CBI electric
Australia

Motor Control

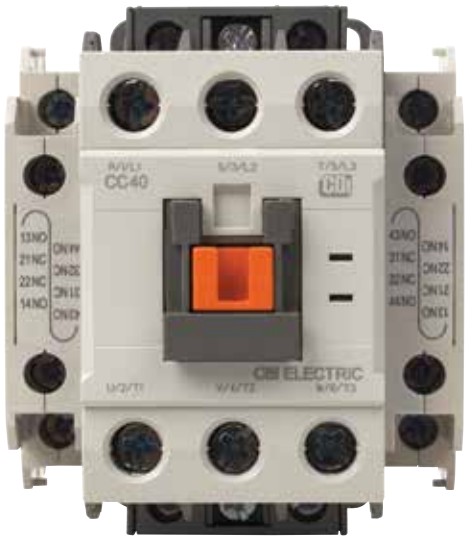
Innovative, Robust, Reliable and Efficient Protection

HEINEMANN ELECTRIC PTY LTD
HEINELEC®
CIRCUIT PROTECTION
SLEGERS
GET CONNECTED

Low Voltage Motor Control

Motor Control | Frame Size 1
CC18

Motor Control | Frame Size 2
CC22



Motor Control | Frame Size 3
CC40

CBI offers an comprehensive range of motor control products that include features such as variable frequency drives, programmable controllers and metering. All are designed to meet the challenges of modern installations. CBI circuit breakers provide superior performance in a compact package. They are used in cascade rated systems, allowing the use of lower interruption circuit breakers downstream.

The new series of CBI motor controllers are available in nine (9) frame sizes from 7.5kW to 440kW:

Frame Size 1 7.5kW	**Frame Size 2** 11kW	**Frame Size 3** 18.5kW
Frame Size 4 22/30kW	**Frame Size 5** 45/55kW	**Frame Size 6** 60/75kW
Frame Size 7 90/132kW	**Frame Size 8** 147/160/200kW	**Frame Size 9** 330/440kW

The New CBI Motor Control Series

Motor Control | Frame Size 4
CC50/65

Motor Control | Frame Size 5
CC85/100

Motor Control | Frame Size 6
CC130/150

Contents

Magnetic Contactors & Overload Relay's

Magnetic Contactors Coil Control Voltages

AC Contactor	CC 18	CC 22	CC 40	CC 50	CC 65	CC 85	CC 100	CC 130	CC 150	CC 185	CC 225	CC 265	CC 330	CC 400	CC 630	CC 800
24V	●	●	●	●	●	●	●	●	●	●	●					
48V	●	●	●	●	●	●	●	●	●	●	●					
110V	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
240V	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
415V	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

DC Contactor	CC 18	CC 22	CC 40	CC 50	CC 65	CC 85	CC 100	CC 130	CC 150	CC 185	CC 225	CC 265	CC 330	CC 400	CC 630	CC 800
12DC	●	●	●	●	●	●	●									
24DC	●	●	●	●	●	●	●	●	●	●	●					
48DC	●	●	●	●	●	●	●	●	●	●	●					
110DC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
220DC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
230DC									●	●	●	●	●	●		
240DC											●					

Contactors & Thermal Overload Relay's Compatibility

Contactor	CC18	CC22	CC40	CC50~65	CC85~100	CC130~150	CC185~225	CC265~330~400	CC630~800
	CDC18	CDC22	CDC40	CDC50~65	CDC85~100	CDC130~150			
Thermal Overload Relay	CMT12	CMT32	CMT32	CMT63	CMT95	CMT150	CMT225	CMT400	CMT800

Overload Relay Setting Range

Thermal Overload Relay's Nominal AMP Rating

Rating & Range	CMT12	CMT32	CMT63	CMT95	CMT150	CMT225	CMT400	CMT800
0.14 (A) 0.1~0.16	●	●						
0.21 (A) 0.16~0.25	●	●						
0.33 (A) 0.25~0.4	●	●						
0.52 (A) 0.4~0.63	●	●						
0.82 (A) 0.63~1	●	●						
1.3 (A) 1~1.6	●	●						
2.1 (A) 1.6~2.5	●	●						
3.3 (A) 2.5~4	●	●						
5 (A) 4~6	●	●	●					
6.5 (A) 5~8	●	●	●					
7.5 (A) 6~9	●	●	●					
8.5 (A) 7~10	●	●	●	●				
11 (A) 9~13	●	●	●	●				
15 (A) 12~18	●	●	●	●				
19 (A) 16~22		●	●	●				
21.5 (A) 18~25		●	●	●				
27 (A) 22~32		●	●	●				
34 (A) 28~40		●	●	●				
42 (A) 34~50			●	●	●			
55 (A) 45~65			●	●	●			
65 (A) 54~75				●	●			
74 (A) 63~85				●	●			
80 (A) 65~100						●		
83 (A) 70~95				●				
90 (A) 80~100				●				
93 (A) 80~105					●			
107 (A) 85~125						●	●	
113 (A) 95~130					●			
130 (A) 110~150					●	●	●	
153 (A) 120~185						●	●	
200 (A) 160~240						●	●	
265 (A) 200~330							●	●
350 (A) 260~400							●	●
515 (A) 400~630								●
660 (A) 520~800								●

Motor Control for Power Distribution

Magnetic Contactors & Overload Relay's

Frame Size / Type				CC/CDC18	CC/CDC22	CC/CDC40
	Screw clamp terminals			●	●	●
No. of Poles				3 pole	3 pole	3 pole
Rated operational voltage (Ue)			(V)	690V	690V	690V
Rated insulation voltage (Ui)			(V)	690V	690V	1000V
Rated frequency				50/60Hz	50/60Hz	50/60Hz
Rated impulse withstand voltage (Uimp)			(kV)	6kV	6kV	8kV
Maximum operating rate in operating cycles per hour (AC3)				1800 operations per hour	1800 operations per hour	1800 operations per hour
Durability	Mechanical			15 mil. operations	15 mil. operations	12 mil. operations
	Electrical			2.5 mil. operations	2.5 mil. operations	2 mil. operations
Current	AC-1, Thermal		(A)	32	40	60
& Power	AC-3	200/240V	(kW)	4.5	5.5	11
			(A)	18	22	40
		380/440V	(kW)	7.5	11	18.5
			(A)	18	22	40
		500/550V	(kW)	7.5	15	22
			(A)	13	20	32
		690V	(kW)	7.5	15	22
			(A)	9	18	23
		1000V	(kW)	–	–	22
			(A)	–	–	17
UL Rating	Continuous current		(A)	32	40	60
(50/60hz)	Single phase	110 ~ 120V	(HP)	1	2	3
		220 ~ 240V	(HP)	3	3	7.5
		200 ~ 208V	(HP)	5	7.5	15
	Three phase	220 ~ 240V	(HP)	7.5	10	15
		440 ~ 480V	(HP)	10	15	30
		550 ~ 600V	(HP)	15	20	30
	NEMA size			0	1	1
Size	AC control weight		(kg)	0.33	0.34	0.44
& Weight		Size (W x H x D)	(mm)	45 x 73.5 x 80.4	45 x 73.5 x 87.4	45 x 83 x 90
	DC control weight		(kg)	0.5	0.51	0.6
		Size (W x H x D)	(mm)	45 x 73.5 x 110.7	45 x 73.5 x 117.7	45 x 83 x 117.1
Auxiliary (standard)				1a	1a	2a + 2b
Auxiliary	Side mount			CCUA-1	CCUA-1	CCUA-1
	front mount			CCUA-2, CCUA-4	CCUA-2, CCUA-4	CCUA-2, CCUA-4

Type			CMT12	CMT32	CMT32
	Screw clamp terminals		●	●	●
Rated operational voltage (Ue)		(V)	690V	690V	690V
Rated insulation voltage (Ui)		(V)	690V	690V	690V
Rated impulse withstand voltage (Uimp)		(kV)	6kV	6kV	6kV
Trip class			10A, 20	10A, 20	10A, 20
Setting range			0.1 ~ 18A	0.1 ~ 65A	0.1 ~ 65A
Size	Weight	(kg)	0.1	0.17	0.17
& Weight	Size (W x H x D)	(mm)	45 x 73.2 x 63.7	45 x 75 x 90	45 x 75 x 90
Auxiliary (standard)			1a1b	1a1b	1a1b

Motor Control for Power Distribution

Magnetic Contactors & Overload Relay's

Frame Size / Type				CC/CDC50	CC/CDC65	CC/CDC85
	Screw clamp terminals			●	●	●
No. of Poles				3 pole	3 pole	3 pole
Rated operational voltage (Ue)			(V)	690V	690V	690V
Rated insulation voltage (Ui)			(V)	690V	690V	1000V
Rated frequency				50/60Hz	50/60Hz	50/60Hz
Rated impulse withstand voltage (Uimp)			(kV)	6kV	8kV	8kV
Maximum operating rate in operating cycles per hour (AC3)				1800 operations per hour	1800 operations per hour	1800 operations per hour
Durability	Mechanical			12 mil. operations	12 mil. operations	12 mil. operations
	Electrical			2 mil. operations	2 mil. operations	2 mil. operations
Current	AC-1, Thermal		(A)	70	100	135
& Power	AC-3	200/240V	(kW)	15	18.5	25
			(A)	55	65	85
		380/440V	(kW)	22	30	45
			(A)	50	65	85
		500/550V	(kW)	30	33	45
			(A)	43	60	75
		690V	(kW)	30	33	45
			(A)	28	35	45
		1000V	(kW)	30	33	45
			(A)	23	26	33
UL Rating	Continuous current		(A)	70	100	135
(50/60hz)	Single phase	110 ~ 120V	(HP)	3	5	7.5
		220 ~ 240V	(HP)	10	15	15
		200 ~ 208V	(HP)	20	25	30
	Three phase	220 ~ 240V	(HP)	25	30	40
		440 ~ 480V	(HP)	40	50	60
		550 ~ 600V	(HP)	50	60	75
	NEMA size			2	2	3
Size	AC control weight		(kg)	0.9	0.9	1.6
& Weight		Size (W x H x D)	(mm)	55 x 106 x 119	55 x 106 x 119	70 x 106 x 135.8
	DC control weight		(kg)	1.2	01.2	2.6
		Size (W x H x D)	(mm)	55 x 106 x 146.4	55 x 106 x 146.4	70 x 40 x 172.3
Auxiliary (standard)				2a + 2b	2a + 2b	2a + 2b
Auxiliary	Side mount			CCUA-1	CCUA-1	CCUA-1
	front mount			CCUA-2, CCUA-4	CCUA-2, CCUA-4	CCUA-2, CCUA-4

Type				CMT63	CMT95
	Screw clamp terminals			●	●
Rated operational voltage (Ue)			(V)	690V	690V
Rated insulation voltage (Ui)			(V)	690V	690V
Rated impulse withstand voltage (Uimp)			(kV)	6kV	6kV
Trip class				10A, 20	10A, 20
Setting range				4 ~ 65A	7 ~ 100A
Size		Weight	(kg)	0.31 / 0.33	0.48 / 0.5
& Weight		Size (W x H x D)	(mm)	55 x 81 x 100	70 x 97 x 110
Auxiliary (standard)				1a1b	1a1b

Motor Control for Power Distribution

Magnetic Contactors & Overload Relay's

Frame Size / Type				CC/CDC100	CC/CDC130	CC/CDC150
	Screw clamp terminals			●	●	●
No. of Poles				3 pole	3 pole	3 pole
Rated operational voltage (Ue)			(V)	690V	690V	690V
Rated insulation voltage (Ui)			(V)	1000V	1000V	1000V
Rated frequency				50/60Hz	50/60Hz	50/60Hz
Rated impulse withstand voltage (Uimp)			(kV)	8kV	8kV	8kV
Maximum operating rate in operating cycles per hour (AC3)				1800 operations per hour	1200 operations per hour	1200 operations per hour
Durability	Mechanical			12 mil. operations	15 mil. operations	5 mil. operations
	Electrical			2 mil. operations	1 mil. operations	1 mil. operations
Current	AC-1, Thermal		(A)	160	160	210
& Power	AC-3	200/240V	(kW)	30	37	45
			(A)	105	130	150
		380/440V	(kW)	55	60	75
			(A)	105	130	150
		500/550V	(kW)	55	60	70
			(A)	85	90	100
		690V	(kW)	55	55	45
			(A)	65	60	60
		1000V	(kW)	45	75	90
			(A)	33	53	65
UL Rating	Continuous current		(A)	160	160	210
(50/60hz)	Single phase	110 ~ 120V	(HP)	10	10	15
		220 ~ 240V	(HP)	20	20	25
		200 ~ 208V	(HP)	30	40	40
	Three phase	220 ~ 240V	(HP)	40	40	50
		440 ~ 480V	(HP)	75	75	100
		550 ~ 600V	(HP)	75	75	75
	NEMA size			3	3	4
Size	AC control weight		(kg)	1.6	2.4	2.4
& Weight		Size (W x H x D)	(mm)	70 x 106 x 135.8	95 x 158 x 132	95 x 158 x 132
	DC control weight		(kg)	2.6	2.3	2.3
		Size (W x H x D)	(mm)	70 x 140 x 172.3	95 x 158 x 132	95 x 158 x 132
Auxiliary (standard)				2a + 2b	2a + 2b	2a + 2b
Auxiliary	Side mount			CCUA-100	CCUA-100	CCUA-100
	front mount			–	–	–

Type				CMT95	CMT150
	Screw clamp terminals			●	●
Rated operational voltage (Ue)			(V)	690V	690V
Rated insulation voltage (Ui)			(V)	690V	690V
Rated impulse withstand voltage (Uimp)			(kV)	6kV	6kV
Trip class				10A, 20	10A, 20
Setting range				7 ~ 100A	34 ~ 150A
Size		Weight	(kg)	0.31 / 0.33	0.67
& Weight		Size (W x H x D)	(mm)	55 x 81 x 100	95 x 109 x 113
Auxiliary (standard)				1a1b	1a1b

Motor Control for Power Distribution

Magnetic Contactors & Overload Relay's

Frame Size / Type				CC185	CC225	CC265
	Screw clamp terminals			●	●	●
No. of Poles				3 pole	3 pole	3 pole
Rated operational voltage (Ue)			(V)	690V	690V	690V
Rated insulation voltage (Ui)			(V)	1000V	1000V	1000V
Rated frequency				50/60Hz	50/60Hz	50/60Hz
Rated impulse withstand voltage (Uimp)			(kV)	8kV	8kV	8kV
Maximum operating rate in operating cycles per hour (AC3)				1200 operations per hour	1200 operations per hour	1200 operations per hour
Durability	Mechanical			5 mil. operations	5 mil. operations	5 mil. operations
	Electrical			1 mil. operations	1 mil. operations	1 mil. operations
Current	AC-1, Thermal		(A)	230	275	300
& Power	AC-3	200/240V	(kW)	55	75	80
			(A)	185	225	265
		380/440V	(kW)	90	132	147
			(A)	185	225	265
		500/550V	(kW)	110	132	147
			(A)	180	200	225
		690V	(kW)	110	140	160
			(A)	120	150	185
		1000V	(kW)	132	140	147
			(A)	90	100	105
UL Rating	Continuous current		(A)	230	275	300
(50/60hz)	Single phase	110 ~ 120V	(HP)	15	15	–
		220 ~ 240V	(HP)	30	40	–
		200 ~ 208V	(HP)	60	60	75
	Three phase	220 ~ 240V	(HP)	60	75	100
		440 ~ 480V	(HP)	125	150	200
		550 ~ 600V	(HP)	125	150	200
	NEMA size			4	4	5
Size	AC control	Weight	(kg)	5.4	5.4	9.2
& Weight		Size (W x H x D)	(mm)	138 x 203 x 181	138 x 203 x 181	163 x 243 x 198
Auxiliary (standard)				2a + 2b	2a + 2b	2a + 2b
Auxiliary	Side mount			CCUA-100 (Max.4NO4NC)	CCUA-100 (Max.4NO4NC)	CCUA-100 (Max.4NO4NC)
	front mount			–	–	–

Type				CMT225	CMT400
	Screw clamp terminals			●	●
Rated operational voltage (Ue)			(V)	690V	690V
Rated insulation voltage (Ui)			(V)	690V	690V
Rated impulse withstand voltage (Uimp)			(kV)	6kV	6kV
Trip class				10A, 20	10A, 20
Setting range				65 ~ 240A	85 ~ 400A
Size		Weight	(kg)	2.5	2.6
& Weight		Size (W x H x D)	(mm)	147 x 141 x 184	151 x 171 x 198
Auxiliary (standard)				1a1b	1a1b

Motor Control for Power Distribution

Magnetic Contactors & Overload Relay's

Frame Size / Type				CC330	CC400	CC630	CC800
	Screw clamp terminals			●	●	●	●
No. of Poles				3 pole	3 pole	3 pole	3 pole
Rated operational voltage (Ue)			(V)	690V	690V	690V	50/60Hz
Rated insulation voltage (Ui)			(V)	1000V	1000V	1000V	1000V
Rated frequency				50/60Hz	50/60Hz	50/60Hz	50/60Hz
Rated impulse withstand voltage (Uimp)			(kV)	8kV	8kV	8kV	8kV
Maximum operating rate in operating cycles per hour (AC3)				1200 operations per hour	1200 operations per hour	1200 operations per hour	1200 operations per hour
Durability	Mechanical			5 mil. operations	5 mil. operations	2.5 mil. operations	2.5 mil. operations
	Electrical			1 mil. operations	1 mil. operations	0.5 mil. operations	0.5 mil. operations
Current	AC-1, Thermal		(A)	350	450	660	900
& Power	AC-3	200/240V	(kW)	90	125	190	220
			(A)	330	400	660	800
		380/440V	(kW)	160	200	330	440
			(A)	330	400	630	800
		500/550V	(kW)	160	225	330	500
			(A)	180	350	500	720
		690V	(kW)	200	250	400	500
			(A)	225	300	420	630
		1000V	(kW)	160	185	355	400
			(A)	115	140	262	288
UL Rating	Continuous current		(A)	350	450	660	900
(50/60hz)	Single phase	110 ~ 120V	(HP)	–	–	–	–
		220 ~ 240V	(HP)	–	–	–	–
		200 ~ 208V	(HP)	100	125	200	200
	Three phase	220 ~ 240V	(HP)	125	150	250	300
		440 ~ 480V	(HP)	250	300	500	600
		550 ~ 600V	(HP)	250	300	500	600
	NEMA size			5	5	6	7
Size	AC control	Weight	(kg)	9.2	902	22.4	22.4
& Weight		Size (W x H x D)	(mm)	163 x 243 x 198	163 x 243 x 198	285 x 312 x 242	285 x 312 x 242
Auxiliary (standard)				2a + 2b	2a + 2b	2a + 2b	2a + 2b
Auxiliary	Side mount			CCUA-100 (Max.4NO4NC)	CCUA-100 (Max.4NO4NC)	CCUA-100 (Max.4NO4NC)	CCUA-100 (Max.4NO4NC)
	front mount			–	–	–	2a + 2b

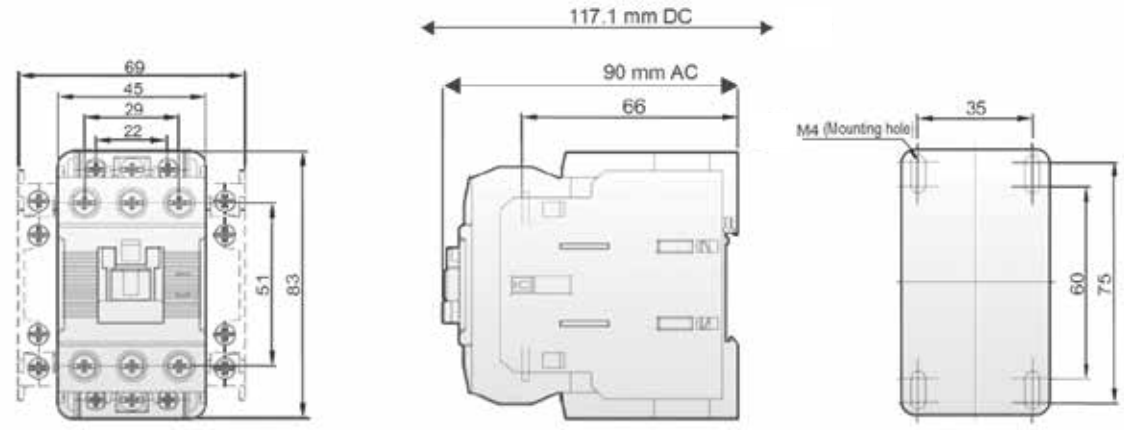
Type			CMT400	CMT800
	Screw clamp terminals		●	●
Rated operational voltage (Ue)		(V)	690V	690V
Rated insulation voltage (Ui)		(V)	690V	690V
Rated impulse withstand voltage (Uimp)		(kV)	6kV	6kV
Trip class			10A, 20	10A, 20
Setting range			85 ~ 400A	200 ~ 800A
Size	Weight	(kg)	2.6	11.5
& Weight	Size (W x H x D)	(mm)	151 x 171 x 198	360 x 530 x 212
Auxiliary (standard)			1a1b	1a1b

Motor Control | Dimensional Details

CC18 | CDC18 | Note: Difference in dimension for AC & DC Contactors (all dimensions mm)

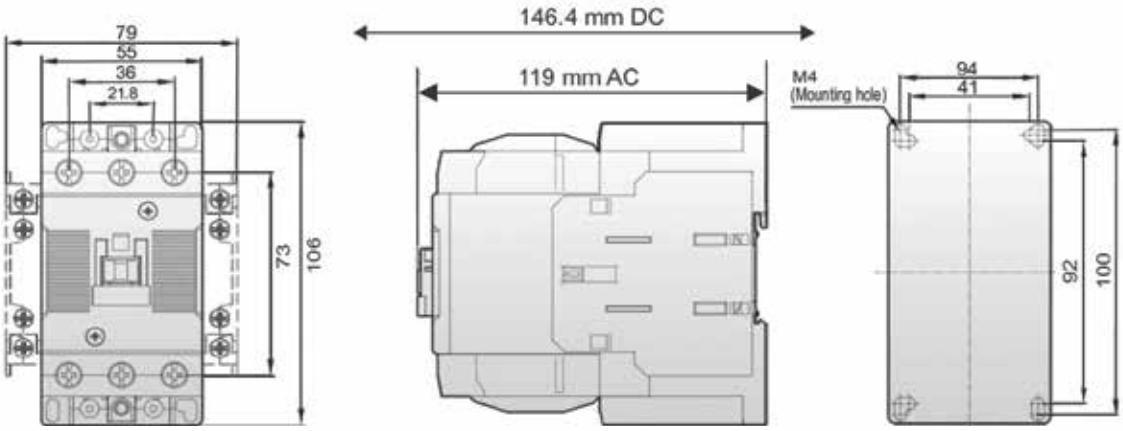
CC22 | CDC22 | Note: Difference in dimension for AC & DC Contactors (all dimensions mm)

CC40 | CDC40 | Note: Difference in dimension for AC & DC Contactors (all dimensions mm)

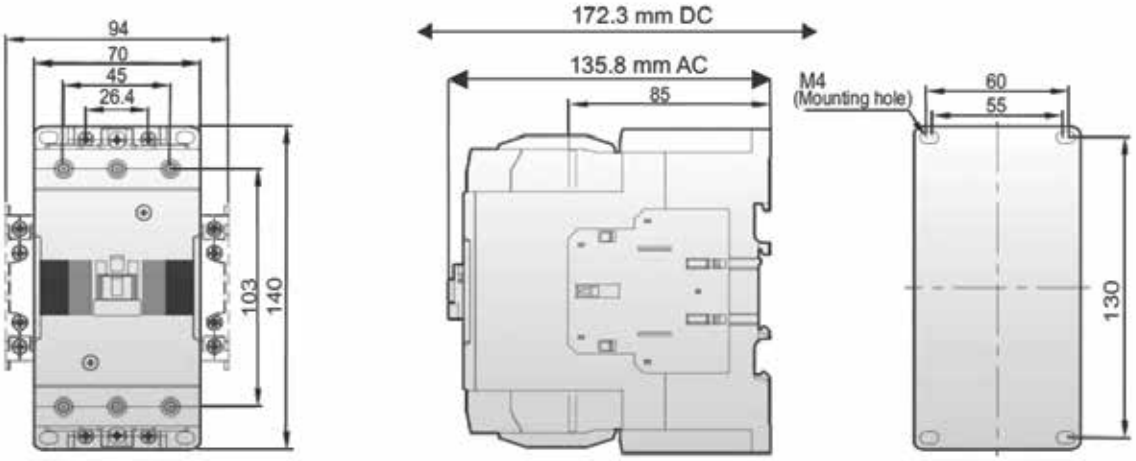


Motor Control | Dimensional Details

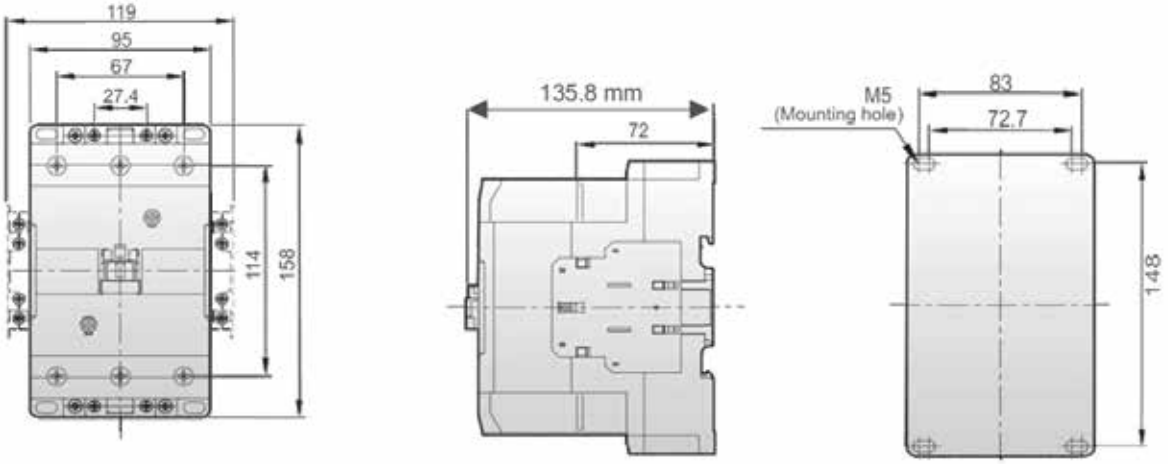
CC50 ~ CC65 | CDC50 ~ CDC65 | Note: Difference in dimension for AC & DC Contactors (all dimensions mm)



CC85 ~ CC100 | CDC85 ~ CDC100 | Note: Difference in dimension for AC & DC Contactors (all dimensions mm)

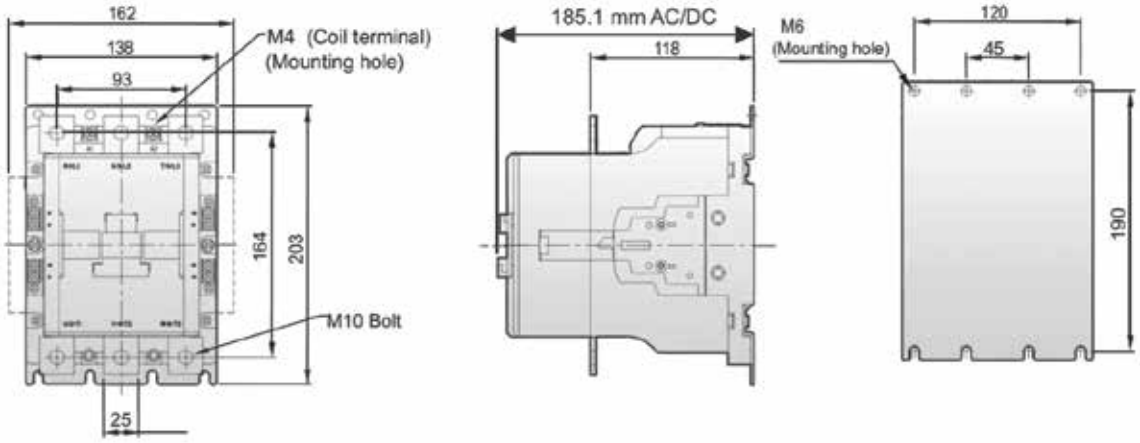


CC130 ~ CC150 | CDC130 ~ CDC150 | Note: Difference in dimension for AC & DC Contactors (all dimensions mm)

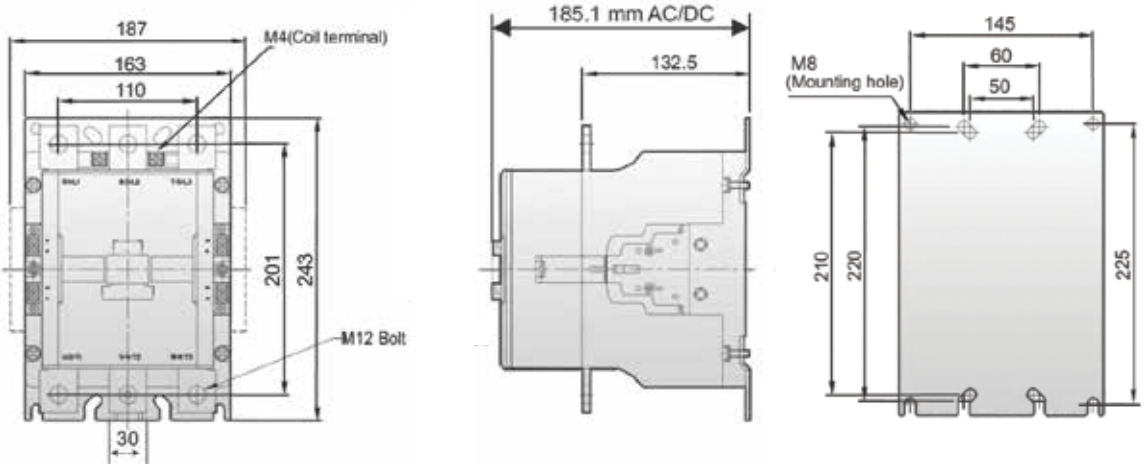


Motor Control | Dimensional Details

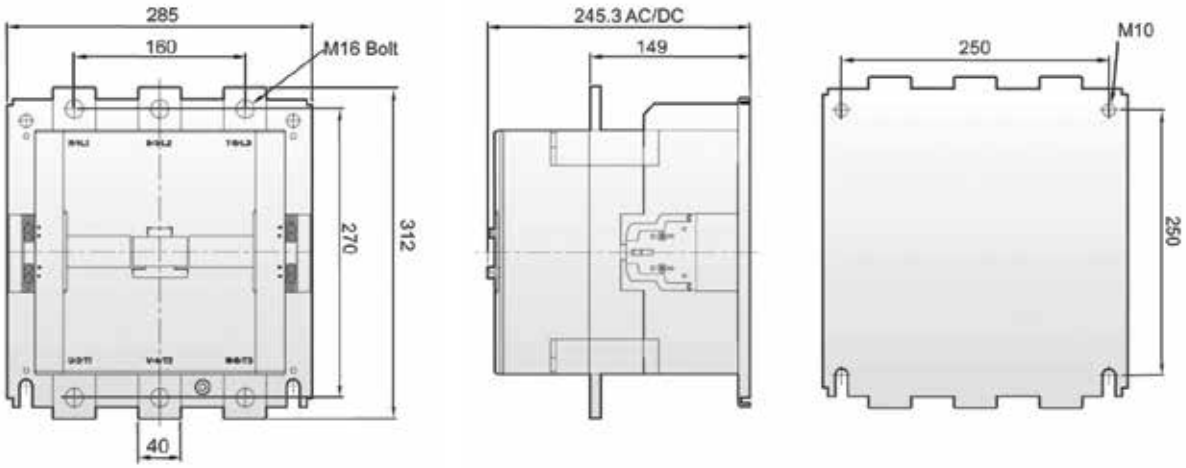
CC185 ~ CC225 | Note: Difference in dimension for AC & DC Contactors (all dimensions mm)



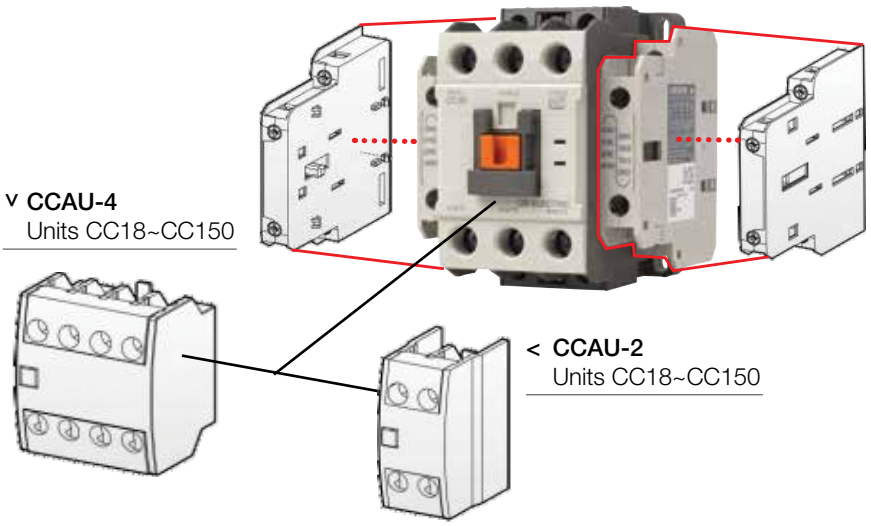
CC265 ~ CDC400 | Note: Difference in dimension for AC & DC Contactors (all dimensions mm)



CC630 ~ CC800 | Note: Difference in dimension for AC & DC Contactors (all dimensions mm)



Auxiliary Contact Units



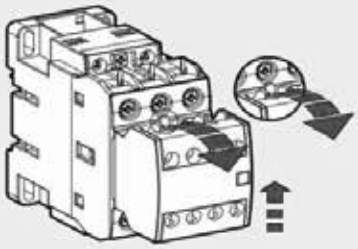
v **CCAU-4**
Units CC18~CC150

< **CCAU-2**
Units CC18~CC150

> **CCAU-1** Units CC18~CC150
> **CCAU-100** Units CC185~CC800
> **CCAU-100E** Units CC185~CC800

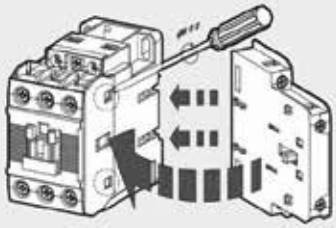
CCAU-2
CCAU-4

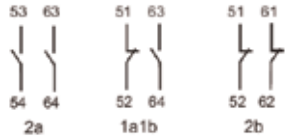
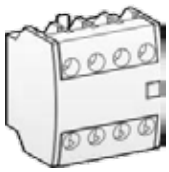
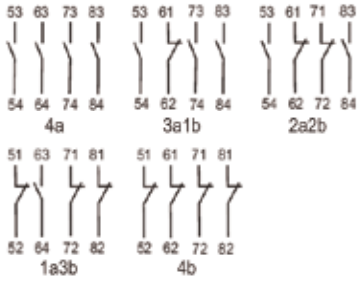
To install front mounting unit fit it on the upper part of the front of the contactor and push it down.
To separate pull the lever of the unit and push the unit upward.



CCAU-1
CCAU-100
CCAU-100E

To install the side mounting unit, remove the indicated part in the circle first. Fit each part as shown.



Type	Appearance	Pole	NO	NC	Contact Arrangement	Mount	Weight
CCUA-1 CCUA-100 CCUA-100E		2	1	1		Side	53g
CCUA-2		2	2 1 –	– 1 2		Front	28g
CCUA-4		4	4 3 2 1 –	– 1 2 3 4		Front	50g

Motor Control for Power Distribution

Control Coil Characteristics

				CC18	CC22	CC40	CC50/60	CC85/100
AC Coil								
Control		50Hz	(V)	24, 32, 36, 42, 48, 80, 100,110, 220, 230, 240, 380, 400, 415, 440, 500, 550V				
Voltage (Uc)		60Hz	(V)	24, 48, 100,110, 120, 200, 208, 220, 230, 240, 277, 380, 380, 440, 480, 600V				
Voltage limit			(Uc)	85 - 110%				
Coil	AC220V	inrush	(VA)	70	70	90	110	240
Consumption	60Hz	Holding	(VA)	9	9	9	13	17
at 20%	Heat dissipation		(W)	2.3	2.3	2.7	2.8	5.4
	Operating time	Close	(ms)	15....30	15....30	15...30	15...30	15...30
		Opening	(ms)	4....30	4.....19	4....19	4....19	10...30
DC Coil								
Control Voltage			(Uc)	12, 20, 24, 48, 60, 80, 80, 100, 110, 125, 200, 220, 250V				
Voltage limit			(Uc)	85 - 110%				
Coil	DC110V	inrush	(W)	5	5	9	9	18
Consumption	60Hz	Holding	(W)	5	5	9	9	18
at 20%	Time constant (L/R)		(ms)	28	28	28	65	75
	Operating time	Close	(ms)	40....60	40.....60	50.....65	50.....65	100.....120
		Opening	(ms)	40....60	40.....60	4.....19	4.....19	10....25

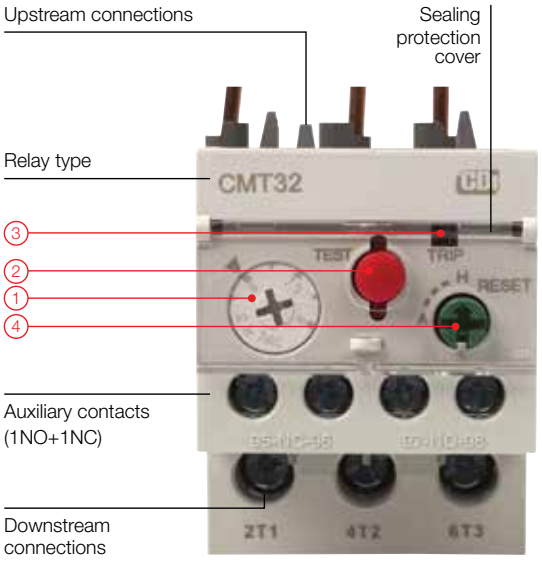
				CC130/150	CC185/225	CC265/330/400	CC500/630/800
Control		AC/DC		24			
Voltage (Uc)		AC/DC		48			
		AC/DC		70-110	100-220-240	100-220-240	100/200
		AC/DC		100-220/110/220			
	50/60Hz	AC		24/48/100-240	24/48/100-240	300	300
		AC		110-120	300/400-440	450	400
		AC		220-240	500	500	500
Voltage limit			(Uc)	85 - 110%			
Coil	AC220V	inrush AC/DC	(VA)	110/213	380	571	1000
Consumption	60Hz	Holding AC/DC	(VA)	18/7.5	11.6	14	29
at 20%	Heat dissipation	(W)		2.7	4.7	5	7.8
	Operating time	Close	(ms)	20.....40/70.....80	70	55	75
		Opening	(ms)	60.....70	70	55	75

Contact CBI-electric for availability

Thermal Overload Relay Specifications

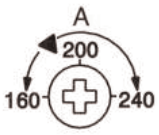
Thermal Overload Relay

Type CMT, bimetal-style, overload relays are designed to protect AC circuits & motors against overloads, phase failure, long starting times and prolonged starting of the motor.



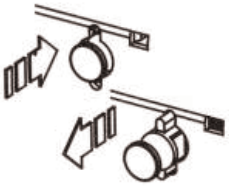
1 | Adjustment Dial

Before adjusting the dial open the protection cover. Current setting can be done by using (+) or (-) screw driver. Do not rotate the dial out of the setting range.



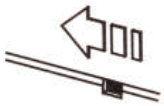
2 | Stop, Test Button

STOP function is executed by pushing the button which causes the next sequence. In case of operation test, pull this button.



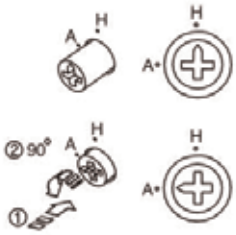
3 | Trip Indicator

If relay is tripped it comes out.



4 | Reset Button/Selector

Using a screw driver the reset mode can be set. In case of Manual mode (H) push the button to reset the relay. To change the Automatic mode (A) from manual mode push the button and rotate as shown in the fig (left).



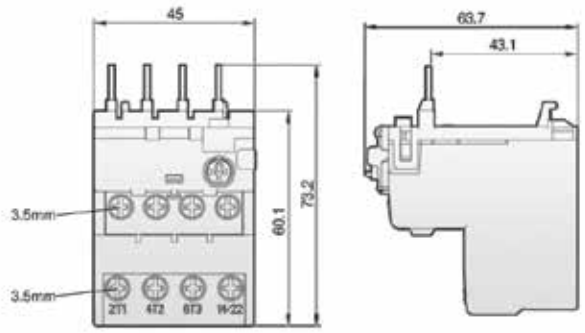
Environment & Auxiliary Circuit		CMT12~800
Environment		
Standards		IEC/EN 60947-1, IEC/EN 60947-4-1
Certifications		CE, CSA, UL, CCC
Rated operation voltage		Max 690V
Rated insulation voltage		690V
Rated frequency		50/60Hz
Degree of protection	(Conforming to IEC 60 529)	IP 20
Ambient air	Storage	-30 ~ +65°C
temperature	Operation	-5 ~ +55°C (AC Type), -5 ~ +40° C
Mounting position		Vertical plane
Shock resistance	(Conforming to IEC 68-2-7)	15gn - 11ms
Vibration resistance	(Conforming to IEC 68-2-6)	6G
Insulation strength	(Conforming to IEC 801-5)	6kV
Rated impulse withstand voltage	(Conforming to IEC 801-5)	6kV
Auxiliary Contacts Characteristics		
Composition		1NO + 1NC
Rated thermal current	Max	5A
Rated operation current	UL 508	C600, R300
AC15 duty	120V	1.5A
(C600)	240V	0.75A
	380V	0.47A
	480V	0.375A
	500V	0.35A
	600V	0.3A
DC13 duty	120V	0.22A
(R300)	240V	0.1A
Connector	Size	1mm²/18AWG
Connection to screw clamp terminals	Type	65/75°C Cu-Wire

Auxiliary Contact Operation

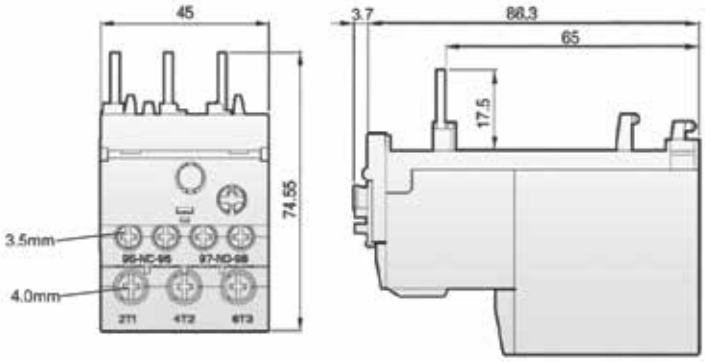
	NC 95-96	NC 97-98
NORMAL		
STOP		
TEST/ TRIP		
RESET		

Overload Relay | Dimensional Details

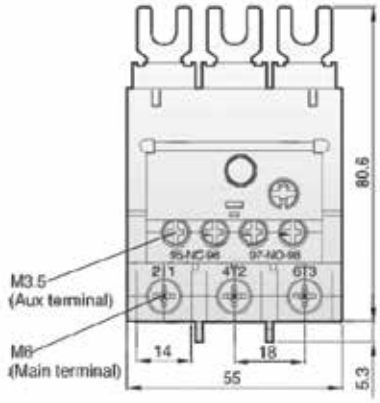
CMT12 | (all dimensions mm)

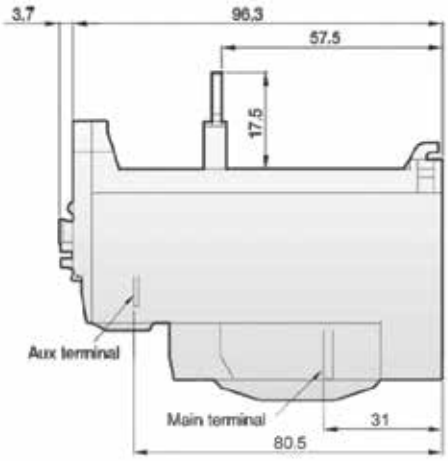


CMT32 | (all dimensions mm)

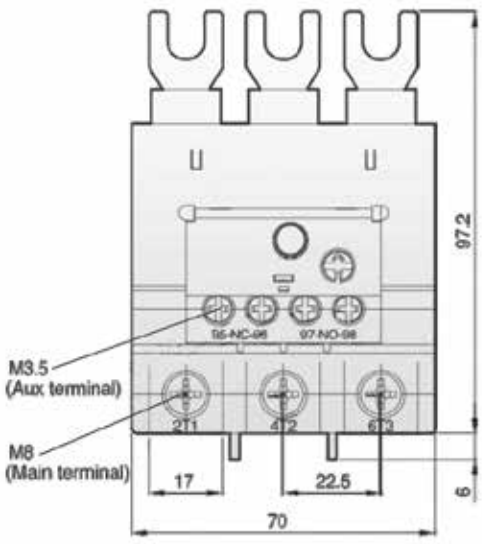


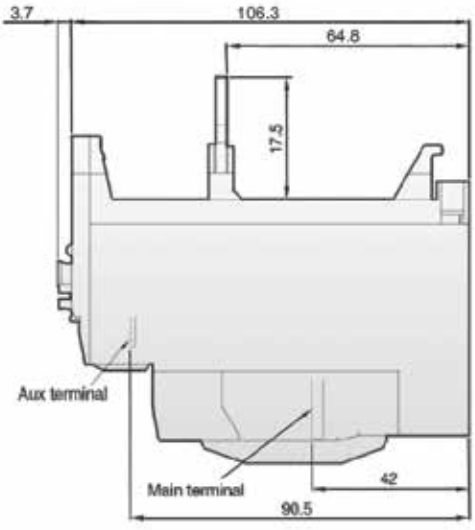
CMT63 | (all dimensions mm)





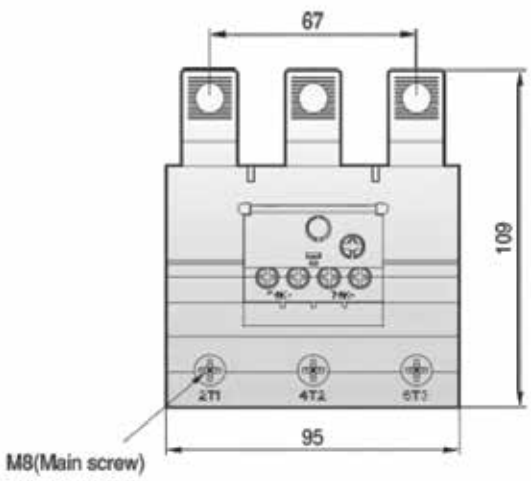
CMT95 | (all dimensions mm)

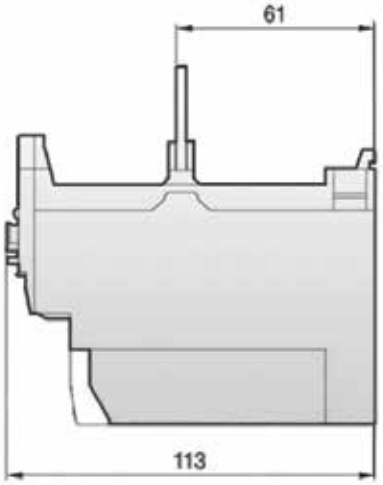




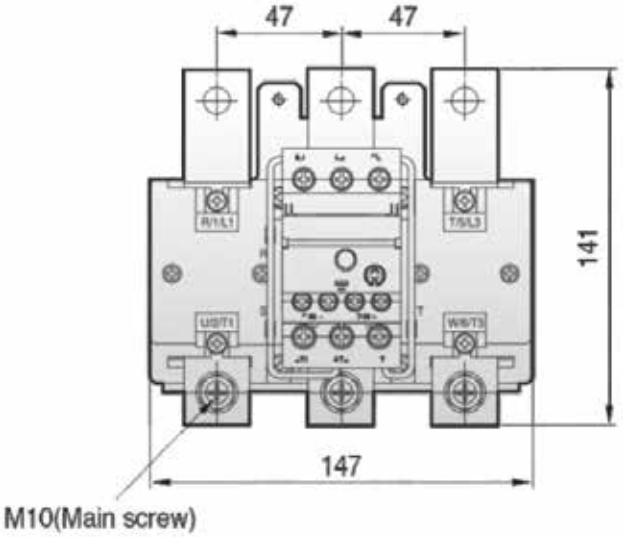
Overload Relay | Dimensional Details

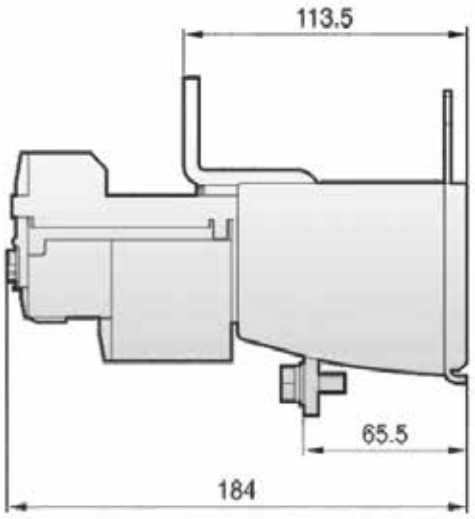
CMT150 | (all dimensions mm)





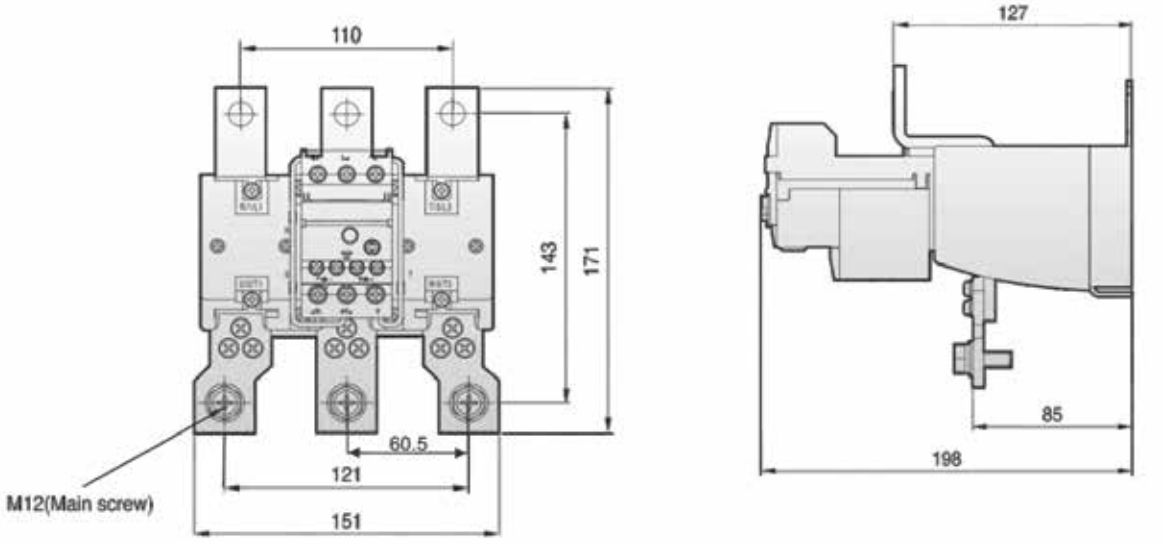
CMT225 | (all dimensions mm)



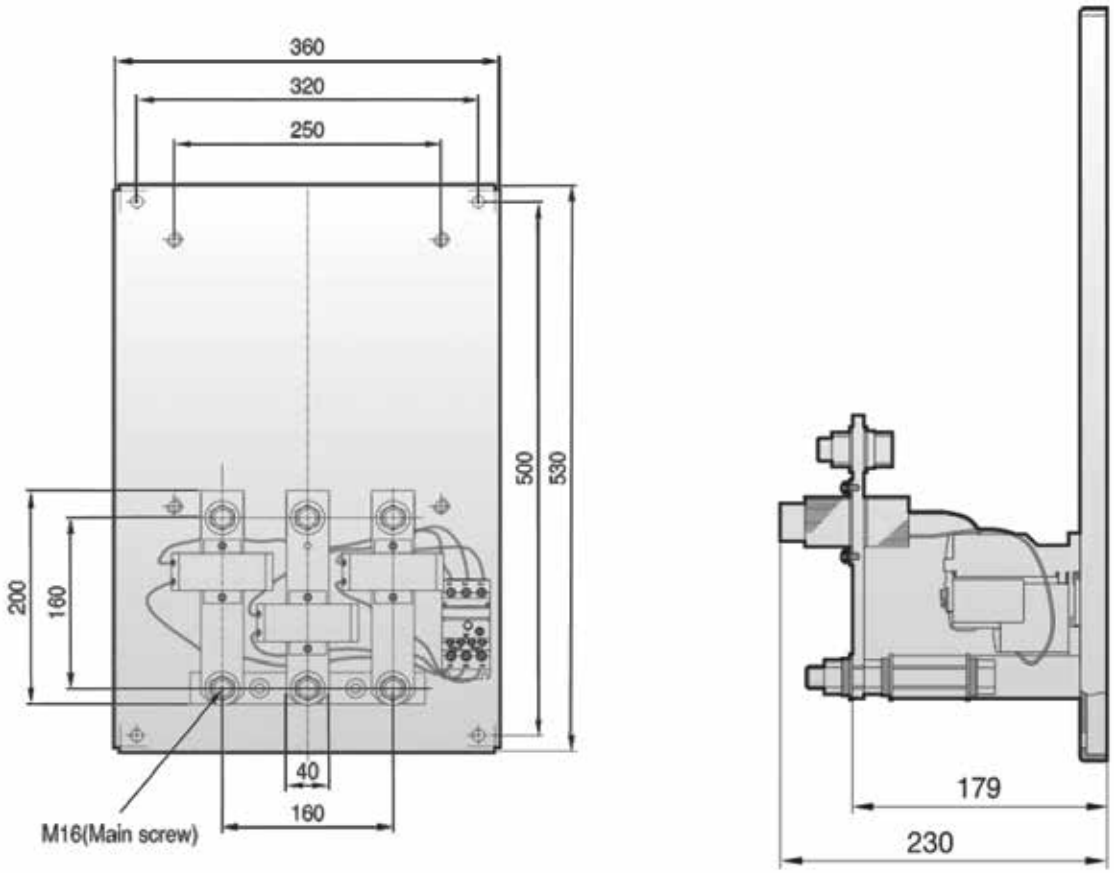


Overload Relay | Dimensional Details

CMT400 | (all dimensions mm)



CMT800 | (all dimensions mm)



Manual Motor Starters Specifications

Current Adjustable

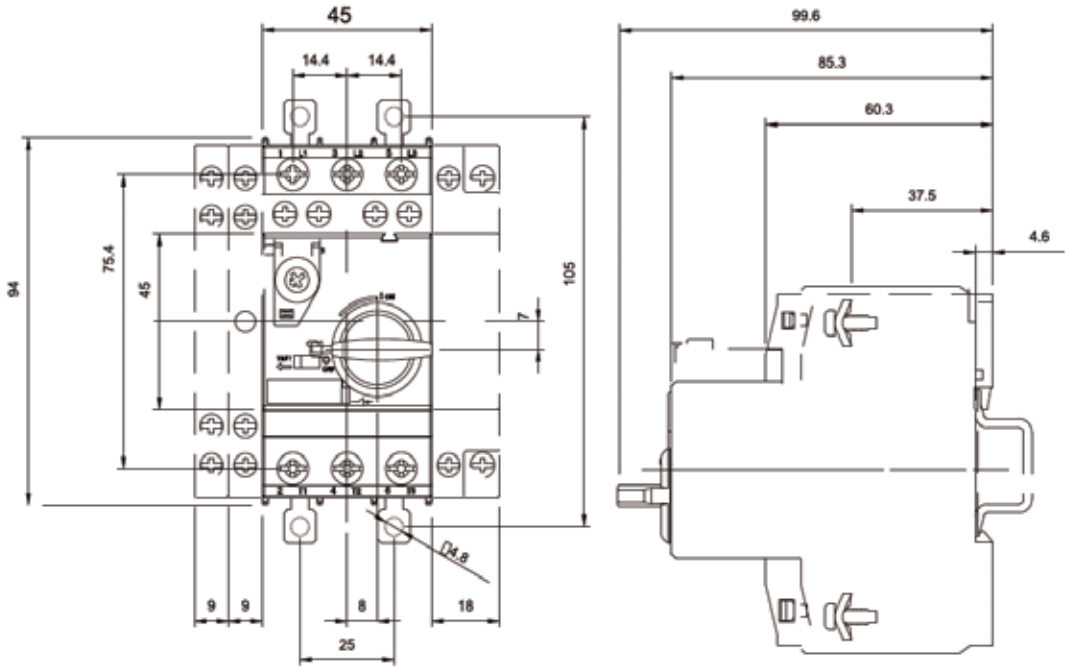
			CMS-32H	CMS-63H
Breaking Capacity			High	High
Handle Type			Rotary (lockable)	Rotary (lockable)
Number of Poles			3	3
Rated operational voltage (Ue)			Up to 690V	Up to 690V
Rated frequency			50/60Hz	50/60Hz
Rated Insulation voltage (Ui)			690V	1000V
Rated Impulse voltage (Uimp)			6kV	8kV
Utilisation	IEC 60 947-2 (Breaker)		Cat.A	Cat.A
category	IEC 60 947-4 (Motor starter)		AC3	AC3
Mechanical endurance		(Operating)	100,000	50,000
Electrical endurance		(Cycles)	100,000	25,000
Max operating frequency per hour		(Ope.h)	25	25
Temperature compensation		(Operation)	-20 ~ +60°C	-20 ~ +60°C
Instantaneous short circuit release			13 x Ie max.	13 x Ie max.
Overload protection			●	●
Phase failure function			●	●
Trip indicating function		(trips to off)	X	X
Test function		(push button)	●	●
Size	Weight (g)		320	1000
& Weight	Size (W x H x D) (mm)		45 x 105 x 54.4 x 60.3	55 x 125 x 112.3

Rated breaking capacity (kA)	Rated operational current (Ie)	Thermal release adjustment range (A)	220V 240V 230V		415V 400V		460V 440V		525V 500V		690V 600V		220V 240V 230V		415V 400V		460V 440V		525V 500V		690V 600V	
			Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu
	0.16	0.1 ~ 0.16	100	100	100	100	100	100	100	100	100	100	–	–	–	–	–	–	–	–	–	–
	0.25	0.16 ~ 0.25	100	100	100	100	100	100	100	100	100	100	–	–	–	–	–	–	–	–	–	–
	0.4	0.25 ~ 0.4	100	100	100	100	100	100	100	100	100	100	–	–	–	–	–	–	–	–	–	–
	0.63	0.4 ~ 0.63	100	100	100	100	100	100	100	100	100	100	–	–	–	–	–	–	–	–	–	–
	1	0.63 ~ 1	100	100	100	100	100	100	100	100	100	100	–	–	–	–	–	–	–	–	–	–
	1.6	1 ~ 1.6	100	100	100	100	100	100	100	100	100	100	–	–	–	–	–	–	–	–	–	–
	2.5	1.6 ~ 2.5	100	100	100	100	100	100	100	100	8	8	–	–	–	–	–	–	–	–	–	–
	4	2.5 ~ 4	100	100	100	100	100	100	100	100	8	8	–	–	–	–	–	–	–	–	–	–
	6	4 ~ 6	100	100	100	100	100	100	100	100	6	6	–	–	–	–	–	–	–	–	–	–
	8	5 ~ 8	100	100	100	100	50	38	50	38	6	6	–	–	–	–	–	–	–	–	–	–
	10	6 ~ 10	100	100	100	100	50	38	50	38	6	6	100	100	100	100	50	38	50	38	6	5
	13	9 ~ 13	100	100	100	100	50	38	42	32	6	6	100	100	100	100	50	38	42	32	6	5
	17	11 ~ 17	100	100	50	38	20	15	10	8	4	4	100	100	50	50	50	38	12	9	5	5
	22	14 ~ 22	100	100	50	38	20	15	10	8	4	4	100	100	50	50	50	38	12	9	5	5
	26	18 ~ 26	100	100	50	38	20	15	10	8	4	4	100	100	50	50	35	27	12	9	5	5
	32	22 ~ 32	100	100	50	38	20	15	10	8	4	4	100	100	50	50	35	27	10	8	5	5
	40	28 ~ 40	–	–	–	–	–	–	–	–	–	–	100	100	50	50	35	27	10	8	5	5
	50	34 ~ 50	–	–	–	–	–	–	–	–	–	–	100	100	50	50	35	27	10	8	5	5
	63	45 ~ 63	–	–	–	–	–	–	–	–	–	–	100	100	50	50	35	27	10	8	5	5

Manual Motor Starters | Dimensional Details

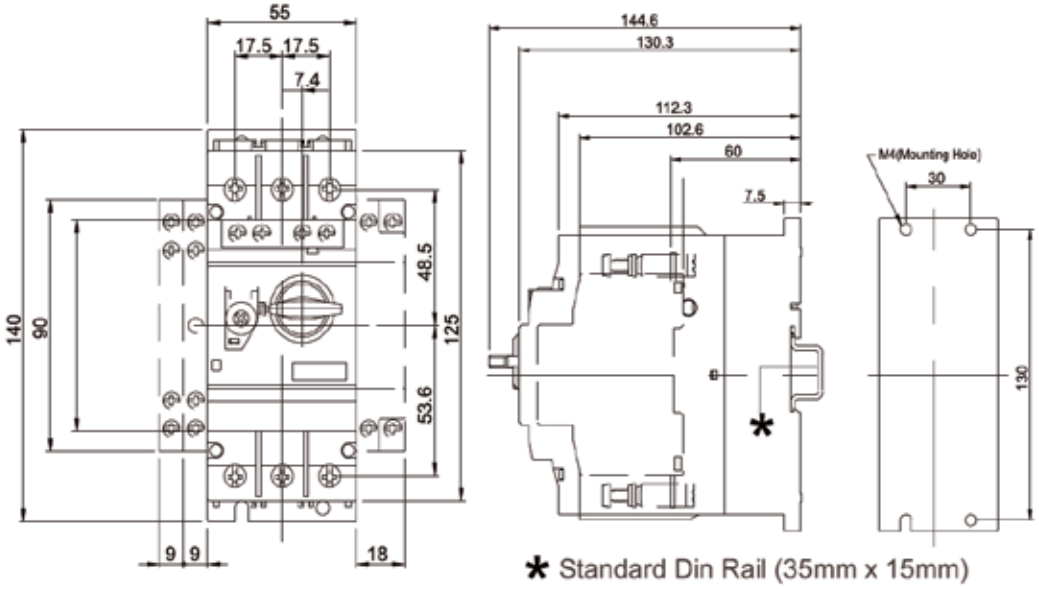
CMS32H | (all dimensions mm)

Type (A)	CMS32H (Range)
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
10	6 ~ 10
13	9 ~ 13
17	11 ~ 17
22	14 ~ 22
26	18 ~ 26
32	22 ~ 32



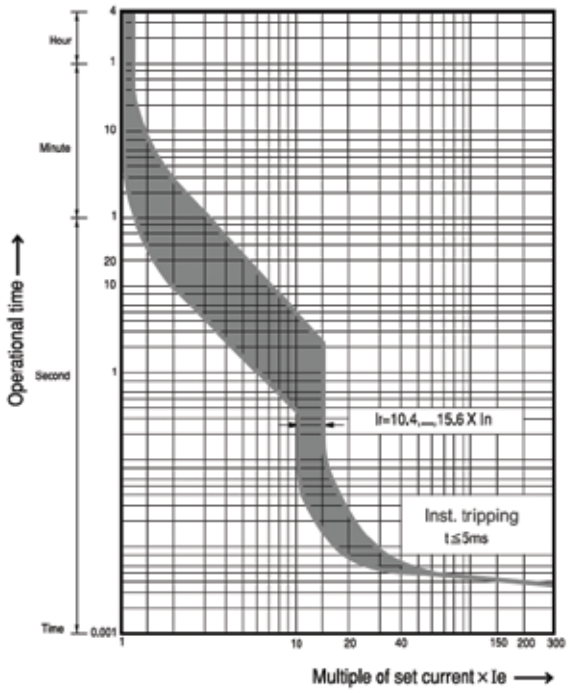
CMS63H | (all dimensions mm)

Type (A)	CMS63H (Range)
10	6 ~ 10
13	9 ~ 13
17	11 ~ 17
22	14 ~ 22
26	18 ~ 26
32	22 ~ 32
40	28 ~ 40
50	34 ~ 50
63	45 ~ 63

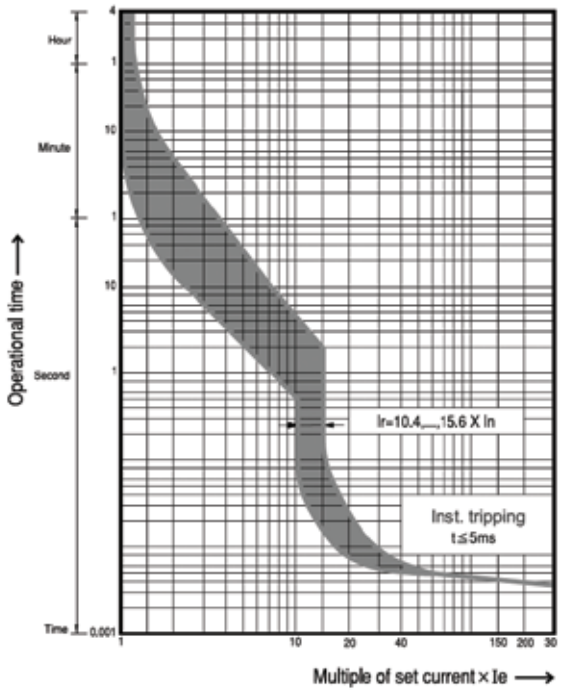


Manual Motor Starters | Tripping Curves

CMS32H Tripping Curve



CMS63H Tripping Curve



I | Thermal Release Trip Current

The adjustable inverse bimetal trip reliability protects motors against overloads.

The curve shows the mean operating current at an ambient temperature of 20ºC starting from cold.

Careful testing and setting ensures effective motor protection even in the case of single-phasing.

II | Magnetic Release Trip Current

The instantaneous magnetic trip has a fixed operating current setting.

This corresponds to 13 times the maximum value of setting range

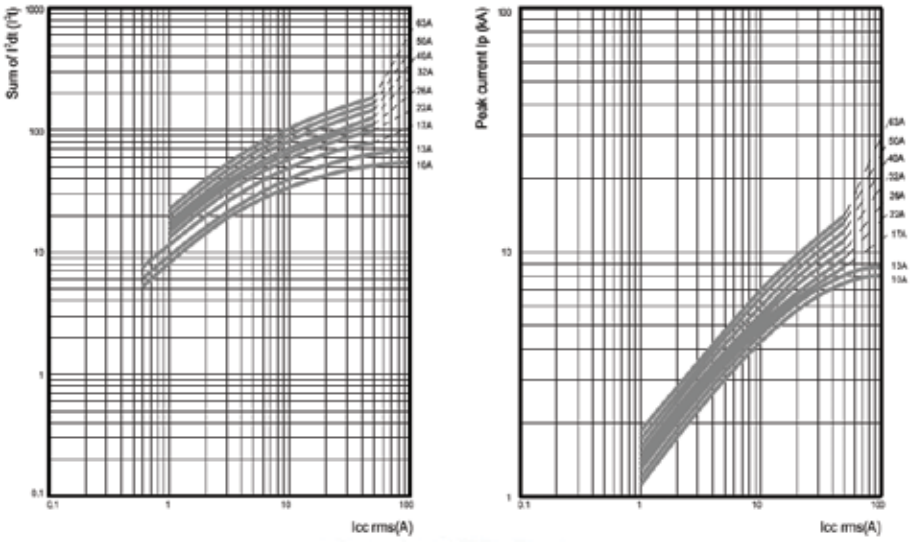
Current setting Ie

The overload trip corresponds to a thermal overload relay in a motor starter conforming to IEC 947-4-1.

If a different value is prescribed (e.g. reduced Ie for cooling medium having a temperature higher than 40ºC or a place of installation higher than 2000m above sea level), the setting current is equal to the reduced rated current Ie of the motor.

Thermal limit in kA2s in the magnetic operating zone (Ue=415V)

CMS32H



Type 2 Co-ordination CMS + MCCB

Rated Operational Power		Circuit Breaker		Contactor	Thermal Overload Relays	
kW	Current (A) 415V	Type	Rating (A)	Type	Type	Setting Range
0.06	0.19	CMS32H	0.25	CC18	CMT12	0.16 ~ 0.25
0.09	0.29	CMS32H	0.4	CC18	CMT12	0.25 ~ 0.4
0.12	0.42	CMS32H	0.63	CC18	CMT12	0.4 ~ 0.63
0.18	0.58	CMS32H	0.63	CC18	CMT12	0.4 ~ 0.63
0.25	0.82	CMS32H	1	CC18	CMT12	0.63 ~ 1
0.37	1.06	CMS32H	1.6	CC18	CMT12	1 ~ 1.6
0.55	1.4	CMS32H	1.6	CC18	CMT12	1 ~ 1.6
0.75	1.8	CMS32H	2.5	CC18	CMT12	1.6 ~ 2.5
1.1	2.6	CMS32H	4	CC22	CMT32	2.5 ~ 4
1.5	3.5	CMS32H	4	CC22	CMT32	2.5 ~ 4
2.2	4.7	CMS32H	6	CC22	CMT32	4 ~ 6
3.0	6.3	CMS32H	8	CC40	CMT32	5 ~ 8
4.0	8.2	CMS32H	10	CC40	CMT32	6 ~ 9
5.5	11.1	CMS32H	13	CC40	CMT32	9 ~ 13
7.5	14.9	CMS32H	17	CC40	CMT32	12 ~ 18
11	21.2	G37D	25	CC50	CMT63	18 ~ 25
15	28	G37D	32	CC50	CMT63	24 ~ 36
18.5	34	G37D	40	CC50	CMT63	28 ~ 40
22	40	G37D	50	CC50	CMT63	34 ~ 50
30	53	G37D	63	CC65	CMT63	45 ~ 65
37	64	G37D	80	CC75	CMT95	54 ~ 75
45	77	G37D	100	CC85	CMT95	63 ~ 85
55	93	G37D	100	CC95	CMT95	70 ~ 95

Type 2 Co-ordination

Under short circuit conditions, the contactor or starter shall cause no danger to persons or the installation and shall be suitable for further use. The risk of contact welding is recognised, in which case the manufacturer shall indicate the measures to be taken with regard to equipment maintenance.
The key to Type 2 co-ordinated protection is to use a protective device that limits the peak current and clears in less than 8 milliseconds, or the first half cycle.

Benefits of Type 2 Co-ordination

There are 3 key benefits of Type 2 co-ordination:

1 | Safety
Type 2 co-ordination is intended to provide safety for operating personnel, facility and installed equipment.

2 | Reduced Costs
When a starter is properly protected from short circuits, all components of the branch circuit remain intact and operational. Only fuses may need to be replaced. Savings result from a reduction in labor required to perform maintenance after a short circuit and in the amount of replacement parts and required equipment. Savings are also realized by minimising spoiled or lost production in a continuous process environment, such as may occur in some food and chemical process plants.

3 | Increased productivity
The manufacturing process relies on continuous motor operation. If starters are damaged and must be repaired or replaced, the motors are shut down and the manufacturing process stops. By implementing Type 2 co-ordination, manufacturing processes should function with minimum disruption from short circuits on the motor circuits.

CBI's Range of Low Voltage Protection Devices

Motor Control Range | CC18 Frame size 1,2,3 | CC50 Frame size 4 | CC65 Frame size 5 | CC85 Frame size 6

QF & QH Range | DIN MCB' 2A to 100A | RCD | RCBO **|** **SFM, SF & SK Range** | CLIP MCB 2A to 100A | RCD | RCBO

MCCB Range | 32A to 1600A **|** **ACB Range** | 630A to 4000A

CBI have a staff of qualified engineers and project managers to help with all your residential, commercial, industrial & mining needs. Simply call 1800 770 870 to speak to one of our sales team today.

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