



Moulded Case & Air Circuit Breakers

MCCB & ACB



Innovative, Robust, Reliable and Efficient Protection



HEINEMANN ELECTRIC PTY LTD
HEINELEC
CIRCUIT PROTECTION
SLAGERS
GET CONNECTED

The New CBI MCCB Series

Low Voltage Power Distribution



MCCB | Frame Size 1
32-100/125-160/200-250A



MCCB | Frame Size 2
400/630A



MCCB | Frame Size 3
800A

CBI offers a comprehensive range of power distribution products that are designed and manufactured to meet the challenges of modern installations. Compact frame sizes with high capacities to match their flexible capabilities.

The new series of CBI circuit breakers are available in four (4) frame sizes from 16 to 1600A:

Frame Size 1 16-100/125-160/200-250A **Frame Size 3** 800A

Frame Size 2 400/630A

Frame Size 4 1000/1250/1600A

MCCB Moulded Case Circuit Breakers



MCCB | Frame Size 4
1000/1250/1600A

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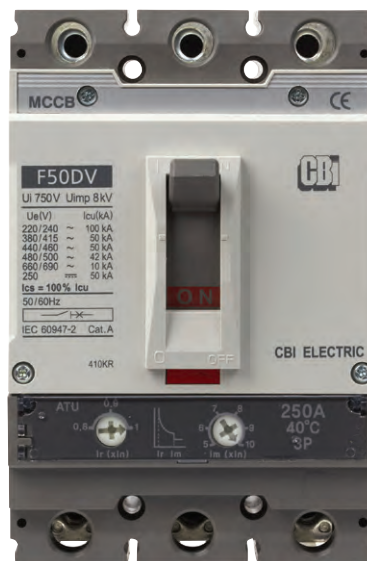
CBI circuit breakers are climate-proof. They are intended for use where there is no excessive operating conditions (e.g. dust, corrosion, vapours and gases). All CBI breakers offer positive contact indication and are suitable for isolation in compliance with current standards.

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 CBI MCCB Series

Flexibility

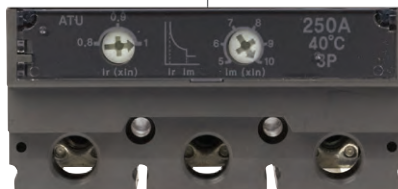
While meeting the required IEC AS/NZS60497-2 service and interruption ratings, CBI breakers provide unmatched flexibility employing a wide variety of trip units including fixed thermal & magnetic, adjustable thermal & magnetic, adjustable thermal, adjustable magnetic and electronic trip units.



Trip Unit Identification



Fixed-thermal,
Fixed-magnetic



Adjustable-thermal,
Adjustable-magnetic



Electronic
(LSIG, multi-function unit)

Standards & Approvals

All CBI MCCB's, ACB's and accessories conform to the following standards:

Basic Standards

IEC 60947-1;-2;-3;-4
AS/NZS 60947-1;-2;-3;-4
CE Conformity Mark
IECEE CB Scheme

Marine

ABS – USA
BV – France
DNV – Norway
GL – Germany
KR – Korea
RINA – Italy
Lloyds - London



MCCB Moulded Case Circuit Breakers

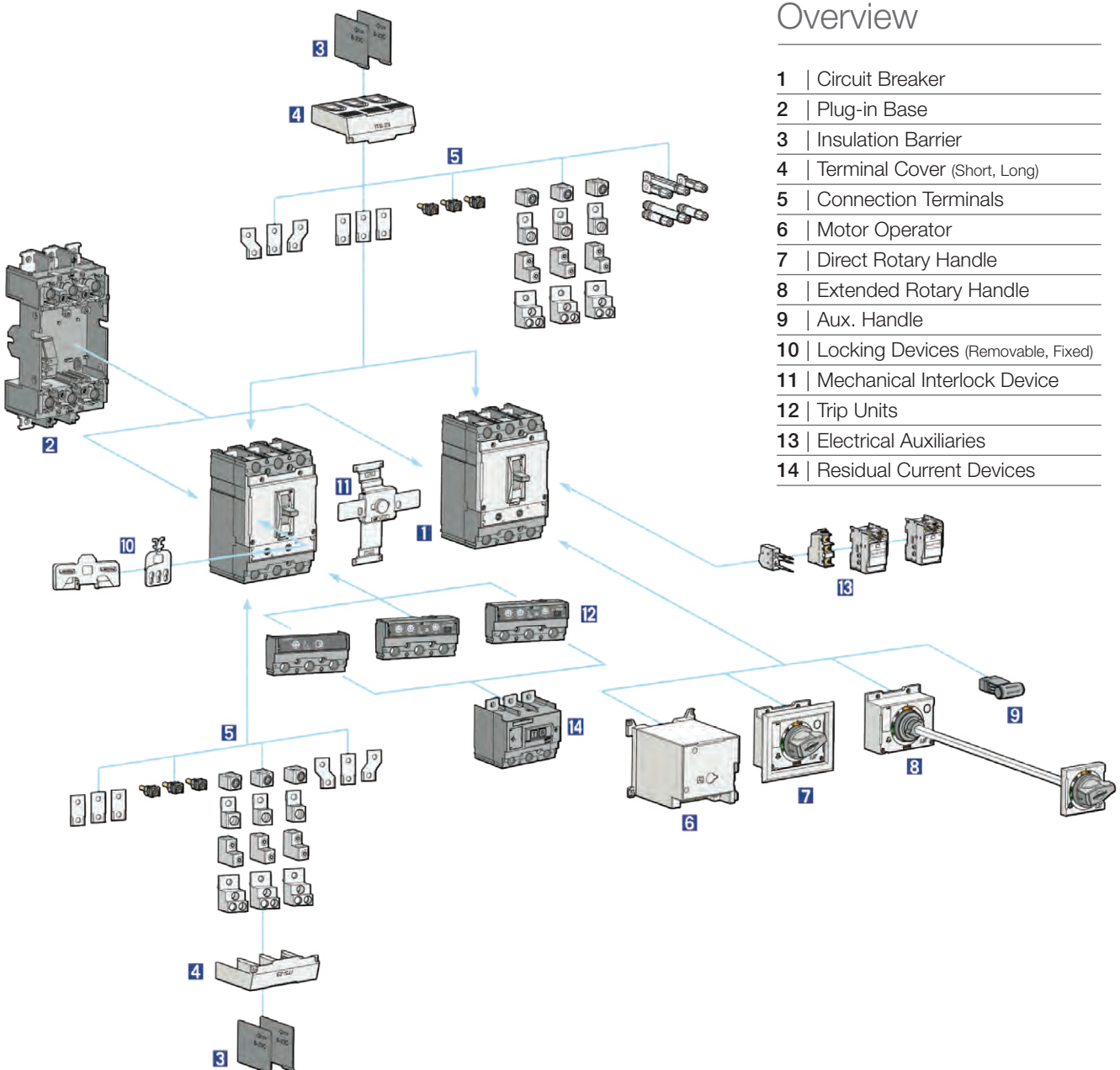
Accessories

Field mountable accessories, fitted at time of order, in situ by installer or time of commissioning depending on application needs and changes. Common accessories across all frame sizes from auxiliaries, alarm contacts, shunts, under-voltage trips (UVT's).

Handles and motor operators are also easily fitted without the use of special tools or instructions. All fitted quickly and easily saving time, effort and expense.

Overview

- | | |
|----|------------------------------------|
| 1 | Circuit Breaker |
| 2 | Plug-in Base |
| 3 | Insulation Barrier |
| 4 | Terminal Cover (Short, Long) |
| 5 | Connection Terminals |
| 6 | Motor Operator |
| 7 | Direct Rotary Handle |
| 8 | Extended Rotary Handle |
| 9 | Aux. Handle |
| 10 | Locking Devices (Removable, Fixed) |
| 11 | Mechanical Interlock Device |
| 12 | Trip Units |
| 13 | Electrical Auxiliaries |
| 14 | Residual Current Devices |



MCCB's for Power Distribution

Electrical Characteristics



			F~~D100	F~~D160	F~~D250	K~~D400	
Frame Size			1	1	1	2	
Rated current, In#			40,50,63,80,100	125, 160	200, 250	400	
No. of Poles			3, 4	3, 4	3, 4	3, 4	
Rated operational voltage (Ue)			690	690	690	690	
Rated impulse withstand voltage (Uimp)			500	500	500	500	
Rated insulation voltage (V) (Ui)			8	8	8	8	
Rated ultimate short-circuit breaking capacity (Icu)			750	750	750	750	
AC50/60Hz			50	50	50	65	85
220/240V			100	100	100	100	120
380/425V			50	50	50	65	85
440/460V			50	50	50	65	85
480/500V			42	42	42	42	65
600/690V			10	10	10	10	20
DC			50	50	50	50	85
240V			50	50	50	50	85
500V (2p in series)			100%	100%	100%	100%	100%
Rated service breaking capacity (Ics)			100%	100%	100%	100%	100%
Rated short-circuit breaking capacity (Icm)			220	220	220	220	264
AC50/60Hz			105	105	105	143	187
220/240V			105	105	105	143	187
380/425V			88	88	88	88	143
440/460V			17	17	17	17	40
480/500V			A	A	A	A	
660/690V			●	●	●	●	
Category of utilisation							
Isolation behaviour							
Trip unit (release)							
Thermal Magnetic							
● fixed-thermal, fixed magnetic			FTU				
● adjustable-thermal, fixed magnetic			FMU				
● adjustable-thermal, adjustable-magnetic			ATU				
● magnetic only			MTU				
Electronic							
● LSI			ESI				
● LSI			ETM				
Option			Earth-fault protection, Ig				
			Zone selective interlocking, ZSI				
			Ammeter				
			Communication				
			Earth-leakage protection module				
Connection			fixed	front-connection			
				rear-connection			
			plug-in	front-connection			
				rear-connection			
Mechanical life				(operations)	25000	25000	
Electrical life @415V AC				(operations)	10000	10000	
Base dimensions			3-pole	(mm)	105x160x86	105x160x86	140x260x110
(W x H x D)			4-pole	(mm)	140x160x86	140x160x86	186.5x260x110
Weight			1-pole	(kg)	–	–	–
(front connection)			3-pole	(kg)	2	2	5.4
			4-pole	(kg)	2.6	2.6	7.2
Reference standard			IEC60947-2, AS/NZ60947-2				

Breaking capacity at 660/690V is for your reference (not certified)

MCCB's for Power Distribution

Electrical Characteristics



			K~~D630	L~~800	N~~1000	N~~1250	N~~1600				
Frame Size			2		3	4	4	4			
Rated current, In#			630		800	1000	1250	1600			
No. of Poles			3, 4		3, 4	3, 4	3, 4	3, 4			
Rated operational voltage (Ue)			690		690	690	690	690			
			500		500	–	–	–			
Rated impulse withstand voltage (Uimp)			8		8	8	8	8			
Rated insulation voltage (V)			750		750	1000	1000	1000			
Rated utimate short-circuit breaking capacity (Icu)			65	85	65	85	D	D	D		
AC50/60Hz			220/240V	(kA)	100	120	100	120	75	75	75
			380/425V	(kA)	65	85	65	100	70	70	70
			440/460V	(kA)	65	85	65	100	65	65	65
			480/500V	(kA)	42	65	42	85	50	50	50
			600/690V	(kA)	10	20	10	20	45	45	45
DC			240V	(kA)	50	85	50	85	–	–	–
			500V (2p in series)	(kA)	50	85	50	85	–	–	–
Rated service breaking capacity (Ics)			(%Icu)		100%	100%	100%	100%	75%	75%	75%
Rated short-circuit breaking capacity (Icm)			220	264	220	264	–	–	–	–	–
AC50/60Hz			220/240V	(kA)	143	187	143	220	–	–	–
			380/425V	(kA)	143	187	143	220	–	–	–
			440/460V	(kA)	88	143	88	187	–	–	–
			480/500V	(kA)	17	40	17	40	–	–	–
			660/690V	(kA)	A	A	A	B	B	B	B
Catagory of utilisation			●		●	●	○	○	○	○	○
Isolation behaviour											
Trip unit (release)											
Thermal Magnetic											
● fixed-thermal, fixed magnetic			FTU		–	–	–	–	–	–	–
● adjustable-thermal, fixed magnetic			FMU		–	–	–	–	–	–	–
● adjustable-thermal, adjustable-magnetic			ATU		–	–	–	–	–	–	–
● magnetic only			MTU		–	–	–	–	–	–	–
Electronic					●	●	●	●	●	●	●
● LSI			ESI		●	●	●	●	●	●	●
● LSI			ETM		●	●	●	●	●	●	●
Option			Earth-fault protedtion, Ig		●	●	●	●	●	●	●
			Zone selective interlocking, ZSI		●	●	●	●	●	●	●
			Ammeter		●	●	●	●	●	●	●
			Communication		●	●	●	●	●	●	●
			Earth-leakage protection module		●	●	●	●	●	●	●
Connection			fixed	front-connection	●	●	●	●	●	●	●
				rear-connection	●	●	–	–	–	–	–
			plug-in	front-connection	●	●	–	–	–	–	–
				rear-connection	●	●	–	–	–	–	–
Mechanical life			(operations)		20000	10000	10000	10000	10000	10000	10000
Electrical life @415V AC			(operations)		6000	3000	6000	5000	5000	5000	5000
Base dimensions			3-pole	(mm)	140x260x110	210x320x135	210 x 327 x 152.5				
(W x H x D)			4-pole	(mm)	186.5x260x110	280x320x135	280 x 327 x 152.5				
Weight			1-pole	(kg)	–	–	–				
(front connection)			3-pole	(kg)	5.4	15.1	13				
			4-pole	(kg)	7.2	19.6	16.8				
Reference standard			IEC60947-2, AS/NZ60947-2								

Breaking capacity at 660/690V is for your reference (not certified)

MCCB Part Numbers



F50DV100

F50DEV250

K65DEV630

L100DEV800

N70DEV1000

Part Number	Description	Frame Size	Number of Poles
F50 Series 50kA Frame size 1 Fixed Magnetic - Adjustable Thermal Type 1)			
F50DV040	32-40A MCCB 50kA ADJ 3P	1	3
F50DV063	50-63A MCCB 50kA ADJ 3P	1	3
F50DV080	63-80A MCCB 50kA ADJ 3P	1	3
F50DV100	80-100A MCCB 50kA ADJ 3P	1	3
F50DV100-4	80-100A MCCB 50kA ADJ 4P	1	4
F50DV125	100-125A MCCB 50kA ADJ 3P	1	3
F50DV160	128-160A MCCB 50kA ADJ 3P	1	3
F50DV160-4	128-160A MCCB 50kA ADJ 4P	1	4
F50 Series 50kA Frame size 1 Adjustable Magnetic - Adjustable Thermal Type 1)			
F50DV200	180-200A MCCB 50kA ADJ 3P	1	3
F50DV250	200-250A MCCB 50kA ADJ 3P	1	3
F50DV250-4	200-250A MCCB 50kA ADJ 4P	1	4
F50 Series 50kA Frame size 1 Electronic Type 1)			
F50DEV040	16-40A MCCB 50kA EADJ 3P	1	3
F50DEV080	32-80A MCCB 50kA EADJ 3P	1	3
F50DEV160	64-160A MCCB 50kA EADJ 3P	1	3
F50DEV250	100-250A MCCB 50kA EADJ 3P	1	3
K65 Series 65kA Frame size 2 Electronic Type 1)			
K65DEV400	160-400A MCCB 65kA EADJ 3P	2	3
K65DEV400-4	160-400A MCCB 65kA EADJ 4P	2	4
K65DEV630	252-630A MCCB 65kA EADJ 3P	2	3
K65DEV630-4	252-630A MCCB 65kA EADJ 4P	2	4
K85 Series 85kA Frame size 2 Electronic Type 1)			
K85DEV400	160-400A MCCB 85kA EADJ 3P	2	3
K85DEV400-4	160-400A MCCB 85kA EADJ 4P	2	4
K85DEV630	252-630A MCCB 85kA EADJ 3P	2	3
K85DEV630-4	252-630A MCCB 85kA EADJ 4P	2	4
L65 Series 65kA Frame size 3 Electronic Type 2)			
L65DEV800 3	320-800A MCCB 65kA EADJ 3P	3	3
L65DEV800-4	320-800A MCCB 65kA EADJ 4P	3	4
L100 Series 100kA Frame size 3 Electronic Type 2)			
L100DEV800	320-800A MCCB 100kA EADJ 3P	3	3
L100DEV800-4	320-800A MCCB 100kA EADJ 4P	3	4
N70 Series 70kA Frame size 4 Electronic Type + Ammeter 3)			
N70DEV1000	500-1000A MCCB 70kA EADJ+A 3P	4	3
N70DEV1250	625-1250A MCCB 70kA EADJ+A 3P	4	3
N70DEV1600	800-1600A MCCB 70kA EADJ+A 3P	4	3
FDN Series Switch / Non Auto Breakers 160 - 630A			
FDN160	SWITCH DISCONNECTOR 3P 160A	1	3
FDN250	SWITCH DISCONNECTOR 3P 250A	1	3
KDN400	SWITCH DISCONNECTOR 3P 400A	2	3
KDN630	SWITCH DISCONNECTOR 3P 630A	2	3

NOTE | 1) Higher kA ratings up to 150kA available upon request (@ 415V 85 & 150kA) (Indent only) 2) L series available in 4 pole upon request (Indent item) 3) N70 series comes complete with interchangeable Trip relay, AG5 as standard, Comms and power type available upon request (Indent only)

MCCB Accessories

Part Number	Description	To Suit Frame Size
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Auxiliaries and Alarm Contacts

CS-AUX160-800	AUX CONTACT BLOCK 1 C/O	1, 2 & 3
CS-ALM160-800	ALARM CONTACT BLOCK	1, 2 & 3
CS-AUXTRPIN800	FAULT ALARM TRIP IND 1)	1, 2 & 3
CS-AUX1600	AUX 1600	4
CS-ALM1600	ALM 1600	4
CS-AUXTRPIN1600	AUX TRIP IND 1600	4

Shunt and Under Voltage Trip

CS-SHT800-24	SHUNT 24VAC/DC 160-800A	1, 2 & 3
CS-SHT800-48	SHUNT 48VAC/DC 160-800A	1, 2 & 3
CS-SHT800-110	SHUNT 110VAC/DC 160-800A	1, 2 & 3
CS-SHT800-230	SHUNT 230VAC/DC 160-800A	1, 2 & 3
CS-SHT800-415	SHUNT 415VAC 160-800A	1, 2 & 3
CS-SHT1600-24	SHT1600-24VDC	4
CS-SHT1600-48	SHT1600-48VAC/DC	4
CS-SHT1600-110	SHT1600-110VAC/DC	4
CS-SHT1600-230	SHT1600-230VAC/DC	4
CS-SHT1600-400	SHT1600-415VAC	4
CS-UVT800-24	UVT 24VAC/DC	1, 2 & 3
CS-UVT800-48	UVT 48VAC/DC	1, 2 & 3
CS-UVT800-110	UVT 110VAC/DC	1, 2 & 3
CS-UVT800-230	UVT 230VAC/DC	1, 2 & 3
CS-UVT800-415	UVT 415VAC	1, 2 & 3
CS-UVT1600-24	UVT1600-24VDC	4
CS-UVT1600-48	UVT1600-48VAC/DC	4
CS-UVT1600-110	UVT1600-110VAC/DC	4
CS-UVT1600-230	UVT1600-230VAC/DC	4
CS-UVT1600-400	UVT1600-415VAC	4

Insulation Barriers (supplied in sets x 2)

CS-BAR1600	STD BARRIERS 1600 (set 2 x)	4
CS-BAR1600	EXT EXT BARRIERS 1600 (set 2 x)	4

Terminal Covers (supplied in sets x 2)

CS-ITL23	TERMINAL COVER LONG F50 40/250A	1
CS-ITL33	TERMINAL COVER LONG F/K/L400/630A	2
CS-ITL43	TERMINAL COVER LONG L/N800A	3
CS-ITS23	TERMINAL COVER SHORT F50 40/250A	1
CS-ITS33	TERMINAL COVER SHORT F/K/L400/630A	2
CS-ITS43	TERMINAL COVER SHORT L/N800A	3
CS-TRMCOV1600-3	TERM COVER 16003P	4



CS-AUX160-800



CS-SHT800-240



CS-UVT800-240



CS-BAR1600



CS-ITS23



CS-ITL23

MCCB Accessories



CS-DH250



CS-PAD250



CS-HASP250



CS-MOP250-240

Part Number	Description	To Suit Frame Size
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Handles - Direct and Extended

CS-DH250	DIRECT MOUNT HANDLE TO 250A	1
CS-DH630	DIRECT MOUNT HANDLE TO 400/630A	2
CS-DH800	DIRECT MOUNT HANDLE 800A	3
CS-DH1600	DIRECT MOUNT HANDLE 1000/1250/1600A	4
CS-EH250	EXTENDED HANDLE & SHAFT TO 250A	1
CS-EH630	EXTENDED HANDLE & SHAFT 400/630A	2
CS-EH800	EXTENDED HANDLE & SHAFT 800A	3
CS-EH1600	EXTENDED HANDLE & SHAFT 1000/1250/1600A	4

Locking Devices - Fixed & Removable

CS-PAD250	HANDLE LOCK REMOVABLE TO 250A	1
CS-PAD630	HANDLE LOCK REMOVABLE 400/630A	2
CS-PAD800	HANDLE LOCK REMOVABLE 800A	3
CS-PAD1600	HANDLE LOCK REMOVABLE 1000/1250/1600A	4
CS-HASP250	HANDLE LOCK FIXED TO 250A	1
CS-HASP630	HANDLE LOCK FIXED 400/630A	2
CS-HASP800	HANDLE LOCK FIXED 800A	3
CS-HASP1600	HANDLE LOCK FIXED 1000/1250/1600A	4

Motor Operators

CS-MOP250-24	MOTOR OP2 TO 250A 24VDC	1
CS-MOP250-110	MOTOR OP2 TO 250A 110VAC/DC	1
CS-MOP250-230	MOTOR OP2 TO 250A 230VAC/DC	1
CS-MOP630-24	MOTOR OP3 400/630A 24VDC	2
CS-MOP630-110	MOTOR OP3 400/630A 110VAC/DC	2
CS-MOP630-230	MOTOR OP3 400/630A 230VAC/DC	2
CS-MOP800-24	MOTOR OP4 800A 24VDC	3
CS-MOP800-110	MOTOR OP4 800A 110VAC/DC	3
CS-MOP800-230	MOTOR OP4 800A 230VAC/DC	3

Terminals - Front Connection Spreaders (supplied in sets x 3)

CS-STUB250	STUB FC TO 250A (set 3 x)	1
CS-STUB630	STUB FC 400/630A (set 3 x)	2
CS-STUB800	STUB FC 800A (set 3 x)	3

Terminals - Inner & Extended Box (supplied in sets x 3)

CS-BOXT250	BOX TERM TO 250A (set 3 x)	1
CS-BOXT630	BOX TERM 400/630A (set 3 x)	2
CS-BOXT-EXT630	BOX TERM 400/630A (set 3 x)	2
CS-BOXT-EXT800	BOX TERM 800A (set 3 x)	3

Terminals - Busbar Connection (supplied in sets x 3)

CS-STUB1600	STUB B/B 1600A (set 3 x)	4
CS-STUBVERT1600	STUB B/B VERT 1600A (set 3 x)	4

Mechanical Interlock

CS-MIT1600	INTERLOCK TO SUIT 1000/1250/1600	4
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MCCB Characteristics Curves

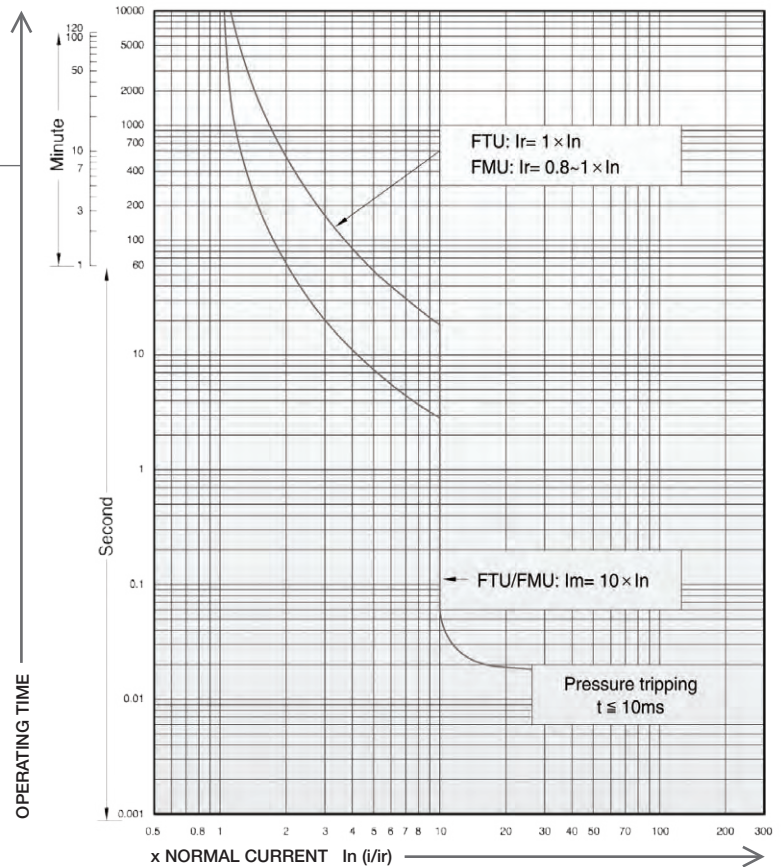
Circuit Breakers with Thermal-Magnetic Trip Units

F50D100

FTU

FMU

40~100A



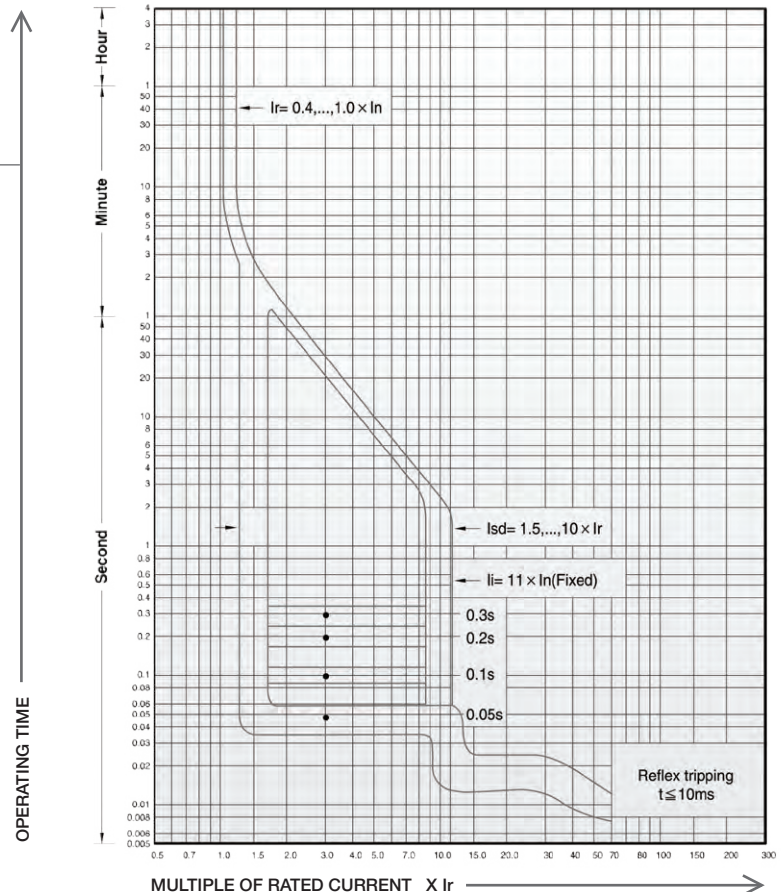
Circuit Breakers with Electronic Trip Unit (ETS)

F50D100 to K65

ETS23

ETS33

ETS43

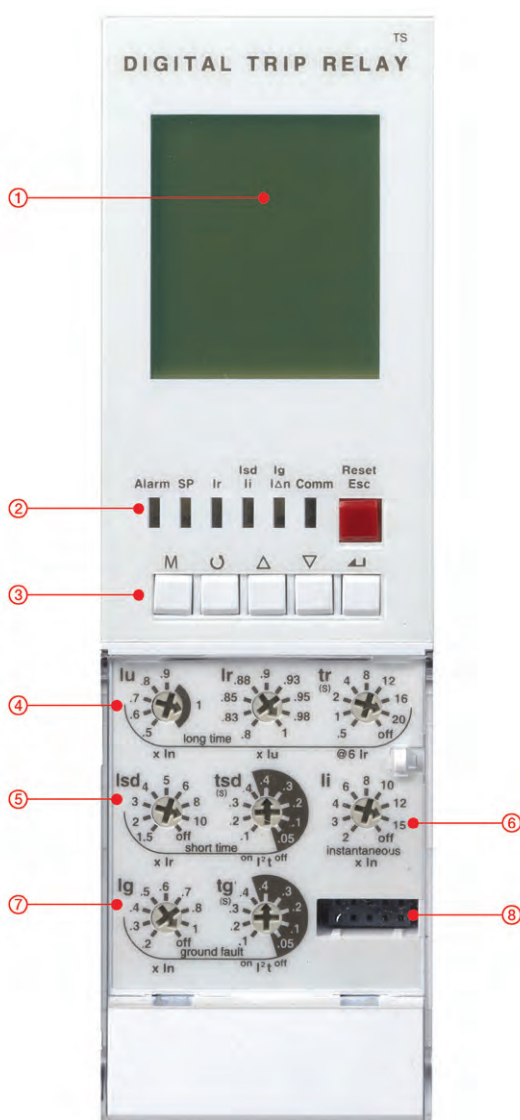


MCCB's for Power Distribution up to 1600A

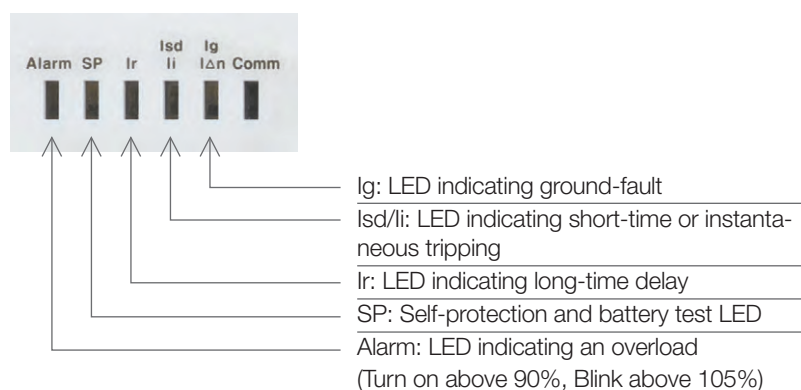
A type: Ammeter type

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> > Overload protection
Long-time delay
Thermal | <ul style="list-style-type: none"> > High-performance and high-speed MCU built-in Accurate measurement with tolerance of 1.0% | <ul style="list-style-type: none"> > Communication
Modbus/RS485
Profibus-DP |
| <ul style="list-style-type: none"> > Short-circuit protection
Short-time delay / Instantaneous
I²t On/Off optional (for short-time delay) | <ul style="list-style-type: none"> > Fault recording
Records Max. up to 10 fault information about fault type, fault phase, fault data, occurrence time of fault | <ul style="list-style-type: none"> > 3 DO (Digital Output)
Fixed |
| <ul style="list-style-type: none"> > Ground fault protection
I²t On/Off optional | <ul style="list-style-type: none"> > SBO (Select Before Operation)
High reliability for control and setting change method | |
| <ul style="list-style-type: none"> > Realisation of protective coordination by ZSI (Zone Selective Interlocking) | | |

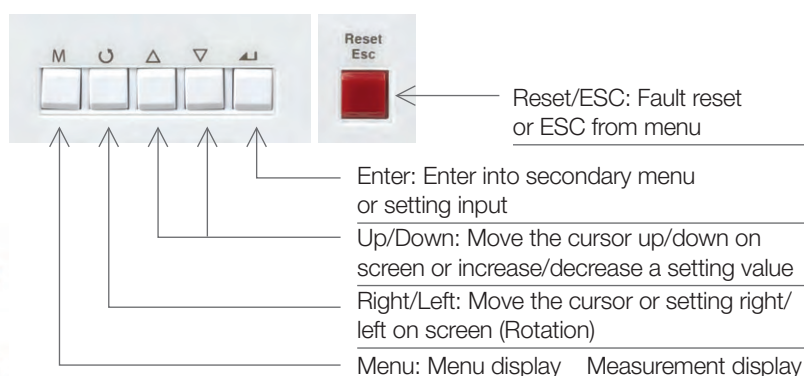
Configuration



- 1 | LCD: Indication of measurement and information
- 2 | LED: Indication of trip info. and overload state



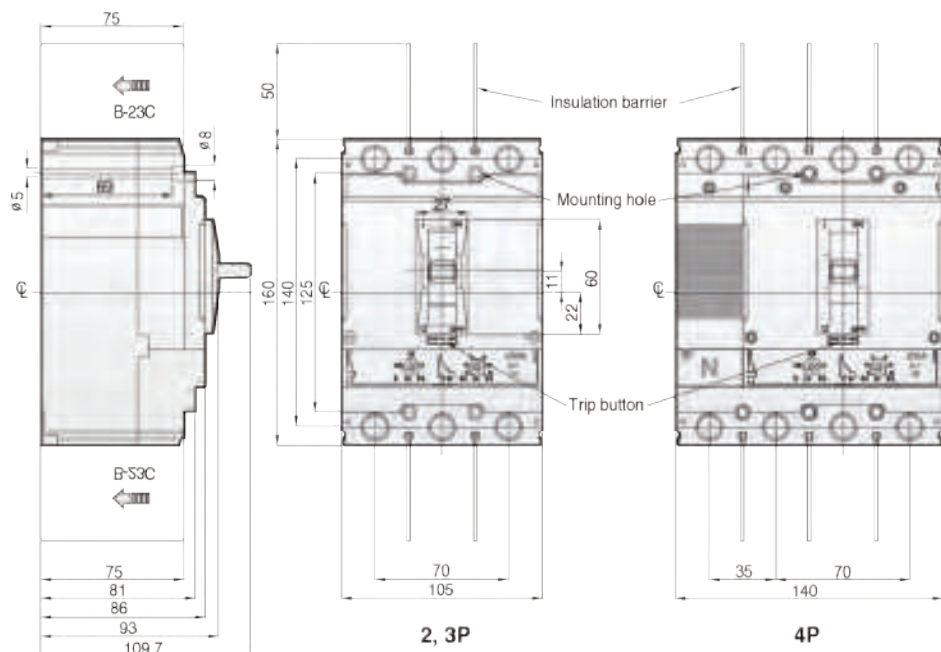
- 3 | Key: Move to menu or reset



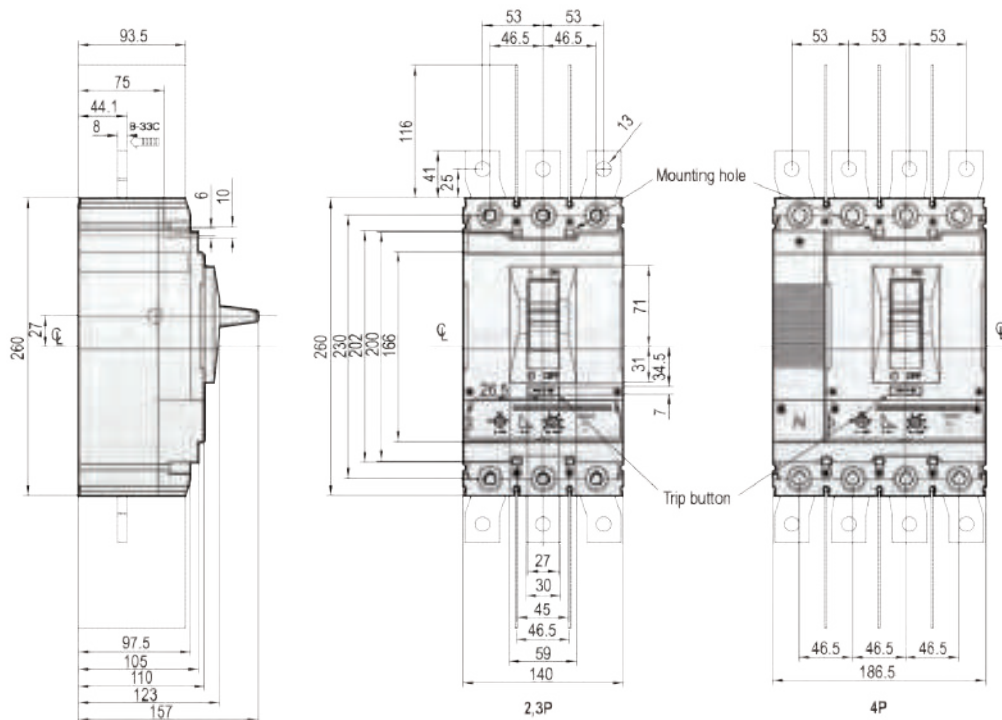
- 4 | lu, Ir: Long-time current setting, tr: Long-time tripping delay setting
- 5 | Isd: Short-time current setting, tsd: Short-time tripping delay setting
- 6 | Ii: Instantaneous current setting
- 7 | Ig: Ground fault current setting, tg: Ground fault tripping delay setting
- 8 | Test terminal: OCR test terminal (Connected with OCR tester)

MCCB's | Dimensional Details

100/160/250A | MCCB (mm)

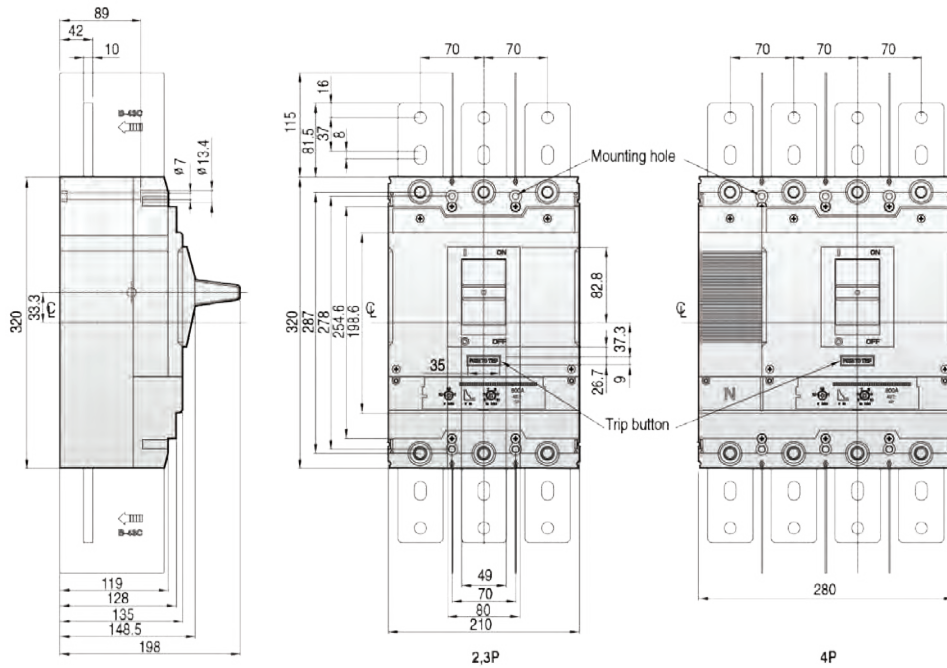


400/630A | MCCB (mm)

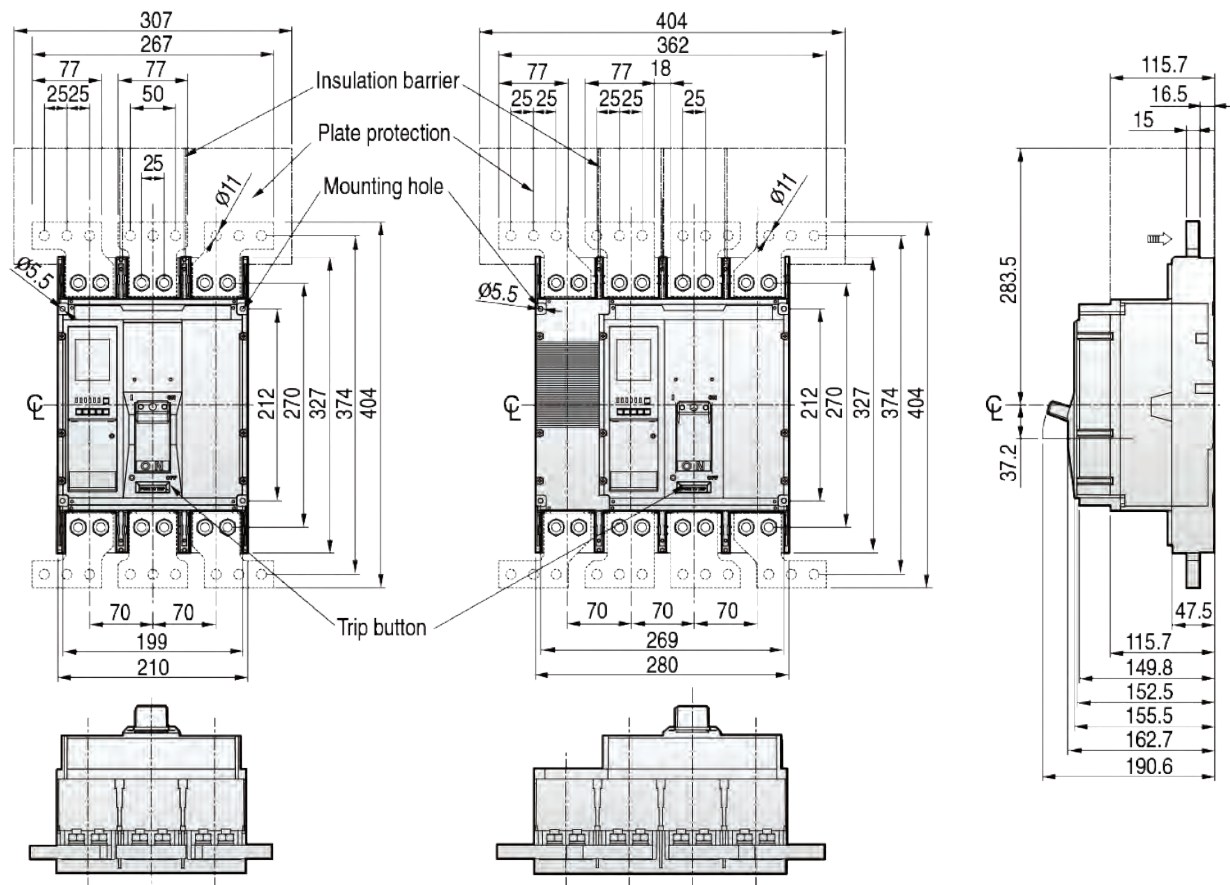


MCCB's | Dimensional Details

800A | MCCB (mm)



1000/1250/1600A | Front Type Busbar | MCCB (mm)



MCCB Chassis

Features

- > To suit MCCB's frame Size 1 from 32-250A
- > Complies to AS/NZS61439-2
- > Top and Bottom fed

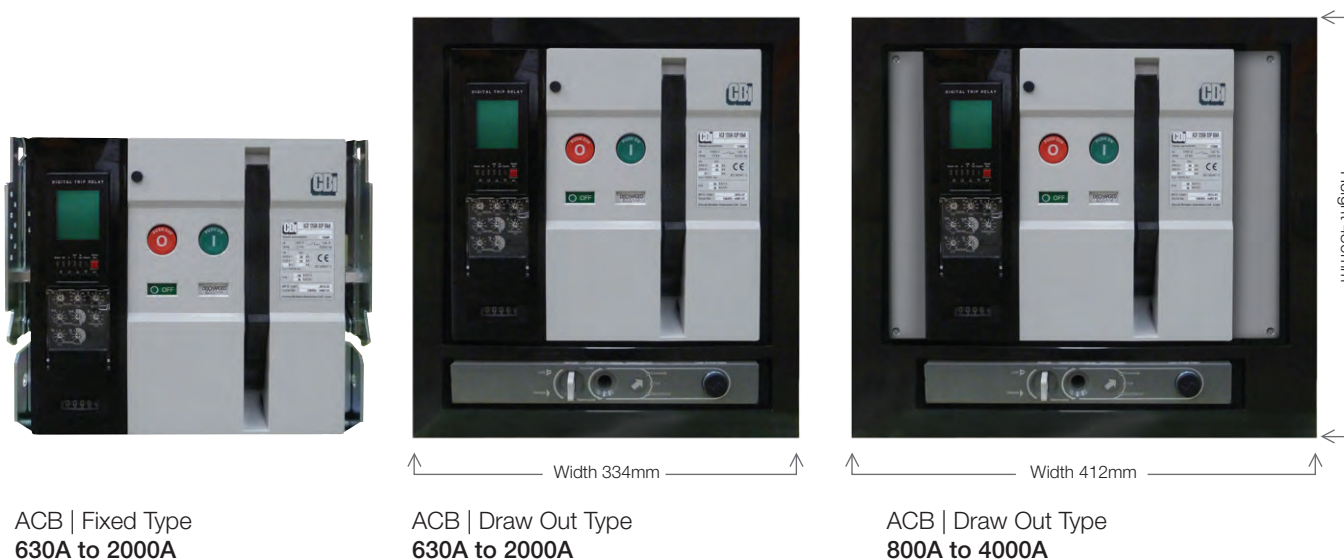
- > Busbar fully insulated
- > Rated @50kA for 0.1 second
(Fully tested and certificates available)

Part Number	Description	To Suit Frame Size
Single Sided Chassis 3 Pole 800A 50kA for 0.1 second		
SS80003	800A 36kA 3 POLE S/SIDED CHASSIS	1
SS80006	800A 36kA 6 POLE S/SIDED CHASSIS	1
SS80009	800A 36kA 9 POLE S/SIDED CHASSIS	1
SS80012	800A 36kA 12 POLE S/SIDED CHASSIS	1
SS80015	800A 36kA 15 POLE S/SIDED CHASSIS	1
SS80018	800A 36kA 18 POLE S/SIDED CHASSIS	1
SS80021	800A 36kA 21 POLE S/SIDED CHASSIS	1
SS80024	800A 36kA 24 POLE S/SIDED CHASSIS	1
SS80030	800A 36kA 30 POLE S/SIDED CHASSIS	1
SS80036	800A 36kA 36 POLE S/SIDED CHASSIS	1
Double Sided Chassis 3 Pole 800A 50kA for 0.1 second		
DS80006	800A 36kA 6 POLE D/SIDED CHASSIS	1
DS80012	800A 36kA 12 POLE D/SIDED CHASSIS	1
DS80018	800A 36kA 18 POLE D/SIDED CHASSIS	1
DS80024	800A 36kA 24 POLE D/SIDED CHASSIS	1
DS80030	800A 36kA 30 POLE D/SIDED CHASSIS	1
DS80036	800A 36kA 36 POLE D/SIDED CHASSIS	1
DS80042	800A 36kA 42 POLE D/SIDED CHASSIS	1
DS80048	800A 36kA 48 POLE D/SIDED CHASSIS	1
DS80060	800A 36kA 60 POLE D/SIDED CHASSIS	1
DS80072	800A 36kA 72 POLE D/SIDED CHASSIS	1

NOTE | All supports are equal distances over entire range from 6 to 72 pole

The New CBI Air Circuit Breakers

High breaking capacities,
fully optioned & optimised
panel space.



With a full range of accessories, over-current relays and connection methods CBI offer the complete solution for most applications in power distribution.

CBI's ACB provides you with total solutions with our advanced trip relay for measurement, diagnostics, analysis and communications, also with advanced protective functions for absolute protective co-ordination and power monitoring system.

A flexible package offers flexible solutions, separate cradle's selection of OCR to suit, accessories to ensure optimum selection process.

Two frame sizes from 630 to 4000A in both fixed and draw-out configuration. CBI ACB's are fitted with a large number of standard accessories. The two frame sizes have overlapping ratings, thus allowing for optimised selection and space savings.

ACB's for Power Distribution

Electrical Characteristics



Type			ACB630	ACB800	ACB1000	ACB1250	ACB1600
Ampere frame	(AF)		630	800	1000	1250	1600
Rated current, (A)	(In max)	at 40°C	200 400 630	400 630 800	1000	1250	1600
Setting Current (A)	Control trip relay (... x In max)		(0.4 ~ 1.0) x In max				
Rated current of neutral pole (A)			400 630	400 630 800	1000	1250	1600
Rated insulation voltage (V)	(Ui)		1000				
Rated operating voltage (V)	(Ue)		690				
Rated impulse withstand voltage (kV)	(Uimp)		12				
Frequency (Hz)			50/60				
Number of Poles (P)			3, 4				
Rated breaking capacity (kA sym)	IEC 60947-2 (Icu) KS C 4620	220/230/380/415V	65				
AC50/60Hz		460/480/500V	65				
		550/600/690V	50				
Rated service breaking capacity (kA) (Ics)		... % x Icu	100%				
Rated making capacity (kA peak)	IEC 60947-2 (Icu) KS C 4620	220/230/380/415V	143				
AC50/60Hz		460/480/500V	143				
		550/600/690V	105				
Rated short-time withstand current (kA)	(Icw)	1 sec	50				
		2 sec	42				
		3 sec	36				
Operating time (ms)		Max. total breaking time	40				
		Max. closing time	80				
Connections	Draw-out/Fixed	Horizontal connection	●				
		Vertical connection	○				
		Front connection	○				
		Mixed connection	○				
Life cycle (time)	Mechanical	Without maintenance	20,000				
		Without maintenance	30,000				
	Electrical	Without maintenance	5,000				
		Without maintenance	10,000				
Weight (kg)	Draw-out type	Main body	63/74				
(3P/4P)		(with cradle)	61/72				
		Cradle only	29/32				
	Fixed type	Motor charging type	34/44				
		Manual charging type	32/42				
External dimensions (mm)	Draw-out	3P	430 x 334 x 375				
(H x W x D)	type	4P	430 x 419 x 375				
	Fixed type	3P	300 x 300 x 295				
	4P		300 x 385 x 295				
Trip relay			N, A, P type				
Certificate & Approval			KS / KEMA / KERI / GOST				
Marine Classification			LR, ABS, DNV, KR, BV, GL, RINA, NK				

● Standard / ○ Option



ACB's for Power Distribution

Electrical Characteristics



Type				ACB2000	ACB2500	ACB3200	ACB4000
Ampere frame		(AF)		2000	2500	3200	4000
Rated current, (A)		(In max)	at 40°C	2000	2500	3200	4000
Setting Current (A)		Control trip relay (... x In max)		(0.4 ~ 1.0) x In max			
Rated current of neutral pole (A)				2000	2500	3200	4000
Rated insulation voltage (V)		(Ui)		1000			
Rated operating voltage (V)		(Ue)		690			
Rated impulse withstand voltage (kV)		(Uimp)		12			
Frequency (Hz)				50/60			
Number of Poles (P)				3, 4			
Rated breaking capacity (kA sym)		IEC 60947-2	220/230/380/415V	70	85		
AC50/60Hz		(Icu)	460/480/500V	70	85		
		KS C 4620	550/600/690V	65	85		
Rated service breaking capacity (kA) (Ics)			... % x Icu	100%			
Rated making capacity (kA peak)		IEC 60947-2	220/230/380/415V	154	187		
AC50/60Hz		(Icu)	460/480/500V	154	187		
		KS C 4620	550/600/690V	143	187		
Rated short-time withstand current (kA)		(Icw)	1 sec	65	85		
			2 sec	55	75		
			3 sec	50	65		
Operating time (ms)			Max. total breaking time	40			
			Max. closing time	80			
Connections		Draw-out/Fixed	Horizontal connection	—	●	●	○
			Vertical connection	●	○	○	●
			Front connection	—	○	○	—
			Mixed connection	—	○	○	—
Life cycle (time)		Mechanical	Without maintenance	15,000			
			Without maintenance	20,000			
		Electrical	Without maintenance	5,000			
			Without maintenance	10,000			
Weight (kg)		Draw-out type	Main body	70/85	87/103	87/103	104/147
(3P/4P)			(with cradle)	68/83	85/101	85/101	102/145
			Cradle only	33/40	44/50	44/50	58/70
		Fixed type	Motor charging type	38/47	44/55	44/55	63/100
			Manual charging type	36/45	42/53	42/53	61/98
External dimensions (mm)		Draw-out	3P	430x334x375	430 x 412 x 375		
(H x W x D)		type	4P	430x419x375	430 x 527 x 375		
		Fixed type	3P	300x300x295	300 x 378 x 295		
		4P		300x385x295	300 x 493 x 295		
Trip relay				N, A, P type			
Certificate & Approval				KS / KEMA / KERI / GOST			
Marine Classification				LR, ABS, DNV, KR, BV, GL, RINA, NK			

● Standard / ○ Option

ACB Air Circuit Breakers

Draw-out Type



Features | Standard Accessories

- | | | |
|--|--|---|
| <ul style="list-style-type: none"> > 3N/O + 3N/C Auxiliaries fitted > Opening and Closing coil
(240VAC/ DC Standard,
other voltages upon request) > Door Frame | <ul style="list-style-type: none"> > Operations Counter > Motor Operator
(240VAC/DC Standard,
other voltages upon request) > Lifting Hooks | <ul style="list-style-type: none"> > “A” Ammeter Type OCR as
standard (Type P & S non-standard) > Safety Shutters > Position Indicator > Cradle |
|--|--|---|

Part Number	Description	Rated Current (A)	Rated Range (A)	kA @ 415V	No. of Poles
-------------	-------------	-------------------	-----------------	-----------	--------------

Draw-Out Type ACB's

ACB630CMD	630A 3 POLE 65kA DRAWOUT ACB + A TYPE OCR	630	315-630	65	3
ACB630CMD4	630A 4 POLE 65kA DRAWOUT ACB + A TYPE OCR	630	315-630	65	4
ACB800CMD	800A 3 POLE 65kA DRAWOUT ACB + A TYPE OCR	800	400-800	65	3
ACB800CMD4	800A 4 POLE 65kA DRAWOUT ACB + A TYPE OCR	800	400-800	65	4
ACB1000CMD	1000A 3 POLE 65kA DRAWOUT ACB + A TYPE OCR	1000	500-1000	65	3
ACB1000CMD4	1000A 4 POLE 65kA DRAWOUT ACB + A TYPE OCR	1000	500-1000	65	4
ACB1250CMD	1250A 3 POLE 65kA DRAWOUT ACB + A TYPE OCR	1250	625-1250	65	3
ACB1250CMD4	1250A 4 POLE 65kA DRAWOUT ACB + A TYPE OCR	1250	625-1250	65	4
ACB1600CMD	1600A 3 POLE 65kA DRAWOUT ACB + A TYPE OCR	1600	800-1600	65	3
ACB1600CMD4	1600A 4 POLE 65kA DRAWOUT ACB + A TYPE OCR	1600	800-1600	65	4
ACB2000CMD	2000A 3 POLE 65kA DRAWOUT ACB + A TYPE OCR	2000	1000-2000	65	3
ACB2000CMD4	2000A 4 POLE 65kA DRAWOUT ACB + A TYPE OCR	2000	1000-2000	65	4
ACB2500CMD	2500A 3 POLE 85kA DRAWOUT ACB + A TYPE OCR	2500	1250-2500	85	3
ACB2500CMD4	2500A 4 POLE 85kA DRAWOUT ACB + A TYPE OCR	2500	1250-2500	85	4
ACB3200CMD	3200A 3 POLE 85kA DRAWOUT ACB + A TYPE OCR	3200	1600-3200	85	3
ACB3200CMD4	3200A 4 POLE 85kA DRAWOUT ACB + A TYPE OCR	3200	1600-3200	85	4
ACB4000CMD	4000A 3 POLE 85kA DRAWOUT ACB + A TYPE OCR	4000	2000-4000	85	3
ACB4000CMD4	4000A 4 POLE 85kA DRAWOUT ACB + A TYPE OCR	4000	2000-4000	85	4

Draw-Out Type Switch Disconnect - Non Auto

DIS1600CMD	1600A DISCONNECT NON AUTO 3 POLE	1600	N/A	N/A	3
DIS 2000CMD	2000A DISCONNECT NON AUTO 3 POLE	2000	N/A	N/A	3
DIS2500CMD	2500A DISCONNECT NON AUTO 3 POLE	2500	N/A	N/A	3
DIS3200CMD	3200A DISCONNECT NON AUTO 3 POLE	3200	N/A	N/A	3
DIS4000CMD	4000A DISCONNECT NON AUTO 3 POLE	4000	N/A	N/A	3

NOTE | 4 Pole available on Indent only

ACB Air Circuit Breakers

Fixed Type



Features | Standard Accessories

- | | |
|---|---|
| <ul style="list-style-type: none"> > 3N/O + 3N/C Auxiliaries fitted > Opening and Closing coil
(240VAC/DC Standard, other voltages upon request) > Motor Operator
(240VAC/DC Standard, other voltages upon request) | <ul style="list-style-type: none"> > Operations Counter > Door Frame > Lifting Hooks > "A" Ammeter Type OCR as standard
(Type P & S non-standard) |
|---|---|

Part Number	Description	Rated Current (A)	Rated Range (A)	kA @ 415V	No. of Poles
Fixed Type ACB's					
ACB630CMF	630A 3 POLE 65kA FIXED ACB + A TYPE OCR	630	315-630	65	3
ACB630CMF4	630A 4 POLE 65kA FIXED ACB + A TYPE OCR	630	315-630	65	4
ACB800CMF	800A 3 POLE 65kA FIXED ACB + A TYPE OCR	800	400-800	65	3
ACB800CMF4	800A 4 POLE 65kA FIXED ACB + A TYPE OCR	800	400-800	65	4
ACB1000CMF	1000A 3 POLE 65kA FIXED ACB + A TYPE OCR	1000	500-1000	65	3
ACB1000CMF4	1000A 4 POLE 65kA FIXED ACB + A TYPE OCR	1000	500-1000	65	4
ACB1250CMF	1250A 3 POLE 65kA FIXED ACB + A TYPE OCR	1250	625-1250	65	3
ACB1250CMF4	1250A 4 POLE 65kA FIXED ACB + A TYPE OCR	1250	625-1250	65	4
ACB1600CMF	1600A 3 POLE 65kA FIXED ACB + A TYPE OCR	1600	800-1600	65	3
ACB1600CMF4	1600A 4 POLE 65kA FIXED ACB + A TYPE OCR	1600	800-1600	65	4
ACB2000CMF	2000A 3 POLE 70kA FIXED ACB + A TYPE OCR	2000	1000-2000	70	3
ACB2000CMF4	2000A 4 POLE 70kA FIXED ACB + A TYPE OCR	2000	1000-2000	70	4
ACB2500CMF	2500A 3 POLE 85kA FIXED ACB + A TYPE OCR	2500	1250-2500	85	3
ACB2500CMF4	2500A 4 POLE 85kA FIXED ACB + A TYPE OCR	2500	1250-2500	85	4
ACB3200CMF	3200A 3 POLE 85kA FIXED ACB + A TYPE OCR	3200	1600-3200	85	3
ACB3200CMF4	3200A 4 POLE 85kA FIXED ACB + A TYPE OCR	3200	1600-3200	85	4
ACB4000CMF	4000A 3 POLE 85kA FIXED ACB + A TYPE OCR	4000	2000-4000	85	3
ACB4000CMF4	4000A 4 POLE 85kA FIXED ACB + A TYPE OCR	4000	2000-4000	85	4

Fixed Type Switch Disconnect - Non Auto

DIS1600CMF	1600A DISCONNECT NON AUTO 3 POLE	1600	N/A	N/A	3
DIS 2000CMF	2000A DISCONNECT NON AUTO 3 POLE	2000	N/A	N/A	3
DIS2500CMF	2500A DISCONNECT NON AUTO 3 POLE	2500	N/A	N/A	3
DIS3200CMF	3200A DISCONNECT NON AUTO 3 POLE	3200	N/A	N/A	3
DIS4000CMF	14000A DISCONNECT NON AUTO 3 POLE	4000	N/A	N/A	3

NOTE | 4 Pole available on Indent only

ACB Accessories

Part Number	Description
Shunt, Undervoltage and Closing coils	
CM-SHT-24	ACB SHUNT 24VDC
CM-SHT-110	ACB SHUNT 110VAC/DC
CM-SHT-230	ACB SHUNT 230VAC/DC
CM-SHT-400	ACB SHUNT 415VAC
CM-UVT-24	ACB UVT 24VDC
CM-UVT-110	ACB UVT 110VAC/DC
CM-UVT-230	ACB UVT 230VAC/DC
CM-UVT-400	ACB UVT 415VAC
CM-CC-24	ACB Closing coil 24VDC
CM-CC-110	ACB Closing coil 110VAC/DC
CM-CC-230	ACB Closing coil 230VAC/DC
CM-CC-400	ACB Closing coil 415VAC
Motor Operator	
CM-MOT-24	ACB MOTOR OP 24VAC/DC
CM-MOT-110	ACB MOTOR OP 110AC/DC
CM-MOT-230	ACB MOTOR OP 230VAC/DC
CM-MOT-400	ACB MOTOR OP 415VAC
Auxiliary Contacts	
CM-AUX5A5B	ACB AUX 5A5B
Locking Devices	
CM-LOCK	ACB ON-OFF BUTTON LOCK
CM-KEYLOCK1	ACB KEYLOCK 1x ACB
Door Frames	
CM-DOORF	ACB DOOR FRAME DF
CM-COUNTER	ACB COUNTER
Cradles	
CM-CRADLE2000	ACB CRADLE 2000A
CM-CRADLE2500	ACB CRADLE 2500A
CM-CRADLE3200	ACB CRADLE 3200A
CM-CRADLE4000	ACB CRADLE 4000A
Over Current Relays - OCR'S	
CM-OCR	ACB OCR AG5 AMMETER TYPE L,S,I,G,P
CM-OCRP	ACB OCR PC6 POWER METER W/- COMMS L,S,I,G,P,C
CM-OCRS	ACB OCR SC6 SUPREME METER W/- COMMS L,S,I,P,C,

NOTE | Cradles can be supplied separately for ease and speed of installation.
 "A" type OCR's supplied as standard, P/S are Indent Items



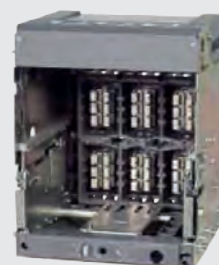
CM-SHT-24



CM-MOT-24



CM-LOCK



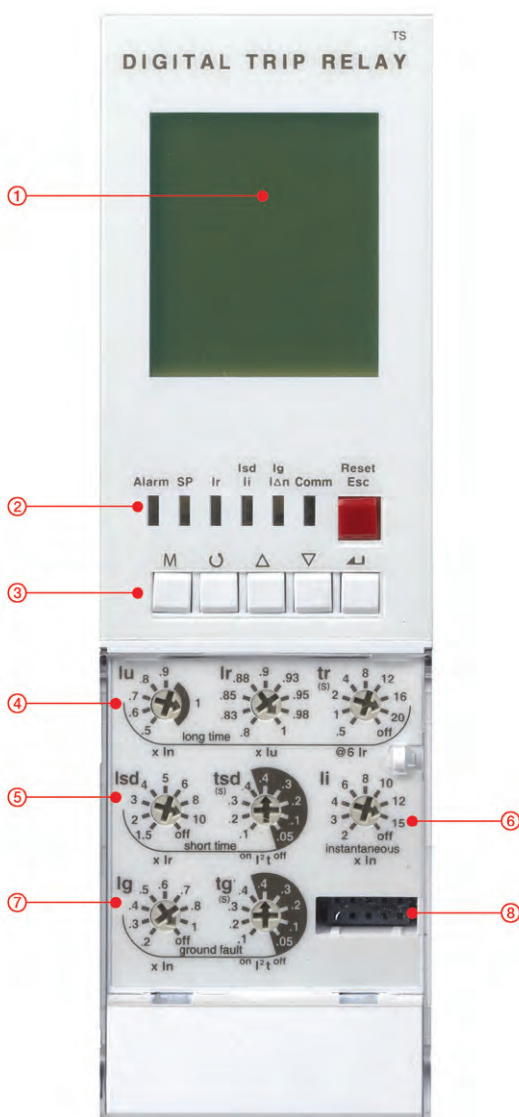
CM-CRADLE2000

ACB Over Current Trip Relay

A type: Ammeter type

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> > Overload protection
Long-time delay
Thermal | <ul style="list-style-type: none"> > High-performance and high-speed MCU built-in Accurate measurement with tolerance of 1.0% | <ul style="list-style-type: none"> > Communication
Modbus/RS485
Profibus-DP |
| <ul style="list-style-type: none"> > Short-circuit protection
Short-time delay / Instantaneous
I²t On/Off optional (for short-time delay) | <ul style="list-style-type: none"> > Fault recording
Records Max. up to 10 fault information about fault type, fault phase, fault data, occurrence time of fault | <ul style="list-style-type: none"> > 3 DO (Digital Output)
Fixed |
| <ul style="list-style-type: none"> > Ground fault protection
I²t On/Off optional | <ul style="list-style-type: none"> > SBO (Select Before Operation)
High reliability for control and setting change method | |
| <ul style="list-style-type: none"> > Realisation of protective coordination by ZSI (Zone Selective Interlocking) | | |

Configuration



- 1 | LCD: Indication of measurement and information
- 2 | LED: Indication of trip info. and overload state



- Ig: LED indicating ground-fault
- Isd/Ii: LED indicating short-time or instantaneous tripping
- Ir: LED indicating long-time delay
- SP: Self-protection and battery test LED
- Alarm: LED indicating an overload (Turn on above 90%, Blink above 105%)

- 3 | Key: Move to menu or reset

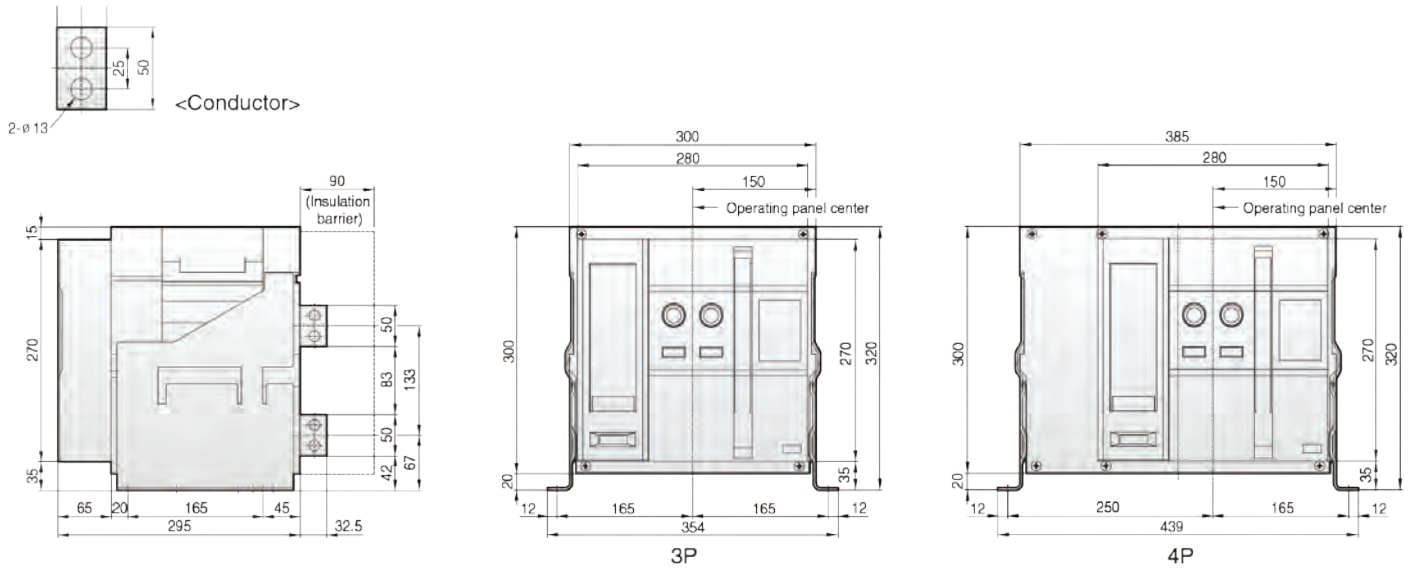


- Reset/ESC: Fault reset or ESC from menu
- Enter: Enter into secondary menu or setting input
- Up/Down: Move the cursor up/down on screen or increase/decrease a setting value
- Right/Left: Move the cursor or setting right/left on screen (Rotation)
- Menu: Menu display Measurement display

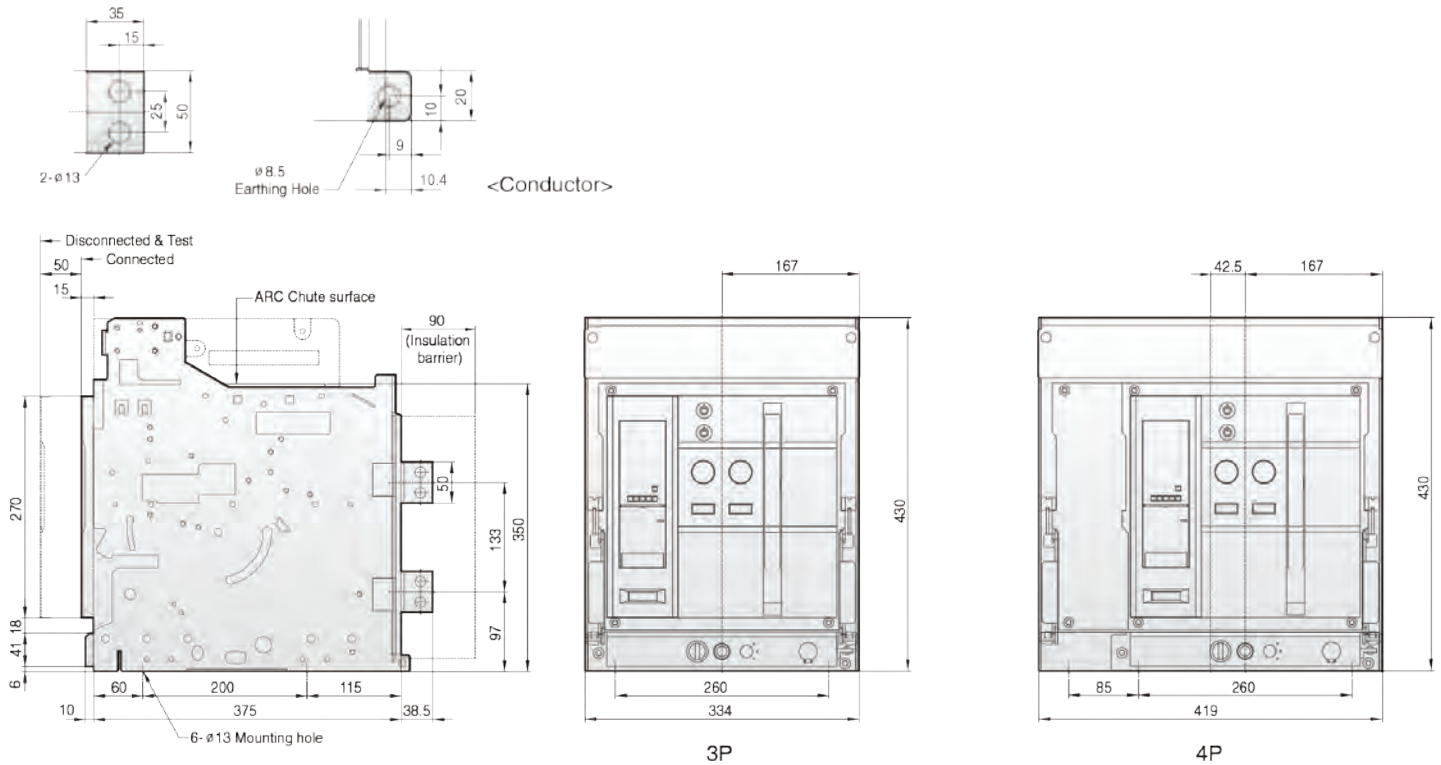
- 4 | lu, lr: Long-time current setting, tr: Long-time tripping delay setting
- 5 | Isd: Short-time current setting, tsd: Short-time tripping delay setting
- 6 | li: Instantaneous current setting
- 7 | Ig: Ground fault current setting, tg: Ground fault tripping delay setting
- 8 | Test terminal: OCR test terminal (Connected with OCR tester)

ACB's | Dimensional Details

Fixed Type 630 to 2000A (ACB630CMF to ACB2000CMF) | ACB (mm)

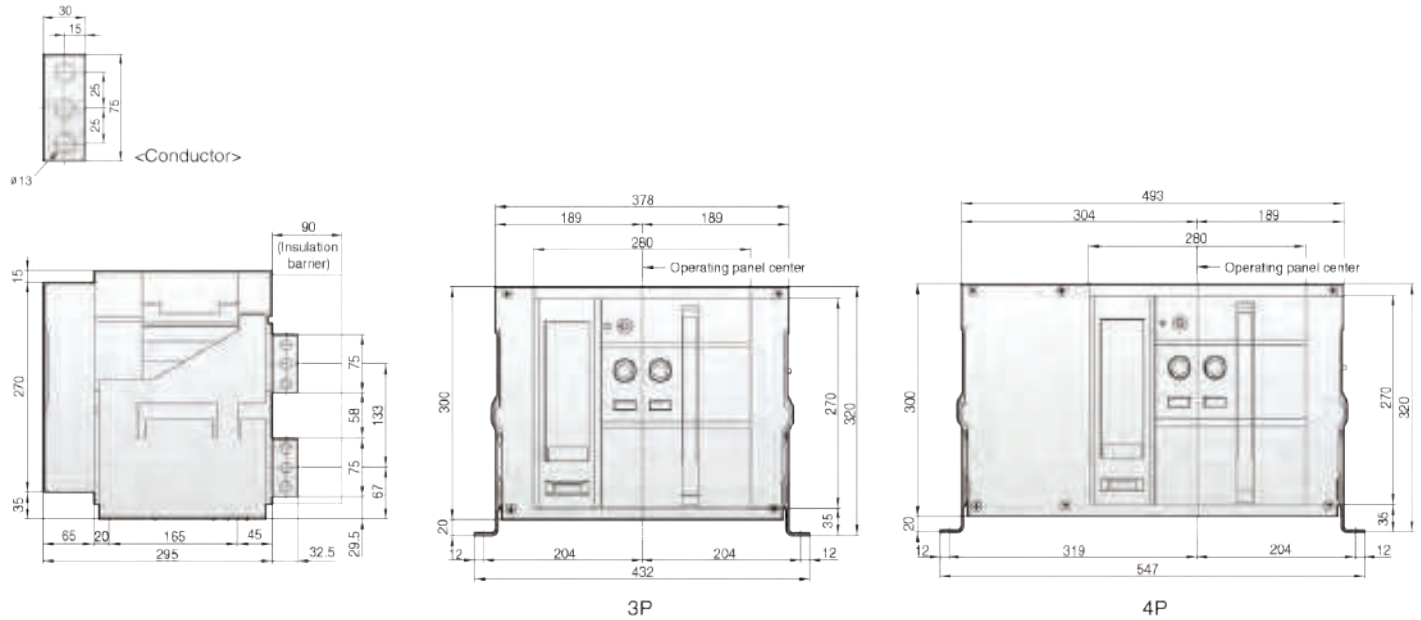


Draw-Out Type 630 to 2000A (ACB630CMD to ACB2000CMD) | ACB (mm)

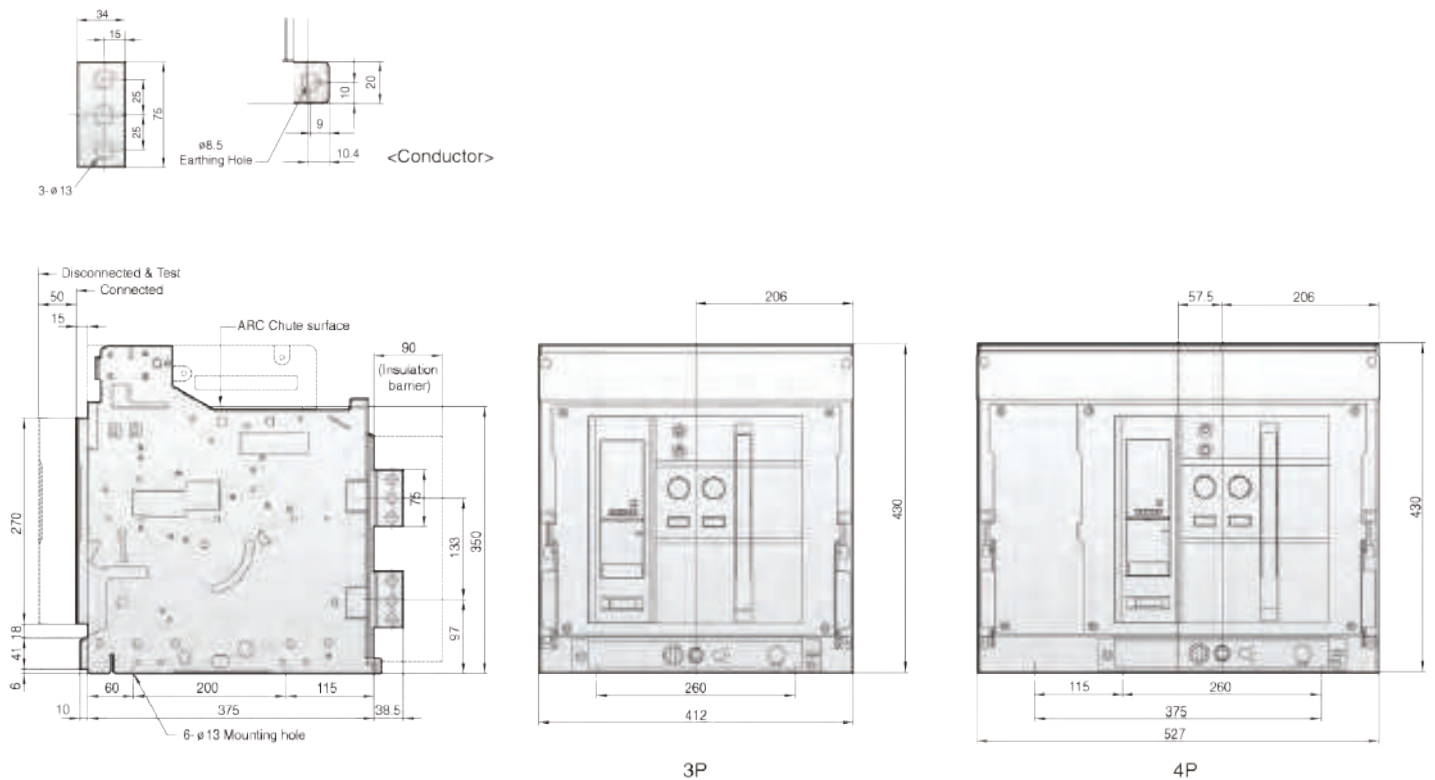


ACB's | Dimensional Details

Fixed Type 2500 to 4000A (ACB2500CMF to ACB4000CMF) | ACB (mm)

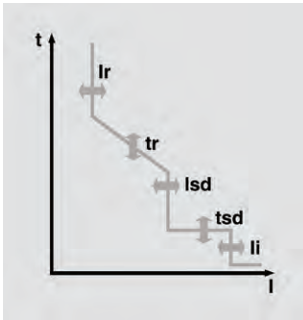


Draw-Out Type 2500 to 4000A (ACB2500CMD to ACB00CMD) | ACB (mm)



ACB's for Power Distribution

ACB Protection



Long Time

Current setting (A)	$I_u = I_n \times \dots$	0.5	0.6	0.7	0.8	0.9	1.0		
	$I_r = I_u \times \dots$	0.8	0.83	0.85	0.88	0.9	0.93	0.95	0.98
Time delay (s)	$t_r @ (1.5 \times I_r)$	12.5	25	50	100	200	300	400	500
Accuracy: $\pm 15\%$ or below	$t_r @ (6.0 \times I_r)$	0.5	1	2	4	8	12	16	20
100ms	$t_r @ (7.2 \times I_r)$	0.34	0.69	1.38	2.7	5.5	8.3	11	13.8

Short Time

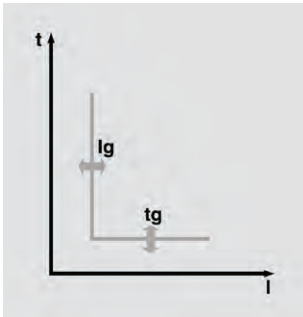
Current setting (A)	$I_{sd} = I_r \times \dots$	1.5	2	3	4	5	6	8	10
Accuracy: $\pm 10\%$									Off
Time delay (s)	t_{sd}	0.05	0.1	0.2	0.3	0.4			
@ $10 \times I_r$			0.1	0.2	0.3	0.4			
	Min. Trip Time(ms)	20	80	160	260	360			
	Max. Trip Time(ms)	80	140	240	340	440			

Instantaneous

Current setting (A)	$I_i = I_n \times \dots$	2	3	4	6	8	10	12	15
Tripping time									Off
									below 50ms

Ground Fault

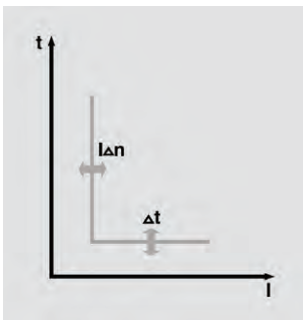
Pick-up (A)									
Accuracy: $\pm 10\%$ ($I_g \geq 0.4 I_n$)	$I_g = I_n \times \dots$	0.2	0.3	0.4	0.5	0.6	0.7	0.8	1.0
Accuracy: $\pm 20\%$ ($I_g \leq 0.4 I_n$)									Off
	t_g	0.05	0.1	0.2	0.3	0.4			
			0.1	0.2	0.3	0.4			
Time delay (s)	Min. Trip Time(ms)	20	80	160	260	360			
@ $1 \times I_n$	Max. Trip Time(ms)	80	140	240	340	440			



Earth leakage (option)

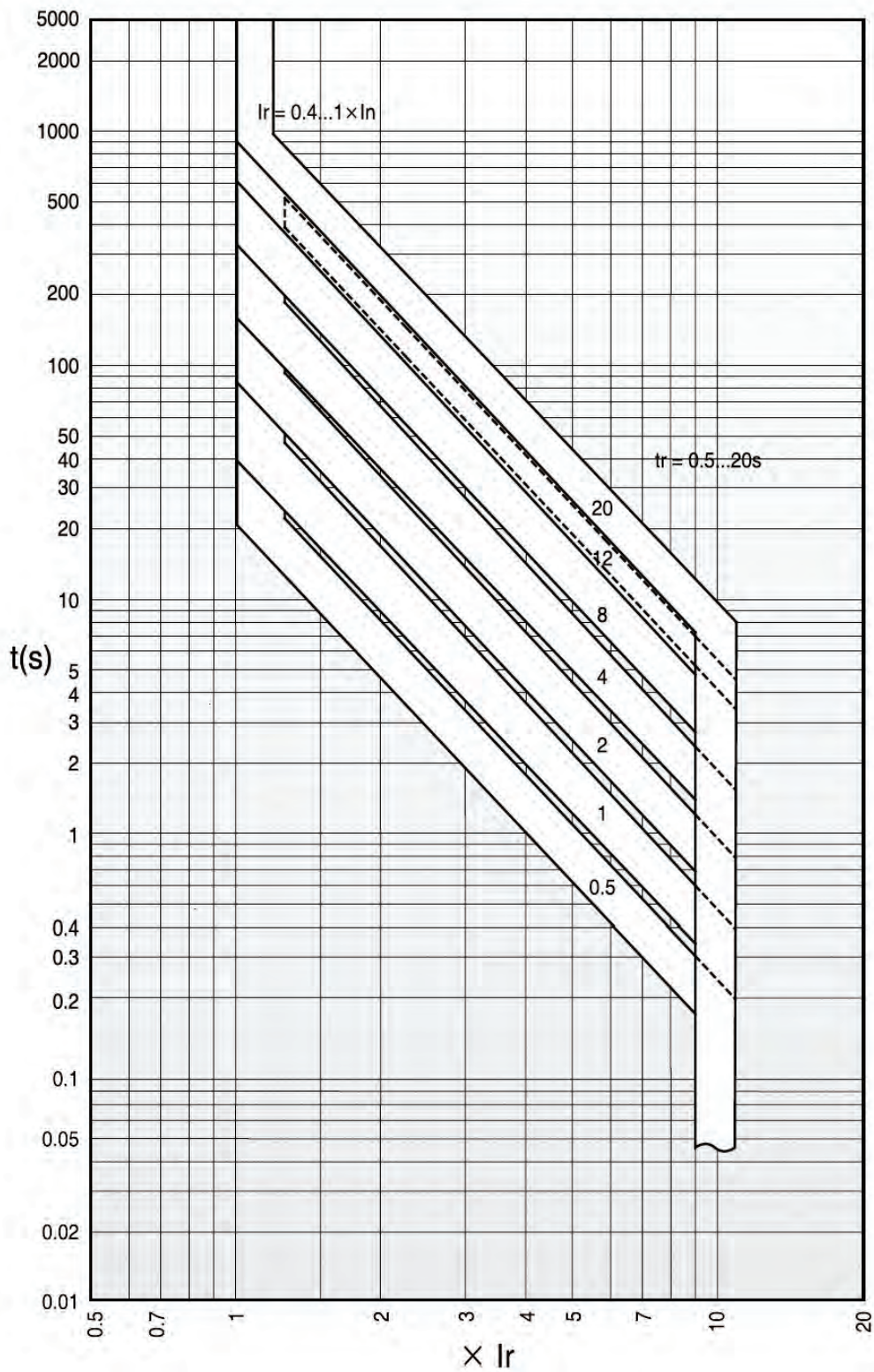
Current setting (A)	$I_{\Delta n}$	0.5	1	2	3	5	10	20	30
Time delay (ms)	Alarm Time(ms)	140	230	350	800	950			
Accuracy: $\pm 15\%$	Trip Time(ms)	140	230	350	800				

Note | Earth leakage function is available with ZCT or external CT



ACB Characteristic Curves

Air Circuit Breakers Long-Time Delay



Order Sheet

For faster quote processing, please use the following request for ordering sheet. For each section, check the applicable box or enter value corresponding to your choice.

Receipt			Order date			Distributor name		
Project			Contractor					
Delivery place			Delivery date		PNL Maker			

ACB main body	Type of ACB											Quantity																																																																																																																																	
	Frame size	☐ (630-2000AF)			☐ (2000-4000AF)			☐ (4000-5000AF)			☐ (4000-6300AF)																																																																																																																																		
	Ratings	AF																																																																																																																																											
	Rated current (CT)	A																																																																																																																																											
	Trip relay	☐ NO ☐ YES																																																																																																																																											
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		Note) - Standard function: Ground fault detection - Communication function is not available under no control voltage - AN, AS type is not available for S Meter - P(Power), S(Supreme) Meter is also available for generator protection - P, S Meter needs the accessory(VDM) for voltage measurement																																																																																																																																											
No. of poles		☐ 3-pole						☐ 4-pole																																																																																																																																					
Installation type	☐ Draw-out type						☐ Fixed type																																																																																																																																						
Closing type	☐ Manual closing ☐ Electrical closing						☐ Standard type (R, S, T, N) ☐ Reverse phase type (N, R, S, T)																																																																																																																																						
	☐ Charge method: Charging completion contact(1b) is basically installed ☐ Motor operating voltage						☐ Standard type (OFF-Charge method) ☐ Rapid auto-reclosing type (ON-Charge method)																																																																																																																																						
Closing voltage	☐ AC/DC 100V-130V		☐ DC 125V		☐ AC/DC 200V-250V		☐ DC 24V-30V		☐ DC 48V-60V		☐ AC 380V-480V		☐ AC 48V																																																																																																																																
Trip voltage	☐ AC/DC 100V-130V		☐ DC 125V		☐ AC/DC 200V-250V		☐ DC 24V-30V		☐ DC 48V-60V		☐ AC 380V-480V		☐ AC 48V																																																																																																																																

ACB cradle	Cradle type	☐ No safety shutter (E class)		☐ Safety shutter attachment (F class)	
	Terminal connection	☐ Manual connection		☐ Automatic connection	
Connections	☐ Horizontal ☐ Line: Horizontal, Load: Vertical		☐ Vertical ☐ Line: Vertical, Load: Horizontal		☐ Front connection ☐ Separate order/ User Installation

ACB accessory	Main body	Standard accessory	• Aux. contact(AX)	☐ Standard type (3a3b, Standard Installation)		☐ Extended type (5a5b)		☐ High capacity (5a5b)	
			• Key Lock(K1, K3)	☐ Single key, K1 (ON - Lock)		☐ Double key, K3 (ON - Lock)			
			• Undervoltage trip device (UVT, Instantaneous)	☐ AC/DC 100V-130V		☐ AC/DC 200V-250V		☐ DC 125V	
			• Mechanical operation contact (MOC), Door Interlock (DI)	☐ Non-attachment type		☐ Attachment type			
			• Mechanical Interlock (MI)	☐ Non-attachment type		☐ Attachment type			
			• Counter(C)	☐ Non-attachment type		☐ Attachment type			
			• Miss Insertion preventive device (MIP)	☐ Non-attachment type		☐ Attachment type			
			• Double shunt coil(SHT2)	☐ Non-attachment type		☐ Attachment type			
			• Ready-to-close switch(RCS)	☐ Non-attachment type		☐ Attachment type			
			• Trip alarm switch, Manual reset button(AL, MRB)	☐ Non-attachment type		☐ Attachment type			
ACB Cradle	Standard accessory	☐ Safety shutter lock(STL)		☐ Zero arc space(ZAS)					
Separate purchase	Main body mounting	Cradle mounting	• Key Interlock (K2, ON - Lock)	☐ ON/OFF Button Lock		☐ Temperature Alarm			
			• Cell switch(CL)	☐ 4c		☐ 8c			
			• Door Interlock(DI)	☐ Standard type (10a10b)		☐ High capacity(10a10b)			
			• Mechanical operation contact (MOC)	☐ Wire type (2 terminals)		☐ Wire type (3 terminals)			
			• Shortening b-contact (SBC, 4b Max)	☐ 2b		☐ 3b			
			• Miss Insertion preventive device (MIP)	☐ Non-attachment type		☐ Attachment type			
			• Cradle mounting block(CMB)	☐ Safety control cover(SC)					
			• Racking interlock(RI)	☐ Insulation barrier(IB)					
			• UVT time delay controller(UDC)	☐ AC/DC 100V-130V		☐ AC/DC 200V-250V		☐ DC 125V	
			• Door frame (DF)	☐ Condenser trip device (CTD)		☐ OCR tester			
• Dust cover(DC)	☐ Profibus-DP Comm.(PC)		☐ Temperature alarm(TM)		☐ Remote I/O(RCO)				

CBI's Range of Low Voltage Protection Devices



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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