

Meta-MEC  
**Low Voltage  
Circuit Breakers**



Electric Equipment



# MCCB & ELCB



## Low Voltage Circuit Breakers

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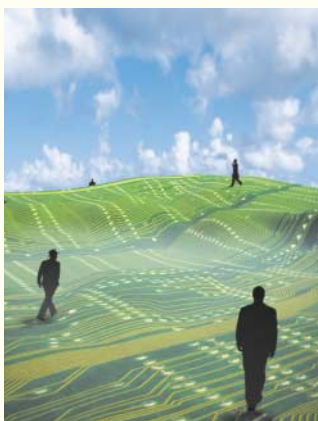
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# Environmental Policy and

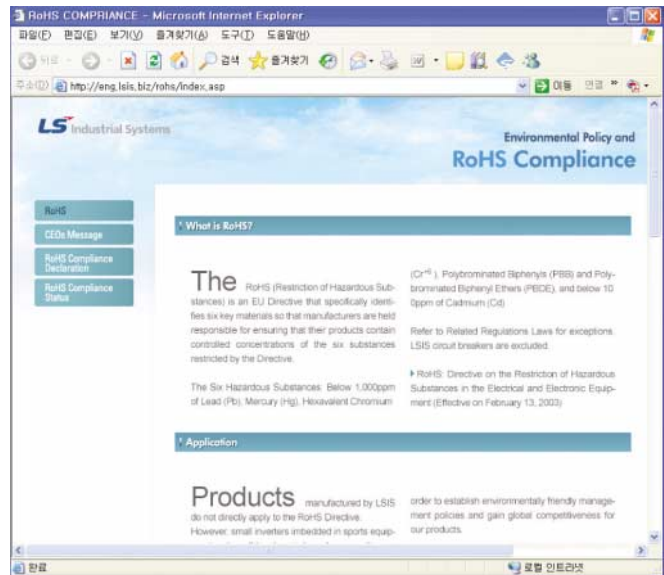
## RoHS Compliance

### What is RoHS?

The RoHS is an EU Directive that specifically identifies six key materials so that manufacturers are held responsible for Ensuring that their products contain controlled concentration of the six substances restricted by the Directive.

The six Hazardous Substances : Below 1,000ppm of Lead(Pb), Mercury(Hg), Hexaval-Ent Chromium(Cr+6), Polybrominated Biphenyls(PBB) and Polybrominated Biphenyl Ether(PBDE), and below 10 Oppm of Cadmium(Cd).

▶RoHS : Directive on the Restriction of Hazardous Substances in the Electronic Equipment (Effective on February 13,2003)



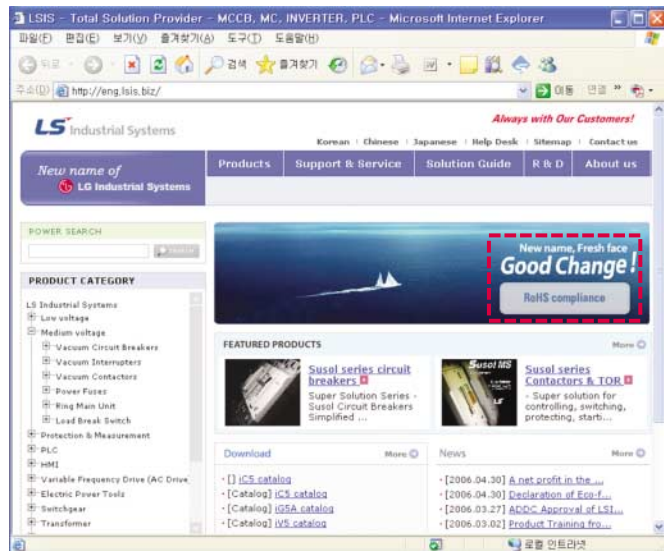
### Application

Products manufactured by LSIS do not directly apply to the RoHS Directive.

However, small inverters imbedded in sport equipment and small breakers in large home appliances can be indirectly applied to the Directive.

LSIS continues to comply with the RoHS directive in order to establish environmentally Friendly management policies and global competitiveness for our products.

According to the regulation, eight o the 10 WEEE products excluding 'medical equipment' and 'control systems' must be RoHS compliant.



# Declaration of RoHS Compliance

LS Industrial System Co.,Ltd  
 Yonsei Jaedan Severance Bldg.,84-11, Namdaemunno 5-ga,  
 Jung-gu, Seoul. 100-733, Korea (Manufacturer)

Do hereby confirm that

With relevance of the EU Directive 2002/95/EC of 27 January 2003 on the Restriction of the use of certain Hazardous Substances in electrical and electronic equipment –RoHS , our listed products do not contain any of the following banned substances listed below :

Lead  
 Mercury  
 Cadmium  
 Hexavalent Chromium  
 Polybrominated Biphenyls (PBB)  
 Polybrominated Diphenyl Ethers (PBDE)

The following products sold as of July 1, 2006 will be RoHS compliant.

## Products Note)

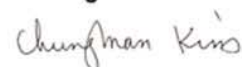
Molded Case Circuit Breaker (MCCB)  
 Earth Leakage Circuit Breaker (ELCB)  
 Magnetic Switch (MC,TOR)  
 Manual Motor Starter (MMS)  
 Protection & Measurement device  
 Programmable Logic Controller (PLC)  
 Variable Frequency Drive ( AC Driver)

**Note)** Please visit [www.lsis.biz](http://www.lsis.biz) and see "RoHS Compliance" menu to verify the specification of each product's "RoHS Compliance"

Place/Date : Korea/ April 4, 2006

**LS Industrial Systems**

President & CEO **Chung-Man KIM**



# General characteristics

## Overview | General chart

### Molded Case Circuit Breakers, MCCBs

AF Type	30AF	50AF	60AF	100AF	225AF	250AF	400AF	800AF	1200AF	1600AF
<b>ABE</b>		ABE53b 5kA	ABE63b 5kA	ABE103b 10kA	ABE203b 18kA		ABE403b 25kA	ABE803b 35kA		
<b>ABS</b>	ABS33b 5kA	ABS53b 10kA	ABS63b 10kA	ABS103b 25kA	ABS203b 25kA		ABS403b 35kA	ABS803b 50kA	ABS1003 65kA	ABS1203 65kA
<b>ABH</b>	ABH33b 10kA	ABH53b 25kA		ABH103b 35kA	ABH203b 35kA		ABH403b 50kA			
<b>ABL</b>							ABL403b 85kA	ABL803b 85kA		
<b>GB Thermal-magnetic adjustable</b>				GBN103 35kA GBH103 50kA GBL103 85kA		GBN203 35kA GBH203 50kA GBL203 85kA				
<b>GB Electronic adjustable</b>		GBL53E 85kA		GBL103E 85kA		GBL203E 85kA	GBN403E 35kA GBH403E 50kA	GBN803E 35kA GBH803E 50kA	ABS1203E 65kA	GBN1603E 65kA

- by three-pole type, ampere frame and breaking capacity at 415VAC.



Molded Case Circuit Breaker

Same Size



Earth Leakage Circuit Breaker

## Earth Leakage Circuit Breakers, ELCBs

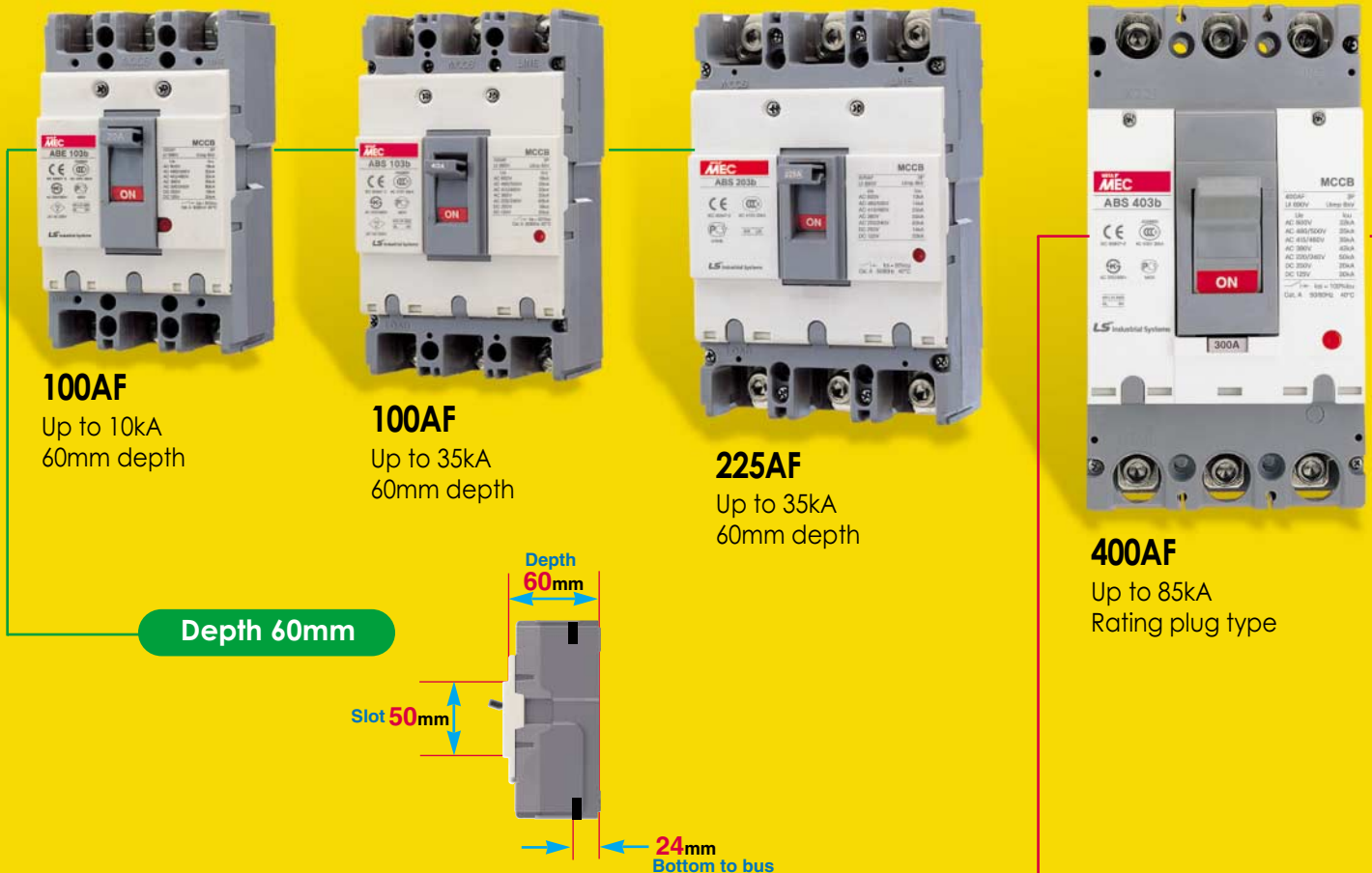
Type	AF	30AF	50AF	60AF	100AF	225AF	250AF	400AF	800AF	1200AF
EBE			EBE53b 5kA	EBE63b 5kA	EBE103b 10kA	EBE203b 18kA		EBE403b 25kA	EBE803b 35kA	
EBS		EBS33b 5kA	EBS53b 10kA	EBS63b 10kA	EBS103b 25kA	EBS203b 25kA		EBS403b 35kA	EBS803b 50kA	
EBH		EBH33b 10kA	EBH53b 25kA		EBH103b 35kA	EBH203b 35kA		EBH403b 50kA		
EBL								EBL403b 85kA	EBL803b 85kA	

- by three-pole type, ampere frame and breaking capacity at 415VAC.



# General characteristics

## Features | AB type MCCBs



- Offering economical solution with compact sizes and increased interrupting capacities.
- Complete range of two, three and four-pole version.
- Employing a fixed thermal and fixed magnetic trip.
- Rating plugs to change thermal currents are available for 400 and 800AF.
- 3-pole ELCBs physically interchangeable with 3-pole MCCBs are available.
- Offering more accessories such as rear connection and extended rotary type handles.
- Frames made of rigid materials of engineering plastics.
- MCCB with reference temperature 50°C is available





**800AF**  
Up to 85kA  
Rating plug type



Rating plug



**1200AF**  
Up to 65kA  
Adjustable magnetic trip

## Type designation

<b>AB</b>	<b>S</b>	<b>10</b>	<b>3</b>	<b>b</b>	<b>IN</b>	<b>100</b>	<b>AX</b>	<b>SHT=220V</b>
<b>Type</b>		<b>No. of poles</b>		<b>Classification</b>		<b>Rated current (A)</b>	<b>Control voltage of SHT, UVT</b>	
E	Economic	2	2pole	-	Old series (ABE30)	-	<b>Accessories</b>	
S	Standard	3	3pole	a	Hi-MEC series	IN	AX	Auxiliary contact
H	High interrupting capacity	4	4pole	b	Meta-MEC series	M	AL	Alarm switch
L	Current limit						SHT	Shunt trip coil
<b>Ampere frame</b>		<b>Application</b>					UVT	Under voltage trip coil
3	30AF	40	400AF	-	for protection of distribution systems		D	Direct handle for upto 225AF
5	50AF	80	800AF	IN	Instantaneous trip characteristics only		N	Direct handle for 400, 800AF
6	60AF	100	1000AF	M	for motor protection		E	Extended handle
10	100AF	120	1200AF				X	Rear connection terminal
20	225AF						MI	Mechanical Interlock

# General characteristics

## Features | GB type adjustable MCCBs



**100AF**  
35, 50kA  
Thermal-magnetic  
configuration



**250AF**  
35, 50, 85kA  
Thermal-magnetic  
configuration



**250AF**  
85kA  
Electronic trip  
configuration



**400AF**  
35, 50kA  
Electronic trip  
configuration

Thermal-magnetic

- Suitable for use in the system where higher fault currents exist.  
... 35, 50, 65 and 85kA breakers are available.
- Employing a adjustable thermal magnetic or electronic trip unit.
- Current adjustments are made by the knobs on the front of the trip unit.
- Complete range of three pole version to 1600A.
- Offering more accessories for varied applications and allows easy access to install them.
- Frames made of rigid materials of engineering plastics.
- MCCB with reference temperature 50°C is available



**800AF**  
35, 50kA  
Electronic trip  
configuration



**AB type 1200AF**  
65kA  
Electronic trip  
configuration



**GB type 1600AF**  
65kA  
Electronic trip  
configuration

Electronic trip

## Type designation

**GB**

Type	
N	Normal
H	High interrupting capacity
L	Current limit

Ampere Frame	
5	50AF
10	100AF
20	225AF
40	400AF
80	800AF
160	1600AF

**N**

**40**

**3**

No. of poles	
2	2pole
3	3pole
4	4pole

Trip unit	
-	Thermal magnetic release
E	Electronic release

**E**

**AX**

Accessories	
AX	Auxiliary contact
AL	Alarm switch
SHT	Shunt trip coil
UVT	Under voltage trip coil
D	Direct handle for upto 225AF
E	Extended handle
X	Rear connection terminal
MI	Mechanical Interlock

**SHT=220V**

Control voltage of SHT, UVT

# General characteristics

## Structure

Meta-MEC offers more accessories for varied applications and allows easy access to install them, especially for the electrical auxiliaries.

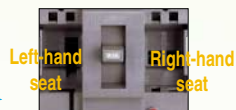


### Easy & simple installation

Designed for installation in compartments that are accessible from the front. It is not necessary to take off the cover of the circuit breaker.



aux. cover  
opened  
→

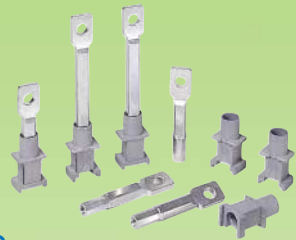


#### Left-hand seat

This seat is usually for auxiliary and alarm switches. It is not available for 2-pole exclusive size MCCBs.

#### Right-hand seat

This seat is usually for shunt trip and undervoltage trip units. It is not available for ELCBs and MCCBs with electronic trip unit.



### Operating handle

Handle position clearly indicates the tripping of the breaker.

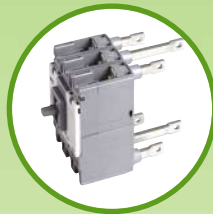


Breaker handle and face plate shall indicate rated capacity

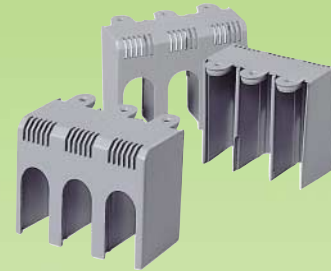
All operating mechanisms are of the quick-make, quick-break type and are "trip free"

Mechanical interlock between two breakers

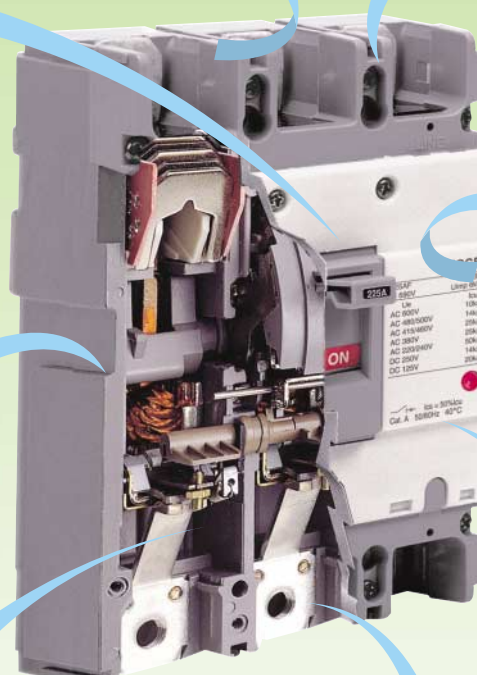
Key-lock built-in types are available.



### Rear connection kits



### Terminal shields



### Manual rotary handles



Direct or extensible mounting

Push-to-trip button to exercise the trip mechanism manually

### Trip units



One of three kinds is built in each breaker

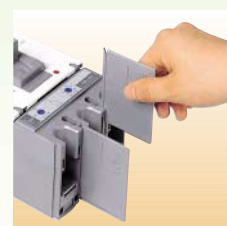
- Thermal-magnetic
- Electronic
- Hydraulic-magnetic

Configurations ; I, LI, LSI, LSIA,

Breakers shall have common tripping of all poles.

Thermal elements shall be factory calibrated to operate in a 40°C ambient environment.

Breakers for 50°C are available on request.



### Insulation barriers

- supplied as standard for line side
- optional for load side.

# General characteristics

## Features | AB type MCCBs up to 225A

Offering economical solution with compact sizes.



105 x 165 x 60mm  
225AF -Max. 35kA



90 x 155 x 60mm  
50AF, 100AF -Max. 35kA



75 x 130 x 60mm  
30AF, 50AF, 60AF  
100AF -Max. 10kA

- Offering economical solution with compact sizes and increased interrupting capacities.
- Employing a fixed thermal and fixed magnetic trip.
- Offering more accessories such as rear connection and extended rotary type handles.
- Frames made of rigid materials of engineering plastics.

### Key lock built-in MCCBs



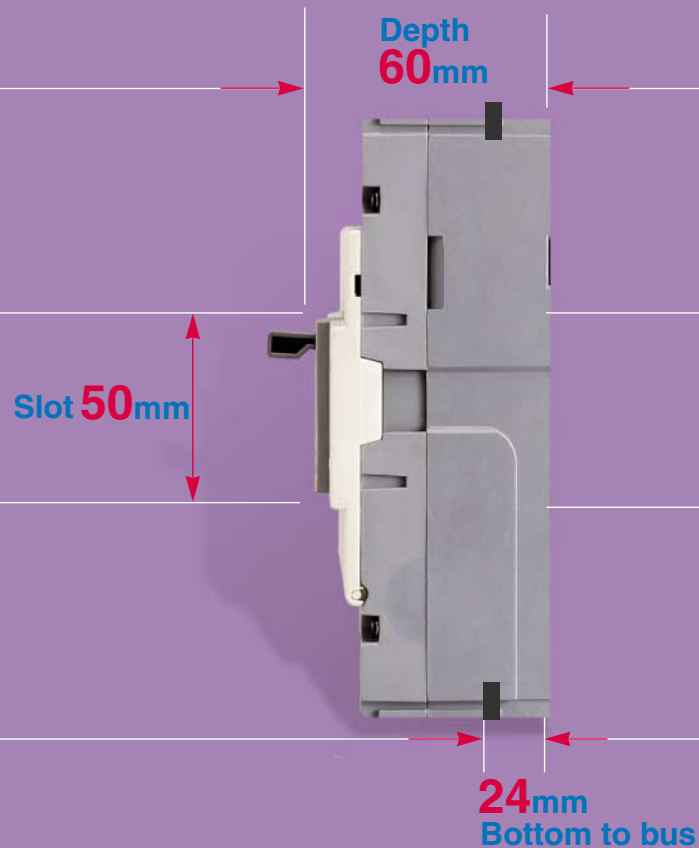
ABS103k

ABS203k



### Compact 2-pole exclusive sizes

Three and four-pole versions are available and also offered in the double-pole version up to 100A with breaking capacities of 10, 25 and 35kA at 380/415V.

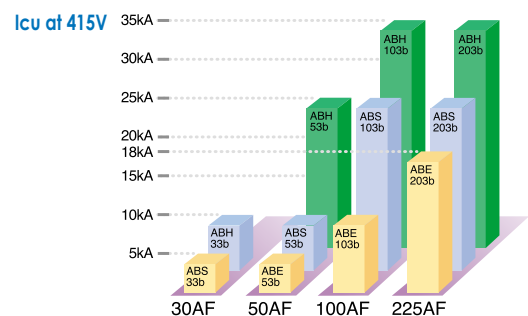


### Standardization

3 different physical frame sizes but have the same dimensions for installation.

### Earth leakage breakers physically interchangeable with MCCBs.

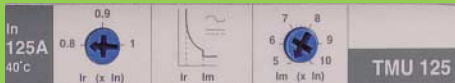
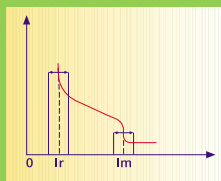
Thanks to the compact earth leakage module it is possible to build the module inside of MCCB without enlarging overall dimensions. Meta-MEC series provide three-pole earth leakage breakers physically interchangeable with MCCBs in the same current rating. It is very useful to construct modular panels.



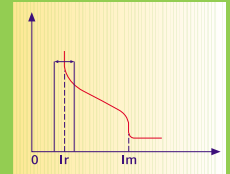
# General characteristics

## Features | GB type adjustable MCCBs up to 250A

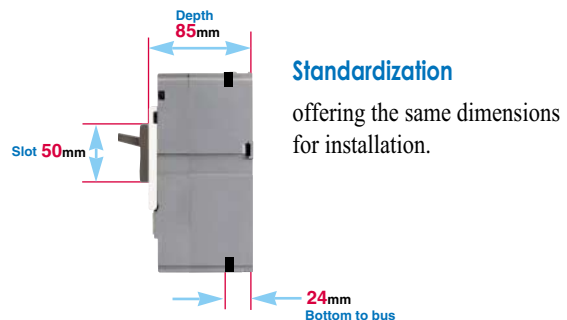
### With thermal-magnetic trip unit



- 2, 3 and 4 pole
- $I_n = 16 \sim 250$  amp
- Interrupting capacity ... 35, 50 and 85kA
- LI configuration
- ... adjustable thermal & adjustable magnetic trip
- CE, KEMA certificate according to IEC60947-2
- UL508 certificate as a manual motor controller
- Magnetic only release types for motor protection are available



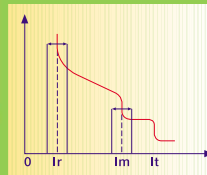
- 2, 3 and 4 pole
- $I_n = 16 \sim 100$  amp
- Interrupting capacity ... 35 and 50kA
- Adjustable thermal & fixed magnetic trip
- CE, KEMA certificate according to IEC60947-2
- UL508 certificate as a manual motor controller





Suitable for use in the system where higher fault currents exist

With electronic trip unit



3 pole

In=50, 100, 250amp

Interrupting capacity ... 85kA

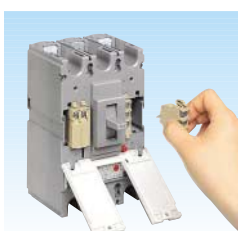
Adjustable thermal & adjustable magnetic trip

Alarm function

warning via LED flickering when the load current

is between 70 to 110% of set current Ir.

LED stays on over 110% of set current Ir.



### Common auxiliaries

Auxiliary switch, Alarm switch, Shunt trip and Under voltage trip unit are frequently used electric auxiliaries for MCCBs.

They are designed to be installed easily and to be used in common for all GB type breakers up to 250A

# General characteristics

## Features | 400AF & 800AF MCCBs

### AB type breakers

- Each breaker uses the individual rating plug for determining the continuous current rating.
- MCCB with reference temperature 50°C is available on request.
- Motor protection MCCBs with magnetic only trip are available.



### 800AF

Thermal-magnetic trip unit  
2, 3 and 4 pole  
In=500, 600, 630, 700, 800A  
Interrupting capacity ... 35, 50 and 85kA  
Trip unit with LI configuration  
- fixed thermal and magnetic  
- magnetic adjustable type is optional

### Rating plug

is available with fixed ampere rating and the installed one is field interchangeable with the other

The pairs of rating plugs interchangeable each other

250A ↔ 300A  
350A ↔ 400A  
500A ↔ 600A  
500A ↔ 630A  
700A ↔ 800A

### 400AF

Thermal-magnetic trip unit  
2, 3 and 4 pole  
In=250, 300, 350, 400A  
Interrupting capacity ... 25, 35, 50 and 85kA  
Trip unit with LI configuration  
-fixed thermal and magnetic  
-magnetic adjustable type is optional

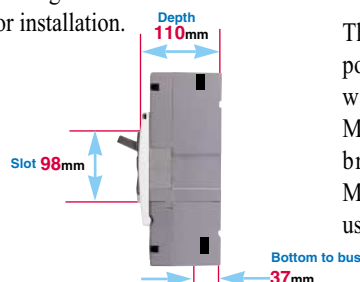


### Common auxiliaries for 400 & 800AF breakers

Auxiliary switch, Alarm switch, Shunt trip and Under voltage trip unit are frequently used electric auxiliaries for MCCBs. They are designed to be installed easily and to be used in common for 400 and 800AF breakers regardless of the type of the trip unit.

### Standardization

offering the same dimensions for installation.

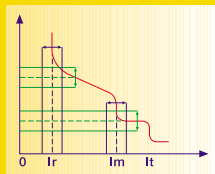


### Earth leakage breakers physically interchangeable with MCCBs.

Thanks to the compact earth leakage module it is possible to build the module inside of MCCB without enlarging overall dimensions. Meta MEC series provide three-pole earth leakage breakers physically interchangeable with MCCBs in the same current rating. It is very useful to construct modular panels.

## GB type adjustable breakers with electronic trip unit

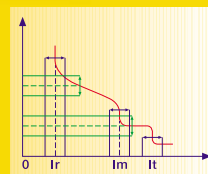
**400AF** Electronic trip unit  
Type GBN403E, GBH403E  
3 pole



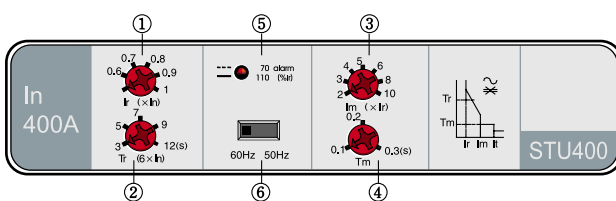
In=400A (adjustable)  
Pre-alarm function  
Interrupting capacity ... 35, 50kA  
Trip unit with LSIA configuration



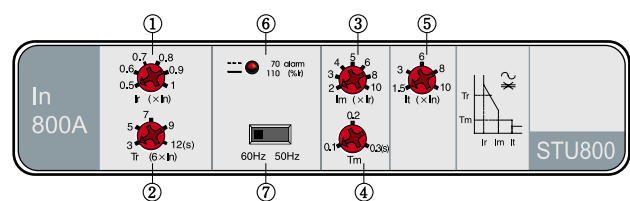
**800AF** Electronic trip unit  
Type GBN803E, GBH803E  
3 pole



In=800A (adjustable)  
Pre-alarm function  
Interrupting capacity ... 35, 50kA  
Trip unit with LSIA configuration



- ① Long time pick-up, Ir
- ② Long time delay, tr
- ③ Short time pick-up, Im
- ④ Short time delay, tm
- ⑤ Alarm
- ⑥ Instantaneous pick-up
- ⑦ Rated frequency



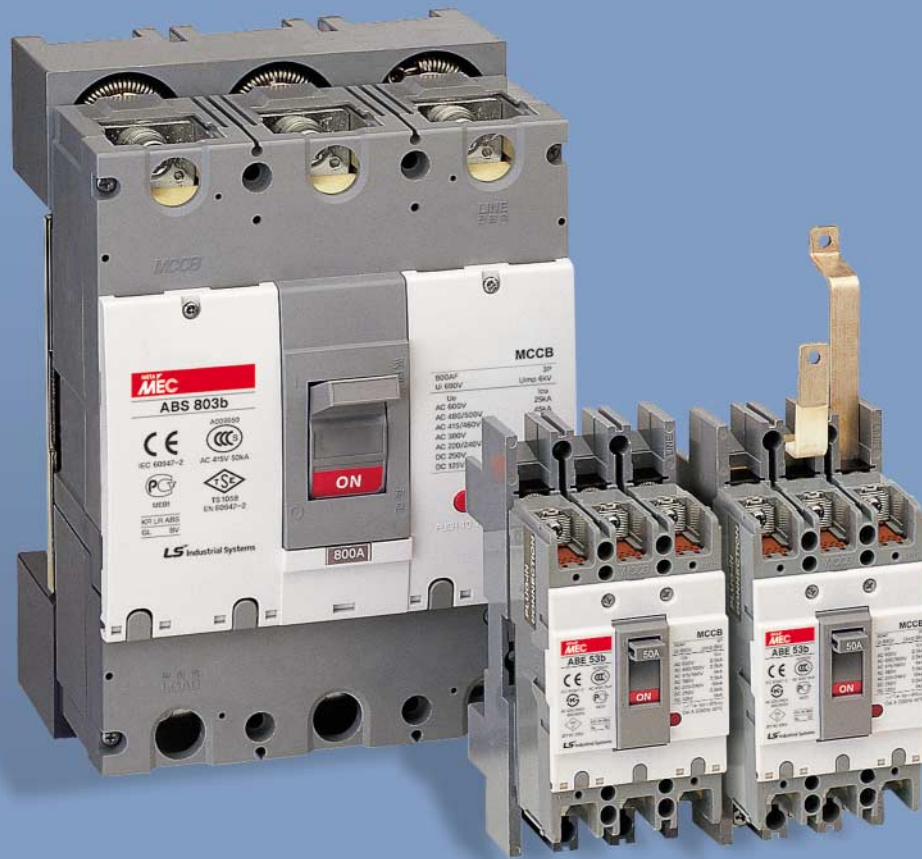
- ① Long time pick-up, Ir
- ② Long time delay, tr
- ③ Short time pick-up, Im
- ④ Short time delay, tm
- ⑤ Instantaneous pick-up
- ⑥ Alarm
- ⑦ Rated frequency

# General characteristics

## Features | Plug-in MCCB

### Plug-in MCCB

Plug-in base makes it possible to extract and/or rapidly replace the circuit breaker without having to touch connections for ship and important installations.



### Plug-in mounting block ordering information

### Terminal for plug-in accessory

**PB**

Plug-in mounting block

**A**

Applicable MCCB	
A	ABE100b 60~100A
C	ABS100b
D	ABS200b
E	ABL100a
F	ABL200a
G	GBN100
H	GBN200
I	ABS400b
J	ABS800b

**3**

Number of poles	
3	3P

**FR**

Connection type	
FR	Standard(Round bolt)
FRL	Exclusive connection for power supply
1DB	Single line arrangement (Bus bar)
2DB	Double lines arrangement

**PBA**

Plug-in accessory

**100**

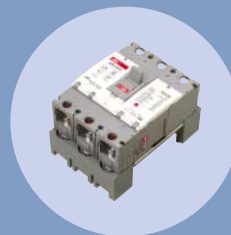
Applicable MCCB	
100	ABS50b ~50A ABE100b 60~100A ABS100b
225	ABS200b ABE200a ABS400b

## Features

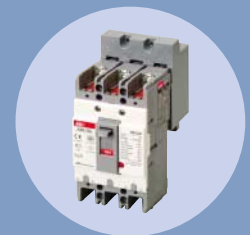
- Four types of mounting blocks to meet customer's different requirements
- Lineup of normal type for MCCBs upto 800AF
- Rapid replacement of the MCCB without having to touch connections
- Certification of ship classification societies-LR, BV, ABS, GL, KR
- Plug-in MCCBs are adjusted to ambient temperature of 45°C



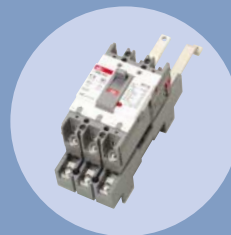
## Mounting blocks(Bases)



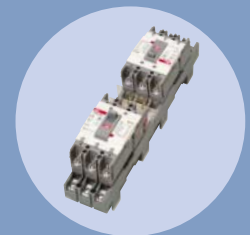
Normal type



Line-only type



Single-row type



Double-row type



# Quick selection table

## MCCBs

## 30AF to 225AF

Frame size(AF)		30		50			
Frame type		ABS	ABH	ABE	ABS	ABH	GBL(E)
Breaking capacity(kA), Icu at 415VAC		5	10	5	10	25	85
Number of poles		2, 3	2, 3	2, 3	2, 3, 4	2, 3, 4	3
Type	2 pole	ABS32b	ABH32b	ABE52b	ABS52b	ABH52b	
	3 pole	ABS33b	ABH33b	ABE53b	ABS53b	ABH53b	GBL53E
	4 pole				ABS54b	ABH54b	
Rated current (A)		(3), 5, 10, 15, 20, 30	5, 10, 15, 20, 30	5, 10, 15, 20, 30, 40, 50		15, 20, 30, 40, 50	50 Electronically adjustable: (0.5-0.6-0.7-0.8-0.9-1.0) × In
<b>Technical data conforming to IEC/EN60947-2</b>							
Rated operational voltage(V), Ue(50/60Hz)		600	600	600	600	600	600
Rated operational voltage(V), Ue(DC)		250	250	250	250	250	-
Rated insulation voltage(V), Ui(50/60Hz)		690	690	690	690	690	690
Rated impulse withstand voltage(kV), Uimp		6	6	6	6	6	6
Ultimate breaking capacity(kA), Icu							
AC 50/60Hz	220/240V	10	25	10	25	50	125
	380V	7.5	14	7.5	14	25	85
	415V	5	10	5	10	25	85
	440/460V	5	10	5	10	25	85
	480/500V	2.5	7.5	2.5	7.5	14	65/50
	600V	2.5	5	2.5	5	10	35
DC	125V	5	10	5	10	20	-
	250V	2.5	5	2.5	5	14	-
Service breaking capacity(%Icu), Ics		50	50	50	50	50	75
Category of use		A	A	A	A	A	A
Endurance (Number of operations)	Mechanical	8500	8500	8500	8500	8500	10000
	Electrical	1500	1500	1500	1500	1500	5000
<b>Type of trip unit</b>							
Thermal-magnetic release						fixed	
Electronic release							LSIA configuration
Pre-alarm via LED							●
Hydraulic-magnetic release		fixed	fixed	fixed	fixed		
Magnetic release only without thermal trip							
Earth leakage protection for 3 pole		▲	▲	▲	▲	▲	
<b>Accessories</b>							
Electrical auxiliaries	Auxiliary switch	●	●	●	●	●	●
	Alarm switch	●	●	●	●	●	●
	Shunt trip	●	●	●	●	●	●
	Undervoltage trip	●	●	●	●	●	●
	External accessories	Direct rotary handle	●	●	●	●	●
	Extended rotary handle	●	●	●	●	●	●
	Terminal shield	●	●	●	●	●	●
	Insulation barrier	●	●	●	●	●	●
	Rear connection	●	●	●	●	●	●
	Mechanical interlock	-	-	-	-	-	-
	Plug-in device(3 pole)	●	●	●	●	●	-
	Motor operator	-	-	-	-	-	-
Dimensions (W × H × Dmm)		3 pole breaker 75 × 130 × 60		75 × 130 × 60		90 × 155 × 60	105 × 165 × 86
Weight(kg)	2 pole	0.45	0.45	0.45	0.45	0.7	
	3 pole	0.65	0.65	0.65	0.65	1	1.7
	4 pole				0.85	1.2	
Reference page no.		33		34			

\* Note) 1. ● applicable or available  
2. ▲ available as a separate breaker  
3. (3) Breaking capacity(at 415VAC) of ABS32b 3A ABS33b 3A is 2.5kA



60		100							225		
ABE	ABS	ABE	ABS	ABH	GBN	GBH	GBL	GBL(E)	ABE	ABS	ABH
5	10	10	25	35	35	50	85	85	18	25	35
2, 3	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4	3	2, 3, 4	2, 3, 4	2, 3, 4
ABE62b	ABS62b	ABE102b	ABS102b	ABH102b	GBN102	GBH102	GBL102		ABE202b	ABS202b	ABH202b
ABE63b	ABS63b	ABE103b	ABS103b	ABH103b	GBN103	GBH103	GBL103	GBL103E	ABE203b	ABS203b	ABH203b
	ABS64b	ABE104b	ABS104b	ABH104b	GBN104	GBH104	GBL104		ABE204b	ABS204b	ABH204b
60		5, 10, 15, 20, 30, 40, 50, 60, 75, 100	15, 20, 30, 40, 50, 60, 75, 100		16, 20, 25, 32, 40, 50, 63, 80, 100 Thermally adjustable; (0.8-0.9-1.0) × In			100 Electronically adjustable; (0.5-0.6-0.7-0.8-0.9-1.0) × In	100, 125, 150, 175, 200, 225		
600	600	600	600	600	600	600	600	600	600	600	600
250	250	250	250	250	250	250	250	-	250	250	250
690	690	690	690	690	690	690	690	690	690	690	690
6	6	6	6	6	6	6	6	6	6	6	6
10	25	25	50	65	50	85	125	125	35	50	65
7.5	14	14	25	35	35	50	85	85	18	25	35
5	10	10	25	35	35	50	85	85	18	25	35
5	10	10	25	35	35	50	85	85	18	25	35
2.5	7.5	7.5	14	25	30/22	42/35	65/50	65/50	10	14	25
2.5	5	5	10	18	18	25	35	35	7.5	10	18
5	10	10	20	25	-	-	-	-	15	20	25
2.5	5	5	14	18	35	50	85	-	10	14	18
50	50	50	50	50	75	75	75	75	50	50	50
A	A	A	A	A	A	A	A	A	A	A	A
8500	8500	8500	8500	8500	20000	20000	10000	10000	7000	7000	7000
1500	1500	1500	1500	1500	10000	10000	5000	5000	1000	1000	1000
			fixed	fixed	Adjustable-thermal, Fixed-magnetic				fixed	fixed	fixed
								LSIA configuration			
								●			
fixed	fixed	fixed									
▲	▲	▲	▲	▲			▲		▲	▲	▲
●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●
-	-	-	-	-	-	-	-	-	-	-	-
●	●	●	●	●	●	●	●	●	●	●	●
-	-	-	-	-	-	-	-	-	-	-	-
75 × 130 × 60		75 × 130 × 60	90 × 155 × 60		90 × 140 × 86		105 × 165 × 86		105 × 165 × 60		
0.45	0.45	0.45	0.7	0.7	1.1	1.1	1.5		1.1	1.1	1.1
0.65	0.65	0.65	1.1	1.1	1.2	1.2	1.7	1.7	1.2	1.2	1.2
	0.85	0.85	1.2	1.2	1.5	1.5	2.1		1.5	1.5	1.5
34		35		47			48		36		

# Quick selection table

## MCCBs

## 250AF to 1600AF

Frame size(AF)		250				400				
Frame type		GBN	GBH	GBL	GBL(E)	ABE	ABS	ABH	ABL	
Breaking capacity(kA), Icu at 415VAC		35	50	85	85	25	35	50	85	
Number of poles		2, 3, 4	2, 3, 4	2, 3, 4	3	2,3,4	2,3,4	2,3,4	2, 3, 4	
Type	2 pole	GBN202	GBH202	GBL202		ABE402b	ABS402b	ABH402b	ABL402b	
	3 pole	GBN203	GBH203	GBL203	GBL203E	ABE403b	ABS403b	ABH403b	ABL403b	
	4 pole	GBN204	GBH204	GBL204		ABE404b	ABS404b	ABH404b	ABL404b	
Rated current (A)		125, 160, 200, 250 Thermally adjustable : (0.8- 0.9-1.0) × In			250 Electronically adjustable: (0.5-0.6-0.7-0.8- 0.9-1.0) × In	250, 300, 350, 400 Interchangeable via rating plug between 250 and 300 350 and 400				
<b>Technical data conforming to IEC/EN60947-2</b>										
Rated operational voltage(V), Ue(50/60Hz)		600	600	600	600	600	600	600	600	
Rated operational voltage(V), Ue(DC)		250	250	250	-	250	250	250	250	
Rated insulation voltage(V), Ui(50/60Hz)		690	690	690	690	690	690	690	690	
Rated impulse withstand voltage(kV), Uimp		6	6	6	6	6	6	6	6	
Ultimate breaking capacity(kA), Icu										
	AC 50/60Hz	220/240V	50	85	125	125	35	50	85	125
		380V	35	50	85	85	30	42	65	100
		415V	35	50	85	85	25	35	50	85/50(Ics)
		440/460V	35	50	85	85	25	35	50	85
		480/500V	30/22	42/35	65/50	65/50	18	25	35	65
		600V	18	25	35	35	18	22	25	30
		690V	-	-	-	-	-	-	-	-
	DC	125V	-	-	-	-	20	30	50	60
		250V	35	50	85	-	10	20	40	40
Service breaking capacity(%Icu), Ics		75	75	75	75	100	100	50	50	
Category of use		A	A	A	A	A	A	A	A	
Endurance	Mechanical	10000	10000	10000	10000	4000	4000	4000	4000	
(Number of operations)	Electrical	5000	5000	5000	5000	1000	1000	1000	1000	
<b>Type of trip unit</b>										
Thermal-magnetic release		Adjustable-thermal & magnetic					fixed	fixed	fixed	fixed
Electronic release						LSIA configuration				
Pre-alarm via LED						●				
Hydraulic-magnetic release										
Magnetic release only without thermal trip				▲			▲		▲	
Earth leakage protection	for 3 pole						▲	▲	▲	▲
<b>Accessories</b>										
Electrical auxiliaries	Auxiliary switch	●	●	●	●	●	●	●	●	
	Alarm switch	●	●	●	●	●	●	●	●	
	Shunt trip	●	●	●	●	●	●	●	●	
	Undervoltage trip	●	●	●	●	●	●	●	●	
External accessories	Direct rotary handle	●	●	●	●	●	●	●	●	
	Extended rotary handle	●	●	●	●	●	●	●	●	
	Terminal shield	●	●	●	●	●	●	●	●	
	Insulation barrier	●	●	●	●	●	●	●	●	
	Rear connection	●	●	●	●	●	●	●	●	
	Mechanical interlock	-	-	-	-	●	●	●	●	
	Plug-in device(3pole)	●	●	●	-	●	●	●	●	
	Motor operator	-	-	-	-	-	-	-	-	
Dimensions (W × H × Dmm)	3 pole breaker	105 × 165 × 86				140 × 257 × 113				
Weight(kg)	2 pole	1.5	1.5	1.5	-	5.2	5.2	5.2	5.2	
	3 pole	1.7	1.7	1.7	1.7	6.2	6.2	6.2	6.2	
	4 pole	2.1	2.1	2.1		7.8	7.8	7.8	7.8	
Reference page no.		48			49	54				

\* Note) 1. ● applicable or available  
2. ▲ available as a separate breaker





400		800					1200			1600
GBN(E)	GBH(E)	ABE	ABS	ABL	GBN(E)	GBH(E)	ABS		ABS(electronic trip)	GBN(E)
35	50	35	50	85	35	50	65		65	65
3	3	2, 3, 4	2, 3, 4	2, 3, 4	3	3	3, 4		3	3
GBN403E	GBH403E	ABE802b	ABS802b	ABL802b	GBN803E	GBH803E	ABS1003	ABS1203	ABS1203E	GBN1603E
		ABE803b	ABS803b	ABL803b			ABS1004	ABS1204		
		ABE804b	ABS804b	ABL804b						
400 Electronically adjustable : (0.5-0.6-0.7-0.8-0.9-1.0) × In		500, 600, 630, 700, 800 Interchangeable via rating plug between 500 and 600, 500 and 630, 700 and 800			800 Electronically adjustable : (0.5-0.6-0.7-0.8-0.9-1.0) × In		1000	1200	1200 Electronically adjustable: (0.5-0.6-0.7-0.8-0.9-1.0) × In	1600
600	600	600	600	600	600	600	600	600	600	600
-	-	250	250	250	-	-	250	250	250	-
690	690	690	690	690	690	690	690	690	690	690
6	6	6	6	6	6	6	6	6	6	8
50	85	50	100	125	50	85	100	100	-	-
35	50	42	65	100	35	50	65	65	-	-
35	50	35	50	85/50(lcs)	35	50	65	65	65	65
30	42	35	50	85	30	42	65	65	65	45
22	35	25	45	65	22	35	50	50	50	22
18	25	22	25	30	18	25	45	45	45	-
-	-	-	-	-	-	-	-	-	-	20
-	-	30	50	60	-	-	-	-	-	-
-	-	20	40	40	-	-	40	-	-	-
50	50	100	50	50	50	50	50	50	50	50
A	A	A	A	A	A	A	A	A	A	A
4000	4000	2500	2500	2500	2500	2500	2500	2500	2500	10000
1000	1000	500	500	500	500	500	500	500	500	4000
LSIA configuration		fixed	fixed	fixed	LSIA configuration		Fixed-thermal, Adjustable-magnetic		LSIA configuration	●
●	●				●	●			●	●
			▲	▲	▲				●	
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
-	-	●	●	●	-	-	-	-	-	-
●	●	●	●	●	●	●	●	●	●	-
●	●	●	●	●	●	●	●	●	●	-
●	●	●	●	●	●	●	●	●	●	-
●	●	●	●	●	●	●	●	●	●	-
-	-	●	●	●	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
140 × 257 × 113		210 × 280 × 113					210 × 400 × 105		210 × 400 × 105	210 × 350 × 142.5
-	-	11	11	11	-	-	-	-	-	-
7.4	-	11.5	11.5	11.5	11.5	-	19.4	19.4	23	-
-	-	18.2	18.2	18.2	-	-	27	-	-	-
60	-	55			61	-	64	65	67	-

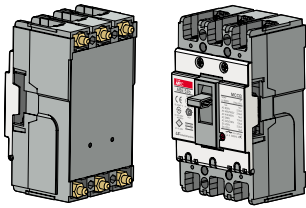
# Quick selection table

## Plug-in MCCBs

## Selection table of plug-in MCCBs

### Plug-in version breakers

Figure	Type	Rated current, A	Rated breaking current, kA		
			220V	460V	600V



Plug-in version breakers are available in two types of MCCBs- AB and GB

### AB type MCCB

ABS33b	3, 5, 10, 15, 20, 30	10(5)	5(2.5)	2.5(1.5)
ABH33b	5, 10, 15, 20, 30	25	10	5
ABE53b	5, 10, 15, 20, 30, 40, 50	10	5	2.5
ABS53b	5, 10, 15, 20, 30, 40, 50	25	10	5
ABE63b	60	10	5	2.5
ABS63b	60	25	10	5
ABE103b	5, 10, 15, 20, 30, 40, 50, 60, 75, 100	25	10	5
ABH53b	15, 20, 30, 40, 50	50	25	10
ABS103b	15, 20, 30, 40, 50, 60, 75, 100	50	25	10
ABH103b	15, 20, 30, 40, 50, 60, 75, 100	65	35	18
ABL53a	15, 20, 30, 40, 50	100	85	42
ABL103a	15, 20, 30, 40, 50, 60, 75, 100	100	85	42
ABE203b	100, 125, 150, 175, 200	35	18	7.5
ABS203b	100, 125, 150, 175, 200, 225	50	25	10
ABH203b	100, 125, 150, 175, 200, 225	65	35	18
ABH203a	125, 150, 175, 200, 225	125	65	35
ABL203a	125, 150, 175, 200, 225	125	65	35
ABE403b	300, 350, 400	35	25	18
ABS403b	250, 300, 350, 400	50	35	22
ABH403b	250, 300, 350, 400	85	50	25
ABL403b	250, 300, 350, 400	125	85	30
ABE803b	500, 600, 630, 700, 800	50	35	22
ABS803b	500, 600, 630, 700, 800	100	50	25
ABL803b	500, 600, 630, 700, 800	125	85	30

### AB type MCCB



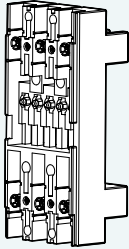
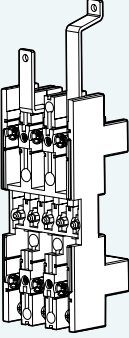
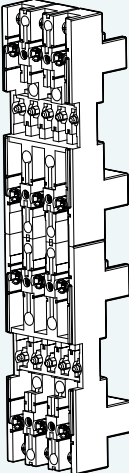
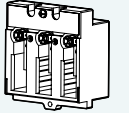

### GB type MCCB



### GB type MCCB

GBN 53	16, 20, 25, 32, 40, 50	50	35	18
GBH 53	16, 20, 25, 32, 40, 50	85	50	25
GBN103	63, 80, 100	50	35	18
GBH103	63, 80, 100	85	50	25
GBL53	16, 20, 25, 32, 40, 50	125	85	35
GBL103	63, 80, 100	125	85	35
GBN 203	125, 160, 200, 250	50	35	18
GBH 203	125, 160, 200, 250	85	50	25
GBL 203	125, 160, 200, 250	125	85	35

## Mounting blocks and terminal blocks

Mounting block		Terminal	Reference page no	Figure
<b>Mounting block</b>	<b>Type</b>	<b>Terminal</b>		
Normal type	PB-A3-FR	PBA-100	76	 <p>Normal type</p>
Single-row type	PB-A3-1DB		79	
Double-row type	PB-A3-2DB		80	
Line-only type	PB-A3-FRL		-	
<b>Mounting block</b>	<b>Type</b>	<b>Terminal</b>		
Normal type	PB-C3-FR	PBA-100	76	 <p>Single-row type</p>
Single-row type	PB-C3-1DB		79	
Double-row type	PB-C3-2DB		80	
Line-only type	PB-C3-FRL		-	
<b>Mounting block</b>	<b>Type</b>	<b>Terminal</b>	76	
Normal type	PB-E3-FR	PBA-225		
<b>Mounting block</b>	<b>Type</b>	<b>Terminal</b>	76	
Normal type	PB-D3-FR	PBA-225		
<b>Mounting block</b>	<b>Type</b>	<b>Terminal</b>	76	
Normal type	PB-I3-FR	PBA-225		 <p>Double-row type</p>
<b>Mounting block</b>	<b>Type</b>	<b>Terminal</b>	76	
Normal type	PB-J3-FR	PBA-225		
<b>Mounting block</b>	<b>Type</b>	<b>Terminal</b>		
Normal type	PB-G3-FR	PBA-100	76	 <p>Line-only type</p>
Single-row type	PB-G3-1DB		79	
Double-row type	PB-G3-2DB		80	
Line-only type	PB-G3-FRL		-	
<b>Mounting block</b>	<b>Type</b>	<b>Terminal</b>	76	
Normal type	PB-D3-FR	PBA-225		 <p>Terminal block for electrical auxiliaries</p>

# Quick selection table

## ELCBs

## 30AF to 800AF

Frame size(AF)		30		50			60		
Frame type		EBS	EBH	EBE	EBS	EBH	EBE	EBS	
Breaking capacity(kA), I <sub>cu</sub> at 415VAC		5	10	5	10	25	5	10	
Number of poles		3	3	2, 3	3	3	3	3	
Type	2 pole	-	-	EBE52b	-	-	-	-	
	3 pole	EBS33b	EBH33b	EBE53b	EBS53b	EBH53b	EBE63b	EBS63b	
Rated current (A) (Non-adjustable)		5, 10, 15, 20, 30		5, 10, 15, 20, 30, 40, 50		40, 50	60		
Residual current(A), I <sub>Δn</sub>		0.03 (Fixed) 0.1-0.2-0.5 (Adjustable)		0.03 (Fixed) 0.1-0.2-0.5 (Adjustable)			0.03 (Fixed) 0.1-0.2-0.5 (Adjustable)		
Residual non-operating current		0.5 x I <sub>Δn</sub>		0.5 x I <sub>Δn</sub>			0.5 x I <sub>Δn</sub>		
Residual current off-time at I <sub>Δn</sub>		≤ 0.1 sec		≤ 0.1 sec			≤ 0.1 sec		
Rated operational voltage(V), U <sub>e</sub> (50/60Hz)		176-510		176-510			176-510		
<b>Technical data conforming to IEC/EN60947-2</b>									
Rated impulse withstand voltage(kV), U <sub>imp</sub>		6	6	6	6	6	6	6	
Ultimate breaking capacity(kA), I <sub>cu</sub>	AC 50/60Hz	220/240V	10	25	10	25	50	10	25
		415/460V	5	10	5	10	25	5	10
Service breaking capacity(%I <sub>cu</sub> ), I <sub>cs</sub>		50	50	50	50	50	50	50	
Endurance (number of operations)	Mechanical	8500	8500	8500	8500	8500	8500	8500	
	Electrical	1500	1500	1500	1500	1500	1500	1500	
<b>Type of trip unit</b>									
Overcurrent pick-up		Hydraulic-magnetic		Hydraulic-magnetic		Thermal-magnetic	Hydraulic-magnetic		
Earth leakage pick-up		Electronic		Electronic		Electronic	Electronic		
<b>Accessories</b>									
Electrical auxiliaries	Auxiliary switch	●	●	●	●	●	●	●	
	Alarm switch	●	●	●	●	●	●	●	
	Shunt trip	-	-	-	-	-	-	-	
	Undervoltage trip	-	-	-	-	-	-	-	
External accessories	Direct rotary handle	●	●	●	●	●	●	●	
	Terminal shield	●	●	●	●	●	●	●	
	Insulation barrier	●	●	●	●	●	●	●	
	Motor operator	-	-	-	-	-	-	-	
Dimensions (WxHxD mm)	3 pole breaker	75 × 130 × 60		75 × 130 × 60		90 × 155 × 60	75 × 130 × 60		
Weight(kg)	2 pole								
	3 pole	0.7	0.7	0.7	0.7	1	0.7	0.7	
Reference page no.		83		84			84		

\* Note) ● applicable or available



100			225			400				800		
EBE	EBS	EBH	EBE	EBS	EBH	EBE	EBS	EBH	EBL	EBE	EBS	EBL
10	25	35	18	25	35	25	35	50	85	35	50	85
2, 3	3	3	3	3	3	3	3	3	3	3	3	3
EBE102b	-	-	-	-	-	-	-	-	-	-	-	-
EBE103b	EBS103b	EBH103b	EBE203b	EBS203b	EBH203b	EBE403b	EBS403b	EBH403b	EBL403b	EBE803b	EBS803b	EBL803b
60, 75, 100	40, 50, 60, 75, 100	60, 75, 100	100, 125, 150, 175, 200, 225			250, 300, 350, 400				500, 600, 700, 800		
0.03 (Fixed) 0.1-0.2-0.5 (Adjustable)			0.03 (Fixed) 0.1-0.2-0.5 (Adjustable)			0.03 (Fixed) 0.1-0.2-0.5 (Adjustable)				0.03 (Fixed) 0.1-0.2-0.5 (Adjustable)		
0.5 x I <sub>Δn</sub>			0.5 x I <sub>Δn</sub>			0.5 x I <sub>Δn</sub>				0.5 x I <sub>Δn</sub>		
≤ 0.1 sec			≤ 0.1 sec			≤ 0.1 sec				≤ 0.1 sec		
176-510 (EBE102b : 88-242)			176-510			176-510				176-510		
6	6	6	6	6	6	6	6	6	6	6	6	6
25	50	65	35	50	65	35	50	85	125	50	100	125
10	25	35	18	25	35	25	35	50	85	35	50	85
50	50	50	50	50	50	50	50	50	50	50	50	50
8500	8500	8500	7000	7000	7000	4000	4000	4000	4000	4000	4000	4000
1500	1500	1500	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Hydraulic-magnetic	Thermal-magnetic	Thermal-magnetic			Thermal-magnetic				Thermal-magnetic			
Electronic	Electronic	Electronic			Electronic				Electronic			
•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•	•
-	-	-	-	-	-	•	•	•	•	•	•	•
-	-	-	-	-	-	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•	•	•
-	-	-	-	-	-	-	-	-	-	-	-	-
75 × 130 × 60	90 × 155 × 60		105 × 165 × 60			140 × 257 × 110				210 × 280 × 110		
0.7	1	1.2	1.4	1.4	1.4	7	7	7	7	11.5	11.5	11.5
	85		86			87				88		

# Quick selection table

## ELCBs

## 50AF to 400AF, 4-Pole

Frame size(AF)		50	
Frame type		EBS	EBH
Breaking capacity(kA), I <sub>cu</sub> at 415VAC		25	35
Number of poles		4	4
Type	4 pole	EBS54b	EBH54b
Rated current (A) (Non-adjustable)		15, 20, 30, 40, 50	
Residual current(A), I <sub>Δn</sub>		0.03 (Fixed) 0.1-0.2-0.5 (Adjustable)	
Residual non-operating current		0.5 x I <sub>Δn</sub>	
Residual current off-time at I <sub>Δn</sub>		≤ 0.1 sec	
Rated operational voltage(V), U <sub>e</sub> (50/60Hz)		176-510	
<b>Technical data conforming to IEC/EN60947-2</b>			
Rated impulse withstand voltage(kV), U <sub>imp</sub>		6	
Ultimate breaking capacity(kA), I <sub>cu</sub>			
	AC 50/60Hz	220/240V	415/460V
		50	65
		25	35
Service breaking capacity(%I <sub>cu</sub> ), I <sub>cs</sub>		50	
Endurance (number of operations)	Mechanical	4000	
	Electrical	6000	
<b>Type of trip unit</b>			
Overcurrent pick-up		Thermal-magnetic	
Earth leakage pick-up		Electronic	
<b>Accessories</b>			
Electrical auxiliaries	Auxiliary switch	●	●
	Alarm switch	●	●
External accessories	Direct rotary handle	●	●
	Terminal shield	●	●
	Insulation barrier	●	●
	Motor operator	-	-
Dimensions (WxHxD mm)	4 pole breaker	120X175X60	
Weight(kg)	4 pole	1.4	
Reference page no.		91	

\* Note) ● applicable or available



100		225		400	
EBS	EBH	EBS	EBH	EBE	EBS
25	35	25	35	25	35
4	4	4	4	4	4
EBS104b	EBH104b	EBS204b	EBH204b	EBE404b	EBS404b
15, 20, 30, 40, 50, 60, 75, 100		100, 125, 150, 175, 200, 225		250, 300, 350, 400	
0.03 (Fixed) 0.1-0.2-0.5 (Adjustable)		0.03 (Fixed) 0.1-0.2-0.5 (Adjustable)		0.03 (Fixed) 0.1-0.2-0.5 (Adjustable)	
0.5 x I <sub>Δn</sub> ≤ 0.1 sec		0.5 x I <sub>Δn</sub> ≤ 0.1 sec		0.5 x I <sub>Δn</sub> ≤ 0.1 sec	
176-510		176-510		176-510	
6		6		6	
50	65	50	65	35	50
25	35	25	35	25	35
50		50		50	
4000		4000		4000	
6000		4000		1000	
Thermal-magnetic		Thermal-magnetic		Thermal-magnetic	
Electronic		Electronic		Electronic	
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
-	-	-	-	-	-
120X175X60		140X185X60		185X257X109	
1.4		1.9		8.4	
92		93		94	

# MCCBs for general use

## AB type MCCBs up to 225AF

## Overview

- Offering economical solution with compact and increased interrupting capacities compared to the existing breakers.
- Employing a fixed thermal and fixed magnetic trip.
- Frames made of rigid materials of engineering plastics.
- 3-pole Earth leakage circuit breakers physically interchangeable with 3-pole MCCBs are available.
- Offering more accessories such as rear connection and extended rotary type handles.
- Key lock built-in MCCBs are available.

Rear connection



Terminal shield



Manual rotary handle



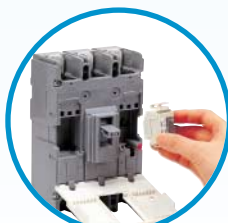
Extensible mounting



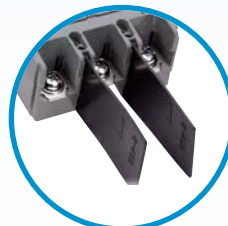
Direct mounting



Electrical auxiliaries  
- auxiliary switch  
- alarm switch  
- shunt trip  
- undervoltage trip



Unique design  
for auxiliaries

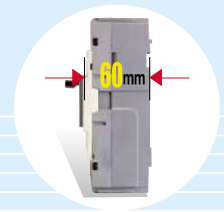


Insulation barrier





# 30AF



<b>Rated current, In</b>	3, 5, 10, 15, 20, 30A
<b>Magnetic trip</b>	(8 to 16) × In
<b>Type of trip unit</b>	Hydraulic-magnetic
<b>Number of poles</b>	2, 3 pole
<b>Connection</b>	Front (standard) Rear (optional)
<b>Mounting</b>	Fixed only
<b>Category of use</b>	Type according to IEC947-2
<b>Breaking capacity, Icu</b>	Ics = 50% of Icu

Type	ABS	ABH
220/240V	10kA	25kA
380/415V	7.5/5kA	14/10kA
440/460V	5kA	10kA
480/500V	2.5kA	7.5kA
600V	2.5kA	5kA

## Earth leakage circuit breaker



Types EBS33b, EBH33b physically interchangeable with MCCBs.

※ see details (p. 83)

Rating	for 5kA at 415V ... type ABS	
In	2pole	3pole
3A <b>Note)</b>	ABS32b/3	ABS33b/3
5A	ABS32b/5	ABS33b/5
10A	ABS32b/10	ABS33b/10
15A	ABS32b/15	ABS33b/15
20A	ABS32b/20	ABS33b/20
30A	ABS32b/30	ABS33b/30
In	for 10kA at 415V ... type ABH	
In	2pole	3pole
5A	ABH32b/5	ABH33b/5
10A	ABH32b/10	ABH33b/10
15A	ABH32b/15	ABH33b/15
20A	ABH32b/20	ABH33b/20
30A	ABH32b/30	ABH33b/30

\* Note) Breaking capacity(at 415VAC) of ABS32b 3A ABS33b 3A is 2.5kA

<b>Optional accessories</b>	Auxiliary switch
※ see details (p. 37~38)	Alarm switch
	Shunt trip
	Undervoltage trip
	Manual rotary handle
	Terminal shield
	Rear connection unit
	Insulational barrier (standard for line side only)

**Certificate**  
CE, KEMA, Lloyd

<b>Dimensions</b>	<b>2pole</b>	50(W) × 130(H) × 60(D)
<b>(mm)</b>	<b>3pole</b>	75(W) × 130(H) × 60(D)

# MCCBs for general use

## AB type MCCBs

## 50AF & 60AF



<b>Rated current, In</b>	5, 10, 15, 20, 30, 40, 50, 60
<b>Magnetic trip</b>	Non-adjustable (see operating curves)
<b>Type of trip unit</b>	Thermal-magnetic for ABH type Hydraulic-magnetic for ABE/ABS types
<b>Number of poles</b>	2, 3, 4 pole
<b>Connection</b>	Front (standard) Rear (optional)
<b>Mounting</b>	Fixed only
<b>Category of use</b>	Type A according to IEC947-2
<b>Breaking capacity, Icu</b>	Ics = 50% of Icu

Type	ABE	ABS	ABH
<b>220/240V</b>	10kA	25kA	50kA
<b>380/415V</b>	7.5/5kA	14/10kA	25kA
<b>440/460V</b>	5kA	10kA	25kA
<b>480/500V</b>	2.5kA	7.5kA	14kA
<b>600V</b>	2.5kA	5kA	10kA

### Earth leakage circuit breaker



Types EBE53b, EBS53b, EBH53b physically interchangeable with MCCBs

\* see details (p. 84)

### Optional accessories

- Auxiliary switch
- Alarm switch
- Shunt trip
- Undervoltage trip
- Manual rotary handle
- Terminal shield
- Rear connection unit
- Insulational barrier (standard for line side only)

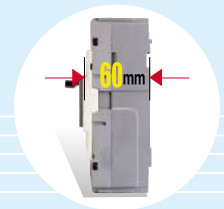
\* see details ( p. 37 for ABE/ABS types  
p. 40 for ABH types

Rating	for 5kA at 415V ... type ABE			
	In	2pole	3pole	
5A		ABE52b/5	ABE53b/5	
10A		ABE52b/10	ABE53b/10	
15A		ABE52b/15	ABE53b/15	
20A		ABE52b/20	ABE53b/20	
30A		ABE52b/30	ABE53b/30	
40A		ABE52b/40	ABE53b/40	
50A		ABE52b/50	ABE53b/50	
60A		ABE62b/60	ABE63b/60	
Rating	for 10kA at 415V ... type ABS			
	In	2pole	3pole	4pole
5A		ABS52b/5	ABS53b/5	ABS54b/5
10A		ABS52b/10	ABS53b/10	ABS54b/10
15A		ABS52b/15	ABS53b/15	ABS54b/15
20A		ABS52b/20	ABS53b/20	ABS54b/20
30A		ABS52b/30	ABS53b/30	ABS54b/30
40A		ABS52b/40	ABS53b/40	ABS54b/40
50A		ABS52b/50	ABS53b/50	ABS54b/50
60A		ABS62b/60	ABS63b/60	ABS64b/60
Rating	for 25kA at 415V ... type ABH			
	In	2pole	3pole	4pole
15A		ABH52b/15	ABH53b/15	ABH54b/15
20A		ABH52b/20	ABH53b/20	ABH54b/20
30A		ABH52b/30	ABH53b/30	ABH54b/30
40A		ABH52b/40	ABH53b/40	ABH54b/40
50A		ABH52b/50	ABH53b/50	ABH54b/50

**Certificate**  
CE, KEMA, Lloyd

Dimensions(mm)	ABE/ABS types	ABH type
<b>2pole</b>	50(W) × 130(H) × 60(D)	60(W) × 155(H) × 60(D)
<b>3pole</b>	75(W) × 130(H) × 60(D)	90(W) × 155(H) × 60(D)
<b>4pole</b>	100(W) × 130(H) × 60(D)	120(W) × 155(H) × 60(D)

# 100AF



<b>Rated current, In</b>	15, 20, 30, 40, 50, 60, 75, 100
<b>Magnetic trip range</b>	Non-adjustable (see operating curves)
<b>Type of trip unit</b>	Thermal-magnetic for ABS/ABH types Hydraulic-magnetic for ABE type
<b>Connection</b>	Front (standard) Rear (optional)
<b>Mounting</b>	Fixed only
<b>Category of use</b>	Type A according to IEC947-2
<b>Breaking capacity, Icu</b>	Ics = 50% of Icu

Type	ABE	ABS	ABH
<b>220/240V</b>	25kA	50kA	65kA
<b>380/415V</b>	14/10kA	25kA	35kA
<b>440/460V</b>	10kA	25kA	35kA
<b>480/500V</b>	7.5kA	14kA	25kA
<b>600V</b>	5kA	10kA	18kA

## Earth leakage circuit breaker



Types EBE103b, EBS103b, EBH103b  
physically interchangeable with MCCBs

\* see details (p. 85)

## Key lock built-in type ;

\* see details (p. 73)

## Optional accessories

- Auxiliary switch
- Alarm switch
- Shunt trip
- Undervoltage trip
- Manual rotary handle
- Terminal shield
- Rear connection unit
- Insulational barrier  
(standard for line side only)

\* see details (p. 37 for ABE/ABS types  
p. 40 for ABH types)

Rating	for 10kA at 415V ... type ABE			
In	2pole	3pole	4pole	
5A	ABE102b/5	ABE103b/5	ABE104b/5	
10A	ABE102b/10	ABE103b/10	ABE104b/10	
15A	ABE102b/15	ABE103b/15	ABE104b/15	
20A	ABE102b/20	ABE103b/20	ABE104b/20	
30A	ABE102b/30	ABE103b/30	ABE104b/30	
40A	ABE102b/40	ABE103b/40	ABE104b/40	
50A	ABE102b/50	ABE103b/50	ABE104b/50	
60A	ABE102b/60	ABE103b/60	ABE104b/60	
75A	ABE102b/75	ABE103b/75	ABE104b/75	
100A	ABE102b/100	ABE103b/100	ABE104b/100	
In	for 25kA at 415V ... type ABS			
In	2pole	3pole	4pole	
15A	ABS102b/15	ABS103b/15	ABS104b/15	
20A	ABS102b/20	ABS103b/20	ABS104b/20	
30A	ABS102b/30	ABS103b/30	ABS104b/30	
40A	ABS102b/40	ABS103b/40	ABS104b/40	
50A	ABS102b/50	ABS103b/50	ABS104b/50	
60A	ABS102b/60	ABS103b/60	ABS104b/60	
75A	ABS102b/75	ABS103b/75	ABS104b/75	
100A	ABS102b/100	ABS103b/100	ABS104b/100	
In	for 35kA at 415V ... type ABH			
In	2pole	3pole	4pole	
15A	ABH102b/15	ABH103b/15	ABH104b/15	
20A	ABH102b/20	ABH103b/20	ABH104b/20	
30A	ABH102b/30	ABH103b/30	ABH104b/30	
40A	ABH102b/40	ABH103b/40	ABH104b/40	
50A	ABH102b/50	ABH103b/50	ABH104b/50	
60A	ABH102b/60	ABH103b/60	ABH104b/60	
75A	ABH102b/75	ABH103b/75	ABH104b/75	
100A	ABH102b/100	ABH103b/100	ABH104b/100	

Dimensions(mm)	ABE types	ABS/ABH type
<b>2pole</b>	50(W) × 130(H) × 60(D)	60(W) × 155(H) × 60(D)
<b>3pole</b>	75(W) × 130(H) × 60(D)	90(W) × 155(H) × 60(D)
<b>4pole</b>	100(W) × 130(H) × 60(D)	120(W) × 155(H) × 60(D)

**Certificate**  
CE, KEMA, Lloyd



<b>Rated current, In</b>	100, 125, 150, 175, 200, 225A
<b>Magnetic trip range</b>	(8 to 15) × In
<b>Type of trip unit</b>	Thermal-magnetic
<b>Connection</b>	Front (standard) Rear (optional)
<b>Mounting</b>	Fixed only
<b>Category of use</b>	Type A according to IEC947-2
<b>Breaking capacity, Icu</b>	Ics = 50% of Icu

Type	ABE	ABS	ABH
220/240V	35kA	50kA	65kA
380/415V	18kA	25kA	35kA
440/460V	18kA	25kA	35kA
480/500V	10kA	14kA	25kA
600V	7.5kA	10kA	18kA

Earth leakage circuit breaker



Types EBE203b, EBS203b, EBH203b  
physically interchangeable with MCCBs.

※ see details (p.86)

Key lock built-in type ;  
※ see details (p. 73)

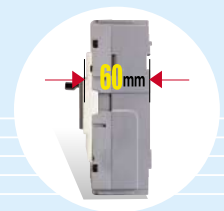


Rating	for 18kA at 415V ... type ABE		
In	2pole	3pole	4pole
100A	ABE202b/100	ABE203b/100	ABE204b/100
125A	ABE202b/125	ABE203b/125	ABE204b/125
150A	ABE202b/150	ABE203b/150	ABE204b/150
175A	ABE202b/175	ABE203b/175	ABE204b/175
200A	ABE202b/200	ABE203b/200	ABE204b/200
225A	ABE202b/225	ABE203b/225	ABE204b/225
In	for 25kA at 415V ... type ABS		
In	2pole	3pole	4pole
100A	ABS202b/100	ABS203b/100	ABS204b/100
125A	ABS202b/125	ABS203b/125	ABS204b/125
150A	ABS202b/150	ABS203b/150	ABS204b/150
175A	ABS202b/175	ABS203b/175	ABS204b/175
200A	ABS202b/200	ABS203b/200	ABS204b/200
225A	ABS202b/225	ABS203b/225	ABS204b/225
In	for 35kA at 415V ... type ABH		
In	2pole	3pole	4pole
100A	ABH202b/100	ABH203b/100	ABH204b/100
125A	ABH202b/125	ABH203b/125	ABH204b/125
150A	ABH202b/150	ABH203b/150	ABH204b/150
175A	ABH202b/175	ABH203b/175	ABH204b/175
200A	ABH202b/200	ABH203b/200	ABH204b/200
225A	ABH202b/225	ABH203b/225	ABH204b/225

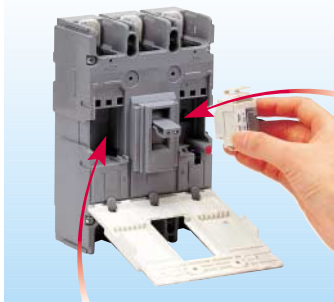
<b>Optional accessories</b>	Auxiliary switch Alarm switch Shunt trip Undervoltage trip Manual rotary handle Terminal shield Rear connection unit Insulational barrier (standard for line side only)
※ see details (p. 37~38)	

**Certificate**  
CE, KEMA, Lloyd

<b>Dimensions (mm)</b>	<b>2/3pole</b>	105(W) × 165(H) × 60(D)
	<b>4pole</b>	140(W) × 165(H) × 60(D)



## Electrical auxiliaries



Right-hand seat

Left-hand seat

### Maximum possibilities

#### Left-hand seat

Option of connecting AX or AL or XL  
This seat is not available for 2-pole breakers.

#### Right-hand seat

Option of connecting AX or AL or XL or SHT or UVT.  
This seat is not available for ELCBs.



Auxiliary switch, AX



Alarm switch, AL



Shunt trip, SHT



Under voltage trip, UVT

### Application to

ABE52b	ABE53b	EBE53b	
ABE62b	ABE63b	EBE63b	
ABE102b	ABE103b	ABE104b	EBE102b,103b
ABS32b	ABS33b	EBS33b	
ABS52b	ABS53b	ABS54b	EBS53b
ABS62b	ABS63b	ABS64b	EBS63b
ABH32b	ABH33b	EBH33b	

### Model Catalog No.

<b>AX1E100R-LWT</b>	<b>83011156101</b>
<b>AX1E100T-LWT</b>	<b>83011156104</b>
<b>AX1E100R-TBT</b>	<b>83011156107</b>
<b>AX1E100T-TBT</b>	<b>83011156110</b>

<b>AL1E100R-LWT</b>	<b>83011156102</b>
<b>AL1E100T-LWT</b>	<b>83011156105</b>
<b>AL1E100R-TBT</b>	<b>83011156108</b>
<b>AL1E100T-TBT</b>	<b>83011156111</b>

<b>XL1E100R-LWT</b>	<b>83011156103</b>
<b>XL1E100T-LWT</b>	<b>83011156106</b>
<b>XL1E100R-TBT</b>	<b>83011156109</b>
<b>XL1E100T-TBT</b>	<b>83011156112</b>

<b>ST12CE100</b>	<b>83211157101</b>
<b>ST24CE100</b>	<b>83211157102</b>
<b>ST48CE100</b>	<b>83211157103</b>
<b>ST60CE100</b>	<b>83211157104</b>
<b>ST110CE100</b>	<b>83211157105</b>
<b>ST220CE100</b>	<b>83211157107</b>
<b>ST250CE100</b>	<b>83211157109</b>
<b>ST380AE100</b>	<b>83211157110</b>
<b>ST440AE100</b>	<b>83211157111</b>
<b>ST500AE100</b>	<b>83211157112</b>
<b>ST125DE100</b>	<b>83211157106</b>
<b>ST240DE100</b>	<b>83211157108</b>

<b>UV24CE100</b>	<b>83211157137</b>
<b>UV48CE100</b>	<b>83211157138</b>
<b>UV110CE100</b>	<b>83211157139</b>
<b>UV220CE100</b>	<b>83211157140</b>
<b>UV380AE100</b>	<b>83211157141</b>
<b>UV440AE100</b>	<b>83211157142</b>

### Auxiliary switch, AX

Signals the contact position of the breaker  
- opening by manual or fault  
- closing

Consists of a changeover contact (1NO+NC)

- 1 auxiliary switch fit for the left-hand seat of a handle(LWT)
- 1 auxiliary switch fit for the right-hand seat of a handle(LWT)
- 1 auxiliary switch fit for the left-hand seat of a handle(TBT)
- 1 auxiliary switch fit for the right-hand seat of a handle(TBT)

### Alarm switch, AL

Signals the contact position of the breaker  
- tripping by manual or fault

- not operated by normal opening or closing of a breaker  
Consists of a changeover contact (1NO+NC)

- 1 alarm switch fit for the left-hand seat of a handle(LWT)
- 1 alarm switch fit for the right-hand seat of a handle(LWT)
- 1 alarm switch fit for the left-hand seat of a handle(TBT)
- 1 alarm switch fit for the right-hand seat of a handle(TBT)

### Combination switch, XL

Consists of a auxiliary switch and a alarm switch (2NO+NC)

- 1 combination switch fit for the left-hand seat of a handle(LWT)
- 1 combination switch fit for the right-hand seat of a handle(LWT)
- 1 combination switch fit for the left-hand seat of a handle(TBT)
- 1 combination switch fit for the right-hand seat of a handle(TBT)

### Shunt trip, SHT

Trips the breaker when any AC(DC) voltage between 85(75) and 110(125)% of nominal control voltage is applied.

Each unit is fitted into the right-hand seat of a handle.  
Not applicable to ELCBs.

- For 12V AC/DC common use
- For 24V AC/DC common use
- For 48V AC/DC common use
- For 60V AC/DC common use
- For 110V AC/DC common use
- For 220V AC/DC common use
- For 250V AC/DC common use
- For 380~450V AC
- For 440~480V AC
- For 500~550V AC
- For 125V DC
- For 240V DC

### Under voltage trip, UVT

trips the breaker when control voltage disappears or falls.  
Each unit is fitted into the right-hand seat of a handle.

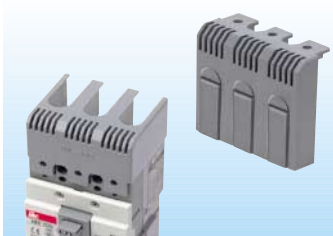
- Not applicable to ELCBs.
- For 24V AC/DC common use
- For 48V AC/DC common use
- For 110V AC/DC common use
- For 220V AC/DC common use
- For 380~440V AC
- For 440~480V AC

# MCCBs for general use

## AB type MCCBs

## Accessories

### External accessories



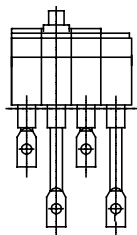
Terminal shield



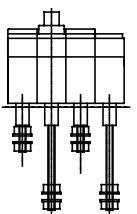
Insulation barrier



Rear connection



Bar type



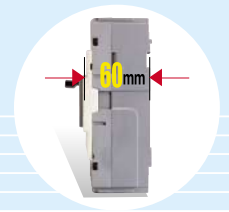
Round type

#### Application to

ABE52b	ABE53b	EBE53b	
ABE62b	ABE63b	EBE63b	
ABE102b	ABE103b	ABE104b	EBE102b,103b
ABS32b	ABS33b	EBS33b	
ABS52b	ABS53b	ABS54b	EBS53b
ABS62b	ABS63b	ABS64b	EBS63b
ABH32b	ABH33b	EBH33b	

#### Model Catalog No.

<b>IB50</b>	<b>67221152001</b>	<p><b>Insulation barriers</b></p> <p>These are partitions for the insulation between the phases. Barriers for the line side of the breaker are supplied as standard. Barriers for the load side are optional. One(1) barrier ... 50mm length (Set quantity: 500pcs)</p>													
<b>TBL-13B</b>	<b>64621151202</b>	<p><b>Terminal shields</b></p> <p>These are applied to the line/load side of the breaker to prevent accidental contact from live parts. Long and short types are available</p> <p><i>Long type</i></p> <p>3 pole shield</p> <p>2 pole shield (use 2 ea for 4 pole)</p> <p><i>Short type</i></p> <p>3 pole shield</p> <p>2 pole shield (use 2 ea for 4 pole)</p>													
<b>TBL-12B</b>	<b>64621151201</b>														
<b>TBS-13B</b>	<b>64621151204</b>	<p><b>Rear connection kits</b></p> <p>Bar and round types are available. To apply to 4 pole MCCB use 2 sets of the kit for 2-pole MCCB</p> <p><i>Application to ;</i></p> <table border="1"> <tbody> <tr> <td>ABE52b</td> <td>ABE53b</td> <td>EBE53b</td> </tr> <tr> <td>ABS32b</td> <td>ABS33b</td> <td>EBS33b</td> </tr> <tr> <td>ABS52b</td> <td>ABS53b</td> <td>ABS54b</td> <td>EBE53b</td> </tr> <tr> <td>ABH32b</td> <td>ABH33b</td> <td>EBH33b</td> </tr> </tbody> </table>	ABE52b	ABE53b	EBE53b	ABS32b	ABS33b	EBS33b	ABS52b	ABS53b	ABS54b	EBE53b	ABH32b	ABH33b	EBH33b
ABE52b	ABE53b		EBE53b												
ABS32b	ABS33b	EBS33b													
ABS52b	ABS53b	ABS54b	EBE53b												
ABH32b	ABH33b	EBH33b													
<b>TBS-12B</b>	<b>64621151203</b>														
<b>X-35R-52</b>	<b>83161159109</b>	a set of the ROUND type for a 2-pole MCCB													
<b>X-35R-53</b>	<b>83161159110</b>	a set of the ROUND type for a 3-pole MCCB													
		<i>Application to ;</i>													
		ABE62b	ABE63b	EBE63b											
		ABE102b	ABE103b	ABE104b	EBE102b,103b										
		ABS62b	ABS63b	ABS64b	EBS63b										
<b>X-35B-102</b>	<b>83161159101</b>	a set of the BAR type for a 2-pole MCCB													
<b>X-35B-103</b>	<b>83161159102</b>	a set of the BAR type for a 3-pole MCCB													
<b>X-35R-102</b>	<b>83161159111</b>	a set of the ROUND type for a 2-pole MCCB													
<b>X-35R-103</b>	<b>83161159112</b>	a set of the ROUND type for a 3-pole MCCB													



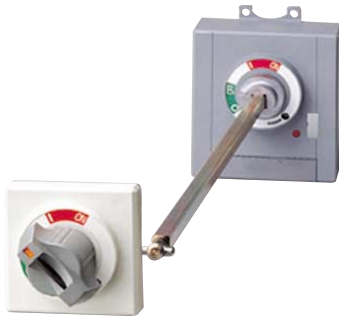
## Manual rotary handles



Direct mounting type

### Application to

ABE53b	EBE53b
ABE63b	EBE63b
ABE102b ABE103b ABE104b	EBE102b, 103b
ABS33b	EBS33b
ABS53b ABS54b	EBS53b
ABS63b ABS64b	EBS63b
ABH33b	EBH33b



Extensible mounting type

### Model

### Catalog No.

**D-35S**

**83111158101**

**D-35L**

**83111158102**

**D-35R**

**83111158103**

**E-35S**

**83111158110**

**E-35L**

**83111158111**

**E-35R**

**83111158112**

### Direct mounting

Vertical type

Horizontal (ON in left-hand) type

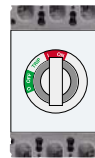
Horizontal (ON in right-hand) type

### Extensible mounting

Vertical type

Horizontal (ON in left-hand) type

Horizontal (ON in right-hand) type



Vertical type

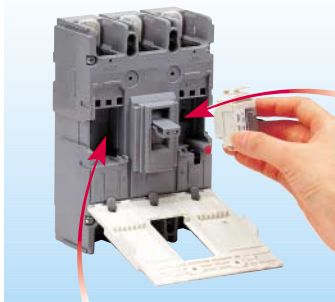


Horizontal type  
ON in right-hand



Horizontal type  
ON in left-hand

### Electrical auxiliaries ...optional



Left-hand seat

Right-hand seat

#### Application to

ABS102b	ABS103b	ABS104b	EBS103b
ABH52b	ABH53b	ABH54b	EBH53b
ABH102b	ABH103b	ABH104b	EBH103b

#### Maximum possibilities

##### Left-hand seat

Option of connecting AX or AL or XL  
This seat is not available for 2-pole breakers.

##### Right-hand seat

Option of connecting AX or AL or XL or SHT or UVT  
This seat is not available for ELCBs.



Auxiliary switch, AX



Alarm switch, AL



Shunt trip, SHT



Under voltage trip, UVT

Model	Catalog No.
<b>AX1H100R-LWT</b>	<b>83011156113</b>
<b>AX1H100T-LWT</b>	<b>83011156116</b>
<b>AX1H100R-TBT</b>	<b>83011156119</b>
<b>AX1H100T-TBT</b>	<b>83011156122</b>
<b>AL1H100R-LWT</b>	<b>83011156114</b>
<b>AL1H100T-LWT</b>	<b>83011156117</b>
<b>AL1H100R-TBT</b>	<b>83011156120</b>
<b>AL1H100T-TBT</b>	<b>83011156123</b>
<b>XL1H100R-LWT</b>	<b>83011156115</b>
<b>XL1H100T-LWT</b>	<b>83011156118</b>
<b>XL1H100R-TBT</b>	<b>83011156121</b>
<b>XL1H100T-TBT</b>	<b>83011156124</b>
<b>ST12CH100</b>	<b>83211157113</b>
<b>ST24CH100</b>	<b>83211157114</b>
<b>ST48CH100</b>	<b>83211157115</b>
<b>ST60CH100</b>	<b>83211157116</b>
<b>ST110CH100</b>	<b>83211157117</b>
<b>ST220CH100</b>	<b>83211157119</b>
<b>ST250CH100</b>	<b>83211157121</b>
<b>ST380AH100</b>	<b>83211157122</b>
<b>ST440AH100</b>	<b>83211157123</b>
<b>ST500AH100</b>	<b>83211157124</b>
<b>ST125DH100</b>	<b>83211157118</b>
<b>ST240DH100</b>	<b>83211157120</b>
<b>UV24CH100</b>	<b>83211157143</b>
<b>UV48CH100</b>	<b>83211157144</b>
<b>UV110CH100</b>	<b>83211157145</b>
<b>UV220CH100</b>	<b>83211157146</b>
<b>UV380AH100</b>	<b>83211157147</b>
<b>UV440AH100</b>	<b>83211157148</b>

#### Auxiliary switch, AX

Signals the contact position of the breaker

- opening by manual or fault

- closing

Consists of a changeover contact (1NO+NC)

1 auxiliary switch fit for the left-hand seat of a handle(LWT)

1 auxiliary switch fit for the right-hand seat of a handle(LWT)

1 auxiliary switch fit for the left-hand seat of a handle(TBT)

1 auxiliary switch fit for the right-hand seat of a handle(TBT)

#### Alarm switch, AL

Signals the contact position of the breaker

- tripping by manual or fault

- not operated by normal opening or closing of a breaker

Consists of a changeover contact (1NO+NC)

1 alarm switch fit for the left-hand seat of a handle(LWT)

1 alarm switch fit for the right-hand seat of a handle(LWT)

1 alarm switch fit for the left-hand seat of a handle(TBT)

1 alarm switch fit for the right-hand seat of a handle(TBT)

#### Combination switch, XL

Consists of a auxiliary switch and a alarm switch (2NO+NC)

1 combination switch fit for the left-hand seat of a handle(LWT)

1 combination switch fit for the right-hand seat of a handle(LWT)

1 combination switch fit for the left-hand seat of a handle(TBT)

1 combination switch fit for the right-hand seat of a handle(TBT)

#### Shunt trip, SHT

Trips the breaker when any AC(DC) voltage between 85(75) and 110(125)% of nominal control voltage is applied.

Each unit is fitted into the right-hand seat of a handle.

Not applicable to ELCBs.

For 12V AC/DC common use

For 24V AC/DC common use

For 48V AC/DC common use

For 60V AC/DC common use

For 110V AC/DC common use

For 220V AC/DC common use

For 250V AC/DC common use

For 380~450V AC

For 440~480V AC

For 500~550V AC

For 125V DC

For 240V DC

#### Under voltage trip, UVT

trips the breaker when control voltage disappears or falls.

Each unit is fitted into the right-hand seat of a handle.

Not applicable to ELCBs.

For 24V AC/DC common use

For 48V AC/DC common use

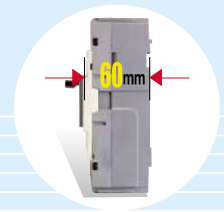
For 110V AC/DC common use

For 220V AC/DC common use

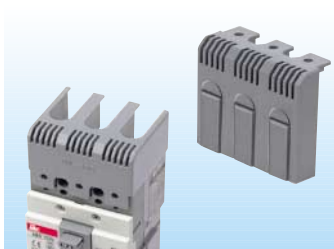
For 380~440V AC

For 440~480V AC





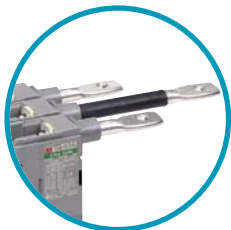
## External accessories



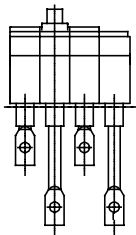
Terminal shield



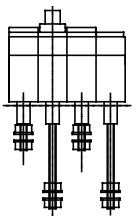
Insulation barrier



Rear connection



Bar type



Round type

### Application to

ABS102b	ABS103b	ABS104b	EBS103b
ABH52b	ABH53b	ABH54b	EBH53b
ABH102b	ABH103b	ABH104b	EBH103b

Model	Catalog No.
<b>IB50</b>	<b>67221152001</b>
<b>IB80</b>	<b>67221152002</b>
<b>TBL-22B</b>	<b>64621152201</b>
<b>TBL-23B</b>	<b>64621152202</b>
<b>TBL-24B</b>	<b>64621152203</b>
<b>TBS-22B</b>	<b>64621152204</b>
<b>TBS-23B</b>	<b>64621152205</b>
<b>TBS-24B</b>	<b>64621152206</b>
<b>X-45B-102</b>	<b>83161159103</b>
<b>X-45B-103</b>	<b>83161159104</b>
<b>X-45B-104</b>	<b>83161159105</b>
<b>X-45R-102</b>	<b>83161159113</b>
<b>X-45R-103</b>	<b>83161159114</b>
<b>X-45R-104</b>	<b>83161159115</b>

### Insulation barriers

These are partitions for the insulation between the phases. Barriers for the line side of the breaker are supplied as standard. Barriers for the load side are optional.

One(1) barrier ... 50mm length (Set quantity: 500pcs)

for ABS102b ABS103b ABS104b EBS103b  
ABH52b ABH53b ABH54b EBH53b

One(1) barrier ... 80mm length (Set quantity: 500pcs)

for ABH102b ABH103b ABH104b EBH103b

### Terminal shields

These are applied to the line/load side of the breaker to prevent accidental contact with live parts.

Long and short types are available

*Long type*

2 pole shield

3 pole shield

4 pole shield

*Short type*

2 pole shield

3 pole shield

4 pole shield

### Rear connection kits

Bar and Round types are available.

To apply to 4 pole MCCB use 2 sets of the kit for 2-pole MCCB

a set of the BAR type for a 2-pole MCCB

a set of the BAR type for a 3-pole MCCB

a set of the BAR type for a 4-pole MCCB

a set of the ROUND type for a 2-pole MCCB

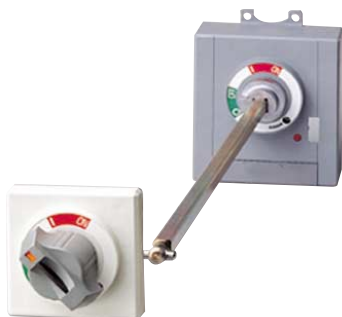
a set of the ROUND type for a 3-pole MCCB

a set of the ROUND type for a 4-pole MCCB

### Manual rotary handles



Direct mounting type



Extensible mounting type

#### Application to

ABS103b	ABS104b	EBS103b
ABH53b	ABH54b	EBH53b
ABH103b	ABH104b	EBH103b

#### Model

#### Catalog No.

**D-45S**

**83111158104**

**D-45L**

**83111158105**

**D-45R**

**83111158106**

**E-45S**

**83111158113**

**E-45L**

**83111158114**

**E-45R**

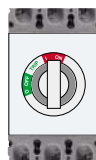
**83111158115**

#### Direct mounting

- Vertical type
- Horizontal (ON in left-hand) type
- Horizontal (ON in right-hand) type

#### Extensible mounting

- Vertical type
- Horizontal (ON in left-hand) type
- Horizontal (ON in right-hand) type



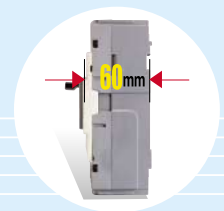
Vertical type



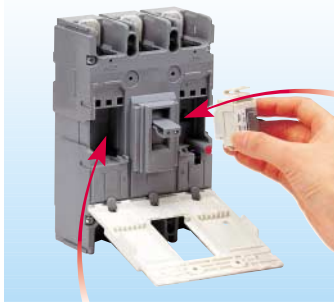
Horizontal type  
ON in right-hand



Horizontal type  
ON in left-hand



## Electrical auxiliaries ... optional



Right-hand seat

Left-hand seat

### Maximum possibilities

#### Left-hand seat

Option of connecting AX or AL or XL. This seat is not available for 2-pole breakers.

#### Right-hand seat

Option of connecting AX or AL or XL or SHT or UVT. This seat is not available for ELCBs.

### Application to

ABE202b	ABE203b	ABE204b	EBE203b
ABS202b	ABS203b	ABS204b	EBS203b
ABH202b	ABH203b	ABH204b	EBH203b

### Model

### Catalog No.

<b>AX1H200R-LWT</b>	<b>83011156125</b>
<b>AX1H200T-LWT</b>	<b>83011156128</b>
<b>AX1H200R-TBT</b>	<b>83011156131</b>
<b>AX1H200T-TBT</b>	<b>83011156134</b>

<b>AL1H200R-LWT</b>	<b>83011156126</b>
<b>AL1H200T-LWT</b>	<b>83011156129</b>
<b>AL1H200R-TBT</b>	<b>83011156132</b>
<b>AL1H200T-TBT</b>	<b>83011156135</b>

<b>XL1H200R-LWT</b>	<b>83011156127</b>
<b>XL1H200T-LWT</b>	<b>83011156130</b>
<b>XL1H200R-TBT</b>	<b>83011156133</b>
<b>XL1H200T-TBT</b>	<b>83011156136</b>

<b>ST12CH200</b>	<b>83211157125</b>
<b>ST24CH200</b>	<b>83211157126</b>
<b>ST48CH200</b>	<b>83211157127</b>
<b>ST60CH200</b>	<b>83211157128</b>
<b>ST110CH200</b>	<b>83211157129</b>
<b>ST220CH200</b>	<b>83211157131</b>
<b>ST250CH200</b>	<b>83211157133</b>
<b>ST380AH200</b>	<b>83211157134</b>
<b>ST440AH200</b>	<b>83211157135</b>
<b>ST500AH200</b>	<b>83211157136</b>
<b>ST125DH200</b>	<b>83211157130</b>
<b>ST240DH200</b>	<b>83211157132</b>

<b>UV24CH200</b>	<b>83211157149</b>
<b>UV48CH200</b>	<b>83211157150</b>
<b>UV110CH200</b>	<b>83211157151</b>
<b>UV220CH200</b>	<b>83211157152</b>
<b>UV380AH200</b>	<b>83211157153</b>
<b>UV440AH200</b>	<b>83211157154</b>

### Auxiliary switch, AX

Signals the contact position of the breaker  
- opening by manual or fault  
- closing

Consists of a changeover contact (1NO+NC)

- 1 auxiliary switch fit for the left-hand seat of a handle(LWT)
- 1 auxiliary switch fit for the right-hand seat of a handle(LWT)
- 1 auxiliary switch fit for the left-hand seat of a handle(TBT)
- 1 auxiliary switch fit for the right-hand seat of a handle(TBT)

### Alarm switch, AL

Signals the contact position of the breaker  
- tripping by manual or fault

- not operated by normal opening or closing of a breaker  
Consists of a changeover contact (1NO+NC)

- 1 alarm switch fit for the left-hand seat of a handle(LWT)
- 1 alarm switch fit for the right-hand seat of a handle(LWT)
- 1 alarm switch fit for the left-hand seat of a handle(TBT)
- 1 alarm switch fit for the right-hand seat of a handle(TBT)

### Combination switch, XL

Consists of a auxiliary switch and a alarm switch (2NO+NC)

- 1 combination switch fit for the left-hand seat of a handle(LWT)
- 1 combination switch fit for the right-hand seat of a handle(LWT)
- 1 combination switch fit for the left-hand seat of a handle(TBT)
- 1 combination switch fit for the right-hand seat of a handle(TBT)

### Shunt trip, SHT

Trips the breaker when any AC(DC) voltage between 85(75) and 110(125)% of nominal control voltage is applied. Each unit is fitted into the right-hand seat of a handle.

Not applicable to ELCBs.

- For 12V AC/DC common use
- For 24V AC/DC common use
- For 48V AC/DC common use
- For 60V AC/DC common use
- For 110V AC/DC common use
- For 220V AC/DC common use
- For 250V AC/DC common use
- For 380~450V AC
- For 440~480V AC
- For 500~550V AC
- For 125V DC
- For 240V DC

### Under voltage trip, UVT

trips the breaker when control voltage disappears or falls. Each unit is fitted into the right-hand seat of a handle.

Not applicable to ELCBs.

- For 24V AC/DC common use
- For 48V AC/DC common use
- For 110V AC/DC common use
- For 220V AC/DC common use
- For 380~440V AC
- For 440~480V AC



Auxiliary switch, AX



Alarm switch, AL



Shunt trip, SHT



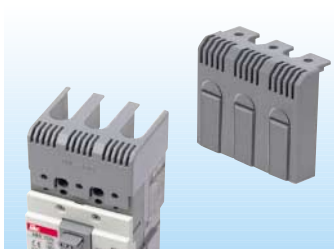
Under voltage trip, UVT

# MCCBs for general use

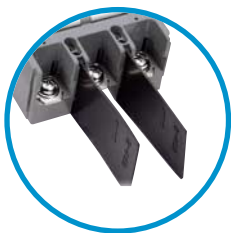
## AB type MCCBs

## Accessories

### External accessories



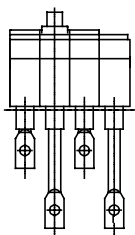
Terminal shield



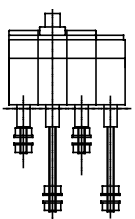
Insulation barrier



Rear connection



Bar type



Round type

#### Application to

ABE202b	ABE203b	ABE204b	EBE203b
ABS202b	ABS203b	ABS204b	EBS203b
ABH202b	ABH203b	ABH204b	EBH203b

#### Model

#### Catalog No.

Model	Catalog No.	Insulation barriers
<b>IB80</b>	<b>67221152002</b>	<p>These are partitions for the insulation between the phases. Barriers for the line side of the breaker are supplied as standard. Barriers for the load side are optional.</p> <p>One(1) barrier ... 80mm length (Set quantity: 500pcs)</p>
<b>TBL-33B</b>	<b>64621153201</b>	<p><b>Terminal shields</b></p> <p>These are applied to the line/load side of the breaker to prevent accidental contact with live parts. Long and short types are available</p> <p><i>Long type</i></p> <p>2, 3 pole shield</p> <p>4 pole shield</p> <p><i>Short type</i></p> <p>2, 3 pole shield</p> <p>4 pole shield</p>
<b>TBL-34B</b>	<b>64621153202</b>	
<b>TBS-33B</b>	<b>64621153203</b>	<p><b>Rear connection kits</b></p> <p>Bar and Round types are available.</p> <p>a set of the BAR type for a 2-pole MCCB</p> <p>a set of the BAR type for a 3-pole MCCB</p> <p>a set of the BAR type for a 4-pole MCCB</p> <p>a set of the ROUND type for a 2-pole MCCB</p> <p>a set of the ROUND type for a 3-pole MCCB</p> <p>a set of the ROUND type for a 4-pole MCCB</p>
<b>TBS-34B</b>	<b>64621153204</b>	
<b>X-55B-202</b>	<b>83161159106</b>	
<b>X-55B-203</b>	<b>83161159107</b>	
<b>X-55B-204</b>	<b>83161159108</b>	
<b>X-55R-202</b>	<b>83161159116</b>	
<b>X-55R-203</b>	<b>83161159117</b>	
<b>X-55R-204</b>	<b>83161159118</b>	



## Manual rotary handles



Direct mounting type



Extensible mounting type

### Application to

ABE202b	ABE203b	ABE204b	EBE203b
ABS202b	ABS203b	ABS204b	EBS203b
ABH202b	ABH203b	ABH204b	EBH203b

### Model

### Catalog No.

**D-55S**  
**D-55L**  
**D-55R**

**83111158107**  
**83111158108**  
**83111158109**

### Direct mounting

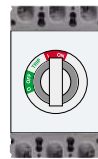
Vertical type  
Horizontal (ON in left-hand) type  
Horizontal (ON in right-hand) type

**E-55S**  
**E-55L**  
**E-55R**

**83111158116**  
**83111158117**  
**83111158118**

### Extensible mounting

Vertical type  
Horizontal (ON in left-hand) type  
Horizontal (ON in right-hand) type



Vertical type



Horizontal type  
ON in right-hand



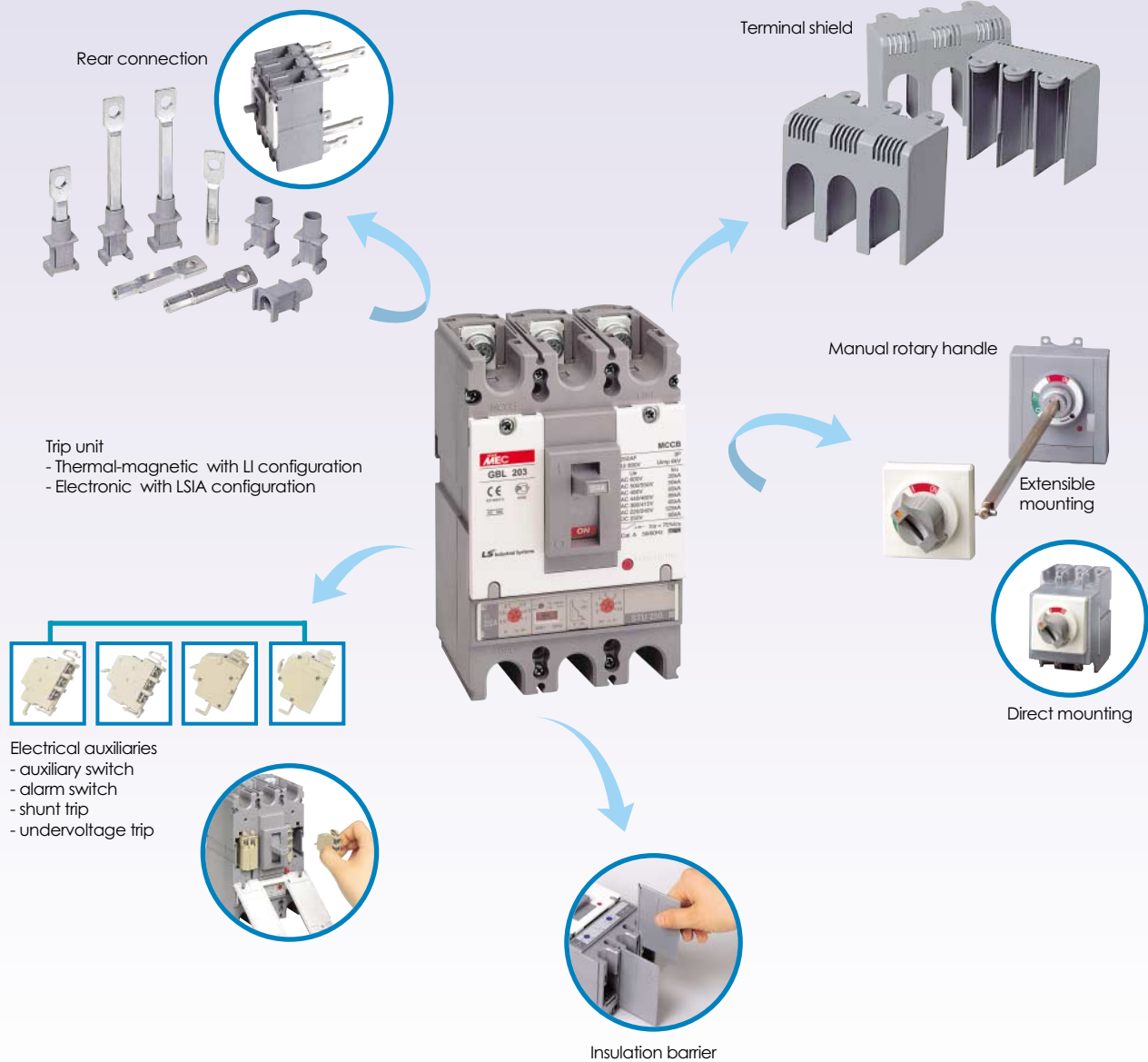
Horizontal type  
ON in left-hand

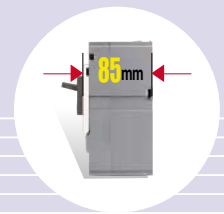
# MCCBs for general use

## GB type adjustable MCCBs up to 250AF

## Overview

- Suitable for use in the system where higher fault currents exist.  
35, 65 and 85kAIC breakers are available.
- Employing a adjustable trip unit.
- Current adjustments are made by knobs on the front of the trip unit.
- Electric auxiliaries are common use up to 250 amperes.
- UL508 certificate as a manual motor controller.

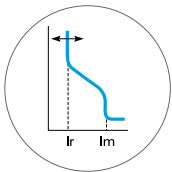




## Thermal magnetic trip



Knob for adjusting thermal current



<b>Rated current, In</b>	16, 20, 25, 32, 40, 50, 63, 80, 100A
<b>Type of trip unit</b>	Adjustable thermal and fixed magnetic
<b>Thermal current</b>	$(0.8-0.9-1.0) \times I_n$ ... adjustable via knob
<b>Magnetic trip</b>	$(8 \text{ to } 12) \times I_n$ ... fixed
	Min. $500A \pm 20\%$
<b>Number of poles</b>	2, 3, 4 pole
<b>Connection</b>	Front (standard) Rear (optional)
<b>Mounting</b>	Fixed only
<b>Category of use</b>	Type A according to IEC947-2
<b>Breaking capacity, Icu</b>	$I_{cs} = 75\%$ of Icu

Type	GBN	GBH
<b>220/240V</b>	50kA	85kA
<b>380/415V</b>	35kA	50kA
<b>440/460V</b>	35kA	50kA
<b>480/500V</b>	30/22kA	42/35kA
<b>600V</b>	18kA	25kA

### Optional accessories

- Auxiliary switch
- Alarm switch
- Shunt trip
- Undervoltage trip
- Manual rotary handle
- Terminal shield
- Rear connection unit
- Insulational barrier (standard for line side only)
- ※ see details (p. 50)

Rating	for 35kA at 415V ... Type GBN			
In	2pole	3pole	4pole	Adjustable thermal range
16A	GBN102/16	GBN103/16	GBN104/16	12.8-14.4-16A
20A	GBN102/20	GBN103/20	GBN104/20	16-18-20A
25A	GBN102/25	GBN103/25	GBN104/25	20-22.5-25A
32A	GBN102/32	GBN103/32	GBN104/32	25.6-28.8-32A
40A	GBN102/40	GBN103/40	GBN104/40	32-36-40A
50A	GBN102/50	GBN103/50	GBN104/50	40-45-50A
63A	GBN102/63	GBN103/63	GBN104/63	50.4-56.7-63A
80A	GBN102/80	GBN103/80	GBN104/80	64-72-80A
100A	GBN102/100	GBN103/100	GBN104/100	80-90-100A
In	for 50kA at 415V ... Type GBH			
In	2pole	3pole	4pole	Adjustable thermal range
16A	GBH102/16	GBH103/16	GBH104/16	12.8-14.4-16A
20A	GBH102/20	GBH103/20	GBH104/20	16-18-20A
25A	GBH102/25	GBH103/25	GBH104/25	20-22.5-25A
32A	GBH102/32	GBH103/32	GBH104/32	25.6-28.8-32A
40A	GBH102/40	GBH103/40	GBH104/40	32-36-40A
50A	GBH102/50	GBH103/50	GBH104/50	40-45-50A
63A	GBH102/63	GBH103/63	GBH104/63	50.4-56.7-63A
80A	GBH102/80	GBH103/80	GBH104/80	64-72-80A
100A	GBH102/100	GBH103/100	GBH104/100	80-90-100A

### Certificate

CE, KEMA, Lloyd & UL

UL508 certificate as a manual motor controller

<b>Dimensions (mm)</b>	<b>2/3pole</b>	90(W) × 140(H) × 86(D)
	<b>4pole</b>	120(W) × 140(H) × 86(D)

# MCCBs for general use

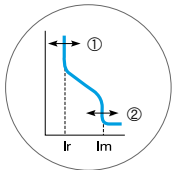
## GB type adjustable MCCBs

## Thermal magnetic trip 250AF

### Thermal magnetic trip



- ① Knob for adjusting thermal current  
 ② Knob for adjusting Magnetic current



<b>Rated current, In</b>	16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160, 200, 250A
<b>Type of trip unit</b>	Adjustable thermal and adjustable magnetic trip
<b>Thermal current</b>	(0.8-0.9-1.0) × In ... adjustable via knob
<b>Magnetic current</b>	(5-6-7-8-9-10) × In ... adjustable for In=125 to 250A (8 to 12) × In ... fixed for In=16 to 100A
<b>Number of poles</b>	2, 3, 4 pole
<b>Connection</b>	Front (standard) Rear (optional)
<b>Mounting</b>	Fixed only
<b>Category of use</b>	Type A according to IEC947-2
<b>Breaking capacity, Icu</b>	Ics = 75% of Icu

Type	GBN	GBH	GBL
<b>220/240V</b>	50kA	85kA	125kA
<b>380/415V</b>	35kA	50kA	85kA
<b>440/460V</b>	35kA	50kA	85kA
<b>480/500V</b>	30/22kA	42/35kA	65/50kA
<b>600V</b>	18kA	25kA	35kA

Rating	for 35kA at 415V ... Type GBN				
	In	2pole	3pole	4pole	Adjustable thermal range
<b>125A</b>		GBN202/125	GBN203/125	GBN204/125	100-112.5-125A
<b>160A</b>		GBN202/160	GBN203/160	GBN204/160	128-144-160A
<b>200A</b>		GBN202/200	GBN203/200	GBN204/200	160-180-200A
<b>250A</b>		GBN202/250	GBN203/250	GBN204/250	200-225-250A
Rating	for 50kA at 415V ... Type GBH				
	In	2pole	3pole	4pole	Adjustable thermal range
<b>125A</b>		GBH202/125	GBH203/125	GBH204/125	100-112.5-125A
<b>160A</b>		GBH202/160	GBH203/160	GBH204/160	128-144-160A
<b>200A</b>		GBH202/200	GBH203/200	GBH204/200	160-180-200A
<b>250A</b>		GBH202/250	GBH203/250	GBH204/250	200-225-250
Rating	for 85kA at 415V ... Type GBL				
	In	2pole	3pole	4pole	Adjustable thermal range
<b>16A</b>		GBL102/16	GBL103/16	GBL104/16	12.8-14.4-16A
<b>20A</b>		GBL102/20	GBL103/20	GBL104/20	16-18-20A
<b>25A</b>		GBL102/25	GBL103/25	GBL104/25	20-22.5-25A
<b>32A</b>		GBL102/32	GBL103/32	GBL104/32	25.6-28.8-32A
<b>40A</b>		GBL102/40	GBL103/40	GBL104/40	32-36-40A
<b>50A</b>		GBL102/50	GBL103/50	GBL104/50	40-45-50A
<b>63A</b>		GBL102/63	GBL103/63	GBL104/63	50.4-56.7-63A
<b>80A</b>		GBL102/80	GBL103/80	GBL104/80	64-72-80A
<b>100A</b>		GBL102/100	GBL103/100	GBL104/100	80-90-100A
<b>125A</b>		GBL202/125	GBL203/125	GBL204/125	100-112.5-125A
<b>160A</b>		GBL202/160	GBL203/160	GBL204/160	128-144-160A
<b>200A</b>		GBL202/200	GBL203/200	GBL204/200	160-180-200A
<b>250A</b>		GBL202/250	GBL203/250	GBL204/250	200-225-250A

\* Note; Magnetic currents are non-adjustable from In=16 to 100A

#### Optional accessories

- Auxiliary switch
- Alarm switch
- Shunt trip
- Undervoltage trip
- Manual rotary handle
- Terminal shield
- Rear connection unit
- Insulational barrier (standard for line side only)

※ see details (p. 50)

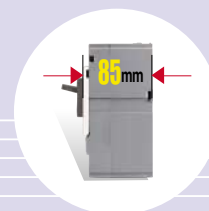
**Certificate**  
 CE, KEMA, Lloyd & UL

UL508 certificate as a manual motor controller

<b>Dimensions (mm)</b>	<b>2/3pole</b>	90(W) × 140(H) × 86(D)
	<b>4pole</b>	120(W) × 140(H) × 86(D)

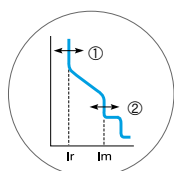
- Motor protection circuit breaker - magnetic only release type: see details(p. 69)
- MCCBs with electronic trip units: see details(p. 49)





# Electronic trip 250AF

## Electronic trip



Trip unit configuration



- ① Knob for adjusting long time pick-up current
- Selector of frequency
- LED for alarm
- ② Knob for adjusting short time pick-up current

<b>Rated current, In</b>	50, 100, 250A												
<b>Type of trip unit</b>	Electronic trip												
<b>Long time pick-up, Ir</b>	$(0.5-0.6-0.7-0.8-0.9-1.0) \times I_n$ ... adjustable via knob												
<b>Short time pick-up, Im</b>	$(2-3-4-5-6-8-10) \times I_r$ ... adjustable via knob												
<b>Instantaneous pick-up</b>	$11 \times I_n$ ... fixed												
<b>Alarm</b>	Warning via LED flickering when the load current is between 70 to 110% of set current $I_r$ . LED stays on over 110% of set current $I_r$ .												
<b>Rated frequency</b>	50-60 selectable by the switch of the trip unit												
<b>Number of poles</b>	3 pole												
<b>Connection</b>	Front (standard) Rear (optional)												
<b>Mounting</b>	Fixed only												
<b>Category of use</b>	Type A according to IEC947-2												
<b>Breaking capacity, Icu</b>	$I_{cs} = 75\%$ of $I_{cu}$												
	<table border="1"> <thead> <tr> <th>Type</th> <th>GBL</th> </tr> </thead> <tbody> <tr> <td>220/240V</td> <td>125kA</td> </tr> <tr> <td>380/415V</td> <td>85kA</td> </tr> <tr> <td>440/460V</td> <td>85kA</td> </tr> <tr> <td>480/500V</td> <td>65/50kA</td> </tr> <tr> <td>600V</td> <td>35kA</td> </tr> </tbody> </table>	Type	GBL	220/240V	125kA	380/415V	85kA	440/460V	85kA	480/500V	65/50kA	600V	35kA
Type	GBL												
220/240V	125kA												
380/415V	85kA												
440/460V	85kA												
480/500V	65/50kA												
600V	35kA												

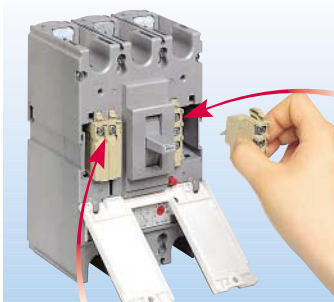
Rating		
In	3pole	Adjustable thermal range
50A	GBL53E	25-30-35-40-45-50A
100A	GBL103E	50-60-70-80-90-100A
250A	GBL203E	125-150-175-200-225-250A

<b>Optional accessories</b>	Auxiliary switch Alarm switch Shunt trip Undervoltage trip Manual rotary handle Terminal shield Rear connection unit Insulational barrier (standard for line side only)
* see details (p. 50)	

**Dimensions(mm) 3pole** 90(W) × 140(H) × 86(D)

· MCCBs with thermal-magnetic trip: see details (p. 48)

### Electrical auxiliaries



Right-hand seat

Left-hand seat

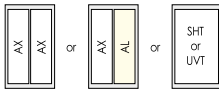
Common use for GB type breakers up to 250Amp.

... GBN, GBH, GBL

#### Maximum possibilities

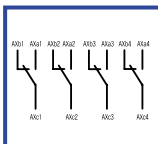
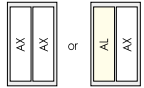
##### Left-hand seat

Option of connecting 2AX or AX+AL or SHT or UVT

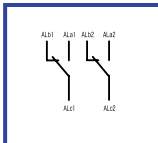


##### Right-hand seat

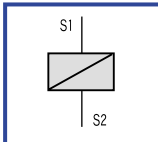
Option of connecting 2AX or AL+AX



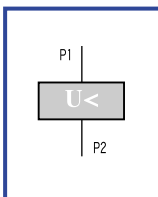
Auxiliary switch, AX



Alarm switch, AL



Shunt trip, SHT



Under voltage trip, UVT

#### Model

#### Catalog No.

**AX1G250**

**83011146001**

#### Auxiliary switch, AX

Signals the contact position of the breaker

- opening by manual or fault
- closing

Consists of one change over switch per unit

1 auxiliary switch (1NO+NC)

**AL1G250**

**83011146002**

#### Alarm switch, AL

Signals the contact position of the breaker

- tripping by manual or fault
  - not operated by normal opening or closing of a breaker
- Consists of one change over switch

1 alarm switch (1NO+NC)

**ST12CG250**

**83211146011**

#### Shunt trip, SHT

Trips the breaker when any AC(DC) voltage between 85(75) and 110(125)% of nominal control voltage is applied. This unit is fitted into the left-hand seat of a handle.

**ST24CG250**

**83211146012**

For 12V AC/DC common use

**ST48CG250**

**83211146013**

For 24V AC/DC common use

**ST60CG250**

**83211146014**

For 48V AC/DC common use

**ST100CG250**

**83211146015**

For 60V AC/DC common use

**ST200CG250**

**83211146017**

For 100~125VAC / 100~110VDC

**ST250CG250**

**83211146019**

For 200~240VAC / 200~220VDC

**ST380AG250**

**83211146020**

For 250V AC/DC common use

**ST440AG250**

**83211146021**

For 380~450V AC

**ST500AG250**

**83211146022**

For 440~480V AC

**ST125DG250**

**83211146016**

For 500~550V AC

**ST240DG250**

**83211146018**

For 125V DC

For 240V DC

**UV24CG250**

**83211146051**

#### Under voltage trip, UVT

Trips the breaker when control voltage disappears or falls. This unit is fitted into the left-hand seat of a handle.

**UV48CG250**

**83211146052**

For 24V AC/DC common use

**UV100CG250**

**83211146053**

For 48V AC/DC common use

**UV200CG250**

**83211146054**

For 100~110V AC/DC common use

**UV380AG250**

**83211146055**

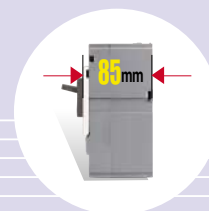
For 200~220V AC/DC common use

**UV440AG250**

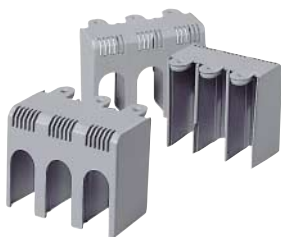
**83211146056**

For 380~440V AC

For 440~480V AC



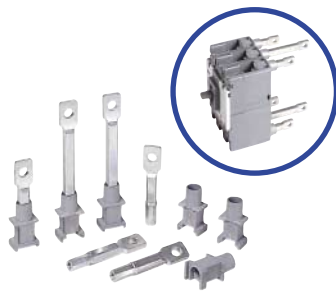
## External accessories



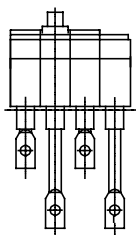
Terminal shield



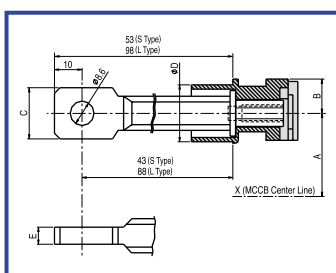
Insulation barriers



Rear connection kits



Bar type



### Model

### Catalog No.

**IBG250**

#### Insulation barriers

These are partitions for the insulation between the phases. Barriers for the line side of the breaker are supplied as standard. Barriers for the load side are optional. Common use for all GB type breakers up to 250Amp. One(1) barrier

#### Terminal shields

These are applied to the line/load side of the breaker to prevent accidental contact with live parts.

Different by breaker dimensions.

Use 3pole shield for 2pole breakers

<b>TB-13T</b>	<b>64621141101</b>	3 pole shield for GBN/GBH103
<b>TB-14T</b>	<b>64621141102</b>	4 pole shield for GBN/GBH104
<b>TBS-13T</b>	<b>64621141103</b>	3 pole shield for GBN/GBH103
<b>TBS-14T</b>	<b>64621141104</b>	4 pole shield for GBN/GBH104
<b>TB-23T</b>	<b>64621142301</b>	3 pole shield for GBN/GBH203, GBL103/203(E)
<b>TB-24T</b>	<b>64621142302</b>	4 pole shield for GBN/GBH204, GBL104/204
<b>TBS-23T</b>	<b>64621142303</b>	3 pole shield for GBN/GBH203, GBL103/203(E)
<b>TBS-24T</b>	<b>64621142304</b>	4 pole shield for GBN/GBH204, GBL104/204

#### Rear connection kits ... Bar type

<b>X-102</b>	<b>72311141291</b>	a set for 2 pole MCCBs of GBN/GBH102
<b>X-103</b>	<b>72311141292</b>	a set for 3 pole MCCBs of GBN/GBH103
<b>X-104</b>	<b>72311141293</b>	a set for 4 pole MCCBs of GBN/GBH104
<b>X-202</b>	<b>72311142291</b>	a set for 2 pole MCCBs of GBN/GBH202, GBL102/202
<b>X-203</b>	<b>72311142292</b>	a set for 3 pole MCCBs of GBN/GBH203, GBL103/203(E)
<b>X-204</b>	<b>72311142293</b>	a set for 4 pole MCCBs of GBN/GBH204, GBL104/204

### Manual rotary handles



Direct mounting type



Extensible mounting type

**Model**

**Catalog No.**

**D-30S**

**83111147101**

**D-30L**

**83111147102**

**D-30R**

**83111147103**

**D-60S**

**83111147111**

**D-60L**

**83111147112**

**D-60R**

**83111147113**

**E-30S**

**83111147151**

**E-30L**

**83111147152**

**E-30R**

**83111147153**

**E-60S**

**83111147161**

**E-60L**

**83111147162**

**E-60R**

**83111147163**

#### Direct mounting

*Applicable for GBN/GBH 100AF, 3-4 pole*

Vertical type

Horizontal (ON in left-hand) type

Horizontal (ON in right-hand) type

*Applicable for GBN/GBH/GBL 250AF, GBL100, 3-4 pole*

Vertical type

Horizontal (ON in left-hand) type

Horizontal (ON in right-hand) type

#### Extensible mounting

*Applicable for GBN/GBH 100AF, 3-4 pole*

Vertical type

Horizontal (ON in left-hand) type

Horizontal (ON in right-hand) type

*Applicable for GBN/GBH/GBL 250AF, GBL100, 3-4 pole*

Vertical type

Horizontal (ON in right-hand) type

Horizontal (ON in right-hand) type



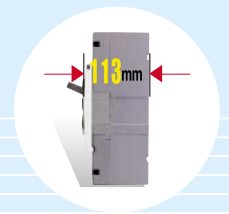
Vertical type



Horizontal type  
ON in right-hand

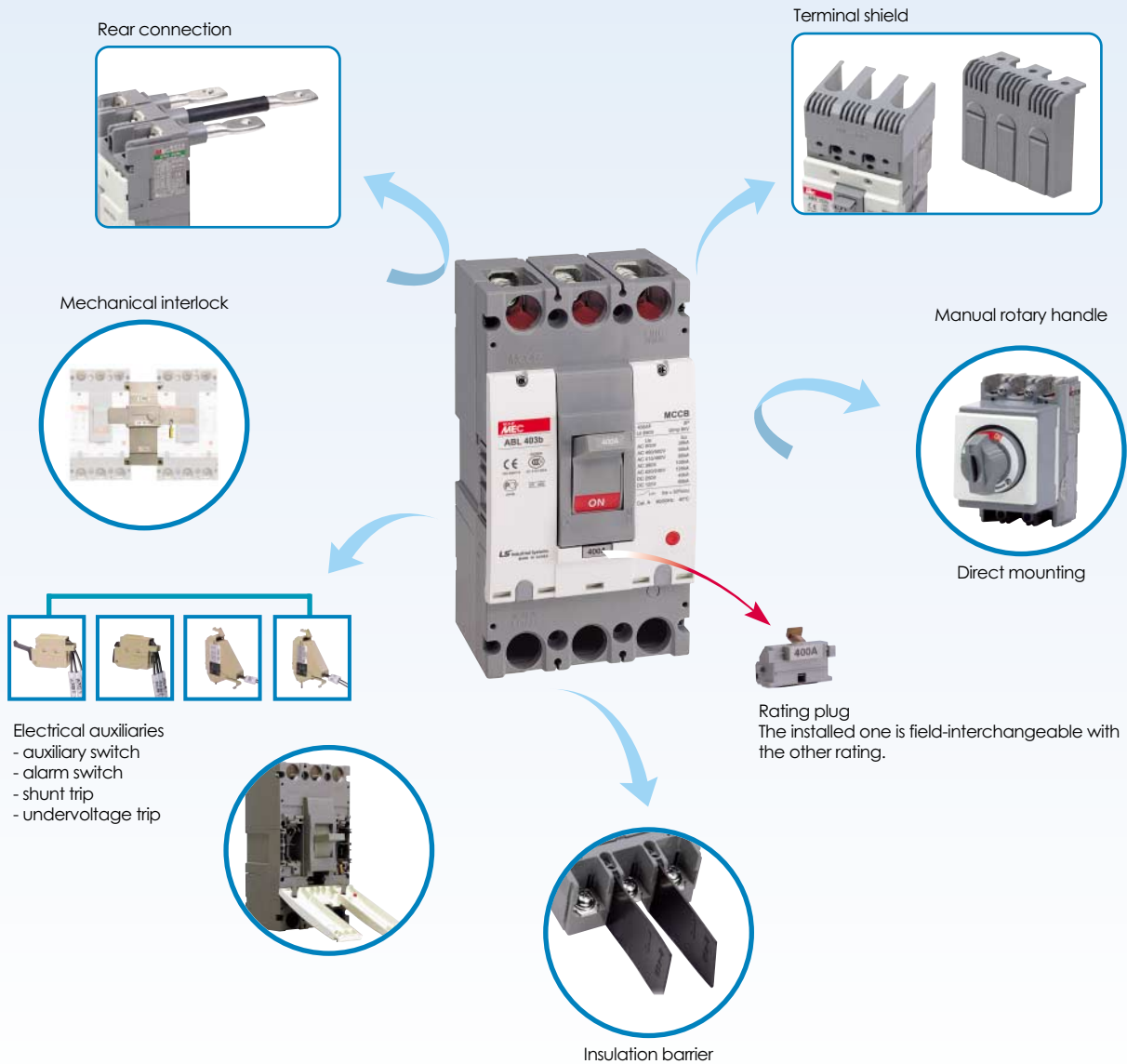


Horizontal type  
ON in left-hand



## 400AF & 800AF

- Each breaker uses the individual rating plug for determining the continuous current rating.
- Electric auxiliaries are common use between 400 to 800AF.
- 3-pole Earth leakage circuit breakers which are physically interchangeable with 3-pole MCCBs are available.
- MCCB with reference temperature 50°C is available on request.
- Motor protection MCCBs with magnetic only trip are available.
- CE & KEMA certificated according to IEC60947-2.





<b>Rated current, In</b>	250, 300, 350, 400A				
<b>Type of trip unit</b>	Interchangeable thermal and fixed magnetic				
<b>Thermal current</b>	Interchangeable by rating plugs				
<b>Magnetic trip</b>	(9 to 15) × In ... fixed Magnetic-adjustable types are optional				
<b>Number of poles</b>	2, 3, 4 pole				
<b>Connection</b>	Front (standard) Rear (optional)				
<b>Mounting</b>	Fixed only				
<b>Category of use</b>	Type A according to IEC947-2				
<b>Breaking capacity, Icu</b>	Ics = 100% of Icu(ABE, ABS), 50% of Icu(ABH, ABL)				
	<b>Type</b>	<b>ABE</b>	<b>ABS</b>	<b>ABH</b>	<b>ABL</b>
	<b>220/240V</b>	35kA	50kA	85kA	125kA
	<b>380V/415V</b>	30/25kA	42/35kA	65/50kA	100/85kA
	<b>440/460V</b>	25kA	35kA	50kA	85kA
	<b>480/500V</b>	18kA	25kA	35kA	65kA
	<b>600V</b>	18kA	22kA	25kA	30kA

### Earth leakage circuit breaker



Types EBE/S/H/L403 physically interchangeable with MCCBs.

※ see details (p. 87)

### Optional accessories

- Auxiliary switch
- Alarm switch
- Shunt trip
- Undervoltage trip
- Manual rotary handle
- Terminal shield
- Mechanical interlock
- Rear connection unit
- Insulation barrier (standard for line side only)

※ see details (p. 62)

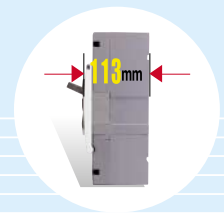
Rating	for 25kA at 415V ... Type ABE				Interchangeable rating plug
	In	2pole	3pole	4pole	
<b>250A</b>	ABE402b/250	ABE403b/250	ABE404b/250		300A
<b>300A</b>	ABE402b/300	ABE403b/300	ABE404b/300		250A
<b>350A</b>	ABE402b/350	ABE403b/350	ABE404b/350		400A
<b>400A</b>	ABE402b/400	ABE403b/400	ABE404b/400		350A
Rating	for 35kA at 415V ... Type ABS				Interchangeable rating plug
	In	2pole	3pole	4pole	
<b>250A</b>	ABS402b/250	ABS403b/250	ABS404b/250		300A
<b>300A</b>	ABS402b/300	ABS403b/300	ABS404b/300		250A
<b>350A</b>	ABS402b/350	ABS403b/350	ABS404b/350		400A
<b>400A</b>	ABS402b/400	ABS403b/400	ABS404b/400		350A
Rating	for 50kA at 415V ... Type ABH				Interchangeable rating plug
	In	2pole	3pole	4pole	
<b>250A</b>	ABH402b/250	ABH403b/250	ABH404b/250		300A
<b>300A</b>	ABH402b/300	ABH403b/300	ABH404b/300		250A
<b>350A</b>	ABH402b/350	ABH403b/350	ABH404b/350		400A
<b>400A</b>	ABH402b/400	ABH403b/400	ABH404b/400		350A
Rating	for 85kA at 415V ... Type ABL				Interchangeable rating plug
	In	2pole	3pole	4pole	
<b>250A</b>	ABL402b/250	ABL403b/250	ABL404b/250		300A
<b>300A</b>	ABL402b/300	ABL403b/300	ABL404b/300		250A
<b>350A</b>	ABL402b/350	ABL403b/350	ABL404b/350		400A
<b>400A</b>	ABL402b/400	ABL403b/400	ABL404b/400		350A

<b>Dimensions (mm)</b>	<b>2/3pole</b>	140(W) × 257(H) × 113(D)
	<b>4pole</b>	185(W) × 257(H) × 113(D)

Certificate  
TÜV

- MCCB with reference temperature 50°C is available on request.
- Motor protection circuit breaker - magnetic only release type: see p. 70
- MCCB with electronic trip unit: see p. 60

# 800AF



Rating plug

<b>Rated current, In</b>	500, 600, 700, 800A			
<b>Type of trip unit</b>	Interchangeable thermal and fixed magnetic			
<b>Thermal current</b>	Interchangeable by rating plugs			
<b>Magnetic trip</b>	(9 to 15) × In ... fixed Magnetic-adjustable types are optional			
<b>Number of poles</b>	2, 3, 4 pole			
<b>Connection</b>	Front (standard) Rear (optional)			
<b>Mounting</b>	Fixed only			
<b>Category of use</b>	Type A according to IEC947-2			
<b>Breaking capacity, Icu</b>	Ics = 100% of Icu(ABE), 50% of Icu(ABS, ABL)			
	<b>Type</b>	<b>ABE</b>	<b>ABS</b>	<b>ABL</b>
	<b>220/240V</b>	50kA	100kA	125kA
	<b>380/415V</b>	42/35kA	60/50kA	100/85kA
	<b>440/460V</b>	35kA	50kA	85kA
	<b>480/500V</b>	25kA	45kA	65kA
	<b>600V</b>	22kA	25kA	30kA

## Earth leakage circuit breaker



Types EBE/S/L803  
physically interchangeable  
with MCCBs.

※ see details (p. 88)

## Optional accessories

- Auxiliary switch
- Alarm switch
- Shunt trip
- Undervoltage trip
- Manual rotary handle
- Terminal shield
- Mechanical interlock
- Rear connection unit
- Insulational barrier  
(standard for line side only)

※ see details (p. 62)

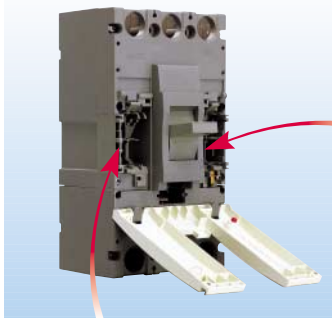
Rating	for 35kA at 415V ... Type ABE				Interchangeable rating plug
	In	2pole	3pole	4pole	
500A	ABE802b/500	ABE803b/500	ABE804b/500	600A	
600A	ABE802b/600	ABE803b/600	ABE804b/600	500A	
630A	ABE802b/630	ABE803b/630	ABE804b/630	500A	
700A	ABE802b/700	ABE803b/700	ABE804b/700	800A	
800A	ABE802b/800	ABE803b/800	ABE804b/800	700A	
In	for 50kA at 415V ... Type ABS				Interchangeable rating plug
	2pole	3pole	4pole		
500A	ABS802b/500	ABS803b/500	ABS804b/500	600A	
600A	ABS802b/600	ABS803b/600	ABS804b/600	500A	
630A	ABS802b/630	ABS803b/630	ABS804b/630	500A	
700A	ABS802b/700	ABS803b/700	ABS804b/700	800A	
800A	ABS802b/800	ABS803b/800	ABS804b/800	700A	
In	for 85kA at 415V ... Type ABL				Interchangeable rating plug
	2pole	3pole	4pole		
500A	ABL802b/500	ABL803b/500	ABL804b/500	600A	
600A	ABL802b/600	ABL803b/600	ABL804b/600	500A	
630A	ABL802b/630	ABL803b/630	ABL804b/630	500A	
700A	ABL802b/700	ABL803b/700	ABL804b/700	800A	
800A	ABL802b/800	ABL803b/800	ABL804b/800	700A	

<b>Dimensions (mm)</b>	<b>2/3pole</b>	210(W) × 280(H) × 113(D)
	<b>4pole</b>	280(W) × 280(H) × 113(D)

**Certificate**  
**TÜV**

- MCCB with reference temperature 50°C is available on request.
- Motor protection circuit breaker - magnetic only release type: see p. 70
- MCCB with electronic trip unit: see p. 61

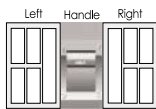
### Electrical auxiliaries



Left-hand seat

Right-hand seat

#### Maximum possibilities



#### Left-hand seat

Option of connecting 2AX, 2AL and SHT or UVT



#### Right-hand seat

Option of connecting 2AX, 2AL and SHT or UVT



This seat is not available for GBN403E, GBN803E and ELCBs.



Auxiliary switch, AX



Alarm switch, AL



Shunt trip, SHT



Under voltage trip, UVT

Common use for breakers

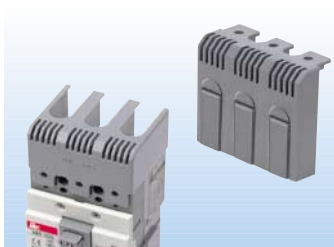
Type AB 400AF and 800AF as well as type GB 400AF and 800AF.

Model	Catalog No.	
<b>AX1L800</b>	<b>83011136002</b>	<b>Auxiliary switch, AX</b> Signals the contact position of the breaker - opening by manual or fault - closing Consists of one change over switch per unit 1 auxiliary switch (1NO+NC) 2 auxiliary switch (2NO+NC)
<b>AX2L800</b>	<b>83011136003</b>	
<b>AL1L800</b>	<b>83011136004</b>	<b>Alarm switch, AL</b> Signals the contact position of the breaker - tripping by manual or fault - not operated by normal opening or closing of a breaker Consists of one change over switch 1 alarm switch (1NO+NC) 2 alarm switch (2NO+NC)
<b>AL2L800</b>	<b>83011136001</b>	
<b>XL2L800</b>	<b>83011137001</b>	<b>Combination switch, XL</b> Consists of a change over contact (1NO+NC) 2 combination switch fit for the right-hand seat of a handle(LWT)
<b>ST48CL800 LWT</b>	<b>83211137001</b>	<b>Shunt trip, SHT</b> Trips the breaker when any AC(DC) voltage between 85(75) and 110(125)% of nominal control voltage is applied. For 24~48V AC/DC common use LWT For 100~240VAC / 100~220VDC LWT For 380~550VAC LWT For 24~48V AC/DC common use TBT (2P, 3P) For 100~240VAC / 100~220VDC TBT (2P, 3P) For 380~550VAC TBT (2P, 3P) For 24~48V AC/DC common use TBT (4P) For 100~240VAC / 100~220VDC TBT (4P) For 380~550VAC TBT (4P)
<b>ST240CL800 LWT</b>	<b>83211137002</b>	
<b>ST550AL800 LWT</b>	<b>83211137003</b>	
<b>ST48CL800 TBT</b>	<b>83211137004</b>	
<b>ST240CL800 TBT</b>	<b>83211137005</b>	
<b>ST550AL800 TBT</b>	<b>83211137006</b>	
<b>ST48CL804 TBT</b>	<b>83211137007</b>	
<b>ST240CL804 TBT</b>	<b>83211137008</b>	
<b>ST550AL804 TBT</b>	<b>83211137009</b>	
<b>UV48CL800</b>	<b>83211137021</b>	<b>Under voltage trip, UVT</b> Trips the breaker when control voltage disappears or falls. For 48V AC/DC common use For 100~125VAC/100~110VDC For 200~240VAC/200~220VDC For 380~440V AC For 440~480V AC
<b>UV100CL800</b>	<b>83211137022</b>	
<b>UV200CL800</b>	<b>83211137023</b>	
<b>UV380AL800</b>	<b>83211137024</b>	
<b>UV440AL800</b>	<b>83211137025</b>	





## External accessories



Terminal shield



Insulation barrier



Mechanical interlock

### Model

### Catalog No.

**IBL400**  
**IBL800**

**67211132003**  
**67211132003**

### Insulation barriers

These are partitions for the insulation between the phases. Barriers for the line side of the breaker are supplied as standard.

Barriers for the load side are optional.

One(1) barrier for AB 400AF (250 to 400A)  
One(1) barrier for AB 800AF (500 to 800A)

### Terminal shields

These are applied to the line/load side of the breaker to prevent accidental contact from live parts.

Different by breaker dimensions.

Use 3pole shield for 2pole breakers

**T1-43A**      **64621131201**  
**T1-44A**      **64621131204**  
**T1-63A**      **64621131202**  
**T1-64A**      **64621131205**

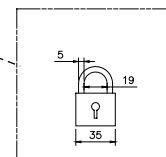
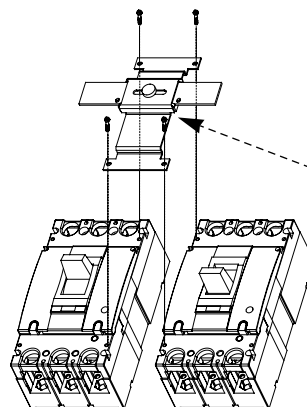
for 3 pole AB 400AF (250 to 400A)  
for 4 pole AB 400AF (250 to 400A)  
for 3 pole AB 800AF (500 to 800A)  
for 4 pole AB 800AF (500 to 800A)

### Mechanical interlock

These are applied between two breakers to prevent mechanically them closing together.

**MI-43S**      **56121138005**  
**MI-44S**      **56121138007**  
**MI-83S**      **56121138006**  
**MI-84S**      **56121138008**

for 3 pole AB 400AF (250 to 400A)  
for 4 pole AB 400AF (250 to 400A)  
for 3 pole AB 800AF (500 to 800A)  
for 4 pole AB 800AF (500 to 800A)



Applicable lock if necessary  
(not supplied)

# MCCBs for general use

## AB type MCCBs

## 400AF & 800AF

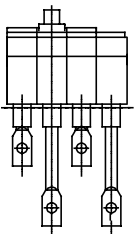
### External accessories



Direct mounting type



Rear connection



Bar type



Rating plug

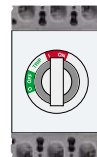
Model	Catalog No.
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<b>N-70S</b>	<b>83111138101</b>
<b>N-70L</b>	<b>83111138102</b>
<b>N-70R</b>	<b>83111138103</b>
<b>N-80S</b>	<b>83111138111</b>
<b>N-80L</b>	<b>83111138112</b>
<b>N-80R</b>	<b>83111138113</b>

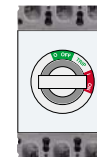
#### Manual rotary handle ... Direct mounting types

Applicable for AB 400AF, 3-4 pole

Vertical type
Horizontal (ON in left-hand) type
Horizontal (ON in right-hand) type
Applicable for AB 800AF, 3-4 pole
Vertical type
Horizontal (ON in left-hand) type
Horizontal (ON in right-hand) type



Vertical type



Horizontal type  
ON in right-hand



Horizontal type  
ON in left-hand

#### Rear connection kits ... Bar type \* Note

<b>X-402</b>	a set for 2 pole MCCBs of AB 400AF
<b>X-403</b>	a set for 3 pole MCCBs of AB 400AF
<b>X-404</b>	a set for 4 pole MCCBs of AB 400AF
<b>X-802</b>	a set for 2 pole MCCBs of AB 800AF
<b>X-803</b>	a set for 3 pole MCCBs of AB 800AF
<b>X-804</b>	a set for 4 pole MCCBs of AB 800AF

\* Note: AS connection of the rear connection it requires experts' skill, it is not separately provided from MCCB.

Model	Catalog No.
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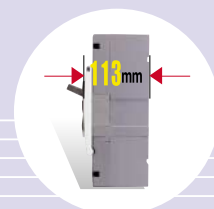
<b>RP250</b>	<b>73261132111</b>	RATING PLUG 250A
<b>RP300</b>	<b>73261132112</b>	RATING PLUG 300A
<b>RP350</b>	<b>73261132113</b>	RATING PLUG 350A
<b>RP400</b>	<b>73261132114</b>	RATING PLUG 400A
<b>RP500</b>	<b>73261132115</b>	RATING PLUG 500A
<b>RP600</b>	<b>73261132116</b>	RATING PLUG 600A
<b>RP630</b>	<b>73261132117</b>	RATING PLUG 630A
<b>RP700</b>	<b>73261132118</b>	RATING PLUG 700A
<b>RP800</b>	<b>73261132119</b>	RATING PLUG 800A

#### Rating plug

Model	Catalog No.
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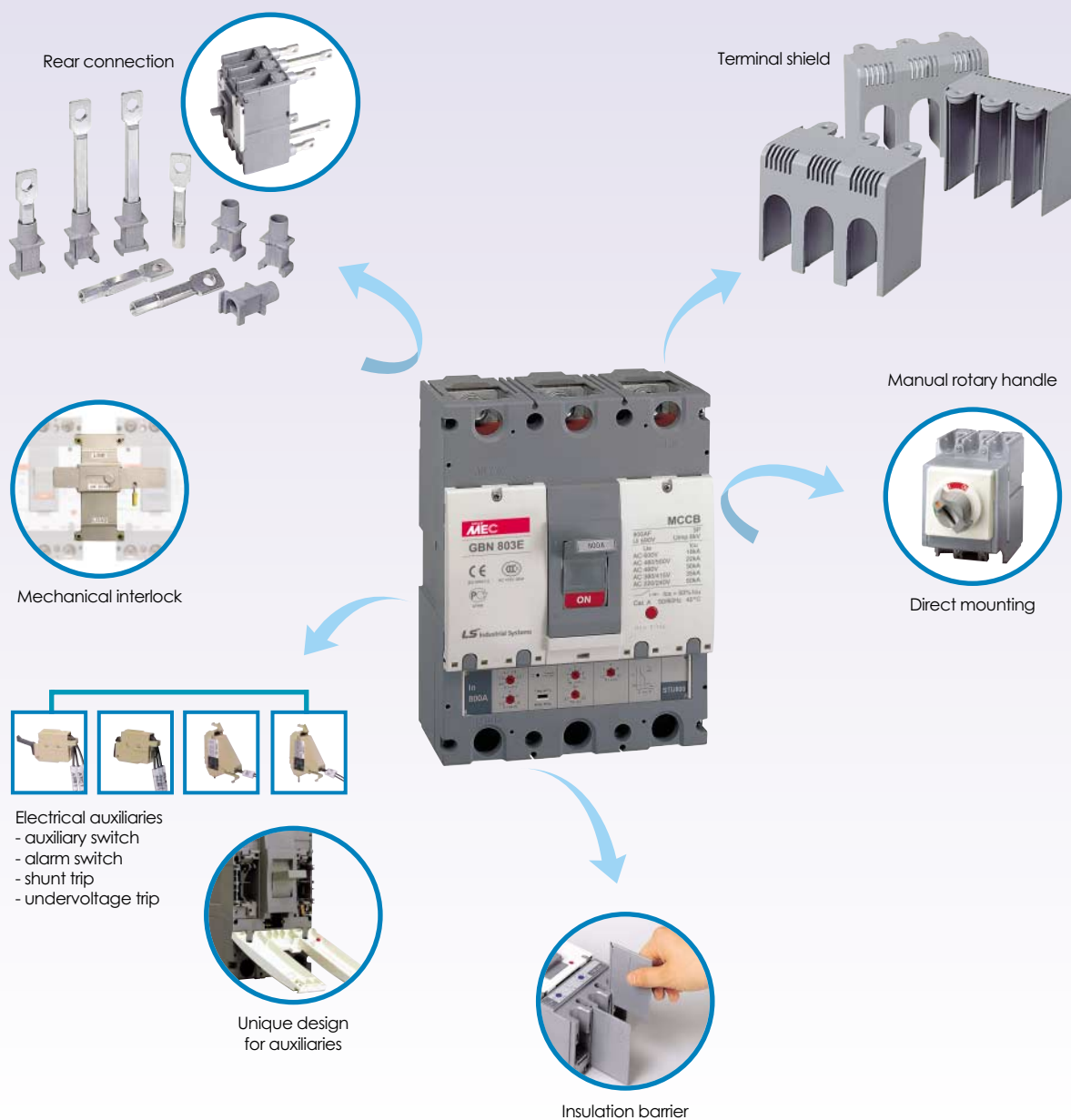
<b>BB062</b>	<b>83261132011</b>	BUSBAR, ABE/S/L802α (500, 600, 630A)
<b>BB802</b>	<b>83261132012</b>	BUSBAR, ABE/S/L802α (700, 800A)
<b>BB603</b>	<b>83261132013</b>	BUSBAR, ABE/S/L803α (500, 600, 630A)
<b>BB803</b>	<b>83261132014</b>	BUSBAR, ABE/S/L803α (700, 800A)
<b>BB604</b>	<b>83261132015</b>	BUSBAR, ABE/S/L804α (500, 600, 630A)
<b>BB804</b>	<b>83261132016</b>	BUSBAR, ABE/S/L804α (700, 800A)

#### Bus bar (Optional parts for 800AF MCCB)



## 400AF & 800AF

- Electric trip units with LSIA configuration.
- Electric auxiliaries are common use between 400 to 800AF.
- Motor protection MCCBs with magnetic only trip are available.
- CE & KEMA certificated according to IEC60947-2.

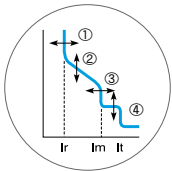


# MCCBs for general use

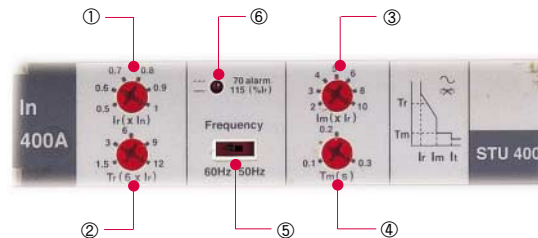
## GB type adjustable MCCBs

400AF

### Electronic trip



Trip unit configuration



<b>Rated current, In</b>	400A	
<b>Type of trip unit</b>	Electronic trip with LSIA configuration	
<b>① Long time pick-up, Ir</b>	(0.5-0.6-0.7-0.8-0.9-1.0) x In ... adjustable via knob	
<b>② Long time delay, tr</b>	1.5-3-6-9-12 sec at 6 x Ir ... adjustable via knob	
<b>③ Short time pick-up, Im</b>	(2-3-4-5-6-8-10) x Ir ... adjustable via knob	
<b>④ Short time delay, tm</b>	0.1-0.2-0.3 sec ... adjustable	
<b>Instantaneous pick-up</b>	≥ 12.5 x In ... fixed	
<b>⑤ Rated frequency</b>	50-60 selectable by the switch of the trip unit	
<b>⑥ Alarm</b>	Warning via LED flickering when the load current is between 70 to 115% of set current Ir. LED stays on over 115% of set current Ir	
<b>Number of poles</b>	3 pole	
<b>Connection</b>	Front only	
<b>Mounting</b>	Fixed only	
<b>Category of use</b>	Type A according to IEC947-2	
<b>Breaking capacity, Icu</b>	Ics = 50% of Icu	
	<b>Type</b>	<b>GBN</b> <b>GBH</b>
	<b>220/240V</b>	50kA      85kA
	<b>380/415V</b>	35kA      50kA
	<b>440/460V</b>	30kA      42kA
	<b>480/500V</b>	22kA      35kA
	<b>600V</b>	18kA      25kA

Rating			
In	Model	Catalog No.	Adjustable thermal range
400A	GBN403E	0031018100	200-240-280-320-360-400A
	GBH403E	0031019300	200-240-280-320-360-400A

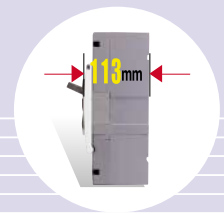
Optional accessories	
* see details (p. 62)	Auxiliary switch
	Alarm switch
	Shunt trip
	Undervoltage trip
	Manual rotary handle
	Terminal shield
	Insulational barrier (standard for line side only)

Dimensions(mm)	3pole	
		140(W) x 257(H) x 113(D)

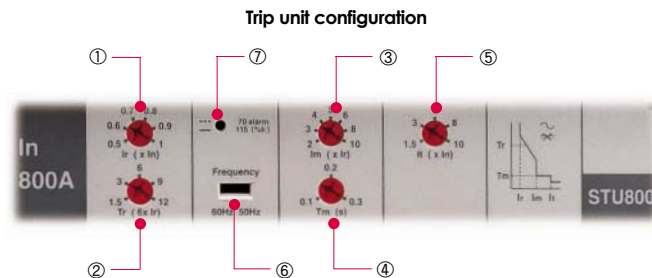
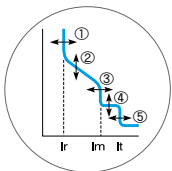
If the GBN 403E/GBN803E/GBH403E/GBH803E, are used at high temperature, the setting must take into account the thermal limits of circuit breaker :  
the overload protection setting cannot exceed 0.9 at 50°, 0.8 at 60° and 0.7 at 70°.

- Motor protection circuit breaker - magnetic only release type: see p. 70
- MCCB with thermal-magnetic trip unit: see p. 54

Certificate  
CE



## Electronic trip



<b>Rated current, In</b>	800A
<b>Type of trip unit</b>	Electronic trip with LSIA configuration
<b>① Long time pick-up, Ir</b>	(0.5-0.6-0.7-0.8-0.9-1.0) x In ... adjustable via knob
<b>② Long time delay, tr</b>	1.5-3-6-9-12 sec at 6 x Ir ... adjustable via knob
<b>③ Short time pick-up, Im</b>	(2-3-4-5-6-8-10) x Ir ... adjustable via knob
<b>④ Short time delay, tm</b>	0.1-0.2-0.3 sec ... adjustable
<b>⑤ Instantaneous pick-up</b>	(1.5-3-6-8-10) x In ... adjustable via knob
<b>⑥ Rated frequency</b>	50-60 selectable by the switch of the trip unit
<b>⑦ Alarm</b>	Warning via LED flickering when the load current is between 70 to 115% of set current Ir. LED stays on over 115% of set current Ir
<b>Number of poles</b>	3 pole
<b>Connection</b>	Front only
<b>Mounting</b>	Fixed only
<b>Category of use</b>	Type A according to IEC947-2
<b>Breaking capacity, Icu</b>	Ics = 50% of Icu
<b>Type</b>	<b>GBN</b> <b>GBH</b>
<b>220/240V</b>	50kA      85kA
<b>380/415V</b>	35kA      50kA
<b>440/460V</b>	30kA      42kA
<b>480/500V</b>	22kA      35kA
<b>600V</b>	18kA      25kA

Rating			
In	Model	Catalog No.	Adjustable thermal range
800A	GBN803E	0039007000	400-480-560-640-720-800A
	GBH803E	0039007300	400-480-560-640-720-800A

<b>Optional accessories</b>	Auxiliary switch
* see details (p. 62)	Alarm switch
	Shunt trip
	Undervoltage trip
	Manual rotary handle
	Terminal shield
	Insulational barrier (standard for line side only)

**Dimensions(mm) 3pole** 210(W) x 280(H) x 113(D)

If the GBN 403E/GBN803E/GBH403E/GBH803E, are used at high temperature, the setting must take into account the thermal limits of circuit breaker :  
 the overload protection setting cannot exceed 0.9 at 50°, 0.8 at 60° and 0.7 at 70°.  
 • Motor protection circuit breaker - magnetic only release type: see p. 70  
 • MCCB with thermal-magnetic trip unit: see p. 55

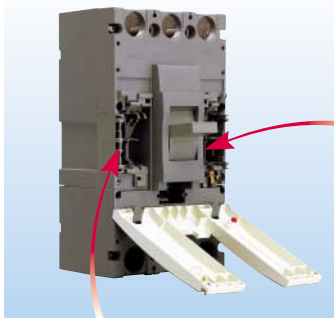
**Certificate**  
CE

# MCCBs for general use

## GB type adjustable MCCBs

## 400AF & 800AF

### Electrical auxiliaries



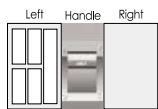
Left-hand seat

Right-hand seat

Common use for breakers

Type AB 400AF and 800AF as well as type GB 400AF and 800AF.

#### Maximum possibilities



#### Left-hand seat

Option of connecting 2AX, 2AL and SHT or UVT



#### Right-hand seat

This seat is not available.



Auxiliary switch, AX



Alarm switch, AL



Shunt trip, SHT



Under voltage trip, UVT

Model	Catalog No.
<b>AX1L800</b>	<b>83011136002</b>
<b>AX2L800</b>	<b>83011136003</b>
<b>AL1L800</b>	<b>83011136004</b>
<b>AL2L800</b>	<b>83011136001</b>
<b>XL2L800</b>	<b>83011137001</b>
<b>ST48CL800LWT</b>	<b>83211137001</b>
<b>ST240CL800LWT</b>	<b>83211137002</b>
<b>ST550AL800LWT</b>	<b>83211137003</b>
<b>ST48CL800TBT</b>	<b>83211137004</b>
<b>ST240CL800TBT</b>	<b>83211137005</b>
<b>ST550AL800TBT</b>	<b>83211137006</b>
<b>UV48CL800</b>	<b>83211137021</b>
<b>UV100CL800</b>	<b>83211137022</b>
<b>UV200CL800</b>	<b>83211137023</b>
<b>UV380AL800</b>	<b>83211137024</b>
<b>UV440AL800</b>	<b>83211137025</b>

#### Auxiliary switch, AX

Signals the contact position of the breaker

- opening by manual or fault
- closing

Consists of one change over switch per unit

- 1 auxiliary switch (1NO+NC)
- 2 auxiliary switch (2NO+NC)

#### Alarm switch, AL

Signals the contact position of the breaker

- tripping by manual or fault
- not operated by normal opening or closing of a breaker

Consists of one change over switch

- 1 alarm switch (1NO+NC)
- 2 alarm switch (2NO+NC)

#### Combination switch, XL

Consists of a change over contact (1NO+NC)

- 2 combination switch fit for the right-hand seat of a handle(LWT)

#### Shunt trip, SHT

Trips the breaker when any AC(DC) voltage between

85(75) and 110(125)% of nominal control voltage is applied.

For 24~48V AC/DC common use LWT

For 100~240VAC / 100~220VDC LWT

For 380~550VAC LWT

For 24~48V AC/DC common use TBT

For 100~240VAC / 100~220VDC TBT

For 380~550VAC TBT

#### Under voltage trip, UVT

Trips the breaker when control voltage disappears or falls.

For 48V AC/DC common use

For 100~125VAC/100~110VDC

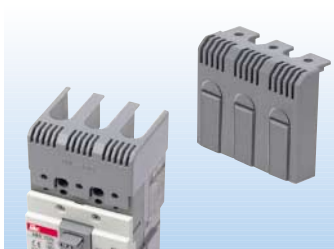
For 200~240VAC/200~220VDC

For 380~440V AC

For 440~480V AC



## External accessories



Terminal shield



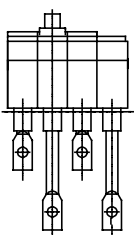
Insulation barrier



Direct mounting type



Rear connection



Bar type

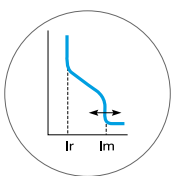
Type GB MCCBs use the same accessories with the AB type 400AF & 800AF MCCBs.

\* see details (p. 53)

Model	Catalog No.	
<b>Insulation barriers</b>		
<b>IBL400</b>	<b>67211132003</b>	One(1) barrier for GBN403E, GBH403E
<b>IBL800</b>	<b>67211132003</b>	One(1) barrier for GBN803E, GBH803E
<b>Terminal shields</b>		
<b>T1-43A</b>	<b>64621131201</b>	for GBN403E, GBH403E
<b>T1-63A</b>	<b>64621131202</b>	for GBN803E, GBH803E
<b>Mechanical interlock</b>		
<b>MI-83S</b>	<b>56121138006</b>	for 3 pole GBN803E, GBH803E
<b>Manual rotary handle, Direct mounting types</b>		
		<i>Applicable for GBN403E, GBH403E</i>
<b>N-70S</b>	<b>83111138101</b>	Vertical type
<b>N-70L</b>	<b>83111138102</b>	Horizontal (ON in left-hand) type
<b>N-70R</b>	<b>83111138103</b>	Horizontal (ON in right-hand) type
		<i>Applicable for GBN803E, GBH803E</i>
<b>N-80S</b>	<b>83111138111</b>	Vertical type
<b>N-80L</b>	<b>83111138112</b>	Horizontal (ON in left-hand) type
<b>N-80R</b>	<b>83111138113</b>	Horizontal (ON in right-hand) type
<b>Rear connection kits ... Bar type * Note</b>		
<b>X-403</b>		a set for GBN403E, GBH403E
<b>X-803</b>		a set for GBN803E, GBH803E
<b>Bus bar (Optional parts for 800AF MCCB)</b>		
<b>BB603</b>	<b>83261132013</b>	BUSBAR, GBN803E & GBH803E (500, 600A)
<b>BB803</b>	<b>83261132014</b>	BUSBAR, GBN803E & GBH803E (800A)

\* Note: AS connection of the rear connection it requires experts' skill, it is not separately provided from MCCB.

### Thermal magnetic trip



<b>Rated current, In</b>	1000, 1200A
<b>Type of trip unit</b>	Fixed thermal and adjustable magnetic
<b>Frequency</b>	50 or 60Hz (Not common use)
<b>Number of poles</b>	3, 4 pole
<b>Connection</b>	Front (standard)
<b>Mounting</b>	Fixed only
<b>Category of use</b>	Type A according to IEC60947-2
<b>Breaking capacity, Icu</b>	Ics = 50% of Icu

Type	ABS
220/240V	100kA
380/415V	65kA
440/460V	65kA
480/500V	50kA
600V	45kA

Rating	For 50Hz			
	In	3pole	4pole	Magnetic adjustable range
1000A	ABS1003/50	ABS1004/50		3000 to 6000A
1200A	ABS1203/50	ABS1204/50		3000 to 7200A
	For 60Hz			
	In	3pole	4pole	Magnetic adjustable range
1000A	ABS1003/60	ABS1004/60		3000 to 6000A
1200A	ABS1203/60	ABS1204/60		3000 to 7200A

<b>Optional accessories</b>	Auxiliary switch Alarm switch Shunt trip Undervoltage trip Insulational barrier (standard for line side only)
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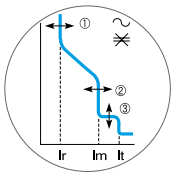
\* see details (p. 66)

<b>Dimensions (mm)</b>	<b>3pole</b>	210(W) × 580(H) × 105(D)
	<b>4pole</b>	280(W) × 580(H) × 105(D)

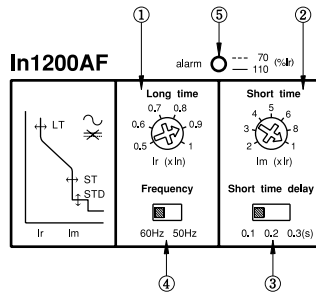
- MCCB with reference temperature 50°C is available on request.
- MCCB with electronic trip unit: see p. 65



## Electronic trip



Trip unit configuration



<b>Rated current, In</b>	1200A
<b>Type of trip unit</b>	Electronic trip with LSIA configuration
<b>① Long time pick-up, Ir</b>	(0.5-0.6-0.7-0.8-0.9-1.0) × In ... adjustable via knob
<b>② Short time pick-up, Im</b>	(2-3-4-5-6-8-10) × Ir ... adjustable via knob
<b>③ Short time delay, tm</b>	0.1-0.2-0.3 sec ... adjustable
<b>Instantaneous pickup</b>	11 × In ... fixed
<b>④ Rated frequency</b>	50-60 selectable by the switch of the trip unit
<b>⑤ Alarm</b>	Warning via LED flickering when the load current is between 70 to 110% of set current Ir. LED stays on over 110% of set current Ir
<b>Number of poles</b>	3 pole
<b>Connection</b>	Front only
<b>Mounting</b>	Fixed only
<b>Category of use</b>	Type A according to IEC60947-2
<b>Breaking capacity, Icu</b>	Ics = 50% of Icu
<b>Type</b>	<b>ABS</b>
<b>220/240V</b>	100kA
<b>380/415V</b>	65kA
<b>440/460V</b>	65kA
<b>480/500V</b>	50kA
<b>600V</b>	45kA

Rating		
In	<b>3pole</b>	Adjustable thermal range
<b>1200A</b>	<b>ABS1203E</b>	600-720-840-960-1080-1200A

Optional accessories	Auxiliary switch Alarm switch Shunt trip Undervoltage trip Insulational barrier (standard for line side only)
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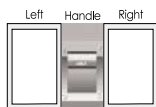
Dimensions(mm)	3pole	210(W) × 580(H) × 105(D)
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### Electrical auxiliaries



Seats for electrical auxiliaries  
... both sides of the handle

#### Maximum possibilities



#### Left-hand seat

Option of connecting  
SHT or UVT

#### Right-hand seat

Option of connecting  
AX1 or AX2 or AL1 or AL2 or XL1 or  
X2L

Model	Catalog No.	
		<b>Auxiliary switch, AX</b>
		Signals the contact position of the breaker
		- opening by manual or fault
		- closing
		Consists of one or two change over contacts per unit
<b>AX1S1200</b>	<b>83011126001</b>	1 auxiliary switch (1NO+NC)
<b>AX2S1200</b>	<b>83011126006</b>	2 auxiliary switch (2NO+NC)
		<b>Alarm switch, AL</b>
		Signals the contact position of the breaker
		- tripping by manual or fault
		- not operated by normal opening or closing of a breaker
		Consists of one or two change over contacts per unit
<b>AL1S1200</b>	<b>83011126002</b>	1 alarm switch (1NO+NC)
		<b>Combination switch, XL</b>
		Consists of one or two auxiliary switch and a alarm switch per unit
<b>XL1S1200</b>	<b>83011126007</b>	1 aux. switch and 1 alarm switch (1NO+NC)
<b>XL2S1200</b>	<b>83011126008</b>	2 aux. switch and 1 alarm switch (2NO+NC)
		<b>Shunt trip, SHT</b>
		Trips the breaker when any AC(DC) voltage between 85(75) and 110(125)% of nominal control voltage is applied.
<b>ST100AS1200</b>	<b>83211126001</b>	For AC100~110V
<b>ST125AS1200</b>	<b>83211126002</b>	For AC125V
<b>ST200AS1200</b>	<b>83211126003</b>	For AC200~220V
<b>ST380AS1200</b>	<b>83211126004</b>	For AC380~440V
<b>ST480AS1200</b>	<b>83211126005</b>	For AC480~550V
<b>ST24DS1200</b>	<b>83211126006</b>	For DC24V
<b>ST48DS1200</b>	<b>83211126007</b>	For DC48V
<b>ST100DS1200</b>	<b>83211126008</b>	For DC100~110V
<b>ST125DS1200</b>	<b>83211126009</b>	For DC125V
<b>ST200DS1200</b>	<b>83211126010</b>	For DC200~220V
		<b>Under voltage trip, UVT</b>
		Trips the breaker when control voltage disappears or falls.
		<b>Insulation barriers</b>
<b>IB1200</b>	<b>67211123005</b>	One (1) barrier

## Electronic trip



- Suitable for use in the system where higher fault current exist.
- Employing an electronic trip unit
- Current adjustment are made by the knobs on the front of the trip unit.
- Offering more accessories for varied applications and allows easy access to install them.
- The accessories (Auxiliary switch, Alarm switch, Shunt trip, Undervoltage trip, Handle, Motor operator, Rear connection)

<b>Frame type</b>	GB Type (electronic trip)	
<b>Breaking capacity (kA), Icu at 415VAC</b>	65	
<b>Number of poles</b>	3	
<b>Type</b>	<b>3 pole</b>	GBN1603E
<b>Rated current (A)</b>	1600	
<b>In at 40°C</b>	Electronically adjustable	
<b>Rated operational voltage (V), Ue (50/60Hz)</b>	690	
<b>Rated impulse withstand voltage (kV), Uimp</b>	8	
<b>Ultimate breaking capacity (kA), Icu</b>	<b>415V</b>	65
	<b>500V</b>	45
<b>Service breaking capacity (kA), Ics</b>	<b>415V</b>	35
	<b>500V</b>	30
<b>Category of use</b>	A	
<b>Endurance (number of operations)</b>	<b>Mechanical</b>	10000
	<b>Electrical</b>	4000

### Type of trip unit

- Long time pick-up, Ir (A) :

630-685-720-800-870-910-1000-1100-1155-1200-1250-1300-1375-1445-1500-1600A

- Long time delay, tr (s) :

[TV] 1-3-10-30 sec at 7.2 Ir ... adjustable via knob : TV mode for transformer and line protection

[M] 3-8-15-25 sec at 7.2 Ir ... adjustable via knob : M mode for motor protection

- Instantaneous pick-up, Irm (A) : 2-4-6-8-11-14-17-20 kA ... adjustable via knob



Rating	
<b>In</b>	<b>3pole</b>
1600A	GBN1603E

### Optional accessories

Auxiliary switch, Alarm switch, Shunt trip, Undervoltage trip, Insulational barrier (standard for line side only), Direct rotary handel, Extended rotary handle, Rear connection, Plug-in device, Motor operator

<b>Dimensions(mm)</b>	<b>3pole</b>	210(W) × 380(H) × 142.5(D)
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# MCCBs for definite purpose

## Motor protection MCCBs



### Case 1. MCCB with magnetic only release

MCCB provides protection against short-circuit without thermal elements.

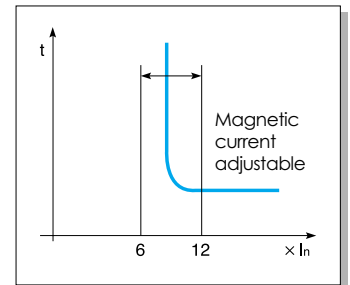
Selecting MCCB by

- motor power
- type of starting
- fault current

Contactors for motor switching.

Overload relay for protection against overload and phase failure.

\* see details (p. 69)



MCCB operating curve



### Case 2. Thermal-Magnetic Motor protection breaker

MCCB offers protections against short-circuit and overload.

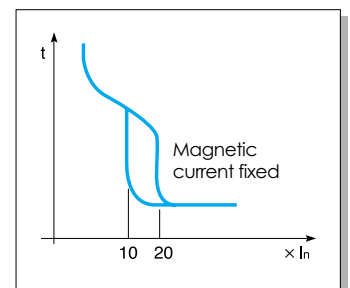
Sometimes it covers manual switching without a contactor for economic solution.

All current ratings are non-adjustable.

Thermal currents are similar to full load currents of motors.

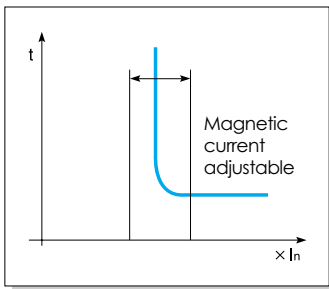
Magnetic trip currents are between 10 to 20 times of thermal currents.

\* see details (p. 71)



MCCB operating curve

1.6A to 250A



Operating curve

<b>Type of trip unit</b>	Adjustable magnetic trip without thermal elements
<b>Rated current, In</b>	1.6, 3.2, 6.3, 12, 20, 32, 50, 63, 100, 160, 200, 250A
<b>Magnetic current</b>	(6-12) × In (6-step adjustment)
<b>Number of poles</b>	3 poles
<b>Connection</b>	Front (standard) Rear (optional)
<b>Mounting</b>	Fixed only
<b>Category of use</b>	Type A according to IEC60947-2
<b>Breaking capacity, Icu</b>	Ics = 75% of Icu

Type	GBL
<b>220/240V</b>	125kA
<b>380/415V</b>	85kA
<b>440/460V</b>	85kA
<b>480/500V</b>	65/50kA
<b>600V</b>	35kA

### Rating

In	Setting current	Catalog No.
<b>1.6A</b>	10-12-14-16-18-20A	GBL103IN/1.6
<b>3.2A</b>	20-24-28-32-36-40A	GBL103IN/3.2
<b>6.3A</b>	40-48-56-64-72-80A	GBL103IN/6.3
<b>12A</b>	70-84-98-112-126-140A	GBL103IN/12
<b>20A</b>	120-144-168-192-216-240A	GBL103IN/20
<b>32A</b>	180-216-252-288-324-360A	GBL103IN/32
<b>50A</b>	300-360-420-480-560-600A	GBL103IN/50
<b>63A</b>	400-480-560-640-720-800A	GBL103IN/63
<b>63A</b>	400-480-560-640-720-800A	GBL203IN/63
<b>100A</b>	625-750-875-1000-1125-1250A	GBL103IN/100
<b>100A</b>	625-750-875-1000-1125-1250A	GBL203IN/100
<b>160A</b>	1000-1200-1400-1600-1800-2000A	GBL203IN/160
<b>200A</b>	1250-1500-1750-2000-2250-2500A	GBL203IN/200
<b>250A</b>	2000-2250-2500-2750-3000-3250A	GBL203IN/250

### Optional accessories

※ see details (p. 50)

- Auxiliary switch
- Alarm switch
- Shunt trip
- Undervoltage trip
- Manual rotary handle
- Terminal shield
- Rear connection unit
- Insulational barrier (standard for line side only)

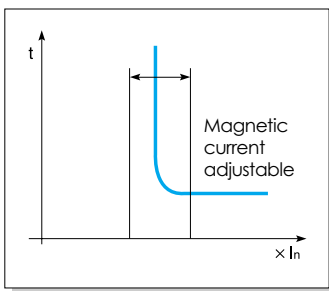
### Dimensions(mm)

105(W) × 165(H) × 86(D)

# MCCBs for definite purpose

## Motor protection MCCBs

300 to 800A



Operating curve

<b>Type of trip unit</b>	Adjustable magnetic trip without thermal elements
<b>Rated current, In</b>	300, 350, 400, 500, 600, 700, 800A
<b>Magnetic current</b>	(4-10) × In ... adjustable
<b>Number of poles</b>	3 poles
<b>Connection</b>	Front (standard)
<b>Mounting</b>	Fixed only
<b>Category of use</b>	Type A according to IEC60947-2
<b>Breaking capacity, Icu</b>	Ics = 50% of Icu

Type	ABL403bIN	ABL803bIN
220/240V	125kA	125kA
380/415V	65kA	65kA
440/460V	65kA	65kA
480/500V	50kA	50kA
600V	35kA	42kA

### Rating

In	Setting current	Catalog No.
300A	1200 to 3000A	ABL403bIN/300
350A	1400 to 3500A	ABL403bIN/350
400A	1600 to 4000A	ABL403bIN/400
400A	1500 to 3750A	ABL803bIN/400
500A	2000 to 5000A	ABL803bIN/500
600A	2400 to 6000A	ABL803bIN/600
700A	2800 to 7000A	ABL803bIN/700
800A	3200 to 8000A	ABL803bIN/800

### Accessories available

\* see details (p. 62)

- Auxiliary switch
- Alarm switch
- Shunt trip
- Undervoltage release
- Manual rotary handle
- Terminal shield
- Insulational barrier
- Rear connection unit
- Mechanical Interlock

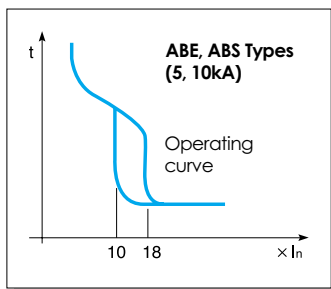
<b>Dimensions (mm)</b>	<b>ABL403bIN</b>	140(W) × 257(H) × 110(D)
	<b>ABL803bIN</b>	210(W) × 280(H) × 110(D)

# Thermal magnetic type

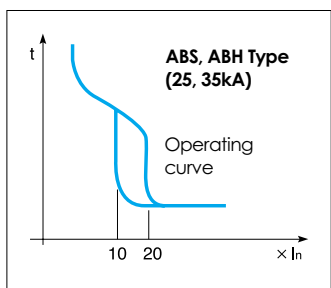
## 10A to 90A



<b>Type of trip unit</b>	Fixed thermal and magnetic trip Thermal-magnetic ; ABH53, ABH103, ABS103 types Hydraulic-magnetic ; ABE53, ABE63, ABE103, ABS53, ABS63 types
<b>Rated current, I<sub>n</sub></b>	10, 12, 16, 24, 32, 40, 45, 60, 75, 90 ...fixed
<b>Magnetic trip</b>	(10 to 20) × I <sub>n</sub> ... fixed
<b>Number of poles</b>	3 poles
<b>Connection</b>	Front (standard) Rear (optional)
<b>Mounting</b>	Fixed only
<b>Category of use</b>	Type A according to IEC947-2



※ Accessories details (p. 37)



※ Accessories details (p. 40)

### Accessories available

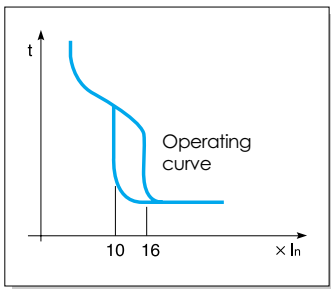
- Auxiliary switch
- Alarm switch
- Shunt trip
- Undervoltage release
- Manual rotary handle
- Terminal shield
- Insulational barrier
- Rear connection unit

Rating	for 5kA at 415V, 3 pole	Breaking capacity, I <sub>cu</sub>	
10A	ABE53bM/10	220/240V 10kA	
12A	ABE53bM/12	380/415V 7.5/5kA	
16A	ABE53bM/16	440/460V 5kA	
24A	ABE53bM/24	480/500V 2.5kA	
32A	ABE53bM/32	600V 2.5kA	
45A	ABE53bM/45		
60A	ABE63bM/60		
Rating	for 10kA at 415V, 3 pole	Breaking capacity, I <sub>cu</sub>	
10A	ABS53bM/10	220/240V 25kA	
12A	ABS53bM/12	380/415V 14/10kA	
16A	ABS53bM/16	440/460V 10kA	
24A	ABS53bM/24	480/500V 7.5kA	
32A	ABS53bM/32	600V 5kA	
40A	ABS53bM/40		
45A	ABS53bM/45		
60A	ABS63bM/60		
75A	ABE103bM/75		
90A	ABE103bM/90		
Rating	for 25kA at 415V, 3 pole	Breaking capacity, I <sub>cu</sub>	
16A	ABH53bM/16	220/240V 50kA	
24A	ABH53bM/24	380/415V 25kA	
32A	ABH53bM/32	440/460V 25kA	
45A	ABH53bM/45	480/500V 14kA	
60A	ABS103bM/60	600V 10kA	
75A	ABS103bM/75		
90A	ABS103bM/90		
Rating	for 35kA at 415V, 3 pole	Breaking capacity, I <sub>cu</sub>	
60A	ABH103bM/60	220/240V 65kA	
75A	ABH103bM/75	380/415V 35kA	
90A	ABH103bM/90	440/460V 35kA 480/500V 25kA 600V 18kA	
Dimension (mm)	3 pole	5kA & 10kA	25kA & 35kA
		75(W) × 130(H) × 60(D)	90(W) × 155(H) × 60(D)

# MCCBs for definite purpose

## Motor protection MCCBs

125A to 225A



<b>Type of trip unit</b>	Fixed thermal and magnetic trip		
<b>Rated current, In</b>	125, 150, 175, 225 ... fixed		
<b>Magnetic trip</b>	(10 to 16) × In ... fixed		
<b>Number of poles</b>	3 poles		
<b>Connection</b>	Front (standard) Rear (optional)		
<b>Mounting</b>	Fixed only		
<b>Category of use</b>	Type A according to IEC947-2		
<b>Breaking capacity, Icu</b>	Ics = 50% of Icu		
<b>220/240V</b>	35kA	50kA	65kA
<b>380/415V</b>	18kA	25kA	35kA
<b>440/460V</b>	18kA	25kA	35kA
<b>480/500V</b>	10kA	14kA	25kA
<b>600V</b>	7.5kA	10kA	18kA

Rating	for 18kA at 415V, 3 pole
125A	ABE203bM/125
150A	ABE203bM/150
175A	ABE203bM/175
225A	ABE203bM/225
	for 25kA at 415V, 3 pole
125A	ABS203bM/125
150A	ABS203bM/150
175A	ABS203bM/175
225A	ABS203bM/225
	for 35kA at 415V, 3 pole
125A	ABH203bM/125
150A	ABH203bM/150
175A	ABH203bM/175
225A	ABH203bM/225

<b>Accessories available</b>	Auxiliary switch
※ Accessories details (p.43)	Alarm switch
	Shunt trip
	Undervoltage trip
	Manual rotary handle
	Terminal shield
	Insulational barrier
	Rear connection unit

<b>Dimension(mm) 3 pole</b>	105(W) × 165(H) × 60(D)
-----------------------------	-------------------------



# Lug terminal MCCBs



Key lock device



with key lock device



without key lock device

Lug terminal MCCBs with key lock device are used to prevent the breakers from unauthorized closing when the breakers are tripped or opened.

The lock device is built in the right-hand of the breaker handle as shown in the picture.

Lug terminal MCCB	with key lock device	without key lock device
<b>Rated current, In</b>	30, 60, 100, 150A	30, 40, 50, 60, 75, 100, 125, 150, 200, 225A
<b>Reference temperature</b>	55°C	55°C
<b>Type of trip unit</b>	Thermal-magnetic	Thermal-magnetic
<b>Number of poles</b>	3 pole	3 pole
<b>Connection</b>	Front (standard)	Front (standard)
<b>Type of terminal</b>	Lug	Lug
<b>Mounting</b>	Fixed only	Fixed only
<b>Category of use</b>	Type A according to IEC947-2	Type A according to IEC947-2
<b>Breaking capacity, Icu</b>	Ics = 100% of Icu	Ics = 100% of Icu
<b>Type</b>	<b>ABS</b>	<b>ABS</b>
<b>220V</b>	25kA	25kA
<b>380V</b>	20kA	20kA

Rating	Rating	for 5kA at 415V	In	Model
	<b>In</b>		<b>30A</b>	<b>ABS103bL/30</b>
	<b>30A</b>	<b>ABS103k/30</b>	<b>40A</b>	<b>ABS103bL/40</b>
	<b>60A</b>	<b>ABS103k/60</b>	<b>50A</b>	<b>ABS103bL/50</b>
	<b>100A</b>	<b>ABS103k/100</b>	<b>60A</b>	<b>ABS103bL/60</b>
	<b>150A</b>	<b>ABS203k/150</b>	<b>75A</b>	<b>ABS103bL/75</b>
			<b>100A</b>	<b>ABS103bL/100</b>
			<b>125A</b>	<b>ABS203bL/125</b>
			<b>150A</b>	<b>ABS203bL/150</b>
			<b>200A</b>	<b>ABS203bL/200</b>
			<b>225A</b>	<b>ABS203bL/225</b>

Accessories	
	Auxiliary switch
	Alarm switch
	Terminal shield
	Sealing plate (supplied as standard)

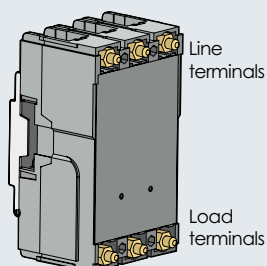
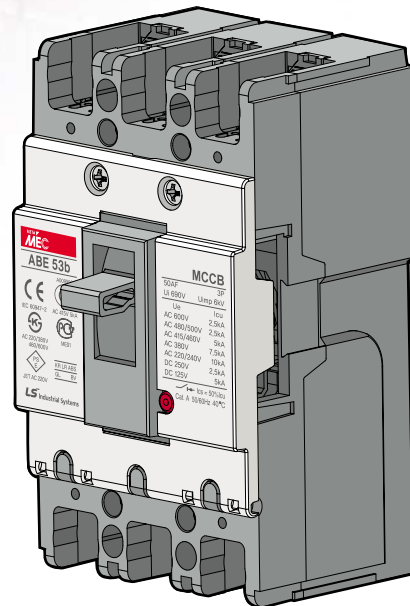
Dimensions (mm)	ABS103k	ABS203k
	90(W) × 155(H) × 60(D)	105(W) × 165(H) × 60(D)

Certificate  
CE

# Plug-in MCCBs

## Layout of plug-in MCCBs

Plug-in version breaker

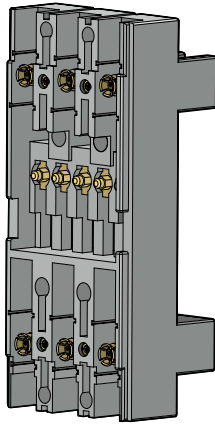


Plug-in version breaker has plug-type terminals on the back for line and / or load sides. Standard breakers can not be used for the purpose.

## Mounting blocks

Avialbale in 4 styles

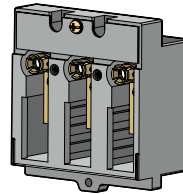
Normal type



### Normal type block

- Type name: PB-□-FR
- Avaiialbe for breaker rating upto 800A

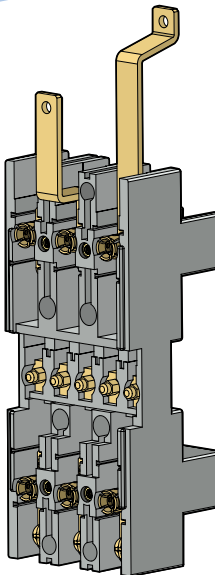
Line-only type



### Line-only type block

- Type name: PB-□-FRL
- Avaiialbe for breaker rating upto 100A

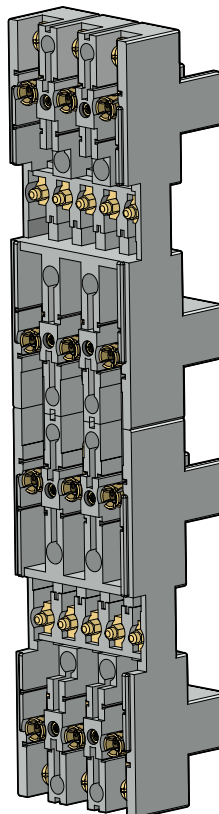
Single-row type



### Single-row type block

- Type name: PB-□-1DB
- Avaiialbe for breaker rating upto 100A

Double-row type



### Double-row type block

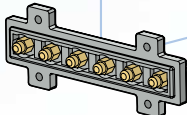
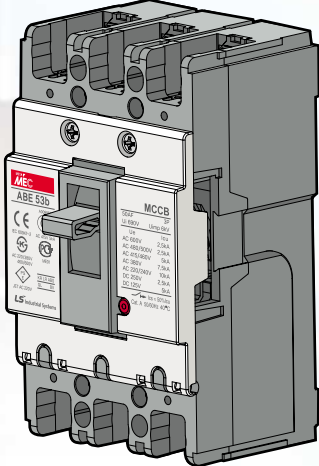
- Type name: PB-□-2DB
- Avaiialbe for breaker rating upto 100A

# Selection of plug-in MCCBs

## Normal type

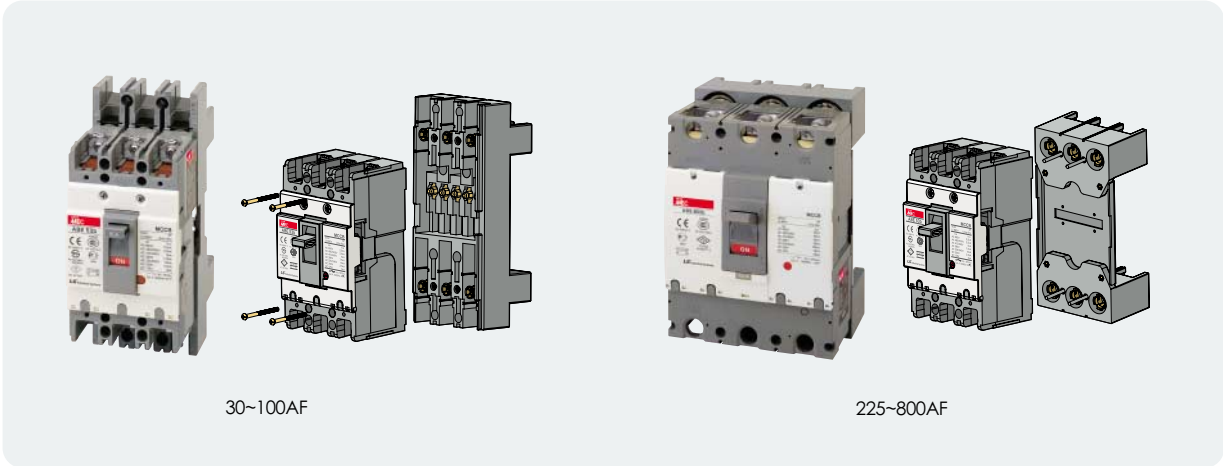
### Plug-in version breaker

-MCCB rating : 30 to 800AF



### Terminal block

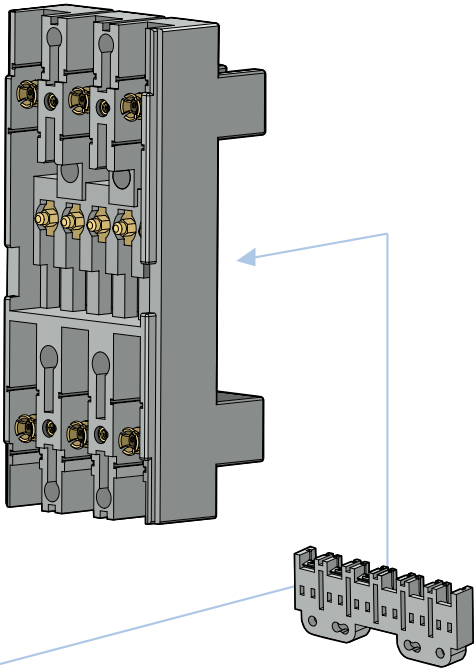
- Type name: PBA-225U
- For electrical auxiliaries
- Mounting on the back of the breaker size 225~800AF
- Should be used together with the terminal block PBA-225L



30~100AF

225~800AF

## Mounting block



## Terminal block

- Type name:  
PBA-225L for 225~800AF  
PBA-100 for 30~100AF
- For electrical auxiliaries
- Mounting on the back of the mounting block

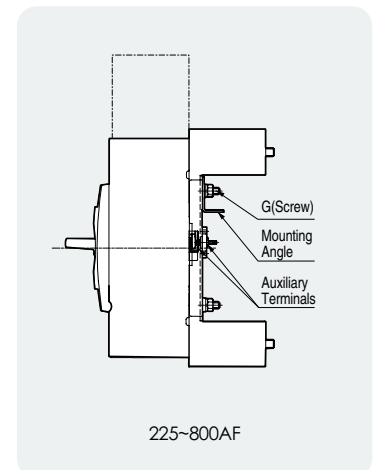
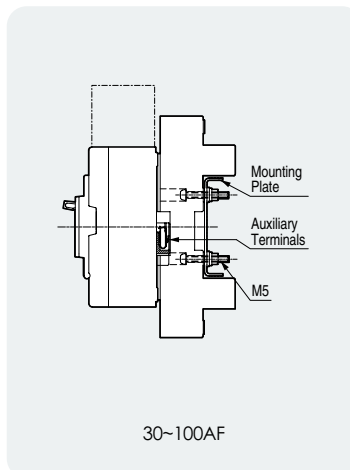
## Type names of blocks

Block	Plug-in version breaker	Terminal block
<b>PB-A3-FR</b>	ABH33b, ABS33b, ABS53b, ABE53b, ABS63b, ABE63b, ABE103b	PBA-100
<b>PB-C3-FR</b>	ABS103b, ABH53b, ABH103b	
<b>PB-G3-FR</b>	GBN53, GBN103, GBH53, GBH103	
<b>PB-D3-FR</b>	ABE203b, ABS203b, ABH203b, ABH203a, ABL203a, GBL53, GBL103, GBN203, GBH203, GBL203	PBA-225U (mounting on the breaker)
<b>PB-E3-FR</b>	ABL53a, ABL103a	PBA-225L (mounting on the block)
<b>PB-I3-FR</b>	ABE403b, ABS403b, ABH403b, ABL403b	
<b>PB-J3-FR</b>	ABE603b, ABS603b, ABL603b, ABE803b, ABS803b, ABL803b	

## Electrical auxiliaries

Internal accessories for standard breakers such as auxiliary switch, alarm switch, shunt trip and undervoltage trip can be used for plug-in version breakers without any modification. For the convenient wiring for plug-in MCCBs the use of exclusive terminal blocks are recommended as shown below.

## Mounting position of terminal blocks

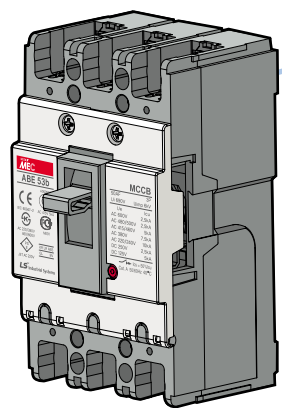


# Selection of plug-in MCCBs

## Line-only type

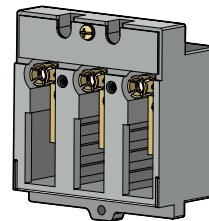
### Plug-in version breaker

- MCCB rating: 30 to 100AF
- Plug-type terminals on



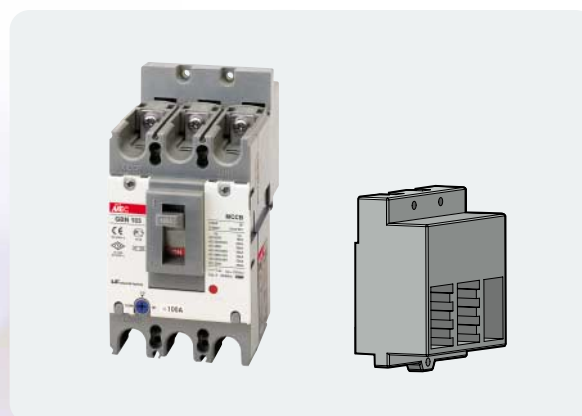
Line side

### Mounting



#### Type names of blocks

Block	Plug-in version breaker	Terminal block
<b>PB-A3-FRL</b>	ABH33b, ABS33b, ABS53b, ABE53b, ABS63b, ABE63b, ABE103b	N.A.
<b>PB-C3-FRL</b>	ABS103b, ABH53b, ABH103b	
<b>PB-G3-FRL</b>	GBN53, GBN103, GBH53, GBH103	



### Electrical auxiliaries

Internal accessories for standard breakers such as auxiliary switch, alarm switch, shunt trip and undervoltage trip can be used for plug-in version breakers without any modification.

# Single-row type

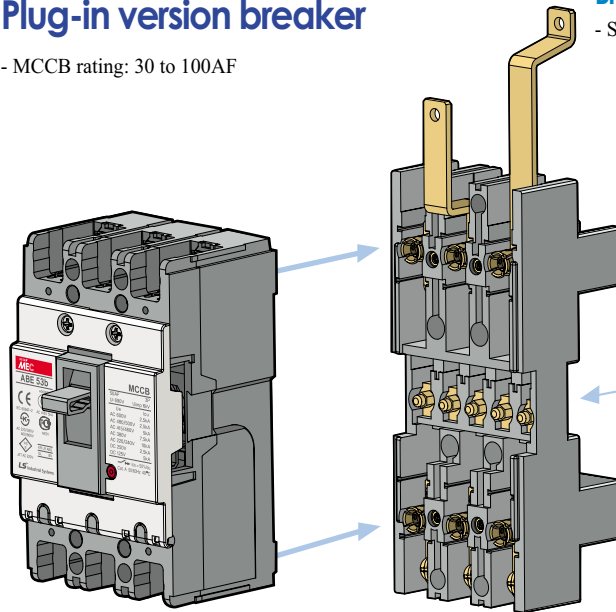
## Mounting

### Plug-in version breaker

- MCCB rating: 30 to 100AF

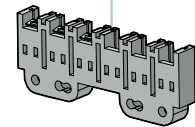
### Branch busbars

- Supplied as standard



### Type names of blocks

Blocks	Plug-in version breakers	Terminal block
PB-A3-1DB	ABH33b,	PBA-100
	ABS33b,	
	ABS53b,	
	ABE53b,	
	ABS63b,	
ABE63b,		
ABE103b		
PB-C3-1DB	ABS103b,	
	ABH53b,	
	ABH103b	
PB-G3-1DB	GBN53,	
	GBN103,	
	GBH53,	
	GBH103	

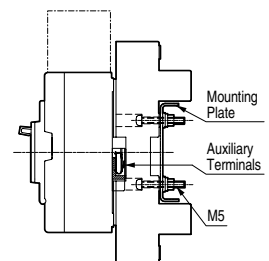
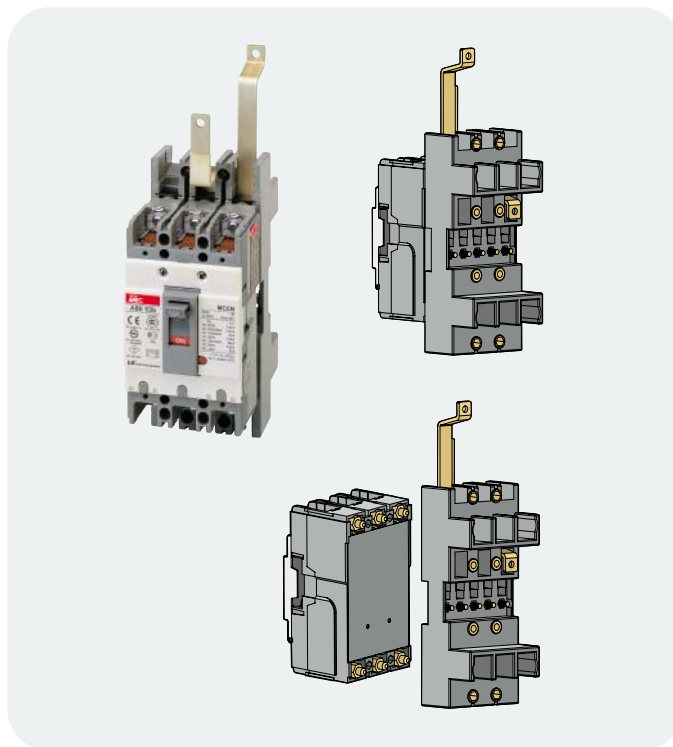


Terminal block

## Electrical auxiliaries

Internal accessories for standard breakers such as auxiliary switch, alarm switch, shunt trip and undervoltage trip can be used for plug-in version breakers without any modification.

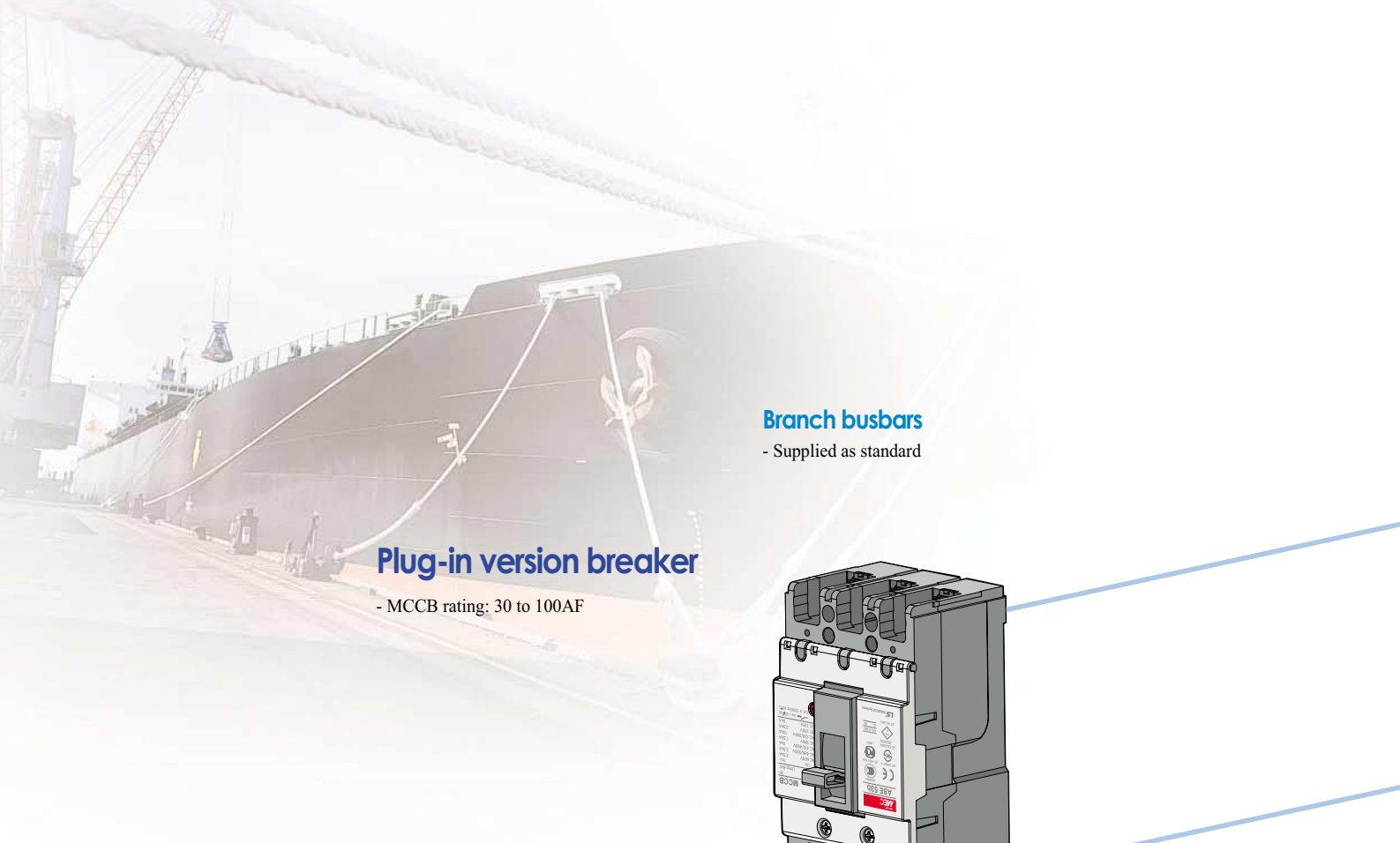
For the convenient wiring for plug-in MCCBs the use of exclusive terminal blocks are recommended as show below



30~100AF

# Selection of plug-in MCCBs

## Double-row type

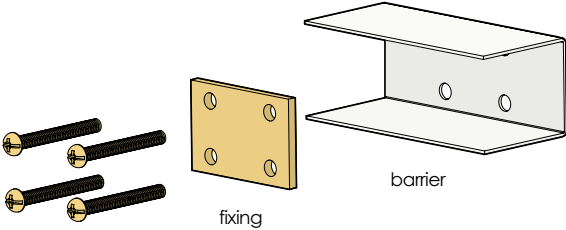
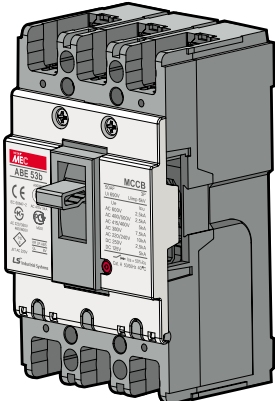
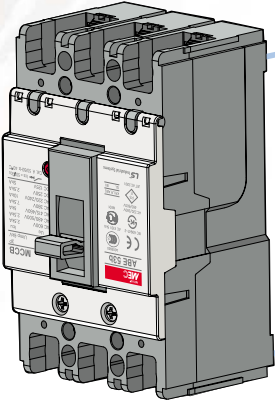


**Branch busbars**

- Supplied as standard

**Plug-in version breaker**

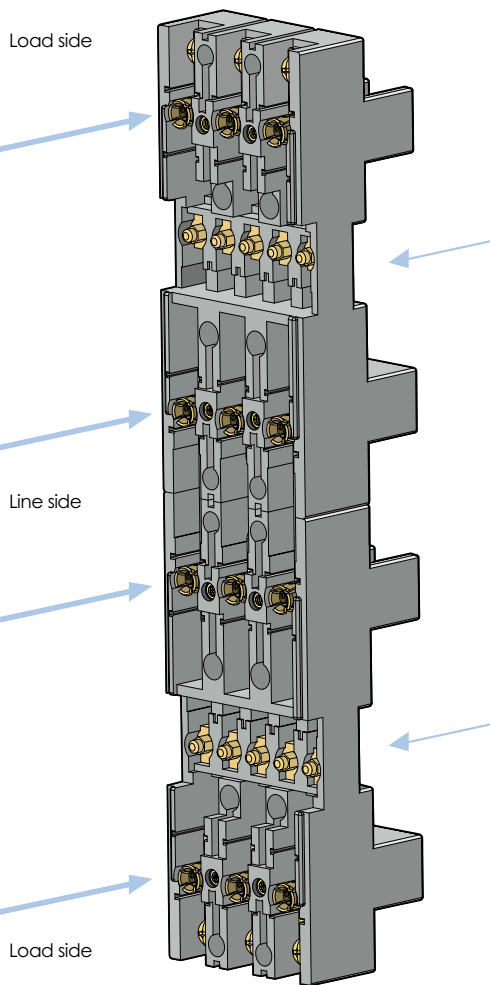
- MCCB rating: 30 to 100AF



\*These items are supplied as standard



## Mounting



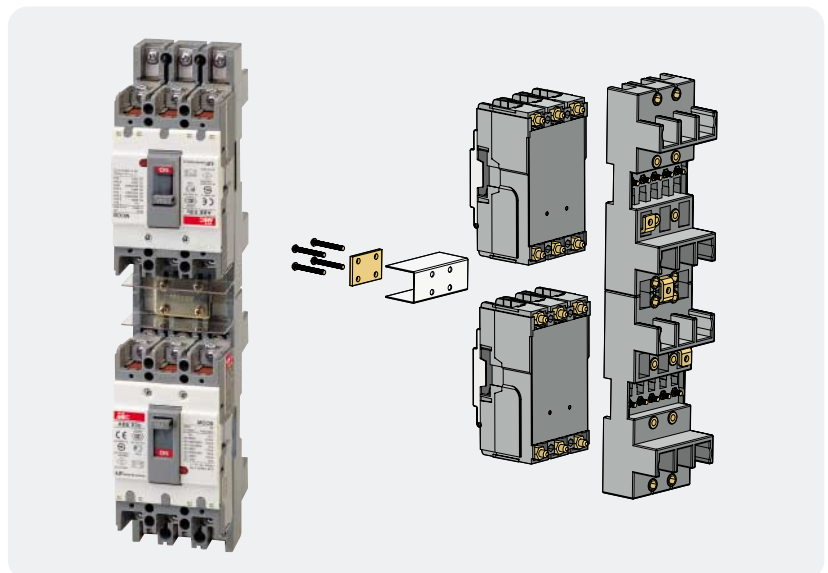
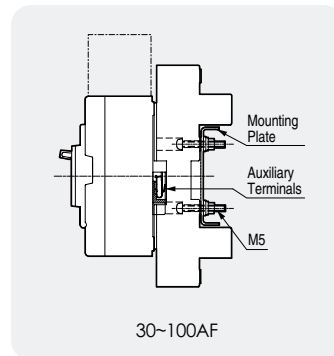
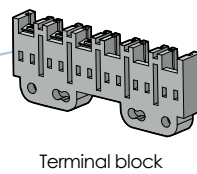
## Type names of blocks

Blocks	Plug-in version breakers	Terminal block
<b>PB-A3-2DB</b>	ABH33b, ABS33b, ABS53b, ABE53b, ABS63b, ABE63b, ABE103b	PBA-100
<b>PB-C3-2DB</b>	ABS103b, ABH53b, ABH103b	
<b>PB-G3-2DB</b>	GBN53, GBN103, GBH53, GBH103	

## Electrical auxiliaries

Internal accessories for standard breakers such as auxiliary switch, alarm switch, shunt trip and undervoltage trip can be used for plug-in version breakers without any modification.

For the convenient wiring for plug-in MCCBs the use of exclusive terminal blocks are recommended as show below



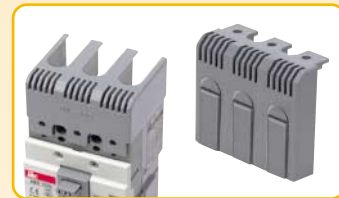
## Descriptions

- Protection against overload, short-circuit and ground fault.
- Offering economical solution with compact and increased interrupting capacities compared to the existing breakers.
- Employing a fixed thermal and fixed magnetic trip.
- Frames made of rigid materials of engineering plastics
- Offering the physically same size with MCCBs.

Rear connection



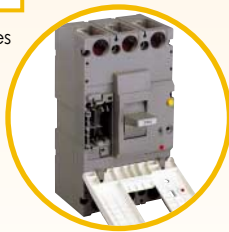
Terminal shield



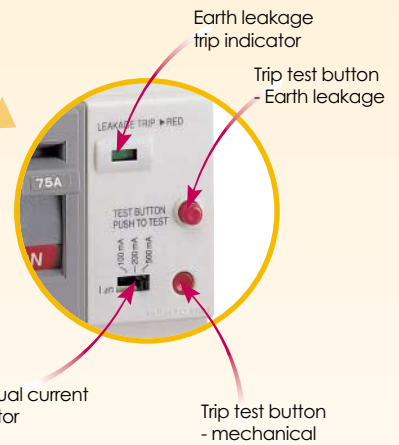
Manual rotary handle



Electrical auxiliaries  
- auxiliary switch  
- alarm switch



Insulation barrier



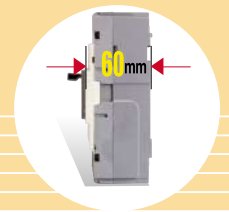
Earth leakage  
trip indicator

Trip test button  
- Earth leakage

Residual current  
selector

Trip test button  
- mechanical

# 30AF



MCCBs

physically interchangeable with ELCBs.

※ see details (p. 33)

<b>Types of the protection</b>	Overload, short-circuit and ground fault
<b>Rated operational voltage</b>	176 to 510V, 50/60Hz
<b>Rated current, I<sub>n</sub></b>	5, 10, 15, 20, 30A ... fixed
<b>Rated residual current, I<sub>Δn</sub></b>	0.03A ... fixed 0.1-0.2-0.5A ... adjustable
<b>Residual non-operating current</b>	0.5 × I <sub>Δn</sub>
<b>Residual current off-time at I<sub>Δn</sub></b>	≤ 0.1 sec
<b>Magnetic trip current</b>	(8 to 16) × I <sub>n</sub> ... fixed
<b>Type of trip unit</b>	Hydraulic-magnetic for overcurrent pick-up Electronic for earth leakage pick-up
<b>Number of poles</b>	3 pole
<b>Connection</b>	Front (standard) Rear (optional)
<b>Mounting</b>	Fixed only
<b>Breaking capacity, I<sub>cu</sub></b>	I <sub>cs</sub> = 50% of I <sub>cu</sub>

Type	EBS	EBH
220/240V	10kA	25kA
415/460V	5kA	10kA

Rating	for I <sub>Δn</sub> =0.03A (30mA)		
	In	5kA	10kA
5A		EBS33b/5/30	EBH33b/5/30
10A		EBS33b/10/30	EBH33b/10/30
15A		EBS33b/15/30	EBH33b/15/30
20A		EBS33b/20/30	EBH33b/20/30
30A		EBS33b/30/30	EBH33b/30/30
Rating	for I <sub>Δn</sub> =0.1-0.2-0.5A (100-200-500mA)		
	In	5kA	10kA
5A		EBS33b/5/100	EBH33b/5/100
10A		EBS33b/10/100	EBH33b/10/100
15A		EBS33b/15/100	EBH33b/15/100
20A		EBS33b/20/100	EBH33b/20/100
30A		EBS33b/30/100	EBH33b/30/100

\* Note: Breaking capacity at 415VAC.

<b>Optional accessories</b>	Auxiliary switch
※ see details (p. 89)	Alarm switch
	Terminal shield
	Rear connection unit
	Insulational barrier (standard for line side only)

<b>Dimensions(mm)</b>	<b>3pole</b>	75(W) × 130(H) × 60(D)
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## 50AF & 60AF



MCCBs

physically interchangeable with ELCBs

※ see details (p. 34)

### Optional accessories

- Auxiliary switch
- Alarm switch
- Manual rotary handle
- Terminal shield
- Rear connection unit
- Insulational barrier (standard for line side only)

※ see details (p. 83)

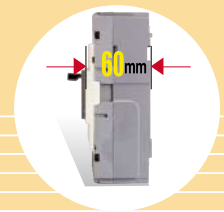
<b>Types of the protection</b>	Overload, short-circuit and ground fault
<b>Rated operational voltage</b>	176 to 510V, 50/60Hz
<b>Rated current, I<sub>n</sub></b>	5, 10, 15, 20, 30, 40, 50, 60A ... fixed
<b>Rated residual current, I<sub>Δn</sub></b>	0.03A ... fixed 0.1-0.2-0.5A ... adjustable
<b>Residual non-operating current</b>	0.5 x I <sub>Δn</sub>
<b>Residual current off-time at I<sub>Δn</sub></b>	≤ 0.1 sec
<b>Magnetic trip current</b>	(8 to 16) x I <sub>n</sub> ... fixed
<b>Type of trip unit</b>	Hydraulic-magnetic for overcurrent pick-up (Thermal -magnetic for EBH type only) Electronic for earth leakage pick-up
<b>Number of poles</b>	3 pole
<b>Connection</b>	Front (standard) Rear (optional)
<b>Mounting</b>	Fixed only
<b>Breaking capacity, I<sub>cu</sub></b>	I <sub>cs</sub> = 50% of I <sub>cu</sub>

Type	EBE	EBS	EBH
220/240V	10kA	25kA	50kA
415/460V	5kA	10kA	25kA

Rating	for I <sub>Δn</sub> =0.03A (30mA)			
	I <sub>n</sub>	5kA(2pole)	5kA	10kA
5A	EBE52b/5/30	EBE53b/5/30	EBS53b/5/30	N.A.
10A	EBE52b/10/30	EBE53b/10/30	EBS53b/10/30	N.A.
15A	EBE52b/15/30	EBE53b/15/30	EBS53b/15/30	N.A.
20A	EBE52b/20/30	EBE53b/20/30	EBS53b/20/30	N.A.
30A	EBE52b/30/30	EBE53b/30/30	EBS53b/30/30	N.A.
40A	EBE52b/40/30	EBE53b/40/30	EBS53b/40/30	EBH53b/40/30
50A	EBE52b/50/30	EBE53b/50/30	EBS53b/50/30	EBH53b/50/30
60A	N.A.	EBE63b/60/30	EBS63b/60/30	N.A.
Rating	for I <sub>Δn</sub> =0.1-0.2-0.5A (100-200-500mA)			
	I <sub>n</sub>	5kA(2pole)	5kA	10kA
5A	EBE52b/5/100	EBE53b/5/100	EBS53b/5/100	N.A.
10A	EBE52b/10/100	EBE53b/10/100	EBS53b/10/100	N.A.
15A	EBE52b/15/100	EBE53b/15/100	EBS53b/15/100	N.A.
20A	EBE52b/20/100	EBE53b/20/100	EBS53b/20/100	N.A.
30A	EBE52b/30/100	EBE53b/30/100	EBS53b/30/100	N.A.
40A	EBE52b/40/100	EBE53b/40/100	EBS53b/40/100	EBH53b/40/100
50A	EBE52b/50/100	EBE53b/50/100	EBS53b/50/100	EBH53b/50/100
60A	N.A.	EBE63b/60/100	EBS63b/60/100	N.A.

\* Note: Breaking capacity at 415VAC.

Dimensions (mm)	3pole	Types EBE, EBS	Types EBH
		75(W) x 130(H) x 60(D)	90(W) x 155(H) x 60(D)



# 100AF



MCCBs

physically interchangeable with ELCBs.

※ see details (p. 35)

<b>Types of the protection</b>	Overload, short-circuit and ground fault
<b>Rated operational voltage</b>	176 to 510V, 50/60Hz
	88 to 242Vac for EBE102b only
<b>Rated current, <math>I_n</math></b>	40, 50, 60, 75, 100A ... fixed
<b>Rated residual current, <math>I_{\Delta n}</math></b>	0.03A ... fixed
	0.1-0.2-0.5A ... adjustable
<b>Residual non-operating current</b>	$0.5 \times I_{\Delta n}$
<b>Residual current off-time at <math>I_{\Delta n}</math></b>	$\leq 0.1$ sec
<b>Magnetic trip current</b>	$(8 \text{ to } 16) \times I_n$ ... fixed
<b>Type of trip unit</b>	Thermal-magnetic for overcurrent pick-up (Hydraulic-magnetic for EBE type only) Electronic for earth leakage pick-up
<b>Number of poles</b>	3 pole
<b>Connection</b>	Front (standard) Rear (optional)
<b>Mounting</b>	Fixed only
<b>Breaking capacity, <math>I_{cu}</math></b>	$I_{cs} = 50\%$ of $I_{cu}$

Type	EBE	EBS	EBH
220/240V	25kA	50kA	65kA
415/460V	10kA	25kA	35kA

Rating	for $I_{\Delta n}=0.03A$ (30mA)			
	$I_n$	10kA(2pole)	10kA	25kA
40A	N.A.	N.A.	EBS103b/40/30	N.A.
50A	N.A.	N.A.	EBS103b/50/30	N.A.
60A	EBE102b/60/30	EBE103b/60/30	EBS103b/60/30	EBH103b/60/30
75A	EBE102b/75/30	EBE103b/75/30	EBS103b/75/30	EBH103b/75/30
100A	EBE102b/100/30	EBE103b/100/30	EBS103b/100/30	EBH103b/100/30
Rating	for $I_{\Delta n}=0.1-0.2-0.5A$ (100-200-500mA)			
	$I_n$	10kA(2pole)	10kA	25kA
40A	N.A.	N.A.	EBS103b/40/100	N.A.
50A	N.A.	N.A.	EBS103b/50/100	N.A.
60A	EBE102b/60/100	EBE103b/60/100	EBS103b/60/100	EBH103b/60/100
75A	EBE102b/75/100	EBE103b/75/100	EBS103b/75/100	EBH103b/75/100
100A	EBE102b/100/100	EBE103b/100/100	EBS103b/100/100	EBH103b/100/100

\* Note: Breaking capacity at 415VAC.

<b>Optional accessories</b>	Auxiliary switch Alarm switch Manual rotary handle Terminal shield Rear connection unit Insulational barrier (standard for line side only)
※ see details (p. 83)	

Dimensions (mm)	3pole	Types EBE, EBS	Types EBH
		75(W) × 130(H) × 60(D)	90(W) × 155(H) × 60(D)



MCCBs

physically interchangeable with ELCBs.

※ see details (p. 36)

<b>Types of the protection</b>	Overload, short-circuit and ground fault
<b>Rated operational voltage</b>	176 to 510V, 50/60Hz
<b>Rated current, I<sub>n</sub></b>	125, 150, 175, 200, 225A ... fixed
<b>Rated residual current, I<sub>Δn</sub></b>	0.03A ... fixed 0.1-0.2-0.5A ... adjustable
<b>Residual non-operating current</b>	0.5 × I <sub>Δn</sub>
<b>Residual current off-time at I<sub>Δn</sub></b>	≤ 0.1 sec
<b>Magnetic trip current</b>	(8 to 16) × I <sub>n</sub> ... fixed
<b>Type of trip unit</b>	Thermal-magnetic for overcurrent pick-up Electronic for earth leakage pick-up
<b>Number of poles</b>	3 pole
<b>Connection</b>	Front (standard) Rear (optional)
<b>Mounting</b>	Fixed only
<b>Breaking capacity, I<sub>cu</sub></b>	I <sub>cs</sub> = 50% of I <sub>cu</sub>

Type	EBE	EBS	EBH
220/240V	35kA	50kA	65kA
415/460V	18kA	25kA	35kA

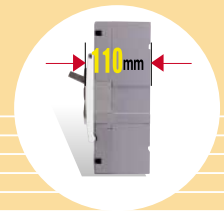
Rating	for I <sub>Δn</sub> =0.03A (30mA)			
	I <sub>n</sub>	18kA	25kA	35kA
125A	EBE203b/125/30	EBS203b/125/30	EBH203b/125/30	
150A	EBE203b/150/30	EBS203b/150/30	EBH203b/150/30	
175A	EBE203b/175/30	EBS203b/175/30	EBH203b/175/30	
200A	EBE203b/200/30	EBS203b/200/30	EBH203b/200/30	
225A	EBE203b/225/30	EBS203b/225/30	EBH203b/225/30	
Rating	for I <sub>Δn</sub> =0.1-0.2-0.5A (100-200-500mA)			
	I <sub>n</sub>	18kA	25kA	35kA
125A	EBE203b/125/100	EBS203b/125/100	EBH203b/125/100	
150A	EBE203b/150/100	EBS203b/150/100	EBH203b/150/100	
175A	EBE203b/175/100	EBS203b/175/100	EBH203b/175/100	
200A	EBE203b/200/100	EBS203b/200/100	EBH203b/200/100	
225A	EBE203b/225/100	EBS203b/225/100	EBH203b/225/100	

\* Note; Breaking capacity at 415VAC.

<b>Optional accessories</b>	Auxiliary switch Manual rotary handle Terminal shield Rear connection unit Insulational barrier (standard for line side only)
※ see details (p. 83)	

<b>Dimensions(mm)</b>	<b>3pole</b>	105(W) × 165(H) × 60(D)
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# 400AF



MCCBs

physically interchangeable with ELCBs.

※ see details (p. 54)

<b>Types of the protection</b>	Overload, short-circuit and ground fault
<b>Rated operational voltage</b>	176 to 510V, 50/60Hz
<b>Types of the protection</b>	Overload, short-circuit and ground fault
<b>Rated operational voltage</b>	176 to 510V, 50/60Hz
<b>Rated current, I<sub>n</sub></b>	250, 300, 350, 400A ... fixed
<b>Rated residual current, I<sub>Δn</sub></b>	0.03A ... fixed
	0.1-0.2-0.5A ... adjustable
<b>Residual non-operating current</b>	0.5 x I <sub>Δn</sub>
<b>Residual current off-time at I<sub>Δn</sub></b>	≤0.1 sec
<b>Magnetic trip current</b>	(8 to 16) x I <sub>n</sub> ... fixed
<b>Type of trip unit</b>	Thermal -magnetic for overcurrent pick-up Electronic for earth leakage pick-up
<b>Number of poles</b>	3 pole
<b>Connection</b>	Front (standard) Rear (optional)
<b>Mounting</b>	Fixed only
<b>Breaking capacity, I<sub>cs</sub></b>	I <sub>cs</sub> = 50% of I <sub>cu</sub>

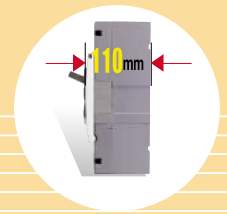
Type	EBE	EBS	EBH	EBL
<b>220/240V</b>	35kA	50kA	85kA	125kA
<b>415/460V</b>	25kA	35kA	50kA	85kA

Rating	for I <sub>Δn</sub> =0.03A (30mA)			
	In	25kA	35kA	50kA
<b>250A</b>	EBE403b/250/30	EBS403b/250/30	EBH403b/250/30	EBL403b/250/30
<b>300A</b>	EBE403b/300/30	EBS403b/300/30	EBH403b/300/30	EBL403b/300/30
<b>350A</b>	EBE403b/350/30	EBS403b/350/30	EBH403b/350/30	EBL403b/350/30
<b>400A</b>	EBE403b/400/30	EBS403b/400/30	EBH403b/400/30	EBL403b/400/30
Rating	for I <sub>Δn</sub> =0.1-0.2-0.5A (100-200-500mA)			
	In	25kA	35kA	50kA
<b>250A</b>	EBE403b/250/100	EBS403b/250/100	EBH403b/250/100	EBL403b/250/100
<b>300A</b>	EBE403b/300/100	EBS403b/300/100	EBH403b/300/100	EBL403b/300/100
<b>350A</b>	EBE403b/350/100	EBS403b/350/100	EBH403b/350/100	EBL403b/350/100
<b>400A</b>	EBE403b/400/100	EBS403b/400/100	EBH403b/400/100	EBL403b/400/100

\* Note; Breaking capacity at 415VAC.

<b>Optional accessories</b>	Auxiliary switch
※ see details (p. 84)	Alarm switch
	Shunt trip
	Undervoltage trip
	Manual rotary handle
	Terminal shield
	Rear connection unit
	Insulational barrier (standard for line side only)

<b>Dimensions(mm)</b>	<b>3pole</b>	140(W) × 257(H) × 110(D)
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MCCBs

physically interchangeable with ELCBs.

※ see details (p. 55)

<b>Types of the protection</b>	Overload, short-circuit and ground fault
<b>Rated operational voltage</b>	176 to 510V, 50/60Hz
<b>Rated current, I<sub>n</sub></b>	500, 600, 700, 800A ... fixed
<b>Rated residual current, I<sub>Δn</sub></b>	0.03A ... fixed
	0.1-0.2-0.5A ... adjustable
<b>Residual non-operating current</b>	0.5 x I <sub>Δn</sub>
<b>Residual current off-time at I<sub>Δn</sub></b>	≤ 0.1 sec
<b>Magnetic trip current</b>	(8 to 16) x I <sub>n</sub> ... fixed
<b>Type of trip unit</b>	Thermal-magnetic for overcurrent pick-up Electronic for earth leakage pick-up
<b>Number of poles</b>	3 pole
<b>Connection</b>	Front (standard) Rear (optional)
<b>Mounting</b>	Fixed only
<b>Breaking capacity, I<sub>cs</sub></b>	I <sub>cs</sub> = 50% of I <sub>cu</sub>

Type	EBE	EBS	EBL
220/240V	50kA	100kA	125kA
415/460V	35kA	50kA	85kA

Rating	for I <sub>Δn</sub> =0.03A (30mA)		
	I <sub>n</sub>	35kA	50kA
500A	EBE803b/500/30	EBS803b/500/30	EBL803b/500/30
600A	EBE803b/600/30	EBS803b/600/30	EBL803b/600/30
700A	EBE803b/700/30	EBS803b/700/30	EBL803b/700/30
800A	EBE803b/800/30	EBS803b/800/30	EBL803b/800/30
Rating	for I <sub>Δn</sub> =0.1-0.2-0.5A (100-200-500mA)		
	I <sub>n</sub>	35kA	50kA
500A	EBE803b/500/100	EBS803b/500/100	EBL803b/500/100
600A	EBE803b/600/100	EBS803b/600/100	EBL803b/600/100
700A	EBE803b/700/100	EBS803b/700/100	EBL803b/700/100
800A	EBE803b/800/100	EBS803b/800/100	EBL803b/800/100

\* Note; Breaking capacity at 415VAC.

<b>Optional accessories</b>	Auxiliary switch
※ see details (p. 84)	Alarm switch
	Shunt trip
	Undervoltage trip
	Manual rotary handle
	Terminal shield
	Rear connection unit
	Insulational barrier (standard for line side only)

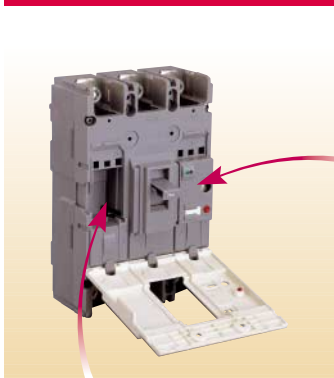
<b>Dimensions(mm)</b>	<b>3pole</b>	210(W) x 280(H) x 110(D)
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# Accessories

## Electrical auxiliaries

up to 225AF



Left-hand seat

Right-hand seat  
(not available)

### Maximum possibilities

#### Left-hand seat

Option of connecting AX or AL or XL  
This seat is not available for 2-pole breakers

#### Right-hand seat

This seat is not available for Earth leakage breakers



Auxiliary switch, AX



Alarm switch, AL

### Catalog No.

#### Applicable breaker types

EBE53b	EBS103b	EBE203b
EBE63b	EBH53b	EBS203b
EBE102b,103b	EBH103b	EBH203b
EBS33b		
EBS53b		
EBS63b		
EBH33b		
AX1E100R-LWT	AX1E100R-LWT	AX1H200R-LWT
AX1E100R-TBT	AX1H100R-TBT	AX1H200R-TBT
AL1E100R-LWT	AL1H100R-LWT	AL1H200R-LWT
AL1E100R-TBT	AL1H100R-TBT	AL1H200R-TBT
XL1E100R-LWT	XL1H100R-LWT	XL1H200R-LWT
XL1E100R-TBT	XL1H100R-TBT	XL1H200R-TBT
page 33	page 36	page 39
page 35	page 38	page 41
page 34	page 37	page 40
page 34	page 37	page 40
page 34	page 37	page 40

#### Auxiliary switch, AX

Consists of a changeover contact (1NO+NC)  
1 auxiliary switch fit for the left-hand seat of a handle

#### Alarm switch, AL

Consists of a changeover contact (1NO+NC)  
1 alarm switch fit for the left-hand seat of a handle

#### Combination switch, XL

Consists of a auxiliary switch and a alarm switch (2NO+NC)  
1 combination switch fit for the left-hand 1 seat of a handle

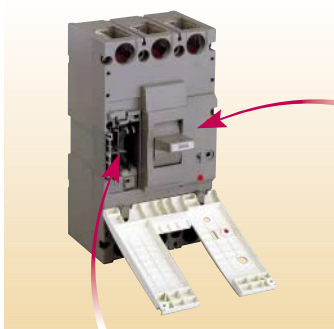
#### Other accessories

Reference page no. for more detail  
Manual rotary handle  
Terminal shield  
Rear connection unit  
Insulational barrier

## Accessories

### Electrical auxiliaries

### Thermal magnetic type



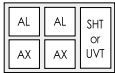
Left-hand seat

Right-hand seat  
(not available)

#### Maximum possibilities

##### Left-hand seat

Option of connecting  
2AX and 2AL and SHT or UVT



##### Right-hand seat

This seat is not available for earth  
leakage breakers

#### Catalog No.

##### Auxiliary switch, AX

AX1L800 1 auxiliary switch (1NO+NC)

##### Alarm switch, AL

AL1L800 Consists of one change over switch  
1 alarm switch (1NO+NC)

##### Shunt trip, SHT

ST48CL800 For 24~48V AC/DC common use  
ST100CL800 For AC100~125/DC100~110V  
ST200CL800 For AC200~240/DC200~220V  
ST380AL800 For AC380~460V  
ST480AL800 For AC480~550V

##### Under voltage trip, UVT

UV24CL800 For 24V AC/DC common use  
UV48CL800 For 48V AC/DC common use  
UV100CL800 For 100~110V AC/DC common use  
UV200CL800 For 200~220V AC/DC common use  
UV380AL800 For 380~440V AC  
UV440AL800 For 440~480V AC

See page 52 for more detail

### Other accessories

Manual rotary handle	See page 58
Terminal shield	See page 57
Insulational barrier	See page 57

# 50AF, 4-pole



<b>Types of the protection</b>	Overload, short-circuit and ground fault									
<b>Rated operational voltage</b>	176 to 510V, 50/60Hz									
<b>Rated current, I<sub>n</sub></b>	15, 20, 30, 40, 50A --- fixed									
<b>Rated residual current, I<sub>Δn</sub></b>	0.03A --- fixed 0.1-0.2-0.5A ---Adjustable									
<b>Residual non-operating current</b>	0.5 x I <sub>Δn</sub>									
<b>Residual current off-time at I<sub>Δn</sub></b>	≤0.1 sec									
<b>Type of trip unit</b>	Thermal -magnetic for overcurrent pick-up Electronic for earthleakage pick-up									
<b>No. of poles</b>	4pole (3pole+neutral )									
<b>Connection</b>	Front (standard ) Rear (optional )									
<b>Mounting</b>	Fixed only									
<b>Breaking capacity, I<sub>cu</sub></b>	I <sub>cs</sub> =50% of I <sub>cu</sub>									
	<table border="1"> <thead> <tr> <th>Type</th> <th>EBS</th> <th>EBH</th> </tr> </thead> <tbody> <tr> <td>220/240V</td> <td>50kA</td> <td>65kA</td> </tr> <tr> <td>415/460V</td> <td>25kA</td> <td>35kA</td> </tr> </tbody> </table>	Type	EBS	EBH	220/240V	50kA	65kA	415/460V	25kA	35kA
Type	EBS	EBH								
220/240V	50kA	65kA								
415/460V	25kA	35kA								

Rating	for I <sub>Δn</sub> =0.03A (30mA )		
	In	25kA	35kA
	15A	EBS54b/15/30	EBH54b/15/30
	20A	EBS54b/20/30	EBH54b/20/30
	30A	EBS54b/30/30	EBH54b/30/30
	40A	EBS54b/40/30	EBH54b/40/30
	50A	EBS54b/50/30	EBH54b/50/30
	for I <sub>Δn</sub> =0.1-0.2-0.5A (100-200-500mA)		
	In	25kA	35kA
	15A	EBS54b/15/100	EBH54b/15/100
	20A	EBS54b/20/100	EBH54b/20/100
	30A	EBS54b/30/100	EBH54b/30/100
	40A	EBS54b/40/100	EBH54b/40/100
	50A	EBS54b/50/100	EBH54b/50/100

<b>Optional accessories</b>	Auxiliary switch Alarm switch Manual rotary handle Terminal shield Rear connection unit Insulational barrier (standard for line side only)
* See page (p.83)	

<b>Dimensions(mm)</b>	120(W) × 175(H) × 60(D)
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<b>Types of the protection</b>	Overload, short-circuit and ground fault
<b>Rated operational voltage</b>	176 to 510V, 50/60Hz
<b>Rated current, I<sub>n</sub></b>	15, 20, 30, 40, 50, 60, 75, 100A --- fixed
<b>Rated residual current, I<sub>Δn</sub></b>	0.03A --- fixed 0.1-0.2-0.5A ---Adjustable
<b>Residual non-operating current</b>	0.5 x I <sub>Δn</sub>
<b>Residual current off-time at I<sub>Δn</sub></b>	≤0.1 sec
<b>Type of trip unit</b>	Thermal -magnetic for overcurrent pick-up Electronic for earthleakage pick-up
<b>No. of poles</b>	4pole (3pole+neutral )
<b>Connection</b>	Front (standard ) Rear (optional )
<b>Mounting</b>	Fixed only
<b>Breaking capacity, I<sub>cu</sub></b>	I <sub>cs</sub> =50% of I <sub>cu</sub>

Type	EBS	EBH
220/240V	50kA	65kA
415/460V	25kA	35kA

Rating	for I <sub>Δn</sub> =0.03A (30mA )	
	In	
	<b>25kA</b>	<b>35kA</b>
15A	EBS104b/15/30	EBH104b/15/30
20A	EBS104b/20/30	EBH104b/20/30
30A	EBS104b/30/30	EBH104b/30/30
40A	EBS104b/40/30	EBH104b/40/30
50A	EBS104b/50/30	EBH104b/50/30
60A	EBS104b/60/30	EBH104b/60/30
75A	EBS104b/75/30	EBH104b/75/30
100A	EBS104b/100/30	EBH104b/100/30
	for I <sub>Δn</sub> =0.1-0.2-0.5A (100-200-500mA)	
	In	
	<b>25kA</b>	<b>35kA</b>
15A	EBS104b/15/100	EBH104b/15/100
20A	EBS104b/20/100	EBH104b/20/100
30A	EBS104b/30/100	EBH104b/30/100
40A	EBS104b/40/100	EBH104b/40/100
50A	EBS104b/50/100	EBH104b/50/100
60A	EBS104b/60/30	EBH104b/60/30
75A	EBS104b/75/30	EBH104b/75/30
100A	EBS104b/100/30	EBH104b/100/30

### Optional accessories

\* See page (p.83)

Auxiliary switch  
Alarm switch  
Manual rotary handle  
Terminal shield  
Rear connection unit  
Insulational barrier  
(standard for line side only)

### Dimensions(mm)

120(W) × 175(H) × 60(D)

# 225AF, 4-pole



<b>Types of the protection</b>	Overload, short-circuit and ground fault
<b>Rated operational voltage</b>	176 to 510V, 50/60Hz
<b>Rated current, I<sub>n</sub></b>	100, 125, 150, 175, 200, 225A --- fixed
<b>Rated residual current, I<sub>Δn</sub></b>	0.03A --- fixed 0.1-0.2-0.5A ---Adjustable
<b>Residual non-operating current</b>	0.5 x I <sub>Δn</sub>
<b>Residual current off-time at I<sub>Δn</sub></b>	≤0.1 sec
<b>Type of trip unit</b>	Thermal -magnetic for overcurrent pick-up Electronic for earthleakage pick-up
<b>No. of poles</b>	4pole (3pole+neutral )
<b>Connection</b>	Front (standard ) Rear (optional )
<b>Mounting</b>	Fixed only
<b>Breaking capacity, I<sub>cu</sub></b>	I <sub>cs</sub> =50% of I <sub>cu</sub>

Type	EBS	EBH
220/240V	50kA	65kA
415/460V	25kA	35kA

Rating	for I <sub>Δn</sub> =0.03A (30mA )		
	In	25kA	35kA
	100A	EBS204b/100/30	EBH204b/100/30
	125A	EBS204b/125/30	EBH204b/125/30
	150A	EBS204b/150/30	EBH204b/150/30
	175A	EBS204b/175/30	EBH204b/175/30
	200A	EBS204b/200/30	EBH204b/200/30
	225A	EBS204b/225/30	EBH204b/225/30
for I <sub>Δn</sub> =0.1-0.2-0.5A (100-200-500mA)			
Rating	In	25kA	35kA
	100A	EBS204b/100/100	EBH204b/100/100
	125A	EBS204b/125/100	EBH204b/125/100
	150A	EBS204b/150/100	EBH204b/150/100
	175A	EBS204b/175/100	EBH204b/175/100
	200A	EBS204b/200/100	EBH204b/200/100
	225A	EBS204b/225/100	EBH204b/225/100

### Optional accessories

\* See page (p.83)

- Auxiliary switch
- Alarm switch
- Manual rotary handle
- Terminal shield
- Rear connection unit
- Insulation barrier  
(standard for line side only)

### Dimensions(mm)

140(W) × 185(H) × 60(D)

## 400AF, 4-pole



<b>Types of the protection</b>	Overload, short-circuit and ground fault
<b>Rated operational voltage</b>	176 to 510V, 50/60Hz
<b>Rated current, I<sub>n</sub></b>	250, 300, 350, 400A --- fixed
<b>Rated residual current, I<sub>Δn</sub></b>	0.03A --- fixed 0.1-0.2-0.5A ---Adjustable
<b>Residual non-operating current</b>	0.5 x I <sub>Δn</sub>
<b>Residual current off-time at I<sub>Δn</sub></b>	≤0.1 sec
<b>Type of trip unit</b>	Thermal -magnetic for overcurrent pick-up Electronic for earthleakage pick-up
<b>No. of poles</b>	4pole (3pole+neutral )
<b>Connection</b>	Front (standard ) Rear (optional )
<b>Mounting</b>	Fixed only
<b>Breaking capacity, I<sub>cu</sub></b>	I <sub>cs</sub> =50% of I <sub>cu</sub>

Type	EBE	EBS
220/240V	50kA	65kA
415/460V	25kA	35kA

Rating	for I <sub>Δn</sub> =0.03A (30mA )		
	In	25kA	35kA
	250A	EBE404b/250/30	EBS404b/250/30
	300A	EBE404b/300/30	EBS404b/300/30
	350A	EBE404b/350/30	EBS404b/350/30
	400A	EBE404b/400/30	EBS404b/400/30
	for I <sub>Δn</sub> =0.1-0.2-0.5A (100-200-500mA)		
	In	25kA	35kA
	250A	EBE404b/250/100	EBS404b/250/100
	300A	EBE404b/300/100	EBS404b/300/100
	350A	EBE404b/350/100	EBS404b/350/100
	400A	EBE404b/400/100	EBS404b/400/100

<b>Optional accessories</b>	Auxiliary switch Alarm switch Manual rotary handle Terminal shield Rear connection unit Insulation barrier (standard for line side only)
※ See page (p.83)	

<b>Dimensions(mm)</b>	185(W) × 257(H) × 109(D)
-----------------------	--------------------------

# Hi-MEC MCCBs

## 30AF to 225AF Hi-MEC series



Frame Size(AF)		30	50	100	225
Frame type		ABE	ABL	ABL	ABL
Breaking capacity(kA), Icu at 415Vac		1.5	65	65	65
Number of poles		2, 3	2, 3, 4	2, 3, 4	2, 3, 4
Type	2 pole	ABE32	ABL52a	ABL102a	ABL202a
	3 pole	ABE33	ABL53a	ABL103a	ABL203a
	4 pole		ABL54a	ABL104a	ABL204a
Rated current (A) In at 40°C		3, 5, 10, 15, 20, 30	15, 20, 30, 40, 50	15, 20, 30, 40, 50, 60, 75, 100	100, 125, 150, 175, 200, 225
<b>Technical data conforming to IEC/EN60947-2</b>					
Rated operational voltage(V), Ue(50/60Hz)		460	600	600	600
Rated operational voltage(V), Ue(DC)		-	250	250	250
Rated insulation voltage(V), Ui(50/60Hz)		460	660	660	660
Rated impulse withstand voltage(kV), Uimp		6	6	6	6
Ultimate breaking capacity(kA), Icu					
AC 50/60Hz	220/240V	2.5	100	100	125
	380/415V	1.5	65	65	65
	440/460V	1.5	65	65	65
	480/500V	-	42	50/42	50/42
	600V	-	35	35	35
DC	125V	-	60	60	60
	250V	-	40	40	40
Service breaking capacity(%Icu), Ics		50	50	50	50
Category of use		A	A	A	A
Endurance (number of operations)	Mechanical	8500	8500	8500	7000
	Electrical	1500	1500	1500	1000
<b>Type of trip unit</b>					
Thermal-magnetic release			fixed	fixed	fixed
Electronic release					
Pre-alarm via LED					
Hydraulic-magnetic release		fixed			
<b>Accessories</b>					
Electrical auxiliaries	Auxiliary switch	-	●	●	●
	Alarm switch	-	●	●	●
	Shunt release	-	●	●	●
	Undervoltage release	-	●	●	●
External accessories	Direct rotary handle	-	●	●	●
	Terminal shield	-	●	●	●
	Insulation barrier	-	●	●	●
	Rear connection	-	-	-	-
	Mechanical interlock	-	-	-	-
	Motor operator	-	-	-	-
Dimensions (WxHxD mm)		3 pole breaker 75 × 96 × 60	105 × 165 × 82	105 × 165 × 82	105 × 165 × 99
Weight(kg)	2 pole	0.3	1	1	2.1
	3 pole	0.5	1.7	1.7	2.3
	4 pole		2.3	2.3	2.5
Reference page No.			96	97	98



Certificate

CE

Rated current, In	3, 5, 10, 15, 20, 30A (Non-adjustable)
Type of trip unit	Hydraulic-magnetic
Number of poles	2, 3 pole
Connection	Front only
Mounting	Fixed only
Category of use	Type A according to IEC60947-2
Breaking capacity, Icu	Ics = 50% of Icu

Type	ABE
220/240V	2.5kA
380/415V	1.5kA
440/460V	1.5kA
480/500V	-
600V	-

Rating	1.5kA at 415V ... type ABE	
In	2pole	3pole
3A	ABE32/3	ABE33/3
5A	ABE32/5	ABE33/5
10A	ABE32/10	ABE33/10
15A	ABE32/15	ABE33/15
20A	ABE32/20	ABE33/20
30A	ABE32/30	ABE33/30

Dimensions(mm)	ABE type
2pole	50(W) × 96(H) × 60(D)
3pole	75(W) × 96(H) × 60(D)



Certificate

CE

Rated current, In	15, 20, 30, 40, 50A
Type of trip unit	Thermal-magnetic
Number of poles	2, 3, 4 pole
Connection	Front only
Mounting	Fixed only
Category of use	Type A according to IEC60947-2
Breaking capacity, Icu	Ics = 50% of Icu

Type	ABL
220/240V	100kA
380/415V	65kA
440/460V	65kA
480/500V	42kA
600V	35kA

Rating	65kA at 415V ... type ABL		
In	2pole	3pole	4pole
15A	ABL52a/15	ABL53a/15	ABL54a/15
20A	ABL52a/20	ABL53a/20	ABL54a/20
30A	ABL52a/30	ABL53a/30	ABL54a/30
40A	ABL52a/40	ABL53a/40	ABL54a/40
50A	ABL52a/50	ABL53a/50	ABL54a/50

Dimensions (mm)	2pole	3pole	4pole
	74(W) × 165(H) × 82(D)	105(W) × 165(H) × 82(D)	140(W) × 165(H) × 82(D)

### Optional accessories

- Auxiliary switch
- Alarm switch
- Shunt trip
- Undervoltage trip
- Manual rotary handle
- Terminal shield
- Insulational barrier (standard for line side only)

※ See page (p.99~100)





**Certificate**  
CE, Lloyd

<b>Rated current, In</b>	15, 20, 30, 40, 50, 60, 75, 100 (Non-adjustable)
<b>Type of trip unit</b>	Thermal-magnetic
<b>Number of poles</b>	2, 3, 4 pole
<b>Connection</b>	Front only
<b>Mounting</b>	Fixed only
<b>Category of use</b>	Type A according to IEC60947-2
<b>Breaking capacity, Icu</b>	Ics = 50% of Icu
	<b>Type</b> <b>ABL</b>
	<b>220/240V</b> 100kA
	<b>380/415V</b> 65kA
	<b>440/460V</b> 65kA
	<b>480/500V</b> 50/42kA
	<b>600V</b> 35kA

Rating	65kA at 415V ... type ABL			
	In	2pole	3pole	4pole
15A		ABL102a/15	ABL103a/15	ABL104a/15
20A		ABL102a/20	ABL103a/20	ABL104a/20
30A		ABL102a/30	ABL103a/30	ABL104a/30
40A		ABL102a/40	ABL103a/40	ABL104a/40
50A		ABL102a/50	ABL103a/50	ABL104a/50
60A		ABL102a/60	ABL103a/60	ABL104a/60
75A		ABL102a/75	ABL103a/75	ABL104a/75
100A		ABL102a/100	ABL103a/100	ABL104a/100

<b>Optional accessories</b>	Auxiliary switch
※ See page (p.99~100)	Alarm switch
	Shunt trip
	Undervoltage trip
	Manual rotary handle
	Terminal shield
	Insulational barrier (standard for line side only)

<b>Dimensions (mm)</b>	<b>2pole</b>	74(W) × 165(H) × 82(D)
	<b>3pole</b>	105(W) × 165(H) × 82(D)
	<b>4pole</b>	140(W) × 165(H) × 82(D)



**Certificate**  
CE, Lloyd

<b>Rated current, I<sub>n</sub></b>	125, 150, 175, 200, 225A (Non-adjustable)
<b>Type of trip unit</b>	Thermal-magnetic
<b>Number of poles</b>	2, 3, 4 pole
<b>Connection</b>	Front only
<b>Mounting</b>	Fixed only
<b>Category of use</b>	Type A according to IEC60947-2
<b>Breaking capacity, I<sub>cu</sub></b>	I <sub>cs</sub> = 50% of I <sub>cu</sub>

Type	ABL
220/240V	125kA
380/415V	65kA
440/460V	65kA
480/500V	50/42kA
600V	35kA

Rating	65kA at 415V ... type ABL			
	In	2pole	3pole	4pole
125A		ABL202a/125	ABL203a/125	ABL204a/125
150A		ABL202a/150	ABL203a/150	ABL204a/150
175A		ABL202a/175	ABL203a/175	ABL204a/175
200A		ABL202a/200	ABL203a/200	ABL204a/200
225A		ABL202a/225	ABL203a/225	ABL204a/225

<b>Optional accessories</b>	Auxiliary switch
※ See page (p.99~100)	Alarm switch
	Shunt trip
	Undervoltage trip
	Manual rotary handle
	Terminal shield
	Insulational barrier (standard for line side only)

Dimensions (mm)	2pole	105(W) × 165(H) × 99(D)
	3pole	105(W) × 165(H) × 99(D)
	4pole	140(W) × 165(H) × 60(D)

## Electrical auxiliaries

### Maximum possibilities

#### Left-hand seat

Option of connecting AX or AL or XL  
This seat is not available for 2-pole breakers

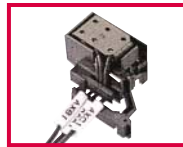
#### Right-hand seat

Option of connecting AX or AL or XL or SHT or UVT  
This seat is not available for earth leakage breakers

### When ordering electrical auxiliaries specify followings

- (1) type of the auxiliary
- (2) type of the breaker ... catalog no.
- (3) position to install ... left or right
- (4) voltage, if necessary

#### Auxiliary switch, AX



Auxiliary switch, AX

Catalog No.	Model
<a href="#">83011116081</a>	AX, R, LWT for ABL53a, 103a
<a href="#">83011116084</a>	AX, T, LWT for ABL52a, 53a, 102a, 103a
<a href="#">83011116087</a>	AX, T, LWT for ABL54a, 104a
<a href="#">83011116061</a>	AX, R, LWT for ABL202a, 203a
<a href="#">83011116064</a>	AX, T, LWT for ABL202a, 203a
<a href="#">83011116067</a>	AX, T, LWT for ABL204a

#### Alarm switch, AL



Alarm switch, AL

Catalog No.	Model
<a href="#">83011116082</a>	AL, R, LWT for ABL53a, 103a
<a href="#">83011116085</a>	AL, T, LWT for ABL52a, 53a, 102a, 103a
<a href="#">83011116088</a>	AL, T, LWT for ABL54a, 104a
<a href="#">83011116062</a>	AL, R, LWT for ABL202a, ABL203a
<a href="#">83011116065</a>	AL, T, LWT for ABL202a, ABL203a
<a href="#">83011116068</a>	AL, T, LWT for ABL204a

#### Combination switch, XL

Consists auxiliary switch and a alarm switch(2NO+NC)

Catalog No.	Model
<a href="#">83011116083</a>	AX+AL, R, LWT for ABL53a, L103a
<a href="#">83011116086</a>	AX+AL, T, LWT for ABL52a, 53a, 102a, 103a
<a href="#">83011116089</a>	AX+AL, T, LWT for ABL54a, 104a
<a href="#">83011116063</a>	AX+AL, R, LWT for ABL202a, 203a
<a href="#">83011116066</a>	AX+AL, T, LWT for ABL202a, 203a
<a href="#">83011116069</a>	AX+AL, T, LWT for ABL204a

### Electrical auxiliaries

#### Shunt trip, SHT



Shunt trip, SHT

Trips the breaker when any ac(dc) voltage between 85(75) and 110(125)% of nominal control voltage is applied. Each unit is fitted into the right-hand seat of a handle. Not applicable to earth leakage breakers

Available operating voltages

- For 12V AC/DC common use
- For 24V AC/DC common use
- For 48V AC/DC common use
- For 60V AC/DC common use
- For AC100~125V/DC100~110V
- For AC200~240V/DC200~220V
- For 250V AC/DC common use
- For 380~450V AC
- For 440~480V AC
- For 500~550V AC
- For 125V DC
- For 240V DC

#### Under voltage trip, UVT



Under voltage trip, UVT

Trips the breaker when control voltage disappears or falls. Each unit is fitted into the right-hand seat of a handle. Not applicable to Earth leakage breakers

- For 24V AC/DC common use
- For 48V AC/DC common use
- For 100~110V AC/DC common use
- For 200~220V AC/DC common use
- For 380~440V AC
- For 440~480V AC

### External accessories



Insulation barriers



Terminal shield



Manual rotary handle

#### Insulation barriers

These are partitions for the insulation between the phases. Barriers for the line side of the breaker are supplied as standard. Barriers for the load side are optional. When ordering specify the type of the breaker.

#### Terminal shields

These are applied to the line/load side of the breaker to prevent accidental contact with live parts. Long and short types are available. When ordering specify the type of the breaker.

#### Manual rotary handles ... Direct mounting types

#### Catalog No.

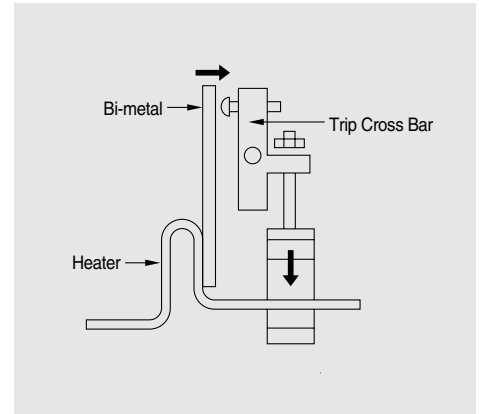
	Description	* Application to
N-55S	Vertical type	ABL53a, ABL103a
N-55L	Horizontal (ON in left-hand) type	
N-55R	Horizontal (ON in right-hand) type	
N-60S	Vertical type	ABL203a
N-60L	Horizontal (ON in left-hand) type	
N-60R	Horizontal (ON in right-hand) type	

\* Note: \* Applicable type names are for 3 pole MCCBs. 2 and 4 pole MCCBs use the same handles with 3 pole MCCBs.

### Thermal magnetic trip

Thermal magnetic breakers are tripped by the bimetal heated by the load current. Bimetals are responsive to the heat emitted by the current flow so as to cause the operating mechanism to trip on a sustained overload. It also means to allow a long time delay on light overloads.

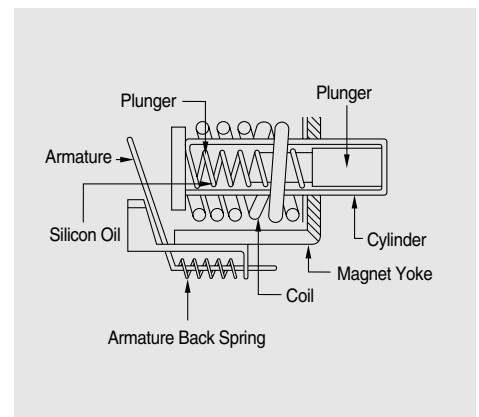
Thermal magnetic breakers are also tripped through the use of electro magnet. This provides an instantaneous tripping action when the current over the predetermined value flows.



### Hydraulic magnetic trip

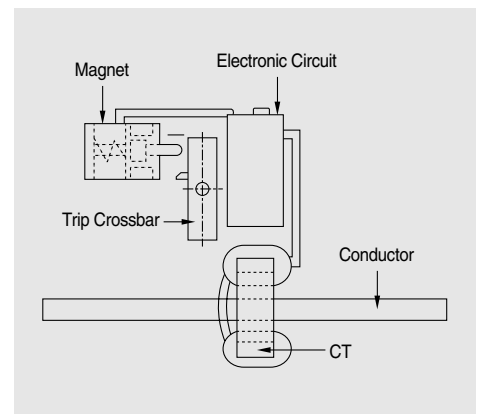
Hydraulic magnetic trip mechanism consists of cylinder assembly, current carrying coil and an armature supported on a yoke. The overcurrent flowing through the coil initiates the movement of plunger, which depends on the extent of the overload. It caused tripping of breakers.

During flow of the short circuit current, the magnetomotive force is so high that the armature is attracted without the movement of the moving core and trips the MCCB instantaneously.



### Electronic trip

Electronic trip operation is caused by current transformers and solid state circuitry, which monitors the current and initiates tripping through a flux shunt trip when an overload or short circuit is present.



# Technical information

## Application for transformer protection

It's recommended to select proper circuit breakers according to the continuous current carrying capacity of transformer. It requires to consider separately whether transformer is single phase or three phase. The below table indicates the proper molded case circuit breaker suitable for each transformer.

### ● AC220V

Capacity of 3 phase transformer (kVA)	Below 30	Below 50	75~100	150~300	500~750	Below 1500	Below 2000						
Capacity of single phase transformer (kVA)	Below 16	Below 30	Below 50	Below 150	Below 300	-							
Breaking capacity (kA) (sym)	2.5		5	10	25	35	42 50	65	85	100	125		
Frame (A)	30	ABE33	ABS33b	ABH33b									
	50	ABE53b		ABS53b	ABH53b	GBN103(Up to 50A)	GBH103(Up to 50A)	GBL103(Up to 50A)					
	60	ABE63b		ABS63b									
	100	ABE103b			ABS103b	GBN103	GBH103	GBL103					
	200	ABE203b				ABS203b	GBN203	GBH203	GBL203				
	400	ABE403b				ABS403b	ABH203b	ABH 203a	ABL203a				
	600	ABE403b				ABS403b	ABH403b		ABL403b				
	800	ABE803b				ABS803b				ABL803b			
	1000~1200	ABS1003, ABS1203											

### ● AC460V

Capacity of 3 phase transformer (kVA)	Below 30	Below 50	Below 300	Below 750	Below 1500	Below 2000	Below 3000						
Breaking capacity (kA) (sym)	1.5		5	10	18	25	35	42	50	65	85		
Frame (A)	30	ABE33	ABS33b	ABH33b									
	50	ABE53b		ABS53b	ABH53b	GBN103(Up to 50A)	GBH103(Up to 50A)	GBL103(Up to 50A)					
	60	ABE63b		ABS63b									
	100	ABE103b			ABS103b	GBN103	GBH103	GBL103					
	200	ABE203b				ABS203b	GBN203	GBH203	GBL203				
	400	ABE403b				ABS403b	ABH203b	ABH 203a	ABL203a				
	600	ABE403b				ABS403b	ABH403b		ABL403b				
	800	ABE803b				ABS803b				ABL803b			
	1000~1200	ABS1003, ABS1203											

# Application for protection of lighting circuit

It requires to select proper circuit breakers according to short circuit breaking capacity. It's recommended to make the maximum operating current not to exceed 80% of the rated current.

## ● AC220V

The maximum operating current	The rated current of MCCB	Breaking current (kA)										
		sym	2.5	5	10	25	35	50	65	85	100	125
12	15											
16	20	ABE33	ABS33b		ABH33b		GBN103 (Up to 50A)		GBH103 (Up to 50A)			GBL103 (Up to 50A)
24	30											
32	40											
40	50	ABE53b			ABS53b	ABH53b				ABL53a		
48	60	ABE63b			ABS63b							
60	75	ABE103b					GBN103	ABH103b	GBH103		ABL103a	GBL103
80	100						ABS103b					
100	125											
120	150	ABE203b						GBN203		GBH203		GBL203
140	175							ABS203b	ABH203b		ABL203a	
160	200											
180	225	ABE403b						ABS403b	ABH403b		ABL403b	
200	250											
240	300											
280	350	ABE803b							ABS803b			ABL803b
320	400											
400	500											
480	600											
560	700											
640	800											
800	1000	ABS1003										
960	1200	ABS1203										

## ● AC460V

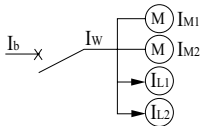
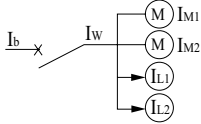
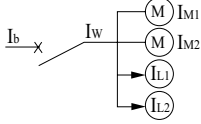
The maximum operating current	The rated current of MCCB	Breaking current (kA)										
		sym	1.5	5	10	18	25	35	42	50	65	85
12	15											
16	20	ABH33	ABS33b	ABH33b								
24	30											
32	40											
40	50	ABE53b			ABS53b	ABH53b		GBN103 (Up to 50A)	GBH103 (Up to 50A)		ABL53a	GBL103 (Up to 50A)
48	60	ABE63b			ABS63b							
60	75	ABE103b					ABS103b				ABL103a	GBL103
80	100											
100	125											
120	150	ABE203b				ABE203b		GBN203		GBH203		GBL203
140	175							ABS203b			ABL203a	
160	200											
180	225	ABE403b						ABS403b	ABH403b		ABL403b	
200	250											
240	300											
280	350	ABE803b							ABS803b		ABL803b	
320	400											
400	500											
480	600											
560	700											
640	800											
800	1000	ABS1003										
960	1200	ABS1203										

# Technical information

## Application for protection of several kinds of loads

It requires to select proper circuit breakers according to the characteristics of loads when they are installed to protect several kinds of loads. It's needed to consider the maximum operating current and the capacity of loads in total so as to select the rated current of breakers.

### ● Selection of circuit breaker protecting the several loads simultaneously

The kind of loads ( $I_M$ : motors, $I_L$ : others )	Permissible current in cable or wire : $I_w$	The rated current of circuit breaker : $I_b$
In case of, $\Sigma I_M \leq \Sigma I_L$ 	$I_w \geq \Sigma I_M + \Sigma I_L$	Choose the low value among two formulas: $I_b \geq 3 \Sigma I_M + \Sigma I_L$ and $I_b \leq 2.5 I_w$  * It's permitted to select the above value only if $I_w$ (above 100A) isn't subject to the rated current of circuit breaker.
In case of, $\Sigma I_M > \Sigma I_L$ , $\Sigma I_M \leq 50A$ 	$I_w \geq 1.25 \Sigma I_M + \Sigma I_L$	
In case of, $\Sigma I_M > \Sigma I_L$ , $\Sigma I_M > 50A$ 	$I_w \geq 1.1 \Sigma I_M + \Sigma I_L$	

### ● The rated current of breakers as the main circuit of 3 phase inductive loads (AC 220V)

Capacity of loads In total (below kW)	The maximum operating current (below A)	Capacity of the highest motor ( kW / A )																	
		0.75 4.8	1.5 8	2.2 11.1	3.7 17.4	5.5 26	7.5 34	11 48	15 65	18.5 79	22 93	30 125	37 160	45 190	55 230	75 310	90 360	110 440	132 500
3	15	20	30	30															
4.5	20	30	30	30	50														
6.3	30	40	40	40	50	60													
8.2	40	50	50	50	50	75	100												
12	50	60	60	60	60	75	100												
15.7	75	100	100	100	100	100	100	125	150										
19.5	90	100	100	100	100	100	100	125	150	175									
23.2	100	125	125	125	125	125	125	125	150	175	200								
30	125	150	150	150	150	150	150	150	150	175	225								
37.5	150	175	175	175	175	175	175	175	175	200	225	300							
45	175	200	200	200	200	200	200	200	200	200	225	300	400						
52.5	200	225	225	225	225	225	225	225	225	225	225	300	400	500					
63.7	250	300	300	300	300	300	300	300	300	300	300	300	400	500	500				
75	300	350	350	350	350	350	350	350	350	350	350	350	400	500	500				
86.2	350	400	400	400	400	400	400	400	400	400	400	400	400	500	500				
97.5	400	500	500	500	500	500	500	500	500	500	500	500	500	500	500	600	700		
112.5	450	500	500	500	500	500	500	500	500	500	500	500	500	500	500	700	700		
125	500	600	600	600	600	600	600	600	600	600	600	600	600	600	600	700	700	1000	
150	600	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	800	1000	1000
175	700	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	1000	1000
200	800	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	1000



● The rated current of breakers as the main circuit of 3 phase inductive loads (AC 440V)

Capacity of loads In total (below kW)	The maximum operating current (below A)	Capacity of the highest motor ( kW / A )																	
		0.75 4.8	1.5 8	2.2 11.1	3.7 17.4	5.5 26	7.5 34	11 48	15 65	18.5 79	22 93	30 125	37 160	45 190	55 230	75 310	90 360	110 440	132 500
3	7.5	15	15	15															
4.5	10	15	15	15	30														
6.3	15	20	20	20	30	40													
8.2	20	30	30	30	30	40	50												
12	25	30	30	30	30	40	50												
15.7	38	50	50	50	50	50	50	60	75										
19.5	45	50	50	50	50	50	50	60	75	100									
23.2	50	60	60	60	60	60	60	60	75	100	125								
30	63	75	75	75	75	75	75	75	100	100	125								
37.5	75	100	100	100	100	100	100	100	100	100	125	150							
45	88	100	100	100	100	100	100	100	100	100	125	150	175						
52.5	100	125	125	125	125	125	125	125	125	125	125	150	175	225					
63.7	125	150	150	150	150	150	150	150	150	150	150	150	200	225	250				
75	150	175	175	175	175	175	175	175	175	175	175	175	200	225	250				
86.2	175	200	200	200	200	200	200	200	200	200	200	200	200	225	300	350			
97.5	200	225	225	225	225	225	225	225	225	225	225	225	225	225	300	350	400		
112.5	225	250	250	250	250	250	250	250	250	250	250	250	250	250	300	350	400		
125	250	300	300	300	300	300	300	300	300	300	300	300	300	300	300	350	400	500	
150	300	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	400	500	500
175	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	500	500
200	400	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
250	500	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
300	600	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700	700
350	700	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
400	700	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
450	900	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
500	1000	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200

Note) The above mentioned technical data is defined under the usage conditions as follows ;

- 1) The circuit breaker is tripped within 10 seconds in 600 % of the current of the fully operating loads.
- 2) The start-up input current is set within 1700 % of the current of the fully operating loads.
- 3) The capacity of highest motor is also applied when several loads starts up simultaneously.

# Technical information

## Application on resistance welding circuits

Short circuit protection for resistance welding devices can be obtained by applying molded case circuit breaker properly. These breakers permit normally high welding currents, but trip instantaneously if a short circuit develops. It's recommended to select proper circuit breaker according to the characteristics of welding devices as the follow table.

Characteristics of welding device		Applied circuit breaker	
Capacity (kVA)	Maximum input (kVA)	220V (Single phase)	400V (Single phase)
15	35	ABE 102b /100 A ABS 102b /100 A ABH 102b /100 A ABL 102a /100 A	ABE 52b /50A ABS 52b /50A ABH 52b /50A ABL 52a /50A
30	65	ABE 202b /125 A ABS 202b /125 A ABH 202b /125 A ABL 202a /125 A	ABE 102b /100A ABS 102b /100A ABH 102b /100A ABL 102a /100A
55	140	ABE 202b /225 A ABS 202b /225 A ABH 202b /225 A ABL 202a /225 A	ABE 202b /100A ABS 202b /100A ABH 202b /100A ABL 202a /100A

# Application for protection of capacitor circuit

In normal conditions, It's recommended to set the rated current of circuit breakers as 150% of the rated current of capacitors.

Capacity of capacitor (kVA)	Rated current of breaker							
	Single phase				Three phase			
	220V		440V		220V		440V	
	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
5	60	50	30	30	40	50	30	20
10	75	60	40	40	50	50	30	30
15	100	100	60	50	60	60	40	40
20	175	175	75	60	100	75	50	40
25	200	200	100	100	100	100	50	50
30	225	225	100	100	175	150	60	60
40	400	400	150	125	200	200	100	75
50	400	400	175	175	225	225	100	100
75	600	500	300	300	400	400	150	150
100	800	800	400	400	400	400	225	225
150	1000 <sup>Note)</sup>	1000 <sup>Note)</sup>	600	500	600	600	300	300
200	-	1200 <sup>Note)</sup>	800	800	800	800	400	400
300	-	-	1000	1000	-	-	600	600
400	-	-	-	-	-	-	-	800

**Note)** It indicates that it's available to apply to short-circuit breaking capacity of up to 42kA.

- \* The input current at capacitor's circuit making changes according to the inductive reactance of circuit.
- \* It's possible to apply to short-circuit breaking capacity to the maximum of each circuit breaker.
- \* Please set the rated current of MCCB around 150% of rated current of capacitor.

# Technical information

## Application to DC circuits

It's available to use some of the circuit breakers in DC circuit conditions according to the trip method.

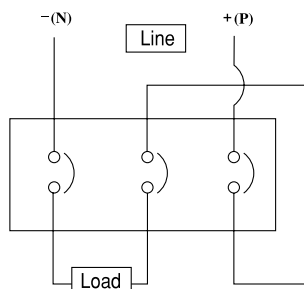
### ● DC250V

Type	Circuit breaker applied	Applicability	
		As standard	By special order made
Hydraulic magnetic trip	ABE33	Not available	Not available
	ABE53b, ABE63b, ABE103b ABS33b, ABS53b, ABS63b ABH33b	Not available	○
Thermal magnetic trip	ABE203b, ABE403b, ABE803b ABS103b, ABS203b, ABS403b, ABS803b ABH53b, ABH103b, ABH203b, ABH403b, ABL53a, ABL103a, ABL203a, ABL403b, ABL803b ABS1003, <i>Note)</i> ABS1203 <i>Note)</i> GBN103, GBH103, GBL103 GBN203, GBH203, GBL203	○	Not available
Electronic trip	ABS1203E	Not available	Not available

*Note)* It should be applied to only instantaneous trip type MCCBs.

### ● DC500V

Because there isn't the zero point in the characteristics of time-current curves of circuit breakers used in DC circuit conditions, it's more difficult to break the circuit controlled by high voltage than operating voltage should be set as DC250V to the maximum in general usage, it's possible to use breakers under DC 500V only if connecting breakers like the below figure.



Type	Poles	Rated voltage (V)	Short circuit breaking capacity (kA)
ABS53b, ABS63b ABE103b	3	DC500V	5
ABH103b ABS203b ABE403b			10
ABS403b ABE803b			20
GBN103 GBN203			35
ABL103a, ABL203a ABL403b ABL803b ABS1003 <i>Note)</i> ABS1203 <i>Note)</i>			40

*Note)* It's allowed to use circuit breaker in circuit operated by DC 500V especially only in instantaneous trip.

# Application to 400Hz systems

When circuit breakers are used in the situation of high frequency, those breakers in many case require to be derated due to the increased resistance of the copper sections resulting from the skin effect produced by eddy currents at 400Hz.

## Thermal trip characteristics

The continuous current carrying capacity and tripping current decreased due to the increased resistance of the copper sections resulting from the skin effect produced by eddy currents at 400Hz. The amount of decrease of those characteristics differs according to each molded case circuit breaker, but I<sup>2</sup>t<sub>0</sub>s recommended to derate as 80% in the usage of the maximum rated current and 90% in the usage of half rated current.

## Instantaneous trip characteristics

In cases of instantaneous trip characteristics in 400Hz, The tripping value by overcurrent increase according to high frequency. The value in 400Hz will be generally 2 times higher than in 60Hz.

### ● Derating table








NO	Rated current (A) in 400 Hz	Circuit breaker applied	Rated current of circuit breaker for your ordering	
			Using in the Max.(A)	Using in the half.(A)
1	15	ABH 53b, ABH 103b ABS 103b ABL 53a, ABL103a GBN 103 GBH103 GBL103	20	20
2	20		30	30
3	30		40	40
4	40		50	50
5	50		75	60
6	60		75	75
7	75		100	100
8	100		125	125
9	125	ABE 203b, ABS 203b ABH 203b, ABL 203a GBN 203, GBH 203 GBL 203	175	150
10	150		200	175
11	175		225	200
12	200		250	225
13	225		300	250
14	300		350	300
15	400	ABH 403b, ABL 403b ABE 803b (500, 600A only) ABS 803b (500, 600A only) ABL 803b (500, 600A only)	400	350
16	350		500	400
17	600		500	500
18	500		-	600

# Technical information

## Influence by mounting position

It needs to mount the circuit breakers under various conditions. In that case, It is recommended to consider the position and other factors which influence the characteristics of circuit breakers with hydraulic magnetic trip device. In especial, the characteristics of rated current might change by the installing position. It results from the gravity which influences the plunger in oil dash pot of hydraulic magnetic trip device.

It is recommendable to compensate the rated current according to the below table.

Type	Vertical	Horizontal	Reverse-horizontal	Back-biased (15°)	Back-biased (45°)	Fore-biased (15°)	Fore-biased (45°)
<b>ABE 3□</b> <b>ABH3□b</b> <b>ABS 5□b</b> <b>ABE 6□b</b> <b>ABS 6□b</b> <b>ABE 10□b</b>							
	100%	120%	80%	105%	110%	95%	85%

# Protection discrimination & Cascading

## Discrimination & Cascading protection of circuit breakers

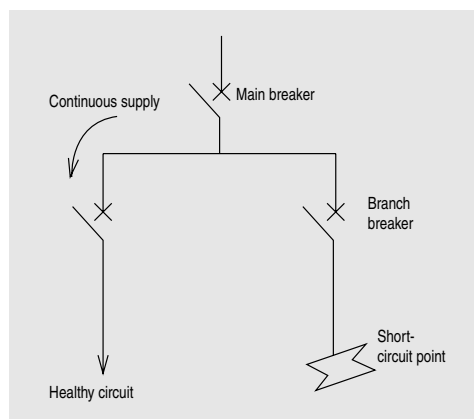
### Protective coordination

The primary purpose of a circuit protection system is to prevent damage to series connected equipment and to minimize the area and duration of power loss. The first consideration is whether an air circuit breaker or molded case circuit breaker is most suitable. The next is the type of system to be used. The two major types are : Discrimination and cascading.

### Type of protective coordination

#### 1. Discrimination

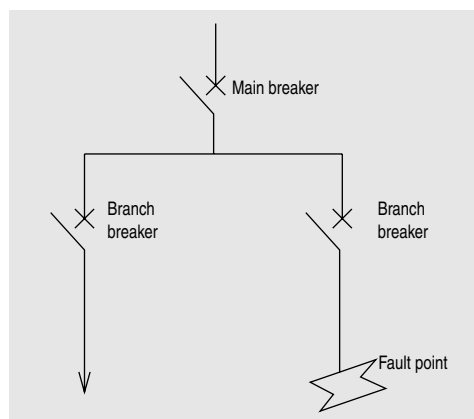
Object : Continuity of service



Discrimination, also called selectivity, is the coordination of automatic protection devices in such a manner that a fault appearing at a given point in a network is cleared by the protection device installed immediately upstream of the fault, and by that device alone.

#### 2. Cascading

Object : Economical use of MCCBs



Cascading is the use of the current limiting capacity of circuit breakers at a given point to permit installation of lower-rated and therefore lower-cost circuit breakers on a branch. The main circuit breaker acts as a barrier against short-circuit currents. In this way, branch circuit breakers with lower breaking capacities than the prospective short-circuit (at their point of installation) operate under their normal breaking conditions. Since the current is limited throughout the circuit controlled by the limiting circuit breaker, cascading applies to all switchgear on the branch.

AC 240V

Main breaker			A type ACB											
			LBA-06	LBA-08	LBA-10	LBA-13	LBA-16	LBA-20	LBA-25	LBA-32	LBA-40	LBA-50		
Branch breaker	ICU (kA)													
		65	65	65	85	85	85	85	100	130	130			
AB□ Series	E	ABE103b	25	12.3	17	25	25	25	25	25	25	25	25	25
		ABE203b	35	12.2	22.7	35	35	35	35	35	35	35	35	35
		ABE403a	35	-	18.2	28.2	35	35	35	35	35	35	35	35
		ABE403b	35	-	18.2	28.2	35	35	35	35	35	35	35	35
		ABE803a	50	-	-	-	29.1	50	50	50	50	50	50	50
		ABE803b	50	-	-	-	29.1	50	50	50	50	50	50	50
	S	ABS103b	50	21.6	50	50	50	50	50	50	50	50	50	50
		ABS203b	50	12.2	22.7	35	50	50	50	50	50	50	50	50
		ABS403a	50	-	18.2	28.2	44	50	50	50	50	50	50	50
		ABS403b	50	-	18.2	28.2	44	50	50	50	50	50	50	50
		ABS803a	100	-	-	-	29.1	51	86.4	100	100	100	100	100
		ABS803b	100	-	-	-	29.1	51	86.4	100	100	100	100	100
	H	ABH103b	65	21.6	51.7	65	65	65	65	65	65	65	65	65
		ABH203b	65	12.2	22.7	35	65	65	65	65	65	65	65	65
		ABH403a	85	-	18.2	28.2	44	85	85	85	85	85	85	85
		ABH403b	85	-	18.2	28.2	44	85	85	85	85	85	85	85
	L	ABL103a	100	19.5	53.2	100	100	100	100	100	100	100	100	100
		ABL203a	125	14.1	30.5	51.5	125	125	125	125	125	125	125	125
		ABL403a	125	-	18.2	28.2	44	92	125	125	125	125	125	125
		ABL403b	125	-	18.2	28.2	44	92	125	125	125	125	125	125
		ABL803a	125	-	-	-	29.1	51	86.4	125	125	125	125	125
		ABL803b	125	-	-	-	29.1	51	86.4	125	125	125	125	125
	GB□ Series	GBN103	50	35.6	50	50	50	50	50	50	50	50	50	50
		GBH103	85	35.6	85	85	85	85	85	85	85	85	85	85
GBL103		125	21.4	85	125	125	125	125	125	125	125	125	125	
GBN203		50	21.4	50	50	50	50	50	50	50	50	50	50	
GBH203		85	21.4	85	85	85	85	85	85	85	85	85	85	
GBL203		125	21.4	85	125	125	125	125	125	125	125	125	125	
GB□E Series	GBL103E	125	25.8	125	125	125	125	125	125	125	125	125	125	
	GBL203E	125	25.8	125	125	125	125	125	125	125	125	125	125	
	GBN403E	50	-	10.2	22.1	33.4	50	50	50	50	50	50	50	
	GBN803E	100	-	-	-	23.4	41.6	72.6	100	100	100	100	100	



Ace-MEC

	LBA-06C	LBA-08C	LBA-10C	LBA-13C	LBA-16C	LBA-20C	LBA-25C	LBA-32C	LBA-40C	LBA-50C
	65	65	65	65	65	85	85	85	100	100
	13.2	25	25	25	25	25	25	25	25	25
	13.3	25.8	35	35	35	35	35	35	35	35
	-	20.2	31.3	35	35	35	35	35	35	35
	-	20.2	31.3	35	35	35	35	35	35	35
	-	-	-	31.6	50	50	50	50	50	50
	-	-	-	31.6	50	50	50	50	50	50
	23.8	50	50	50	50	50	50	50	50	50
	13.3	25.8	40	50	50	50	50	50	50	50
	-	20.2	31.3	50	50	50	50	50	50	50
	-	20.2	31.3	50	50	50	50	50	50	50
	-	-	-	31.6	56.7	100	100	100	100	100
	-	-	-	31.6	56.7	100	100	100	100	100
	23.8	57.8	65	65	65	65	65	65	65	65
	13.3	25.8	40	65	65	65	65	65	65	65
	-	20.2	31.3	50.8	85	85	85	85	85	85
	-	20.2	31.3	50.8	85	85	85	85	85	85
	22.3	69.6	100	100	100	100	100	100	100	100
	15.8	35.4	61.4	125	125	125	125	125	125	125
	-	20.2	31.3	50.8	104.8	125	125	125	125	125
	-	20.2	31.3	50.8	104.8	125	125	125	125	125
	-	-	21	31.6	56.7	104.2	125	125	125	125
	-	-	-	31.6	56.7	104.2	125	125	125	125
	44	50	50	50	50	50	50	50	50	50
	44	85	85	85	85	85	85	85	85	85
	24.9	104.2	125	125	125	125	125	125	125	125
	24.9	50	50	50	50	50	50	50	50	50
	24.9	85	85	85	85	85	85	85	85	85
	24.9	104.2	125	125	125	125	125	125	125	125
	31.3	125	125	125	125	125	125	125	125	125
	31.3	125	125	125	125	125	125	125	125	125
	-	17.8	24.2	37.8	50	50	50	50	50	50
	-	-	-	25.9	47	88	100	100	100	100

### AC 415V

Main breaker			A type ACB											
			LBA-06	LBA-08	LBA-10	LBA-13	LBA-16	LBA-20	LBA-25	LBA-32	LBA-40	LBA-50		
Branch breaker	ICU (kA)													
		50	50	50	65	65	65	65	85	100	100			
AB□ Series	E	ABE103b	10	10	10	10	10	10	10	10	10	10	10	10
		ABE203b	18	10	16.8	18	18	18	18	18	18	18	18	18
		ABE403a	25	-	15.6	21.4	25	25	25	25	25	25	25	25
		ABE403b	25	-	15.6	21.4	25	25	25	25	25	25	25	25
		ABE803a	35	-	-	-	23	35	35	35	35	35	35	35
		ABE803b	35	-	-	-	23	35	35	35	35	35	35	35
	S	ABS103b	25	13	25	25	25	25	25	25	25	25	25	25
		ABS203b	25	10	16.8	23.5	25	25	25	25	25	25	25	25
		ABS403a	35	-	15.6	21.4	29.4	35	35	35	35	35	35	35
		ABS403b	35	-	15.6	21.4	29.4	35	35	35	35	35	35	35
		ABS803a	50	-	-	-	23	36.4	50	50	50	50	50	50
		ABS803b	50	-	-	-	23	36.4	50	50	50	50	50	50
	H	ABH103b	35	13	25.8	35	35	35	35	35	35	35	35	35
		ABH203b	35	10	16.8	23.5	35	35	35	35	35	35	35	35
		ABH403a	50	-	15.6	21.4	29.4	47.3	50	50	50	50	50	50
		ABH403b	50	-	15.6	21.4	29.4	47.3	50	50	50	50	50	50
	L	ABL103a	65	14.2	29.2	47.9	65	65	65	65	65	65	65	65
		ABL203a	65	11	19.2	28.7	45.8	65	65	65	65	65	65	65
		ABL403a	65	-	15.6	21.4	29.4	47.3	65	65	65	65	65	65
		ABL403b	85	-	15.6	21.4	29.4	47.3	66.9	85	85	85	85	85
		ABL803a	65	-	-	-	23	36.4	53	65	65	65	65	65
ABL803b		85	-	-	-	23	36.4	53	85	85	85	85	85	
GB□ Series	GBN103	35	19.8	35	35	35	35	35	35	35	35	35	35	
	GBH103	50	19.8	50	50	50	50	50	50	50	50	50	50	
	GBL103	85	15.8	38	66	85	85	85	85	85	85	85	85	
	GBN203	35	15.8	35	35	35	35	35	35	35	35	35	35	
	GBH203	50	15.8	38	50	50	50	50	50	50	50	50	50	
	GBL203	85	15.8	38	66	85	85	85	85	85	85	85	85	
GB□E Series	GBL103E	85	8.1	25.5	70.8	85	85	85	85	85	85	85	85	
	GBL203E	85	8.1	25.5	70.8	85	85	85	85	85	85	85	85	
	GBN403E	35	-	10.2	17.8	25	35	35	35	35	35	35	35	
	GBN803E	50	-	-	-	20	30.4	50	50	50	50	50	50	

Ace-MEC

	LBA-06C	LBA-08C	LBA-10C	LBA-13C	LBA-16C	LBA-20C	LBA-25C	LBA-32C	LBA-40C	LBA-50C
	65	65	65	65	65	85	85	85	100	100
	10	10	10	10	10	10	10	10	10	10
	10.8	18	18	18	18	18	18	18	18	18
	-	17.2	23.4	25	25	25	25	25	25	25
	-	17.2	23.4	25	25	25	25	25	25	25
	-	-	-	25.3	35	35	35	35	35	35
	-	-	-	25.3	35	35	35	35	35	35
	14.2	25	25	25	25	25	25	25	25	25
	10.8	18.4	25	25	25	25	25	25	25	25
	-	17.2	23.4	32.6	35	35	35	35	35	35
	-	17.2	23.4	32.6	35	35	35	35	35	35
	-	-	-	25.3	40.5	50	50	50	50	50
	-	-	-	25.3	40.5	50	50	50	50	50
	14.2	30.5	35	35	35	35	35	35	35	35
	10.8	18.4	26.6	35	35	35	35	35	35	35
	-	17.2	23.4	32.6	50	50	50	50	50	50
	-	17.2	23.4	32.6	50	50	50	50	50	50
	15.6	34.2	55.2	65	65	65	65	65	65	65
	11.9	21.8	31.6	54	65	65	65	65	65	65
	-	17.2	23.4	32.6	52	65	65	65	65	65
	-	17.2	23.4	32.6	52	74.3	85	85	85	85
	-	-	-	25.3	40.5	61.4	65	65	65	65
	-	-	-	25.3	40.5	61.4	85	85	85	85
	22.3	35	35	35	35	35	35	35	35	35
	22.3	50	50	50	50	50	50	50	50	50
	17.4	44.2	85	85	85	85	85	85	85	85
	17.4	35	35	35	35	35	35	35	35	35
	17.4	44.2	50	50	50	50	50	50	50	50
	17.4	44.2	85	85	85	85	85	85	85	85
	8.6	39.5	78.1	85	85	85	85	85	85	85
	8.6	39.5	78.1	85	85	85	85	85	85	85
	-	14.2	19.4	28.1	35	35	35	35	35	35
	-	-	-	22.1	33.5	50	50	50	50	50

### AC 240V

Main breaker			AB□ Series												
			E						S						
			ABE 103b	ABE 203b	ABE 403a	ABE 403b	ABE 803a	ABE 803b	ABS 103b	ABS 203b	ABS 403a	ABS 403b	ABS 803a	ABS 803b	
Branch breaker	ICU (kA)	25	35	35	35	50	50	50	50	50	100	100			
		AB□ Series	E	ABE33	2.5	0.8	1.8	2.5	2.5	2.5	2.5	0.8	1.8	2.5	2.5
ABE53b	10			0.8	1.8	4.1	4.1	10.0	10.0	0.8	1.8	4.1	4.1	10.0	10.0
ABE63b	10			0.8	1.8	4.1	4.1	10.0	10.0	0.8	1.8	4.1	4.1	10.0	10.0
ABE103b	25			-	1.8	4.1	4.1	15.0	15.0	-	1.8	4.1	4.1	15.0	15.0
ABE203b	35			-	-	3.6	3.6	10.3	10.3	-	-	3.6	3.6	10.3	10.3
ABE403a	35			-	-	-	-	8.9	8.9	-	-	-	-	8.9	8.9
ABE403b	35			-	-	-	-	8.9	8.9	-	-	-	-	8.9	8.9
S	ABS33b		10	0.8	1.8	4.1	4.1	10.0	10.0	0.8	1.8	4.1	4.1	10.0	10.0
	ABS53b		25	0.8	1.8	4.1	4.1	15.0	15.0	0.8	1.8	4.1	4.1	15.0	15.0
	ABS63b		25	0.8	1.8	4.1	4.1	15.0	15.0	0.8	1.8	4.1	4.1	15.0	15.0
	ABS103b		50	-	1.8	4.4	4.4	15.8	15.8	-	1.8	4.4	4.4	15.8	15.8
	ABS203b		50	-	-	3.6	3.6	10.3	10.3	-	-	3.6	3.6	10.3	10.3
	ABS403a		50	-	-	-	-	8.9	8.9	-	-	-	-	8.9	8.9
	ABS403b		50	-	-	-	-	8.9	8.9	-	-	-	-	8.9	8.9
H	ABH33b		25	0.8	1.8	4.1	4.1	15.0	15.0	0.8	1.8	4.1	4.1	15.0	15.0
	ABH53b		50	0.8	1.8	4.4	4.4	15.8	15.8	0.8	1.8	4.4	4.4	15.8	15.8
	ABH103b		65	-	1.8	4.4	4.4	15.8	15.8	-	1.8	4.4	4.4	15.8	15.8
	ABH203b		65	-	-	3.6	3.6	10.3	10.3	-	-	3.6	3.6	10.3	10.3
	ABH403a		85	-	-	-	-	8.9	8.9	-	-	-	-	8.9	8.9
	ABH403b		85	-	-	-	-	8.9	8.9	-	-	-	-	8.9	8.9
L	ABL53a		100	0.8	1.8	3.6	3.6	15.2	15.2	0.8	1.8	3.6	3.6	15.2	15.2
	ABL103a	100	-	1.8	3.6	3.6	15.2	15.2	-	1.8	3.6	3.6	15.2	15.2	
	ABL203a	125	-	-	3.6	3.6	11.9	11.9	-	-	3.6	3.6	11.9	11.9	
	ABL403a	125	-	-	-	-	8.9	8.9	-	-	-	-	8.9	8.9	
	ABL403b	125	-	-	-	-	8.9	8.9	-	-	-	-	8.9	8.9	
GB□ Series	*Note1)	GBN103	50	0.8	1.8	5.6	5.6	24.6	24.6	0.8	1.8	5.6	5.6	24.6	24.6
		GBH103	85	0.8	1.8	5.6	5.6	24.6	24.6	0.8	1.8	5.6	5.6	24.6	24.6
		GBL103	125	0.8	1.8	4.2	4.2	15.5	15.5	0.8	1.8	4.2	4.2	15.5	15.5
	*Note2)	GBN103	50	-	1.8	5.6	5.6	24.6	24.6	-	1.8	5.6	5.6	24.6	24.6
		GBH103	85	-	1.8	5.6	5.6	24.6	24.6	-	1.8	5.6	5.6	24.6	24.6
		GBL103	125	-	1.8	4.2	4.2	15.5	15.5	-	1.8	4.2	4.2	15.5	15.5
		GBN203	50	-	-	4.2	4.2	15.5	15.5	-	-	4.2	4.2	15.5	15.5
		GBH203	85	-	-	4.2	4.2	15.5	15.5	-	-	4.2	4.2	15.5	15.5
		GBL203	125	-	-	4.2	4.2	15.5	15.5	-	-	4.2	4.2	15.5	15.5
GB□E Series	GBL53E	125	0.8	1.8	3.6	3.6	20.0	20.0	0.8	1.8	3.6	3.6	20.0	20.0	
	GBL103E	125	-	1.8	3.6	3.6	20.0	20.0	-	1.8	3.6	3.6	20.0	20.0	
	GBL203E	125	-	-	3.6	3.6	20.0	20.0	-	-	3.6	3.6	20.0	20.0	
	GBN403E	50	-	-	-	-	7.2	7.2	-	-	-	-	7.2	7.2	

\*Note1) The applied ampere ratings are 16, 20, 25, 32, 40, 50A

\*Note2) The applied ampere ratings are 63, 80, 100A

AB□ Series											GB□ Series						GB□ Series					
H				L							GB□ Series						GB□ Series					
ABH 103a	ABH 203b	ABH 403a	ABH 403b	ABL 103a	ABL 203a	ABL 403a	ABL 403b	ABL 803a	ABL 803b	GBN 103	GBH 103	GBL 103	GBN 203	GBH 203	GBL 203	GBL 103E	GBL 203E	GBN 403E	GBN 803E	ABS 803E	ABS 1203E	
35	35	85	85	100	125	125	125	125	125	50	85	125	50	85	125	125	125	50	100	100	100	
0.8	1.5	2.5	2.5	0.9	1.8	2.5	2.5	2.5	2.5	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.5	2.5	2.5	2.5	2.5	
0.8	1.8	4.1	4.1	0.9	1.8	4.1	4.1	10.0	10.0	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.7	4.6	10.0	10.0	10.0	
0.8	1.8	4.1	4.1	0.9	1.8	4.1	4.1	10.0	10.0	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.7	4.6	10.0	10.0	10.0	
-	1.8	4.1	4.1	-	1.8	4.1	4.1	15.0	15.0	-	-	-	2.0	2.0	2.0	-	2.7	4.2	16.0	25.0	13.2	
-	-	3.6	3.6	-	-	3.6	3.6	10.3	10.3	-	-	-	-	-	-	-	-	3.7	11.0	14.3	35.0	
-	-	-	-	-	-	-	-	8.9	8.9	-	-	-	-	-	-	-	-	-	9.1	11.7	26.5	
-	-	-	-	-	-	-	-	8.9	8.9	-	-	-	-	-	-	-	-	-	9.1	11.7	26.5	
0.8	1.8	4.1	4.1	0.9	1.8	4.1	4.1	10.0	10.0	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.7	4.6	10.0	10.0	10.0	
0.8	1.8	4.1	4.1	0.9	1.8	4.1	4.1	15.0	15.0	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.7	4.6	16.0	25.0	13.2	
0.8	1.8	4.1	4.1	0.9	1.8	4.1	4.1	15.0	15.0	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.7	4.6	16.0	25.0	13.2	
-	1.8	4.4	4.4	-	1.8	4.4	4.4	15.8	15.8	-	-	-	2.0	2.0	2.0	-	3.1	4.5	17.4	24.8	50.0	
-	-	3.6	3.6	-	-	3.6	3.6	10.3	10.3	-	-	-	-	-	-	-	-	3.7	11.0	14.3	37.5	
-	-	-	-	-	-	-	-	8.9	8.9	-	-	-	-	-	-	-	-	-	9.1	11.7	26.5	
-	-	-	-	-	-	-	-	8.9	8.9	-	-	-	-	-	-	-	-	-	9.1	11.7	26.5	
0.8	1.8	4.1	4.1	0.9	1.8	4.1	4.1	15.0	15.0	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.7	4.6	16.0	25.0	13.2	
0.8	1.8	4.4	4.4	0.9	1.8	4.4	4.4	15.8	15.8	0.8	0.8	0.8	2.0	2.0	2.0	1.1	3.1	4.6	17.4	24.8	50.0	
-	1.8	4.4	4.4	-	1.8	4.4	4.4	15.8	15.8	-	-	-	2.0	2.0	2.0	-	3.1	4.5	17.4	24.8	65.0	
-	-	3.6	3.6	-	-	3.6	3.6	10.3	10.3	-	-	-	-	-	-	-	-	3.7	11.0	14.3	37.5	
-	-	-	-	-	-	-	-	8.9	8.9	-	-	-	-	-	-	-	-	-	9.1	11.7	26.5	
-	-	-	-	-	-	-	-	8.9	8.9	-	-	-	-	-	-	-	-	-	9.1	11.7	26.5	
0.8	1.8	3.6	3.6	0.9	1.8	3.6	3.6	15.2	15.2	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.7	3.7	16.8	23.1	100.0	
-	1.8	3.6	3.6	-	1.8	3.6	3.6	15.2	15.2	-	-	-	2.0	2.0	2.0	-	2.7	3.7	16.8	23.1	100.0	
-	-	3.6	3.6	-	-	3.6	3.6	11.9	11.9	-	-	-	-	-	-	-	-	3.7	12.6	16.0	59.8	
-	-	-	-	-	-	-	-	8.9	8.9	-	-	-	-	-	-	-	-	-	9.1	11.7	26.5	
-	-	-	-	-	-	-	-	8.9	8.9	-	-	-	-	-	-	-	-	-	9.1	11.7	26.5	
0.8	1.8	5.6	5.6	0.9	1.8	5.6	5.6	24.6	24.6	0.8	0.8	0.8	2.0	2.0	2.0	1.1	3.5	5.8	31.2	50.0	50.0	
0.8	1.8	5.6	5.6	0.9	1.8	5.6	5.6	24.6	24.6	0.8	0.8	0.8	2.0	2.0	2.0	1.1	3.5	5.8	31.2	50.2	85.0	
0.8	1.8	4.2	4.2	0.9	1.8	4.2	4.2	15.5	15.5	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.7	4.6	18.9	27.7	125.0	
-	1.8	5.6	5.6	-	1.8	5.6	5.6	24.6	24.6	-	-	-	2.0	2.0	2.0	-	3.5	5.8	31.2	50.0	50.0	
-	1.8	5.6	5.6	-	1.8	5.6	5.6	24.6	24.6	-	-	-	2.0	2.0	2.0	-	3.5	5.8	31.2	50.2	85.0	
-	1.8	4.2	4.2	-	1.8	4.2	4.2	15.5	15.5	-	-	-	2.0	2.0	2.0	-	2.7	4.6	18.9	27.7	125.0	
-	-	4.2	4.2	-	-	4.2	4.2	15.5	15.5	-	-	-	-	-	-	-	-	4.6	18.9	27.7	50.0	
-	-	4.2	4.2	-	-	4.2	4.2	15.5	15.5	-	-	-	-	-	-	-	-	4.6	18.9	27.7	85.0	
-	-	4.2	4.2	-	-	4.2	4.2	15.5	15.5	-	-	-	-	-	-	-	-	4.6	18.9	27.7	125.0	
0.8	1.8	3.6	3.6	0.9	0.8	3.6	3.6	20.0	20.0	0.8	0.8	0.8	1.3	1.3	1.3	0.9	2.3	3.7	20.5	17.3	125.0	
-	1.8	3.6	3.6	-	0.8	3.6	3.6	20.0	20.0	-	-	-	1.3	1.3	1.3	-	2.3	3.7	20.5	17.3	125.0	
-	-	3.6	3.6	-	-	3.6	3.6	20.0	20.0	-	-	-	-	-	-	-	-	3.7	20.5	17.3	125.0	
-	-	-	-	-	-	-	-	7.2	7.2	-	-	-	-	-	-	-	-	-	7.5	7.0	18.4	

### AC 415V

Main breaker			AB□ Series												
			E						S						
			ABE 103b	ABE 203b	ABE 403a	ABE 403b	ABE 803a	ABE 803b	ABS 103b	ABS 203b	ABS 403a	ABS 403b	ABS 803a	ABS 803b	
Branch breaker	ICU (kA)	10	18	25	25	35	35	25	25	35	35	50	50		
AB□ Series	E	ABE33	1.5	0.8	1.5	1.5	1.5	1.5	1.5	0.8	1.5	1.5	1.5	1.5	
		ABE53b	5	0.8	1.8	3.9	3.9	5.0	5.0	0.8	1.8	3.9	3.9	5.0	5.0
		ABE63b	5	0.8	1.8	3.9	3.9	5.0	5.0	0.8	1.8	3.9	3.9	5.0	5.0
		ABE103b	10	-	1.8	3.9	3.9	10.0	10.0	-	1.8	3.9	3.9	10.0	10.0
		ABE203b	18	-	-	3.6	3.6	8.8	8.8	-	-	3.6	3.6	8.8	8.8
		ABE403a	25	-	-	-	-	8.4	8.4	-	-	-	-	8.4	8.4
		ABE403b	25	-	-	-	-	8.4	8.4	-	-	-	-	8.4	8.4
	S	ABS33b	5	0.8	1.8	3.9	3.9	5.0	5.0	0.8	1.8	3.9	3.9	5.0	5.0
		ABS53b	10	0.8	1.8	3.9	3.9	10.0	10.0	0.8	1.8	3.9	3.9	10.0	10.0
		ABS63b	10	0.8	1.8	3.9	3.9	10.0	10.0	0.8	1.8	3.9	3.9	10.0	10.0
		ABS103b	25	-	1.8	4.0	4.0	10.9	10.9	-	1.8	4.0	4.0	10.9	10.9
		ABS203b	25	-	-	3.6	3.6	8.8	8.8	-	-	3.6	3.6	8.8	8.8
		ABS403a	35	-	-	-	-	8.4	8.4	-	-	-	-	8.4	8.4
		ABS403b	35	-	-	-	-	8.4	8.4	-	-	-	-	8.4	8.4
	H	ABH33b	10	0.8	1.8	3.9	3.9	10.0	10.0	0.8	1.8	3.9	3.9	10.0	10.0
		ABH53b	25	0.8	1.8	4.0	4.0	10.9	10.9	0.8	1.8	4.0	4.0	10.9	10.9
		ABH103b	35	-	1.8	4.0	4.0	10.9	10.9	-	1.8	4.0	4.0	10.9	10.9
		ABH203b	35	-	-	3.6	3.6	8.8	8.8	-	-	3.6	3.6	8.8	8.8
		ABH403a	50	-	-	-	-	8.4	8.4	-	-	-	-	8.4	8.4
		ABH403b	50	-	-	-	-	8.4	8.4	-	-	-	-	8.4	8.4
L	ABL53a	65	0.8	1.8	3.6	3.6	11.5	11.5	0.8	1.8	3.6	3.6	11.5	11.5	
	ABL103a	65	-	1.8	3.6	3.6	11.5	11.5	-	1.8	3.6	3.6	11.5	11.5	
	ABL203a	65	-	-	3.6	3.6	9.6	9.6	-	-	3.6	3.6	9.6	9.6	
	ABL403a	65	-	-	-	-	8.4	8.4	-	-	-	-	8.4	8.4	
	ABL403b	85	-	-	-	-	8.4	8.4	-	-	-	-	8.4	8.4	
GB□ Series	*Note1)	GBN103	35	0.8	1.8	4.4	4.4	14.8	14.8	0.8	1.8	4.4	4.4	14.8	14.8
		GBH103	50	0.8	1.8	4.4	4.4	14.8	14.8	0.8	1.8	4.4	4.4	14.8	14.8
		GBL103	85	0.8	1.8	3.8	3.8	12.6	12.6	0.8	1.8	3.8	3.8	12.6	12.6
	*Note2)	GBN103	35	-	1.8	4.4	4.4	14.8	14.8	-	1.8	4.4	4.4	14.8	14.8
		GBH103	50	-	1.8	4.4	4.4	14.8	14.8	-	1.8	4.4	4.4	14.8	14.8
		GBL103	85	-	1.8	3.8	3.8	12.6	12.6	-	1.8	3.8	3.8	12.6	12.6
		GBN203	35	-	-	3.8	3.8	12.6	12.6	-	-	3.8	3.8	12.6	12.6
		GBH203	50	-	-	3.8	3.8	12.6	12.6	-	-	3.8	3.8	12.6	12.6
		GBL203	85	-	-	3.8	3.8	12.6	12.6	-	-	3.8	3.8	12.6	12.6
GB□E Series	GBL53E	85	0.8	1.8	3.6	3.6	7.2	7.2	0.8	1.8	3.6	3.6	7.2	7.2	
	GBL103E	85	-	1.8	3.6	3.6	7.2	7.2	-	1.8	3.6	3.6	7.2	7.2	
	GBL203E	85	-	-	3.6	3.6	7.2	7.2	-	-	3.6	3.6	7.2	7.2	
	GBN403E	35	-	-	-	-	7.2	7.2	-	-	-	-	7.2	7.2	

\*Note1) The applied ampere ratings are 16, 20, 25, 32, 40, 50A

\*Note2) The applied ampere ratings are 63, 80, 100A

AB□ Series											GB□ Series						GB□ Series				
H				L							GB□ Series						GB□ Series				
ABH 103a	ABH 203b	ABH 403a	ABH 403b	ABL 103a	ABL 203a	ABL 403a	ABL 403b	ABL 803a	ABL 803b	GBN 103	GBH 103	GBL 103	GBN 203	GBH 203	GBL 203	GBL 103E	GBL 203E	GBN 403E	GBN 803E	ABS 1203E	
35	35	50	50	65	65	65	85	65	85	35	50	85	35	50	85	85	85	35	50	65	
0.8	1.5	1.5	1.5	0.9	1.5	1.5	1.5	1.5	1.5	0.8	0.8	0.8	1.5	1.5	1.5	1.1	1.5	1.5	1.5	1.5	
0.8	1.8	3.9	3.9	0.9	1.8	3.9	3.9	5.0	5.0	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.7	4.0	5.0	5.0	
0.8	1.8	3.9	3.9	0.9	1.8	3.9	3.9	5.0	5.0	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.7	4.0	5.0	5.0	
-	1.8	3.9	3.9	-	1.8	3.9	3.9	10.0	10.0	-	-	-	2.0	2.0	2.0	-	2.7	4.0	10.0	10.0	
-	-	3.6	3.6	-	-	3.6	3.6	8.8	8.8	-	-	-	-	-	-	-	-	3.7	9.2	18.0	
-	-	-	-	-	-	-	-	8.4	8.4	-	-	-	-	-	-	-	-	-	-	21.7	
-	-	-	-	-	-	-	-	8.4	8.4	-	-	-	-	-	-	-	-	-	-	21.7	
0.8	1.8	3.9	3.9	0.9	1.8	3.9	3.9	5.0	5.0	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.7	4.0	5.0	5.0	
0.8	1.8	3.9	3.9	0.9	1.8	3.9	3.9	10.0	10.0	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.7	4.0	10.0	10.0	
0.8	1.8	3.9	3.9	0.9	1.8	3.9	3.9	10.0	10.0	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.7	4.0	10.0	10.0	
-	1.8	4.0	4.0	-	1.8	4.0	4.0	10.9	10.9	-	-	-	2.0	2.0	2.0	-	2.9	4.1	11.6	25.0	
-	-	3.6	3.6	-	-	3.6	3.6	8.8	8.8	-	-	-	-	-	-	-	-	3.7	9.2	25.0	
-	-	-	-	-	-	-	-	8.4	8.4	-	-	-	-	-	-	-	-	-	-	21.7	
-	-	-	-	-	-	-	-	8.4	8.4	-	-	-	-	-	-	-	-	-	-	21.7	
0.8	1.8	3.9	3.9	0.9	1.8	3.9	3.9	10.0	10.0	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.7	4.0	10.0	10.0	
0.8	1.8	4.0	4.0	0.9	1.8	4.0	4.0	10.9	10.9	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.9	4.1	11.6	25.0	
-	1.8	4.0	4.0	-	1.8	4.0	4.0	10.9	10.9	-	-	-	2.0	2.0	2.0	-	2.9	4.1	11.6	35.0	
-	-	3.6	3.6	-	-	3.6	3.6	8.8	8.8	-	-	-	-	-	-	-	-	3.7	9.2	25.4	
-	-	-	-	-	-	-	-	8.4	8.4	-	-	-	-	-	-	-	-	-	-	21.7	
-	-	-	-	-	-	-	-	8.4	8.4	-	-	-	-	-	-	-	-	-	-	21.7	
0.8	1.8	3.6	3.6	0.9	1.8	3.6	3.6	11.5	11.5	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.7	3.7	11.8	55.2	
-	1.8	3.6	3.6	-	1.8	3.6	3.6	11.5	11.5	-	-	-	2.0	2.0	2.0	-	2.7	3.7	11.8	55.2	
-	-	3.6	3.6	-	-	3.6	3.6	9.6	9.6	-	-	-	-	-	-	-	-	3.7	10.0	31.8	
-	-	-	-	-	-	-	-	8.4	8.4	-	-	-	-	-	-	-	-	-	-	21.7	
-	-	-	-	-	-	-	-	8.4	8.4	-	-	-	-	-	-	-	-	-	-	21.7	
-	-	4.4	4.4	0.9	1.8	4.4	4.4	14.8	14.8	0.8	0.8	0.8	2.0	2.0	2.0	1.1	3.1	4.6	16.1	35.0	
-	-	4.4	4.4	0.9	1.8	4.4	4.4	14.8	14.8	0.8	0.8	0.8	2.0	2.0	2.0	1.1	3.1	4.6	16.1	50.0	
0.8	1.8	3.8	3.8	0.9	1.8	3.8	3.8	12.6	12.6	0.8	0.8	0.8	2.0	2.0	2.0	1.1	2.7	4.0	13.2	73.1	
0.8	1.8	4.4	4.4	-	1.8	4.4	4.4	14.8	14.8	-	-	-	2.0	2.0	2.0	-	3.1	4.6	16.1	35.0	
0.8	1.8	4.4	4.4	-	1.8	4.4	4.4	14.8	14.8	-	-	-	2.0	2.0	2.0	-	3.1	4.6	16.1	50.0	
-	1.8	3.8	3.8	-	1.8	3.8	3.8	12.6	12.6	-	-	-	2.0	2.0	2.0	-	2.7	4.0	13.2	73.1	
-	1.8	3.8	3.8	-	-	3.8	3.8	12.6	12.6	-	-	-	-	-	-	-	-	4.0	13.2	35.0	
-	1.8	3.8	3.8	-	-	3.8	3.8	12.6	12.6	-	-	-	-	-	-	-	-	4.0	13.2	50.0	
-	-	3.8	3.8	-	-	3.8	3.8	12.6	12.6	-	-	-	-	-	-	-	-	4.0	13.2	73.1	
0.8	1.8	3.6	3.6	0.9	0.8	3.6	3.6	7.2	7.2	0.8	0.8	0.8	1.3	1.3	1.3	0.9	2.3	3.7	7.5	34.2	
-	1.8	3.6	3.6	-	0.8	3.6	3.6	7.2	7.2	-	-	-	1.3	1.3	1.3	-	2.3	3.7	7.5	34.2	
-	-	3.6	3.6	-	-	3.6	3.6	7.2	7.2	-	-	-	-	-	-	-	-	3.7	7.5	34.2	
-	-	-	-	-	-	-	-	7.2	7.2	7.2	7.2	-	-	-	-	-	-	-	-	13.8	

### AC 240V

Main breaker			AB□ Series														
			E									S					
			ABE 33	ABE 53b	ABE 63b	ABE 103b	ABE 203b	ABE 403a	ABE 403b	ABE 803a	ABE 803b	ABS 33b	ABS 53b	ABS 63b	ABS 103b	ABS 203b	ABS 403a
Branch breaker		ICU (kA)															
BKN C Curves	≥ 63A	4.5	-	-	-	0.8	1.8	4.5	4.5	4.5	4.5	-	-	-	0.8	1.8	4.5
	≥ 40A	6	-	-	0.5	0.8	2.3	6.0	6.0	6.0	6.0	-	-	0.5	0.8	2.3	6.0
	≥ 10A	6	0.2	0.4	0.5	0.8	3.9	6.0	6.0	6.0	6.0	0.2	0.4	0.5	0.8	3.9	6.0

Main breaker			GB□ Series									GB□E Series					
			GBN 53	GBH 53	GBL 53	GBN 103	GBH 103	GBL 103	GBN 203	GBH 203	GBL 203	GBL 53E	GBL 103E	GBL 203E	GBN 403E	GBN 803E	ABS 203E
			Branch breaker		ICU (kA)												
BKN C Curves	≥ 63A	4.5	-	-	-	0.8	0.8	0.8	2.2	2.2	2.2	-	0.9	2.8	4.5	4.5	4.5
	≥ 40A	6	-	-	-	0.8	0.8	0.8	2.2	2.2	2.2	-	0.9	3.3	6.0	6.0	6.0
	≥ 10A	6	0.4	0.4	0.4	0.8	0.8	0.8	2.2	2.2	2.2	0.5	0.9	6.0	6.0	6.0	6.0

### AC415V

Main breaker			AB□ Series														
			E									S					
			ABE 33	ABE 53b	ABE 63b	ABE 103b	ABE 203b	ABE 403a	ABE 403b	ABE 803a	ABE 803b	ABS 33b	ABS 53b	ABS 63b	ABS 103b	ABS 203b	ABS 403a
Branch breaker		ICU (kA)															
BKN C Curves	≥ 63A	4.5	-	-	-	0.8	1.8	4.5	4.5	4.5	4.5	-	-	-	0.8	1.8	4.5
	≥ 40A	6	-	-	0.5	0.8	2.0	5.0	6.0	6.0	6.0	-	-	0.5	0.8	2.3	5.0
	≥ 10A	6	0.2	0.4	0.5	0.8	2.8	6.0	6.0	6.0	6.0	0.2	0.4	0.5	0.8	3.9	6.0

Main breaker			GB□ Series									GB□E Series					
			GBN 53	GBH 53	GBL 53	GBN 103	GBH 103	GBL 103	GBN 203	GBH 203	GBL 203	GBL 53E	GBL 103E	GBL 203E	GBN 403E	GBN 803E	ABS 1203E
			Branch breaker		ICU (kA)												
BKN C Curves	≥ 63A	4.5	-	-	-	0.8	0.8	0.8	1.3	1.3	1.3	-	0.9	2.6	4.5	4.5	4.5
	≥ 40A	6	-	-	-	0.8	0.8	0.8	1.3	1.3	1.3	-	0.9	2.9	5.2	6.0	6.0
	≥ 10A	6	0.4	0.4	0.4	0.8	0.8	0.8	1.3	1.3	1.3	0.5	0.9	4.1	6.0	6.0	6.0



AB□ Series																
S			H							L						
ABS 403b	ABS 803a	ABS 803b	ABH 33b	ABH 53b	ABH 103b	ABH 203b	ABH 403a	ABH 403b	ABL 53a	ABL 103a	ABL 203a	ABL 403a	ABL 403b	ABL 803a	ABL 803b	
50	100	100	25	50	65	65	85	85	100	100	125	125	125	125	125	
4.5	4.5	4.5	-	-	0.8	1.8	4.5	4.5	-	0.9	1.8	4.5	4.5	4.5	4.5	
6.0	6.0	6.0	-	-	0.8	2.3	6.0	6.0	-	0.9	2.3	6.0	6.0	6.0	6.0	
6.0	6.0	6.0	0.2	0.4	0.8	3.9	6.0	6.0	0.5	0.9	3.9	6.0	6.0	6.0	6.0	

AB□ Series																
S			H							L						
ABS 403b	ABS 803a	ABS 803b	ABH 33b	ABH 53b	ABH 103b	ABH 203b	ABH 403a	ABH 403b	ABL 53a	ABL 103a	ABL 203a	ABL 403a	ABL 403b	ABL 803a	ABL 803b	
35	50	50	10	25	35	35	50	50	65	65	65	65	85	65	85	
4.5	4.5	4.5	-	-	0.8	1.8	4.5	4.5	-	0.9	1.8	4.5	4.5	4.5	4.5	
5.0	6.0	6.0	-	-	0.8	2.0	5.0	5.0	-	0.9	2.0	5.0	5.0	6.0	6.0	
6.0	6.0	6.0	0.2	0.4	0.8	2.8	6.0	6.0	0.5	0.9	2.8	6.0	6.0	6.0	6.0	

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Main breaker		E							S				
		ABE 103b	ABE 203b	ABE 403a	ABE 403b	ABE 803a	ABE 803b	ABS 103b	ABS 203b	ABS 403a	ABS 403b	ABS 803a	ABS 803b
Branch MCCB	ICU (kA)	25	35	35	35	50	50	50	50	50	50	100	100
	E	ABE 33	2.5	5	5	-	-	-	-	5	-	-	-
ABE 53b		10	25	30	30	30	-	-	35	35	35	35	-
ABE 63b		10	25	30	30	30	-	-	35	35	35	35	-
ABE 103b		25	-	35	35	35	42	42	42	42	42	42	65
ABE 203b		35	-	-	-	-	50	50	-	50	50	50	65
ABE 403a		35	-	-	-	-	50	50	-	-	50	50	65
ABE 403b		35	-	-	-	-	50	50	-	-	50	50	65
S	ABS 33b	10	25	30	30	30	-	-	35	35	35	35	-
	ABS 53b	25	-	35	35	35	42	42	42	42	42	42	65
	ABS 63b	25	-	35	35	35	42	42	42	42	42	42	65
	ABS 103b	50	-	-	-	-	-	-	-	-	-	-	85
	ABS 203b	50	-	-	-	-	-	-	-	-	-	-	85
	ABS 403a	50	-	-	-	-	-	-	-	-	-	-	85
	ABS 403b	50	-	-	-	-	-	-	-	-	-	-	85
H	ABH 33b	25	-	35	35	35	42	42	42	42	50	50	65
	ABH 53b	50	-	-	-	-	-	-	-	-	-	-	100
	ABH 103b	65	-	-	-	-	-	-	-	-	-	-	100
	ABH 203b	65	-	-	-	-	-	-	-	-	-	-	100
	ABH 403a	85	-	-	-	-	-	-	-	-	-	-	100
	ABH 403b	85	-	-	-	-	-	-	-	-	-	-	100
L	ABL 103a	100	-	-	-	-	-	-	-	-	-	-	-
	ABL 203a	125	-	-	-	-	-	-	-	-	-	-	-
	ABL 403a	125	-	-	-	-	-	-	-	-	-	-	-
	ABL 403b	125	-	-	-	-	-	-	-	-	-	-	-
GB	GBN 103	50	-	-	-	-	-	-	-	-	-	-	85
	GBH 103	85	-	-	-	-	-	-	-	-	-	-	100
	GBL 103	125	-	-	-	-	-	-	-	-	-	-	-
	GBN 203	50	-	-	-	-	-	-	-	-	-	-	85
	GBH 203	85	-	-	-	-	-	-	-	-	-	-	100
	GBL 203	125	-	-	-	-	-	-	-	-	-	-	-

H		L									GB					
ABH 103b	ABH 203b	ABH 403a	ABH 403b	ABL 103a	ABL 203a	ABL 403a	ABL 403b	ABL 803a	ABL 803b	GBN 103	GBH 103	GBL 103	GBN 203	GBH 203	GBL 203	
65	65	85	85	100	125	125	125	125	125	50	85	125	50	85	125	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
42	42	50	50	50	85	85	85	-	-	42	50	85	42	50	85	
42	42	50	50	50	85	85	85	-	-	42	50	85	42	50	85	
50	50	65	65	65	85	85	85	85	85	-	50	85	50	65	85	
-	65	65	65	-	85	85	85	85	85	-	-	-	-	65	85	
-	-	65	65	-	-	85	85	85	85	-	-	-	-	-	-	
-	-	65	65	-	-	85	85	85	85	-	-	-	-	-	-	
42	42	50	50	65	85	85	85	-	-	42	50	85	42	50	85	
50	50	65	65	85	100	100	100	100	100	50	65	100	50	65	100	
50	50	65	65	85	100	100	100	100	100	50	65	100	50	65	100	
65	65	85	85	100	100	100	100	100	100	-	85	100	-	85	100	
-	65	85	85	-	100	100	100	100	100	-	-	-	-	85	100	
-	-	85	85	-	-	100	100	100	100	-	-	-	-	-	-	
-	-	85	85	-	-	100	100	100	100	-	-	-	-	-	-	
-	-	65	65	85	100	100	100	85	85	50	65	100	50	65	100	
-	-	85	85	100	125	125	125	125	125	-	85	100	-	85	125	
50	50	85	85	100	125	125	125	125	125	-	85	100	-	85	125	
65	65	85	85	-	125	125	125	125	-	-	-	-	-	85	125	
-	-	-	-	-	-	-	-	125	125	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	125	125	-	-	-	-	-	-	
-	-	-	-	-	125	125	125	125	125	-	-	-	-	-	125	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	85	85	85	100	100	100	100	100	-	85	100	-	85	100	
-	-	-	-	100	125	125	125	125	125	-	-	125	-	-	125	
65	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	85	85	-	100	100	100	100	100	-	-	-	-	85	100	
-	-	-	-	-	125	125	125	125	125	-	-	-	-	-	125	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

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Main breaker		E							S					
		ABE 103b	ABE 203b	ABE 403a	ABE 403b	ABE 803a	ABE 803b	ABS 103b	ABS 203b	ABS 403a	ABS 403b	ABS 803a	ABS 803b	
Branch MCCB		ICU (kA)	10	18	25	25	35	35	25	25	35	35	50	50
E	ABE 33	1.5	-	-	-	-	-	-	-	-	-	-	-	-
	ABE 53b	5	10	7.5	7.5	7.5	-	-	22	10	10	10	-	-
	ABE 63b	5	10	7.5	7.5	7.5	-	-	22	10	10	10	-	-
	ABE 103b	10	-	14	14	14	14	14	18	18	18	18	25	25
	ABE 203b	18	-	-	25	25	30	30	-	25	30	30	35	35
	ABE 403a	25	-	-	-	-	35	35	-	-	35	35	42	42
	ABE 403b	25	-	-	-	-	35	35	-	-	35	35	42	42
S	ABS 33b	5	10	7.5	7.5	7.5	-	-	22	10	10	10	-	-
	ABS 53b	10	-	14	14	14	-	-	25	18	18	18	14	14
	ABS 63b	10	-	14	14	14	-	-	25	18	18	18	14	14
	ABS 103b	25	-	-	-	-	35	35	-	-	35	35	42	42
	ABS 203b	25	-	-	-	-	35	35	-	-	35	35	42	42
	ABS 403a	35	-	-	-	-	-	-	-	-	-	-	50	50
	ABS 403b	35	-	-	-	-	-	-	-	-	-	-	50	50
H	ABH 33b	10	-	14	14	14	-	-	25	18	18	18	14	14
	ABH 53b	25	-	-	-	-	30	30	-	-	35	35	35	35
	ABH 103b	35	-	-	-	-	-	-	-	-	-	-	50	50
	ABH 203b	35	-	-	-	-	-	-	-	-	-	-	50	50
	ABH 403a	50	-	-	-	-	-	-	-	-	-	-	-	-
	ABH 403b	50	-	-	-	-	-	-	-	-	-	-	-	-
L	ABL 103a	65	-	-	-	-	-	-	-	-	-	-	-	-
	ABL 203a	65	-	-	-	-	-	-	-	-	-	-	-	-
	ABL 403a	65	-	-	-	-	-	-	-	-	-	-	-	-
	ABL 403b	85	-	-	-	-	-	-	-	-	-	-	-	-
GB	GBN 103	35	-	-	-	-	-	-	-	-	-	-	50	50
	GBH 103	50	-	-	-	-	-	-	-	-	-	-	-	-
	GBL 103	85	-	-	-	-	-	-	-	-	-	-	-	-
	GBN 203	35	-	-	-	-	-	-	-	-	-	-	50	50
	GBH 203	50	-	-	-	-	-	-	-	-	-	-	-	-
	GBL 203	85	-	-	-	-	-	-	-	-	-	-	-	-

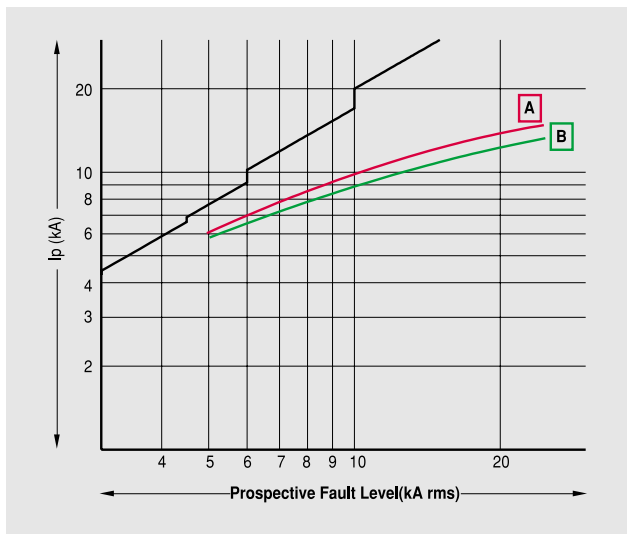
H		L									GB					
ABH 103b	ABH 203b	ABH 403a	ABH 403b	ABL 103a	ABL 203a	ABL 403a	ABL 403b	ABL 803a	ABL 803b	GBN 103	GBH 103	GBL 103	GBN 203	GBH 203	GBL 203	
35	35	50	50	65	65	65	85	65	85	35	50	85	35	50	85	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
25	14	14	14	35	25	18	18	-	-	25	30	35	25	30	35	
25	14	14	14	35	25	18	18	-	-	25	30	35	25	30	35	
18	18	25	25	35	35	30	30	30	30	-	30	35	25	30	35	
-	30	35	35	-	50	35	42	35	42	-	-	-	-	35	42	
-	-	42	42	-	-	42	42	50	50	-	-	-	-	-	-	
-	-	42	42	-	-	42	42	50	50	-	-	-	-	-	-	
25	14	14	14	35	25	18	18	-	-	25	30	35	25	30	35	
30	25	25	25	42	35	30	30	25	25	30	35	42	30	35	42	
30	25	25	25	42	35	30	30	25	25	30	35	42	30	35	42	
35	35	42	42	50	50	42	50	42	50	-	42	50	35	42	50	
-	35	42	42	-	65	42	50	42	50	-	-	-	-	50	65	
-	-	50	50	-	-	50	65	50	65	-	-	-	-	-	-	
-	-	50	50	-	-	50	65	50	65	-	-	-	-	-	-	
30	25	25	25	42	35	30	30	25	25	30	35	42	30	25	42	
35	35	42	42	50	50	42	42	42	42	30	42	50	30	42	50	
-	-	50	50	65	65	50	65	50	65	-	50	85	-	50	85	
-	-	50	50	-	65	50	65	50	65	-	-	-	-	50	85	
-	-	-	-	-	-	65	85	65	85	-	-	-	-	-	-	
-	-	-	-	-	-	65	85	65	85	-	-	-	-	-	-	
-	-	-	-	-	-	-	85	-	85	-	-	85	-	-	85	
-	-	-	-	-	-	-	85	-	85	-	-	-	-	-	85	
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	50	50	65	65	65	65	65	65	-	50	65	-	50	65	
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-	-	50	50	-	65	65	65	65	65	-	-	-	-	50	65	
-	-	-	-	-	65	65	85	65	85	-	-	-	-	-	85	
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### AC 240V

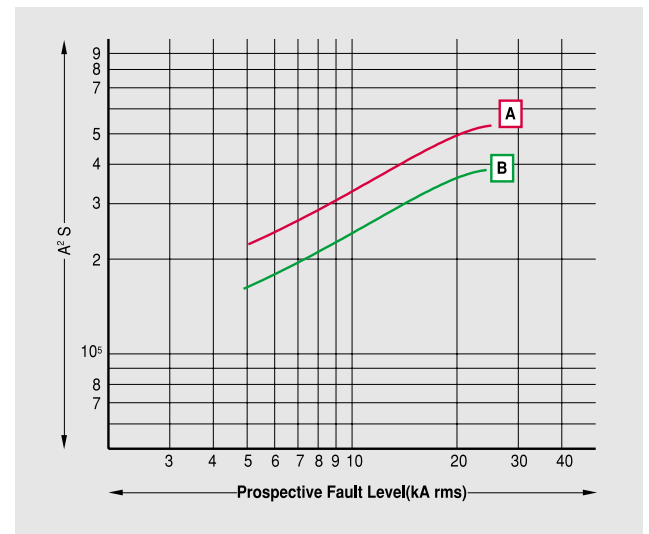
**A** ABE103b, ABH33b, ABS53b, ABS63b

**B** ABS33b, ABE53b, ABE63b

Peak current curve



Thermal stress curve

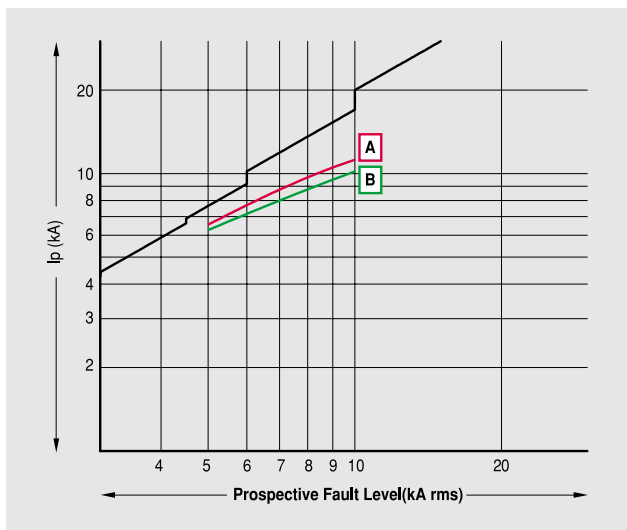


### AC 415V

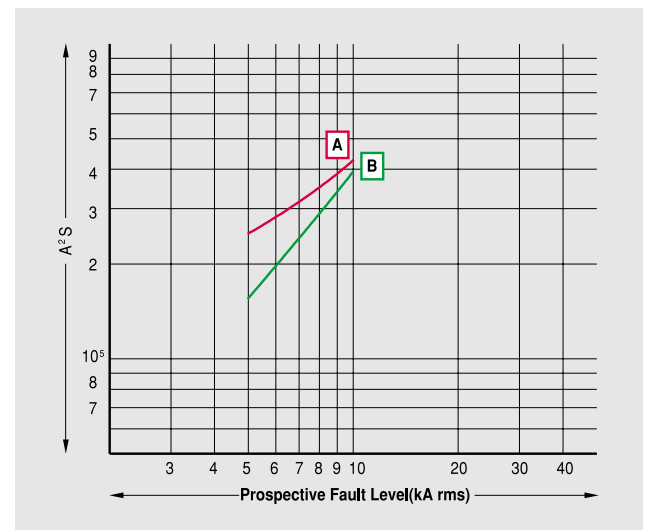
**A** ABE103b, ABH33b, ABS53b, ABS63b

**B** ABS33b, ABE53b, ABE63b

Peak current curve



Thermal stress curve

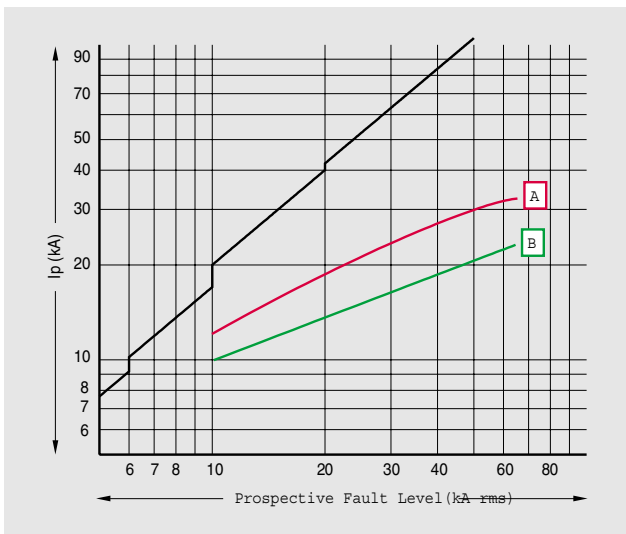


## AC 240V

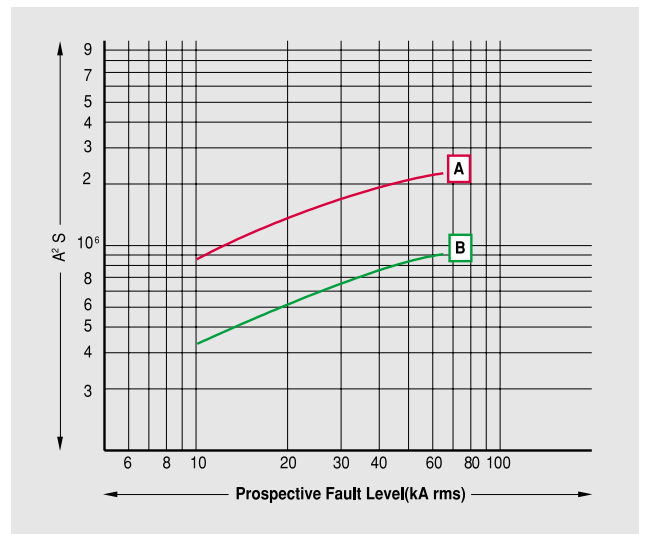
**A** ABE203b, ABS203b, ABH203b

**B** ABH53b, ABS103b, ABH103b

Peak current curve



Thermal stress curve

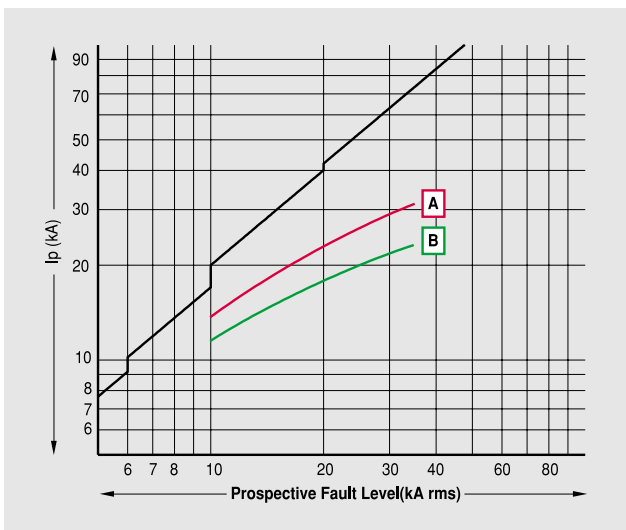


## AC 415V

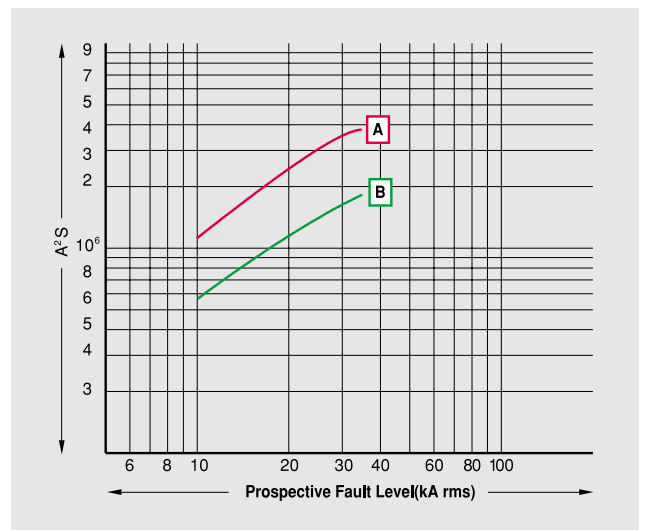
**A** ABE203b, ABS203b, ABH203b

**B** ABH53b, ABS103b, ABH103b

Peak current curve



Thermal stress curve

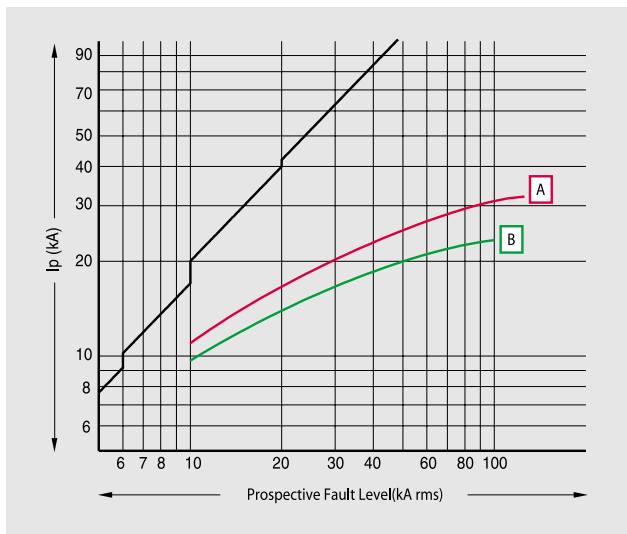


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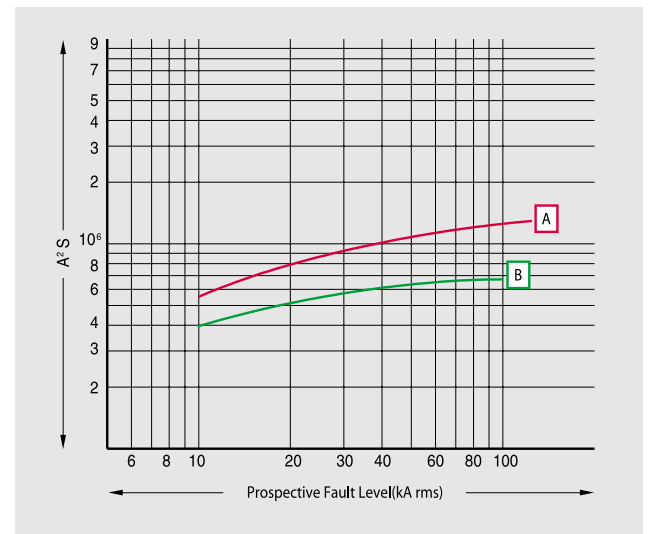
**A** ABL203a

**B** ABL53b, ABL103a

Peak current curve



Thermal stress curve

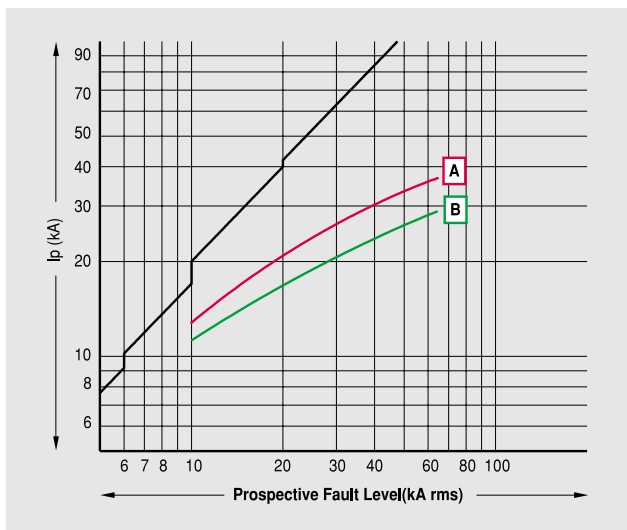


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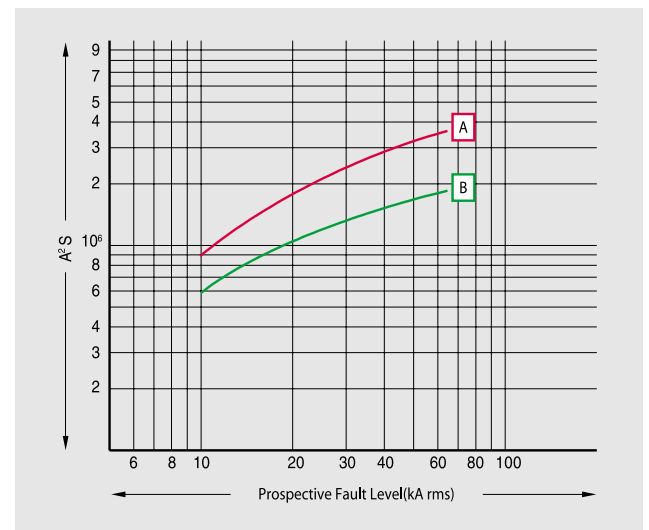
**A** ABL203a

**B** ABL53b, ABL103a

Peak current curve



Thermal stress curve



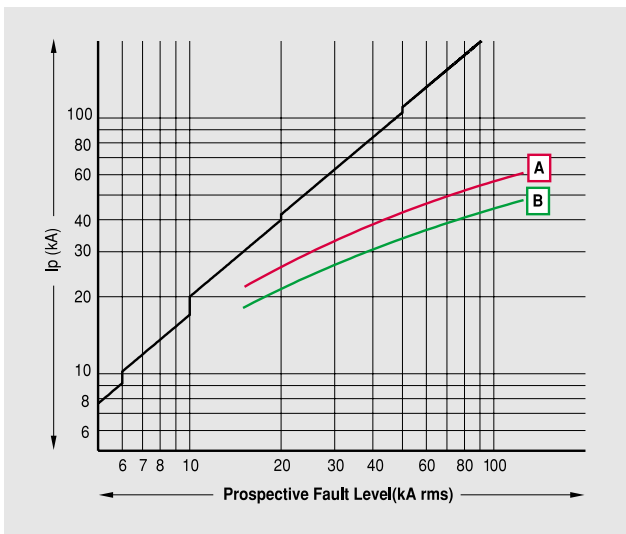


## AC 240V

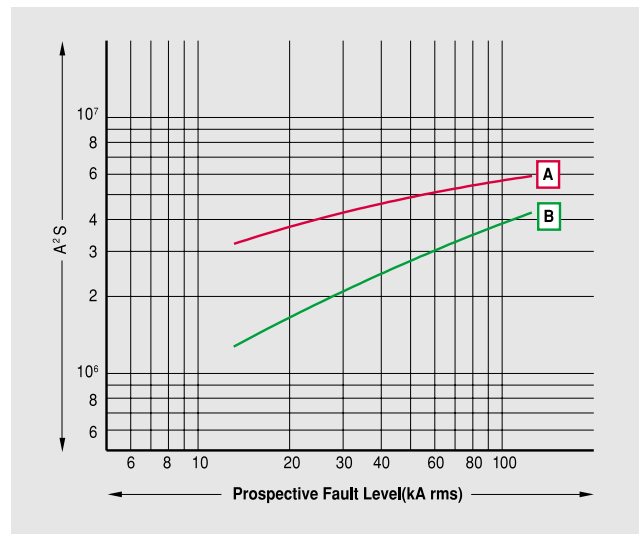
**A** ABE803b, ABS803b, ABL803b

**B** ABE403b, ABS403b, ABH403b, ABL403b

Peak current curve



Thermal stress curve

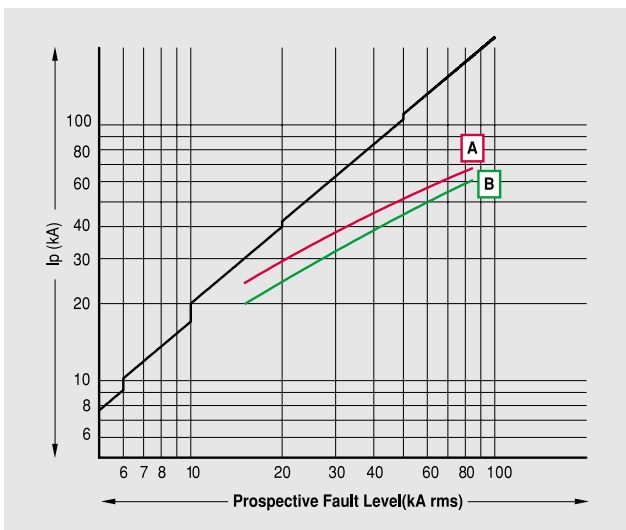


## AC 415V

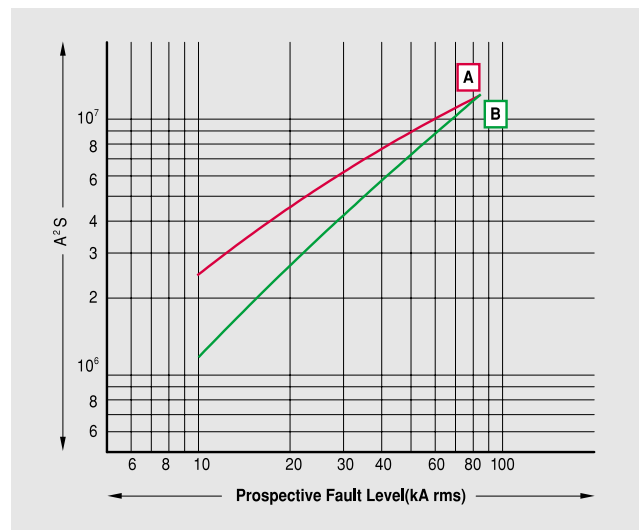
**A** ABE803b, ABS803b, ABL803b

**B** ABE403b, ABS403b, ABH403b, ABL403b

Peak current curve



Thermal stress curve

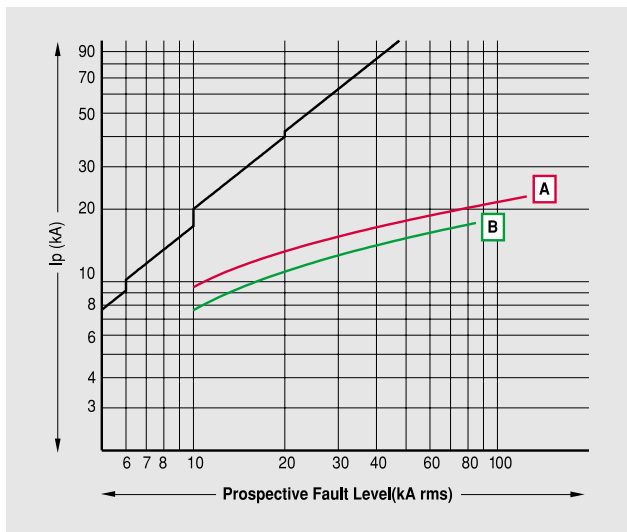


### AC 240V

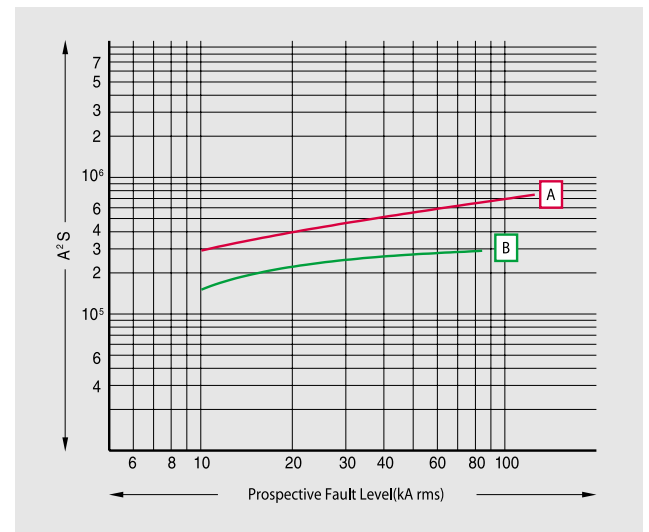
**A** GBL103, GBN203, GBH203, GBL203

**B** GBN103, GBH103

Peak current curve



Thermal stress curve

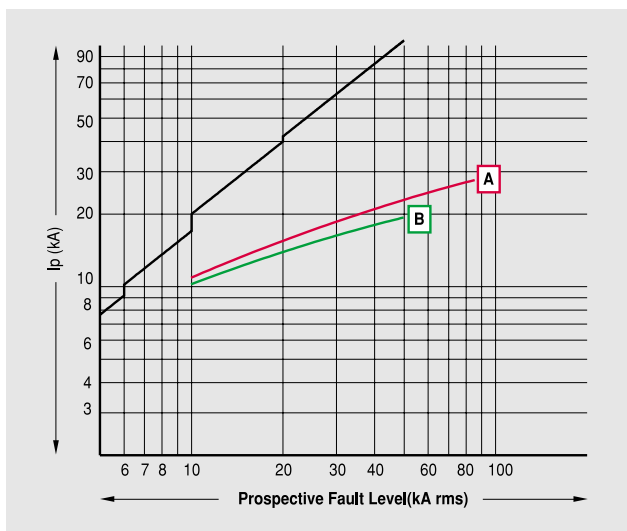


### AC 415V

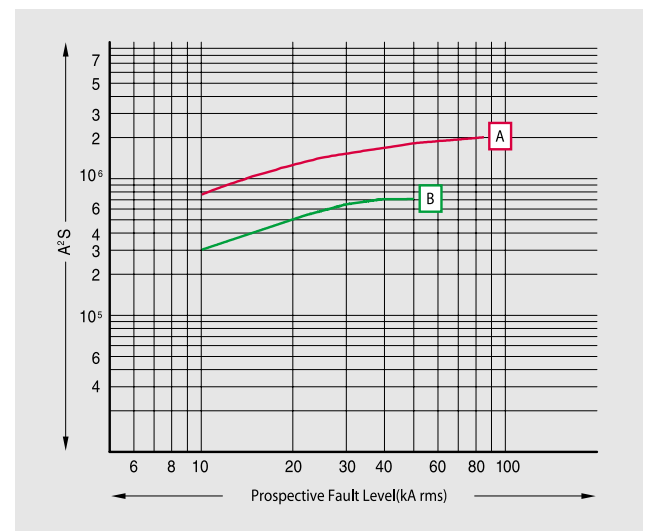
**A** GBL103, GBN203, GBH203, GBL203

**B** GBN103, GBH103

Peak current curve



Thermal stress curve



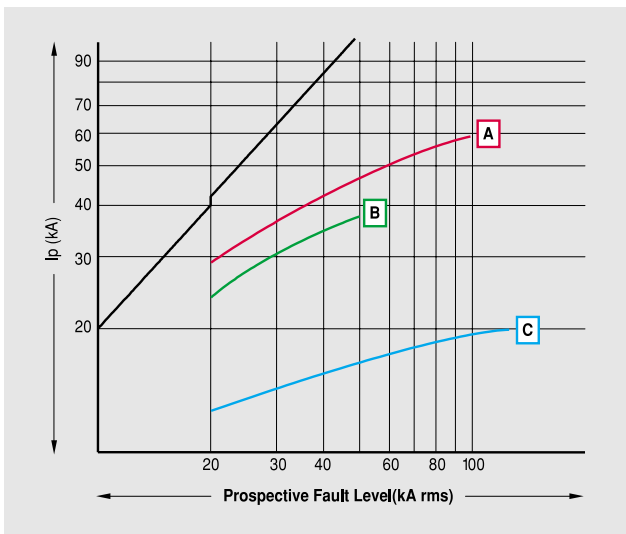
## AC 240V

**A** GBN803E

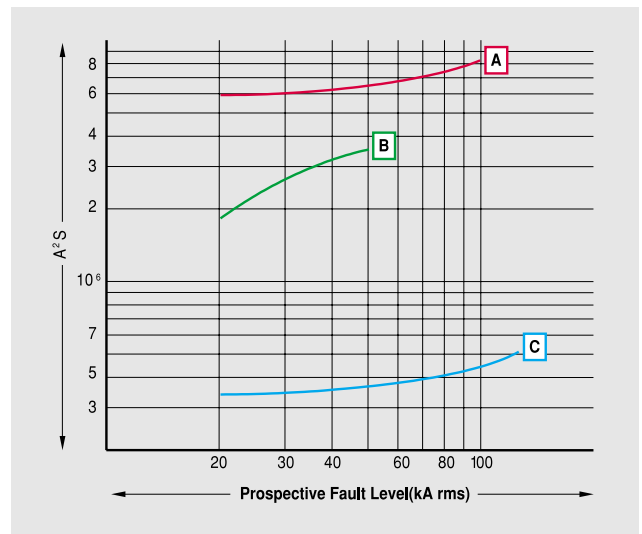
**B** GBN403E

**C** GBL203E, GBL103E, GBL53E

Peak current curve



Thermal stress curve



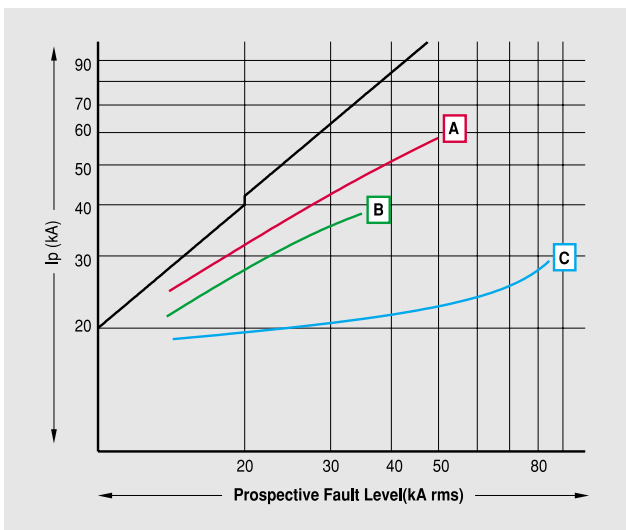
## AC 415V

**A** GBN803E

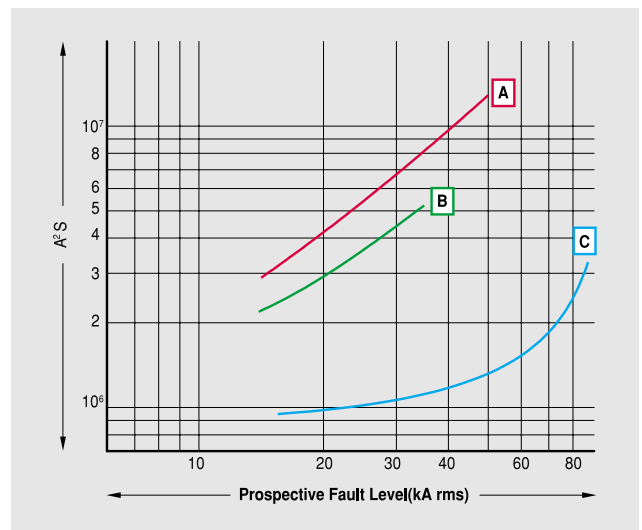
**B** GBN403E

**C** GBL203E, GBL103E, GBL53E

Peak current curve



Thermal stress curve



# Technical information

## Short circuit coordination

### Direct starters with molded case circuit breakers (50kA-415V · IEC60947)

Motor		MCCB		Contactor	Thermal overload relay	
(kW)	440V(A)	Type	Rating I <sub>r</sub> (A)	Type	Type	Settings range (A)
5.5	11	GBH(L)103	16	GMC-32	GTH(K)-40	9~13
7.5	15	GBH(L)103	16	GMC-32	GTH(K)-40	12~18
10	19	GBH(L)103	25	GMC-32	GTH(K)-40	18~26
11	21	GBH(L)103	25	GMC-32	GTH(K)-40	18~26
15	28	GBH(L)103	32	GMC-32	GTH(K)-40	24~36
18.5	34	GBH(L)103	40	GMC-75	GTH(K)-85	28~40
22	39	GBH(L)103	50	GMC-75	GTH(K)-85	34~50
30	54	GBH(L)103	63	GMC-75	GTH(K)-85	45~65
37	66	GBH(L)103	80	GMC-75	GTH(K)-85	54~75
45	80	GBH(L)103	100	GMC-100	GTH(K)-100	65~100
55	99	GBH(L)103	100	GMC-100	GTH(K)-100	85~125
75	135	GBH(L)203	160	GMC-150	GTH(K)-150	100~150
90	160	GBH(L)203	200	GMC-180	GTH(K)-220	120~180
110	192	GBH(L)203	200	GMC-180	GTH(K)-220	160~240
132	226	GBH(L)203	250	GMC-220	GTH(K)-220	160~240
160	265	ABH(L)403b	300	GMC-400	GTH(K)-400	200~300
200	330	ABH(L)403b	350	GMC-400	GTH(K)-400	260~400
220	353	ABH(L)403b	400	GMC-400	GTH(K)-400	260~400
250	400	ABS(L)803b	500	GMC-600	GTH(K)-600	260~400
300	480	ABS(L)803b	500	GMC-600	GTH(K)-600	400~600

\* Note: Magnetic only

## Direct starters with molded case circuit breakers (85kA-415V · IEC60947)

Motor		MCCB		Contactor	Thermal overload relay	
(kW)	440V(A)	Type	Rating I <sub>r</sub> (A)	Type	Type	Settings range (A)
5.5	11	GBH(L)103	16	GMC-32	GTH(K)-40	9~13
7.5	15	GBH(L)103	16	GMC-32	GTH(K)-40	12~18
10	19	GBH(L)103	25	GMC-32	GTH(K)-40	18~26
11	21	GBH(L)103	25	GMC-32	GTH(K)-40	18~26
15	28	GBH(L)103	32	GMC-32	GTH(K)-40	24~36
18.5	34	GBH(L)103	40	GMC-75	GTH(K)-85	28~40
22	39	GBH(L)103	50	GMC-75	GTH(K)-85	34~50
30	54	GBH(L)103	63	GMC-75	GTH(K)-85	45~65
37	66	GBH(L)103	80	GMC-75	GTH(K)-85	54~75
45	80	GBH(L)103	100	GMC-100	GTH(K)-100	65~100
55	99	GBH(L)103	100	GMC-100	GTH(K)-100	85~125
75	135	GBH(L)203	160	GMC-150	GTH(K)-150	100~150
90	160	GBH(L)203	200	GMC-180	GTH(K)-220	120~180
110	192	GBH(L)203	200	GMC-180	GTH(K)-220	160~240
132	226	GBH(L)203	250	GMC-220	GTH(K)-220	160~240
160	265	ABH(L)403b	300	GMC-400	GTH(K)-400	200~300
200	330	ABH(L)403b	350	GMC-400	GTH(K)-400	260~400
220	353	ABH(L)403b	400	GMC-400	GTH(K)-400	260~400
250	400	ABS(L)803b	500	GMC-600	GTH(K)-600	260~400
300	480	ABS(L)803b	500	GMC-600	GTH(K)-600	400~600

\* Note: Tables are based on a combination of tests on a previous range and technical comparison.

### AX, AL



Auxiliary switch, AX



Alarm switch, AL

#### Auxiliary switch (AX)

It can be used to check circuit-breaker status information on On/Off. It indicates the position of the circuit-breaker contacts.

#### Alarm switch (AL)

When the circuit-breaker has tripped, It indicates the tripped status of the circuit-breaker. (trip indication)

#### Operating characteristics of AX and AL

Type	Status of MCCB handle		
	ON	OFF	Tripped
AX			
AL			

#### Electrical characteristics of auxiliary switch(AX) and alarm switch(AL)

AF	Applies circuit breakers		AC			DC			
	MCCB	ELCB	Voltage	Operating current(A)		Voltage	Operating current(A)		
			(V)	Resistance	Inductance		(V)	Resistance	Inductance
30AF~225AF (Meta-MEC)	ABE50b,60b,100b,225b	EBE50b,60b,100b,225b	125	5	3	30	4	3	
	ABS 30b,50b,60b,100b,225b	EBS 30b,50b,60b,100b,225b							
	ABH 30b,50b,100b,225b	EBH 30b,50b,100b,225b							
50AF~225AF (Hi-MEC)	ABL 50a,100a,225a	EBL 50,100,225	500	-	-	250	0.2	0.2	
50AF~250AF (Meta-MEC)	GBN50, 100, 250		125	5	3	30	4	3	
	GBH50, 100, 250		250	3	2	125	0.4	0.4	
	GBL50, 100, 250		250			250	0.2	0.2	
	GBL53E, GBL103E, GBL203E								
400AF~800AF (Meta-MEC)	ABE 400b,800b	EBE 400b,800b	125	5	3	30	4	3	
	ABS 400b,800b								
	ABH 400b								EBS 400b,800b
	ABL 400b,800b								EBH 400b
	GBN 403E,803E								EBL 400b,800b
GBH 403E,803E									
1000AF~1200AF	ABS 1000,1200	1003SGR, 1203SGR	125	20	20	30	6	5	
	ABL 1000,1200		250	20	20	125	0.4	0.05	
	ABS 1200E		500	10	5	250	0.2	0.03	

## Shunt trip coil (SHT)



Shunt trip, SHT

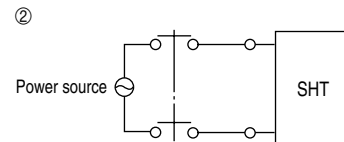
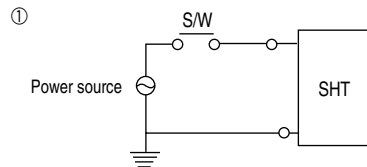
### Shunt trip coil (SHT)

This trip coil trips the circuit breaker when the control voltage exceeds from 0.85 times to 1.1 times the rated voltage at AC and from 0.75 times to 1.25 times the rated voltage at DC.

### Electrical characteristics (Consumption)

AF	Control voltage(V)	Consumption (A)	Consumption (W)	AF	Control voltage(V)	Consumption (A)	Consumption (W)
30~225AF	AC/DC 12V	2.85	34	400~800AF	24V AC	14mA	0.3
	AC/DC 24V	1.65	40		24V DC	15.4mA	0.4
	AC/DC 48V	0.75	36		48V AC	14mA	0.7
	AC/DC 60V	0.61	36		48V DC	16mA	0.8
	AC100~125V	0.37	37		110V AC	6mA	0.7
	DC100~110V				110V DC	6.6mA	0.7
	DC125V	0.3	38		220V AC	6.8mA	1.5
	AC 200~240V	0.18	35		200V DC	7.6mA	1.5
	DC 200~220V				440V AC	4.3mA	1.9
	DC 240V	0.15	36		480V AC	4.4mA	3.3
AC/DC 250V	0.14	35	550V AC	4.6mA	2.4		

### Way of connection



## Undervoltage trip coil (UVT)



Under voltage trip, UVT

### Undervoltage trip coil (UVT)

This trip coil trips the circuit breaker when the control voltage drops below the tripping threshold.

- Tripping threshold between 0.2 and 0.7 times the rated voltage.
- The circuit-breaker closing is possible only if the voltage exceeds 0.85 times the rated voltage (AC/DC).

# Technical information

## Accessories

### Terminal number of electrical auxiliaries

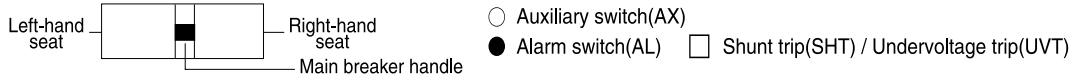
#### Terminal number

Type	Terminal number			
	Meta-MEC MCCB (30AF~225AF)	Meta-MEC MCCB (400AF~800AF)	MCCB (1000AF~1200AF)	
Auxiliary switch (AX)				
Alarm switch (AL)				
Shunt trip coil (SHT)				
Under voltage trip coil (UVT)	AC			
	DC			



# Maximum number of internally mounted accessories

## Combinations of accessories

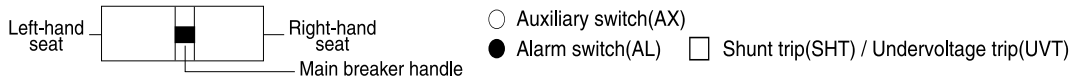


Series	Meta-MEC MCCB (30-225AF)		Adjustable (50-250AF)	Meta-MEC MCCB (400-800AF)	Preexistence MCCB	
Type	ABE	ABE 52b ABE 62b	ABE 53b ABE 63b ABE 103b, 104b ABE 202b, 203b, 204b	-	ABE 402b, 403b, 404b ABE 802b, 803b, 804b	
	ABS	ABS 32b ABS 52b ABS 62b ABS 102b	ABS 33b ABS 53b, 54b ABS 63b, 64b ABS 103b, 104b ABS 202b, 203b, 204b	GBN 52, 53, 54 GBN 102, 103, 104 GBN 202, 203, 204	ABS 402b, 403b, 404b ABS 802b, 803b, 804b ABS 1203E	ABS 1003, 1004 ABS 1203, 1204
	ABH	ABH 32b ABH 52b ABH 102b	ABH 33b ABH 53b, 54b ABH 103b, 104b ABH 202a, 203a, 204a	GBH 52, 53, 54 GBH 102, 103, 104 GBH 202, 203, 204	ABH 402b, 403b, 404b  ABH 202b, 203b, 204b	
	ABL	ABL 52a ABL 102a	ABL 53a, 54a ABL 103a, 104a ABL 202a, 203a, 204a	GBL 52, 53, 54 GBL 102, 103, 104 GBL 202, 203, 204	ABL 402b, 403b, 404b ABL 802b, 803b, 804b	ABL 1003, 1004 ABL 1203, 1204
Pole	2Pole	2, 3, 4Pole		2, 3, 4Pole	3, 4Pole	
AX						
AX2						
AX3 (4)						
AL						
AL2						
AL3(4)						
SHT(UVT)						
SHT(UVT)2						
AX+AL						
AX+AL2						
AX+AL3(4)						
AX2+AL						
AX2+AL2						
AX2+AL3(4)						
AX3(4)+AL						
AX3(4)+AL2						
AX3(4)+AL3(4)						
AX+SHT(UVT)						

# Technical information

## Maximum number of internally mounted accessories

### Combinations of accessories



Series		Meta-MEC MCCB (30~225AF)		Adjustable (50~250AF)	Meta-MEC MCCB (400~800AF)	Preexistence MCCB
Type	<b>ABE</b>	ABE 52b ABE 62b ABE 102b	ABE 53b ABE 63b ABE 103b, 104b ABE 202b, 203b, 204b	-	ABE 402b, 403b, 404b ABE 802b, 803b, 804b	
	<b>ABS</b>	ABS 32b ABS 52b ABS 62b ABS 102b	ABS 33b ABS 53b, 54b ABS 63b, 64b ABS 103b, 104b ABS 202b, 203b, 204b	GBN 52, 53, 54 GBN 102, 103, 104 GBN 202, 203, 204	ABS 402b, 403b, 404b ABS 802b, 803b, 804b	ABS 1003, 1004 ABS 1203, 1204 ABS 1203E
	<b>ABH</b>	ABH 32b ABH 52b ABH 102b	ABH 33b ABH 53b, 54b ABH 103b, 104b ABH 203a, 204a ABH203b, 204b	GBH 52, 53, 54 GBH 102, 103, 104 GBH 202, 203, 204	ABH 402b, 403b, 404b	
	<b>ABL</b>	ABL 52a ABL 102a	ABL 53a, 54a ABL 103a, 104a ABL 202a, 203a, 204a	GBL 52, 53, 54 GBL 102, 103, 104 GBL 202, 203, 204	ABL 402b, 403b, 404b ABL 802b, 803b, 804b	ABL 1003, 1004 ABL 1203, 1204
Pole		2Pole	2, 3, 4Pole		2, 3, 4Pole	3, 4Pole
AX+SHT(UVT)2						
AX2+SHT(UVT)						
AX2+SHT(UVT)2						
AX3(4)+SHT(UVT)						
AX3(4)+SHT(UVT)2						
AL+SHT(UVT)						
AL+SHT(UVT)2						
AL2+SHT(UVT)						
AL2+SHT(UVT)2						
AL3(4)+SHT(UVT)						
AL3(4)+SHT(UVT)2						
AX+AL+SHT(UVT)						
AX+AL+SHT(UVT)2						
AX2+AL2+SHT(UVT)						
AX2+AL2+SHT(UVT)2						
AX3(4)+AL3(4)+SHT(UVT)						
AX3(4)+AL3(4)+SHT(UVT)2						

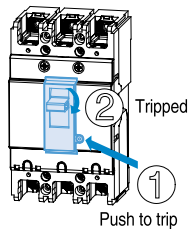
# Accessories

## Instruction (Internal accessories)

### Installation of internal accessories

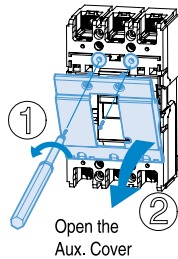
#### (1) Tripping the breaker

Have the breaker tripped by pushing the trip button



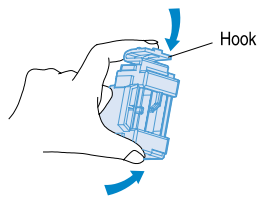
#### (2) Opening the cover

Open the auxiliary cover after unscrewing two screws.



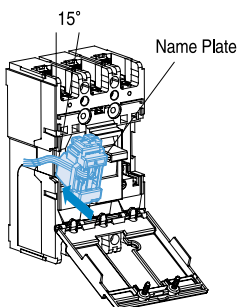
#### (3) How to grip the accessory

Grip the auxiliary switch as shown in the fig.

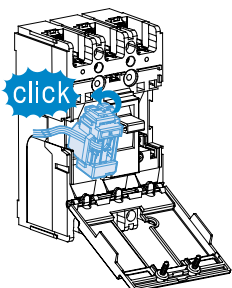


#### (4-1) Installing

Auxiliary switch AX,  
Alarm switch AL and  
Shunt trip SHT

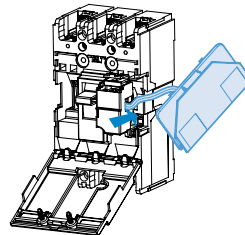


① Insert the auxiliary switch with the angle of 15° as shown in the fig.

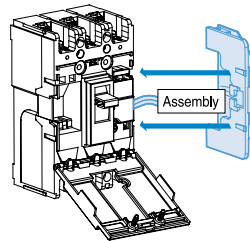


② Push the hook area until it clicks.

#### (4-2) Installing undervoltage trip UVT



① Insert the UVT as shown in the fig.

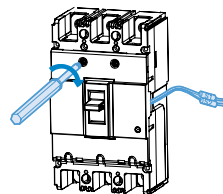


② Push the hook area until it clicks.

③ Assemble the terminal block

#### (5) Closing the cover

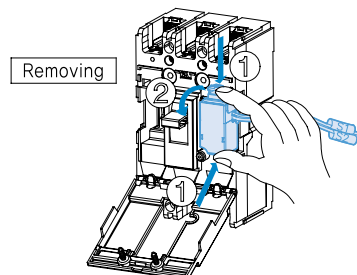
Close the auxiliary cover and fix it with the two screws.



Arrange the lead wires along the side groove.

#### How to remove the accessories

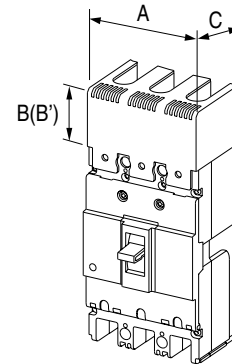
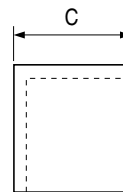
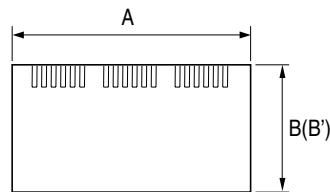
Push down the hook and pull it as shown below



### Terminal shields

#### Terminal shields

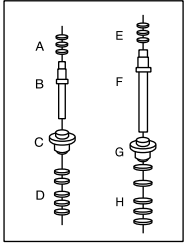
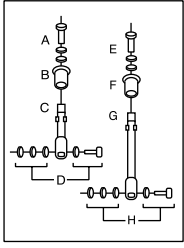
These are insulating accessories used for protection against direct contact with power circuits and for protection against insert of a foreign body (a piece of dirt).



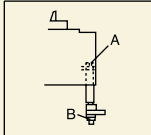
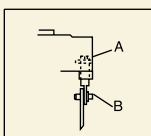
Type		Applied MCCBs	Applied ELCBs	Dimension(mm)		
Long type	Shprt type			A	B(B')	C
<b>TBL-12B</b>	<b>TBS-12B</b>	ABE 52b, ABE 62b, ABE 102b ABS 32b, ABS 52b, ABS 62b, ABH 32b ABE 104b, ABS 54b, ABS 64b (Use two shields for 4 pole MCCB)	-	50	30(5.5)	59
<b>TBL-13B</b>	<b>TBS-13B</b>	ABE 53b, ABE 63b, ABE 103b ABS 33b, ABS 53b, ABS 63b, ABH 33b	EBE 52b, EBE 102b, EBE 53b, EBE 63b, EBE 103b EBS 33b, EBS 53b, EBS 63b, EBH 33b	75	30(5.5)	59
<b>TBL-22B</b>	<b>TBS-22B</b>	ABS 102b, ABH 52b, ABH 102b	-	60	40(5.5)	59
<b>TBL-23B</b>	<b>TBS-23B</b>	ABS 103b, ABH 53b, ABH 103b	EBS 103b, EBH 53b, EBH 103b	90	40(5.5)	59
<b>TBL-24B</b>	<b>TBS-24B</b>	ABS 104b, ABH 54b, ABH 104b	EBS 54b, EBS 104b, EBH 54b, EBH 104b	120	40(5.5)	59
<b>TBL-33B</b>	<b>TBS-33B</b>	ABE 202b, ABS 202b, ABH 202b ABE 203b, ABS 203b, ABH 203b	EBE 203b, EBS 203b, EBH 203b	105	50(4.8)	59.3
<b>TBL-34B</b>	<b>TBS-34B</b>	ABE 204b, ABS 204b, ABH 204b	EBS 204b, EBH 204b	140	50(4.8)	59.3
<b>TBL-43B</b>	-	ABL 202a, ABL 203a	EBL 203	105	50	99.5
<b>TBL-44B</b>	-	ABL 204a	-	140	50	99.5
<b>TBL-52B</b>	-	ABL 52a, ABL 102a	-	74	40	81
<b>TBL-53B</b>	-	ABL 53a, ABL 103a	EBL 53, EBL 103	105	40	81
<b>TBL-54B</b>	-	ABL 54a, ABL 104a	-	140	40	81
<b>T1-43A</b>	-	ABE 402b, ABS 402b, ABH 402b, ABL 402b ABE 403b, ABS 403b, ABH 403b, ABL 403b	EBE 403b, EBS 403b, EBH 403b, EBL 403b	190	120	100
<b>T1-44A</b>	-	ABE 404b, ABS 404b, ABH 404b, ABL 404b	-	234	120	100
<b>T1-63A</b>	-	ABE 802b, ABS 802b, ABL 802b ABE 802b, ABS 802b, ABL 802b ABE 803b, ABS 803b, ABL 803b	EBE 803b, EBS 803b, EBL 803b	230	138.5	100
<b>T1-64A</b>	-	ABE 804b, ABS 804b, ABL 804b	-	300	138.5	100
<b>TB-13T</b>	<b>TBS-13T</b>	GBN 52, 102, GBH 52, 102 GBN 53, 103, GBH 53, 103	-	90	40(10)	77
<b>TB-14T</b>	<b>TBS-14T</b>	GBN 54, 104 GBH 54, 104	-	120	40(10)	77
<b>TB-23T</b>	<b>TBS-23T</b>	GBN 202, GBH 202 GBN 203, GBH 203 GBL 52, 102, 202 GBL 53, 103, 203 GBN 53E, 103E, 203E GBH 53E, 103E, 203E GBL 53E, 103E, 203E	-	105	40(10)	77
<b>TB-24T</b>	<b>TBS-14T</b>	GBN 204, GBH 204 GBL 54, 104, 204	-	140	40(10)	77

# Rear connection for AB type MCCBs

## Rear connection

Type	Pole	Applied MCCBs	Applied ELCBs		Quantity								
					A	B	C	D	E	F	G	H	
<b>X-35R-52</b>	2, 4	ABE 52b, ABE 102b, ABS 32b, ABS 52b, ABH 32b, ABE 104b, ABS 54b		Round type	2	2	2	2	2	2	2	2	2
<b>X-35R-53</b>	3	ABE 53b, ABS 33b, ABS 53b, ABH 33b, ABE 103b	EBE 52b, EBE 102b, EBE 53b, EBE 103b, EBS 33b, EBS 53b, EBH 33b		4	4	4	4	2	2	2	2	2
<b>X-35R-102</b> <b>X-35B-102</b>	2, 4	ABE 62b, ABE 102b, ABS 62b ABE 104b, ABS 64b			2	2	2	2	2	2	2	2	2
<b>X-35R-103</b> <b>X-35B-103</b>	3	ABE 63b, ABS 63b, ABE 103b	EBE 102b, EBE 63b, EBE 103b		4	4	4	4	2	2	2	2	2
<b>X-45R-102</b> <b>X-45B-102</b>	2	ABS 102b, ABH 52b, ABH 102b			2	2	2	2	2	2	2	2	2
<b>X-45R-103</b> <b>X-45B-103</b>	3	ABS 103b, ABH 53b, ABH 103b	EBS 103b, EBH 53b, EBH 103b		4	4	4	4	2	2	2	2	2
<b>X-45R-104</b> <b>X-45B-104</b>	4	ABS 104b, ABH 54b, ABH 104b											
<b>X-55R-202</b> <b>X-55B-202</b>	2	ABE 202b, ABS 202b, ABH 202b			4	4	4	4	-	-	-	-	-
<b>X-55R-203</b> <b>X-55B-203</b>	3	ABE 203b, ABS 203b, ABH 203b	EBE 203b, EBS 203b, EBH 203b		4	4	4	4	2	2	2	2	2
<b>X-55R-204</b> <b>X-55B-204</b>	4	ABE 204b, ABS 204b, ABH 204b			4	4	4	4	4	4	4	4	4

## Rear connection

Type	MCCB			ELCB			Torque (kgf.cm)	
	E	S	H	E	S	H	A	B
Round type 	ABE 50b	ABS 30b ABS 50b	ABH 30b	EBE 50b	EBS 30b EBS 50b	EBH 30b	M4 13~18	M6 40~50
	ABE 60b ABE 100b	ABS 60b		EBE 60b EBE 100b	EBS 60b		M6 40~50	M8 70~90
Bar type 		ABS 100b	ABH 50b ABH 100b		EBS 100b	EBH 50b EBH 100b	M6 40~50	M8 120~150
	ABE 225b	ABS 225b	ABH 225b	EBE 225b	EBS 225b	EBH 225b	M6 50~65	M8 120~150

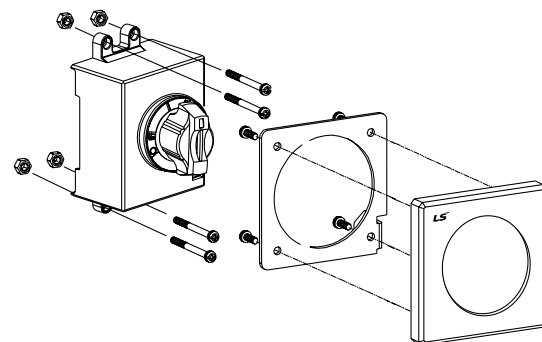


# Rotary handle

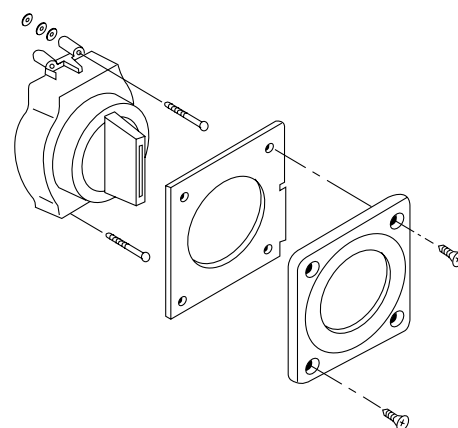
## Type of rotary handle

Type		MCCB	ELCB
D, E handle	N handle		
D-30-S	-	GBN 53 GBH 53 GBN 103 GBH 103	
D-30-L			
D-30-R			
E-30-S			
E-30-L			
E-30-R			
D-35-S	N-30b-S N-30b-L N-30b-R	ABE 53b ABE 63b ABE 103b ABS 33b ABS 53b, 54b ABS 63b, 64b ABH 33b	EBE 52b, 53b EBE 63b EBE 102b, 103b EBS 33b EBS 53b EBS 63b EBH 33b
D-35-L			
D-35-R			
E-35-S			
E-35-L			
E-35-R			
D-45-S			
D-45-L			
D-45-R			
E-45-S			
E-45-L			
E-45-R			
D-55-S	N-50b-S N-50b-L N-50b-R	ABE 202b, 203b, 204b ABS 202b, 203b, 204b ABH 202b, 203b, 204b	EBE 203b EBS 203b EBH 203b
D-55-L			
D-55-R			
E-55-S	N-55-S N-55-L N-55-R	ABL 53a, 54a ABL 103a, 104a	EBL 53 EBL 103
E-55-L			
E-55-R			
D-60-S	-	GBN 203 GBH 203 GBL 53 GBL 130 GBL 203	
D-60-L			
D-60-R			
E-60-S			
E-60-L			
E-60-R			
E-60U	-	GBN 202, 203, 204 GBH 202, 203, 204 GBL 202, 203, 204	
-	N-60-S N-60-L N-60-R	ABH 203a ABL 203a	
E-70U	N-70-S N-70-L N-70-R	ABE 402b, 403b, 404b ABS 402b, 403b, 404b ABH 402b, 403b, 404b ABL 402b, 403b, 404b	EBE 403b EBS 403b EBH 403b EBL 403b
E-80U	N-80-S N-80-L N-80-R	ABE 802b, 803b, 804b ABS 802b, 803b, 804b ABL 802b, 803b, 804b	EBS 803b EBL 803b

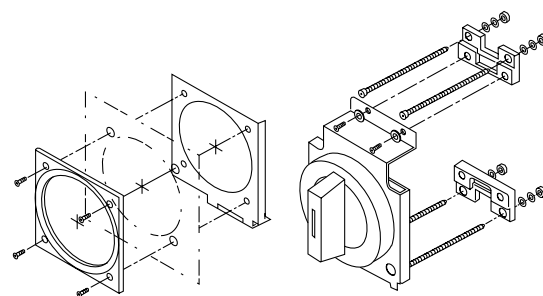
## Development figure



(D-35-55)



(N-30b, 40b, 55b, N-55, N-60)



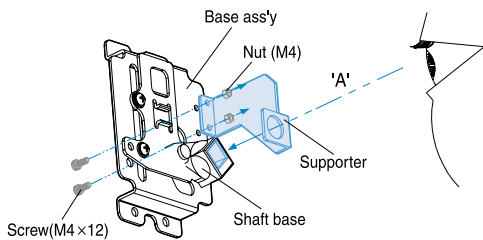
(N-70, N-80)

### Instruction (UL handle)

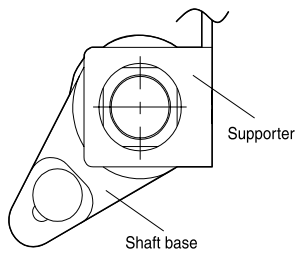
#### Assembling procedures

(1) Mount the supporter on BASE ASS'Y with two screws, M4 X L12 and nuts. Fig 1.

At this time, the center of supporter should be aligned to the center of groove in SHAFT BASE. Fig 2.

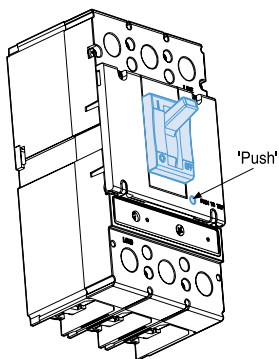


[Fig 1]

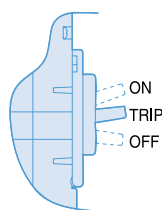


[Fig 2]

(2) Before installation of Handle, make the circuit breaker OFF state. Fig3,4.

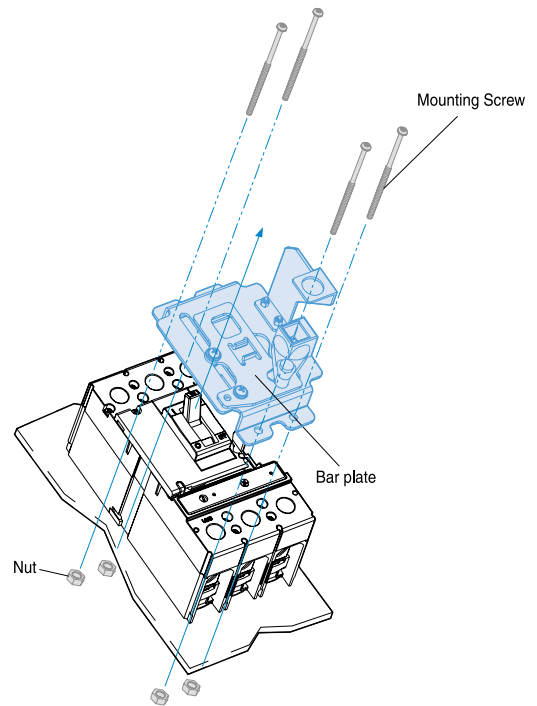


[Fig 3]



[Fig 4]

(3) At first, Lay the BASE ASS'Y on the circuit breaker to Handle of circuit breaker project through the hole of BAR PLATE. And then, Pull the BASE ASS'Y to array mounting hole of BASE ASS'Y and circuit breaker's are on the same lines. And Tighten up mounting screws. Fig 5.



[Fig 5]

In case, you mount circuit breakers and Handle together at once, use four mounting screw of handle.

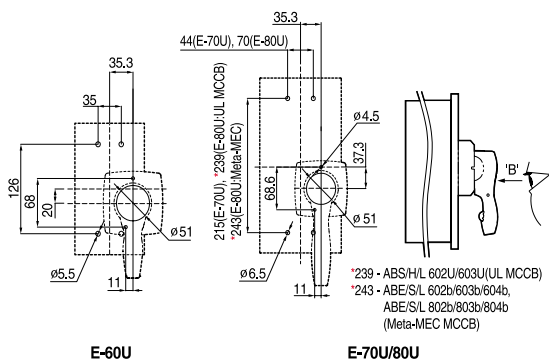
When you want to attach the new Handle on the circuit breaker in use that already mounted, remove two of four mounting screw of circuit breaker and replace two mounting screw of circuit breaker with Handle mounting screw.

In this case, remove two screw from circuit breaker on diagonal side at first and assemble the Handle right position secondary and thighten two mounting screw to empty mounting holes instead of remove old ones at last.



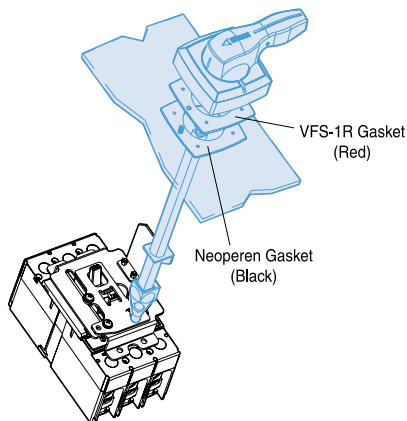
## Instruction (UL handle)

- (4) Assemble the HANDLE ASS'Y on the panel door.  
 Before the HANDLE ASS'Y assembling, please cut holes on panel to assemble the HANDLE ASS'Y.  
 And then thighten M4 X L22 two screw to assemble the HANDLE ASS'Y through holes on the door. Fig 6.



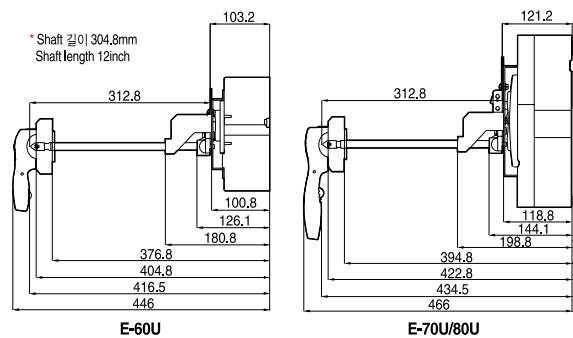
[Fig 6]

You can change operating angel, changing the HANDLE ASS'Y assembling holes position by 90 degree at same center point in clockwise direstion only.  
 In this case, please check whether the lenght of handle interfere the opening or not before change.  
 You may use the ~X types(ex;E-60UX) for IP65 protection such as applying to NEMA 4 grade panel.  
 It has two kinds of gasket. one is made for anti-dust and the other used for waterroot.  
 From the surface of panel, the waterroot gasket (Neoprece;BLACK) should be attached at first and then the other gasket should be laid on and assembled the HANDLE ASS'Y at last. Fig 7.



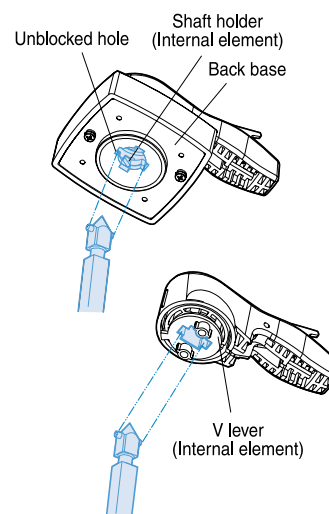
[Fig 7]

- (5) If the lenght of shaft isn't fit on your panel, you can cut the shaft to use.  
 Cutting should be done on bottom side that not connected to HANDLE ASS'Y.  
 Connect the shaft after cutting.  
 At this time, the angel of SHAFT should be settled that door can be open when HANDLE is on 'OFF' position.  
 Door locked when HANDLE is on 'ON' position but just Door closing is possible. Fig 8.



[Fig 8]

- And tighten the screw M5 X L14 to fix the SHAFT.  
 The pin of SHAFT should be inserted to the long groove of V LEVER through the hole of BACK BASE that unblocked by SHAFT HOLDER. Fig 9.



[Fig 9]

### Instruction (Plug-in mounting block)

#### Accessory device of MCCB(Plug-in mounting block)

Be sure to read the instruction manual and safety precautions before use products.  
This manual should be given to the person who use products and maintain them.

#### Safety precautions

**⚠ DANGER** Offending against the message can be a reason of death or serious injury.

**⚠ CAUTION** Incorrect handling of the device may be a cause for minor injury or physical damage.

**⚠ DANGER**

Turn off the power before mounting, dismantling, wiring, maintenance or inspection. Or it may be a cause for electrical shock or fire.

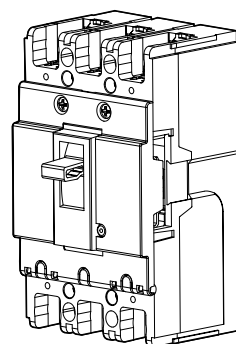
**⚠ CAUTION**

1. Do not use deformed or damaged MCCB or mounting block
2. Mounting, detaching, wiring, maintenance and checking should be done by authorized or certified engineer.
3. Operation handle should not be used in severe environment such as high temperature, humidity, dusty, corrosive gas, excessive vibration and impulse.
4. Mounting should be done according to the instruction manual. Mistakes on mounting may be a cause for a MCCB, ELCB and operation handle or cause an accident such as operator do himself an injury.
5. Screws and bolts should be tightened in specific torque.
6. Dust preventing measures should be done, if the MCCB and mounting block are used in dusty placesuch as cement plants, iron refinaries. It may result in poor contacts, defective release action or malfunction of the device.
7. Don't do reforming to the MCCB and mounting block without authorized permission.
8. When the MCCB and mounting block are abolished, doing it according to the abolishing rules or regurations.

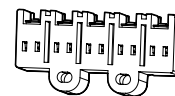
Before installation, wiring, operation, maintenance or nspection of the device, be sure to read the warning message carefully and ensurance of proper operation.

Please follow the instructions, because they are very important.

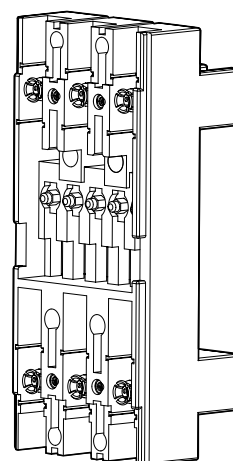
\*In this instruction, level of dangerous are classified by 'DANGER' and 'CAUTION'.



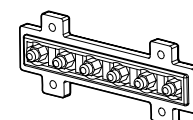
MCCB



Terminal Block of MCCB for accessories



Plug-in Mounting Block



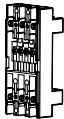
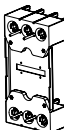
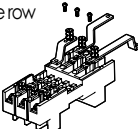
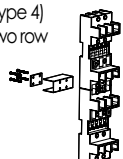

Terminal Block of Mounting Block for accessories

# Instruction (Plug-in mounting block)

## 1. Check points before use

Check the packed parts following to Table 1 as soon as you taken.

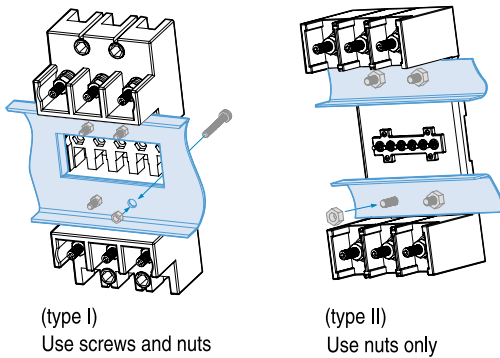
**Table 1. Parts list according to the type**

Classification	Type of block mounting	Applied MCCB	Parts list		Appendix	
			Common parts	Spare parts		
Normal type	PB-A3-FR	ABS/H33b, ABE/S53b, ABE63b, ABE103b	1. MCCB 2. Plug-in mounting block 3. Instruction manual	1. M5,L30 PH(+) P.S/W Screw : 4ea 2. M5 NUT : 4ea	(type 1) One-mold frame 	
	PB-C3-FR	ABH53b, ABS/H103b			-	(type 2) Two-mold and plate join 
	PB-G3-FR	GBN/H53, GBN/H103				-
	PB-D3-FR	ABE/S/H203b ABH/L203a GBN/H203 GBL53, GBL103, GBL203				
	PB-E3-FR	ABL53a, ABL103a				
	PB-I3-FR	ABE/S/H/L 403b		-	-	
	PB-J3-FR	ABE/S/L 803b				
One-row type	PB-A3-FR-1DB	ABS/H33b, ABE/S53b, ABE63b, ABE103b	1. MCCB 2. Plug-in mounting block 3. Instruction manual	1. M4,L30 PH(+) P.S/W Screw : 4ea 2. M4 NUT : 4ea 3. Branch bar(R/S/T) : 3ea 4. M4,L10 PH(+) P.S/W : 3ea 5. Barrier : 3ea	(type 3) One row 	
	PB-C3-FR-1DB	ABH53b, ABS/H103b			-	-
	PB-G3-FR-1DB	GBN/H53, GBN/H103				
Twp-row type	PB-A3-FR-2DB	ABS/H33b, ABE/S53b, ABE63b, ABE103b	1. MCCB 2. Plug-in mounting block 3. Instruction manual	1. M5,L30 PH(+) P.S/W Screw : 4ea 2. M5 Nut : 4ea 3. Insulation barrier: 1ea 4. Connecting plate : 1ea 5. M4,L35 PH(+) P.S/W : 4ea	(type 4) Two row 	
	PB-C3-FR-2DB	ABH53b, ABS/H103b			-	-
	PB-G3-FRL	GBN/H53, GBN/H103				
Line-only type	PB-A3-FRL	ABS/H33b, ABE/S53b, ABE63b, ABE103b	1. MCCB 2. Plug-in mounting block 3. Instruction manual	1. M4,L30 PH(+) P.S/W Screw : 3ea 2. M4 NUT : 3ea	(type 5) Line only 	
	PB-C3-FRL	ABH53b, ABS/H103b			-	-
	PB-G3-FRL	GBN/H53, GBN/H103				
Accessories	PBA-100U (Moving/Fixed contact)	ABS/H33b, ABE/S53b, ABE63b, ABE103b ABH53b, ABS/H103b GBN/H53, GBN/H103	4. Terminal block of mounting block for accessories	1. M4,L22 Tap Screw : 2ea 2. Acce. contact : 6ea 3. M4 NUT : 12ea	Option	
	PBA-225U & PBA-225L (Moving/Fixed contact)	ABE/S/H203b ABH/L203a GBN/H203 GBL53, GBL103, GBL203 ABL53a, ABL103a ABE/S/H/L 403b ABE/S/L 803b	5. Terminal block of mounting block for accessories	1. M4,L22 Tap Screw : 2ea 2. M3,L8 PH(+) Screw : 4ea		

### Instruction (Plug-in mounting block)

#### 2. Installation plug-in mounting block

- (1) Please cut hole on panel before installation of the plug-in mounting block.
- (2) Mount the plug-in mounting block with mounting screws nuts.



- (3) Please check the torque value when you tighten bolts.

Table 3. Specific torque for screws and bolts.

Screws and bolts	Applied MCCB/ELCB [kgf cm]
M5 Screw	23~28
M6 Screw	52~65
M6 Bolt	52~65
M8 Bolt	80~130
M10 Bolt	240~300
M16 Bolt	240~300

note2) Plug-in MCCB have a different connection way to surface connection.  
So, don't apply busbars which for surface connection to plug-in terminal.

#### 3. Cable connection

- (1) Please remove nuts and connect cables and reassemble nuts to fix cables.
- (2) Please use the right cable belong to rating of MCCB.

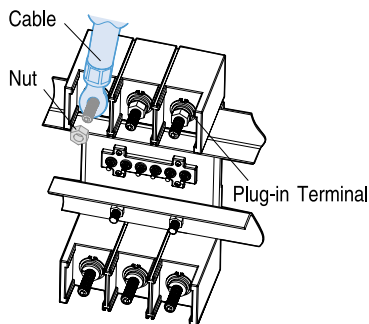
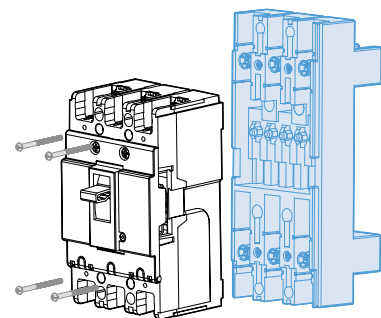


Table 2. Copper conductors for rating current of MCCB(Depend on IEC60947-2 standrad)

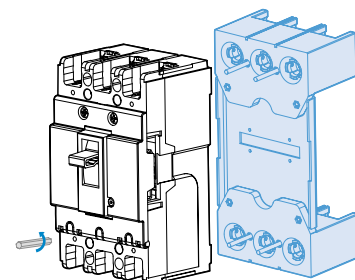
Rating current of MCCB [A]	Applied MCCB/ELCB [mm <sup>2</sup> ]
15 < I <sub>n</sub> < 20 (15, 20)	2.5
25 < I <sub>n</sub> < 32 (30)	6.0
32 < I <sub>n</sub> < 50 (40, 50)	10
50 < I <sub>n</sub> < 65 (60)	16
65 < I <sub>n</sub> < 85 (75)	25
85 < I <sub>n</sub> < 100 (100)	35
115 < I <sub>n</sub> < 150 (125, 150)	50
150 < I <sub>n</sub> < 175 (175)	70
175 < I <sub>n</sub> < 225 (200, 225)	95
225 < I <sub>n</sub> < 250 (250)	120
250 < I <sub>n</sub> < 275	150
275 < I <sub>n</sub> < 350 (300, 350)	185
350 < I <sub>n</sub> < 400 (400)	240
400 < I <sub>n</sub> < 500 (500)	150 X 2
500 < I <sub>n</sub> < 630 (600)	185 X 2
630 < I <sub>n</sub> < 800 (700, 800)	240 X 2

#### 4. MCCB mounting

- (1) In case of 225AF or smaller size MCCB using, Assemble the MCCB on the mounting block and assemble mounting screws of MCCB.
- (2) Mounting block of 400~800AF MCCB have mounting bolts in itself. use M5(4mm) wrench for 400AF MCCB, and M6(5mm) wrench for 600 and 800AF MCCB to tighten mounting bolts, the MCCB be connected with the mounting block automatically, and if you loosen bolts the MCCB would be moved out from mounting block automatically.  
In this case, Please tighten or loosen bolts by turns to keep the balance.



~225AF MCCB Mounting

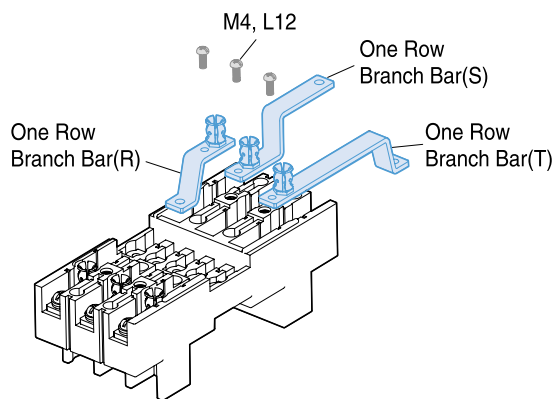


400~800AF MCCB Mounting

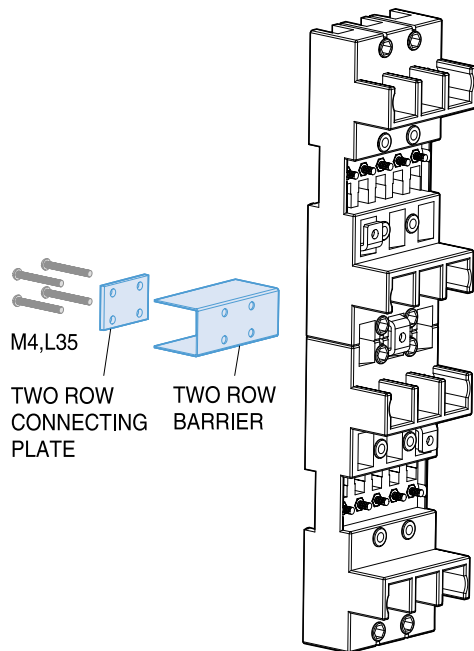
# Instruction (Plug-in mounting block)

## 5. Assembling one row and two row mounting block (type IV, V)

- (1) Please assemble branch bars on each phase for one row connection.
- (2) Please assemble two mounting block with connecting plate and barrier for two row connection.



One Row assembling



Two Row assembling

## 6. Assembling of MCCBs internal accessories

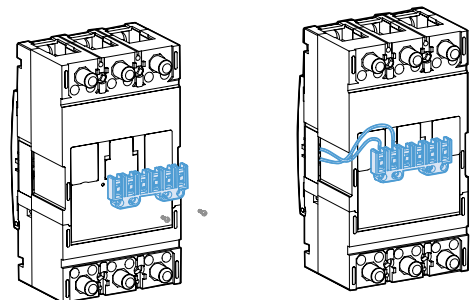
- (1) Please assemble terminal block on MCCB and mounting block.  
Terminal block of MCCB should be attached to bottom of MCCB and terminal block of mounting block to rear of mounting block except type I mounting block.  
Please assemble terminal to mounting block directly
- (2) Please connect accessory lead wire to terminal block following table 4, table 5.

Table 4. For 5 Pins

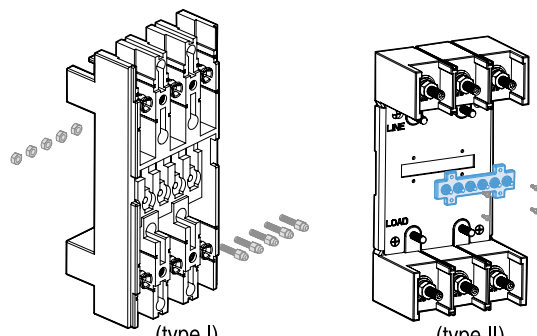
Accessory	No.				
	1	2	3	4	5
UVT	U1	U2			
(SHT)	(S1)	(S2)			
UVT + SHT	U1	U2		S1	S2
UVT + AX	U1	U2	AXa	AXb	AXc
(SHT) (AL)	(S1)	(S2)	(ALa)	(ALb)	(ALc)

Table 5. For 6 Pins

Accessory	No.					
	1	2	3	4	5	6
UVT	U1	U2				
(SHT)	(S1)	(S2)				
UVT + SHT	U1	U2			S1	S2
UVT + AX	U1	U2		AXa	AXb	AXc
(SHT) (AL)	(S1)	(S2)		(ALa)	(ALb)	(ALc)
AX + AL	AXa	AXb	AXc	ALa	ALb	ALc



Terminal Block of MCCB assembling



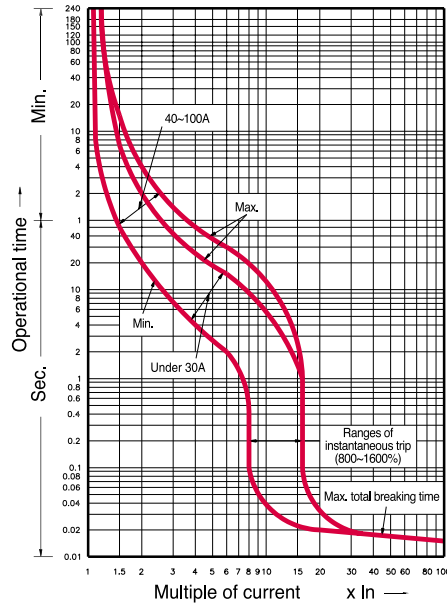
Terminal Block of Mounting Block assembling

# Operating curves & temperature compensation

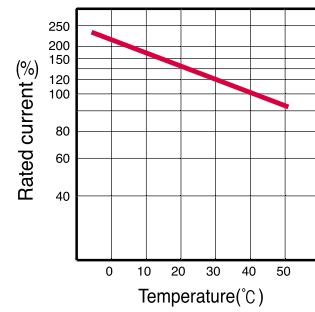
## AB type MCCBs

ABE52b	ABS63b
ABE53b	ABS64b
ABE62b	ABH32b
ABE63b	ABH33b
ABS32b	EBE53b
ABS33b	EBE63b
ABE102b	EBE33b
ABE103b	EBE102b
ABS52b	EBE103b
ABS53b	EBS53b
ABS54b	EBS63b
ABS62b	EBH33b

Operating curves

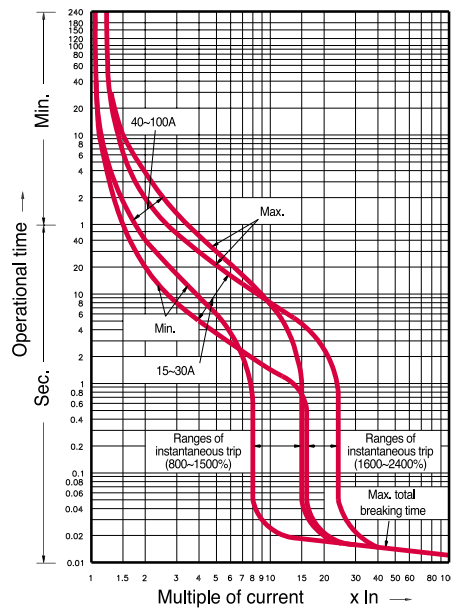


Compensation curves

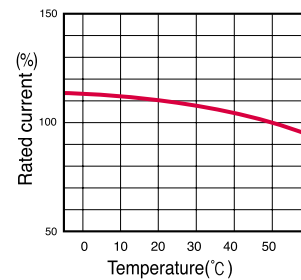


ABS102b
ABS103b
ABS104b
ABH52b
ABH53b
ABH54b
ABH102b
ABH103b
ABH104b
EBS54b
EBS103b
EBS104b
EBH54b
EBH54b
EBH104b
EBH104b

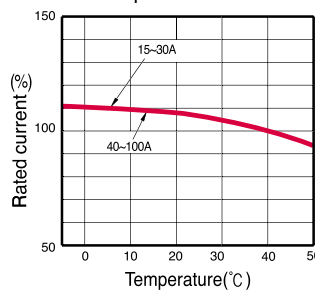
Operating curves



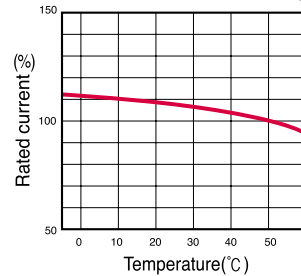
15A-30A at 50°C



Compensation curves

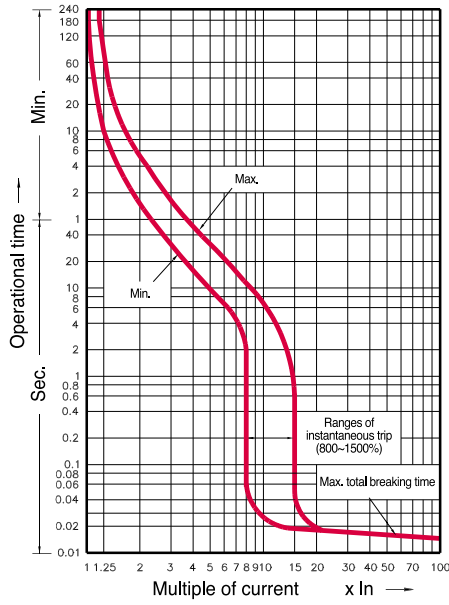


40A-100A at 50°C

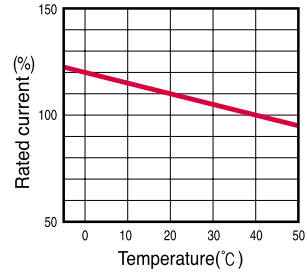


- ABE202b
- ABE203b
- ABE204b
- ABS202b
- ABS203b
- ABS204b
- ABH202b
- ABH203b
- ABH204b
- EBE203b
- EBS203b
- EBS204b
- EBH203b
- EBH204b

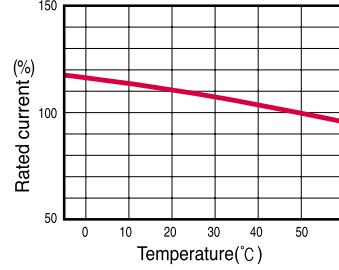
Operating curves



Compensation curves

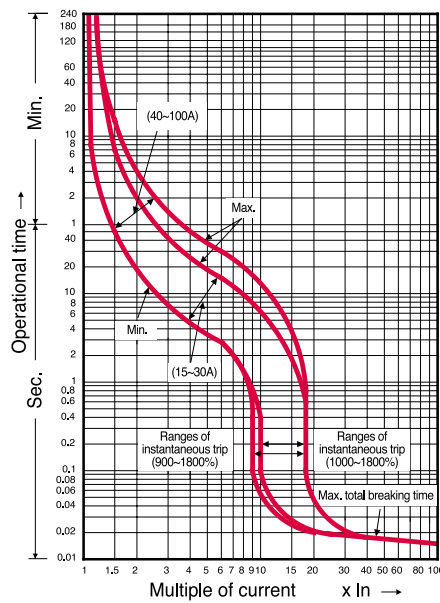


200AF at 50°C

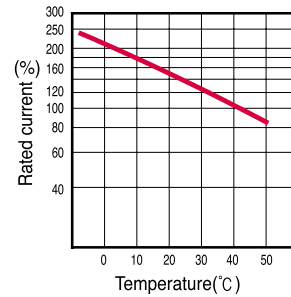


- ABE53bM
- ABE63bM
- ABE103bM
- ABS33bM
- ABS53bM
- ABS63bM

Operating curves



Compensation curves

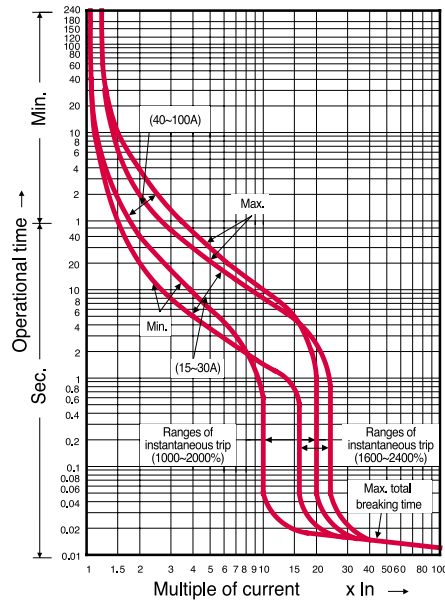


# Operating curves & temperature compensation

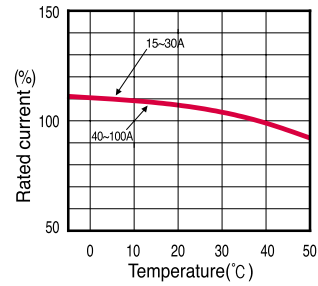
## AB type MCCBs

- ABS103bM
- ABH53bM
- ABH103bM

Operating curves

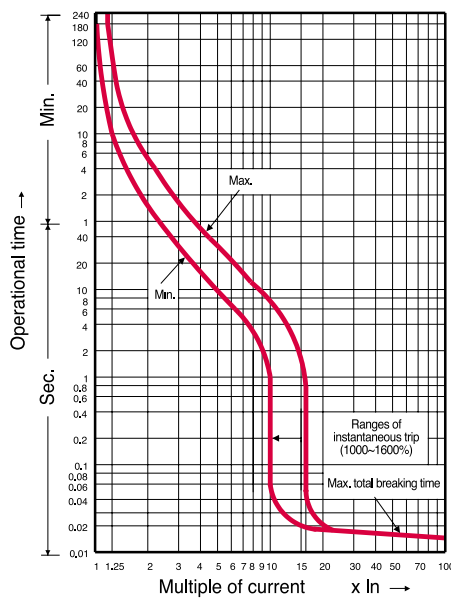


Compensation curves

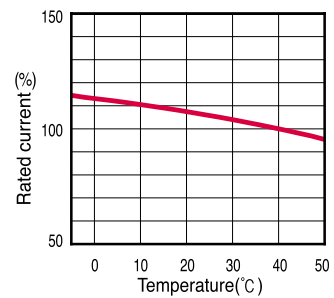


- ABE203bM
- ABS203bM

Operating curves



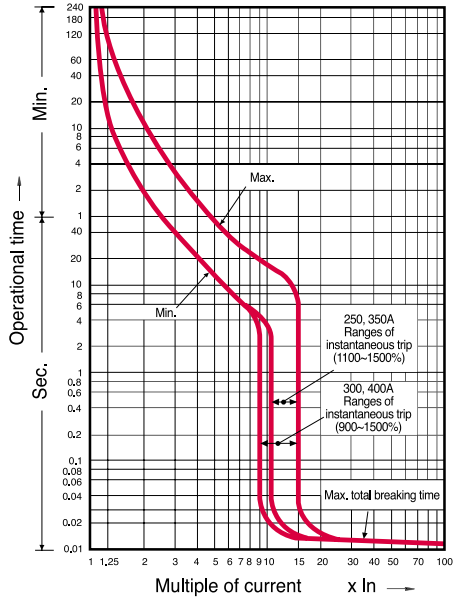
Compensation curves



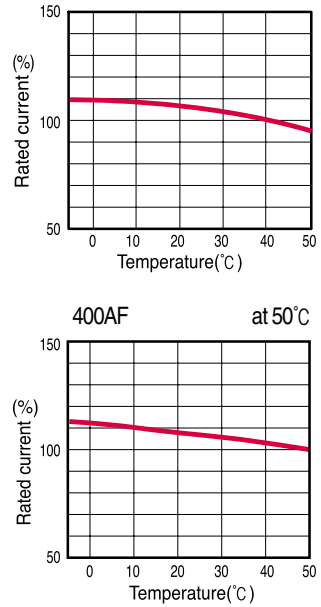


- ABE402b
- ABE403b
- ABE404b
- ABS402b
- ABS403b
- ABS404b
- ABH402b
- ABH403b
- ABH404b
- EBE403b
- EBS403b
- EBH403b
- EBL403b
- EBE404b
- EBS404b

Operating curves

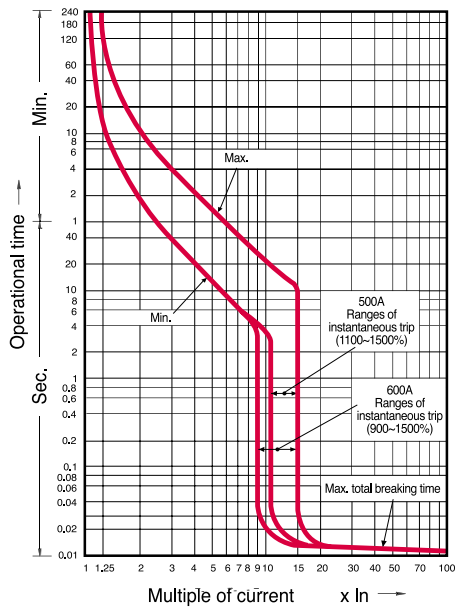


Compensation curves

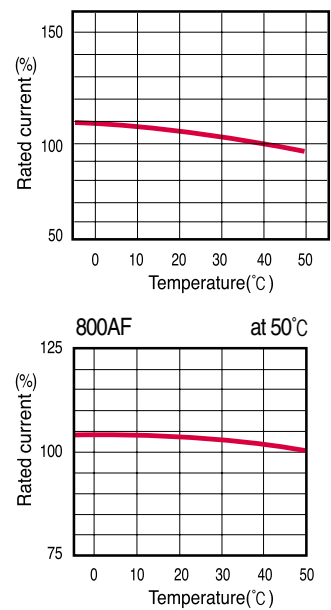


- ABE802b(500, 600A)
- ABE803b(500, 600A)
- ABE804b(500, 600A)
- ABS802b(500, 600A)
- ABS803b(500, 600A)
- ABS804b(500, 600A)
- ABL802b(500, 600A)
- ABL803b(500, 600A)
- ABL804b(500, 600A)
- EBE803b(500, 600A)
- EBS803b(500, 600A)
- EBL803b(500, 600A)

Operating curves



Compensation curves

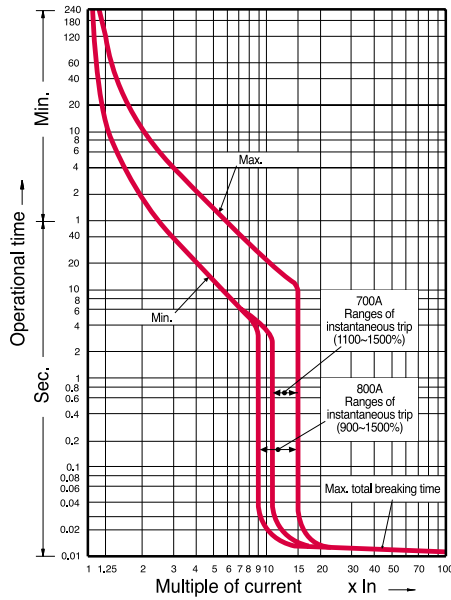


# Operating curves & temperature compensation

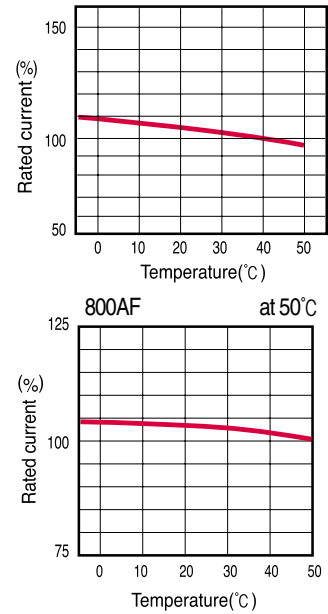
## AB type MCCBs

- ABE802b(700, 800A)
- ABE803b(700, 800A)
- ABE804b(700, 800A)
- ABS802b(700, 800A)
- ABS803b(700, 800A)
- ABS804b(700, 800A)
- ABL802b(700, 800A)
- ABL803b(700, 800A)
- ABL804b(700, 800A)
- EBE803b(700, 800A)
- EBS803b(700, 800A)
- EBL803b(700, 800A)

Operating curves

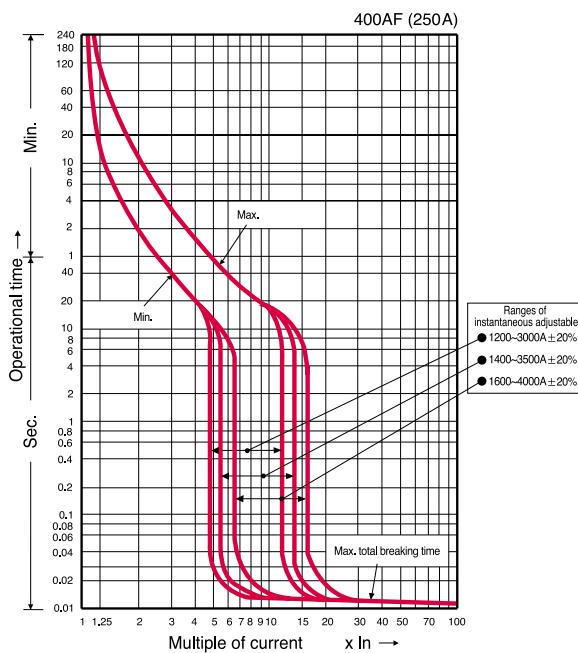


Compensation curves

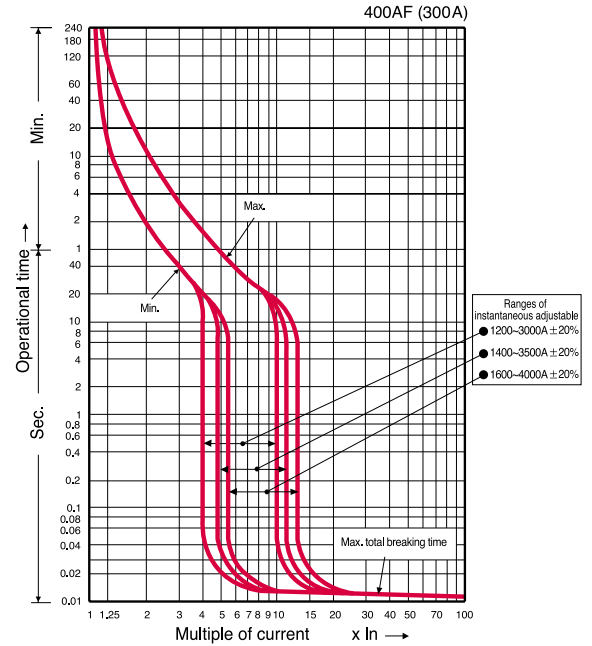


### ABL403bIN

Operating curves

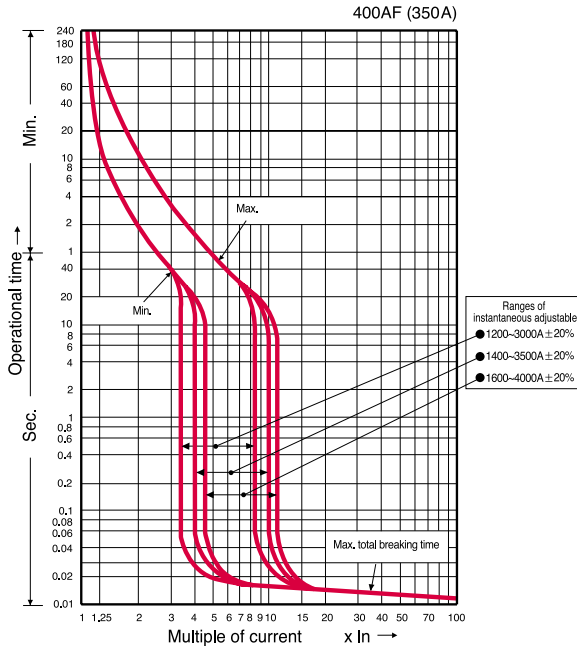


Operating curves

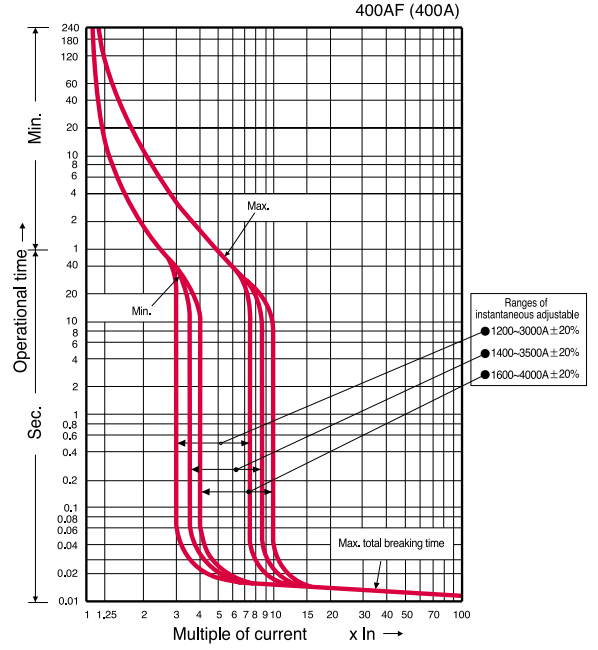


**ABL403bIN**

Operating curves

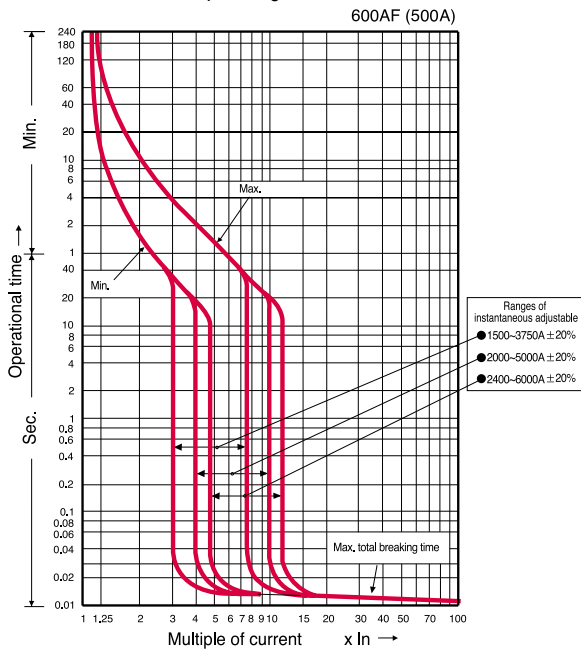


Operating curves

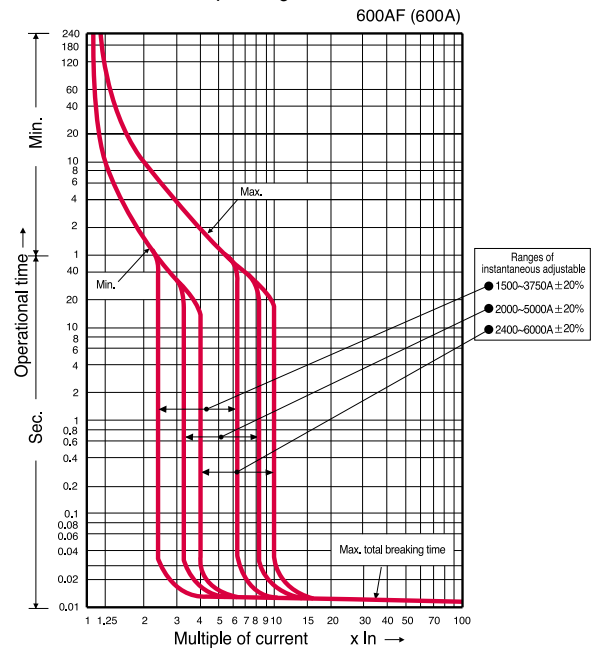


**ABL803bIN(500, 600A)**

Operating curves



Operating curves

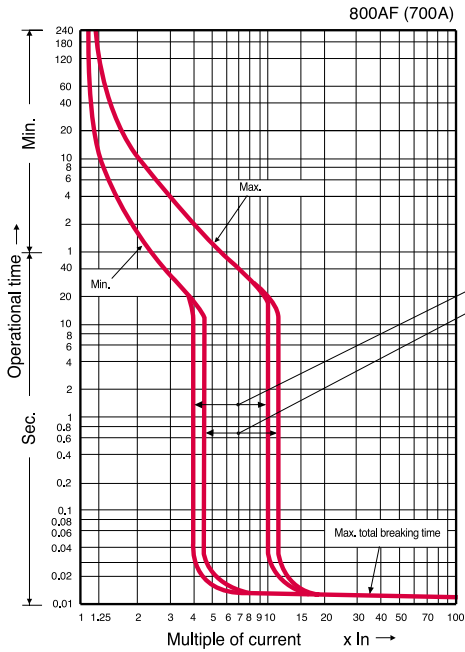


# Operating curves & temperature compensation

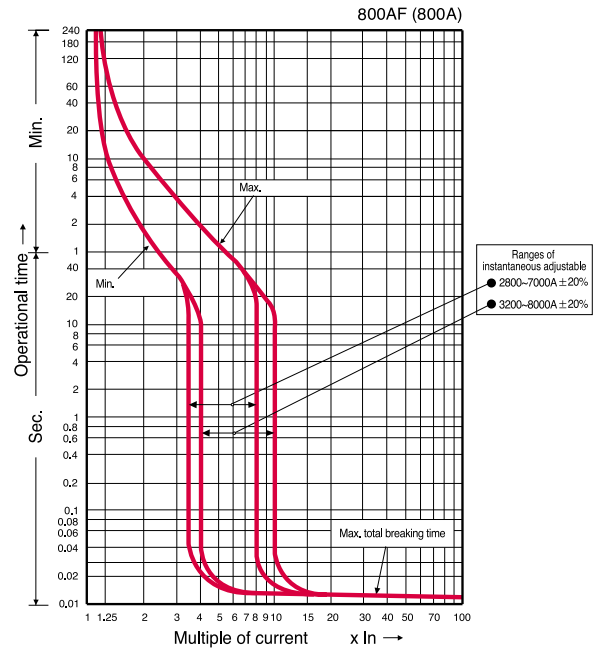
## AB type MCCBs

ABL803bIN(700, 800A)

Operating curves



Operating curves



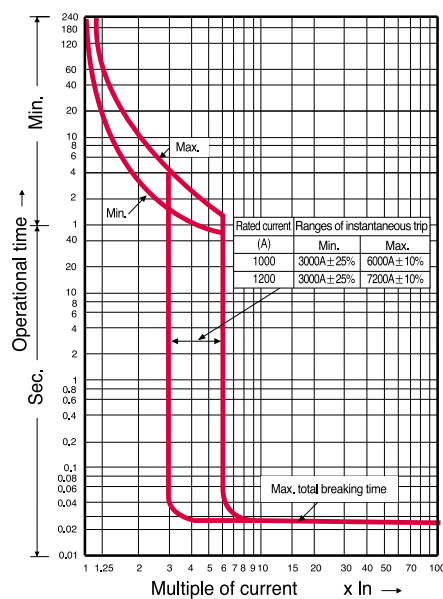
ABS1003

ABS1004

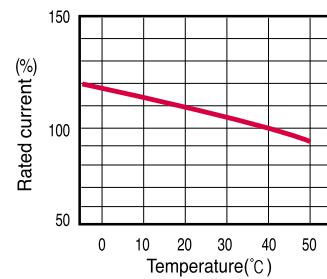
ABS1203

ABS1204

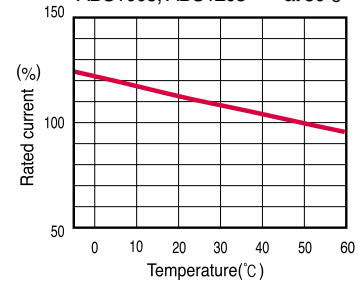
Operating curves



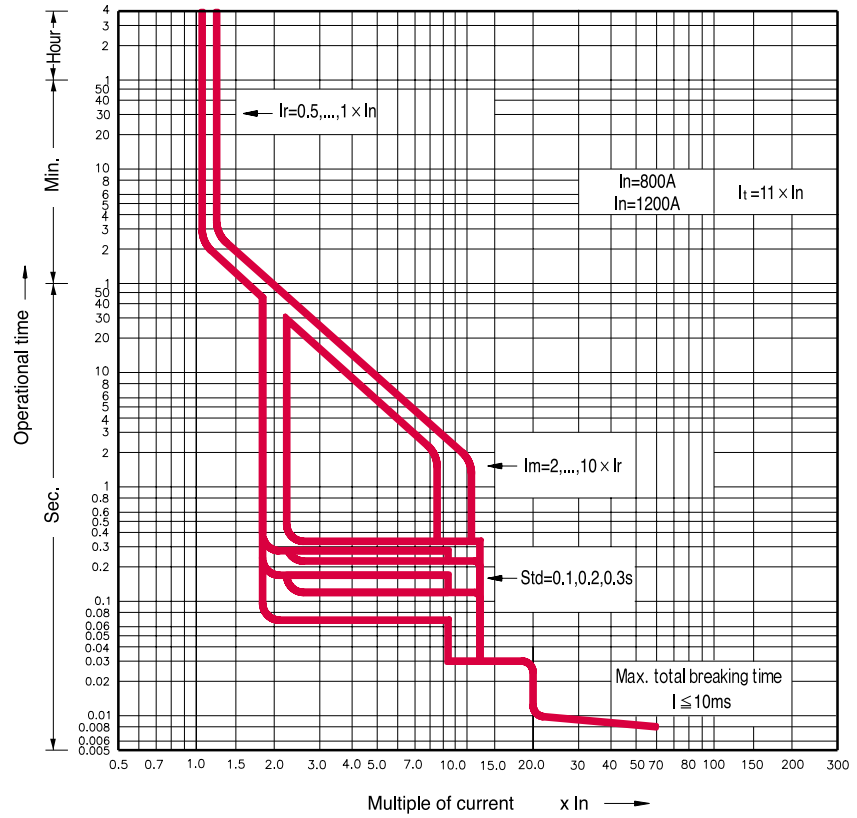
Compensation curves



ABS1003, ABS1203 at 50°C



Operating curves

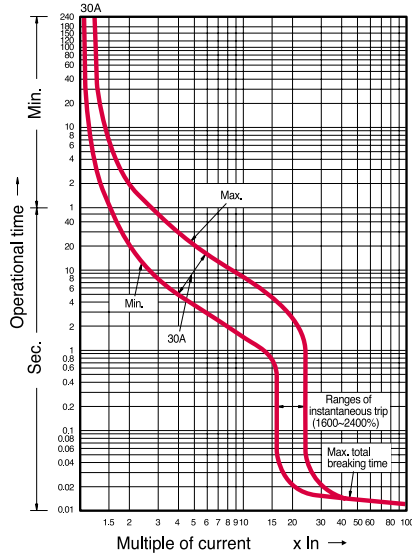


# Operating curves & temperature compensation

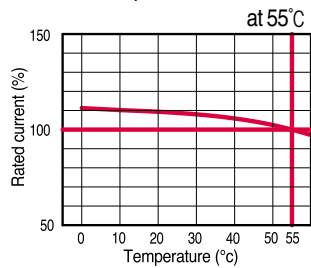
## Key lock type MCCB

### ABS103K(30A)

Operating curves

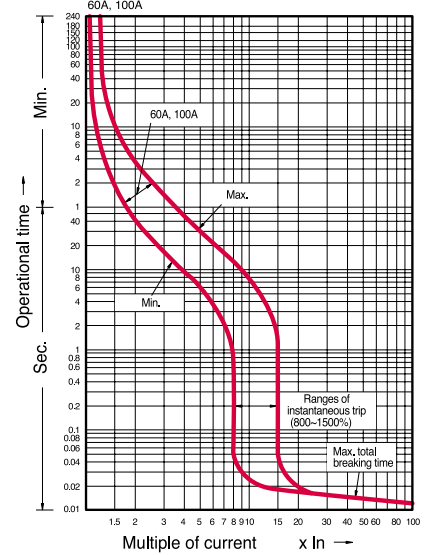


Compensation curves

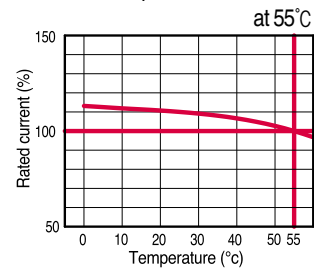


### ABS103K(60, 100A)

Operating curves

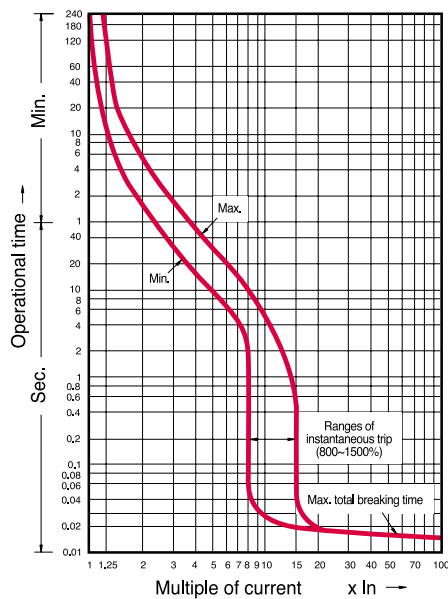


Compensation curves

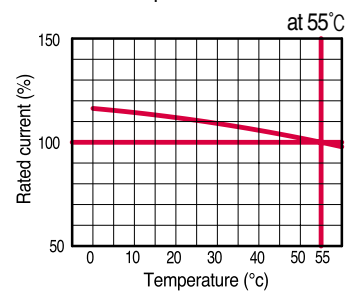


### ABS203k(150A)

Operating curves



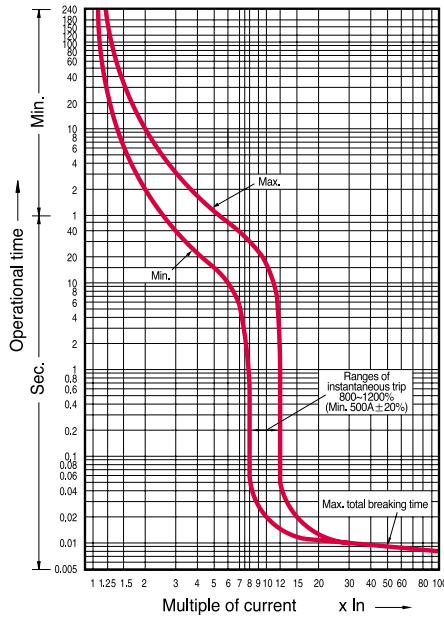
Compensation curves



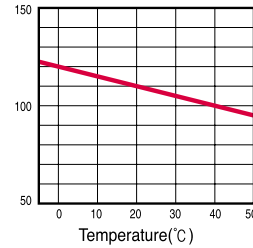
# GB type adjustable MCCBs

- GBH103
- GBN103

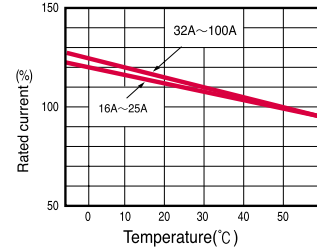
Operating curves



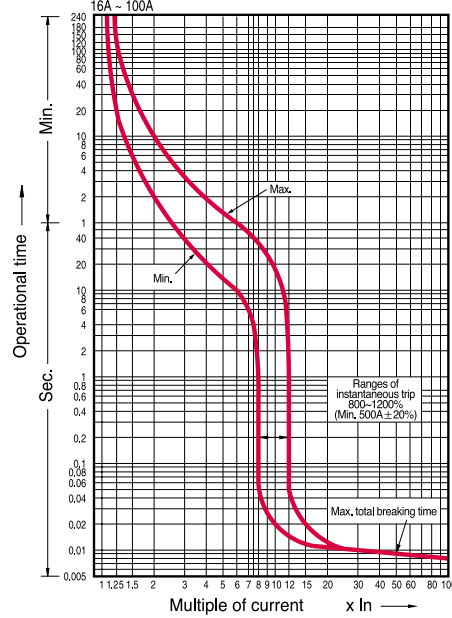
Compensation curves



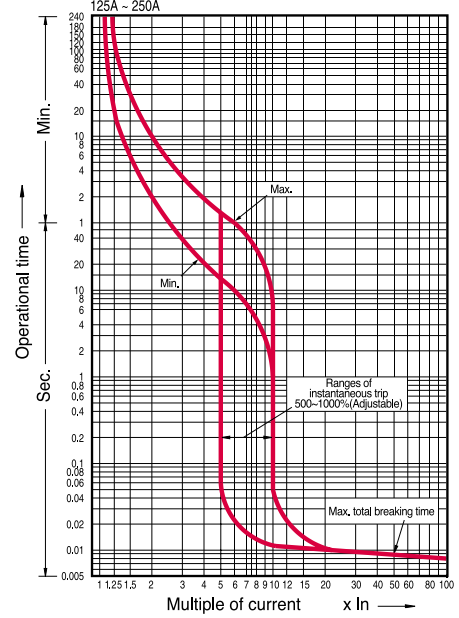
at 50°C



Operating curves

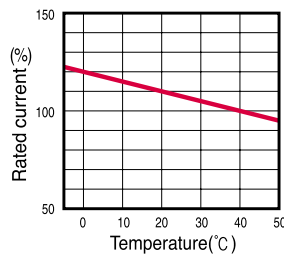


Operating curves

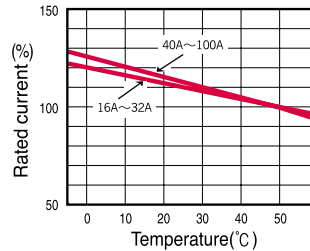


- GBH203
- GBL103
- GBL203
- GBN203

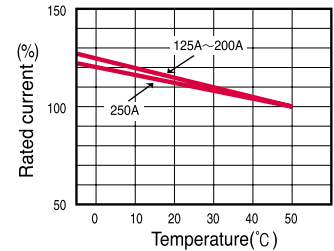
Compensation curves



16A~100A at 50°C



125A~250A at 50°C

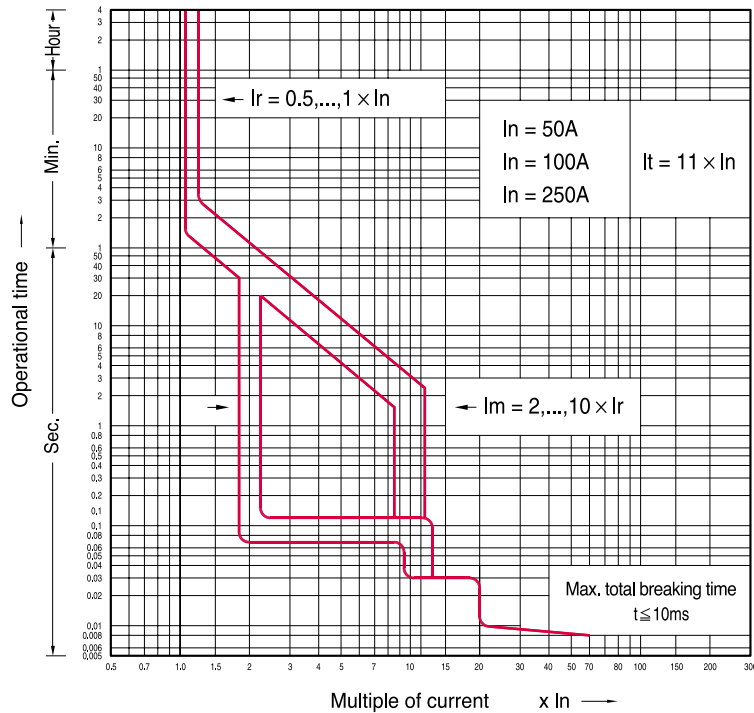


# Operating curves & temperature compensation

## GB type adjustable MCCBs (Electronic trip unit)

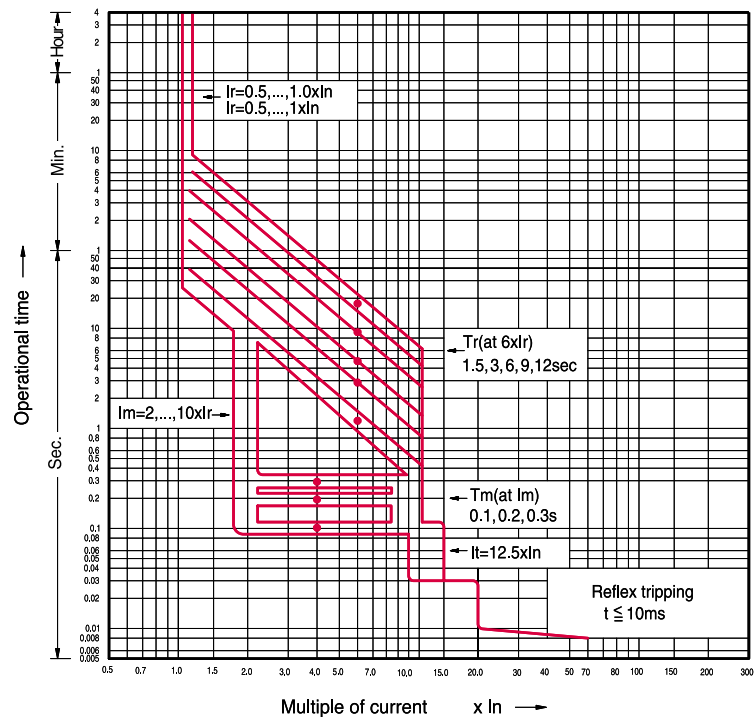
- GBL53E
- GBL103E
- GBL203E

Operating curves



- GBN403E
- GBH403E

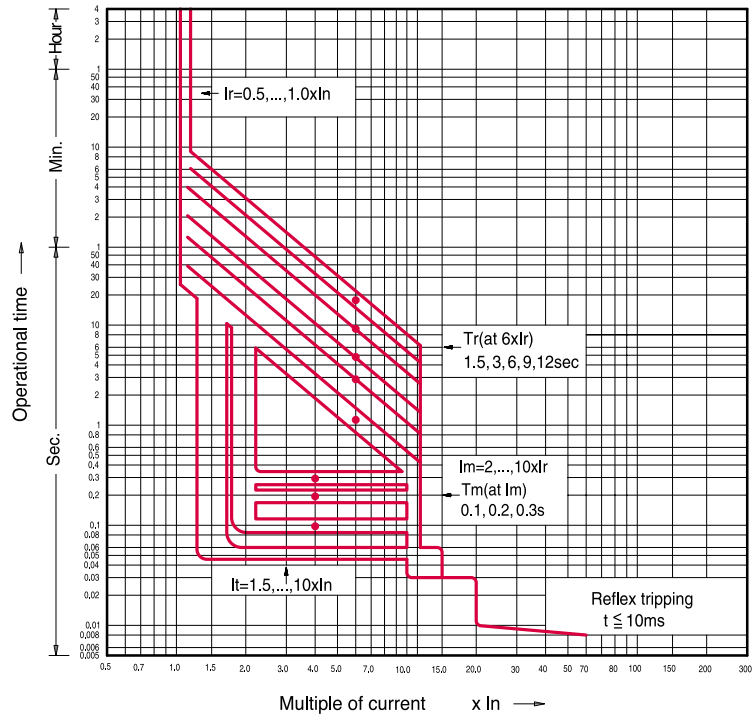
Operating curves





GBN803E  
GBH803E

Operating curves

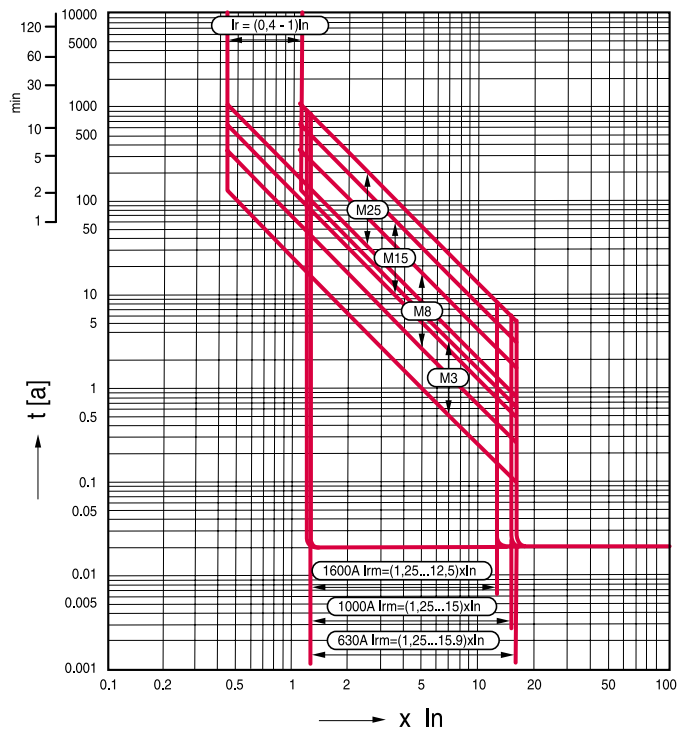


# Operating curves & temperature compensation

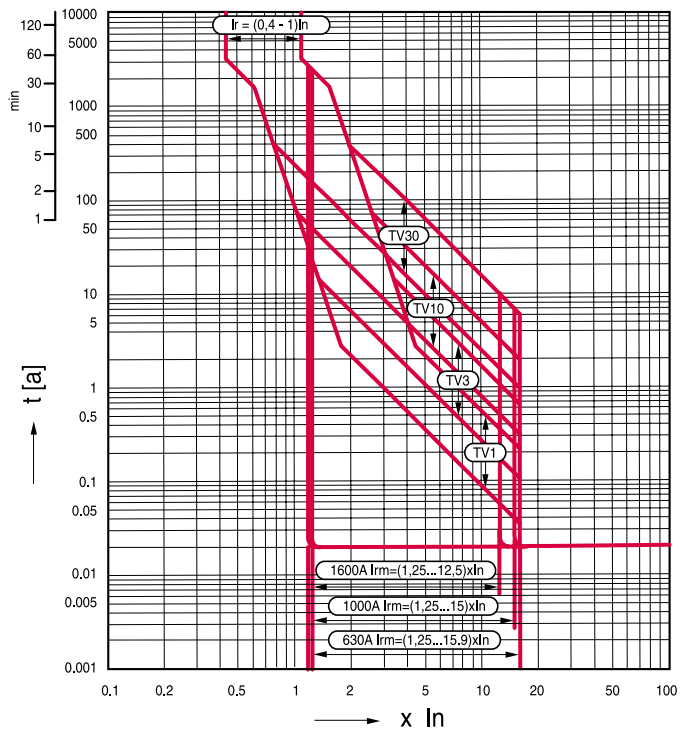
## GB type adjustable MCCBs (Electronic trip unit)

GBN1603E

Operating curves (M type)

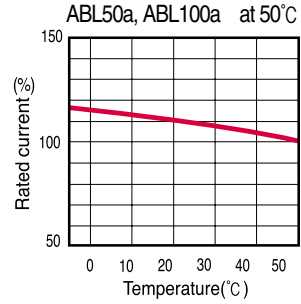
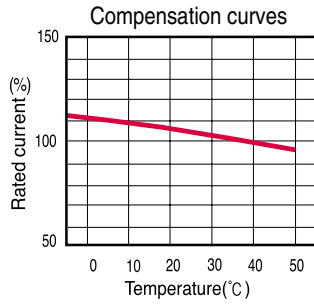
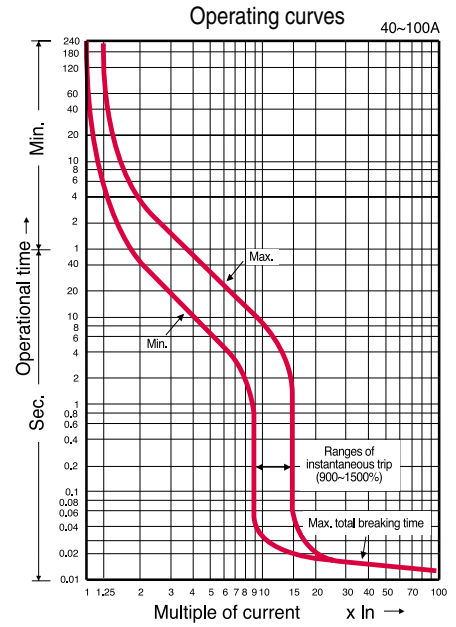
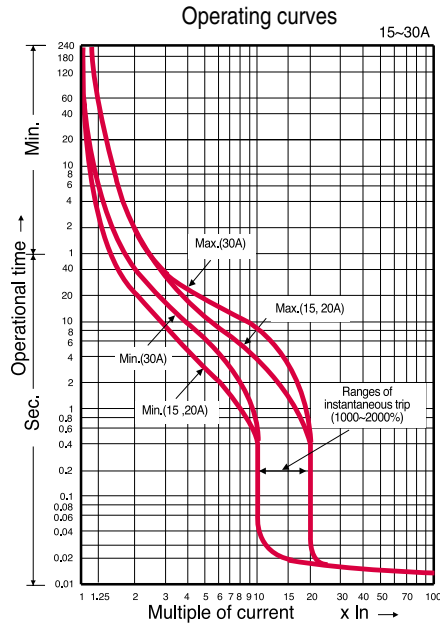


Operating curves (TV type)

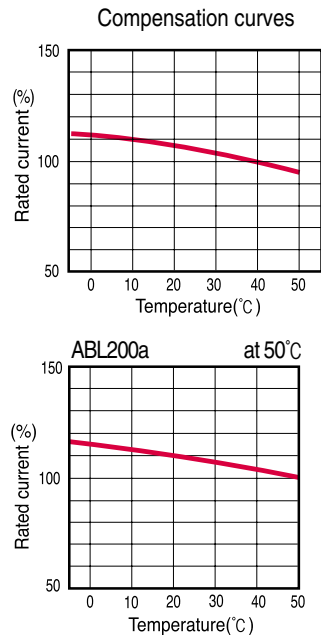
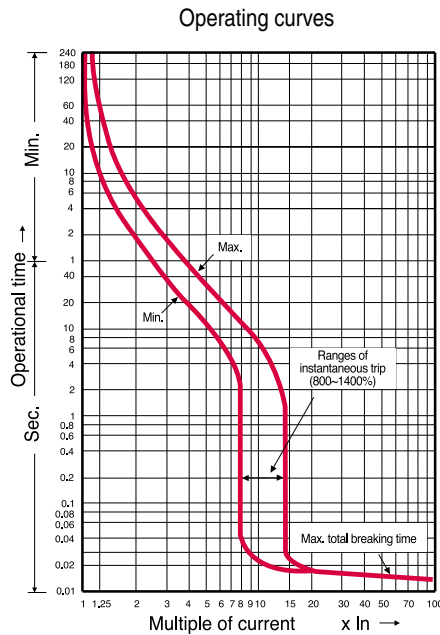


# Hi-MEC MCCBs

- ABL52a
- ABL53a
- ABL54a
- ABL102a
- ABL103a
- ABL104a



- ABL202a
- ABL203a
- ABL204a

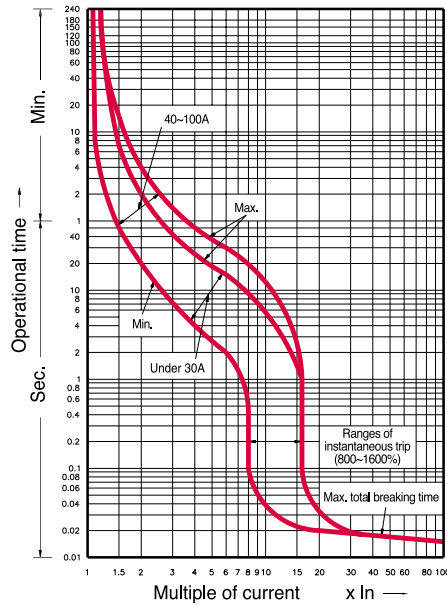


# Operating curves & temperature compensation

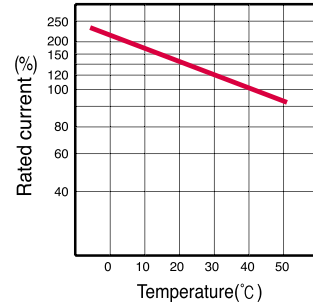
## Plug-in MCCBs

- ABE53b
- ABE63b
- ABS33b
- ABE103b
- ABS53b
- ABS63b
- ABH33b

Operating curves



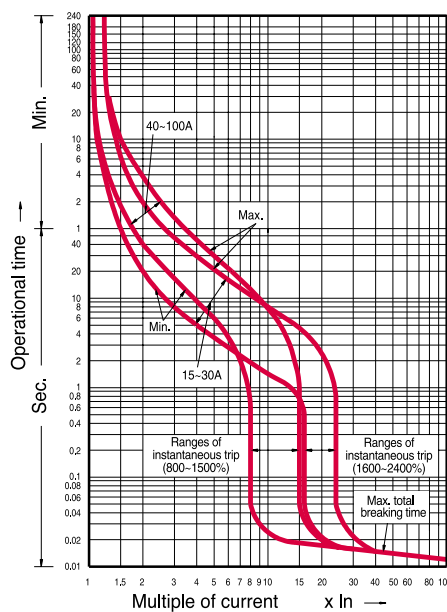
Compensation curves



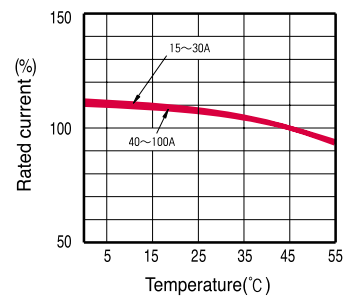
Rating (A)	Short-circuit current(A)
5	60±20
10	120±40
15	180±60
20	240±80
30	360±120
40	480±160
50	600±200
60	720±240
75	900±300
100	1200±400

- ABS103b
- ABH53b
- ABH103b

Operating curves



Compensation curves

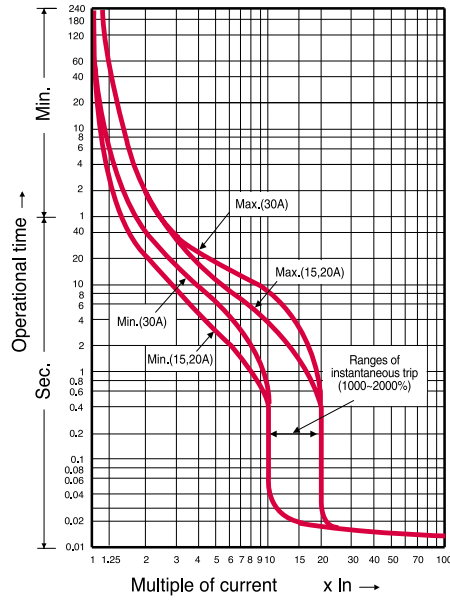


Rating (A)	Short-circuit current(A)
15	300±60
20	400±80
30	600±120
40	460±140
50	575±175
60	690±210
75	862.5±262.5
100	1150±350

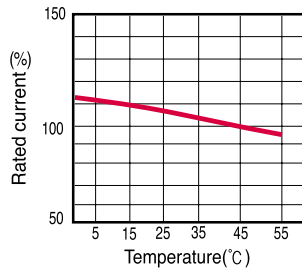
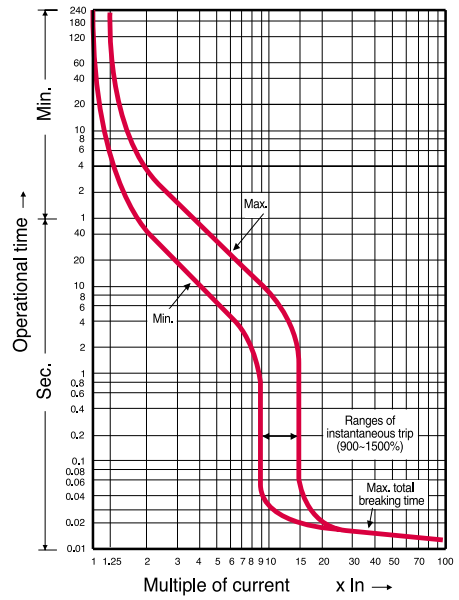
ABL53a

ABL103a

Operating curves



Compensation curves



Rating (A)	Short-circuit current(A)
15	225 ± 75
20	300 ± 100
30	450 ± 150
40	480 ± 120
50	600 ± 150
60	720 ± 180
75	900 ± 225
100	1200 ± 300

ABE203b

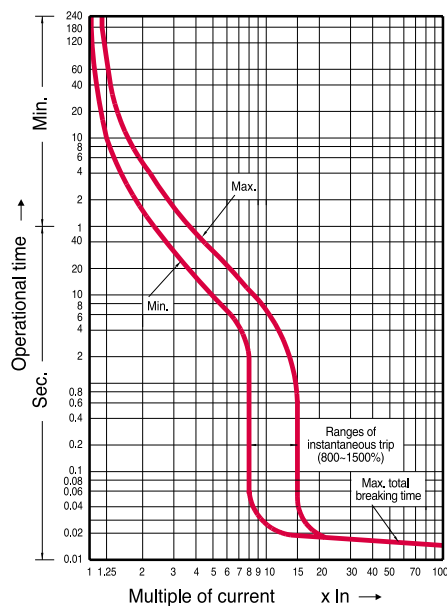
ABS203b

ABH203b

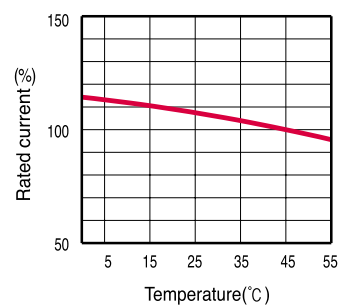
ABH203a

ABL203a

Operating curves



Compensation curves



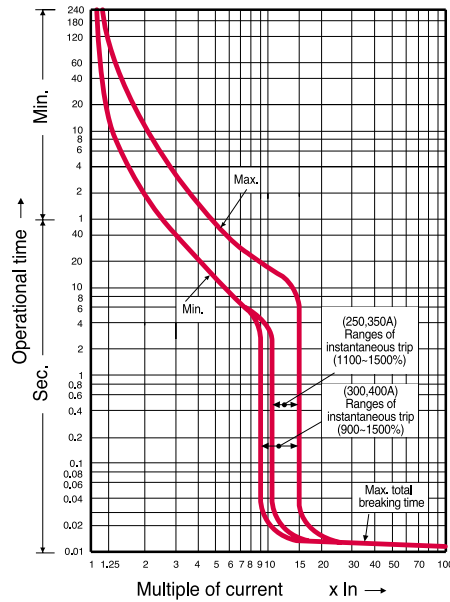
Rating (A)	Short-circuit current(A)
100	1150 ± 350
125	1437.5 ± 437.5
150	1725 ± 525
175	2012.5 ± 612.5
200	2300 ± 700
225	2587.5 ± 787.5

# Operating curves & temperature compensation

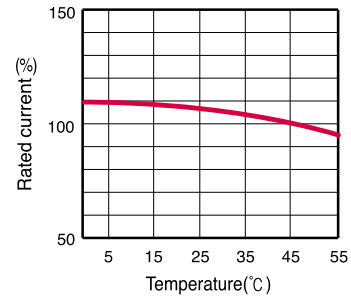
## Plug-in MCCBs

- ABE403b
- ABS403
- ABH403b
- ABL403b

Operating curves



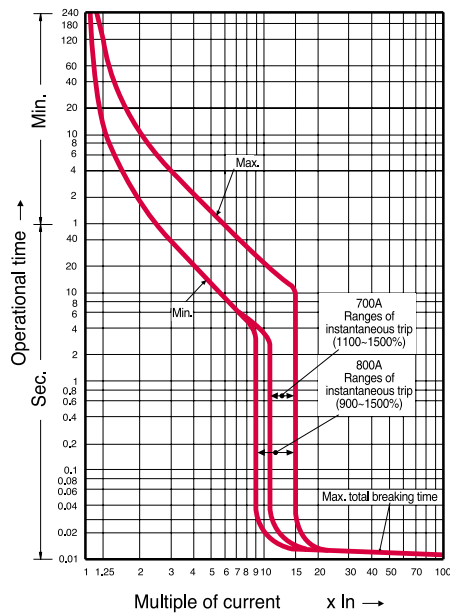
Compensation curves



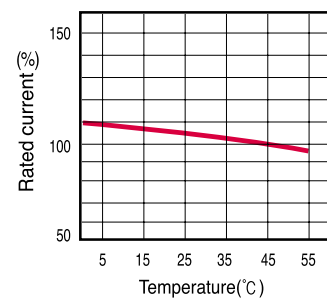
Rating (A)	Short-circuit current(A)
250	3250 ± 500
350	4550 ± 700
300	3600 ± 900
400	4800 ± 1200

- ABE803b
- ABS803b
- ABL803b

Operating curves



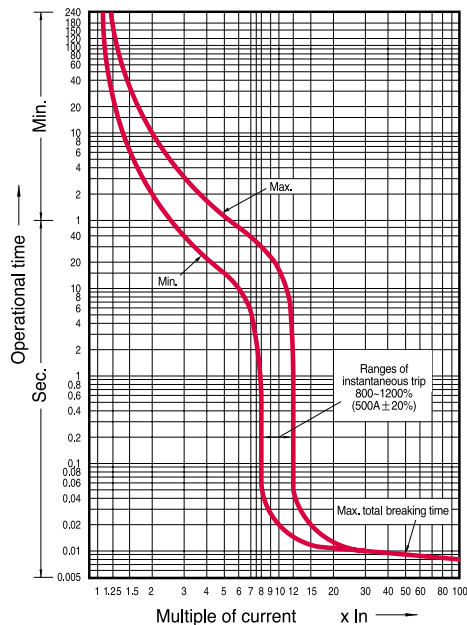
Compensation curves



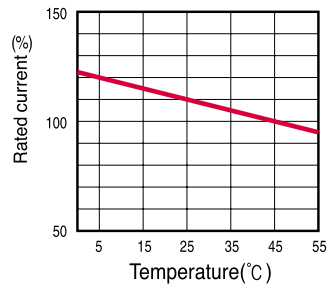
Rating (A)	Short-circuit current(A)
700	9100 ± 1400
800	9600 ± 2400

- GBN53
- GBN103
- GBH53
- GBH103

Operating curves



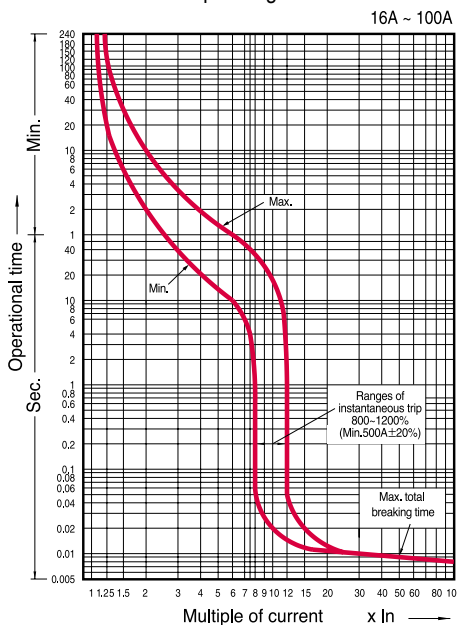
Compensation curves



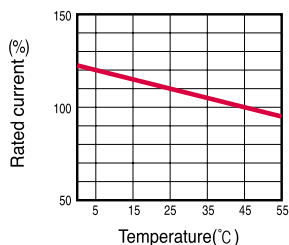
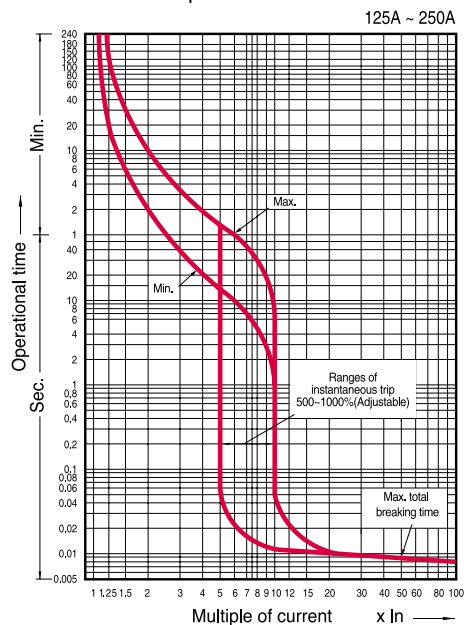
Rating (A)	Short-circuit current(A)
16	160 ± 32
20	200 ± 40
25	250 ± 50
32	320 ± 64
40	400 ± 80
50	500 ± 100
63	630 ± 126
80	800 ± 160
100	1000 ± 200

- GBL53
- GBL103
- GBN203
- GBH203
- GBL203

Operating curves



Compensation curves



Rating (A)	Short-circuit current(A)
16	160 ± 32
20	200 ± 40
25	250 ± 50
32	320 ± 64
40	400 ± 80
50	500 ± 100
63	630 ± 126
80	800 ± 160
100	1000 ± 200

# Operating curves & temperature compensation

## Table of the temperature compensation

### ● ABH53b, ABH63b, ABH103b, ABS103b

Ambient temperature : 40 °C				Ambient temperature : 50 °C			
Temperature	Rated current		Remark	Temperature	Rated current		Remark
	15~30A	40~100A			15~30A	40~100A	
-5 °C	111.9 %	110.2 %		-5 °C	113.1 %	111.2 %	
0 °C	111.3 %	109.8 %		0 °C	112.5 %	110.7 %	
10 °C	110.0 %	108.7 %		10 °C	111.3 %	109.8 %	
20 °C	108.0 %	107.0 %		20 °C	110.0 %	108.7 %	
25 °C	106.6 %	105.8 %		25 °C	109.1 %	108.0 %	
30 °C	104.9 %	104.3 %		30 °C	108.0 %	107.0 %	
35 °C	102.7 %	102.4 %		35 °C	106.6 %	105.8 %	
40 °C	100.0 %	100.0 %	Ambient temperature	40 °C	104.9 %	104.3 %	
45 °C	96.8 %	97.2 %		45 °C	102.7 %	102.4 %	
50 °C	93.3 %	94.0 %		50 °C	100.0 %	100.0 %	Ambient temperature

### ● ABE203b, ABS203b, ABH203b

Ambient temperature : 40 °C			Ambient temperature : 50 °C				
Temperature	Rated current		Remark	Temperature	Rated current		Remark
	100~225A				100~225A		
-5 °C	114.3 %			-5 °C	116.3 %		
0 °C	113.2 %			0 °C	115.4 %		
10 °C	110.6 %			10 °C	113.2 %		
20 °C	107.5 %			20 °C	110.6 %		
25 °C	105.8 %			25 °C	109.1 %		
30 °C	104.0 %			30 °C	107.5 %		
35 °C	102.0 %			35 °C	105.8 %		
40 °C	100.0 %		Ambient temperature	40 °C	104.0 %		
45 °C	97.9 %			45 °C	102.0 %		
50 °C	95.6 %			50 °C	100.0 %		Ambient temperature

### ● GB-type MCCB

Ambient temperature : 40 °C							
Temperature	GBN/H/L 103 GBN/H/L 203				Remark		
10 °C	115.0 %						
15 °C	112.5 %						
20 °C	110.0 %						
25 °C	107.5 %						
30 °C	105.0 %						
35 °C	102.5 %						
36 °C	102.0 %						
37 °C	101.5 %						
38 °C	101.0 %						
39 °C	100.5 %						
40 °C	100.0 %				Ambient temperature		
Ambient temperature : 50 °C							
Temperature	GBN/H 103		GBL 103		GBN/H/ 203		Remark
	Rated current		Rated current		Rated current		
	16~25A	32~100A	16~32A	40~100A	125~200A	250A	
-5 °C	122 %	128 %	120 %	128 %	128 %	120 %	
0 °C	120 %	125 %	120 %	125 %	125 %	120 %	
10 °C	116 %	120 %	116 %	120 %	120 %	116 %	
20 °C	112 %	115 %	112 %	115 %	115 %	112 %	
25 °C	110 %	113 %	110 %	113 %	113 %	110 %	
30 °C	108 %	110 %	108 %	110 %	110 %	108 %	
35 °C	106 %	108 %	106 %	108 %	108 %	106 %	
40 °C	104 %	105 %	104 %	105 %	105 %	104 %	
45 °C	102 %	103 %	102 %	103 %	103 %	102 %	
50 °C	100 %	100 %	100 %	100 %	100 %	100 %	Ambient temperature



● ABE400b, ABS400b, ABH400b, ABL400b

Ambient temperature : 40 °C			Ambient temperature : 50 °C		
Temperature	Rated current	Remark	Temperature	Rated current	Remark
-5 °C	110.0 %		-5 °C	113.0 %	
0 °C	109.0 %		0 °C	112.0 %	
10 °C	107.0 %		10 °C	110.0 %	
20 °C	105.0 %		20 °C	108.0 %	
25 °C	104.0 %		25 °C	107.0 %	
30 °C	103.0 %		30 °C	106.0 %	
35 °C	101.5 %		35 °C	104.5 %	
40 °C	100.0 %	Ambient temperature	40 °C	103.0 %	
45 °C	98.5 %		45 °C	101.5 %	
50 °C	97.0 %		50 °C	100.0 %	Ambient temperature

● ABE800b, ABS800b, ABL800b

Ambient temperature : 40 °C			Ambient temperature : 50 °C		
Temperature	Rated current	Remark	Temperature	Rated current	Remark
-5 °C	110.0 %		-5 °C	113.0 %	
0 °C	109.0 %		0 °C	112.0 %	
10 °C	107.0 %		10 °C	110.0 %	
20 °C	105.0 %		20 °C	108.0 %	
25 °C	104.0 %		25 °C	107.0 %	
30 °C	103.0 %		30 °C	106.0 %	
35 °C	101.5 %		35 °C	104.5 %	
40 °C	100.0 %	Ambient temperature	40 °C	103.0 %	
45 °C	98.5 %		45 °C	101.5 %	
50 °C	97.0 %		50 °C	100.0 %	Ambient temperature

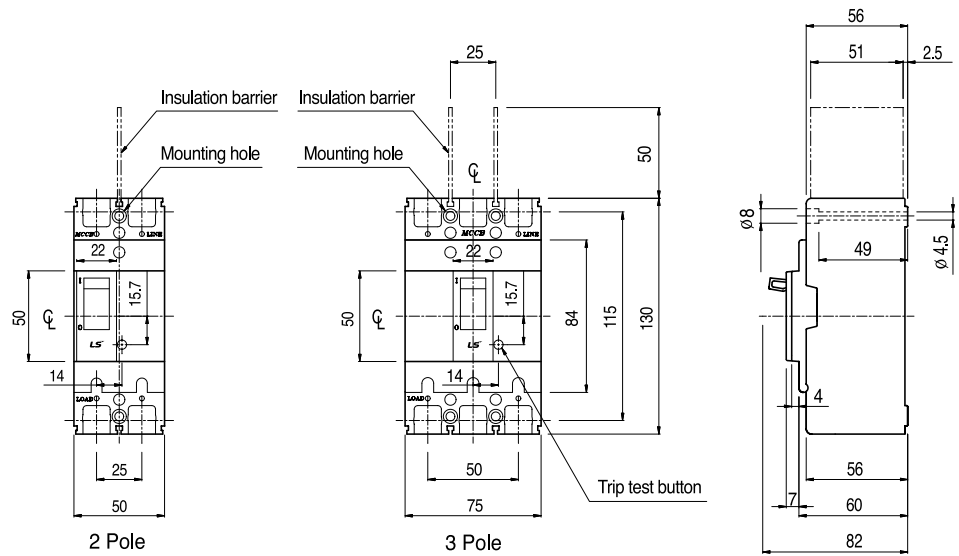
● Key lock MCCB(Ambient temperature : 55 °C )

Temperature	ABS103K	ABS103K	ABS203K	Remark
	30A	60A~100A	150A	
0 °C	113.1 %	111.2 %	116.3 %	
10 °C	111.9 %	110.2 %	114.3 %	
20 °C	110.7 %	109.3 %	111.9 %	
25 °C	110.0 %	108.7 %	110.6 %	
30 °C	109.1 %	108.0 %	109.1 %	
35 °C	108.0 %	107.0 %	107.5 %	
40 °C	106.6 %	105.8 %	105.8 %	
45 °C	104.9 %	104.3 %	104.0 %	
50 °C	102.7 %	102.4 %	102.0 %	
55 °C	100.0 %	100.0 %	100.0 %	Ambient temperature

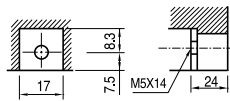
# Overall dimensions

## AB type MCCBs

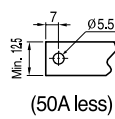
- ABE52b
- ABE53b
- ABE62b
- ABE63b
- ABS32b
- ABS33b



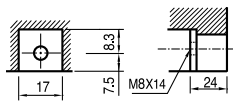
Detailed terminal



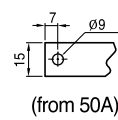
Hole size of a conductor



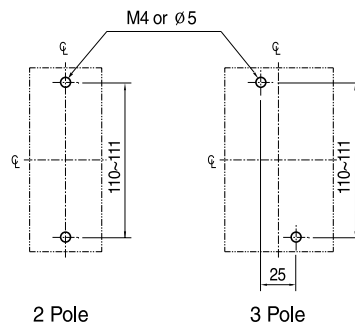
Detailed terminal



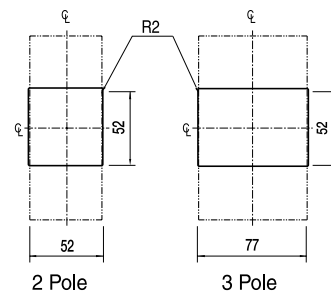
Hole size of a conductor



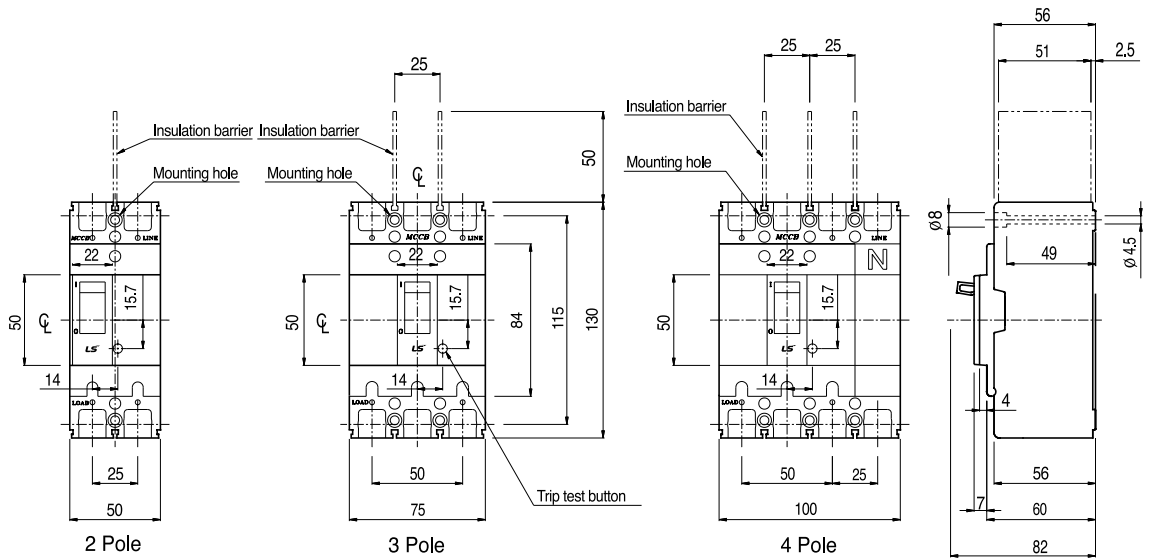
Mounting



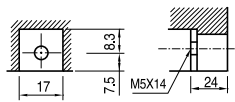
Slot



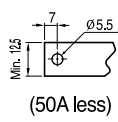
- ABE102b
- ABE103b
- ABS52b
- ABS53b
- ABS54b
- ABS62b
- ABS63b
- ABS64b
- ABH32b
- ABH33b



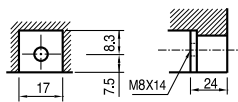
Detailed terminal



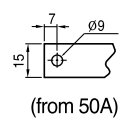
Hole size of a conductor



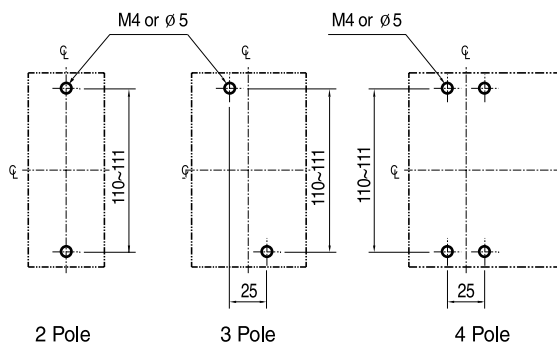
Detailed terminal



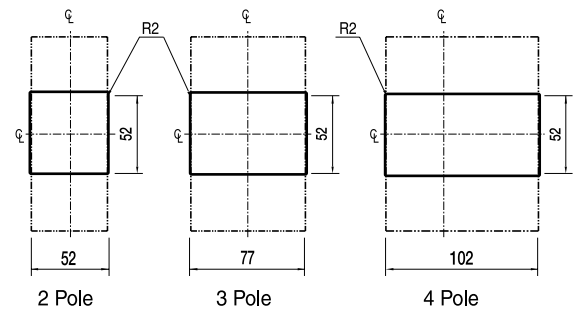
Hole size of a conductor



Mounting



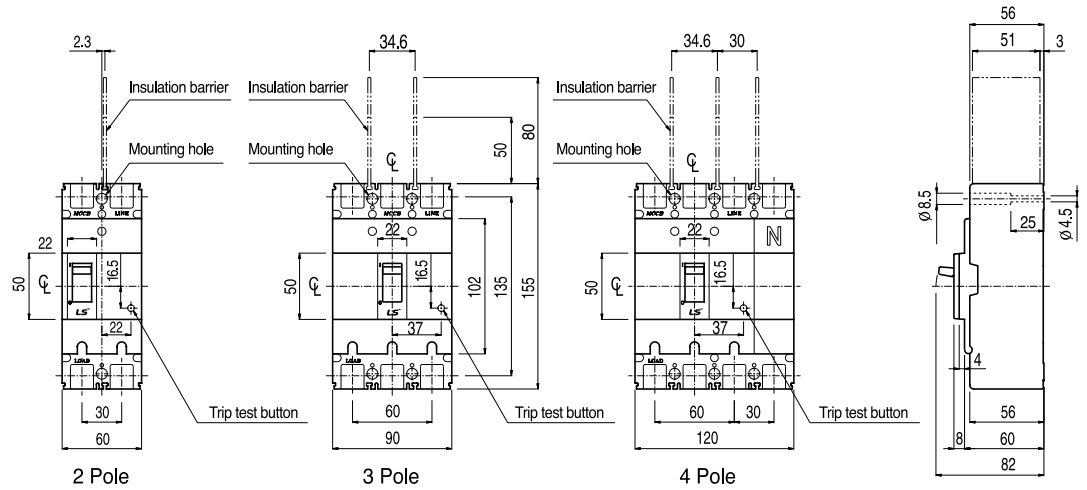
Slot



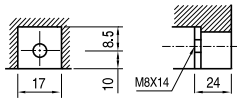
# Overall dimensions

## AB type MCCBs

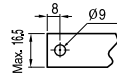
- ABS102b
- ABS103b
- ABS104b
- ABH52b
- ABH53b
- ABH102b
- ABH103b
- ABH104b



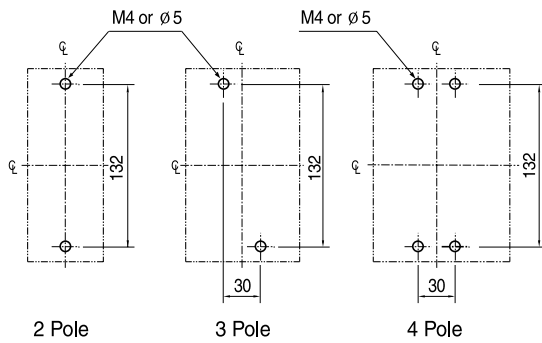
Detailed terminal



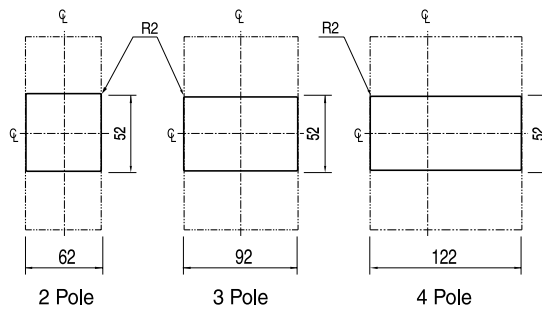
Hole size of a conductor



Mounting

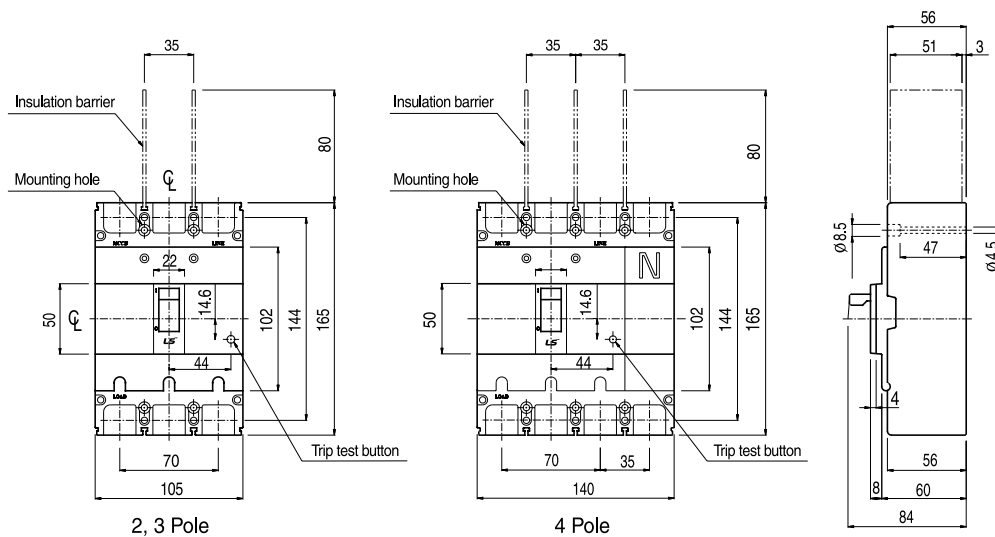


Slot

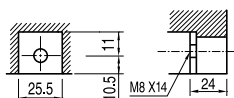


# AB type adjustable MCCBs

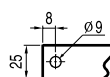
- ABE202b
- ABE203b
- ABE204b
- ABS202b
- ABS203b
- ABS204b
- ABH202b
- ABH203b
- ABH204b



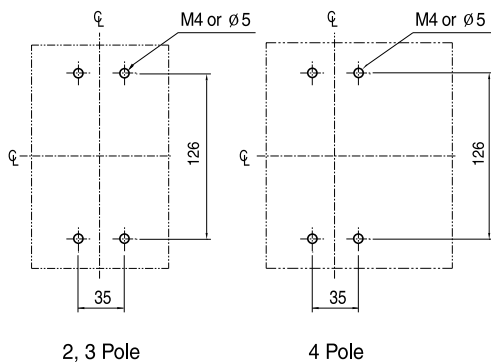
Detailed terminal



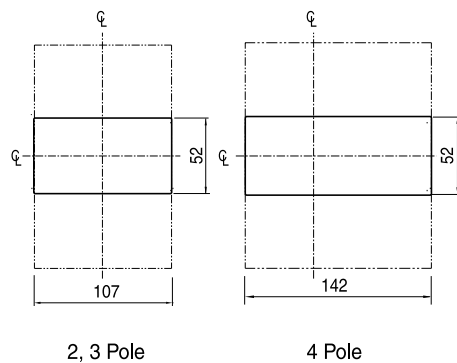
Hole size of a conductor



Mounting



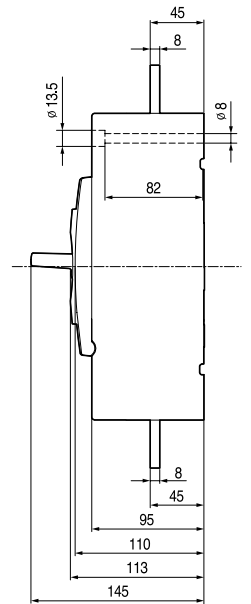
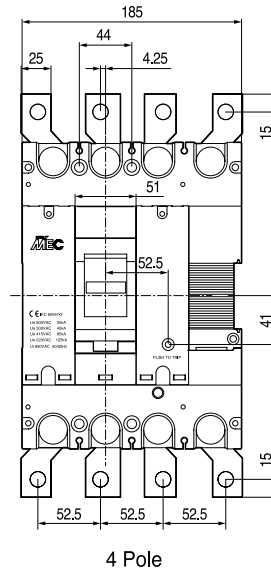
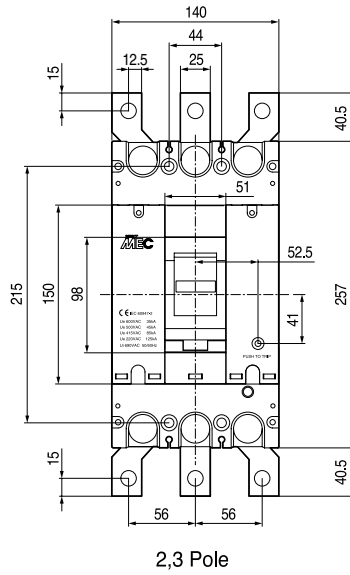
Slot



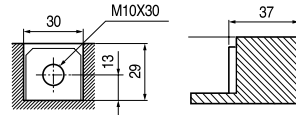
# Overall dimensions

## AB type adjustable MCCBs

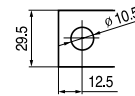
- ABE402b
- ABE403b
- ABE404b
- ABS402b
- ABS403b
- ABS404b
- ABH402b
- ABH403b
- ABH404b
- ABL402b
- ABL403b
- ABL404b



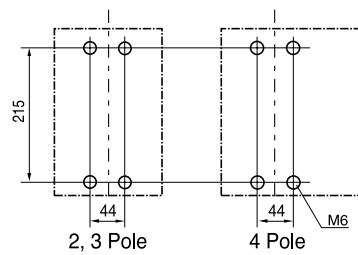
Detailed terminal



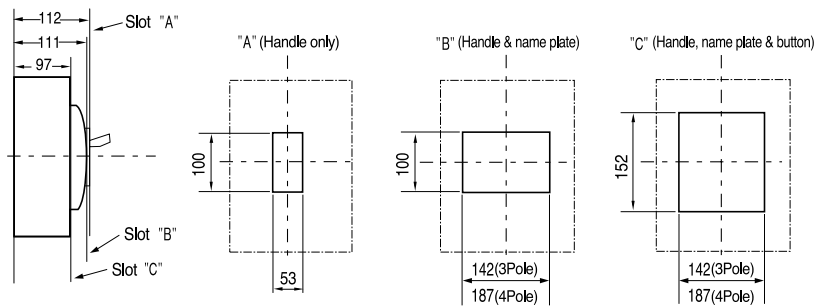
Hole size of a conductor



Mounting

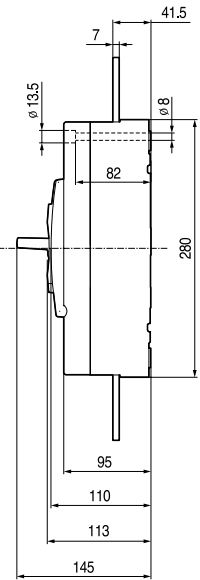
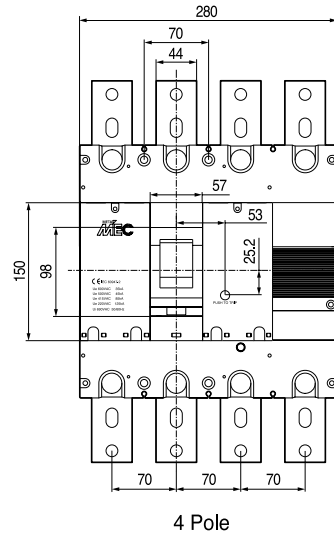
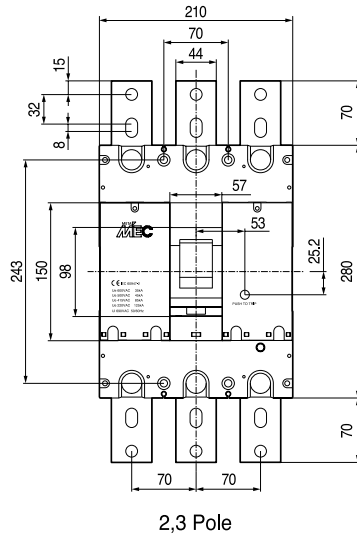


Slot

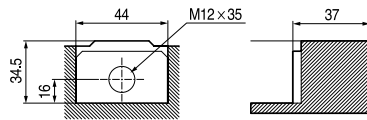


# AB type MCCBs

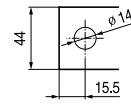
- ABE802b(500, 600A)
- ABE803b(500, 600A)
- ABE804b(500, 600A)
- ABS802b(500, 600A)
- ABS803b(500, 600A)
- ABS804b(500, 600A)
- ABL802b(500, 600A)
- ABL803b(500, 600A)
- ABL804b(500, 600A)



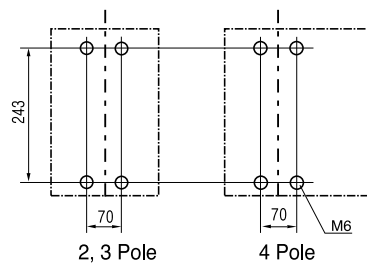
Detailed terminal



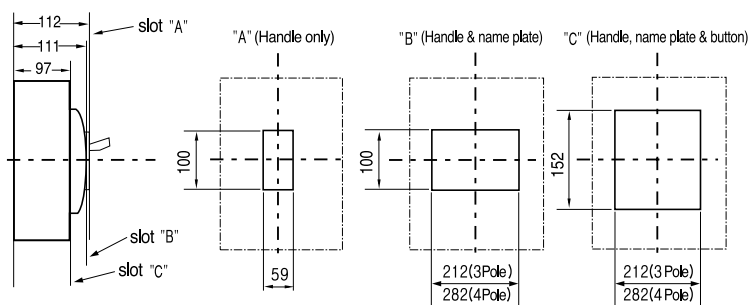
Hole size of a conductor



Mounting



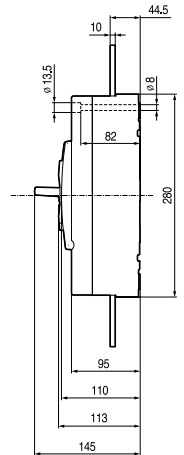
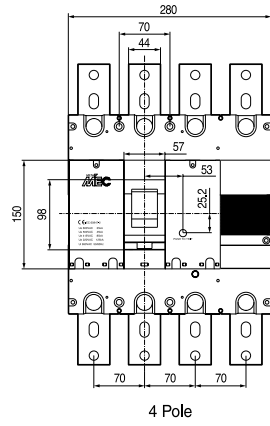
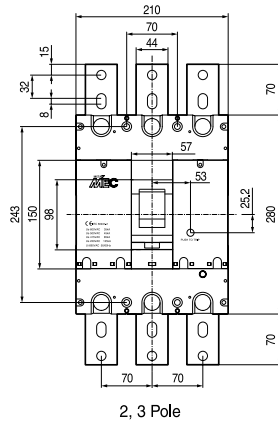
Slot



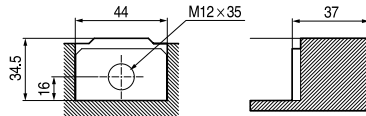
# Overall dimensions

## AB type MCCBs

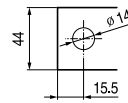
- ABE802b(700, 800A)
- ABE803b(700, 800A)
- ABE804b(700, 800A)
- ABS802b(700, 800A)
- ABS803b(700, 800A)
- ABS804b(700, 800A)
- ABL802b(700, 800A)
- ABL803b(700, 800A)
- ABL804b(700, 800A)



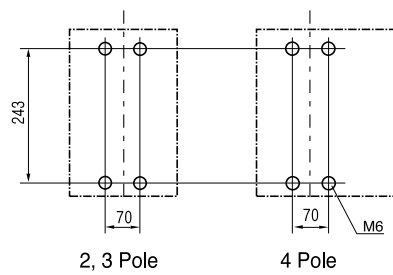
Detailed terminal



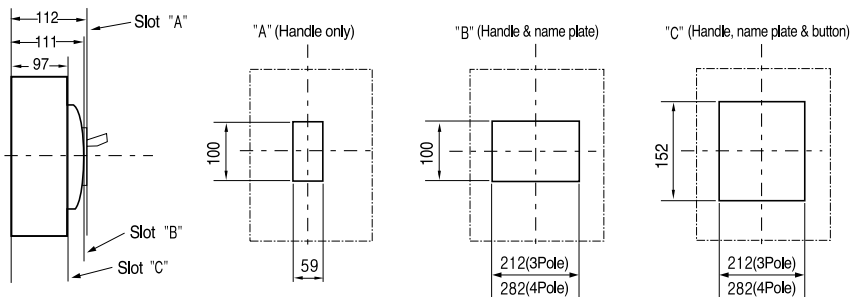
Hole size of a conductor



Mounting

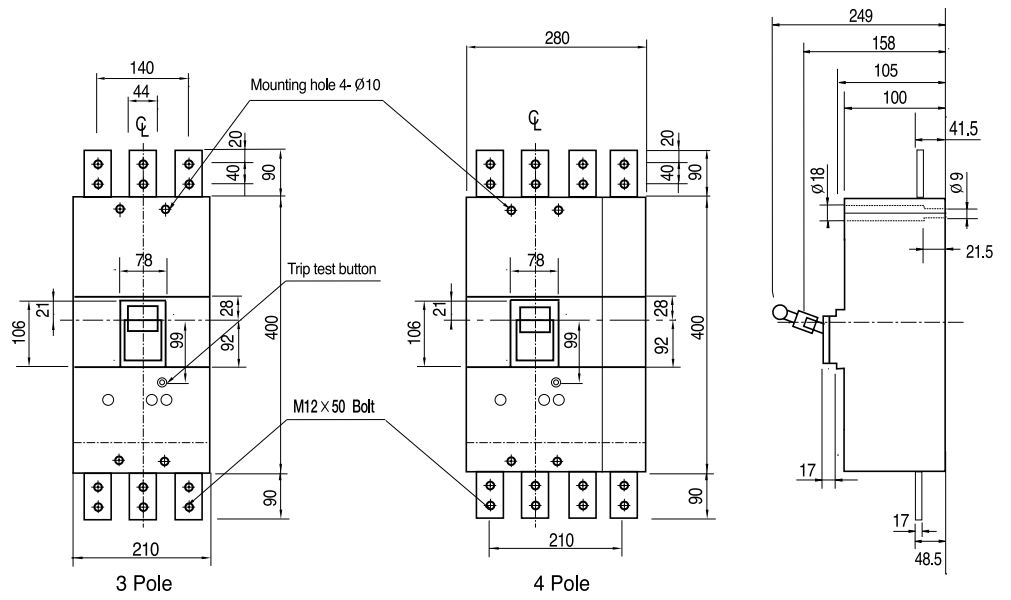


Slot

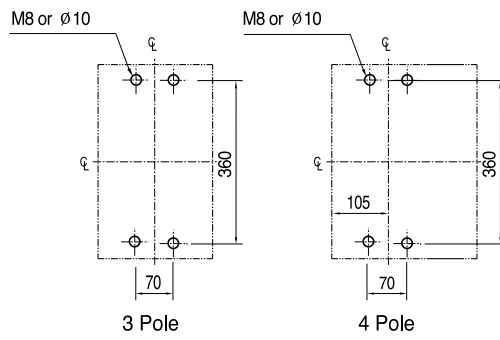




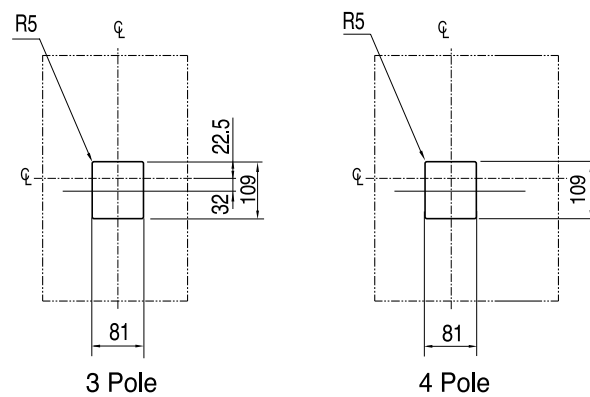
- ABS1003
- ABS1004
- ABS1203
- ABS1204



Mounting



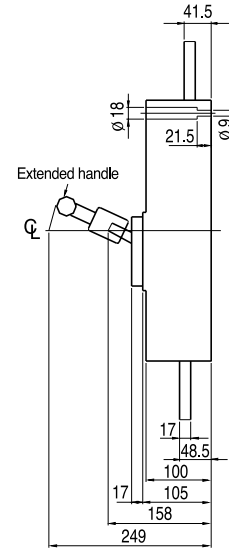
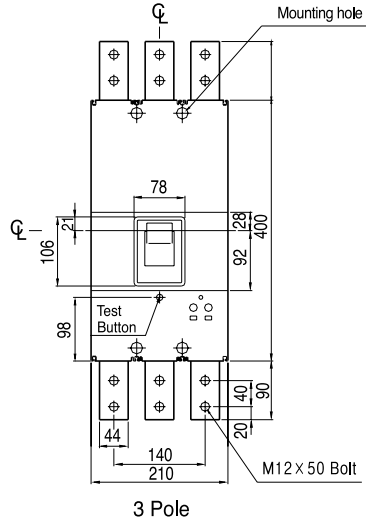
Slot



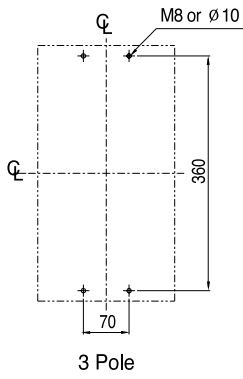
# Overall dimensions

## AB type MCCBs

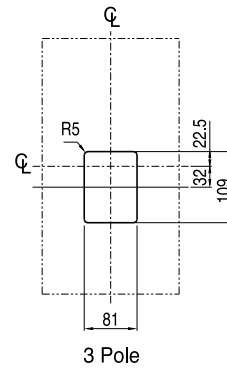
ABS1203E



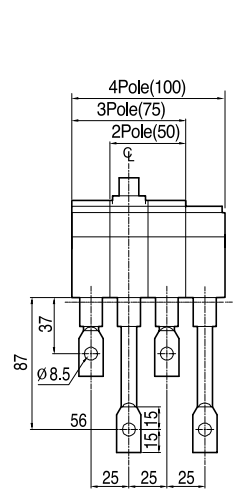
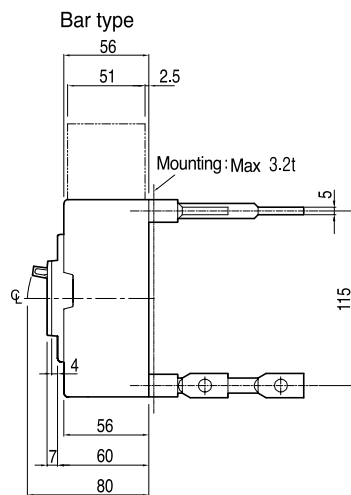
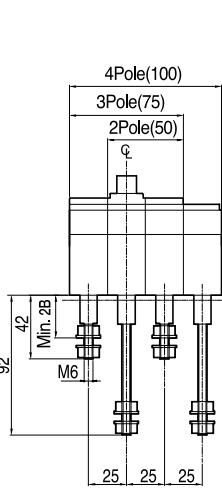
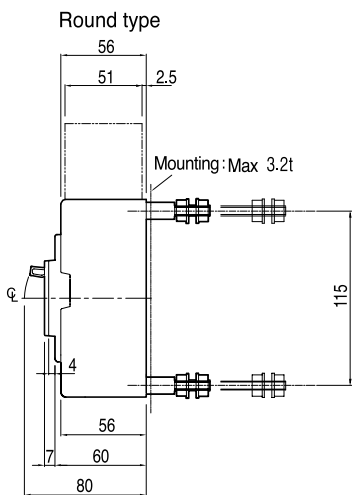
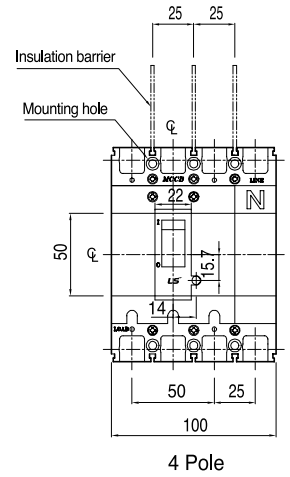
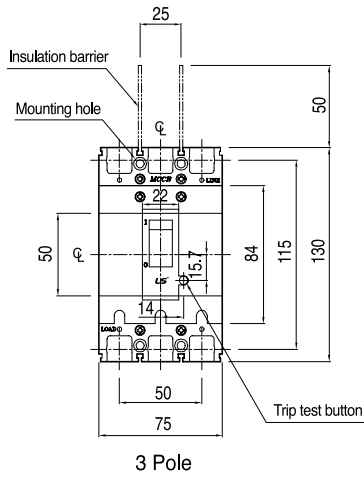
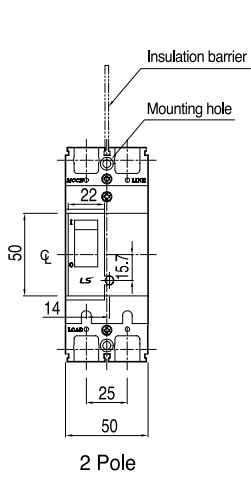
Mounting



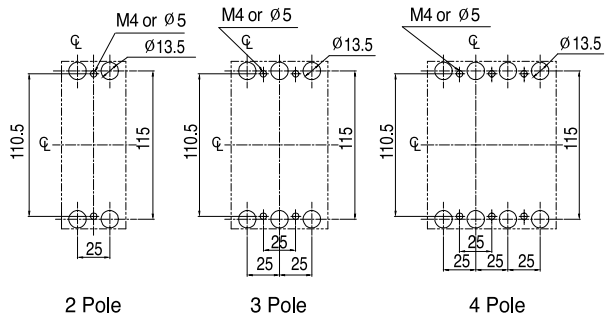
Slot



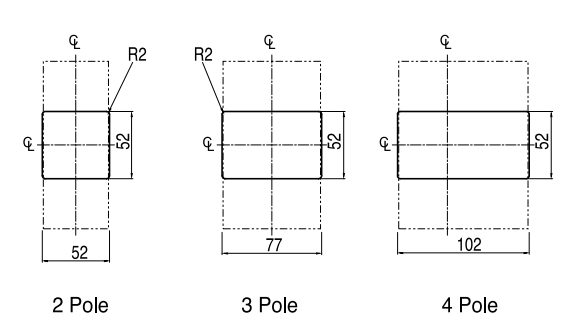
- ABS30bX
- ABH30bX
- ABE50bX
- ABS50bX
- ABE100bX(3-50A)



Mounting



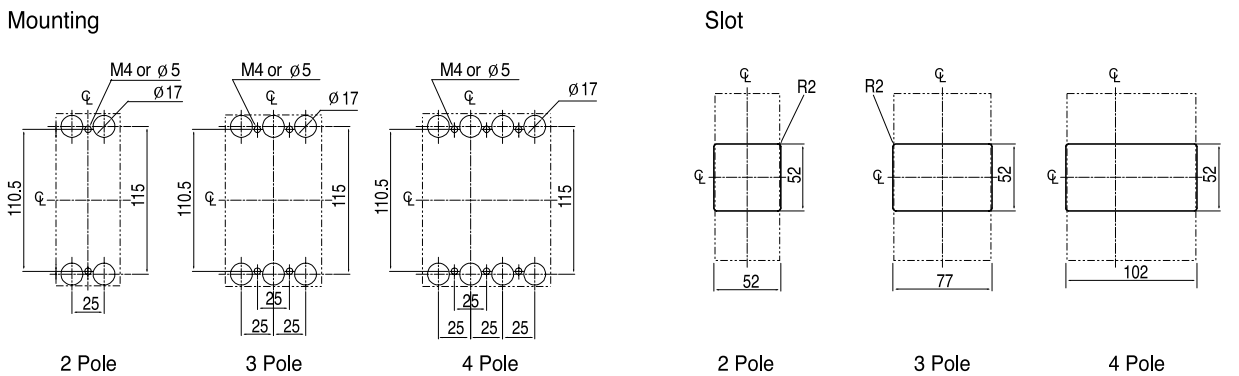
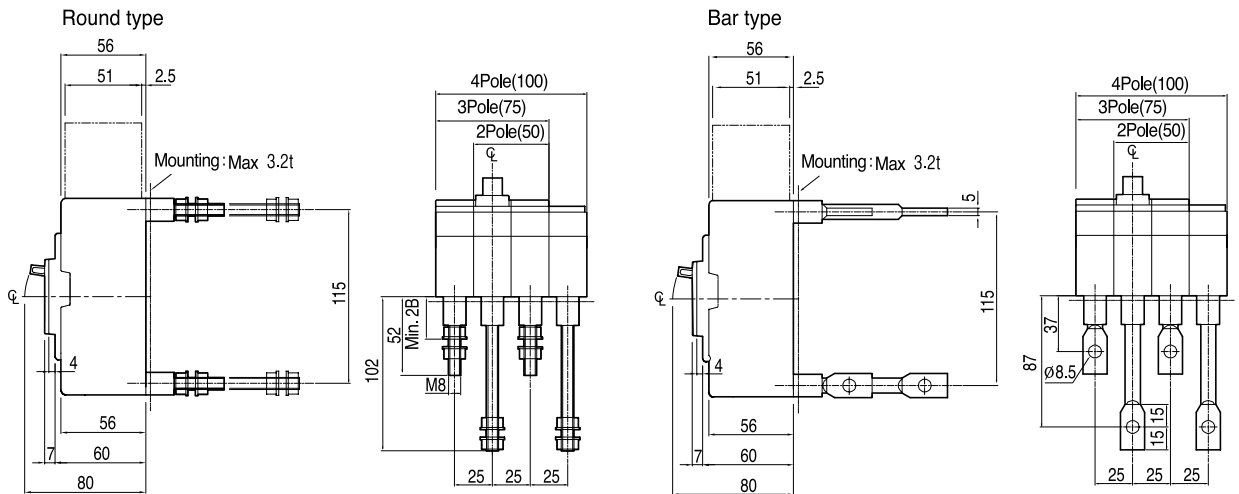
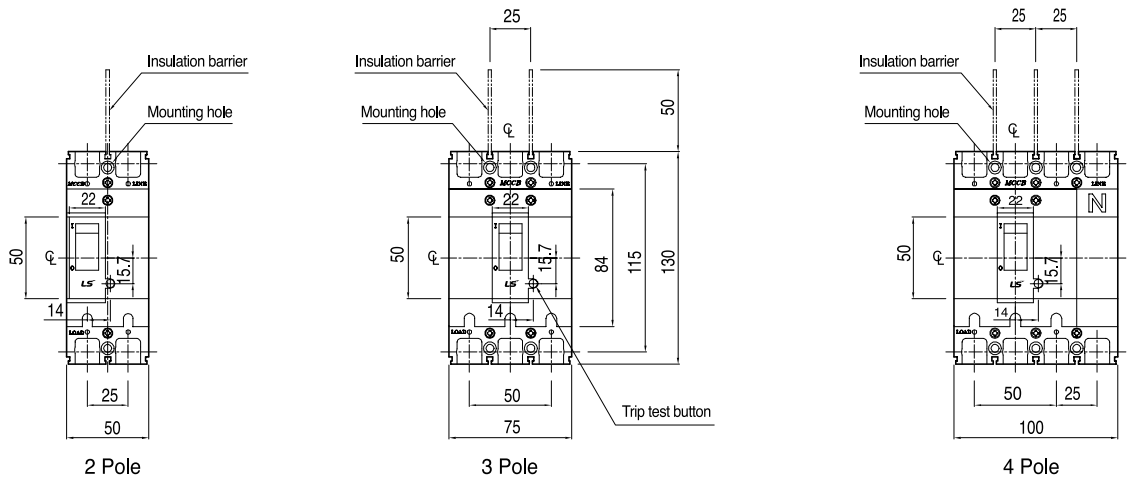
Slot



# Overall dimensions

## AB type MCCBs

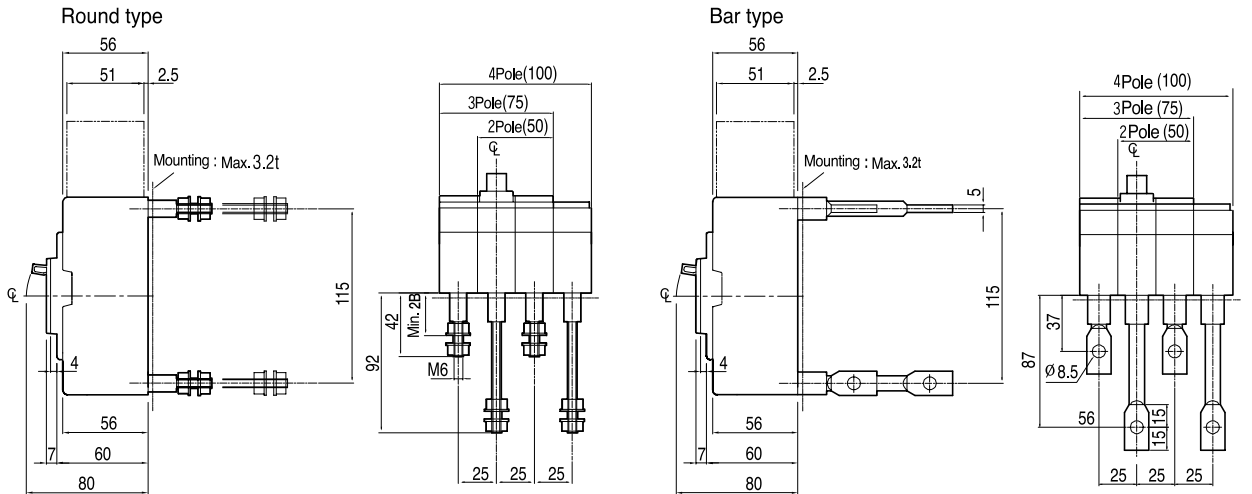
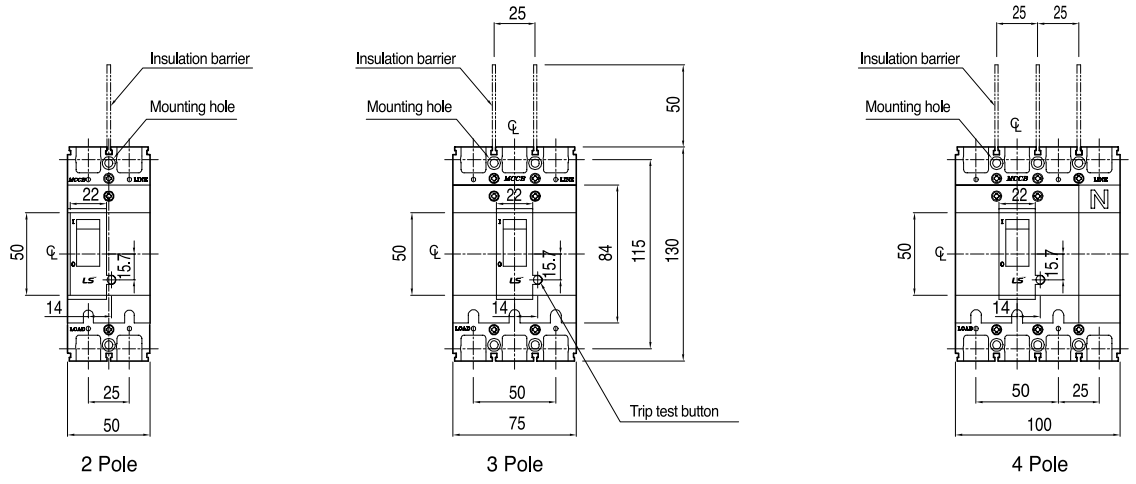
- ABE60bX
- ABS60bX
- ABE100bX(60-100A)



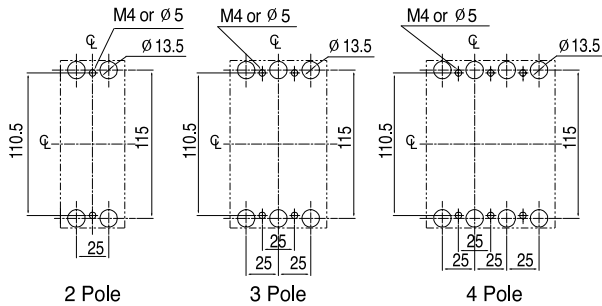
ABH50bX

ABS100bX

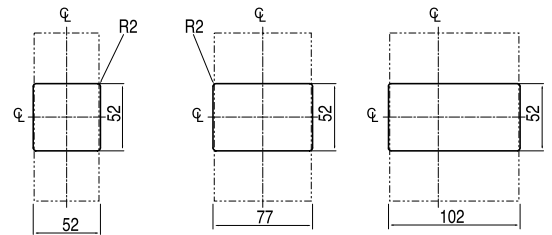
ABH100bX



Mounting



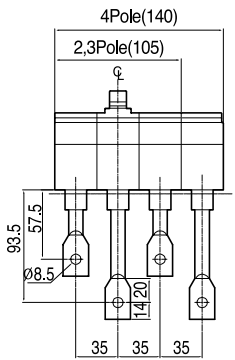
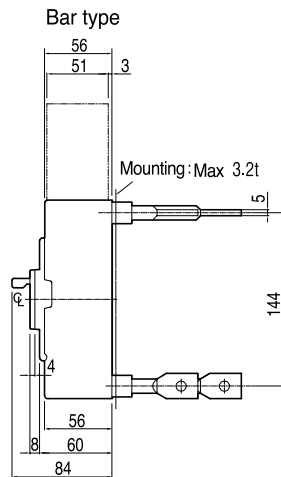
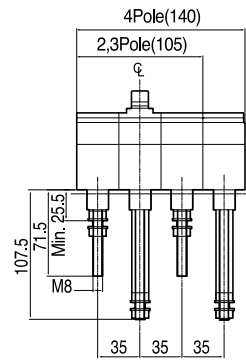
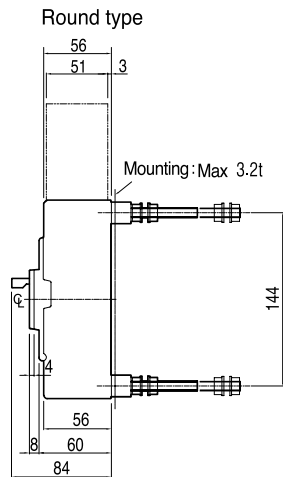
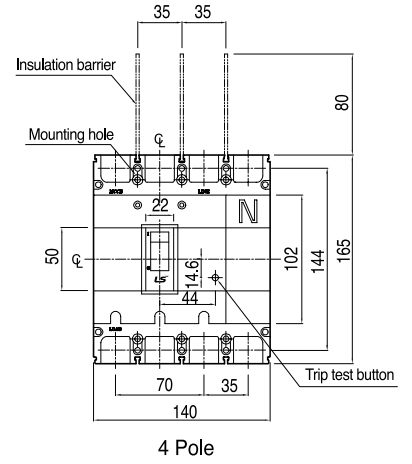
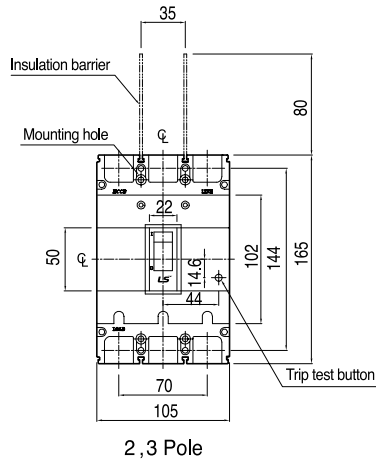
Slot



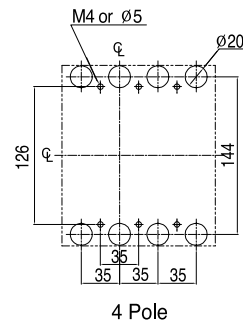
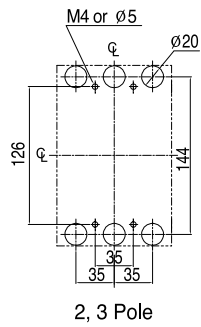
# Overall dimensions

## AB type MCCBs

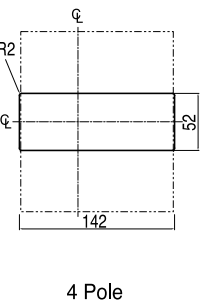
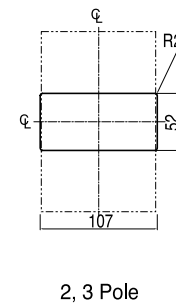
- ABE200bX
- ABS200bX
- ABH200bX



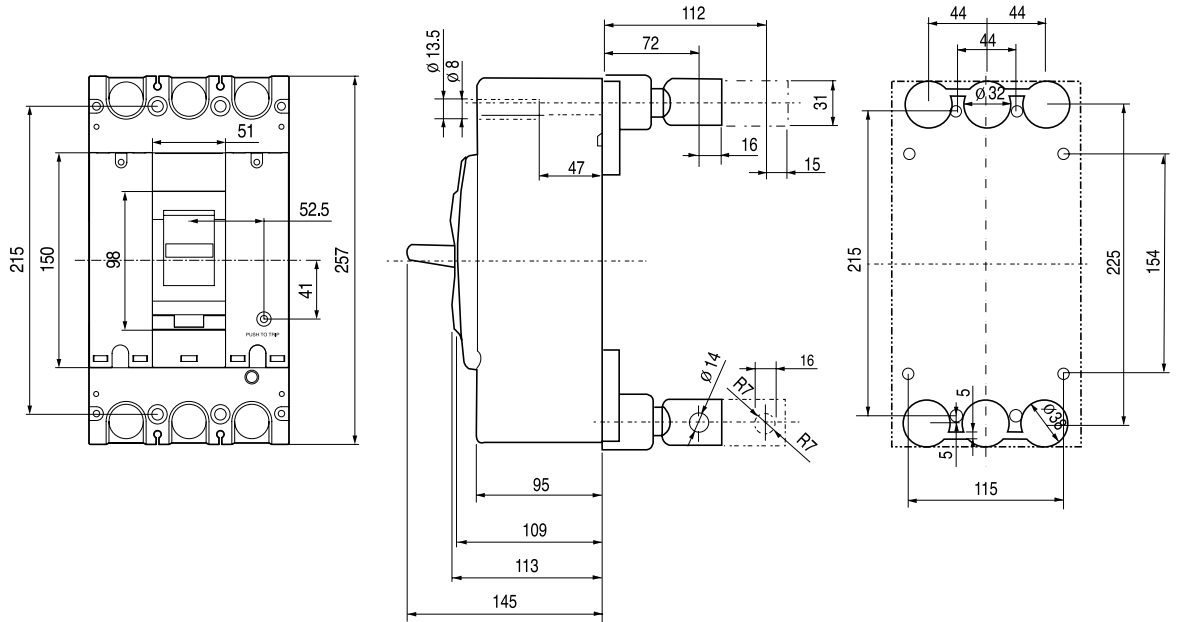
### Mounting



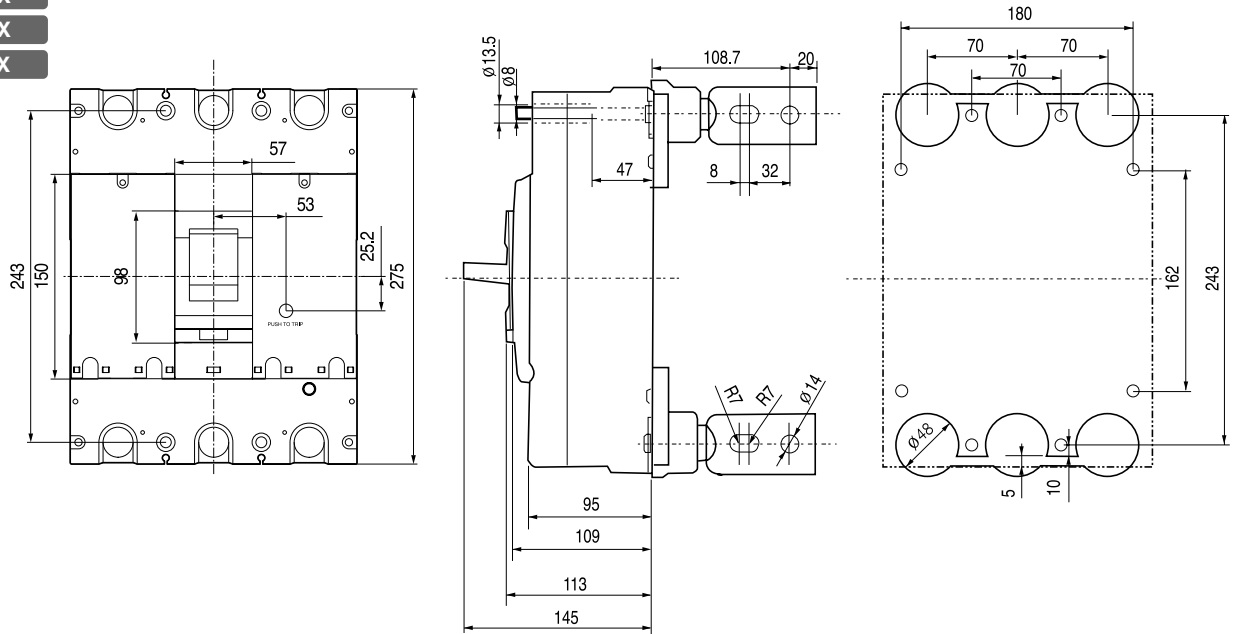
### Slot



- ABE400bX
- ABS400bX
- ABH400bX
- ABL400bX



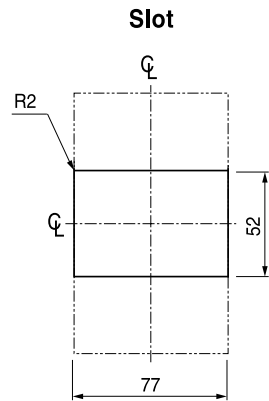
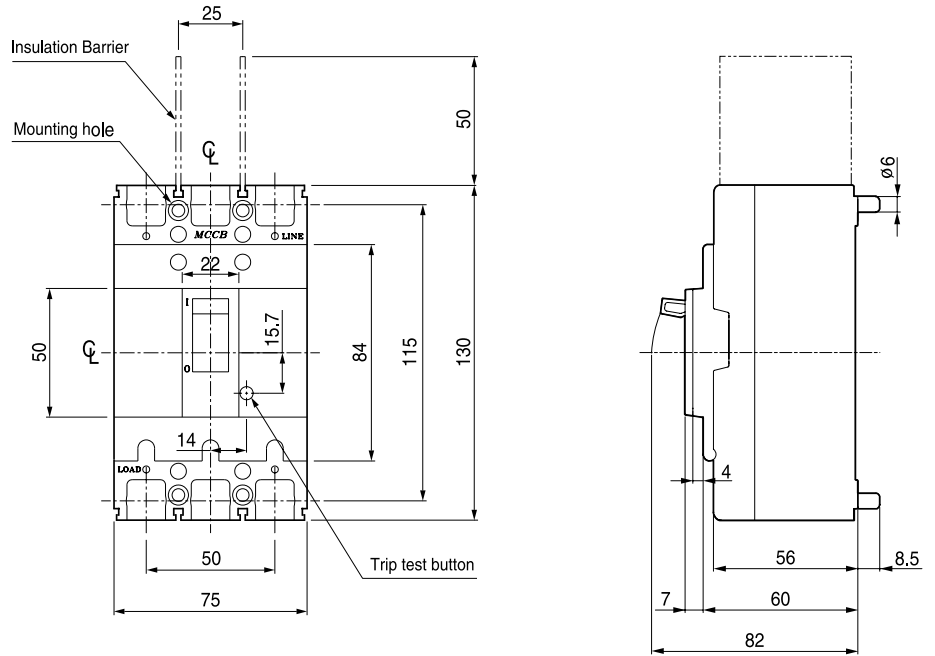
- ABE800bX
- ABS800bX
- ABL800bX



# Overall dimensions

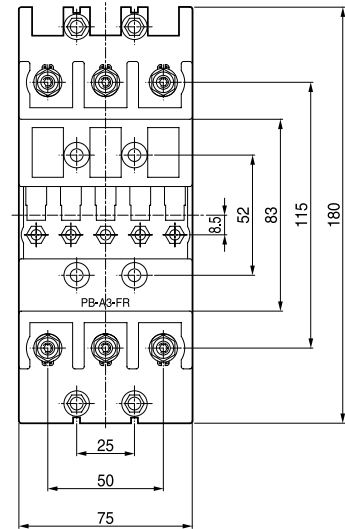
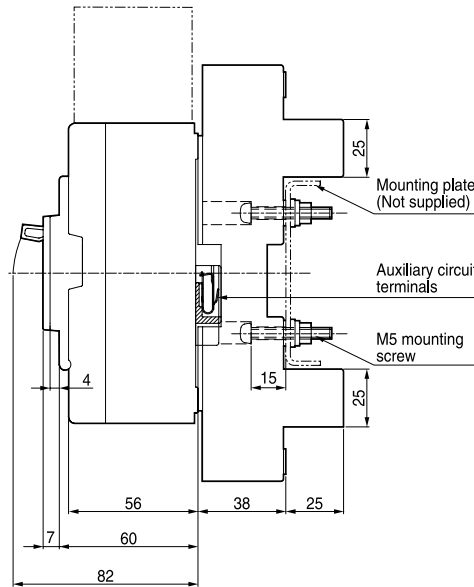
## Plug-in MCCBs

- ABE53b
- ABE63b
- ABS33b
- ABE103b
- ABS53b
- ABS63b
- ABH33b

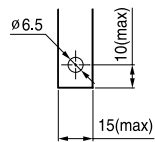




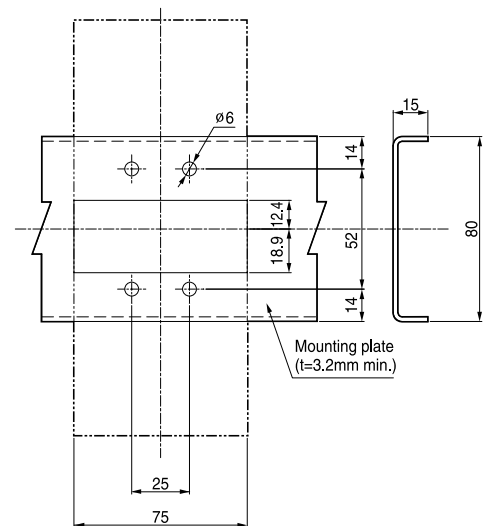
# Normal type(PB-A3-FR)



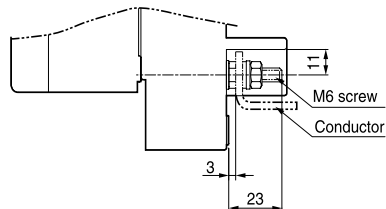
**Detail for conductor**



**Mounting dimensions**



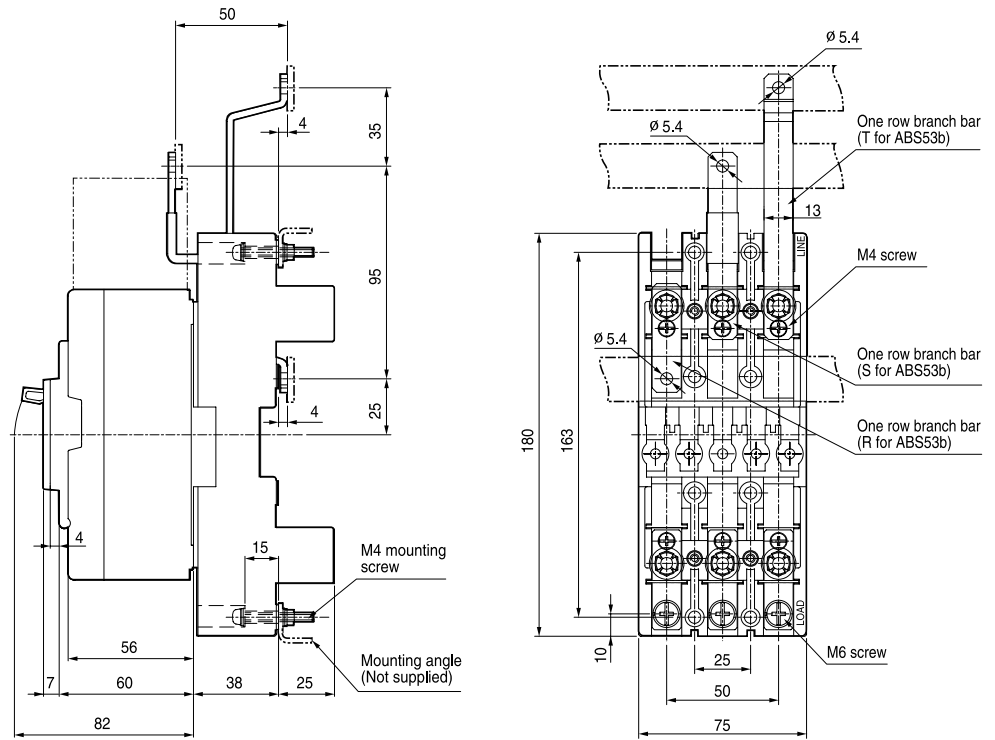
**Detail for connection**



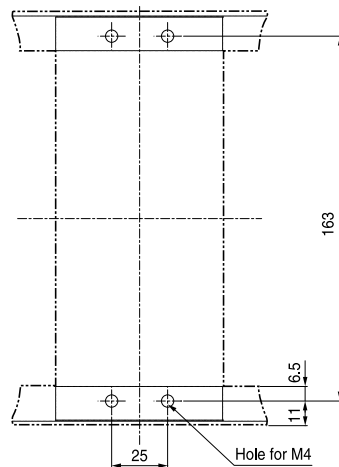
# Overall dimensions

## Plug-in MCCBs

### Single-row type(PB-A3-1DB)



### Mounting dimensions

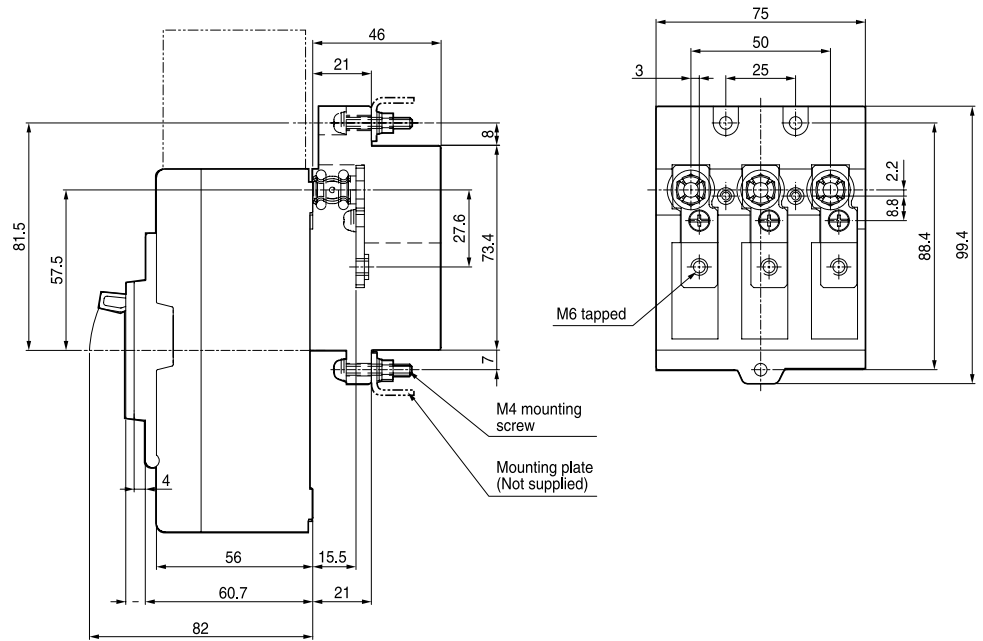




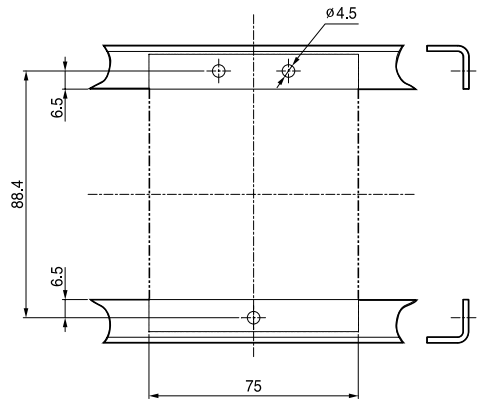
# Overall dimensions

## Plug-in MCCBs

### Line-only type(PB-A3-FRL)



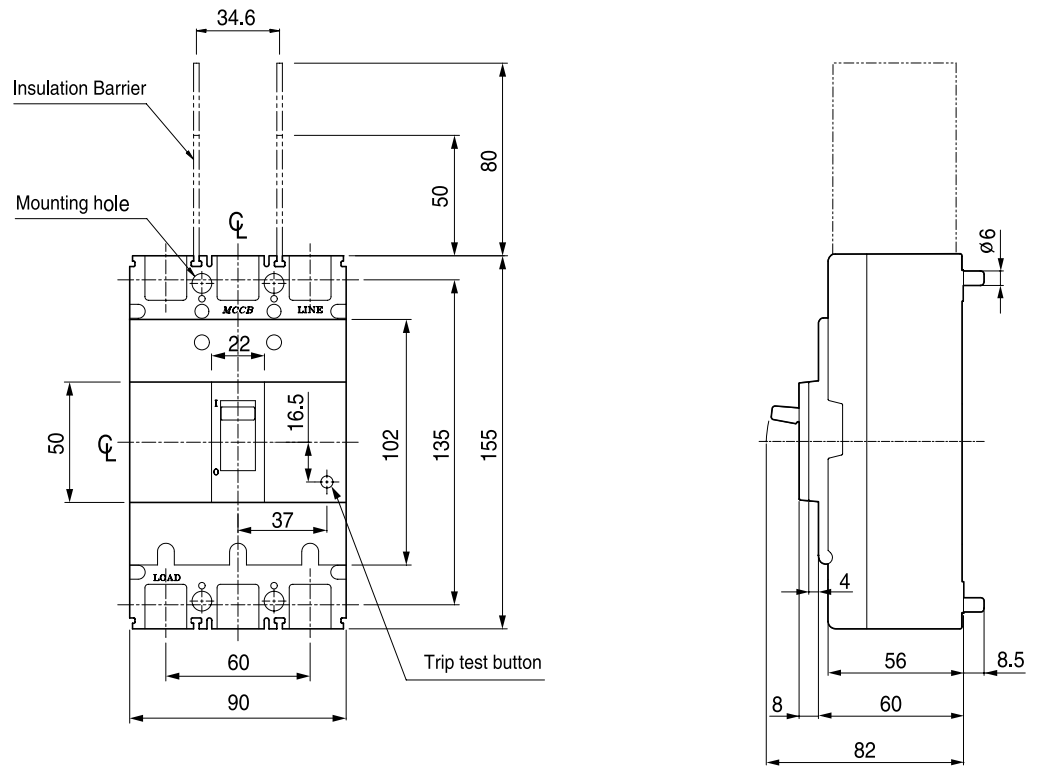
### Mounting dimensions



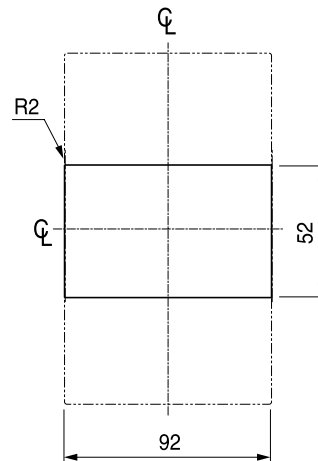
ABS103b

ABH53b

ABH103b



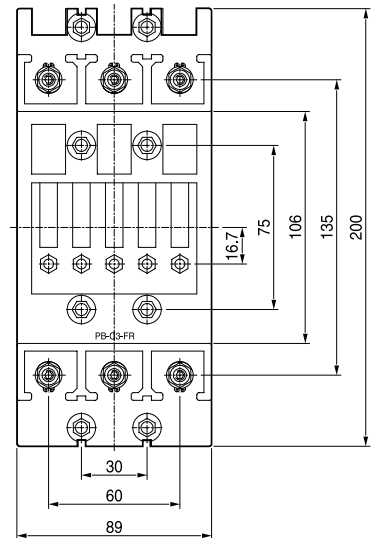
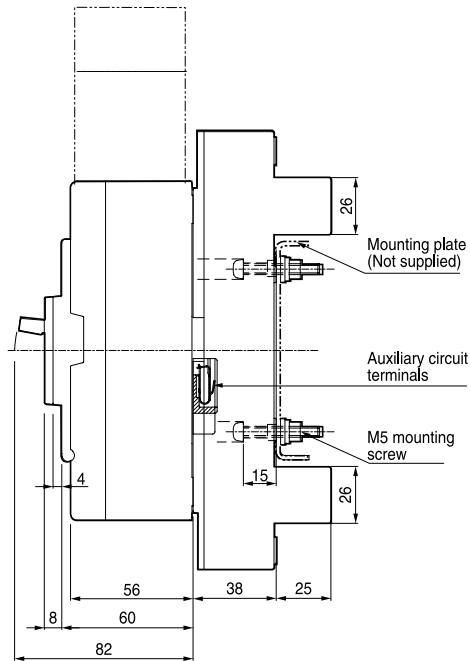
Slot



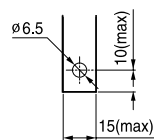
# Overall dimensions

## Plug-in MCCBs

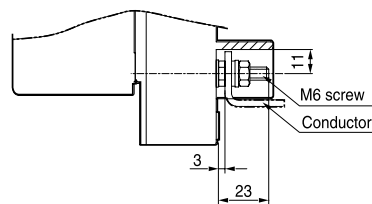
### Normal type(PB-C3-FR)



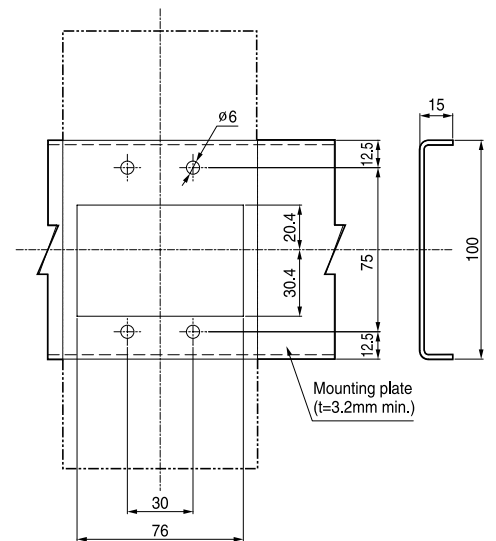
Detail for conductor



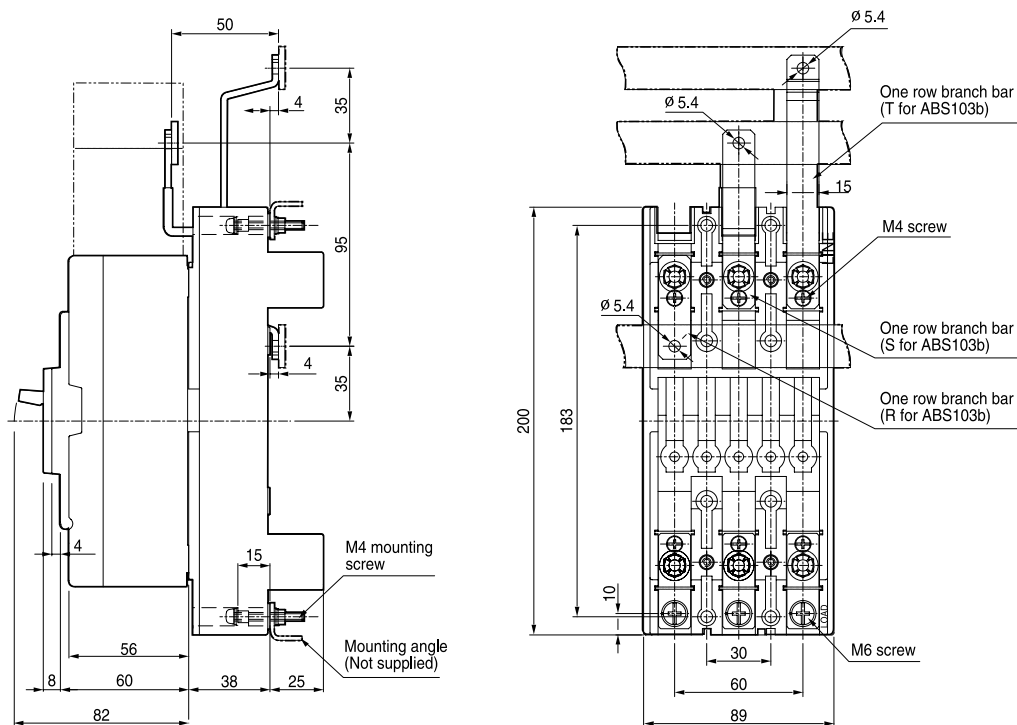
Detail for connection



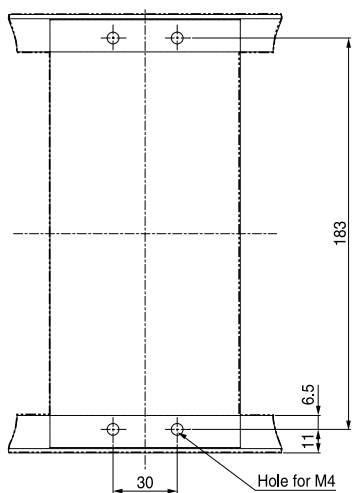
Mounting dimensions



# Single-row type(PB-C3-1DB)



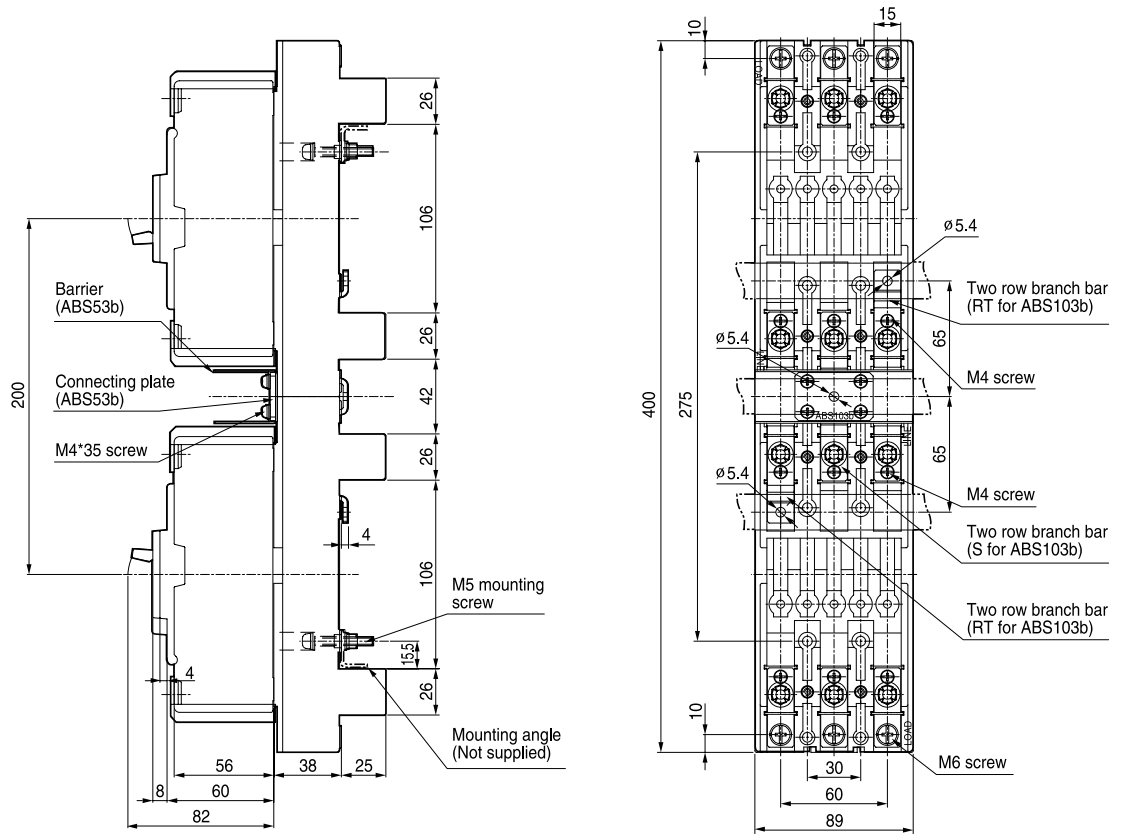
## Mounting dimensions



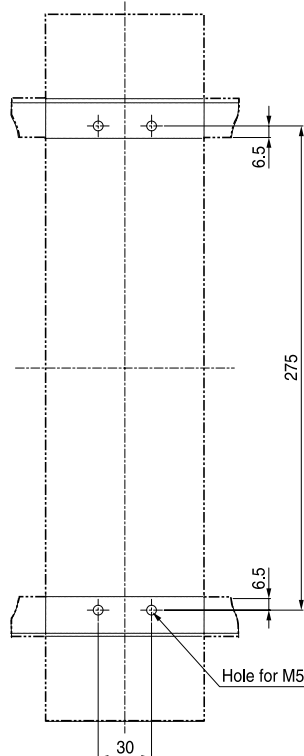
# Overall dimensions

## Plug-in MCCBs

### Double-row type (PB-C3-2DB)

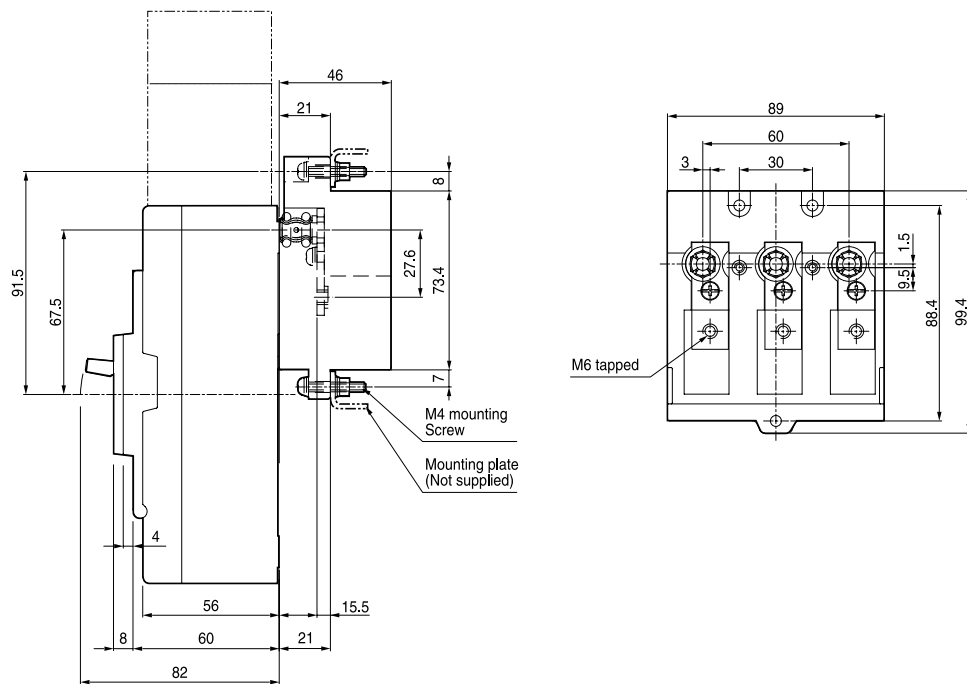


### Mounting dimensions

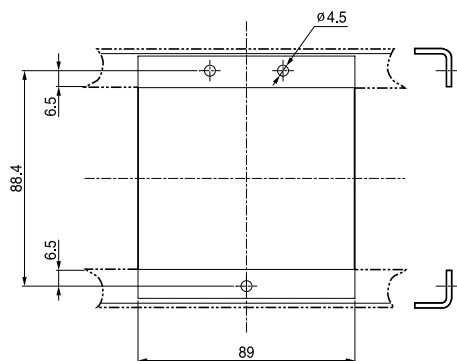




# Line-only type(PB-C3-FRL)



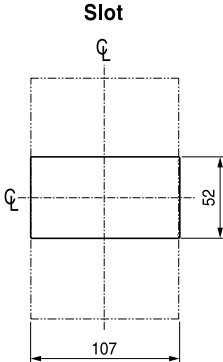
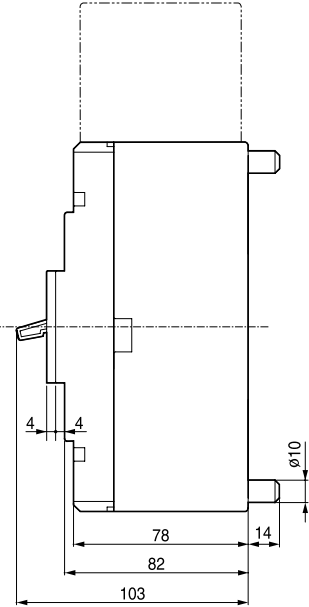
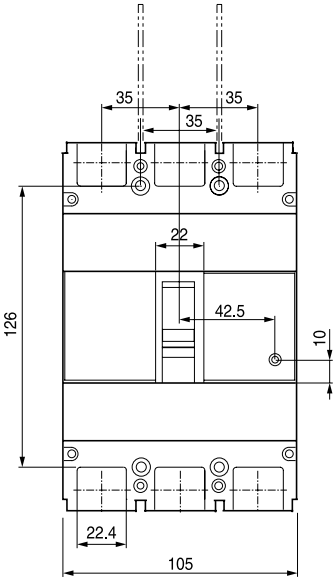
Mounting dimensions



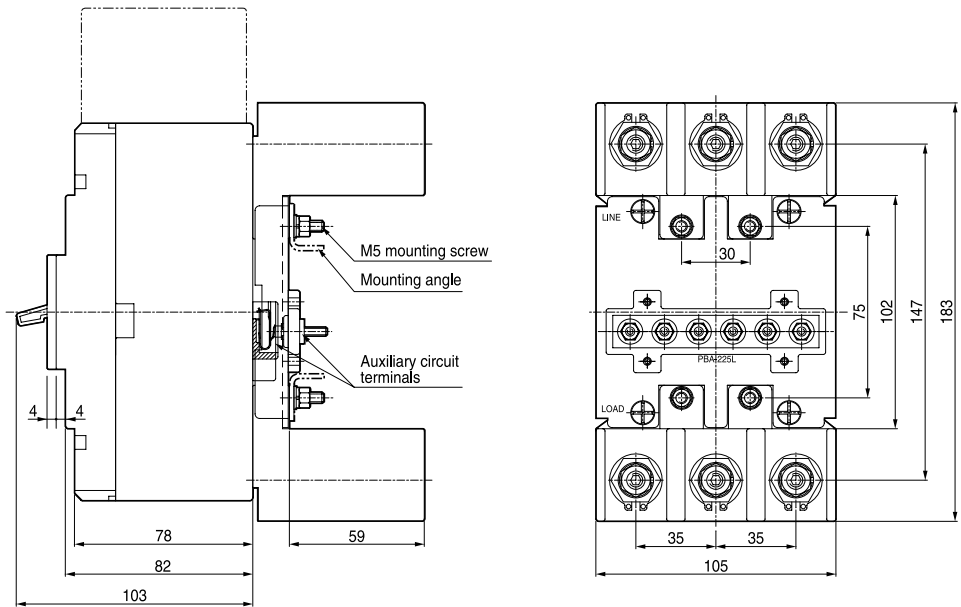
# Overall dimensions

## Plug-in MCCBs

- ABL53a
- ABL103a

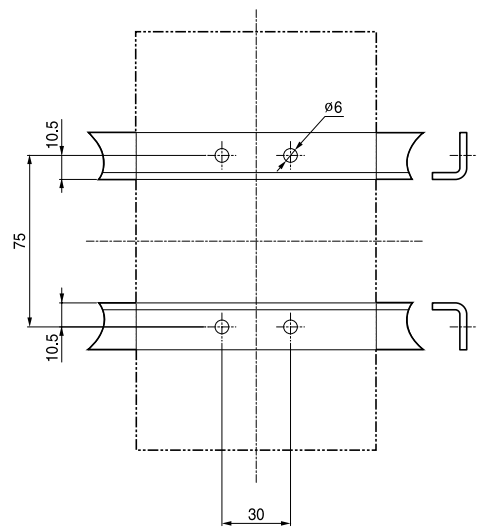
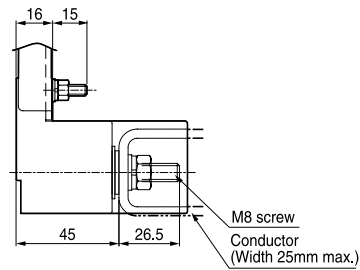


# Normal type(PB-E3-FR)



## Mounting dimensions

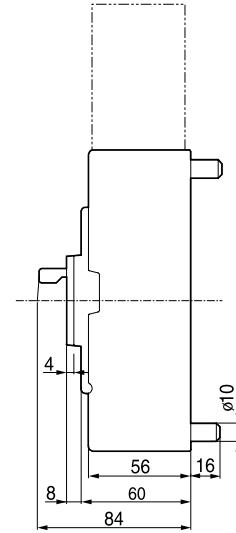
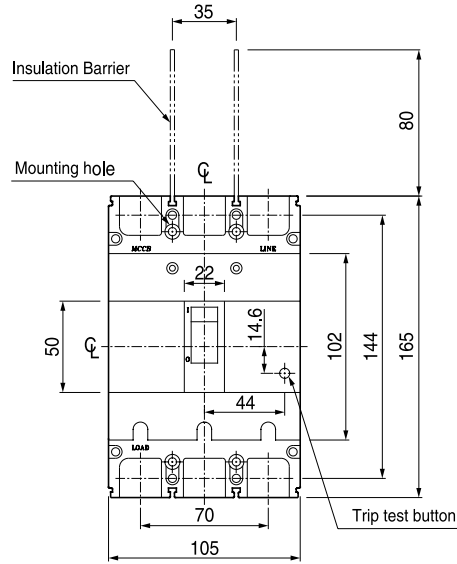
### Detail for connection



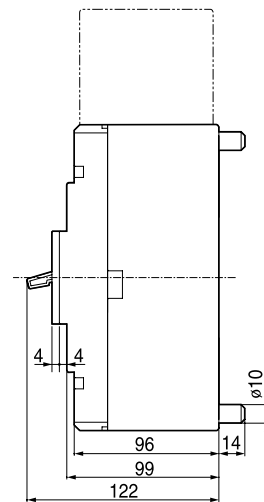
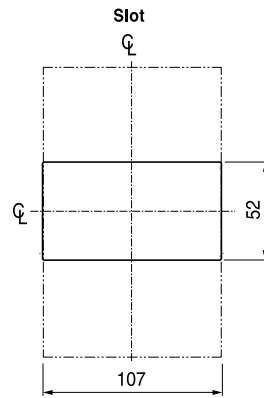
# Overall dimensions

## Plug-in MCCBs

- ABE203b
- ABS203b
- ABH203b
- ABH203a
- ABL203a



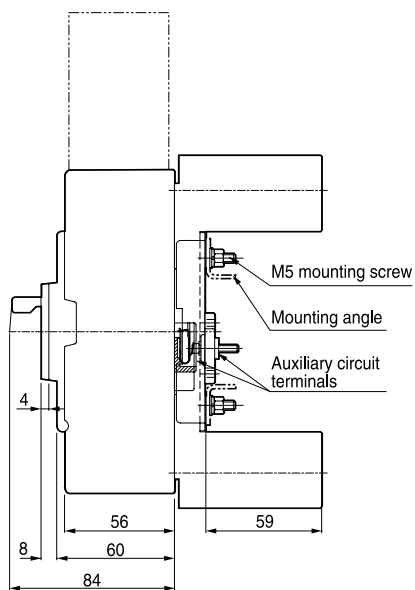
ABE/S/H 203b



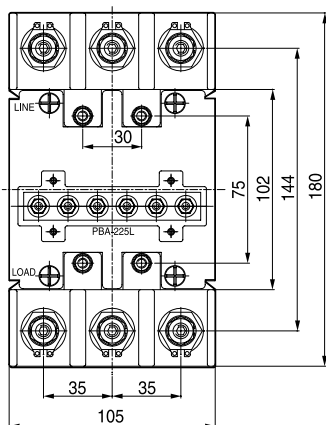
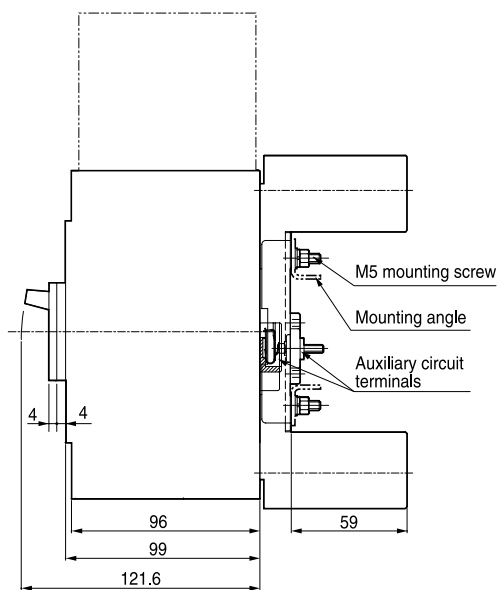
ABH/L 203a

# Normal type(PB-D3-FR)

**ABE203b, ABS203b, ABH203b**

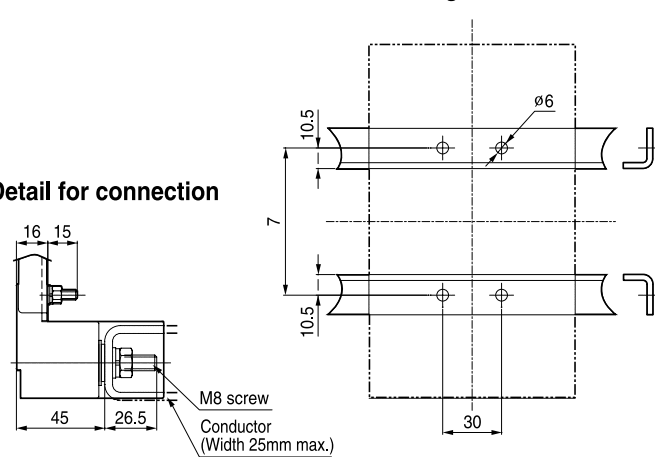


**ABH203a, ABL203a**



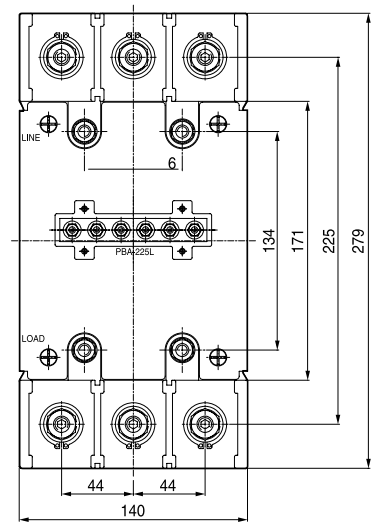
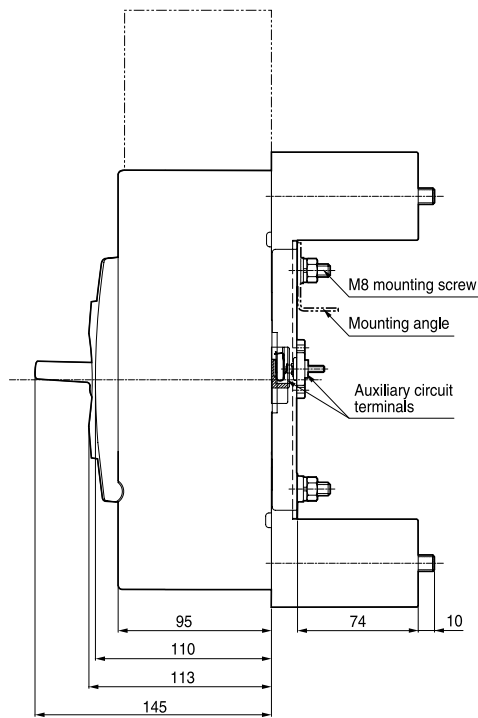
**Mounting dimensions**

**Detail for connection**



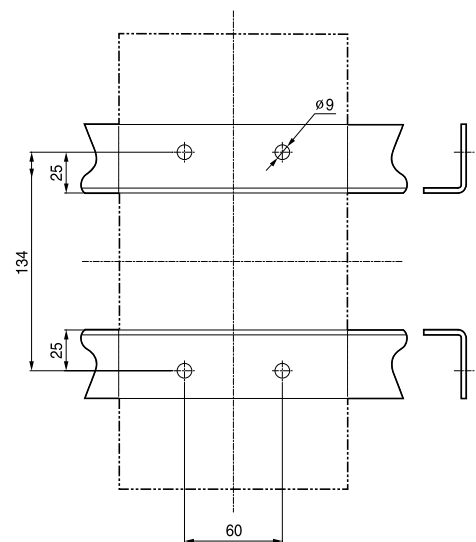
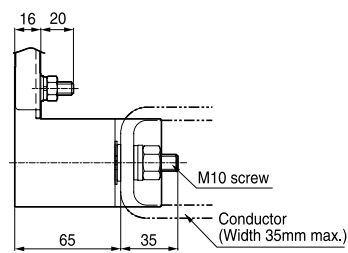


# Normal type(PB-I3-FR)



**Mounting dimensions**

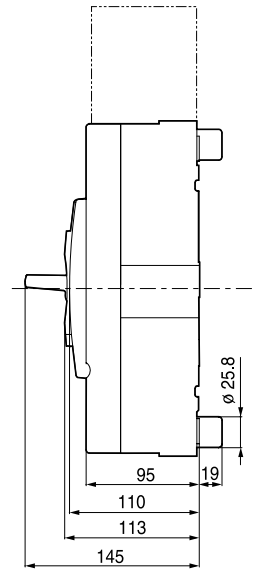
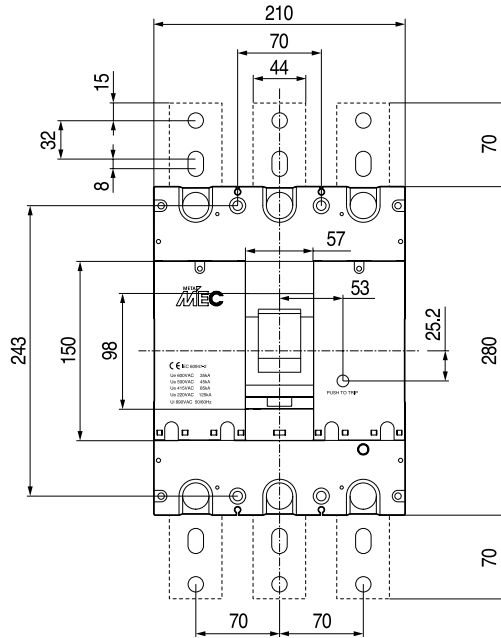
**Detail for connection**



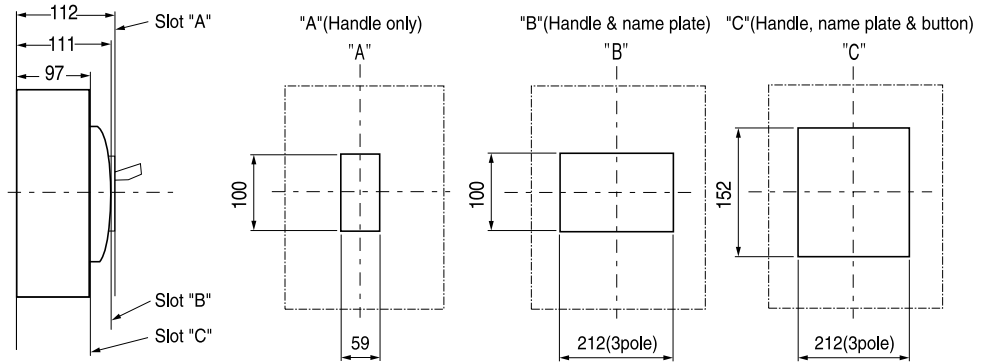
# Overall dimensions

## Plug-in MCCBs

- ABE803b
- ABS803b
- ABL803b

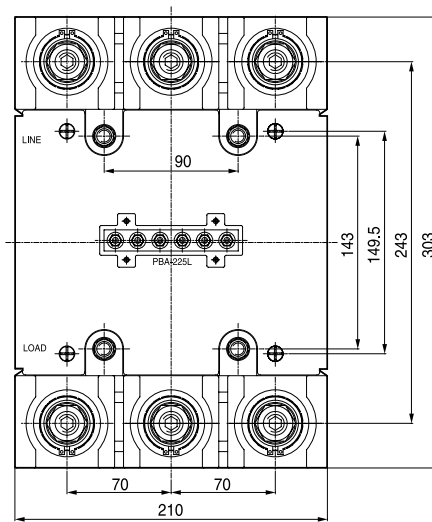
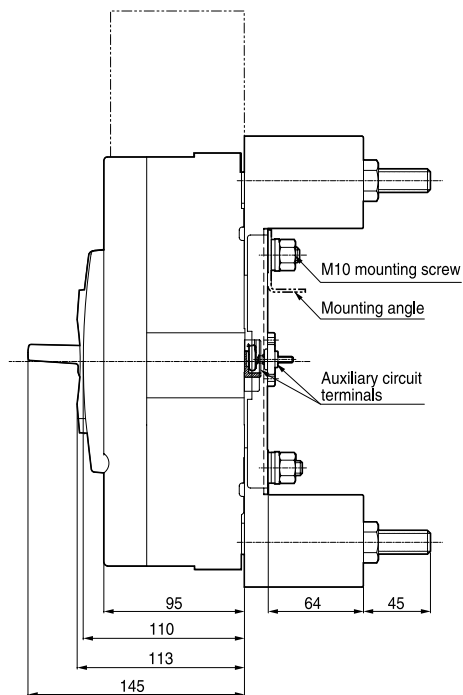


### Slot

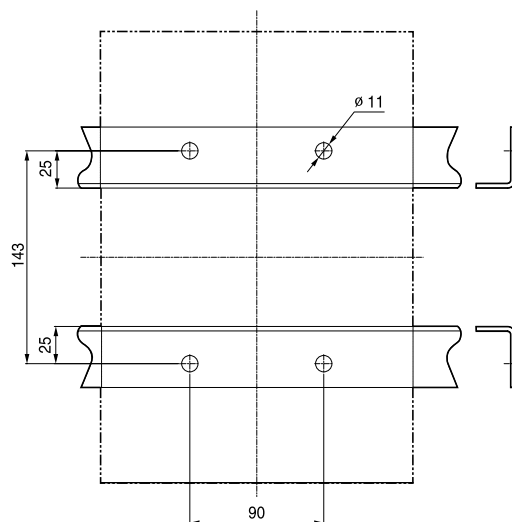




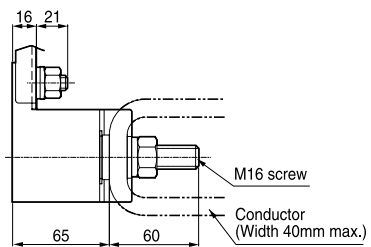
# Normal type(PB-J3-FR)



## Mounting dimensions



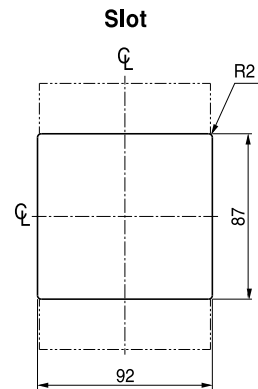
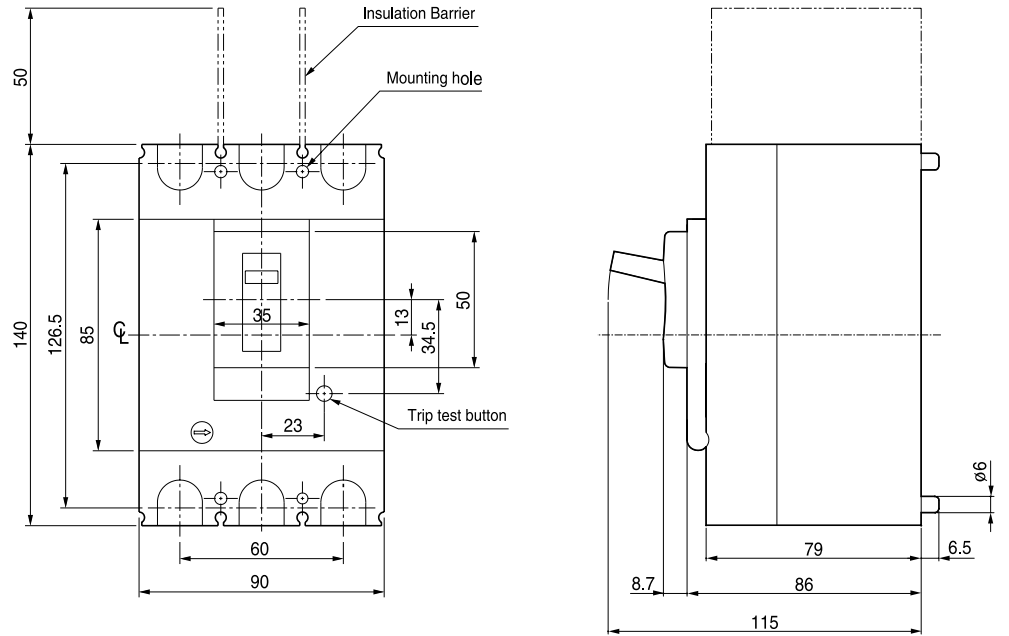
## Detail for connection



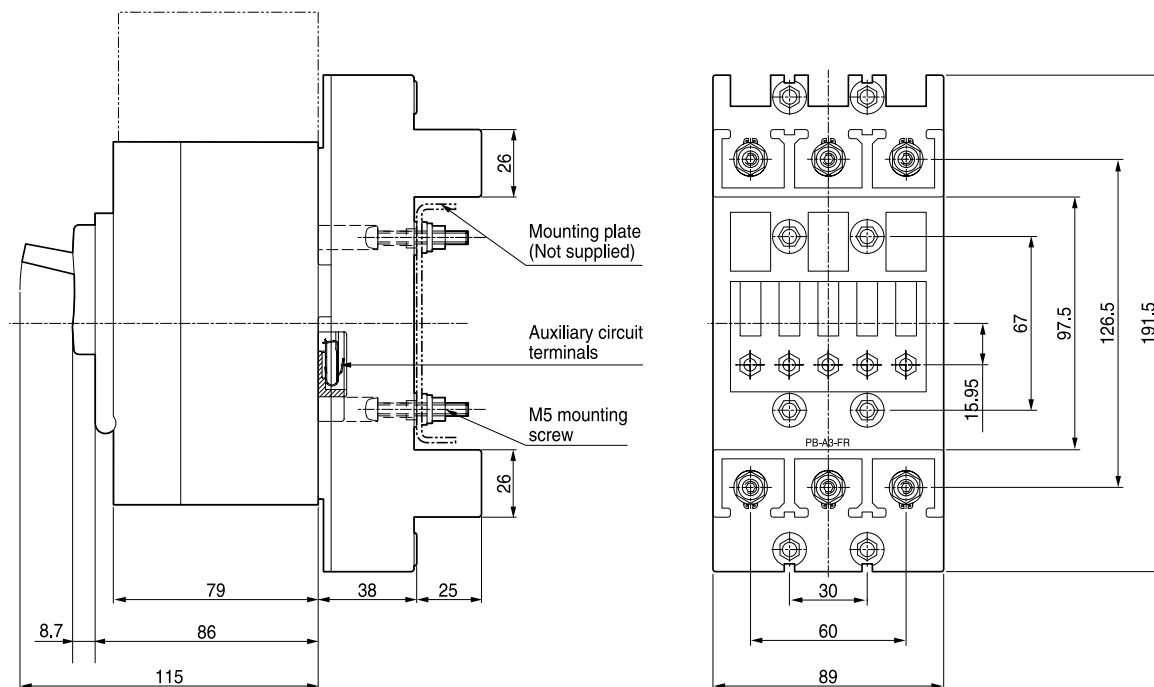
# Overall dimensions

## Plug-in MCCBs

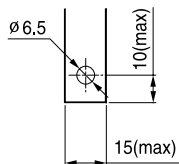
- GBN53
- GBN103
- GBH53
- GBH103



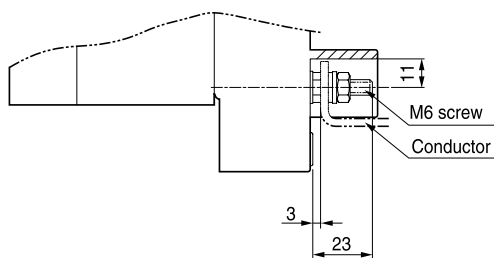
# Normal type(PB-G3-FR)



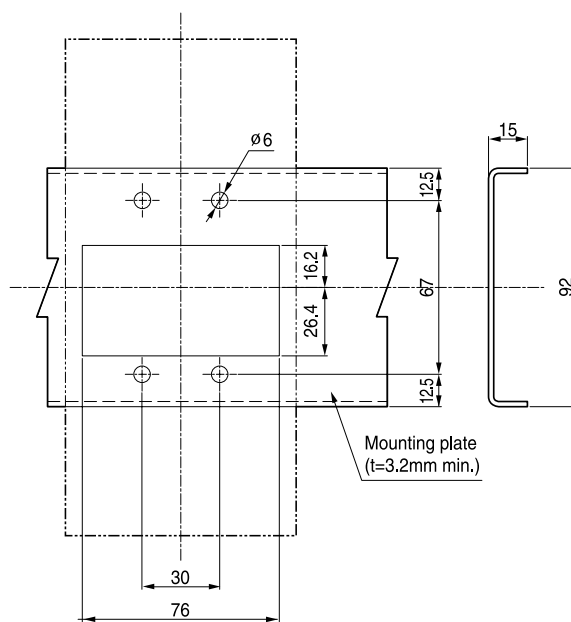
**Detail for conductor**



**Detail for connection**



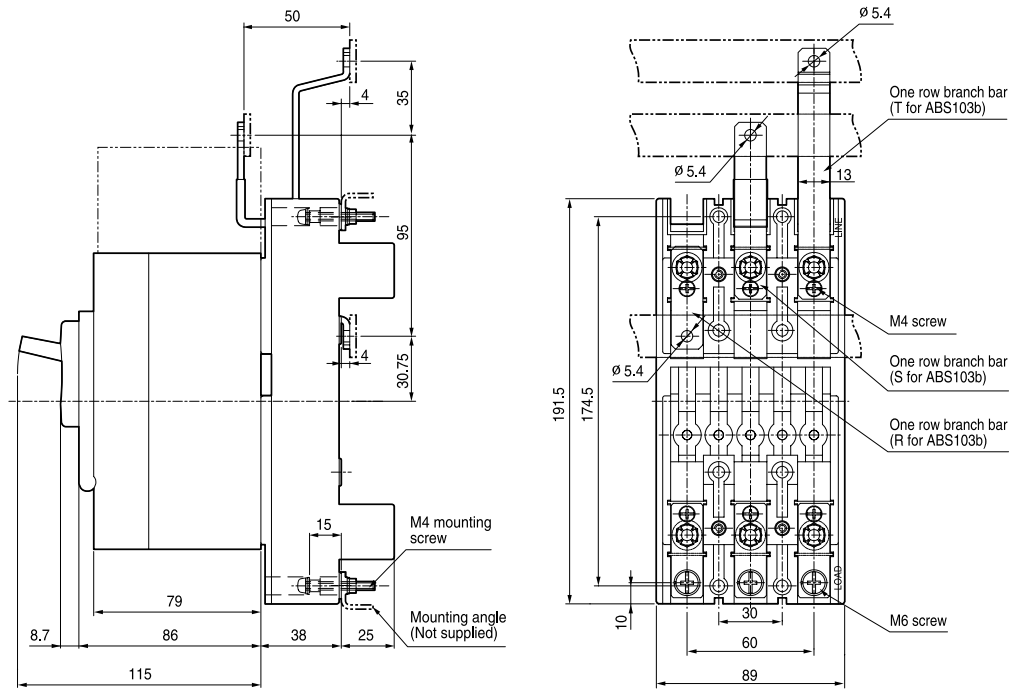
**Mounting dimensions**



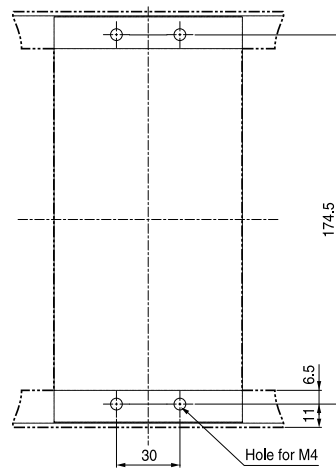
# Overall dimensions

## Plug-in MCCBs

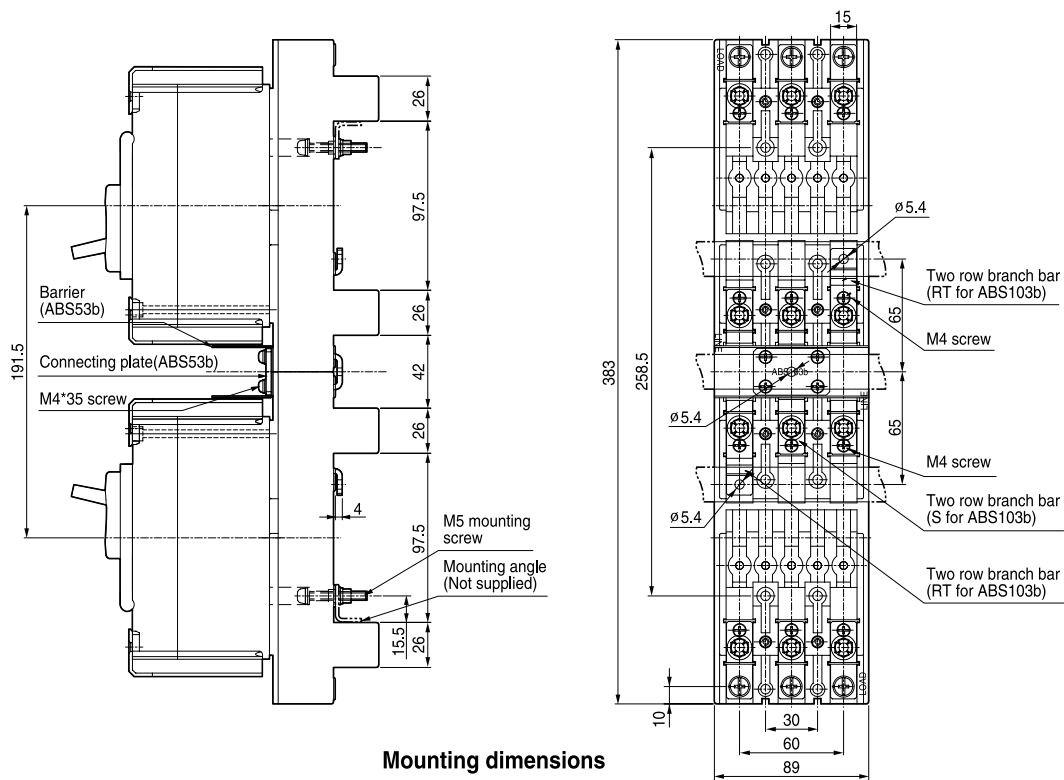
### Single-row type(PB-G3-1DB)



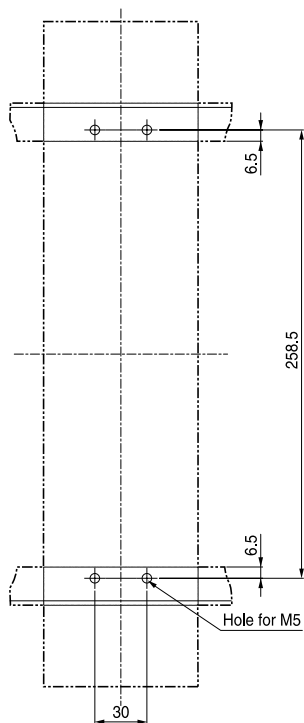
#### Mounting dimensions



# Double-row type(PB-G3-2DB)



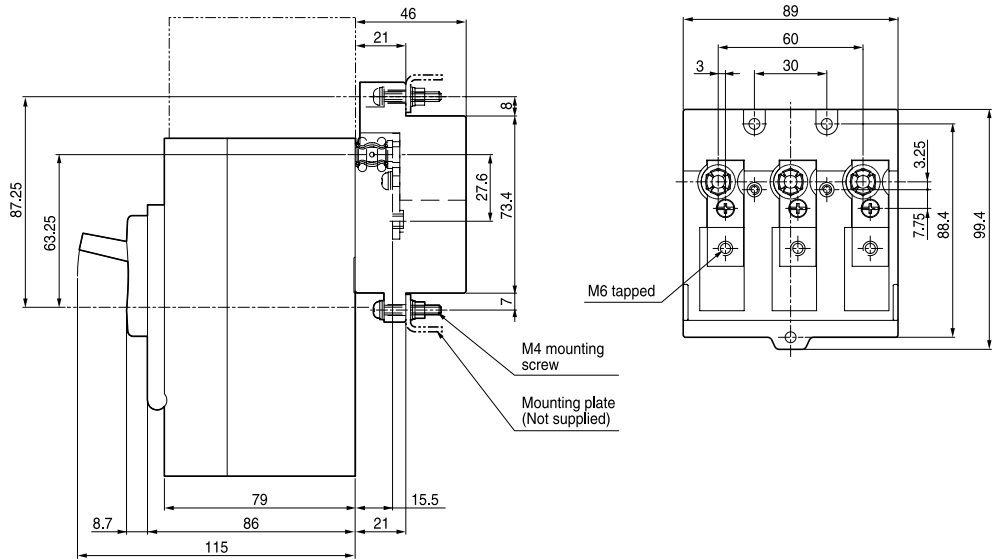
Mounting dimensions



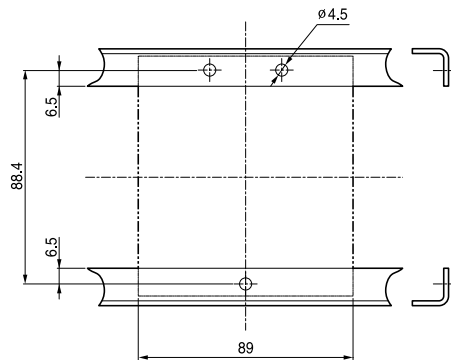
# Overall dimensions

## Plug-in MCCBs

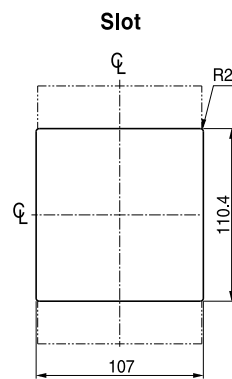
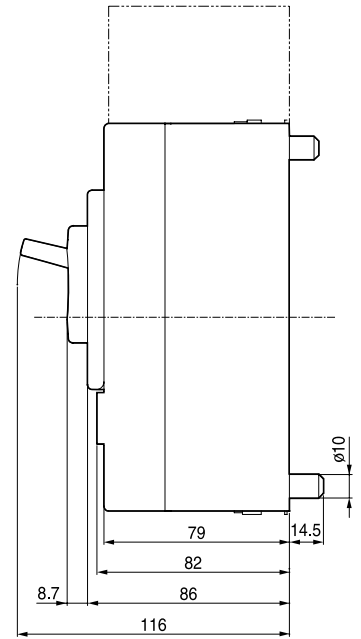
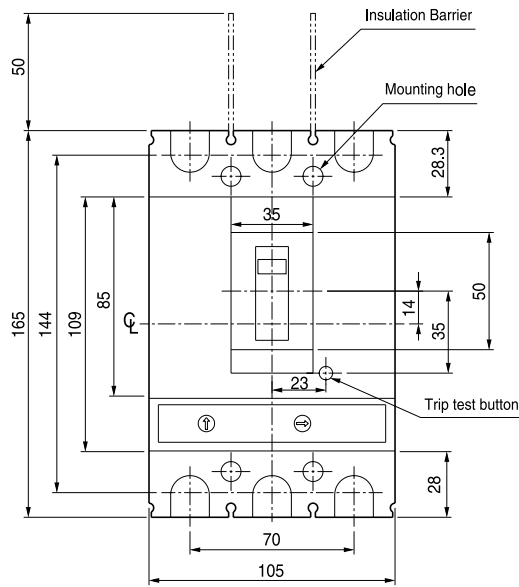
### Single-row type(PB-G3-FRL)



#### Mounting dimensions



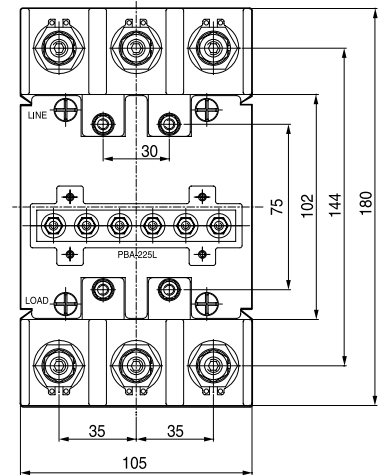
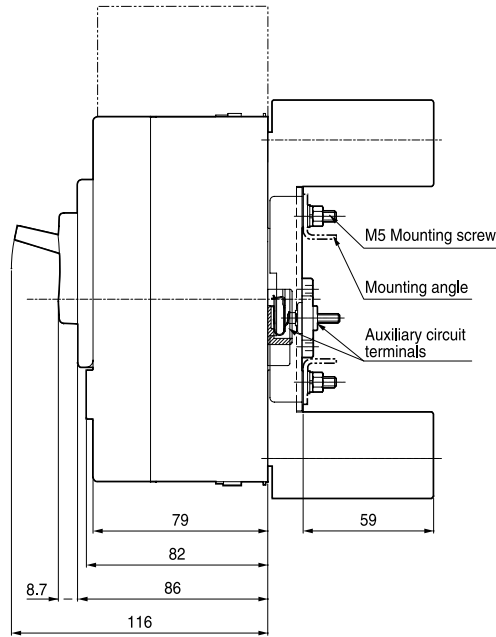
- GBL53
- GBL103
- GBN203
- GBH203
- GBL203



# Overall dimensions

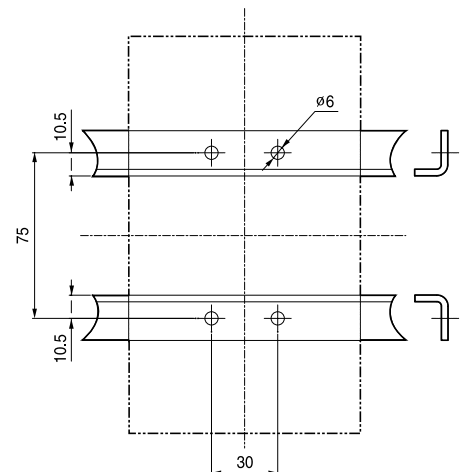
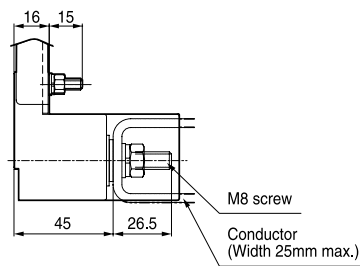
## Plug-in MCCBs

### Normal type(PB-D3-FR)



### Mounting dimensions

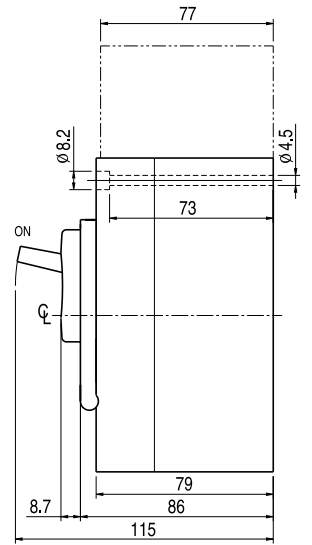
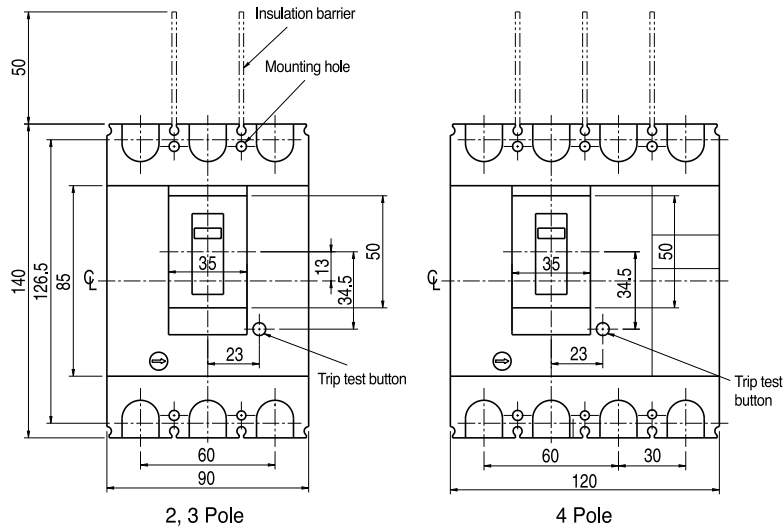
### Detail for connection



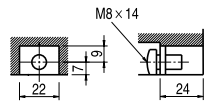


# GB type adjustable MCCBs

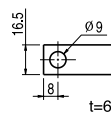
- GBN102
- GBN103
- GBN104
- GBH102
- GBH103
- GBH104



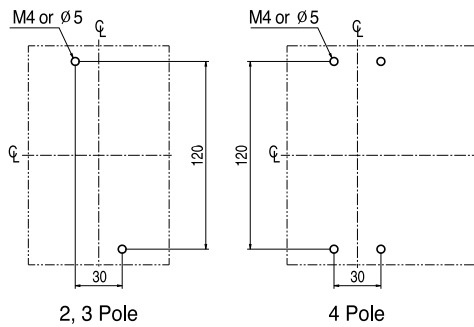
Detailed terminal



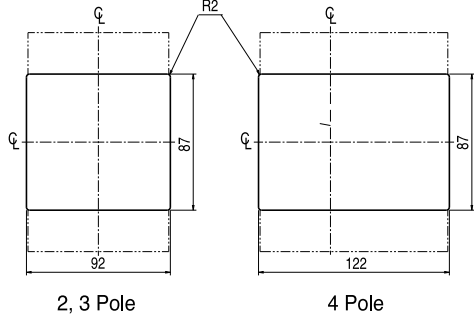
Hole size of a conductor



Mounting



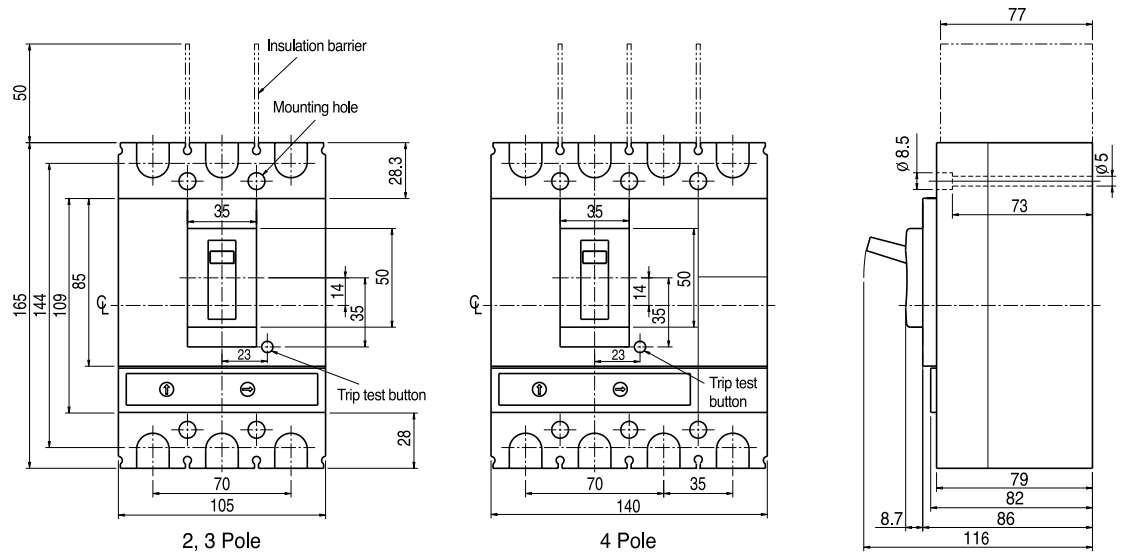
Slot



# Overall dimensions

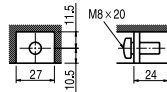
## GB type adjustable MCCBs

- GBN202
- GBN203
- GBN204
- GBH202
- GBH203
- GBH204
- GBL102
- GBL103
- GBL104
- GBL202
- GBL203
- GBL204

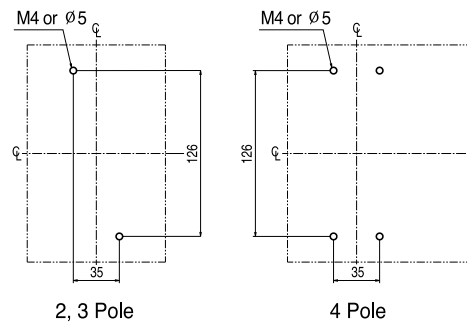


Detailed terminal

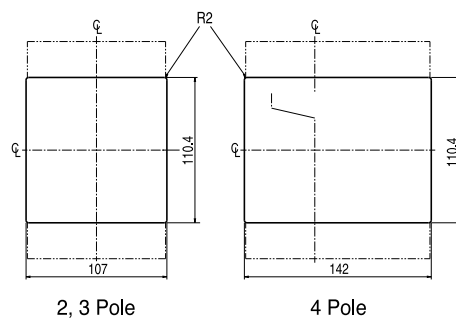
Hole size of a conductor



Mounting



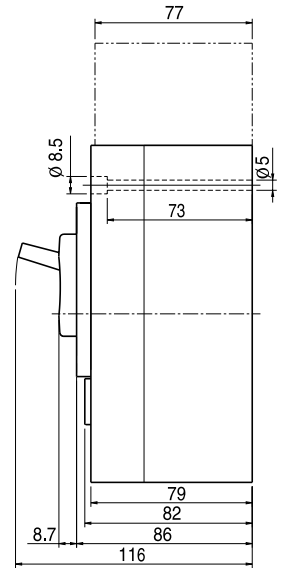
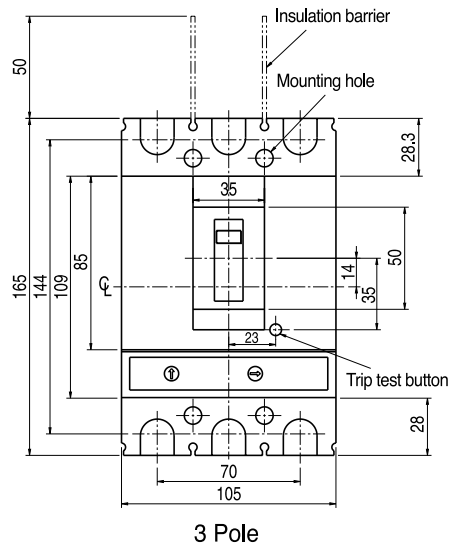
Slot



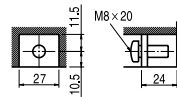
GBL53E

GBL103E

GBL203E



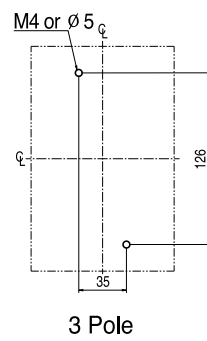
Detailed terminal



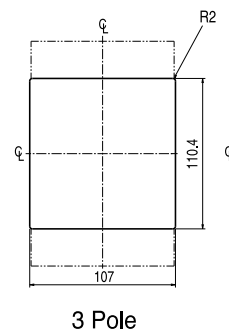
Hole size of a conductor



Mounting



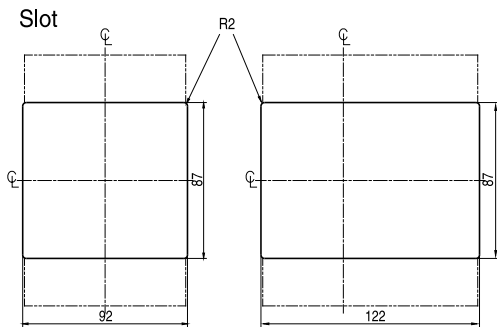
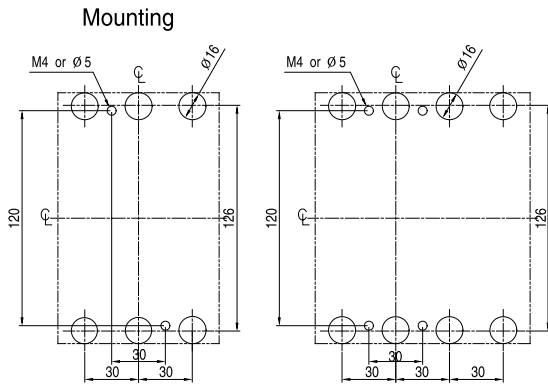
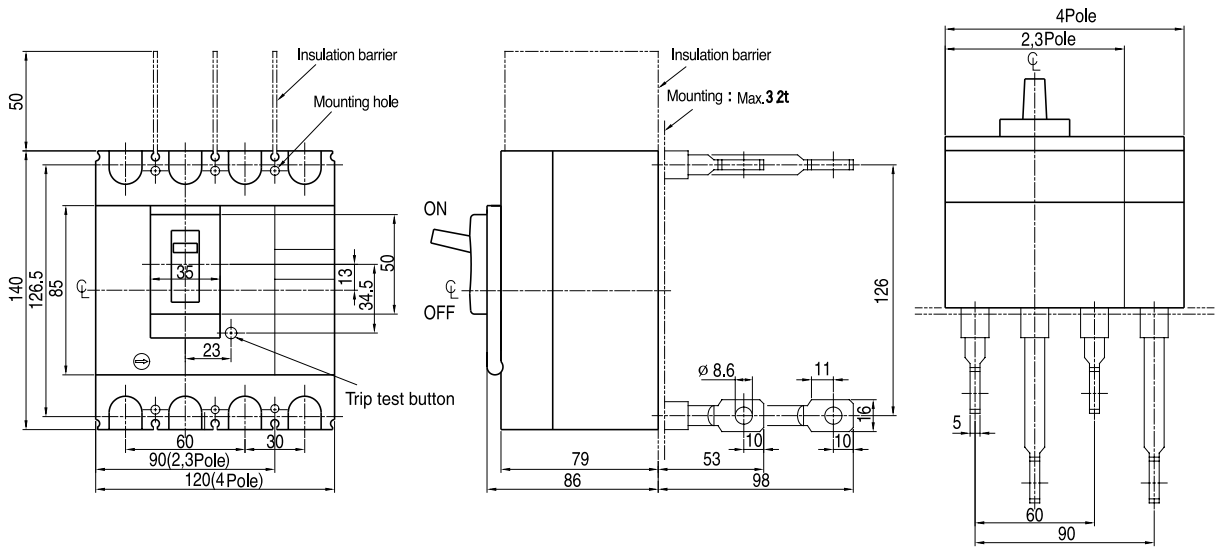
Slot



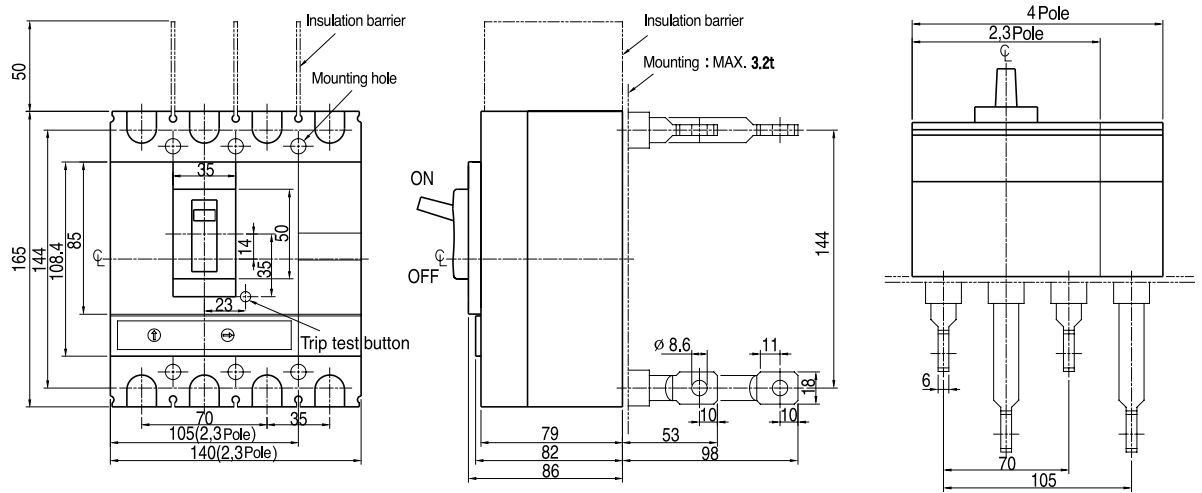
# Overall dimensions

## GB type adjustable MCCBs

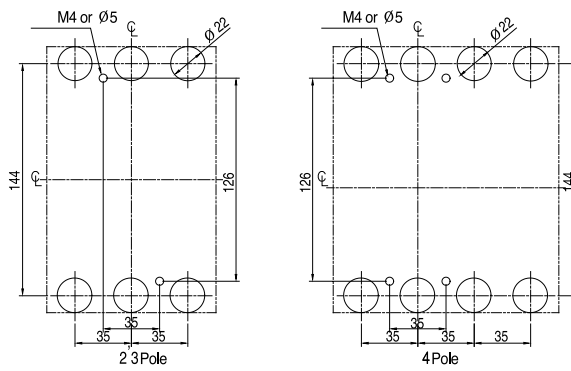
- GBH50X
- GBH100X
- GBN50X
- GBN100X



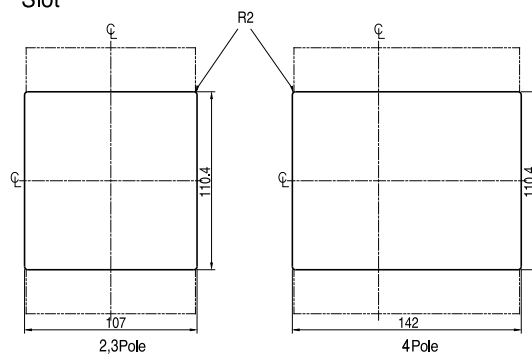
- GBH250X
- GBN250X
- GBL50X(E)
- GBL100X(E)
- GBL250X(E)



**Mounting**



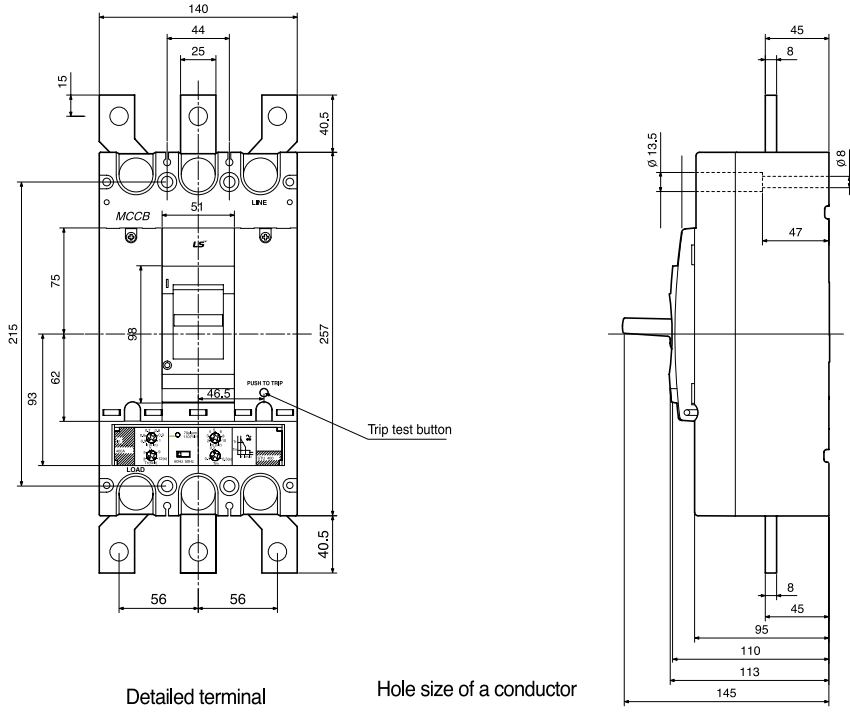
**Slot**



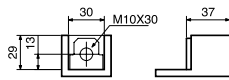
# Overall dimensions

## GB type adjustable MCCBs

GBN403E  
GBH403E



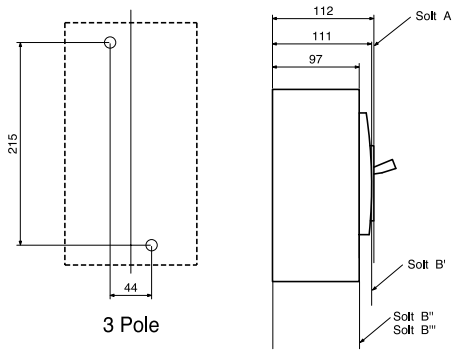
Detailed terminal



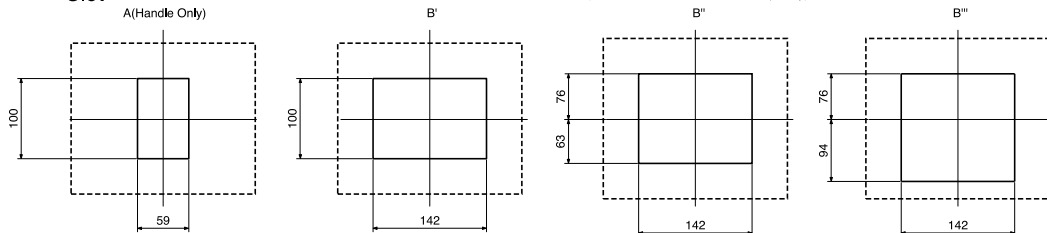
Hole size of a conductor



Mounting

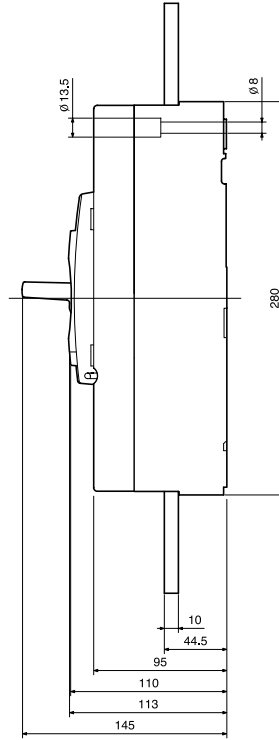
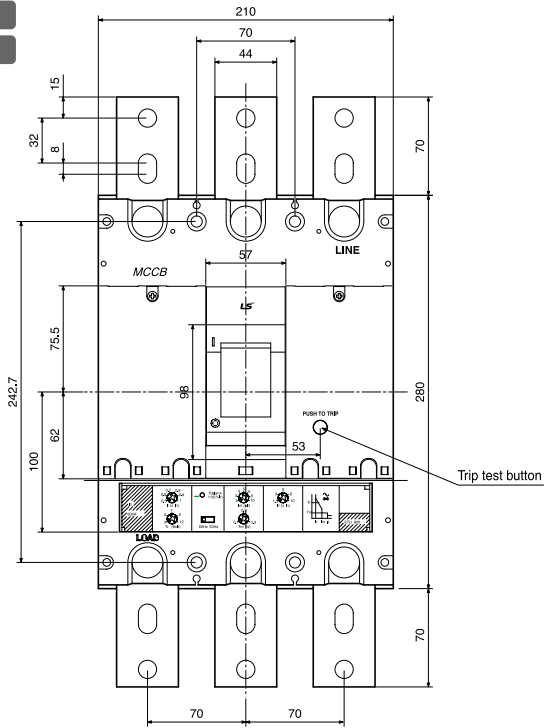


Slot

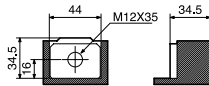


# GB type adjustable MCCBs (Electronic trip unit)

**GBN803E**  
**GBH803E**



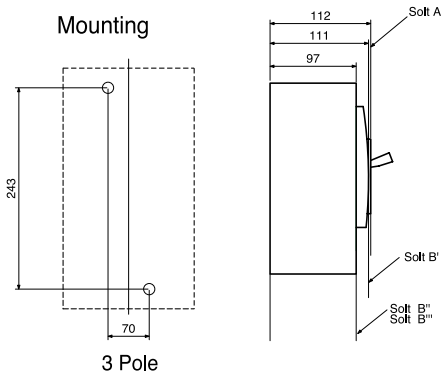
Detailed terminal



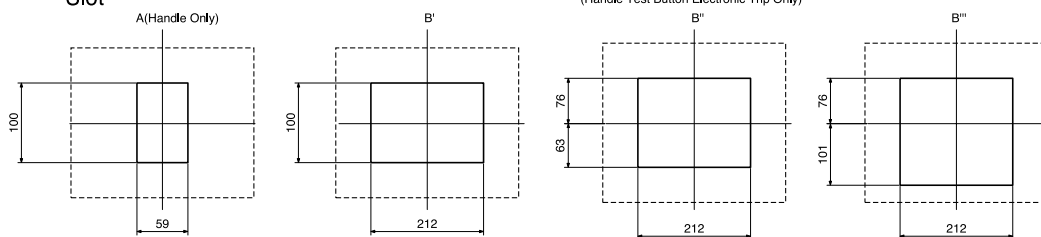
Hole size of a conductor



Mounting



Slot

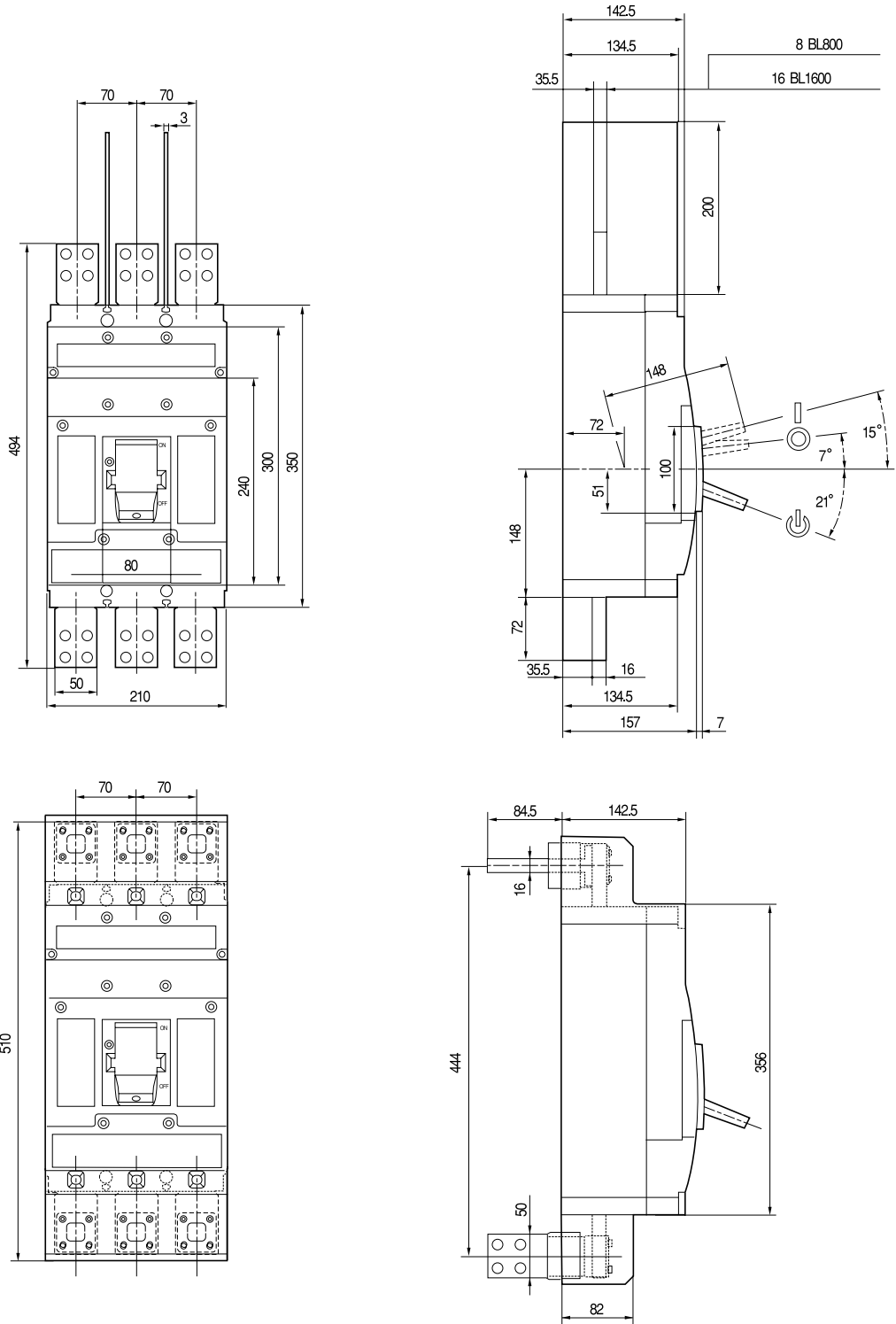


(Handle Test Button Electronic Trip Only)

# Overall dimensions

## GB type adjustable MCCBs (Electronic trip unit)

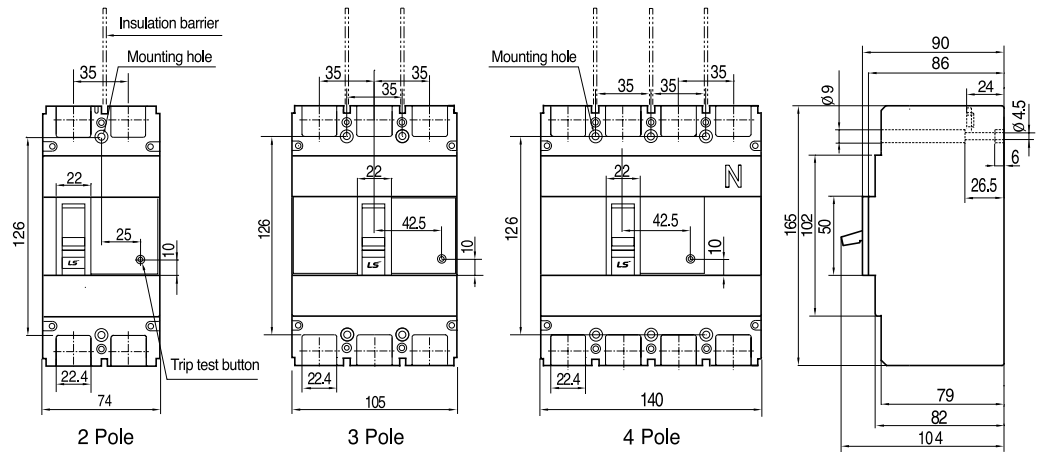
GBN1603E



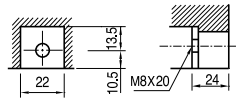


# Hi-MEC MCCBs

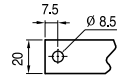
- ABL52a
- ABL53a
- ABL54a
- ABL102a
- ABL103a
- ABL104a



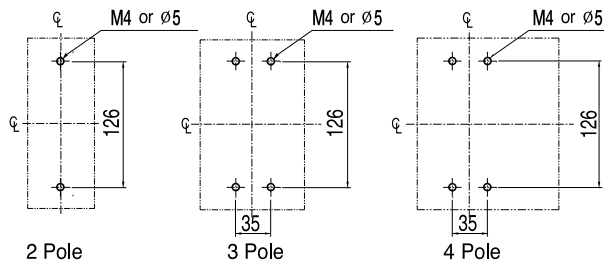
Detailed terminal



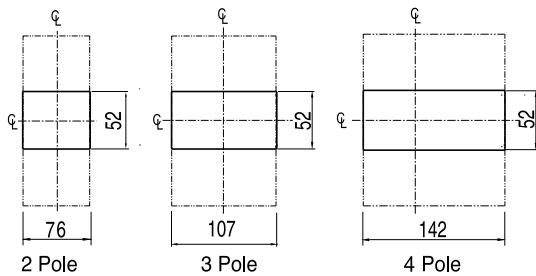
Hole size of a conductor



Mounting



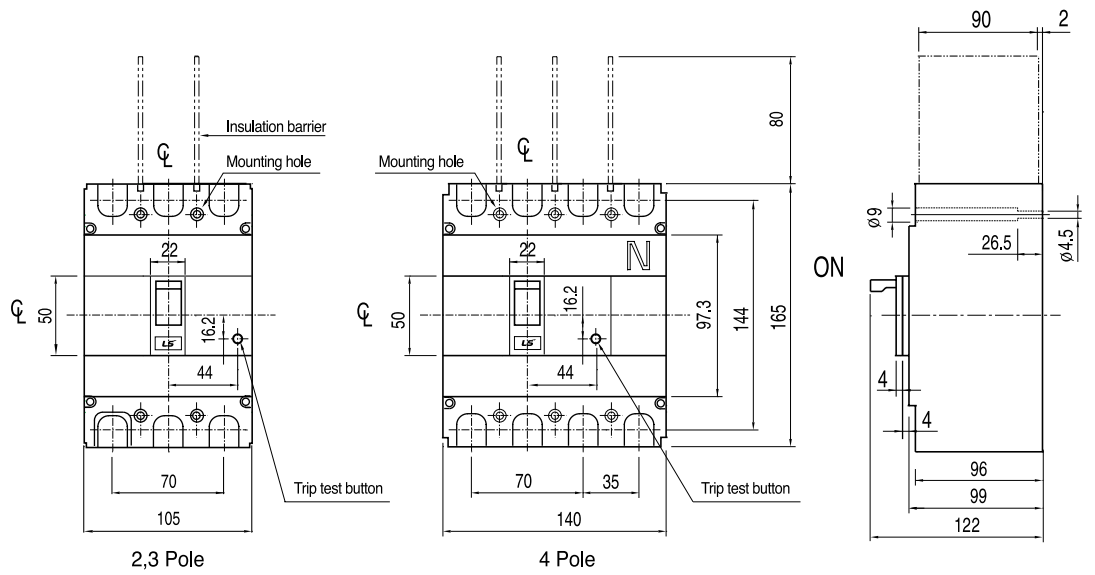
Slot



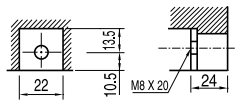
# Overall dimensions

## Hi-MEC MCCBs

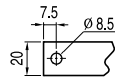
- ABL202a
- ABL203a
- ABL204a



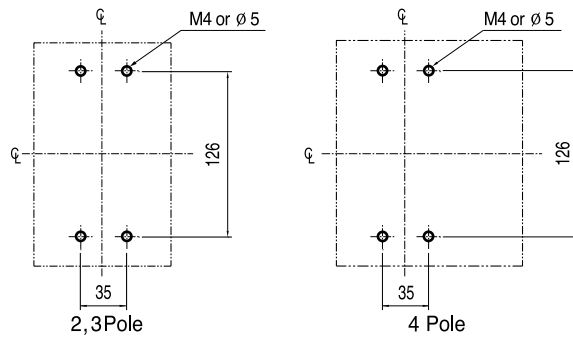
Detailed terminal



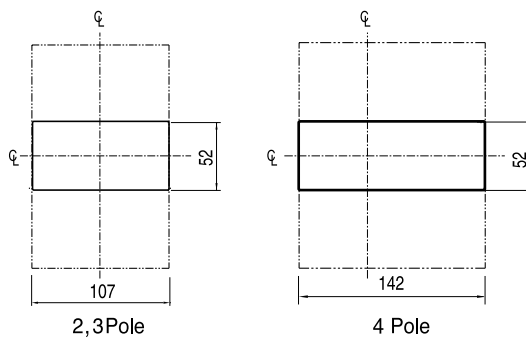
Hole size of a conductor



Mounting

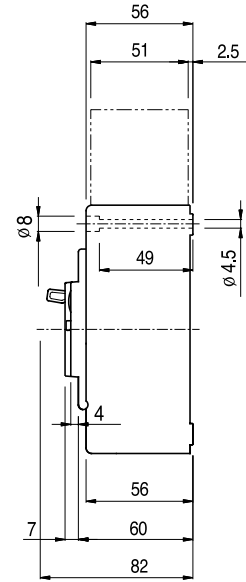
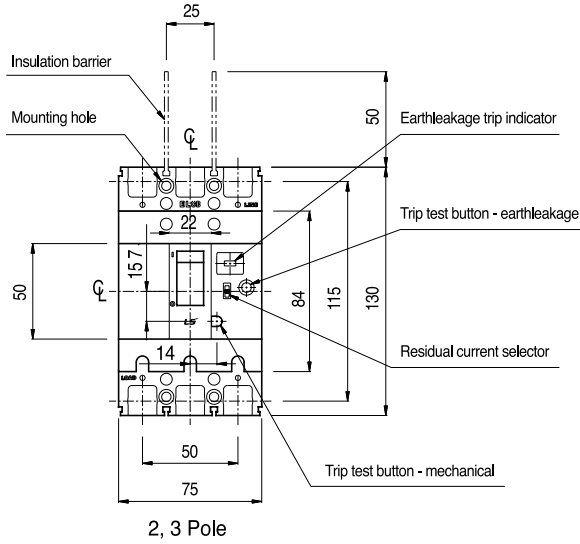


Slot



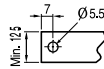
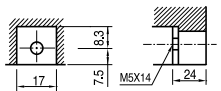
# ELCBs

- EBE52b
- EBE53b
- EBE63b
- EBE102b
- EBE103b
- EBS33b
- EBS53b
- EBS63b
- EBH33b



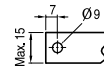
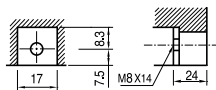
Detailed terminal (50A less)

Hole size of a conductor

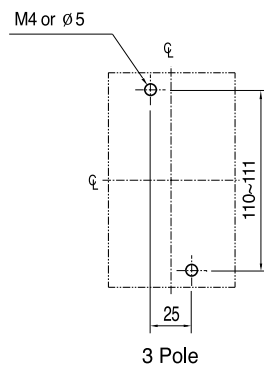


Detailed terminal (from 50A)

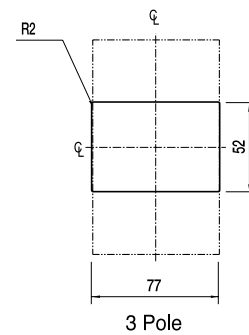
Hole size of a conductor



Mounting



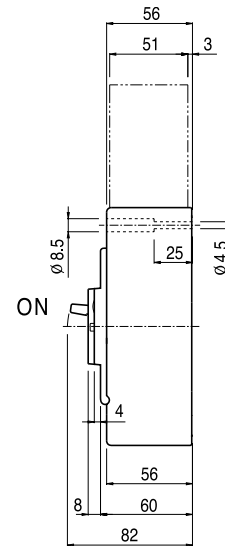
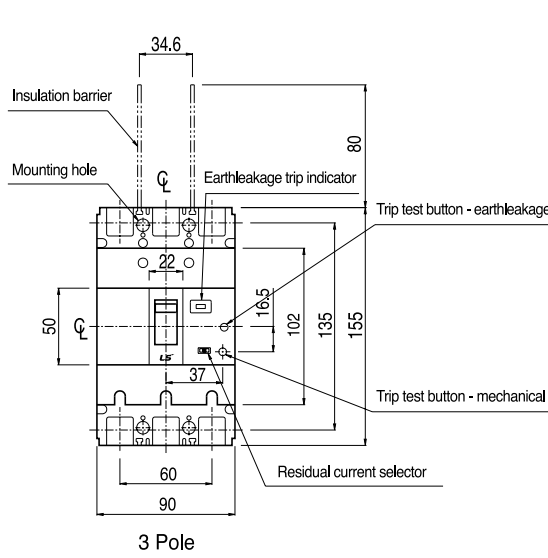
Slot



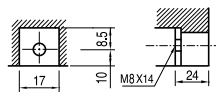
# Overall dimensions

## ELCBs

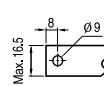
- EBS103b
- EBH53b
- EBH103b



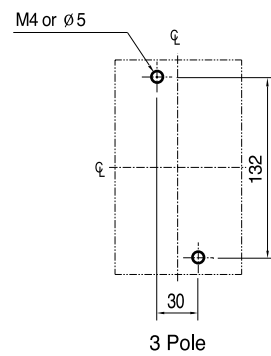
Detailed terminal



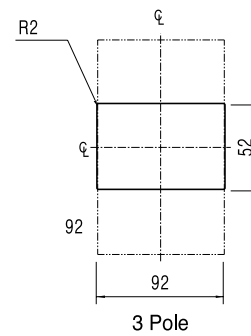
Hole size of a conductor



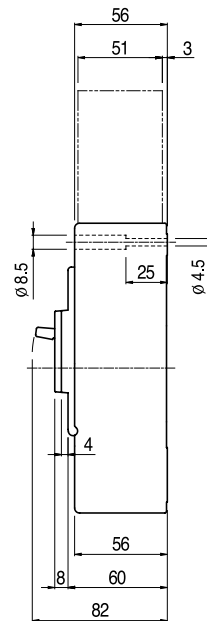
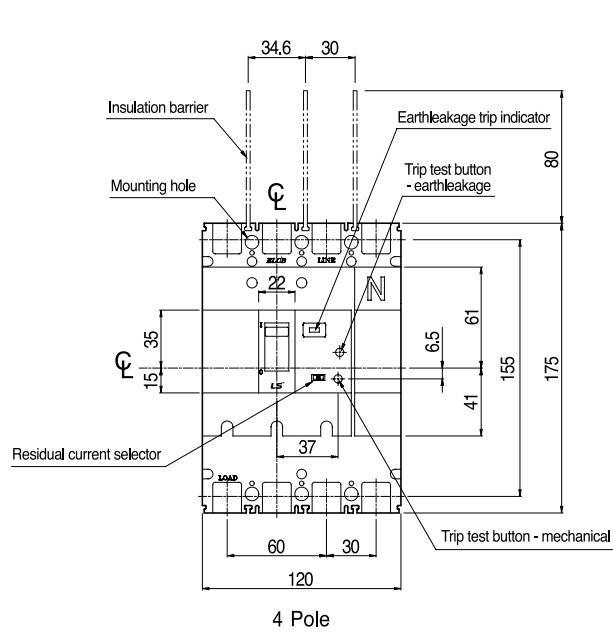
Mounting



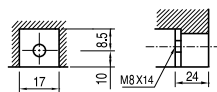
Slot



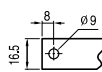
- EBS 54b**
- EBS104b**
- EBH 54b**
- EBH104b**



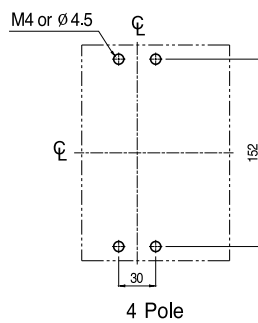
Detailed terminal



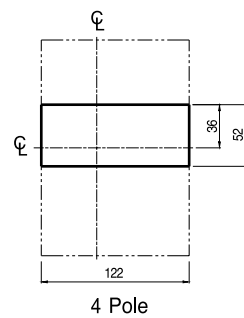
Hole size of a conductor



Mounting



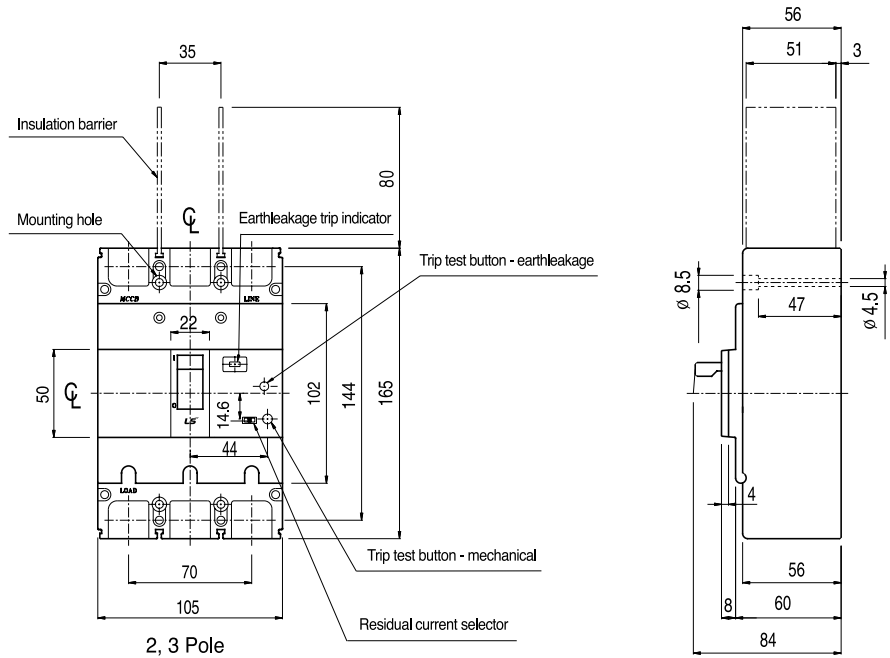
Slot



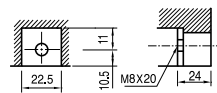
# Overall dimensions

## ELCBs

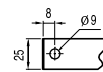
- EBE203b
- EBH203b
- EBS203b



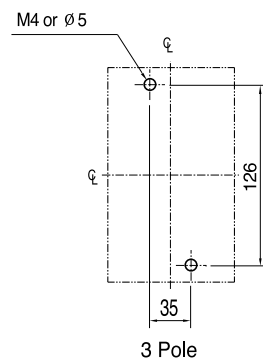
Detailed terminal



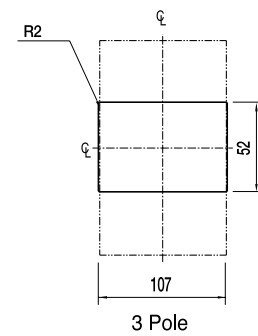
Hole size of a conductor



Mounting

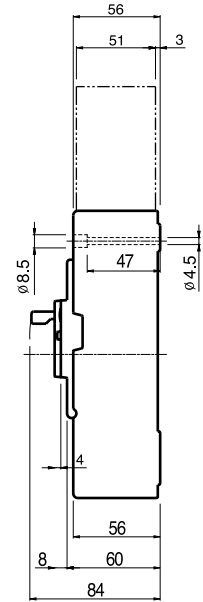
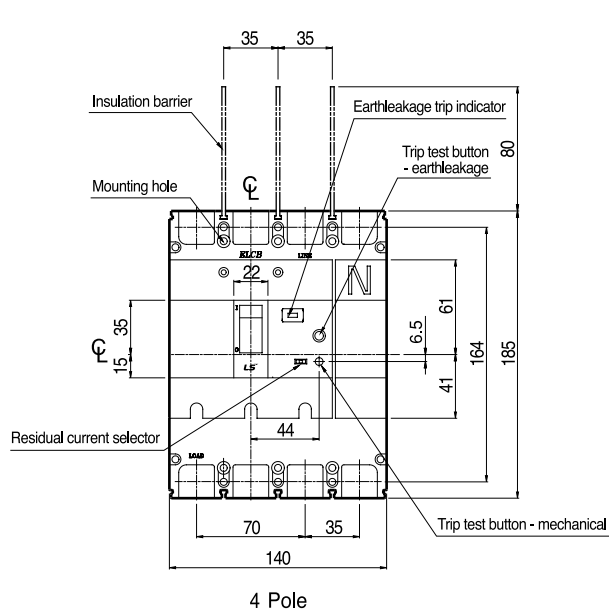


Slot

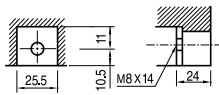


EBS204b

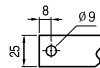
EBH204b



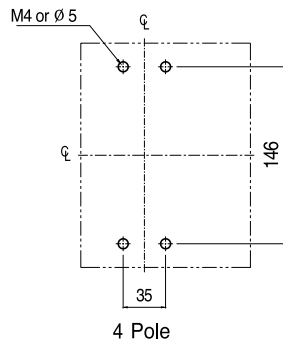
Detailed terminal



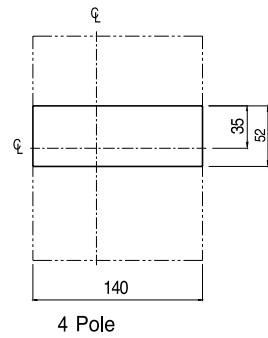
Hole size of a conductor



Mounting



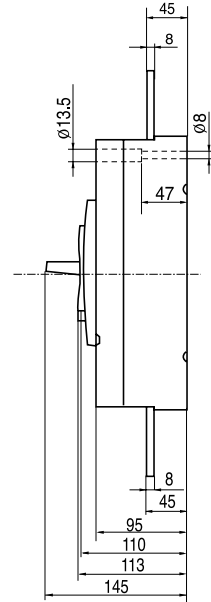
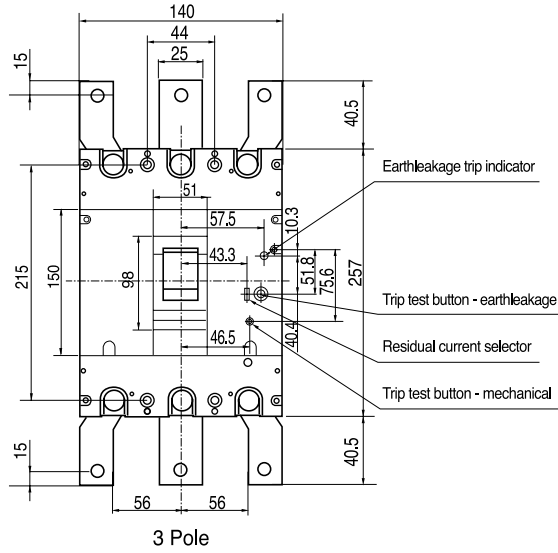
Slot



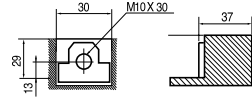
# Overall dimensions

## ELCBs

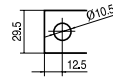
- EBE403b
- EBE404b
- EBS403b
- EBS404b
- EBH403b
- EBL403b



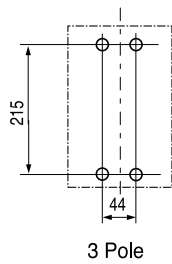
Detailed terminal



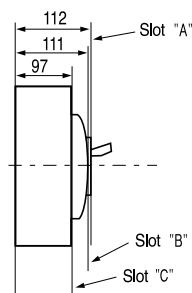
Hole size of a conductor



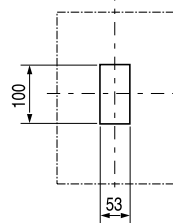
Mounting



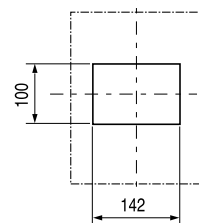
Slot



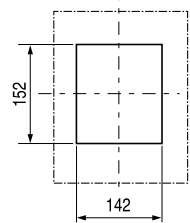
"A" (Handle only)



"B" (Handle & name plate)

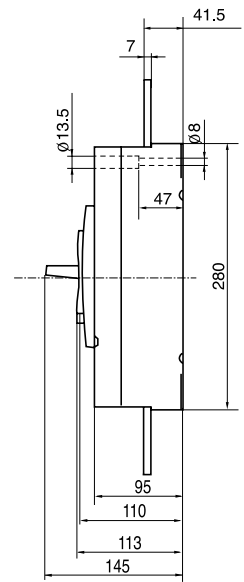
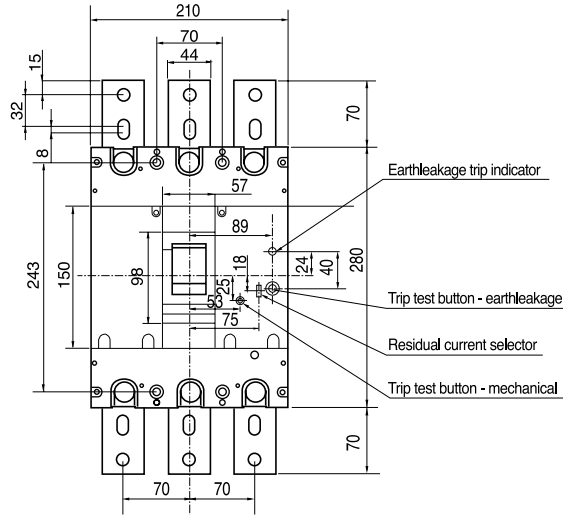


"C" (Handle, name plate & button)

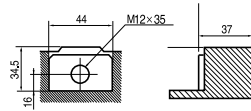




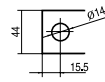
EBE803b(500, 600A)  
 EBS803b(500, 600A)  
 EBL803b(500, 600A)



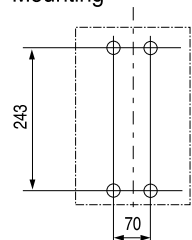
Detailed terminal



Hole size of a conductor

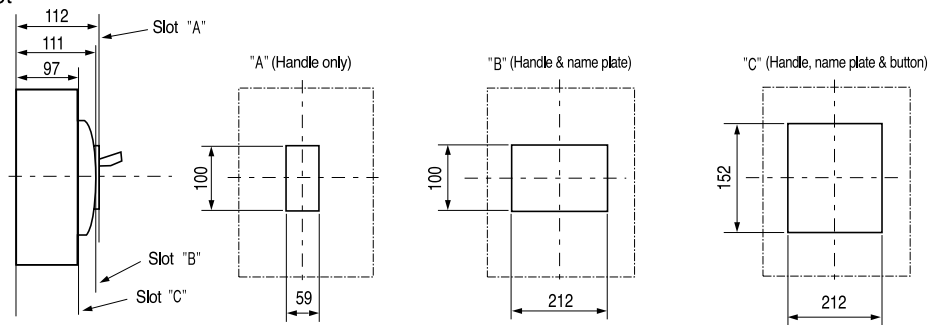


Mounting



3 Pole

Slot



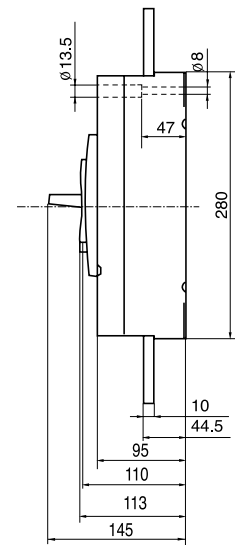
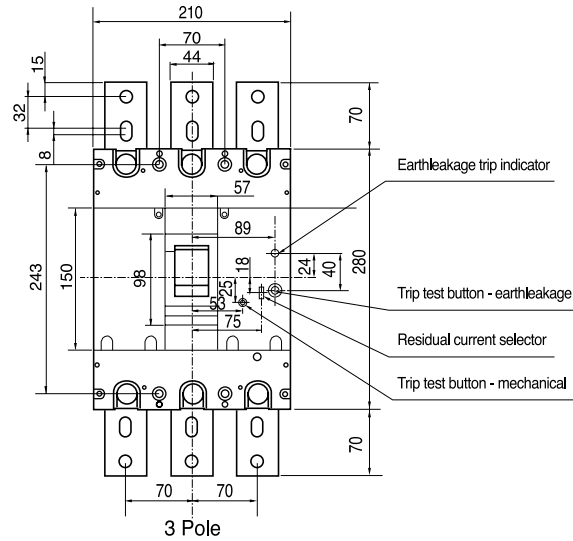
# Overall dimensions

## ELCBs

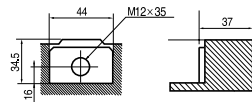
EBE803b(700, 800A)

EBL803b(700, 800A)

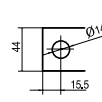
EBS803b(700, 800A)



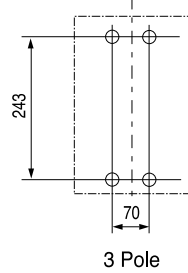
Detailed terminal



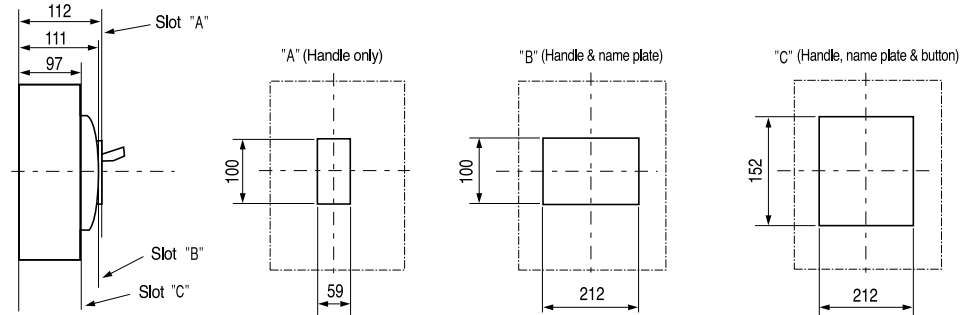
Hole size of a conductor



Mounting



Slot



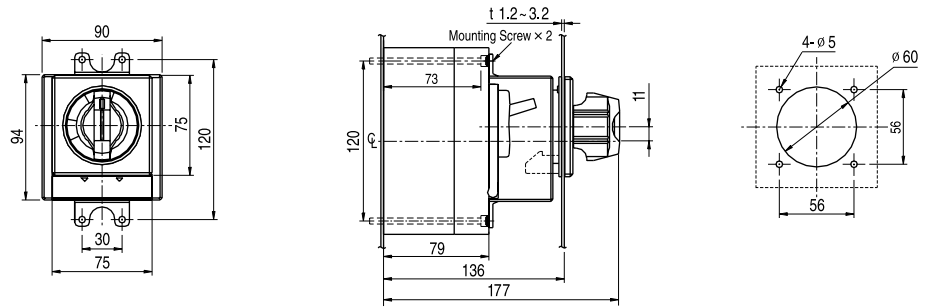
# Rotary handle

D-30S

D-30L

D-30R

D-30S, 30L, 30R type

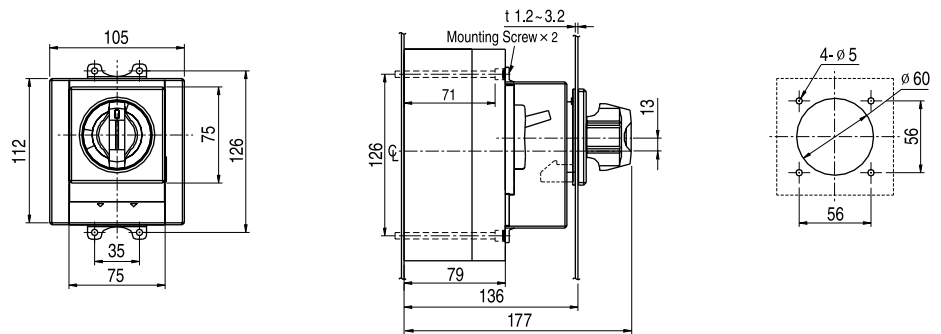


D-60S

D-60L

D-60R

D-60S, 60L, 60R type

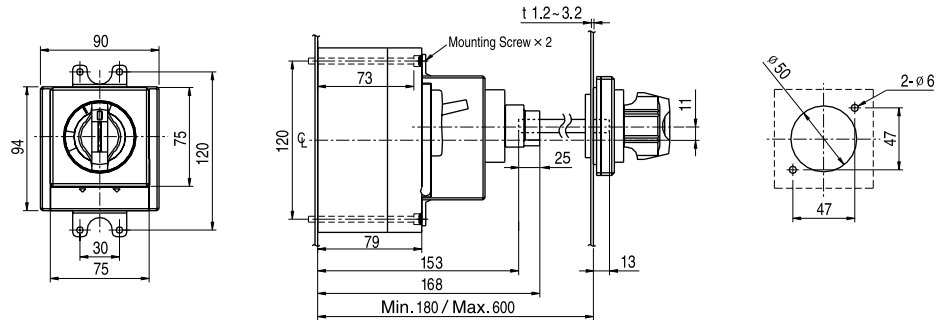


E-30S

E-30L

E-30R

E-30S, 30L, 30R type

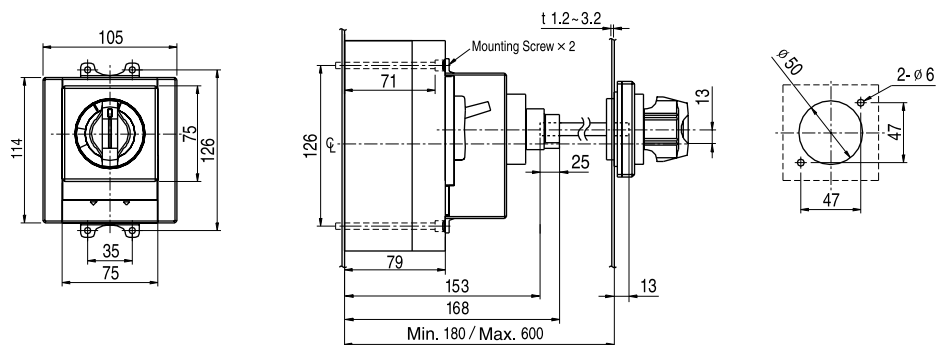


E-60S

E-60L

E-60R

E-60S, 60L, 60R type



# Overall dimensions

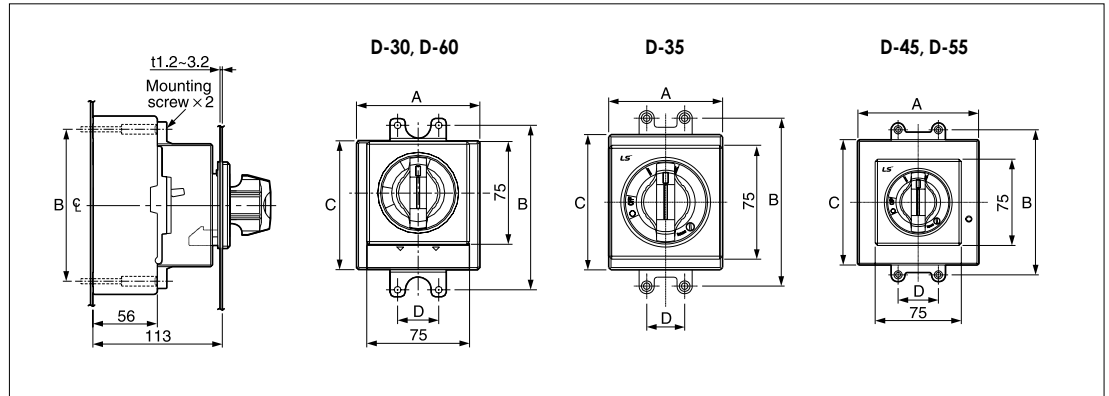
## Rotary handle

D-35

D-45

D-55

D-60



Type	D-30	D-35	D-45	D-55	D-60
A (mm)	90	75	90	105	105
B (mm)	120	110.5	132	126	126
C (mm)	94	89	106.8	109	112
D (mm)	30	25	30	35	35

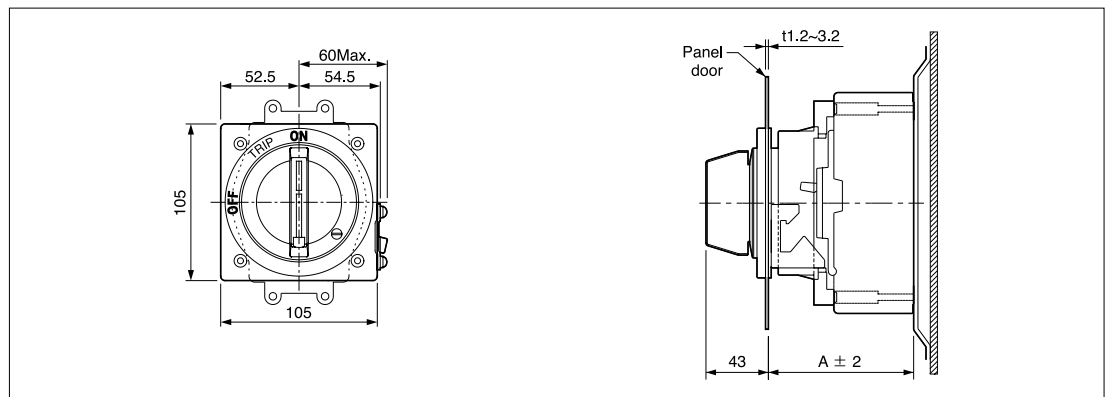
N-30b

N-40b

N-50b

N-55

N-60

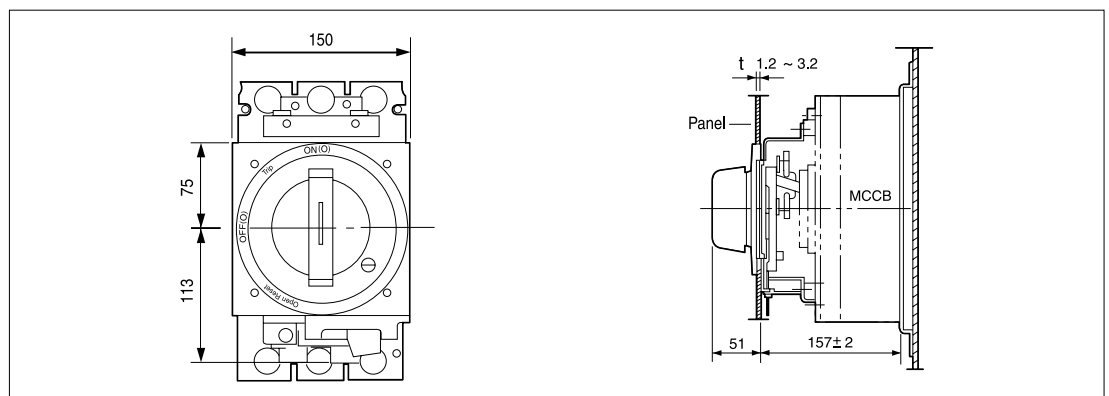


• Size "A"

N handle	N-30b	N-40b	N-50b	N-55	N-60
A (mm)	103	103	103	125	147

N-70

N-80

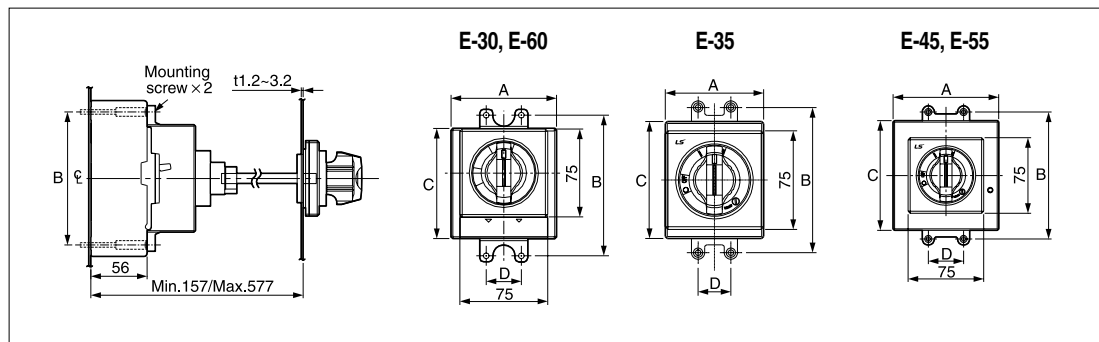


E-35

E-45

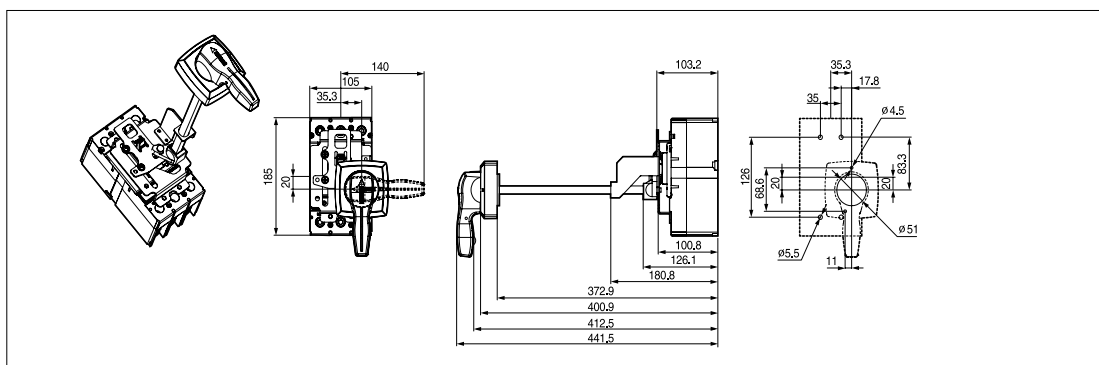
E-55

E-60

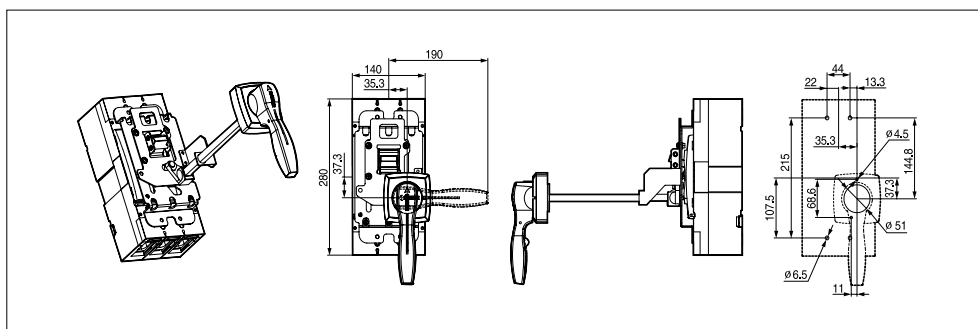


Type	E-30	E-35	E-45	E-55	E-60
A (mm)	90	75	90	105	105
B (mm)	120	110.5	132	126	126
C (mm)	94	89	106.8	109	114
D (mm)	30	25	30	35	35

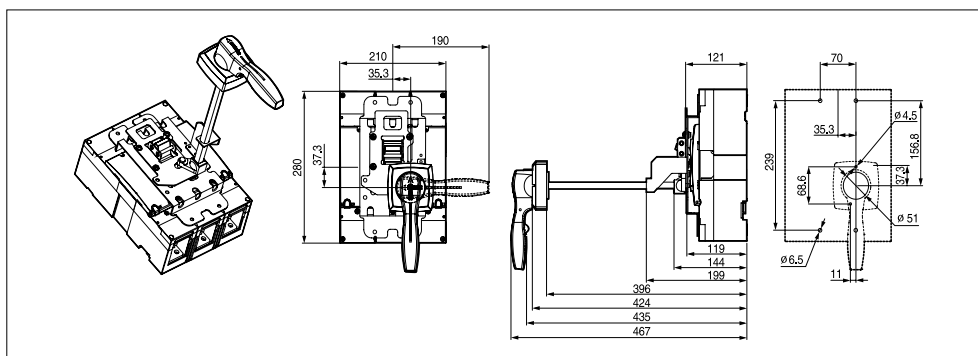
E-60U



E-70U



E-80U



# Catalogue numbers

## AB-type MCCB

### Hi-MEC ABE 30AF 2P/3P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
3A	2	ABE32 3A	0004000100	1.5
5A	2	ABE32 5A	0004000200	1.5
10A	2	ABE32 10A	0004000300	1.5
15A	2	ABE32 15A	0004000400	1.5
20A	2	ABE32 20A	0004000500	1.5
30A	2	ABE32 30A	0004000600	1.5

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
3A	3	ABE33 3A	0005000100	1.5
5A	3	ABE33 5A	0005000200	1.5
10A	3	ABE33 10A	0005000400	1.5
15A	3	ABE33 15A	0005000600	1.5
20A	3	ABE33 20A	0005000800	1.5
30A	3	ABE33 30A	0005001000	1.5

### Meta-MEC ABS 30AF 2P/3P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
3A	2	ABS32b 3A	0047000900	2.5
5A	2	ABS32b 5A	0047001000	5
10A	2	ABS32b 10A	0047001100	5
15A	2	ABS32b 15A	0047001200	5
20A	2	ABS32b 20A	0047001300	5
30A	2	ABS32b 30A	0047001400	5

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
3A	3	ABS33b 3A	0048000900	2.5
5A	3	ABS33b 5A	0048001000	5
10A	3	ABS33b 10A	0048001100	5
15A	3	ABS33b 15A	0048001200	5
20A	3	ABS33b 20A	0048001300	5
30A	3	ABS33b 30A	0048001400	5

### Meta-MEC ABH 30AF 2P/3P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	2	ABH32b 5A	0049002000	10
10A	2	ABH32b 10A	0049002100	10
15A	2	ABH32b 15A	0049002200	10
20A	2	ABH32b 20A	0049002300	10
30A	2	ABH32b 30A	0049002400	10

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	3	ABH33b 5A	0050002000	10
10A	3	ABH33b 10A	0050002100	10
15A	3	ABH33b 15A	0050002200	10
20A	3	ABH33b 20A	0050002300	10
30A	3	ABH33b 30A	0050002400	10

## Meta-MEC ABE 50AF 2P/3P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	2	ABE52b 5A	0047000100	5
10A	2	ABE52b 10A	0047000200	5
15A	2	ABE52b 15A	0047000300	5
20A	2	ABE52b 20A	0047000400	5
30A	2	ABE52b 30A	0047000500	5
40A	2	ABE52b 40A	0047000600	5
50A	2	ABE52b 50A	0047000700	5



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	3	ABE53b 5A	0048000100	5
10A	3	ABE53b 10A	0048000200	5
15A	3	ABE53b 15A	0048000300	5
20A	3	ABE53b 20A	0048000400	5
30A	3	ABE53b 30A	0048000500	5
40A	3	ABE53b 40A	0048000600	5
50A	3	ABE53b 50A	0048000700	5

## Meta-MEC ABS 50AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	2	ABS52b 5A	0049001100	10
10A	2	ABS52b 10A	0049001200	10
15A	2	ABS52b 15A	0049001300	10
20A	2	ABS52b 20A	0049001400	10
30A	2	ABS52b 30A	0049001500	10
40A	2	ABS52b 40A	0049001600	10
50A	2	ABS52b 50A	0049001700	10



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	3	ABS53b 5A	0050001100	10
10A	3	ABS53b 10A	0050001200	10
15A	3	ABS53b 15A	0050001300	10
20A	3	ABS53b 20A	0050001400	10
30A	3	ABS53b 30A	0050001500	10
40A	3	ABS53b 40A	0050001600	10
50A	3	ABS53b 50A	0050001700	10



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	4	ABS54b 5A	0051001100	10
10A	4	ABS54b 10A	0051001200	10
15A	4	ABS54b 15A	0051001300	10
20A	4	ABS54b 20A	0051001400	10
30A	4	ABS54b 30A	0051001500	10
40A	4	ABS54b 40A	0051001600	10
50A	4	ABS54b 50A	0051001700	10

# Catalogue numbers

## AB-type MCCB

### Meta-MEC ABH 50AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
15A	2	ABH52b 15A	0052000900	25
20A	2	ABH52b 20A	0052001000	25
30A	2	ABH52b 30A	0052001100	25
40A	2	ABH52b 40A	0052001200	25
50A	2	ABH52b 50A	0052001300	25



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
15A	3	ABH53b 15A	0053000900	25
20A	3	ABH53b 20A	0053001000	25
30A	3	ABH53b 30A	0053001100	25
40A	3	ABH53b 40A	0053001200	25
50A	3	ABH53b 50A	0053001300	25



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
15A	4	ABH54b 15A	0054000900	25
20A	4	ABH54b 20A	0054001000	25
30A	4	ABH54b 30A	0054001100	25
40A	4	ABH54b 40A	0054001200	25
50A	4	ABH54b 50A	0054001300	25



## Meta-MEC ABE 60AF 2P/3P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
60A	2	ABE62b 60A	0047000800	5



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
60A	3	ABE63b 60A	0048000800	5

## Meta-MEC ABS 60AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
60A	2	ABS62b 60A	0049001800	10



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
60A	3	ABS63b 60A	0050001800	10



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
60A	4	ABS64b 60A	0051001800	10

# Catalogue numbers

## AB-type MCCB

### Meta-MEC ABE 100AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	2	ABE102b 5A	0049000100	10
10A	2	ABE102b 10A	0049000200	10
15A	2	ABE102b 15A	0049000300	10
20A	2	ABE102b 20A	0049000400	10
30A	2	ABE102b 30A	0049000500	10
40A	2	ABE102b 40A	0049000600	10
50A	2	ABE102b 50A	0049000700	10
60A	2	ABE102b 60A	0049000800	10
75A	2	ABE102b 75A	0049000900	10
100A	2	ABE102b 100A	0049001000	10



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	3	ABE103b 5A	0050000100	10
10A	3	ABE103b 10A	0050000200	10
15A	3	ABE103b 15A	0050000300	10
20A	3	ABE103b 20A	0050000400	10
30A	3	ABE103b 30A	0050000500	10
40A	3	ABE103b 40A	0050000600	10
50A	3	ABE103b 50A	0050000700	10
60A	3	ABE103b 60A	0050000800	10
75A	3	ABE103b 75A	0050000900	10
100A	3	ABE103b 100A	0050001000	10



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	4	ABE104b 5A	0051000100	10
10A	4	ABE104b 10A	0051000200	10
15A	4	ABE104b 15A	0051000300	10
20A	4	ABE104b 20A	0051000400	10
30A	4	ABE104b 30A	0051000500	10
40A	4	ABE104b 40A	0051000600	10
50A	4	ABE104b 50A	0051000700	10
60A	4	ABE104b 60A	0051000800	10
75A	4	ABE104b 75A	0051000900	10
100A	4	ABE104b 100A	0051001000	10

## Meta-MEC ABS 100AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
15A	2	ABS102b 15A	0052000100	25
20A	2	ABS102b 20A	0052000200	25
30A	2	ABS102b 30A	0052000300	25
40A	2	ABS102b 40A	0052000400	25
50A	2	ABS102b 50A	0052000500	25
60A	2	ABS102b 60A	0052000600	25
75A	2	ABS102b 75A	0052000700	25
100A	2	ABS102b 100A	0052000800	25



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
15A	3	ABS103b 15A	0053000100	25
20A	3	ABS103b 20A	0053000200	25
30A	3	ABS103b 30A	0053000300	25
40A	3	ABS103b 40A	0053000400	25
50A	3	ABS103b 50A	0053000500	25
60A	3	ABS103b 60A	0053000600	25
75A	3	ABS103b 75A	0053000700	25
100A	3	ABS103b 100A	0053000800	25



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
15A	4	ABS104b 15A	0054000100	25
20A	4	ABS104b 20A	0054000200	25
30A	4	ABS104b 30A	0054000300	25
40A	4	ABS104b 40A	0054000400	25
50A	4	ABS104b 50A	0054000500	25
60A	4	ABS104b 60A	0054000600	25
75A	4	ABS104b 75A	0054000700	25
100A	4	ABS104b 100A	0054000800	25

# Catalogue numbers

## AB-type MCCB

### Meta-MEC ABH 100AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
15A	2	ABH102b 15A	0052002000	35
20A	2	ABH102b 20A	0052002100	35
30A	2	ABH102b 30A	0052002200	35
40A	2	ABH102b 40A	0052002300	35
50A	2	ABH102b 50A	0052002400	35
60A	2	ABH102b 60A	0052002500	35
75A	2	ABH102b 75A	0052002600	35
100A	2	ABH102b 100A	0052002700	35



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
15A	3	ABH103b 15A	0053002000	35
20A	3	ABH103b 20A	0053002100	35
30A	3	ABH103b 30A	0053002200	35
40A	3	ABH103b 40A	0053002300	35
50A	3	ABH103b 50A	0053002400	35
60A	3	ABH103b 60A	0053002500	35
75A	3	ABH103b 75A	0053002600	35
100A	3	ABH103b 100A	0053002700	35



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
15A	4	ABH104b 15A	0054002000	35
20A	4	ABH104b 20A	0054002100	35
30A	4	ABH104b 30A	0054002200	35
40A	4	ABH104b 40A	0054002300	35
50A	4	ABH104b 50A	0054002400	35
60A	4	ABH104b 60A	0054002500	35
75A	4	ABH104b 75A	0054002600	35
100A	4	ABH104b 100A	0054002700	35

## Meta-MEC ABE 225AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
100A	2	ABE202b 100A	0055000100	18
125A	2	ABE202b 125A	0055000200	18
150A	2	ABE202b 150A	0055000300	18
175A	2	ABE202b 175A	0055000400	18
200A	2	ABE202b 200A	0055000500	18
225A	2	ABE202b 225A	0055000600	18



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
100A	3	ABE203b 100A	0056000100	18
125A	3	ABE203b 125A	0056000200	18
150A	3	ABE203b 150A	0056000300	18
175A	3	ABE203b 175A	0056000400	18
200A	3	ABE203b 200A	0056000500	18
225A	3	ABE203b 225A	0056000600	18



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
100A	4	ABE204b 100A	0057000100	18
125A	4	ABE204b 125A	0057000200	18
150A	4	ABE204b 150A	0057000300	18
175A	4	ABE204b 175A	0057000400	18
200A	4	ABE204b 200A	0057000500	18
225A	4	ABE204b 225A	0057000600	18

# Catalogue numbers

## AB-type MCCB

### Meta-MEC ABS 225AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
100A	2	ABS202b 100A	0055000700	25
125A	2	ABS202b 125A	0055000800	25
150A	2	ABS202b 150A	0055000900	25
175A	2	ABS202b 175A	0055001000	25
200A	2	ABS202b 200A	0055001100	25
225A	2	ABS202b 225A	0055001200	25



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
100A	3	ABS203b 100A	0056000700	25
125A	3	ABS203b 125A	0056000800	25
150A	3	ABS203b 150A	0056000900	25
175A	3	ABS203b 175A	0056001000	25
200A	3	ABS203b 200A	0056001100	25
225A	3	ABS203b 225A	0056001200	25



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
100A	4	ABS204b 100A	0057000700	25
125A	4	ABS204b 125A	0057000800	25
150A	4	ABS204b 150A	0057000900	25
175A	4	ABS204b 175A	0057001000	25
200A	4	ABS204b 200A	0057001100	25
225A	4	ABS204b 225A	0057001200	25

## Meta-MEC ABH 225AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
100A	2	ABH202b 100A	0058000100	35
125A	2	ABH202b 125A	0058000200	35
150A	2	ABH202b 150A	0058000300	35
175A	2	ABH202b 175A	0058000400	35
200A	2	ABH202b 200A	0058000500	35
225A	2	ABH202b 225A	0058000600	35



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
100A	3	ABH203b 100A	0059000100	35
125A	3	ABH203b 125A	0059000200	35
150A	3	ABH203b 150A	0059000300	35
175A	3	ABH203b 175A	0059000400	35
200A	3	ABH203b 200A	0059000500	35
225A	3	ABH203b 225A	0059000600	35



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
100A	4	ABH204b 100A	0060000100	35
125A	4	ABH204b 125A	0060000200	35
150A	4	ABH204b 150A	0060000300	35
175A	4	ABH204b 175A	0060000400	35
200A	4	ABH204b 200A	0060000500	35
225A	4	ABH204b 225A	0060000600	35

# Catalogue numbers

## AB-type MCCB

### Meta-MEC ABE 400AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	2	ABE402b 250A	0088000100	25
300A	2	ABE402b 300A	0088000200	25
350A	2	ABE402b 350A	0088000300	25
400A	2	ABE402b 400A	0088000400	25

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	3	ABE403b 250A	0087000200	25
300A	3	ABE403b 300A	0087000300	25
350A	3	ABE403b 350A	0087000400	25
400A	3	ABE403b 400A	0087000500	25

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	4	ABE404b 250A	0086000200	25
300A	4	ABE404b 300A	0086000300	25
350A	4	ABE404b 350A	0086000400	25
400A	4	ABE404b 400A	0086000500	25

### Meta-MEC ABS 400AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	2	ABS402b 250A	0088000500	35
300A	2	ABS402b 300A	0088000600	35
350A	2	ABS402b 350A	0088000700	35
400A	2	ABS402b 400A	0088000800	35

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	3	ABS403b 250A	0087000600	35
300A	3	ABS403b 300A	0087000700	35
350A	3	ABS403b 350A	0087000800	35
400A	3	ABS403b 400A	0087000900	35

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	4	ABS404b 250A	0086000600	35
300A	4	ABS404b 300A	0086000700	35
350A	4	ABS404b 350A	0086000800	35
400A	4	ABS404b 400A	0086000900	35



## Meta-MEC ABH 400AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	2	ABH402b 250A	0088000900	50
300A	2	ABH402b 300A	0088001000	50
350A	2	ABH402b 350A	0088001100	50
400A	2	ABH402b 400A	0088001200	50

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	3	ABH403b 250A	0087001000	50
300A	3	ABH403b 300A	0087001100	50
350A	3	ABH403b 350A	0087001200	50
400A	3	ABH403b 400A	0087001300	50

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	4	ABH404b 250A	0086001000	50
300A	4	ABH404b 300A	0086001100	50
350A	4	ABH404b 350A	0086001200	50
400A	4	ABH404b 400A	0086001300	50

## Meta-MEC ABL 400AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	2	ABL402b 250A	0088001300	85
300A	2	ABL402b 300A	0088001400	85
350A	2	ABL402b 350A	0088001500	85
400A	2	ABL402b 400A	0088001600	85

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	3	ABL403b 250A	0087001400	85
300A	3	ABL403b 300A	0087001500	85
350A	3	ABL403b 350A	0087001600	85
400A	3	ABL403b 400A	0087000100	85

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	4	ABL404b 250A	0086001400	85
300A	4	ABL404b 300A	0086001500	85
350A	4	ABL404b 350A	0086001600	85
400A	4	ABL404b 400A	0086000100	85

# Catalogue numbers

## AB-type MCCB

### Meta-MEC ABE 800AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
500A	2	ABE802b 500A	0092000100	35
600A	2	ABE802b 600A	0092000200	35
630A	2			35
700A	2	ABE802b 700A	0092000300	35
800A	2	ABE802b 800A	0092000400	35

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
500A	3	ABE803b 500A	0093000100	35
600A	3	ABE803b 600A	0093000200	35
630A	3	ABE803b 630A	0093001300	35
700A	3	ABE803b 700A	0093000300	35
800A	3	ABE803b 800A	0093000400	35

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
500A	4	ABE804b 500A	0085000200	35
600A	4	ABE804b 600A	0085000300	35
630A	4	ABE804b 630A	0085001300	35
700A	4	ABE804b 700A	0085000400	35
800A	4	ABE804b 800A	0085000500	35

### Meta-MEC ABS 800AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
500A	2	ABS802b 500A	0092000500	50
600A	2	ABS802b 600A	0092000600	50
630A	2			50
700A	2	ABS802b 700A	0092000700	50
800A	2	ABS802b 800A	0092000800	50

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
500A	3	ABS803b 500A	0093000500	50
600A	3	ABS803b 600A	0093000600	50
630A	3	ABS803b 630A	0093001400	50
700A	3	ABS803b 700A	0093000700	50
800A	3	ABS803b 800A	0093000800	50

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
500A	4	ABS804b 500A	0085000600	50
600A	4	ABS804b 600A	0085000700	50
630A	4	ABS804b 630A	0085000800	50
700A	4	ABS804b 700A	0085000900	50
800A	4	ABS804b 800A	0085001400	50

## Meta-MEC ABL 800AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
500A	2	ABL802b 500A	0092000900	85
600A	2	ABL802b 600A	0092001000	85
630A	2	ABL802b 630A		85
700A	2	ABL802b 700A	0092001100	85
800A	2	ABL802b 800A	0092001200	85

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
500A	3	ABL803b 500A	0093000900	85
600A	3	ABL803b 600A	0093001000	85
630A	3	ABL803b 630A	0093001500	85
700A	3	ABL803b 700A	0093001100	85
800A	3	ABL803b 800A	0093001200	85

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
500A	4	ABL804b 500A	0085001000	85
600A	4	ABL804b 600A	0085000100	85
630A	4	ABL804b 630A	0085001500	85
700A	4	ABL804b 700A	0085001100	85
800A	4	ABL804b 800A	0085001200	85

# Catalogue numbers

## AB-type MCCB

### Meta-MEC ABS 1000AF 3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
1000A	3	ABS1003 1000A 50Hz	0041007600	65
1000A	3	ABS1003 1000A 60Hz	0041009200	65

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
1000A	4	ABS1004 1000A 50Hz	0042002300	65
1000A	4	ABS1004 1000A 60Hz	0042002400	65

### Meta-MEC ABS 1200AF 3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
1200A	3	ABS1203 1200A 50Hz	0041011200	65
1200A	3	ABS1203 1200A 60Hz	0041011300	65

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
1200A	4	ABS1204 1200A 50Hz	0042003300	65
1200A	4	ABS1204 1200A 60Hz		65

## Meta-MEC ABS1203E 3P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
1200A	3	ABS1203E 600-1200A	0041013900	65

# Catalogue numbers

## GB-type MCCB

### Meta-MEC GBN 100AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
16A	2	GBN102 16A	0024004900	35
20A	2	GBN102 20A	0024005500	35
25A	2	GBN102 25A	0024000700	35
32A	2	GBN102 32A	0024000800	35
40A	2	GBN102 40A	0024005600	35
50A	2	GBN102 50A	0024004100	35
63A	2	GBN102 63A	0024000900	35
80A	2	GBN102 80A	0024001000	35
100A	2	GBN102 100A	0024001100	35

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
16A	3	GBN103 16A	0025000700	35
20A	3	GBN103 20A	0025000800	35
25A	3	GBN103 25A	0025000900	35
32A	3	GBN103 32A	0025001000	35
40A	3	GBN103 40A	0025001100	35
50A	3	GBN103 50A	0025001200	35
63A	3	GBN103 63A	0025001300	35
80A	3	GBN103 80A	0025001400	35
100A	3	GBN103 100A	0025001500	35

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
6A	4	GBN104 16A	0026000300	35
20A	4	GBN104 20A	0026000400	35
25A	4	GBN104 25A	0026000500	35
32A	4	GBN104 32A	0026000600	35
40A	4	GBN104 40A	0026000700	35
50A	4	GBN104 50A	0026000800	35
63A	4	GBN104 63A	0026000900	35
80A	4	GBN104 80A	0026001000	35
100A	4	GBN104 100A	0026000100	35

## Meta-MEC GBH 100AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
16A	2	GBH102 16A	0024005000	50
20A	2	GBH102 20A	0024005100	50
25A	2	GBH102 25A	0024005200	50
32A	2	GBH102 32A	0024005300	50
40A	2	GBH102 40A	0024005400	50
50A	2	GBH102 50A	0024001800	50
63A	2	GBH102 63A	0024001900	50
80A	2	GBH102 80A	0024002000	50
100A	2	GBH102 100A	0024002100	50

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
16A	3	GBH103 16A	0025009200	50
20A	3	GBH103 20A	0025010100	50
25A	3	GBH103 25A	0025002200	50
32A	3	GBH103 32A	0025002300	50
40A	3	GBH103 40A	0025002400	50
50A	3	GBH103 50A	0025002500	50
63A	3	GBH103 63A	0025002600	50
80A	3	GBH103 80A	0025002700	50
100A	3	GBH103 100A	0025002800	50

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
16A	4	GBH104 16A	0026003400	50
20A	4	GBH104 20A	0026004100	50
25A	4	GBH104 25A	0026004200	50
32A	4	GBH104 32A	0026004300	50
40A	4	GBH104 40A	0026004400	50
50A	4	GBH104 50A	0026004500	50
63A	4	GBH104 63A	0026001200	50
80A	4	GBH104 80A	0026002700	50
100A	4	GBH104 100A	0026000200	50

# Catalogue numbers

## GB-type MCCB

### Meta-MEC GBL 100AF 2P/3P/4P



Rated current(I <sub>n</sub> )	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
16A	2	GBL102 16A		85
20A	2	GBL102 20A		85
25A	2	GBL102 25A		85
32A	2	GBL102 32A		85
40A	2	GBL102 40A		85
50A	2	GBL102 50A		85
63A	2	GBL102 63A	0024002800	85
80A	2	GBL102 80A	0024002900	85
100A	2	GBL102 100A	0024003000	85

Rated current(I <sub>n</sub> )	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
16A	3	GBL103 16A	0025003600	85
20A	3	GBL103 20A	0025003700	85
25A	3	GBL103 25A	0025003800	85
32A	3	GBL103 32A	0025003900	85
40A	3	GBL103 40A	0025004000	85
50A	3	GBL103 50A	0025004100	85
63A	3	GBL103 63A	0025004200	85
80A	3	GBL103 80A	0025004300	85
100A	3	GBL103 100A	0025004400	85

Rated current(I <sub>n</sub> )	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
16A	4	GBL104 16A	0026001300	85
20A	4	GBL104 20A	0026001400	85
25A	4	GBL104 25A	0026001500	85
32A	4	GBL104 32A	0026001600	85
40A	4	GBL104 40A	0026001700	85
50A	4	GBL104 50A	0026001800	85
63A	4	GBL104 63A	0026001900	85
80A	4	GBL104 80A	0026002000	85
100A	4	GBL104 100A	0026002100	85



## Meta-MEC GBN 250AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	2	GBN202 125A	0027000100	35
160A	2	GBN202 160A	0027000200	35
200A	2	GBN202 200A	0027000300	35
250A	2	GBN202 250A	0027000400	35
Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	3	GBN203 125A	0028000100	35
150A	3	GBN203 150A	0028003800	35
160A	3	GBN203 160A	0028000200	35
200A	3	GBN203 200A	0028000300	35
250A	3	GBN203 250A	0028000400	35
Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	4	GBN204 125A	0029000700	35
160A	4	GBN204 160A	0029000800	35
200A	4	GBN204 200A	0029000100	35
250A	4	GBN204 250A	0029000200	35

## Meta-MEC GBH 250AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	2	GBH202 125A	0027000500	50
160A	2	GBH202 160A	0027000600	50
200A	2	GBH202 200A	0027000700	50
250A	2	GBH202 250A	0027000800	50
Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	3	GBH203 125A	0028000600	50
160A	3	GBH203 160A	0028000700	50
200A	3	GBH203 200A	0028000800	50
250A	3	GBH203 250A	0028000900	50
Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	4	GBH204 125A	0029000900	50
160A	4	GBH204 160A	0029001200	50
200A	4	GBH204 200A	0029000300	50
250A	4	GBH204 250A	0029000400	50

## Meta-MEC GBL 250AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	2	GBL202 125A	0027000900	85
160A	2	GBL202 160A	0027001000	85
200A	2	GBL202 200A	0027001100	85
250A	2	GBL202 250A	0027001200	85
Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	3	GBL203 125A	0028001000	85
160A	3	GBL203 160A	0028003000	85
200A	3	GBL203 200A	0028001200	85
250A	3	GBL203 250A	0028001300	85
Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	4	GBL204 125A	0029001000	85
160A	4	GBL204 160A	0029001100	85
200A	4	GBL204 200A	0029000500	85
250A	4	GBL204 250A	0029000600	85

# Catalogue numbers

## GB-type MCCB

### Meta-MEC GBL 53E 3P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
50A	3	GBL53E 50A	0025008700	85

### Meta-MEC GBL 103E 3P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
100A	3	GBL103E 100A	0025009100	85

### Meta-MEC GBL 203E 3P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	3	GBL203E 250A	0028002900	85

## Meta-MEC GBN 403E 3P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
400A	3	GBN403E 400A	0031018100	35

## Meta-MEC GBH 403E 3P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
400A	3	GBH403E 400A	0031019300	50

## Meta-MEC GBN 803E 3P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
800A	3	GBN803E 800A	0039007000	35

## Meta-MEC GBH 803E 3P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
800A	3	GBH803E 800A	0039007300	50

# Catalogue numbers

## GB-type MCCB

### Meta-MEC GBN1603E 3P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
1600A	3	GBN1603E 1600A	0100000100	65
1600A	3	GBN1603EX 1600A	0100000200	65
1600A	3	GBN1603E 1600A WITH AX-LWT	0100000300	65

## Hi-MEC ABL 50AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
15A	2	ABL52a 15A	0020007500	65
20A	2	ABL52a 20A	0020007600	65
30A	2	ABL52a 30A	0020007700	65
40A	2	ABL52a 40A	0020007800	65
50A	2	ABL52a 50A	0020007900	65

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
15A	3	ABL53a 15A	0021030600	65
20A	3	ABL53a 20A	0021030700	65
30A	3	ABL53a 30A	0021030800	65
40A	3	ABL53a 40A	0021030900	65
50A	3	ABL53a 50A	0021031000	65

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
15A	4	ABL54a 15A	0022009800	65
20A	4	ABL54a 20A	0022009900	65
30A	4	ABL54a 30A	0022010000	65
40A	4	ABL54a 40A	0022010100	65
50A	4	ABL54a 50A	0022010200	65

# Catalogue numbers

## AB-type MCCB

### Hi-MEC ABL 100AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
15A	2	ABL102a 15A	0020009800	65
20A	2	ABL102a 20A	0020009900	65
30A	2	ABL102a 30A	0020010000	65
40A	2	ABL102a 40A	0020010100	65
50A	2	ABL102a 50A	0020010200	65
60A	2	ABL102a 60A	0020010300	65
75A	2	ABL102a 75A	0020010400	65
100A	2	ABL102a 100A	0020010500	65

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
15A	3	ABL103a 15A	0021036300	65
20A	3	ABL103a 20A	0021036400	65
30A	3	ABL103a 30A	0021036500	65
40A	3	ABL103a 40A	0021036600	65
50A	3	ABL103a 50A	0021036700	65
60A	3	ABL103a 60A	0021036800	65
75A	3	ABL103a 75A	0021036900	65
100A	3	ABL103a 100A	0021037000	65

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
15A	4	ABL104a 15A	0022013200	65
20A	4	ABL104a 20A	0022013300	65
30A	4	ABL104a 30A	0022013400	65
40A	4	ABL104a 40A	0022013500	65
50A	4	ABL104a 50A	0022013600	65
60A	4	ABL104a 60A	0022013700	65
75A	4	ABL104a 75A	0022013800	65
100A	4	ABL104a 100A	0022013900	65

## Hi-MEC ABL 225AF 2P/3P/4P



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	2	ABL202a 125A	0017007700	65
150A	2	ABL202a 150A	0017007800	65
175A	2	ABL202a 175A	0017007900	65
200A	2	ABL202a 200A	0017008000	65
225A	2	ABL202a 225A	0017008100	65

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	3	ABL203a 125A	0018028500	65
150A	3	ABL203a 150A	0018028600	65
175A	3	ABL203a 175A	0018028700	65
200A	3	ABL203a 200A	0018028800	65
225A	3	ABL203a 225A	0018028900	65

Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	4	ABL204a 125A	0019014400	65
150A	4	ABL204a 150A	0019014500	65
175A	4	ABL204a 175A	0019014600	65
200A	4	ABL204a 200A	0019014700	65
225A	4	ABL204a 225A	0019014800	65

# Catalogue numbers

## AB-type MCCB

### Motor protection Meta-MEC series ABE53bM 3P thermal magnetic type



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
10A	3	ABE53bM 10A	0048002300	5
12A	3	ABE53bM 12A	0048002400	5
16A	3	ABE53bM 16A	0048002500	5
24A	3	ABE53bM 24A	0048002600	5
32A	3	ABE53bM 32A	0048002700	5
45A	3	ABE53bM 45A	0048002900	5
60A	3	ABE63bM 60A	0048003000	5

### Motor protection Meta-MEC series ABS53bM 3P thermal magnetic type



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
10A	3	ABS53bM 10A	0050004700	10
12A	3	ABS53bM 12A	0050004800	10
16A	3	ABS53bM 16A	0050004900	10
24A	3	ABS53bM 24A	0050005000	10
32A	3	ABS53bM 32A	0050005100	10
40A	3	ABS53bM 40A	0050005200	10
45A	3	ABS53bM 45A	0050005300	10

### Motor protection Meta-MEC series ABS63bM 3P thermal magnetic type



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
60A	3	ABS63bM 60A	0050005400	10

### Motor protection Meta-MEC series ABE103bM 3P thermal magnetic type



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
75A	3	ABE103bM 75A	0050005600	10
90A	3	ABE103bM 90A	0050005700	10



## Motor protection Meta-MEC series ABH53bM 3P thermal magnetic type



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
6A	3	ABH53bM 16A	0053003400	25
24A	3	ABH53bM 24A	0053003500	25
32A	3	ABH53bM 32A	0053003600	25
45A	3	ABH53bM 45A	0053003800	25

## Motor protection Meta-MEC series ABS103bM 3P thermal magnetic type



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
60A	3	ABS103bM 60A	0053003100	25
75A	3	ABS103bM 75A	0053003200	25
90A	3	ABS103bM 90A	0053003300	25

## Motor protection Meta-MEC series ABH103bM 3P thermal magnetic type



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
60A	3	ABH103bM 60A	0053004400	35
75A	3	ABH103bM 75A	0053004500	35
90A	3	ABH103bM 90A	0053004600	35

# Catalogue numbers

## AB-type MCCB

### Motor protection Meta-MEC series ABE203bM 3P thermal magnetic type



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	3	ABE203bM 125A	0056001300	18
150A	3	ABE203bM 150A	0056001400	18
175A	3	ABE203bM 175A	0056001500	18
225A	3	ABE203bM 225A	0056001600	18

### Motor protection Meta-MEC series ABS203bM 3P thermal magnetic type



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	3	ABS203bM 125A	0056001700	25
150A	3	ABS203bM 150A	0056001800	25
175A	3	ABS203bM 175A	0056001900	25
225A	3	ABS203bM 225A	0056002000	25

### Motor protection Meta-MEC series ABH203bM 3P thermal magnetic type



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	3	ABH203bM 125A	0059000700	35
150A	3	ABH203bM 150A	0059000800	35
175A	3	ABH203bM 175A	0059000900	35
225A	3	ABH203bM 225A	0059001000	35

## Motor protection Meta-MEC series GBL103IN 3P magnetic only type



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
1.6A	3	GBL103IN 1.6A (TC10-20)	0025005600	85
3.2A	3	GBL103IN 3.2A (TC20-40)	0025005700	85
6.3A	3	GBL103IN 6.3A (TC40-80)	0025005800	85
12A	3	GBL103IN 12A (TC70-140)	0025005900	85
20A	3	GBL103IN 20A (TC120-240)	0025006000	85
32A	3	GBL103IN 32A (TC180-360)	0025006100	85
50A	3	GBL103IN 50A (TC300-600)	0025006200	85
63A	3	GBL103IN 63A (TC400-800)	0025006300	85
100A	3	GBL103IN 100A (TC625-1250)	0025006400	85

## Motor protection Meta-MEC series GBL203IN 3P magnetic only type



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
63A	3	GBL203IN 63A (TC400-800)		85
100A	3	GBL203IN 100A (TC625-1250)	0028003200	85
160A	3	GBL203IN 160A (TC1000-2000)	0028002100	85
200A	3	GBL203IN 200A (TC1250-2500)	0028002200	85
250A	3	GBL203IN 250A (TC2000-3250)	0028002300	85

# Catalogue numbers

## IN type MCCB

### Motor protection Meta-MEC series ABL403bIN 3P magnetic only type



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
300A	3	ABL403bIN 300A (TC1200-3000)	0087016100	65
350A	3	ABL403bIN 350A (TC1400-3500)	0087016500	65
400A	3	ABL403bIN 400A (TC1600-4000)	0087016200	65

### Motor protection Meta-MEC series ABL803bIN 3P magnetic only type



Rated current(In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
400A	3	ABL803bIN 400A (TC1500-3750)		65
500A	3	ABL803bIN 400A (TC2000-5000)		65
600A	3	ABL803bIN 600A (TC2400-6000)		65
700A	3	ABL803bIN 700A (TC2800-7000)	0093008000	65
800A	3	ABL803bIN 800A (TC3200-8000)		65

# Key-locking type MCCB

## Meta-MEC series key-locking breakers



Rated current(In)	Pole	Model	Catalogue No.	Icu at 380VAC (kA)
30A	3	ABS103K/30		20
60A	3	ABS103K/60		20
100A	3	ABS103K/100		20



Rated current(In)	Pole	Model	Catalogue No.	Icu at 380VAC (kA)
150A	3	ABS203K/150		20

# Catalogue numbers

## Plug-in MCCB

### Plug-in MCCB without mounting block

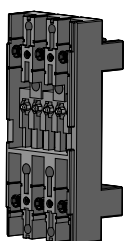


Plug-in MCCB without mounting block which can be assembled with

- PB-A3-FR (Standard mounting block)
- PB-A3-1DB (Single row type mounting block)
- PB-A3-2DB (Double row type mounting block)

Rated current(In)	Pole	Model	Catalogue No.
5A	3	Plug-in MCCB ABE53b 5A	0048150400
10A	3	Plug-in MCCB ABE53b 10A	0048150500
15A	3	Plug-in MCCB ABE53b 15A	0048150600
20A	3	Plug-in MCCB ABE53b 20A	0048150700
30A	3	Plug-in MCCB ABE53b 30A	0048150800
40A	3	Plug-in MCCB ABE53b 40A	0048150900
50A	3	Plug-in MCCB ABE53b 50A	0048151000
60A	3	Plug-in MCCB ABE63b 60A	0048151100
5A	3	Plug-in MCCB ABE103b 5A	0050241000
10A	3	Plug-in MCCB ABE103b 10A	0050241100
15A	3	Plug-in MCCB ABE103b 15A	0050241200
20A	3	Plug-in MCCB ABE103b 20A	0050241300
30A	3	Plug-in MCCB ABE103b 30A	0050241400
40A	3	Plug-in MCCB ABE103b 40A	0050241500
50A	3	Plug-in MCCB ABE103b 50A	0050241600
60A	3	Plug-in MCCB ABE103b 60A	0050241700
75A	3	Plug-in MCCB ABE103b 75A	0050241800
100A	3	Plug-in MCCB ABE103b 100A	0050241900
3A	3	Plug-in MCCB ABS33b 3A	0048151200
5A	3	Plug-in MCCB ABS33b 5A	0048151300
10A	3	Plug-in MCCB ABS33b 10A	0048151400
15A	3	Plug-in MCCB ABS33b 15A	0048151500
20A	3	Plug-in MCCB ABS33b 20A	0048151600
30A	3	Plug-in MCCB ABS33b 30A	0048151700
5A	3	Plug-in MCCB ABS53b 5A	0050242000
10A	3	Plug-in MCCB ABS53b 10A	0050242100
15A	3	Plug-in MCCB ABS53b 15A	0050242200
20A	3	Plug-in MCCB ABS53b 20A	0050242300
30A	3	Plug-in MCCB ABS53b 30A	0050242400
40A	3	Plug-in MCCB ABS53b 40A	0050242600
50A	3	Plug-in MCCB ABS53b 50A	0050242700
60A	3	Plug-in MCCB ABS63b 60A	0050242800
5A	3	Plug-in MCCB ABH33b 5A	0050242900
10A	3	Plug-in MCCB ABH33b 10A	0050243000
15A	3	Plug-in MCCB ABH33b 15A	0050243100
20A	3	Plug-in MCCB ABH33b 20A	0050243200
30A	3	Plug-in MCCB ABH33b 30A	0050243300

### Mounting block for plug-in MCCB



Model	Catalogue No.
PB-A3-FR (Standard mounting block)	54621151101
PB-A3-1DB (Single row type mounting block)	54621151103
PB-A3-2DB (Double row type mounting block)	54621151104

## Plug-in MCCB without mounting block

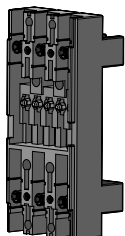


Plug-in MCCB without mounting block which can be assembled with

- PB-C3-FR (Standard mounting block)
- PB-C3-1DB (Single row type mounting block)
- PB-C3-2DB (Double row type mounting block)

Rated current(In)	Pole	Model	Catalogue No.
15A	3	Plug-in MCCB ABS103b 15A	0053222100
20A	3	Plug-in MCCB ABS103b 20A	0053222200
30A	3	Plug-in MCCB ABS103b 30A	0053222300
40A	3	Plug-in MCCB ABS103b 40A	0053222400
50A	3	Plug-in MCCB ABS103b 50A	0053222500
60A	3	Plug-in MCCB ABS103b 60A	0053222600
75A	3	Plug-in MCCB ABS103b 75A	0053222700
100A	3	Plug-in MCCB ABS103b 100A	0053222800
15A	3	Plug-in MCCB ABH53b 15A	0053222900
20A	3	Plug-in MCCB ABH53b 20A	0053223000
30A	3	Plug-in MCCB ABH53b 30A	0053223100
40A	3	Plug-in MCCB ABH53b 40A	0053223200
50A	3	Plug-in MCCB ABH53b 50A	0053223300
15A	3	Plug-in MCCB ABH103b 15A	0053224000
20A	3	Plug-in MCCB ABH103b 20A	0053224100
30A	3	Plug-in MCCB ABH103b 30A	0053224200
40A	3	Plug-in MCCB ABH103b 40A	0053224300
50A	3	Plug-in MCCB ABH103b 50A	0053224400
60A	3	Plug-in MCCB ABH103b 60A	0053224500
75A	3	Plug-in MCCB ABH103b 75A	0053224600
100A	3	Plug-in MCCB ABH103b 100A	0053224700

## Mounting block for plug-in MCCB



Model	Catalogue No.
PB-C3-FR (Standard mounting block)	54621152101
PB-C3-1DB (Single row type mounting block)	54621152103
PB-C3-2DB (Double row type mounting block)	54621152104

# Catalogue numbers

## Plug-in MCCB

### Plug-in MCCB without mounting block

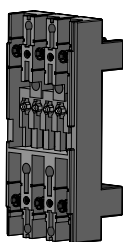


Plug-in MCCB without mounting block which can be assembled with

- PB-G3-FR (Standard mounting block)
- PB-G3-1DB (Single row type mounting block)
- PB-G3-2DB (Double row type mounting block)

Rated current(In)	Pole	Model	Catalogue No.
16A	3	Plug-in MCCB GBN53 16A	0025012900
20A	3	Plug-in MCCB GBN53 20A	0025013000
25A	3	Plug-in MCCB GBN53 25A	0025013100
32A	3	Plug-in MCCB GBN53 32A	0025013200
40A	3	Plug-in MCCB GBN53 40A	0025013300
50A	3	Plug-in MCCB GBN53 50A	0025013400
63A	3	Plug-in MCCB GBN103 63A	0025013500
80A	3	Plug-in MCCB GBN103 80A	0025013600
100A	3	Plug-in MCCB GBN103 100A	0025013700
16A	3	Plug-in MCCB GBH53 16A	0025013800
20A	3	Plug-in MCCB GBH53 20A	0025013900
25A	3	Plug-in MCCB GBH53 25A	0025014000
32A	3	Plug-in MCCB GBH53 32A	0025014100
40A	3	Plug-in MCCB GBH53 40A	0025014200
50A	3	Plug-in MCCB GBH53 50A	0025014300
63A	3	Plug-in MCCB GBH103 63A	0025014400
80A	3	Plug-in MCCB GBH103 80A	0025014500
100A	3	Plug-in MCCB GBH103 100A	0025014600

### Mounting block for plug-in MCCB



Model	Catalogue No.
PB-G3-FR (Standard mounting block)	54621141101
PB-G3-1DB (Single row type mounting block)	54621141103
PB-G3-2DB (Double row type mounting block)	54621141104



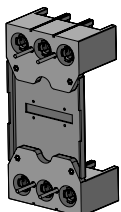
## Plug-in MCCB without mounting block



Plug-in MCCB without mounting block which can be assembled with  
 • PB-D3-FR (Standard mounting block)

Rated current(In)	Pole	Model	Catalogue No.
100A	3	Plug-in MCCB ABE203b 100A	0056126200
125A	3	Plug-in MCCB ABE203b 125A	0056126300
150A	3	Plug-in MCCB ABE203b 150A	0056126400
175A	3	Plug-in MCCB ABE203b 175A	0056126500
200A	3	Plug-in MCCB ABE203b 200A	0056126600
225A	3	Plug-in MCCB ABE203b 225A	0056126700
100A	3	Plug-in MCCB ABS203b 100A	0056126800
125A	3	Plug-in MCCB ABS203b 125A	0056126900
150A	3	Plug-in MCCB ABS203b 150A	0056127000
175A	3	Plug-in MCCB ABS203b 175A	0056127100
200A	3	Plug-in MCCB ABS203b 200A	0056127200
225A	3	Plug-in MCCB ABS203b 225A	0056127300
125A	3	Plug-in MCCB ABH203a 125A	0018041800
150A	3	Plug-in MCCB ABH203a 150A	0018041900
175A	3	Plug-in MCCB ABH203a 175A	0018042000
200A	3	Plug-in MCCB ABH203a 200A	0018042100
225A	3	Plug-in MCCB ABH203a 225A	0018042200
100A	3	Plug-in MCCB ABH203b 100A	0059062300
125A	3	Plug-in MCCB ABH203b 125A	0059062400
150A	3	Plug-in MCCB ABH203b 150A	0059062500
175A	3	Plug-in MCCB ABH203b 175A	0059062600
200A	3	Plug-in MCCB ABH203b 200A	0059062700
225A	3	Plug-in MCCB ABH203b 225A	0059062800
125A	3	Plug-in MCCB ABL203a 125A	0018041300
150A	3	Plug-in MCCB ABL203a 150A	0018041400
175A	3	Plug-in MCCB ABL203a 175A	0018041500
200A	3	Plug-in MCCB ABL203a 200A	0018041600
225A	3	Plug-in MCCB ABL203a 225A	0018041700
125A	3	Plug-in MCCB GBN203 125A	0028004400
160A	3	Plug-in MCCB GBN203 160A	0028004500
200A	3	Plug-in MCCB GBN203 200A	0028004600
250A	3	Plug-in MCCB GBN203 250A	0028004700
125A	3	Plug-in MCCB GBH203 125A	0028004800
160A	3	Plug-in MCCB GBH203 160A	0028004900
200A	3	Plug-in MCCB GBH203 200A	0028005000
250A	3	Plug-in MCCB GBH203 250A	0028005100
63A	3	Plug-in MCCB GBL103 63A	0025017300
80A	3	Plug-in MCCB GBL103 80A	0025017400
100A	3	Plug-in MCCB GBL103 100A	0025017500
125A	3	Plug-in MCCB GBL203 125A	0028005200
160A	3	Plug-in MCCB GBL203 160A	0028005300
200A	3	Plug-in MCCB GBL203 200A	0028005400
250A	3	Plug-in MCCB GBL203 250A	0028005500

## Mounting block for plug-in MCCB



Model	Catalogue No.
PB-D3-FR (Standard mounting block)	54621153102

# Catalogue numbers

## Plug-in MCCB

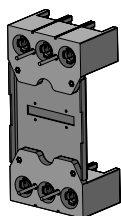
### Plug-in MCCB without mounting block



Plug-in MCCB without mounting block which can be assembled with  
• PB-E3-FR (Standard mounting block)

Rated current(In)	Pole	Model	Catalogue No.
15A	3	Plug-in MCCB ABL53a 15A	0021060100
20A	3	Plug-in MCCB ABL53a 20A	0021060200
30A	3	Plug-in MCCB ABL53a 30A	0021060300
40A	3	Plug-in MCCB ABL53a 40A	0021060400
50A	3	Plug-in MCCB ABL53a 50A	0021060500
15A	3	Plug-in MCCB ABL103a 15A	0021060600
20A	3	Plug-in MCCB ABL103a 20A	0021060700
30A	3	Plug-in MCCB ABL103a 30A	0021060800
40A	3	Plug-in MCCB ABL103a 40A	0021060900
50A	3	Plug-in MCCB ABL103a 50A	0021061000
60A	3	Plug-in MCCB ABL103a 60A	0021061100
75A	3	Plug-in MCCB ABL103a 75A	0021061200
100A	3	Plug-in MCCB ABL103a 100A	0021061300

### Mounting block for plug-in MCCB



Model	Catalogue No.
PB-E3-FR (Standard mounting block)	54621115102

## Plug-in MCCB without mounting block

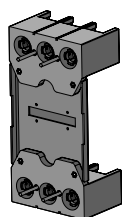


Plug-in MCCB without mounting block which can be assembled with

- PB-I3-FR (Standard mounting block)

Rated current(In)	Pole	Model	Catalogue No.
250A	3	Plug-in MCCB ABE403b 250A	0087018100
300A	3	Plug-in MCCB ABE403b 300A	0087018200
350A	3	Plug-in MCCB ABE403b 350A	0087018300
400A	3	Plug-in MCCB ABE403b 400A	0087018400
250A	3	Plug-in MCCB ABS403b 250A	0087018500
300A	3	Plug-in MCCB ABS403b 300A	0087018600
350A	3	Plug-in MCCB ABS403b 350A	0087018700
400A	3	Plug-in MCCB ABS403b 400A	0087018800
250A	3	Plug-in MCCB ABH403b 250A	0087018900
300A	3	Plug-in MCCB ABH403b 300A	0087019000
350A	3	Plug-in MCCB ABH403b 350A	0087019100
400A	3	Plug-in MCCB ABH403b 400A	0087019200
250A	3	Plug-in MCCB ABL403b 250A	0087019300
300A	3	Plug-in MCCB ABL403b 300A	0087019400
350A	3	Plug-in MCCB ABL403b 350A	0087019500
400A	3	Plug-in MCCB ABL403b 400A	0087019600

## Mounting block for plug-in MCCB



Model	Catalogue No.
PB-I3-FR (Standard mounting block)	54621131102

# Catalogue numbers

## Plug-in MCCB

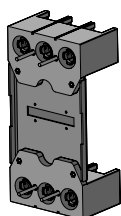
### Plug-in MCCB without mounting block



Plug-in MCCB without mounting block which can be assembled with  
• PB-J3-FR (Standard mounting block)

Rated current(In)	Pole	Model	Catalogue No.
500A		Plug-in MCCB ABE803b 500A	0093009200
600A		Plug-in MCCB ABE803b 600A	0093009300
630A		Plug-in MCCB ABE803b 630A	0093009400
700A		Plug-in MCCB ABE803b 700A	0093009500
800A		Plug-in MCCB ABE803b 800A	0093009600
500A		Plug-in MCCB ABS803b 500A	0093009700
600A		Plug-in MCCB ABS803b 600A	0093009800
630A		Plug-in MCCB ABS803b 630A	0093009900
700A		Plug-in MCCB ABS803b 700A	0093010000
800A		Plug-in MCCB ABS803b 800A	0093010100
500A		Plug-in MCCB ABL803b 500A	0093010200
600A		Plug-in MCCB ABL803b 600A	0093010300
630A		Plug-in MCCB ABL803b 630A	0093010400
700A		Plug-in MCCB ABL803b 700A	0093010500
800A		Plug-in MCCB ABL803b 800A	0093010600

### Mounting block for plug-in MCCB



Model	Catalogue No.
PB-J3-FR (Standard mounting block)	54621132102

## Plug-in MCCB without mounting block

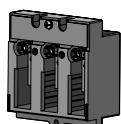


Plug-in MCCB without mounting block which can be assembled with

- PB-A3-FRL (Line only type mounting block)

Rated current(In)	Pole	Model	Catalogue No.
5A	3	Plug-in MCCB ABE53b 5A,LINE ONLY	0048151800
10A	3	Plug-in MCCB ABE53b 10A,LINE ONLY	0048151900
15A	3	Plug-in MCCB ABE53b 15A,LINE ONLY	0048152000
20A	3	Plug-in MCCB ABE53b 20A,LINE ONLY	0048152100
30A	3	Plug-in MCCB ABE53b 30A,LINE ONLY	0048152200
40A	3	Plug-in MCCB ABE53b 40A,LINE ONLY	0048152300
50A	3	Plug-in MCCB ABE53b 50A,LINE ONLY	0048152400
60A	3	Plug-in MCCB ABE63b 60A,LINE ONLY	0048152500
5A	3	Plug-in MCCB ABE103b 5A,LINE ONLY	0050243400
10A	3	Plug-in MCCB ABE103b 10A,LINE ONLY	0050243500
15A	3	Plug-in MCCB ABE103b 15A,LINE ONLY	0050243600
20A	3	Plug-in MCCB ABE103b 20A,LINE ONLY	0050243700
30A	3	Plug-in MCCB ABE103b 30A,LINE ONLY	0050243800
40A	3	Plug-in MCCB ABE103b 40A,LINE ONLY	0050243900
50A	3	Plug-in MCCB ABE103b 50A,LINE ONLY	0050244000
60A	3	Plug-in MCCB ABE103b 60A,LINE ONLY	0050244100
75A	3	Plug-in MCCB ABE103b 75A,LINE ONLY	0050244200
100A	3	Plug-in MCCB ABE103b 100A,LINE ONLY	0050244300
3A	3	Plug-in MCCB ABS33b 3A,LINE ONLY	0048152600
5A	3	Plug-in MCCB ABS33b 5A,LINE ONLY	0048152700
10A	3	Plug-in MCCB ABS33b 10A,LINE ONLY	0048152800
15A	3	Plug-in MCCB ABS33b 15A,LINE ONLY	0048152900
20A	3	Plug-in MCCB ABS33b 20A,LINE ONLY	0048153000
30A	3	Plug-in MCCB ABS33b 30A,LINE ONLY	0048153100
5A	3	Plug-in MCCB ABS53b 5A,LINE ONLY	0050244400
10A	3	Plug-in MCCB ABS53b 10A,LINE ONLY	0050244500
15A	3	Plug-in MCCB ABS53b 15A,LINE ONLY	0050244600
20A	3	Plug-in MCCB ABS53b 20A,LINE ONLY	0050244700
30A	3	Plug-in MCCB ABS53b 30A,LINE ONLY	0050244800
40A	3	Plug-in MCCB ABS53b 40A,LINE ONLY	0050244900
50A	3	Plug-in MCCB ABS53b 50A,LINE ONLY	0050245000
60A	3	Plug-in MCCB ABS63b 60A,LINE ONLY	0050245100
5A	3	Plug-in MCCB ABH33b 5A,LINE ONLY	0050245200
10A	3	Plug-in MCCB ABH33b 10A,LINE ONLY	0050245300
15A	3	Plug-in MCCB ABH33b 15A,LINE ONLY	0050245400
20A	3	Plug-in MCCB ABH33b 20A,LINE ONLY	0050245500
30A	3	Plug-in MCCB ABH33b 30A,LINE ONLY	0050245600

## Mounting block for plug-in MCCB



Model	Catalogue No.
PB-A3-FRL (Line only type mounting block)	54621151102

# Catalogue numbers

## Plug-in MCCB

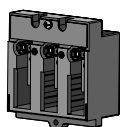
### Plug-in MCCB without mounting block



Plug-in MCCB without mounting block which can be assembled with  
• PB-C3-FRL (Line only type mounting block)

Rated current(In)	Pole	Model	Catalogue No.
15A	3	Plug-in MCCB ABS103b 15A,LIN ONLY	0053224800
20A	3	Plug-in MCCB ABS103b 20A,LIN ONLY	0053224900
30A	3	Plug-in MCCB ABS103b 30A,LIN ONLY	0053225000
40A	3	Plug-in MCCB ABS103b 40A,LIN ONLY	0053225100
50A	3	Plug-in MCCB ABS103b 50A,LIN ONLY	0053225200
60A	3	Plug-in MCCB ABS103b 60A,LIN ONLY	0053225300
75A	3	Plug-in MCCB ABS103b 75A,LIN ONLY	0053225400
100A	3	Plug-in MCCB ABS103b 100A,LIN ONLY	0053225500
15A	3	Plug-in MCCB ABH 53b 15A,LIN ONLY	0053225600
20A	3	Plug-in MCCB ABH 53b 20A,LIN ONLY	0053225700
30A	3	Plug-in MCCB ABH 53b 30A,LIN ONLY	0053225800
40A	3	Plug-in MCCB ABH 53b 40A,LIN ONLY	0053225900
50A	3	Plug-in MCCB ABH 53b 50A,LIN ONLY	0053226000
15A	3	Plug-in MCCB ABH 103b 15A,LIN ONLY	0053226700
20A	3	Plug-in MCCB ABH 103b 20A,LIN ONLY	0053226800
30A	3	Plug-in MCCB ABH 103b 30A,LIN ONLY	0053226900
40A	3	Plug-in MCCB ABH 103b 40A,LIN ONLY	0053227000
50A	3	Plug-in MCCB ABH 103b 50A,LIN ONLY	0053227100
60A	3	Plug-in MCCB ABH 103b 60A,LIN ONLY	0053227200
75A	3	Plug-in MCCB ABH 103b 75A,LIN ONLY	0053227300
100A	3	Plug-in MCCB ABH 103b 100A,LIN ONLY	0053227400

### Mounting block for plug-in MCCB



Model	Catalogue No.
PB-C3-FRL (Line only type mounting block)	54621152102

## Plug-in MCCB without mounting block

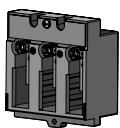


Plug-in MCCB without mounting block which can be assembled with

- PB-G3-FRL (Line only type mounting block)

Rated current(In)	Pole	Model	Catalogue No.
16A	3	Plug-in MCCB GBN53 16A,LINE ONLY	0025014700
20A	3	Plug-in MCCB GBN53 20A,LINE ONLY	0025014800
25A	3	Plug-in MCCB GBN53 25A,LINE ONLY	0025014900
32A	3	Plug-in MCCB GBN53 32A,LINE ONLY	0025015000
40A	3	Plug-in MCCB GBN53 40A,LINE ONLY	0025015100
50A	3	Plug-in MCCB GBN53 50A,LINE ONLY	0025015200
63a	3	Plug-in MCCB GBN53 63A,LINE ONLY	0025015300
63a	3	Plug-in MCCB GBN103 63A,LINE ONLY	0025015400
80A	3	Plug-in MCCB GBN103 80A,LINE ONLY	0025015500
100A	3	Plug-in MCCB GBN103 100A,LINE ONLY	0025015600
16A	3	Plug-in MCCB GBH53 16A,LINE ONLY	0025015700
20A	3	Plug-in MCCB GBH53 20A,LINE ONLY	0025015800
25A	3	Plug-in MCCB GBH53 25A,LINE ONLY	0025015900
32A	3	Plug-in MCCB GBH53 32A,LINE ONLY	0025016000
40A	3	Plug-in MCCB GBH53 40A,LINE ONLY	0025016100
50A	3	Plug-in MCCB GBH53 50A,LINE ONLY	0025016200
63a	3	Plug-in MCCB GBH103 63A,LINE ONLY	0025016300
80A	3	Plug-in MCCB GBH103 80A,LINE ONLY	0025016400
100A	3	Plug-in MCCB GBH103 100A,LINE ONLY	0025016500

## Mounting block for plug-in MCCB



Model	Catalogue No.
PB-G3-FRL (Line only type mounting block)	54621141102

# Catalogue numbers

## ELCB

### Meta-MEC EBS 30AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	3	EBS33b 5A 30mA	0770003100	5
10A	3	EBS33b 10A 30mA	0770003200	5
15A	3	EBS33b 15A 30mA	0770003300	5
20A	3	EBS33b 20A 30mA	0770003400	5
30A	3	EBS33b 30A 30mA	0770003500	5

Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	3	EBS33b 5A 100/200/500mA	0770003600	5
10A	3	EBS33b 10A 100/200/500mA	0770003700	5
15A	3	EBS33b 15A 100/200/500mA	0770003800	5
20A	3	EBS33b 20A 100/200/500mA	0770003900	5
30A	3	EBS33b 30A 100/200/500mA	0770004000	5

### Meta-MEC EBH 30AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	2	EBH33b 5A 30mA	0771002900	10
10A	2	EBH33b 10A 30mA	0771003000	10
15A	2	EBH33b 15A 30mA	0771003100	10
20A	2	EBH33b 20A 30mA	0771003200	10
30A	2	EBH33b 30A 30mA	0771003300	10

Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	3	EBH33b 5A 100/200/500mA	0771003400	10
10A	3	EBH33b 10A 100/200/500mA	0771003500	10
15A	3	EBH33b 15A 100/200/500mA	0771003600	10
20A	3	EBH33b 20A 100/200/500mA	0771003700	10
30A	3	EBH33b 30A 100/200/500mA	0771003300	10



## Meta-MEC EBE 50AF 2P/3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	2	EBE52b 5A 30mA	0770000100	5
10A	2	EBE52b 10A 30mA	0770000200	5
15A	2	EBE52b 15A 30mA	0770000300	5
20A	2	EBE52b 20A 30mA	0770000400	5
30A	2	EBE52b 30A 30mA	0770000500	5
40A	2	EBE52b 40A 30mA	0770000600	5
50A	2	EBE52b 50A 30mA	0770000700	5

Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	2	EBE52b 5A 100/200/500mA	0770000800	5
10A	2	EBE52b 10A 100/200/500mA	0770000900	5
15A	2	EBE52b 15A 100/200/500mA	0770001000	5
20A	2	EBE52b 20A 100/200/500mA	0770001100	5
30A	2	EBE52b 30A 100/200/500mA	0770001200	5
40A	2	EBE52b 40A 100/200/500mA	0770001300	5
50A	2	EBE52b 50A 100/200/500mA	0770001400	5

Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	3	EBE53b 5A 30mA	0770001500	5
10A	3	EBE53b 10A 30mA	0770001600	5
15A	3	EBE53b 15A 30mA	0770001700	5
20A	3	EBE53b 20A 30mA	0770001800	5
30A	3	EBE53b 30A 30mA	0770001900	5
40A	3	EBE53b 40A 30mA	0770002000	5
50A	3	EBE53b 50A 30mA	0770002100	5

Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	3	EBE53b 5A 100/200/500mA	0770002200	5
10A	3	EBE53b 10A 100/200/500mA	0770002300	5
15A	3	EBE53b 15A 100/200/500mA	0770002400	5
20A	3	EBE53b 20A 100/200/500mA	0770002500	5
30A	3	EBE53b 30A 100/200/500mA	0770002600	5
40A	3	EBE53b 40A 100/200/500mA	0770002700	5
50A	3	EBE53b 50A 100/200/500mA	0770002800	5

## Meta-MEC EBE 60AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
60A	3	EBE63b 60A 30mA	0771002900	5
60A	3	EBE63b 60A 100/200/500mA	0771003000	5

# Catalogue numbers

## ELCB

### Meta-MEC EBS 50AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	3	EBS53b 5A 30mA	0771001300	10
10A	3	EBS53b 10A 30mA	0771001400	10
15A	3	EBS53b 15A 30mA	0771001500	10
20A	3	EBS53b 20A 30mA	0771001600	10
30A	3	EBS53b 30A 30mA	0771001700	10
40A	3	EBS53b 40A 30mA	0771001800	10
50A	3	EBS53b 50A 30mA	0771001900	10

Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
5A	3	EBS53b 5A 100/200/500mA	0771002000	10
10A	3	EBS53b 10A 100/200/500mA	0771002100	10
15A	3	EBS53b 15A 100/200/500mA	0771002200	10
20A	3	EBS53b 20A 100/200/500mA	0771002300	10
30A	3	EBS53b 30A 100/200/500mA	0771002400	10
40A	3	EBS53b 40A 100/200/500mA	0771002500	10
50A	3	EBS53b 50A 100/200/500mA	0771002600	10

### Meta-MEC EBS 60AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
60A	3	EBS63b 60A 30mA	0771002700	10
60A	3	EBS63b 60A 100/200/500mA	0771002800	10

### Meta-MEC EBH 50AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
40A	3	EBH53b 40A 30mA	0772001100	25
50A	3	EBH53b 50A 30mA	0772001200	25
40A	3	EBH53b 40A 100/200/500mA	0772001300	25
50A	3	EBH53b 50A 100/200/500mA	0772001400	25

## Meta-MEC EBE 100AF 2P/3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
60A	2	EBE102b 60A 30mA	0771000100	10
75A	2	EBE102b 75A 30mA	0771000200	10
100A	2	EBE102b 100A 30mA	0771000300	10
Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
60A	2	EBE102b 60A 100/200/500mA	0771000400	10
75A	2	EBE102b 75A 100/200/500mA	0771000500	10
100A	2	EBE102b 100A 100/200/500mA	0771000600	10
Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
60A	3	EBE103b 60A 30mA	0771000700	10
75A	3	EBE103b 75A 30mA	0771000800	10
100A	3	EBE103b 100A 30mA	0771000900	10
Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
60A	3	EBE103b 60A 100/200/500mA	0771001000	10
75A	3	EBE103b 75A 100/200/500mA	0771001100	10
100A	3	EBE103b 100A 100/200/500mA	0771001200	10

## Meta-MEC EBS 100AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
40A	3	EBS103b 40A 30mA	0772001500	25
50A	3	EBS103b 50A 30mA	0772001600	25
60A	3	EBS103b 60A 30mA	0772001700	25
75A	3	EBS103b 75A 30mA	0772001800	25
100A	3	EBS103b 100A 30mA	0772001900	25
Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
40A	3	EBS103b 40A 100/200/500mA	0772002000	25
50A	3	EBS103b 50A 100/200/500mA	0772002100	25
60A	3	EBS103b 60A 100/200/500mA	0772002200	25
75A	3	EBS103b 75A 100/200/500mA	0772002300	25
100A	3	EBS103b 100A 100/200/500mA	0772002400	25

## Meta-MEC EBH 100AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
60A	3	EBH103b 60A 30mA	0772000300	35
75A	3	EBH103b 75A 30mA	0772000400	35
100A	3	EBH103b 100A 30mA	0772000500	35
Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
60A	3	EBH103b 60A 100/200/500mA	0772000800	35
75A	3	EBH103b 75A 100/200/500mA	0772000900	35
100A	3	EBH103b 100A 100/200/500mA	0772001000	35

# Catalogue numbers

## ELCB

### Meta-MEC EBE 225AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	3	EBE203b 125A 30mA	0773000200	18
150A	3	EBE203b 150A 30mA	0773000300	18
175A	3	EBE203b 175A 30mA	0773000400	18
200A	3	EBE203b 200A 30mA	0773000500	18
225A	3	EBE203b 225A 30mA	0773000600	18

Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	3	EBE203b 125A 100/200/500mA	0773000800	18
150A	3	EBE203b 150A 100/200/500mA	0773000900	18
175A	3	EBE203b 175A 100/200/500mA	0773001000	18
200A	3	EBE203b 200A 100/200/500mA	0773001100	18
225A	3	EBE203b 225A 100/200/500mA	0773001200	18

### Meta-MEC EBS 225AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	3	EBS203b 125A 30mA		25
150A	3	EBS203b 150A 30mA	0773001500	25
175A	3	EBS203b 175A 30mA		25
200A	3	EBS203b 200A 30mA		25
225A	3	EBS203b 225A 30mA	0773001800	25

Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
100A	3	EBS203b 100A 100/200/500mA	0773001900	25
125A	3	EBS203b 125A 100/200/500mA	0773002000	25
150A	3	EBS203b 150A 100/200/500mA	0773002100	25
175A	3	EBS203b 175A 100/200/500mA	0773002200	25
200A	3	EBS203b 200A 100/200/500mA	0773002300	25
225A	3	EBS203b 225A 100/200/500mA	0773002400	25

### Meta-MEC EBH 225AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	3	EBH203b 125A 30mA		35
150A	3	EBH203b 150A 30mA	0774000300	35
175A	3	EBH203b 175A 30mA		35
200A	3	EBH203b 200A 30mA		35
225A	3	EBH203b 225A 30mA	0774000600	35

Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
125A	3	EBH203b 125A 100/200/500mA	0774000800	35
150A	3	EBH203b 150A 100/200/500mA	0774000900	35
175A	3	EBH203b 175A 100/200/500mA	0774001000	35
200A	3	EBH203b 200A 100/200/500mA	0774001100	35
225A	3	EBH203b 225A 100/200/500mA	0774001200	35

## Meta-MEC EBE 400AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	3	EBE403b 250A 30mA 0.1S		25
300A	3	EBE403b 300A 30mA 0.1S		25
350A	3	EBE403b 350A 30mA 0.1S		25
400A	3	EBE403b 400A 30mA 0.1S		25

Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	3	EBE403b 250A 100/200/500mA 0.1S	0778000100	25
300A	3	EBE403b 300A 100/200/500mA 0.1S	0778000300	25
350A	3	EBE403b 350A 100/200/500mA 0.1S		25
400A	3	EBE403b 400A 100/200/500mA 0.1S	0778000700	25

## Meta-MEC EBS 400AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	3	EBS403b 250A 30mA 0.1S		35
300A	3	EBS403b 300A 30mA 0.1S		35
350A	3	EBS403b 350A 30mA 0.1S		35
400A	3	EBS403b 400A 30mA 0.1S		35

Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	3	EBS403b 250A 100/200/500mA 0.1S		35
300A	3	EBS403b 300A 100/200/500mA 0.1S		35
350A	3	EBS403b 350A 100/200/500mA 0.1S	0778001300	35
400A	3	EBS403b 400A 100/200/500mA 0.1S	0778001500	35

# Catalogue numbers

## ELCB

### Meta-MEC EBH 400AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	3	EBH403b 250A 30mA 0.1S	0778001800	50
300A	3	EBH403b 300A 30mA 0.1S	0778002000	50
350A	3	EBH403b 350A 30mA 0.1S	0778002200	50
400A	3	EBH403b 400A 30mA 0.1S	0778002400	50

Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	3	EBH403b 250A 100/200/500mA 0.1S	0778001700	50
300A	3	EBH403b 300A 100/200/500mA 0.1S	0778001900	50
350A	3	EBH403b 350A 100/200/500mA 0.1S	0778002100	50
400A	3	EBH403b 400A 100/200/500mA 0.1S	0778002300	50

### Meta-MEC EBL 400AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	3	EBL403b 250A 30mA 0.1S	0778002600	85
300A	3	EBL403b 300A 30mA 0.1S	0778002800	85
350A	3	EBL403b 350A 30mA 0.1S	0778003000	85
400A	3	EBL403b 400A 30mA 0.1S	0778003200	85

Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
250A	3	EBL403b 250A 100/200/500mA 0.1S	0778002500	85
300A	3	EBL403b 300A 100/200/500mA 0.1S	0778002700	85
350A	3	EBL403b 350A 100/200/500mA 0.1S	0778002900	85
400A	3	EBL403b 400A 100/200/500mA 0.1S	0778003100	85

### Meta-MEC EBE 800AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
500A	3	EBE803b 500A 30mA 0.1S		35
600A	3	EBE803b 600A 30mA 0.1S		35
700A	3	EBE803b 700A 30mA 0.1S		35
800A	3	EBE803b 800A 30mA 0.1S		35

Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
500A	3	EBE803b 500A 100/200/500mA 0.1S		35
600A	3	EBE803b 600A 100/200/500mA 0.1S		35
700A	3	EBE803b 700A 100/200/500mA 0.1S	0780000100	35
800A	3	EBE803b 800A 100/200/500mA 0.1S		35

### Meta-MEC EBS 800AF 3P



Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
500A	3	EBS803b 500A 30mA 0.1S		50
600A	3	EBS803b 600A 30mA 0.1S		50
700A	3	EBS803b 700A 30mA 0.1S	0780000500	50
800A	3	EBS803b 800A 30mA 0.1S	0780000700	50

Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
500A	3	EBS803b 500A 100/200/500mA 0.1S	0778002500	50
600A	3	EBS803b 600A 100/200/500mA 0.1S	0778002700	50
700A	3	EBS803b 700A 100/200/500mA 0.1S	0778002900	50
800A	3	EBS803b 800A 100/200/500mA 0.1S	0778003100	50

### Meta-MEC EBL 800AF 3P



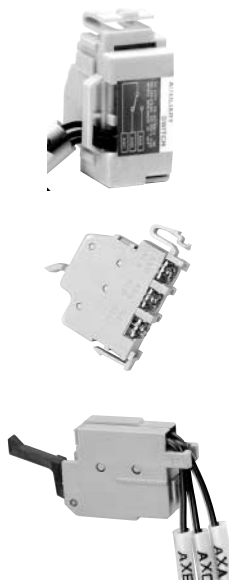
Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
500A	3	EBL803b 500A 30mA 0.1S		85
600A	3	EBL803b 600A 30mA 0.1S		85
700A	3	EBL803b 700A 30mA 0.1S	0780001000	85
800A	3	EBL803b 800A 30mA 0.1S	0780001200	85

Rated current (In)	Pole	Model	Catalogue No.	Icu at 415VAC (kA)
500A	3	EBL803b 500A 100/200/500mA 0.1S		85
600A	3	EBL803b 600A 100/200/500mA 0.1S		85
700A	3	EBL803b 700A 100/200/500mA 0.1S	0780000900	85
800A	3	EBL803b 800A 100/200/500mA 0.1S	0780001100	85

# Catalogue numbers

## Accessories

### Electrical auxiliaries for Meta-MEC series MCCBs



Auxiliary switch, AX	Description	Catalogue No.
AX1E100R-LWT	1 auxiliary switch fit for the left-hand seat of a handle(LWT)	83011156101
AX1E100T-LWT	1 auxiliary switch fit for the right-hand seat of a handle(LWT)	83011156104
AX1E100R-TBT	1 auxiliary switch fit for the left-hand seat of a handle(TBT)	83011156107
AX1E100T-TBT	1 auxiliary switch fit for the right-hand seat of a handle(TBT)	83011156110
AX1H100R-LWT	1 auxiliary switch fit for the left-hand seat of a handle(LWT)	83011156113
AX1H100T-LWT	1 auxiliary switch fit for the right-hand seat of a handle(LWT)	83011156116
AX1H100R-TBT	1 auxiliary switch fit for the left-hand seat of a handle(TBT)	83011156119
AX1H100T-TBT	1 auxiliary switch fit for the right-hand seat of a handle(TBT)	83011156122
AX1H200R-LWT	1 auxiliary switch fit for the left-hand seat of a handle(LWT)	83011156125
AX1H200T-LWT	1 auxiliary switch fit for the right-hand seat of a handle(LWT)	83011156128
AX1H200R-TBT	1 auxiliary switch fit for the left-hand seat of a handle(TBT)	83011156131
AX1H200T-TBT	1 auxiliary switch fit for the right-hand seat of a handle(TBT)	83011156134
AX1G250	1 auxiliary switch (1NO+NC)	83011146001
AX1L800	1 auxiliary switch (1NO+NC)	83011136002
AX2L800	2 auxiliary switch (2NO+NC)	83011136003
AX1S1200	1 auxiliary switch (1NO+NC)	83011126001
AX2S1200	2 auxiliary switch (2NO+NC)	83011126006



## Electrical auxiliaries for Meta-MEC series MCCBs

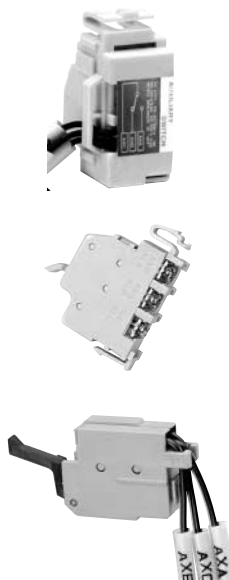


Alarm switch, AL	Description	Catalogue No.
AL1E100R-LWT	1 alarm switch fit for the left-hand seat of a handle(LWT)	83011156102
AL1E100T-LWT	1 alarm switch fit for the right-hand seat of a handle(LWT)	83011156105
AL1E100R-TBT	1 alarm switch fit for the left-hand seat of a handle(TBT)	83011156108
AL1E100T-TBT	1 alarm switch fit for the right-hand seat of a handle(TBT)	83011156111
AL1H100R-LWT	1 alarm switch fit for the left-hand seat of a handle(LWT)	83011156114
AL1H100T-LWT	1 alarm switch fit for the right-hand seat of a handle(LWT)	83011156117
AL1H100R-TBT	1 alarm switch fit for the left-hand seat of a handle(TBT)	83011156120
AL1H100T-TBT	1 alarm switch fit for the right-hand seat of a handle(TBT)	83011156123
AL1H200R-LWT	1 alarm switch fit for the left-hand seat of a handle(LWT)	83011156126
AL1H200T-LWT	1 alarm switch fit for the right-hand seat of a handle(LWT)	83011156129
AL1H200R-TBT	1 alarm switch fit for the left-hand seat of a handle(TBT)	83011156132
AL1H200T-TBT	1 alarm switch fit for the right-hand seat of a handle(TBT)	83011156135
AL1G250	1 alarm switch (1NO+NC)	83011146002
AL1L800	1 alarm switch (1NO+NC)	83011136004
AL2L800	2 alarm switch (2NO+NC)	83011136001
AL1S1200	1 alarm switch (1NO+NC)	83011126002

# Catalogue numbers

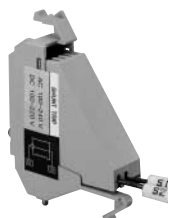
## Accessories

### Electrical auxiliaries for Meta-MEC series MCCBs



Combination switch, XL	Description	Catalogue No.
XL1E100R-LWT	1 combination switch fit for the left-hand seat of a handle(LWT)	83011156103
XL1E100T-LWT	1 combination switch fit for the right-hand seat of a handle(LWT)	83011156106
XL1E100R-TBT	1 combination switch fit for the left-hand seat of a handle(TBT)	83011156109
XL1E100T-TBT	1 combination switch fit for the right-hand seat of a handle(TBT)	83011156112
XL1H100R-LWT	1 combination switch fit for the left-hand seat of a handle(LWT)	83011156115
XL1H100T-LWT	1 combination switch fit for the right-hand seat of a handle(LWT)	83011156118
XL1H100R-TBT	1 combination switch fit for the left-hand seat of a handle(TBT)	83011156121
XL1H100T-TBT	1 combination switch fit for the right-hand seat of a handle(TBT)	83011156124
XL1H200R-LWT	1 combination switch fit for the left-hand seat of a handle(LWT)	83011156127
XL1H200T-LWT	1 combination switch fit for the right-hand seat of a handle(LWT)	83011156130
XL1H200R-TBT	1 combination switch fit for the left-hand seat of a handle(TBT)	83011156133
XL1H200T-TBT	1 combination switch fit for the right-hand seat of a handle(TBT)	83011156136
XL1L800	1 combination switch fit for the right-hand seat of a handle(LWT)	83011136015
XL2L800	2 combination switch fit for the right-hand seat of a handle(LWT)	83011137001
XL1S1200	1 aux. Switch and 1 alarm switch (1NO+NC)	83011126007
XL2S1200	2 aux. switch and 1 alarm switch (2NO+NC)	83011126008

## Electrical auxiliaries for Meta-MEC series MCCBs



Shunt trip, SHT	Description	Catalogue No.
ST12CE100	For 12V AC/DC common use	83211157101
ST24CE100	For 24V AC/DC common use	83211157102
ST48CE100	For 48V AC/DC common use	83211157103
ST60CE100	For 60V AC/DC common use	83211157104
ST110CE100	For 110V AC/DC common use	83211157105
ST220CE100	For 220V AC/DC common use	83211157107
ST250CE100	For 250V AC/DC common use	83211157109
ST380AE100	For 380~450V AC	83211157110
ST440AE100	For 440~480V AC	83211157111
ST500AE100	For 500~550V AC	83211157112
ST125DE100	For 125V DC	83211157106
ST240DE100	For 240V DC	83211157108
ST12CH100	For 12V AC/DC common use	83211157113
ST24CH100	For 24V AC/DC common use	83211157114
ST48CH100	For 48V AC/DC common use	83211157115
ST60CH100	For 60V AC/DC common use	83211157116
ST110CH100	For 110V AC/DC common use	83211157117
ST220CH100	For 220V AC/DC common use	83211157119
ST250CH100	For 250V AC/DC common use	83211157121
ST380AH100	For 380~450V AC	83211157122
ST440AH100	For 440~480V AC	83211157123
ST500AH100	For 500~550V AC	83211157124
ST125DH100	For 125V DC	83211157118
ST240DH100	For 240V DC	83211157120
ST12CH200	For 12V AC/DC common use	83211157125
ST24CH200	For 24V AC/DC common use	83211157126
ST48CH200	For 48V AC/DC common use	83211157127
ST60CH200	For 60V AC/DC common use	83211157128
ST110CH200	For 110V AC/DC common use	83211157129
ST220CH200	For 220V AC/DC common use	83211157131
ST250CH200	For 250V AC/DC common use	83211157133
ST380AH200	For 380~450V AC	83211157134
ST440AH200	For 440~480V AC	83211157135
ST500AH200	For 500~550V AC	83211157136
ST125DH200	For 125V DC	83211157130
ST240DH200	For 240V DC	83211157132
ST12CG250	For 12V AC/DC common use	83211146011
ST24CG250	For 24V AC/DC common use	83211146012
ST48CG250	For 48V AC/DC common use	83211146013
ST60CG250	For 60V AC/DC common use	83211146014
ST100CG250	For 100~125VAC / 100~110VDC	83211146015
ST200CG250	For 200~240VAC / 200~220VDC	83211146017
ST250CG250	For 250V AC/DC common use	83211146019
ST380AG250	For 380~450V AC	83211146020
ST440AG250	For 440~480V AC	83211146021
ST500AG250	For 500~550V AC	83211146022
ST125DG250	For 125V DC	83211146016
ST240DG250	For 240V DC	83211146018
ST48CL800LWT	For 24~48V AC/DC common use LWT	83211137001
ST240CL800LWT	For 100~240VAC / 100~220VDC LWT	83211137002
ST550AL800LWT	For 380~550VAC LWT	83211137003
ST48CL800TBT	For 24~48V AC/DC common use TBT(2pole, 3pole)	83211137004
ST240CL800TBT	For 100~240VAC / 100~220VDC TBT(2pole, 3pole)	83211137005
ST550AL800TBT	For 380~550VAC TBT(2pole, 3pole)	83211137006
ST48CL804TBT	For 24~48V AC/DC common use TBT (4pole)	83211137007
ST240CL804TBT	For 100~240VAC / 100~220VDC TBT (4pole)	83211137008
ST550AL804TBT	For 380~550VAC TBT(4pole)	83211137009
ST100AS1200	For AC100V	83211126001
ST125AS1200	For AC125V	83211126002
ST200AS1200	For AC200~220V	83211126003
ST380AS1200	For AC380~440V	83211126004
ST480AS1200	For AC480~550V	83211126005
ST24DS1200	For DC24V	83211126006
ST48DS1200	For DC48V	83211126007
ST100DS1200	For DC100~110V	83211126008
ST125DS1200	For DC125V	83211126009
ST200DS1200	For DC200V	83211126010

### Electrical auxiliaries for Meta-MEC series MCCBs



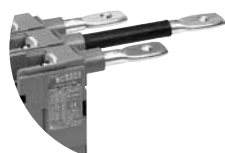
Under voltage trip, UVT	Description	Catalogue No.
UV24CE100	For 24V AC/DC common use	83211157137
UV48CE100	For 48V AC/DC common use	83211157138
UV110CE100	For 110V AC/DC common use	83211157139
UV220CE100	For 220V AC/DC common use	83211157140
UV380AE100	For 380~440V AC	83211157141
UV440AE100	For 440~480V AC	83211157142
UV24CH100	For 24V AC/DC common use	83211157143
UV48CH100	For 48V AC/DC common use	83211157144
UV110CH100	For 110V AC/DC common use	83211157145
UV220CH100	For 220V AC/DC common use	83211157146
UV380AH100	For 380~440V AC	83211157147
UV440AH100	For 440~480V AC	83211157148
UV24CH200	For 24V AC/DC common use	83211157149
UV48CH200	For 48V AC/DC common use	83211157150
UV110CH200	For 110V AC/DC common use	83211157151
UV220CH200	For 220V AC/DC common use	83211157152
UV380AH200	For 380~440V AC	83211157153
UV440AH200	For 440~480V AC	83211157154
UV24CG250	For 24V AC/DC common use	83211146051
UV48CG250	For 48V AC/DC common use	83211146052
UV100CG250	For 100~110V AC/DC common use	83211146053
UV200CG250	For 200~220V AC/DC common use	83211146054
UV380AG250	For 380~440V AC	83211146055
UV440AG250	For 440~480V AC	83211146056
UV48CL800	For 48V AC/DC common use	83211137021
UV100CL800	For 100~125VAC/100~110VDC	83211137022
UV200CL800	For 200~240VAC/200~220VDC	83211137023
UV380AL800	For 380~440V AC	83211137024
UV440AL800	For 440~480V AC	83211137025

## External accessories for Meta-MEC series MCCBs

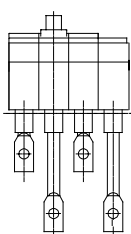


Terminal shields	Description	Catalogue No.
TBL-13B	3 pole shield	64621151202
TBL-12B	2 pole shield (use 2 ea for 4 pole)	64621151201
TBS-13B	3 pole shield	64621151204
TBS-12B	2 pole shield (use 2 ea for 4 pole)	64621151203
TBL-22B	2 pole shield	64621152201
TBL-23B	3 pole shield	64621152202
TBL-24B	4 pole shield	64621152203
TBS-22B	2 pole shield	64621152204
TBS-23B	3 pole shield	64621152205
TBS-24B	4 pole shield	64621152206
TBL-33B	2, 3 pole shield	64621153201
TBL-34B	4 pole shield	64621153202
TBS-33B	2, 3 pole shield	64621153203
TBS-34B	4 pole shield	64621153204
TB-13T	3 pole shield for GBN/GBH103	64621141101
TB-14T	4 pole shield for GBN/GBH104	64621141102
TBS-13T	3 pole shield for GBN/GBH103	64621141103
TBS-14T	4 pole shield for GBN/GBH104	64621141104
TB-23T	3 pole shield for GBN/GBH203, GBL103/203(E)	64621142301
TB-24T	4 pole shield for GBN/GBH204, GBL104/204	64621142302
TBS-23T	3 pole shield for GBN/GBH203, GBL103/203(E)	64621142303
TBS-24T	4 pole shield for GBN/GBH204, GBL104/204	64621142304
T1-43A	for 3 pole AB 400AF (250 to 400A)	64621131201
T1-44A	for 4 pole AB 400AF (250 to 400A)	64621131204
T1-63A	for 3 pole AB 800AF (500 to 800A)	64621131202
T1-64A	for 4 pole AB 800AF (500 to 800A)	64621131205
TBS-13BL	3 pole shield for ABS103bL	64611152020
TBS-23BL	3 pole shield for ABS203bL	64611153015

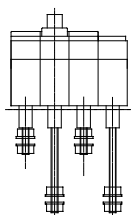
### External accessories for Meta-MEC series MCCBs



Rear connection



Bar type



Round type

Rear connection kits	Description	Catalogue No.
X-35R-52	a set of the ROUND type for a 2-pole MCCB	83161159109
X-35R-53	a set of the ROUND type for a 3-pole MCCB	83161159110
X-35B-102	a set of the BAR type for a 2-pole MCCB	83161159101
X-35B-103	a set of the BAR type for a 3-pole MCCB	83161159102
X-35R-102	a set of the ROUND type for a 2-pole MCCB	83161159111
X-35R-103	a set of the ROUND type for a 3-pole MCCB	83161159112
X-45B-102	a set of the BAR type for a 2-pole MCCB	83161159103
X-45B-103	a set of the BAR type for a 3-pole MCCB	83161159104
X-45B-104	a set of the BAR type for a 4-pole MCCB	83161159105
X-45R-102	a set of the ROUND type for a 2-pole MCCB	83161159113
X-45R-103	a set of the ROUND type for a 3-pole MCCB	83161159114
X-45R-104	a set of the ROUND type for a 4-pole MCCB	83161159115
X-55B-202	a set of the BAR type for a 2-pole MCCB	83161159106
X-55B-203	a set of the BAR type for a 3-pole MCCB	83161159107
X-55B-204	a set of the BAR type for a 4-pole MCCB	83161159108
X-55R-202	a set of the ROUND type for a 2-pole MCCB	83161159116
X-55R-203	a set of the ROUND type for a 3-pole MCCB	83161159117
X-55R-204	a set of the ROUND type for a 4-pole MCCB	83161159118
X-102	a set for 2 pole MCCBs of GBN/GBH102	72311141291
X-103	a set for 3 pole MCCBs of GBN/GBH103	72311141292
X-104	a set for 4 pole MCCBs of GBN/GBH104	72311141293
X-202	a set for 2 pole MCCBs of GBN/GBH202,GBL102/202	72311142291
X-203	a set for 3 pole MCCBs of GBN/GBH203,GBL103/203(E)	72311142292
X-204	a set for 4 pole MCCBs of GBN/GBH204,GBL104/204	72311142293



## External accessories for Meta-MEC series MCCBs



Vertical type



Horizontal type  
ON in right-hand

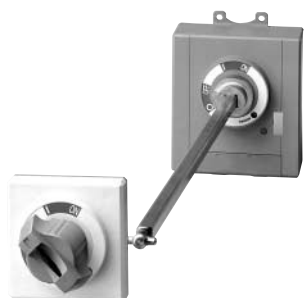


Horizontal type  
ON in left-hand



Direct mounting handle	Description	Catalogue No.
D-35S	Vertical type	83111158101
D-35L	Horizontal (ON in left-hand) type	83111158102
D-35R	Horizontal (ON in right-hand) type	83111158103
D-45S	Vertical type	83111158104
D-45L	Horizontal (ON in left-hand) type	83111158105
D-45R	Horizontal (ON in right-hand) type	83111158106
D-55S	Vertical type	83111158107
D-55L	Horizontal (ON in left-hand) type	83111158108
D-55R	Horizontal (ON in right-hand) type	83111158109
D-30S	Vertical type	83111147101
D-30L	Horizontal (ON in left-hand) type	83111147102
D-30R	Horizontal (ON in right-hand) type	83111147103
D-60S	Vertical type	83111147111
D-60L	Horizontal (ON in left-hand) type	83111147112
D-60R	Horizontal (ON in right-hand) type	83111147113
N-70S	Vertical type	83111138101
N-70L	Horizontal (ON in left-hand) type	83111138102
N-70R	Horizontal (ON in right-hand) type	83111138103
N-80S	Vertical type	83111138111
N-80L	Horizontal (ON in left-hand) type	83111138112
N-80R	Horizontal (ON in right-hand) type	83111138113
N-55S	Vertical type	8311118019
N-55L	Horizontal (ON in left-hand) type	8311118020
N-55R	Horizontal (ON in right-hand) type	8311118021
N-60S	Vertical type	8311118016
N-60L	Horizontal (ON in left-hand) type	8311118017
N-60R	Horizontal (ON in right-hand) type	8311118018

### External accessories for Meta-MEC series MCCBs



Vertical type



Horizontal type  
ON in right-hand



Horizontal type  
ON in left-hand

Extensible mounting handle	Description	Catalogue No.
E-35S	Vertical type	83111158110
E-35L	Horizontal (ON in left-hand) type	83111158111
E-35R	Horizontal (ON in right-hand) type	83111158112
E-45S	Vertical type	83111158113
E-45L	Horizontal (ON in left-hand) type	83111158114
E-45R	Horizontal (ON in right-hand) type	83111158115
E-55S	Vertical type	83111158116
E-55L	Horizontal (ON in left-hand) type	83111158117
E-55R	Horizontal (ON in right-hand) type	83111158118
E-30S	Vertical type	83111147151
E-30L	Horizontal (ON in left-hand) type	83111147152
E-30R	Horizontal (ON in right-hand) type	83111147153
E-60S	Vertical type	83111147161
E-60L	Horizontal (ON in left-hand) type	83111147162
E-60R	Horizontal (ON in right-hand) type	83111147163



## External accessories for Meta-MEC series MCCBs

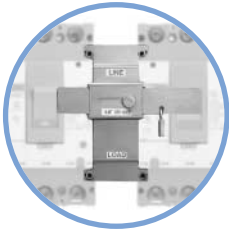


Rating plug	Description	Catalogue No.
RP250	RATING PLUG 250A	73261132111
RP300	RATING PLUG 300A	73261132112
RP350	RATING PLUG 350A	73261132113
RP400	RATING PLUG 400A	73261132114
RP500	RATING PLUG 500A	73261132115
RP600	RATING PLUG 600A	73261132116
RP630	RATING PLUG 630A	73261132117
RP700	RATING PLUG 700A	73261132118
RP800	RATING PLUG 800A	73261132119

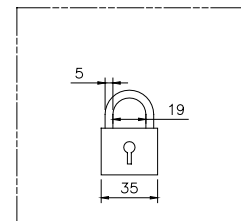
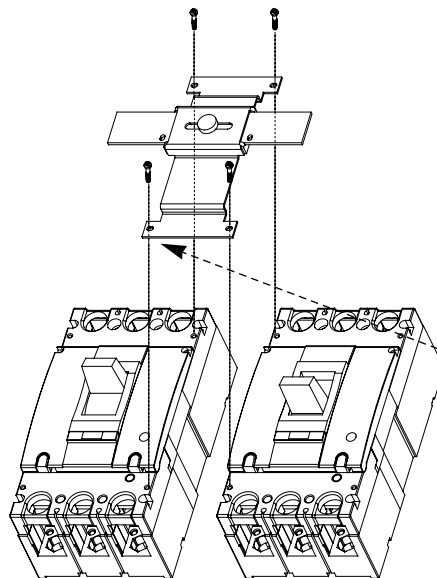
# Catalogue numbers

## Accessories

### External accessories for Meta-MEC series MCCBs

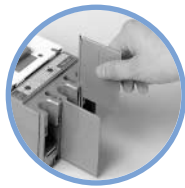


Mechanical interlock	Description	Catalogue No.
MI - 43S	for 3 pole AB400AF (250 to 400A)	56121138005
MI - 44S	for 4 pole AB400AF (250 to 400A)	56121138007
MI - 83S	for 3 pole AB800AF (500 to 800A)	56121138006
MI - 84S	for 4 pole AB400AF (500 to 800A)	56121138008



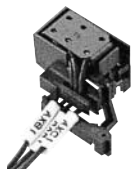
Applicable lock if necessary  
(not supplied)

## External accessories for Meta-MEC series MCCBs



Insulation barrier	Description	Catalogue No.
IB50	50mm length (Set quantity: 500pcs)	67721152001
IB80	80mm length (Set quantity: 500pcs)	67721152002
IBG250		
IBL400	One(1) barrier for AB400AF	67211132003
IBL800	One(1) barrier for AB800AF	67211132003
IB1200	One(1) barrier for ABS1200AF	67211123005

### Electrical auxiliaries for Hi-MEC series MCCBs



#### Maximum possibilities

**Left-hand seat**

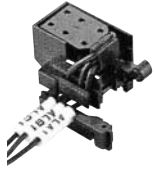
Option of connecting AX or AL or XL  
This seat is not available for 2-pole breakers

**Right-hand seat**

Option of connecting AX or AL or XL or SHT or UVT  
This seat is not available for earth leakage breakers

Auxiliary switch, AX	Description	Catalogue No.
AX1L50R	AX,R,LWT for ABL53a, 103a	83011116081
AX1L50T	AX,T,LWT for ABL52a, 53a, 102a, 103a	83011116084
AX1L54T	AX,T,LWT for ABL54a, 104a	83011116087
AX1L200R	AX,R,LWT for ABL202a, 203a	83011116061
AX1L200T	AX,T,LWT for ABL202a, 203a	83011116064
AX1L204T	AX,T,LWT for ABL204a	83011116067

## Electrical auxiliaries for Hi-MEC series MCCBs



Alarm switch, AL	Description	Catalogue No.
AL1L50R	AL,R,LWT for ABL53a, 103a	83011116082
AL1L50T	AL,T,LWT for ABL52a, 53a, 102a, 103a	83011116085
AL1L54T	AL,T,LWT for ABL54a, 104a	83011116088
AL1L200R	AL,R,LWT for ABL202a, ABL203a	83011116062
AL1L200T	AL,T,LWT for ABL202a, ABL203a	83011116065
AL1L204T	AL,T,LWT for ABL204a	83011116068

Combination switch, XL	Description	Catalogue No.
XL1L50R	AX+AL,R,LWT for ABL53a, L103a	83011116083
XL1L50T	AX+AL,T,LWT for ABL52a, 53a, 102a, 103a	83011116086
XL1L54T	AX+AL,T,LWT for ABL54a, 104a	83011116089
XL1L200R	AX+AL,R,LWT for ABL202a, 203a	83011116063
XL1L200T	AX+AL,T,LWT for ABL202a, 203a	83011116066
XL1L204T	AX+AL,T,LWT for ABL204a	83011116069

### Maximum possibilities

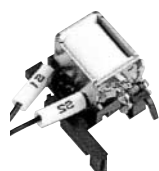
#### Left-hand seat

Option of connecting AX or AL or XL  
This seat is not available for 2-pole breakers

#### Right-hand seat

Option of connecting AX or AL or XL or SHT or UVT  
This seat is not available for earth leakage breakers

### Electrical auxiliaries for Hi-MEC series MCCBs



Shunt trip, SHT	Description	Catalogue No.
ST12CL50	For 12V AC/DC common use	83211117231
ST24CL50	For 24V AC/DC common use	83211117232
ST48CL50	For 48V AC/DC common use	83211117233
ST60CL50	For 60V AC/DC common use	83211117234
ST100CL50	For AC100~125V/DC100~110V	83211117235
ST200CL50	For AC200~240V/DC200~220V	83211117237
ST250CL50	For 250V AC/DC common use	83211117239
ST380AL50	For 380~450V AC	83211117240
ST440AL50	For 440~480V AC	83211117241
ST500AL50	For 500~550V AC	83211117242
ST125DL50	For 125V DC	83211117236
ST240DL50	For 240V DC	83211117238
ST12CL54	For 12V AC/DC common use	83211117243
ST24CL54	For 24V AC/DC common use	83211117244
ST48CL54	For 48V AC/DC common use	83211117245
ST60CL54	For 60V AC/DC common use	83211117246
ST100CL54	For AC100~125V/DC100~110V	83211117247
ST200CL54	For AC200~240V/DC200~220V	83211117249
ST250CL54	For 250V AC/DC common use	83211117251
ST380AL54	For 380~450V AC	83211117252
ST440AL54	For 440~480V AC	83211117253
ST500AL54	For 500~550V AC	83211117254
ST125DL54	For 125V DC	83211117248
ST240DL54	For 240V DC	83211117250
ST12CL200	For 12V AC/DC common use	83211117201
ST24CL200	For 24V AC/DC common use	83211117202
ST48CL200	For 48V AC/DC common use	83211117203
ST60CL200	For 60V AC/DC common use	83211117204
ST100CL200	For AC100~125V/DC100~110V	83211117205
ST200CL200	For AC200~240V/DC200~220V	83211117207
ST250CL200	For 250V AC/DC common use	83211117209
ST380AL200	For 380~450V AC	83211117210
ST440AL200	For 440~480V AC	83211117211
ST500AL200	For 500~550V AC	83211117212
ST125DL200	For 125V DC	83211117206
ST240DL200	For 240V DC	83211117208
ST12CL204	For 12V AC/DC common use	83211117213
ST24CL204	For 24V AC/DC common use	83211117214
ST48CL204	For 48V AC/DC common use	83211117215
ST60CL204	For 60V AC/DC common use	83211117216
ST100CL204	For AC100~125V/DC100~110V	83211117217
ST200CL204	For AC200~240V/DC200~220V	83211117219
ST250CL204	For 250V AC/DC common use	83211117221
ST380AL204	For 380~450V AC	83211117222
ST440AL204	For 440~480V AC	83211117223
ST500AL204	For 500~550V AC	83211117224
ST125DL204	For 125V DC	83211117218
ST240DL204	For 240V DC	83211117220

#### Maximum possibilities

##### Left-hand seat

Option of connecting AX or AL or XL  
This seat is not available for 2-pole breakers

##### Right-hand seat

Option of connecting AX or AL or XL or SHT or UVT  
This seat is not available for earth leakage breakers

## Electrical auxiliaries for Hi-MEC series MCCBs



Alarm switch, AL	Description	Catalogue No.
UV12CL50	For 12V AC/DC common use	83211117663
UV24CL50	For 24V AC/DC common use	83211117664
UV100CL50	For 100~110V AC/DC common use	83211117665
UV200CL50	For 200~220V AC/DC common use	83211117666
UV380AL50	For 380~440V AC	83211117667
UV440AL50	For 440~480V AC	83211117668
UV12CL54	For 12V AC/DC common use	83211117669
UV24CL54	For 24V AC/DC common use	83211117670
UV100CL54	For 100~110V AC/DC common use	83211117671
UV200CL54	For 200~220V AC/DC common use	83211117672
UV380AL54	For 380~440V AC	83211117673
UV440AL54	For 440~480V AC	83211117674
UV12CL200	For 12V AC/DC common use	83211117651
UV24CL200	For 24V AC/DC common use	83211117652
UV100CL200	For 100~110V AC/DC common use	83211117653
UV200CL200	For 200~220V AC/DC common use	83211117654
UV380AL200	For 380~440V AC	83211117655
UV440AL200	For 440~480V AC	83211117656
UV12CL204	For 12V AC/DC common use	83211117657
UV24CL204	For 24V AC/DC common use	83211117658
UV100CL204	For 100~110V AC/DC common use	83211117659
UV200CL204	For 200~220V AC/DC common use	83211117660
UV380AL204	For 380~440V AC	83211117661
UV440AL204	For 440~480V AC	83211117662

### Maximum possibilities

#### Left-hand seat

Option of connecting AX or AL or XL  
This seat is not available for 2-pole breakers

#### Right-hand seat

Option of connecting AX or AL or XL or SHT or UVT  
This seat is not available for earth leakage breakers

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0048000500	ABE53b 30A	34
0048000600	ABE53b 40A	34
0048000700	ABE53b 50A	34
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0048000800	ABE63b 60A	34
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0053223200	Plug-in MCCB ABH53b 40A	74~81
0053223300	Plug-in MCCB ABH53b 50A	74~81
0053224000	Plug-in MCCB ABH103b 15A	74~81
0053224100	Plug-in MCCB ABH103b 20A	74~81
0053224200	Plug-in MCCB ABH103b 30A	74~81
0053224300	Plug-in MCCB ABH103b 40A	74~81
0053224400	Plug-in MCCB ABH103b 50A	74~81
0053224500	Plug-in MCCB ABH103b 60A	74~81
0053224600	Plug-in MCCB ABH103b 75A	74~81
0053224700	Plug-in MCCB ABH103b 100A	74~81
0025012900	Plug-in MCCB GBN53 16A	74~81
0025013000	Plug-in MCCB GBN53 20A	74~81
0025013100	Plug-in MCCB GBN53 25A	74~81
0025013200	Plug-in MCCB GBN53 32A	74~81
0025013300	Plug-in MCCB GBN53 40A	74~81
0025013400	Plug-in MCCB GBN53 50A	74~81
0025013500	Plug-in MCCB GBN103 63A	74~81
0025013600	Plug-in MCCB GBN103 80A	74~81
0025013700	Plug-in MCCB GBN103 100A	74~81
0025013800	Plug-in MCCB GBH53 16A	74~81
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0025014300	Plug-in MCCB GBH53 50A	74~81
0025014400	Plug-in MCCB GBH103 63A	74~81
0025014500	Plug-in MCCB GBH103 80A	74~81
0025014600	Plug-in MCCB GBH103 100A	74~81
0056126200	Plug-in MCCB ABE203b 100A	74~81
0056126300	Plug-in MCCB ABE203b 125A	74~81
0056126400	Plug-in MCCB ABE203b 150A	74~81
0056126500	Plug-in MCCB ABE203b 175A	74~81
0056126600	Plug-in MCCB ABE203b 200A	74~81
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0056127200	Plug-in MCCB ABS203b 200A	74~81
0056127300	Plug-in MCCB ABS203b 225A	74~81
0018041800	Plug-in MCCB ABH203a 125A	74~81
0018041900	Plug-in MCCB ABH203a 150A	74~81
0018042000	Plug-in MCCB ABH203a 175A	74~81
0018042100	Plug-in MCCB ABH203a 200A	74~81
0018042200	Plug-in MCCB ABH203a 225A	74~81
0059062300	Plug-in MCCB ABH203b 100A	74~81
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0059062600	Plug-in MCCB ABH203b 175A	74~81
0059062700	Plug-in MCCB ABH203b 200A	74~81
0059062800	Plug-in MCCB ABH203b 225A	74~81
0018041300	Plug-in MCCB ABL203a 125A	74~81
0018041400	Plug-in MCCB ABL203a 150A	74~81
0018041500	Plug-in MCCB ABL203a 175A	74~81
0018041600	Plug-in MCCB ABL203a 200A	74~81
0018041700	Plug-in MCCB ABL203a 225A	74~81
0028004400	Plug-in MCCB GBN203 125A	74~81
0028004500	Plug-in MCCB GBN203 160A	74~81
0028004600	Plug-in MCCB GBN203 200A	74~81
0028004700	Plug-in MCCB GBN203 250A	74~81
0028004800	Plug-in MCCB GBH203 125A	74~81
0028004900	Plug-in MCCB GBH203 160A	74~81
0028005000	Plug-in MCCB GBH203 200A	74~81
0028005100	Plug-in MCCB GBH203 250A	74~81
0025017300	Plug-in MCCB GBL103 63A	74~81
0025017400	Plug-in MCCB GBL103 80A	74~81
0025017500	Plug-in MCCB GBL103 100A	74~81
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0021060200	Plug-in MCCB ABL53a 20A	74~81
0021060300	Plug-in MCCB ABL53a 30A	74~81
0021060400	Plug-in MCCB ABL53a 40A	74~81
0021060500	Plug-in MCCB ABL53a 50A	74~81
0021060600	Plug-in MCCB ABL103a 15A	74~81
0021060700	Plug-in MCCB ABL103a 20A	74~81
0021060800	Plug-in MCCB ABL103a 30A	74~81
0021060900	Plug-in MCCB ABL103a 40A	74~81
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0021061100	Plug-in MCCB ABL103a 60A	74~81
0021061200	Plug-in MCCB ABL103a 75A	74~81
0021061300	Plug-in MCCB ABL103a 100A	74~81
0087018100	Plug-in MCCB ABE403b 250A	74~81
0087018200	Plug-in MCCB ABE403b 300A	74~81
0087018300	Plug-in MCCB ABE403b 350A	74~81
0087018400	Plug-in MCCB ABE403b 400A	74~81
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0087019200	Plug-in MCCB ABH403b 400A	74~81
0087019300	Plug-in MCCB ABL403b 250A	74~81
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0087019500	Plug-in MCCB ABL403b 350A	74~81
0087019600	Plug-in MCCB ABL403b 400A	74~81
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0093009700	Plug-in MCCB ABS803b 500A	74~81
0093009800	Plug-in MCCB ABS803b 600A	74~81
0093009900	Plug-in MCCB ABS803b 630A	74~81
0093010000	Plug-in MCCB ABS803b 700A	74~81
0093010100	Plug-in MCCB ABS803b 800A	74~81
0093010200	Plug-in MCCB ABL803b 500A	74~81
0093010300	Plug-in MCCB ABL803b 600A	74~81
0093010400	Plug-in MCCB ABL803b 630A	74~81
0093010500	Plug-in MCCB ABL803b 700A	74~81
0093010600	Plug-in MCCB ABL803b 800A	74~81
0048151800	Plug-in MCCB ABE53b 5A,LINE ONLY	74~81
0048151900	Plug-in MCCB ABE53b 10A,LINE ONLY	74~81
0048152000	Plug-in MCCB ABE53b 15A,LINE ONLY	74~81
0048152100	Plug-in MCCB ABE53b 20A,LINE ONLY	74~81
0048152200	Plug-in MCCB ABE53b 30A,LINE ONLY	74~81
0048152300	Plug-in MCCB ABE53b 40A,LINE ONLY	74~81
0048152400	Plug-in MCCB ABE53b 50A,LINE ONLY	74~81
0048152500	Plug-in MCCB ABE63b 60A,LINE ONLY	74~81
0050243400	Plug-in MCCB ABE103b 5A,LINE ONLY	74~81
0050243500	Plug-in MCCB ABE103b 10A,LINE ONLY	74~81
0050243600	Plug-in MCCB ABE103b 15A,LINE ONLY	74~81
0050243700	Plug-in MCCB ABE103b 20A,LINE ONLY	74~81
0050243800	Plug-in MCCB ABE103b 30A,LINE ONLY	74~81
0050243900	Plug-in MCCB ABE103b 40A,LINE ONLY	74~81
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0050244300	Plug-in MCCB ABE103b 100A,LINE ONLY	74~81
0048152600	Plug-in MCCB ABS33b 3A,LINE ONLY	74~81
0048152700	Plug-in MCCB ABS33b 5A,LINE ONLY	74~81
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0050245400	Plug-in MCCB ABH33b 15A,LINE ONLY	74~81
0050245500	Plug-in MCCB ABH33b 20A,LINE ONLY	74~81
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0053224800	Plug-in MCCB ABS103b 15A,LINE ONLY	74~81
0053224900	Plug-in MCCB ABS103b 20A,LINE ONLY	74~81
0053225000	Plug-in MCCB ABS103b 30A,LINE ONLY	74~81
0053225100	Plug-in MCCB ABS103b 40A,LINE ONLY	74~81
0053225200	Plug-in MCCB ABS103b 50A,LINE ONLY	74~81
0053225300	Plug-in MCCB ABS103b 60A,LINE ONLY	74~81
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0053225500	Plug-in MCCB ABS103b 100A,LINE ONLY	74~81
0053225600	Plug-in MCCB ABH 53b 15A,LINE ONLY	74~81
0053225700	Plug-in MCCB ABH 53b 20A,LINE ONLY	74~81
0053225800	Plug-in MCCB ABH 53b 30A,LINE ONLY	74~81
0053225900	Plug-in MCCB ABH 53b 40A,LINE ONLY	74~81
0053226000	Plug-in MCCB ABH 53b 50A,LINE ONLY	74~81
0053226700	Plug-in MCCB ABH 103b 15A,LINE ONLY	74~81
0053226800	Plug-in MCCB ABH 103b 20A,LINE ONLY	74~81
0053226900	Plug-in MCCB ABH 103b 30A,LINE ONLY	74~81
0053227000	Plug-in MCCB ABH 103b 40A,LINE ONLY	74~81
0053227100	Plug-in MCCB ABH 103b 50A,LINE ONLY	74~81
0053227200	Plug-in MCCB ABH 103b 60A,LINE ONLY	74~81
0053227300	Plug-in MCCB ABH 103b 75A,LINE ONLY	74~81
0053227400	Plug-in MCCB ABH 103b 100A,LINE ONLY	74~81
0025014700	Plug-in MCCB GBN53 16A,LINE ONLY	74~81
0025014800	Plug-in MCCB GBN53 20A,LINE ONLY	74~81
0025014900	Plug-in MCCB GBN53 25A,LINE ONLY	74~81
0025015000	Plug-in MCCB GBN53 32A,LINE ONLY	74~81
0025015100	Plug-in MCCB GBN53 40A,LINE ONLY	74~81
0025015200	Plug-in MCCB GBN53 50A,LINE ONLY	74~81
0025015300	Plug-in MCCB GBN53 63A,LINE ONLY	74~81
0025015400	Plug-in MCCB GBN103 63A,LINE ONLY	74~81
0025015500	Plug-in MCCB GBN103 80A,LINE ONLY	74~81
0025015600	Plug-in MCCB GBN103 100A,LINE ONLY	74~81
0025015700	Plug-in MCCB GBH53 16A,LINE ONLY	74~81
0025015800	Plug-in MCCB GBH53 20A,LINE ONLY	74~81
0025015900	Plug-in MCCB GBH53 25A,LINE ONLY	74~81
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0025016100	Plug-in MCCB GBH53 40A,LINE ONLY	74~81
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0025016400	Plug-in MCCB GBH103 80A,LINE ONLY	74~81
0025016500	Plug-in MCCB GBH103 100A,LINE ONLY	74~81
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## MCCB (Molded Case Circuit Breaker)










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		KS	Safety certi	IEC	GB	Gosstandart	IEC	Japan safety certi	IEC	
Mark or certification										
Type		KS		CE	CCC	GOST	SASO	PSE	KEMA	TÜV
Country		Korea	Korea	Europe	China	Russia	Saudi Arabia	Japan	Netherlands	Germany
MCCB economic	ABE 32									
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	ABE 62b									
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	ABE 102b									
	ABE 103b									
	ABE 104b									
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	ABS 403b									
	ABS 404b									
	ABS 802b									
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ABS 1004										
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ABS 1204										
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	ABH 33b									
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	ABH 204b									
	ABH 402b									
ABH 403b										
ABH 404b										

Note : (Completion), (in progress)










## MCCB (Molded Case Circuit Breaker)

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A species of certification A species of standard		Domesitic approvals		Approvals				Certificates		
		KS	Safety certi	IEC	UL	GB	Gosstandart	NEMA	IEC	
Mark or certification										
Type	Country	KS	Korea	CE	UL	CCC	GOST	KERI	KEMA	TÜV Rheinland TÜV
		Korea	Korea	Europe	U.S.A	China	Russia	Korea	Netherlands	Germany
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	ABL 53a									
	ABL 54a									
	ABL 102a									
	ABL 103a									
	ABL 103aIN									
	ABL 104a									
	ABL 202a									
	ABL 203a									
	ABL 203aIN									
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ABL 803bIN										
ABL 804b										
UL type MCCB stanard	ABS 102U									
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	ABS 202U									
	ABS 203U									
	ABS 402U									
	ABS 403U									
	ABS 602U									
ABS 603U										
UL type MCCB high interrupting capacity	ABH 102U									
	ABH 103U									
	ABH 202U									
	ABH 203U									
	ABH 402U									
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UL type MCCB current limit	ABL 102U									
	ABL 103U									
	ABL 202U									
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	ABL 402U									
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	ABL 602U									
ABL 603U										

Note : (Completion), (in progress)







### Certificate of approvals

A species of certification A species of standard		Domesitic approvals		Approvals				Certificates		
		KS	Safety certi	IEC	UL	GB	Gosstandart	NEMA	IEC	
Mark or certification										
Type		KS		CE	UL	CCC	GOST	KERI	KEMA	TÜV
Country		Korea	Korea	Europe	U.S.A	China	Russia	Korea	Netherlands	Germany
MCCB adjustable type	GBN 52									
	GBN 53									
	GBN 54									
	GBN 102									
	GBN 103									
	GBN 104									
	GBN 202									
	GBN 203									
	GBN 204									
	GBN 403E									
	GBN 803E									
	GBN 1603E									
	GBH 52									
	GBH 53									
	GBH 54									
	GBH 102									
	GBH 103									
	GBH 104									
	GBH 202									
	GBH 203									
	GBH 204									
	GBH 403E									
	GBH 803E									
	GBL 52									
	GBL 53									
	GBL 53E									
	GBL 54									
	GBL 102									
	GBL 102IN									
	GBL 103									
	GBL 103E									
	GBL 103IN									
	GBL 104									
	GBL 202									
GBL 202IN										
GBL 203										
GBL 203IN										
GBL 203E										
GBL 203IN										
GBL 204										

Note : (Completion), (in progress)

## MCCB (Molded Case Circuit Breaker)

### Marine classification







A species of certification A species of standard		Approvals					
		Marine classification					
Mark or certification							
Type	Country	KR	LR	BV	GL	ABS	NK
		Korea	U.K	France	Germany	U.S.A	Japan
MCCB economic	ABE 52b						
	ABE 53b						
	ABE 62b						
	ABE 63b						
	ABE 102b						
	ABE 103b						
	ABE 202b						
	ABE 203b						
	ABE 403b						
ABE 803b							
MCCB standard	ABS 32b						
	ABS 33b						
	ABS 52b						
	ABS 53b						
	ABS 62b						
	ABS 63b						
	ABS 102b						
	ABS 103b						
	ABS 202b						
ABS 203b							
ABS 403b							
ABS 803b							
MCCB high interrupting capacity	ABH 32b						
	ABH 33b						
	ABH 52b						
	ABH 53b						
	ABH 102b						
	ABH 103b						
	ABH 202a						
	ABH 202b						
	ABH 203a						
ABH 203b							
ABH 403b							
MCCB current limit	ABL 52a						
	ABL 53a						
	ABL 102a						
	ABL 103a						
	ABL 202a						
	ABL 203a						
	ABL 403b						
	ABL 803b						
	ABL 1003						
	ABL 1004						
ABL 1203							
ABL 1204							
MCCB adjustable type	GBN 53						
	GBN 103						
	GBN 203						
	GBH 53						
	GBH 103						
	GBH 203						
	GBL 53						
	GBL 103						
GBL 203							

Note : (Completion), (in progress)



# ELCB (Earth Leakage Circuit Breaker)

## Certificate of approvals

A species of certification A species of standard		Approvals					
		KS	Safety certi	GB	Gosstandart	JIS	Japan safety cert
Mark or certification							
Country		KS	Korea	China	Russia	Japan	Japan
ELCB economic	EBE 52b						
	EBE 53b						
	EBE 63b						
	EBE 102b						
	EBE 103b						
	EBE 203b						
	EBE 403b						
	EBE 404b						
ELCB standard	EBE 803b						
	EBS 33b						
	EBS 53b						
	EBS 54b						
	EBS 63b						
	EBS 103b						
	EBS 104b						
	EBS 203b						
	EBS 204b						
ELCB high interrupting capacity	EBS 403b						
	EBS 404b						
	EBS 803b						
	EBH 33b						
	EBH 53b						
	EBH 54b						
	EBH 103b						
	EBH 104b						
ELCB current limit	EBH 203						
	EBH 203b						
	EBH 204b						
	EBH 403b						
	EBH 404b						
	EBL 53						
	EBL 103						
EBL 203							
EBL 403b							

Note : (Completion), (in progress)

# Internet information service

<http://eng.lsis.biz>



Should you require further information, please visit our English website ([eng.lsis.biz](http://eng.lsis.biz)). You will find everything you need to know about products, systems and services. To obtain the electronic catalogue, please ask our authorized distributor in your country. Or it is available on the internet ([eng.lsis.biz](http://eng.lsis.biz)).

The screenshot shows a Microsoft Internet Explorer browser window displaying the LSIS website. The browser's title bar reads "LSIS - Total Solution Provider - MCCB, MC, INVERTER, PLC - Microsoft Internet Explorer". The address bar shows "http://eng.lsis.biz/". The website header includes the LSIS logo, the tagline "Always with Our Customers!", and navigation links for "Korean | Chinese | Japanese | Help Desk | Sitemap | Contact us". A secondary navigation bar lists "Products", "Support & Service", "Solution Guide", "R & D", and "About us". A prominent banner features a sailboat on the ocean with the text "New name, Fresh face Good Change!" and "RoHS compliance". Below the banner, a "PRODUCT CATEGORY" sidebar lists various industrial equipment. The main content area displays "FEATURED PRODUCTS" with images and descriptions for "Susol series circuit breakers" and "Susol series Contactors & TOR". At the bottom, there are sections for "Download" (with links to iC5, iGSA, and iV5 catalogs) and "News" (with dates and titles of recent updates).

## Related site

LS CABLE Home page [www.lscable.com](http://www.lscable.com)  
 LS Nikko Home page [www.lsnikko.com](http://www.lsnikko.com)

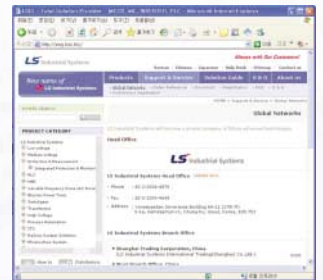
## Products menu

- Low voltage product
- Medium voltage product
- Protection & measurement
- Integrated protection & monitoring equipment
- PLC
- HMI
- Variable frequency device
- Electric power tools
- Switchgear
- Tranceformer
- High voltage product
- Process Automation
- ITS
- Railway system solution
- Photovoltaic system
- Tube & pipes



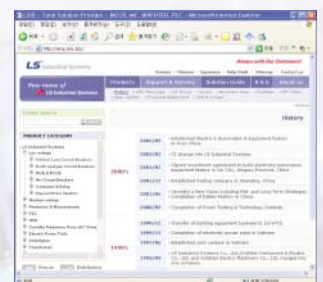
## Support & service menu

- The latest catalogue and old editions are displayed and downloaded.



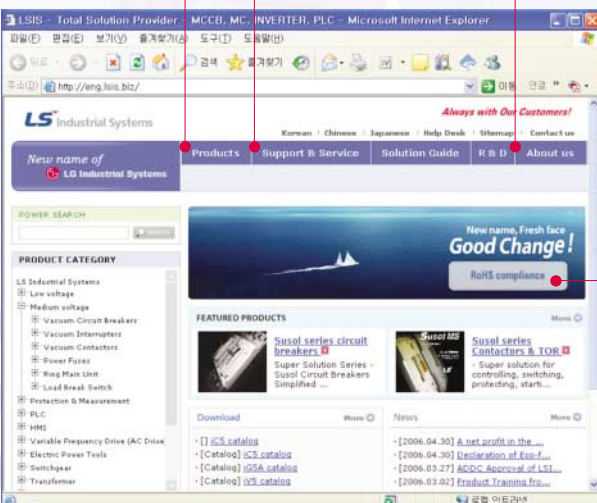
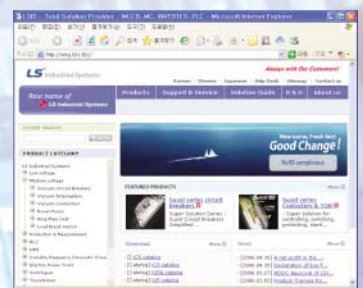
## About us menu

- If you have a question, comment, suggestion please select this menu.



## RoHS compliance menu

- RoHS : Directive on the Restriction of Hazardous Substances in the Electronic Equipment. (Effective on February 13, 2003)



## Leader in Electrics & Automation



### Safety Instructions

- For your safety, please read user's manual thoroughly before operating.
- Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact qualified service technician when you need maintenance. Do not disassemble or repair by yourself!
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.

**LS Industrial Systems Co., Ltd.**

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