element	Operation Voltage	Element Spec.	Applied Contactors
AS - 11	Varistor	AC/DC 24 ~ 48V	Varistor 120V	CGC - 9 ~ CGC - 800
AS - 12		AC/DC 100 ~ 125V	Varistor 270V	
AS - 13		AC/DC 200 ~ 240V	Varistor 470V	
AS - 14		AC 380 ~ 440V	Varistor 1000V	
AS - 1	RC + Varistor	AC 24 ~ 48V	Varistor 120V 0.1μF 100 Ω	CGC - 9 ~ CGC - 85
AS - 2		AC 100 ~ 125V	Varistor 270V 0.1μF 100 Ω	
AS - 3		AC 200 ~ 240V	Varistor 470V 0.1μF 100 Ω	
AS - 4		DC 24 ~ 48V	Varistor 120V 0.47μF 100 Ω	CGC - 9 ~ CGC - 85
AS - 5		DC 100 ~ 125V	Varistor 270V 0.47μF 100 Ω	
AS - 6		DC 200 ~ 220V	Varistor 470V 0.47μF 100 Ω	

## Insulation Barrier Unit



Type	Applied Contactors	No.
AI - 100	CGC- 100, 125, 150	4 pieces
AI - 180	CGC- 180, 220, 300, 400	
AI - 600	CGC - 600, 800	

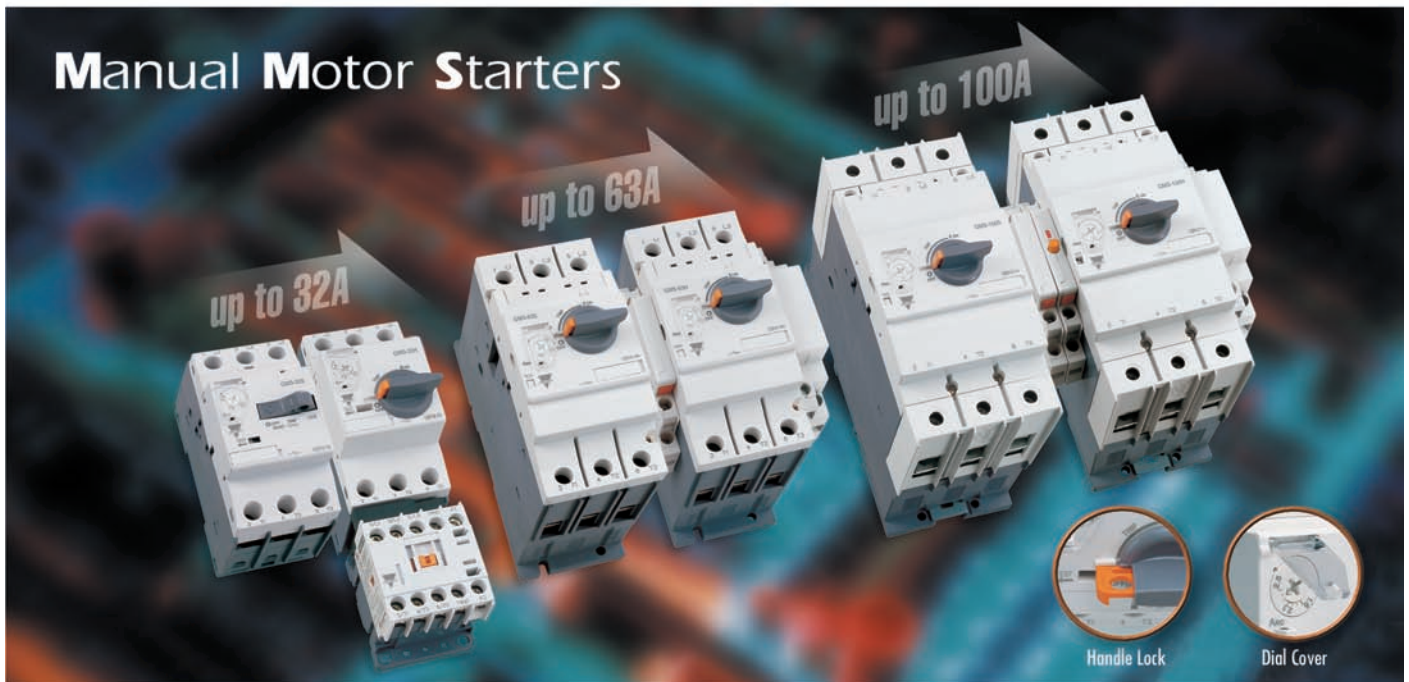
## Enclosed Magnetic Starters in Metal (or Plastic) Enclosure



Type		lth (A)	Rated Power (HP)					
W/O Push Button	With Push Button		Single Phase		Three Phase			
			115V	230V	200V	230V	460V	575V
CGW- 9...S(P)	CGW- 9...S(P)B	20	0.5	1	2	2	5	7.5
CGW-12...S(P)	CGW-12...S(P)B	25	0.5	2	3	3	7.5	10
CGW-18...S(P)	CGW-18...S(P)B	30	1	3	5	5	10	15
CGW-22...S(P)	CGW-22...S(P)B	32	2	3	7.5	7.5	10	15
CGW-32...S	CGW-32...SB	45	2	5	7.5	10	20	20
CGW-40...S	CGW-40...SB	50	3	5	10	10	25	25
CGW-50...S	CGW-50...SB	70	3	7.5	10	15	30	30
CGW-65...S	CGW-65...SB	80	5	10	15	20	40	40
CGW-75...S	CGW-75...SB	90	5	15	20	25	50	50
CGW-85...S	CGW-85...SB	100	7.5	15	25	30	60	60

## COMPLEMENTARY PRODUCTS

### Manual Motor Starters



Carlo Gavazzi offers a comprehensive range of Manual Motor Starters available in three different housing sizes, capable of switching up to 100 amps. They are CE marked, comply to IEC 60947, and are UL/cUL approved. They can also be used as manual motor starters in group installations according to UL508.

#### Features:

- 45mm wide (up to 32A), 55mm wide (up to 63A) and 70mm wide (up to 100A)
- Three position operator: ON-OFF-TRIP
- Handle lock in the OFF position
- Complete range of common accessories
- Class 10, 20 overload trip characteristics
- Trip test
- Finger safe terminals
- DIN rail or back panel mounting

#### Functions:

- Protection of group installations
- Protection of circuits
- Motor protection
- Starter protection
- Wide range of ambient temperature compensation
- Phase failure protection



CGE Electronic Motor Protection Relays enhance standard motor protection by electronically monitoring each motor circuit. Available with direct mounting to a contactor or separate mount, includes the following features:

- Adj. overload class (1-30)
- Phase loss/reversal protection
- Wide current adj. range
- Test/reset feature
- Current imbalance detection
- Auxiliary contacts



CGD Digital Motor Protection Relays provide extended motor and systems monitoring protection in a panel mountable package that includes the following features: Adjustable overload class (1-60), wide current adjustment range, four segment LED display/keypad (remote panel mountable option), easy view bar graph for thermal content, three phase current display, current imbalance detection, phase loss/phase reversal protection, stalled motor detection, locked rotor detection, alarm and trip output contacts, and optional ground fault protection (100mA through 2.5 Amps).

Type

CGMS - 6

CGMS - 9

CGMS - 12

**CARLO GAVAZZI**



Fast-on  
**CGMF**

Optional  
Connection  
Types

Cage Clamps  
**CGMC**

Standard  
Version  
with Screw  
Clamp  
Connection  
**CGMS**

Solder Pins  
**CGMP**

Ratings

UL	Motor AC	Continuous Current Ith	115V
		Single phase	230V
UL	Three phase	230V	3 HP
		460V	7.5 HP*
		575V	7.5 HP
NEMA Size		00	00



<b>20A</b>	<b>20A</b>	<b>20A*</b>
0.5 HP	0.5 HP	1 HP*
1 HP	1.5 HP	2 HP*
1.5 HP	3 HP	3 HP
3 HP	5 HP	7.5 HP*
3 HP	5 HP	7.5 HP
00	00	00

\*Note: Maximum Ratings for CGMC-12 Cage Clamp Types: 10A Continuous Current Ith, 0.5 Hp 1-Phase 115 VAC, 1.5 Hp 1-Phase 230 VAC, 5Hp 3-Phase 460 VAC

Ratings

IEC-60947-4	AC1	200~240V
	AC3	380~440V
		690V



20A	20A	20A
1.5kW 7A	2.2kW 9A	3kW 12A
2.5kW 6A	4kW 9A	5.5kW 12A
3kW 4A	4kW 5A	4kW 5A

Coil voltage (V)

AC coil	AC 50/60Hz
DC coil	DC
Low Consumption DC	

for Mini-Contactors CGM. 6-16

24	36	42	48	110	115	120	127	200/208	220	220/230				
230/240	256	277	380/400	400	440	480	500	550	VAC					
12	20	24	36	42	48	60	72	110	120	125	200	240	250	VDC
12 20 24 48 72 100 110 VDC														

Accessories

Aux, S/W

Mechanical Interlock

Surge Absorber Varistor

Timer Unit



AR-12M

AS-12M

ATM-12M

Thermal overload relays

CGT-12M



Selection (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	

Separate Mounting Unit  
for DIN Rail AZ-12H



Reversing Contactors

AC

DC

CGMSU - 6A

CGMSU - 9A

CGMSU - 12A

CGMSU - 6D

CGMSU - 9D

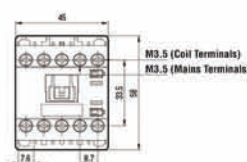
CGMSU - 12D

Dimension (mm)

CGMS Series

CGMS with AC Coil

CGMS with DC Coil



Type

CGC - 9

CGC - 12

CGC - 18


CGC - 22



**CARLO GAVAZZI**



Ratings

UL	Motor AC	Single phase	115V
			230V
		Three phase	230V
			460V
			575V
		NEMA Size	

Continous Current Ith	
Single phase	115V
	230V
Three phase	230V
	460V
	575V
NEMA Size	

20A	25A	30A	32A
0.5 HP	0.5 HP	1 HP	2 HP
1 HP	2 HP	3 HP	3 HP
2 HP	3 HP	5 HP	7.5 HP
5 HP	7.5 HP	10 HP	10 HP
7.5 HP	10 HP	15 HP	15 HP
00	-	0	-
25A	25A	40A	40A
2.5kW 11A	3.5kW 13A	4.5kW 18A	5.5kW 22A
4kW 9A	5.5kW 12A	7.5kW 18A	11kW 22A
4kW 7A	7.5kW 12A	7.5kW 13A	15kW 22A
4kW 5A	7.5kW 9A	7.5kW 9A	15kW 18A

Ratings

IEC-60947	AC1	
	AC3	200~240V
		380~440V
		500~550V
		690V

Coil voltage (V)

AC coil	AC 60Hz
	AC 50Hz
DC coil	DC
AC 50Hz / 60Hz	

for CGC - 9 ~ 40

24VAC	48VAC	110VAC	120VAC	208VAC	220VAC	240VAC	277VAC	380VAC	440VAC	480VAC	600VAC
24VAC	42VAC	48VAC	100VAC	110VAC	220VAC	240VAC	380VAC	400VAC	415VAC	440VAC	500VAC
12VDC	24VDC	48VDC	100VDC	110VDC	125VDC	200VDC	220VDC	250VDC	20VDC	60VDC	80VDC

Accessories

Aux, SW

Mechanical Interlock

Mechanical Latch

Surge Absorber      Varistor  
RC + Varistor

Insulation Barrier



AR-85W

AL-40

AS-11, 12, 13, 14

AS-1, 2, 3, 4, 5, 6

Thermal overload relays

CGT-22



Selection [A]

0.1 ~ 0.16	2.5 ~ 4
0.16 ~ 0.25	4 ~ 6
0.25 ~ 0.4	5 ~ 8
0.4 ~ 0.63	6 ~ 9
0.63 ~ 1	7 ~ 10
1 ~ 1.6	9 ~ 13
1.6 ~ 2.5	12 ~ 18
	16 ~ 22

Separate mounting unit  
for DIN Rail      AZ-22H



Reversing Contactors

AC

CGC - 9UA

CGC - 12UA

CGC - 18UA

CGC - 22UA

DC

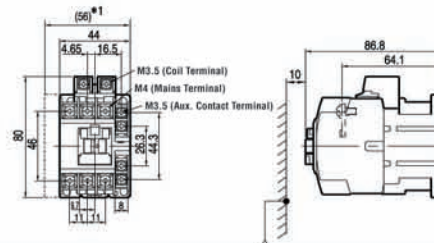
CGC - 9UD

CGC - 12UD

CGC - 18UD

CGC - 22UD

Dimension (mm)



CGC - 32	CGC - 40	CGC - 50	CGC - 65	CGC - 75	CGC - 85
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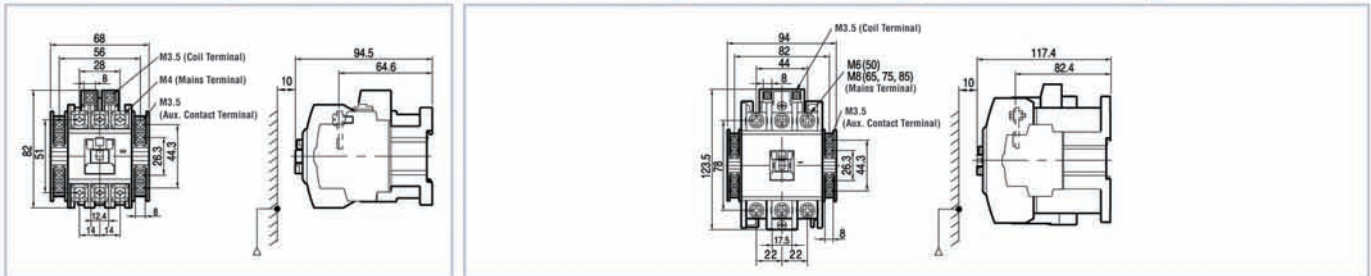
<b>45A</b>	<b>50A</b>	<b>70A</b>	<b>80A</b>	<b>90A</b>	<b>100A</b>
2 HP	3 HP	3 HP	5 HP	5 HP	7.5 HP
5 HP	5 HP	7.5 HP	10 HP	15 HP	15 HP
<b>10 HP</b>	<b>10 HP</b>	<b>15 HP</b>	<b>20 HP</b>	<b>25 HP</b>	<b>30 HP</b>
<b>20 HP</b>	<b>25 HP</b>	<b>30 HP</b>	<b>40 HP</b>	<b>50 HP</b>	<b>50 HP</b>
20 HP	25 HP	30 HP	40 HP	50 HP	50 HP
1	1P	2	-	-	3
50A	60A	80A	100A	110A	135A
7.5kW 32A	11kW 40A	15kW 55A	18.5kW 65A	22kW 75A	25kW 85A
15kW 32A	18.5kW 40A	22kW 50A	30kW 65A	37kW 75A	45kW 85A
18.5kW 28A	22kW 32A	30kW 43A	33kW 60A	37kW 64A	45kW 75A
18.5kW 20A	22kW 23A	30kW 28A	33kW 35A	37kW 42A	45kW 45A

for CGC - 9 ~ 40					for CGC - 50 ~ 85							
24VAC	48VAC	110VAC	120VAC	208VAC	220VAC	240VAC	277VAC	380VAC	440VAC	480VAC	600VAC	
24VAC	42VAC	48VAC	100VAC	110VAC	220VAC	240VAC	380VAC	400VAC	415VAC	440VAC	500VAC	550VAC
12VDC	24VDC	48VDC	100VDC	110VDC	125VDC	200VDC	220VDC	250VDC	20VDC	60VDC	80VDC	

 <p><b>AX-1</b> 1NO + 1NC</p>	 <p><b>AX-2</b> 2NO 2NC 1NO + 1NC</p>	 <p><b>AX-4</b> 4NO 4NC 3NO + 1NC 1NO + 3NC 2NO + 2NC</p>
<b>AR-85W</b>		
<b>AL-40</b>		<b>AL-85</b>
AS-11, 12, 13, 14 AS-1, 2, 3, 4, 5, 6		

<p><b>CGT-40</b></p> <p><b>Selection [A]</b></p> <p>4 ~ 6    12 ~ 18 5 ~ 8    16 ~ 22 6 ~ 9    18 ~ 26 7 ~ 10   24 ~ 36 9 ~ 13   28 ~ 40</p> <p><b>Separate mounting unit for DIN Rail AZ-40H</b></p> 	<p><b>CGT-85</b></p> <p><b>Selection [A]</b></p> <p>7 ~ 10   28 ~ 40 9 ~ 13   34 ~ 50 12 ~ 18   45 ~ 65 16 ~ 22   54 ~ 75 18 ~ 26   63 ~ 85 24 ~ 36</p> <p><b>Separate mounting unit for DIN Rail AZ-85H</b></p>  
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<b>CGC - 32UA</b>	<b>CGC - 40UA</b>	<b>CGC - 50UA</b>	<b>CGC - 65UA</b>	<b>CGC - 75UA</b>	<b>CGC - 85UA</b>
<b>CGC - 32UD</b>	<b>CGC - 40UD</b>	<b>CGC - 50UD</b>	<b>CGC - 65UD</b>	<b>CGC - 75UD</b>	<b>CGC - 85UD</b>

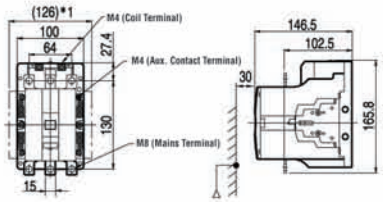
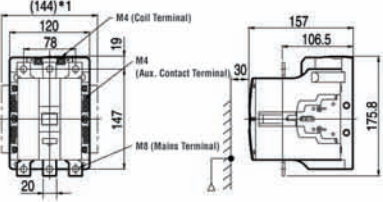
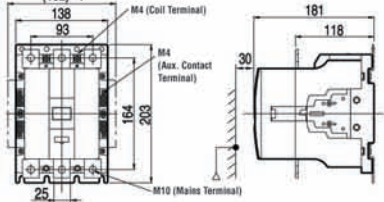


CGC - 100		CGC - 125		CGC - 150		CGC - 180		CGC - 220	
									
<b>160A</b>	<b>160A</b>	<b>210A</b>	<b>210A</b>	<b>230A</b>	<b>275A</b>				
7.5 HP	10 HP	15 HP	25 HP	15 HP	15 HP				
15 HP	20 HP	30 HP	50 HP	30 HP	40 HP				
<b>30 HP</b>	<b>40 HP</b>	<b>60 HP</b>	<b>100 HP</b>	<b>60 HP</b>	<b>75 HP</b>				
<b>60 HP</b>	<b>75 HP</b>	<b>100 HP</b>	<b>100 HP</b>	<b>125 HP</b>	<b>150 HP</b>				
60 HP	75 HP	100 HP	100 HP	125 HP	150 HP				
-	-	4		-	-				
160A	160A	210A		230A	275A				
30kW 105A	37kW 125A	45kW 150A		55kW 180A	75kW 250A				
55kW 105A	60kW 120A	75kW 150A		90kW 180A	132kW 250A				
55kW 85A	60kW 90A	90kW 140A		110kW 180A	132kW 200A				
55kW 65A	60kW 90A	90kW 100A		110kW 120A	132kW 150A				
for CGC - 100 ~ 150					for CGC - 180 ~ 220				

24VDC		48VDC		100 ~ 220VDC	
24 ~ 25VAC	48 ~ 50VAC	100 ~ 240VAC	265 ~ 347VAC	380 ~ 450VAC	440 ~ 575VAC

		<b>AX-100</b> 1NO + 1NC
AR-150W		AR-400W
AL-125	AL-150	AL-220
AS-11, 12, 13, 14		
AI-100		AI-180

<b>CGT-125</b>	<b>Selection [A]</b>	<b>CGT-150</b>	<b>Selection [A]</b>	<b>CGT-220</b>	<b>Selection [A]</b>
	34 ~ 50 39 ~ 57 43 ~ 65 54 ~ 80 65 ~ 100 85 ~ 125		34 ~ 50 39 ~ 57 43 ~ 65 54 ~ 80 65 ~ 100 85 ~ 125 100 ~ 150		65 ~ 100 85 ~ 125 100 ~ 160 120 ~ 180 160 ~ 240

CGC - 100U	CGC - 125U	CGC - 150U	CGC - 180U	CGC - 220U
				



CGC - 300	CGC - 400	CGC - 600	CGC - 800
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<b>350A</b>	<b>450A</b>	<b>660A</b>	<b>900A</b>
-	-	-	-
100 HP 200 HP 200 HP	150 HP 300 HP 300 HP	200 HP 400 HP 400 HP	300 HP 600 HP 600 HP
5	-	6	-
350A	450A	660A	900A
90kW 300A 160kW 300A 160kW 250A 200kW 220A	125kW 400A 220kW 400A 225kW 350A 250kW 300A	190kW 630A 330kW 630A 330kW 500A 330kW 420A	220kW 800A 440kW 800A 500kW 720A 500kW 630A
<b>for CGC - 300 ~ 400</b>		<b>for CGC - 600 ~ 800</b>	
100 ~ 220VDC		100 ~ 110VDC 200 ~ 220VDC	
100 ~ 240VAC 265 ~ 347VAC 380 ~ 450VAC 440 ~ 575VAC		100 ~ 127VAC 200 ~ 240VAC 265 ~ 347VAC 380 ~ 450VAC 440 ~ 575VAC	



**AX-100**  
1NO + 1NC

AR-400W  
AL-400

AR-800W

AS-11, 12, 13, 14

AI-180

AI-600

**CGT-400**



**Selection [A]**

- 85 ~ 125
- 100 ~ 160
- 120 ~ 180
- 160 ~ 240
- 220 ~ 300
- 260 ~ 400

**CGT-800**



**Selection [A]**

- 200 ~ 300
- 260 ~ 400
- 400 ~ 600
- 520 ~ 800

**CGC - 300U**

**CGC - 400U**

**CGC - 600U**

**CGC - 800U**

