Metasol Meta Solution

MCCB/ELCB

Molded Case Circuit Breakers
Earth Leakage Circuit Breakers

LS ELECTRIC

Metasol
MCCB/ELCB

Molded Case Circuit Breakers / Earth Leakage Circuit Breakers

Metasol Meta Solution

MOLDED CASE CIRCUIT BREAKERS/ EARTH LEAKAGE CIRCUIT BREAKERS

Upgraded for the Global Best Worth!

LS will become a global leader in electric power solutions.

Contents

Metasol

Meta solution

MCCB = ELCB

Upgrade of Meta-MEC series

...Metasol Low Voltage Circuit Breaker

- Ui=1000V
- Uimp=8kV

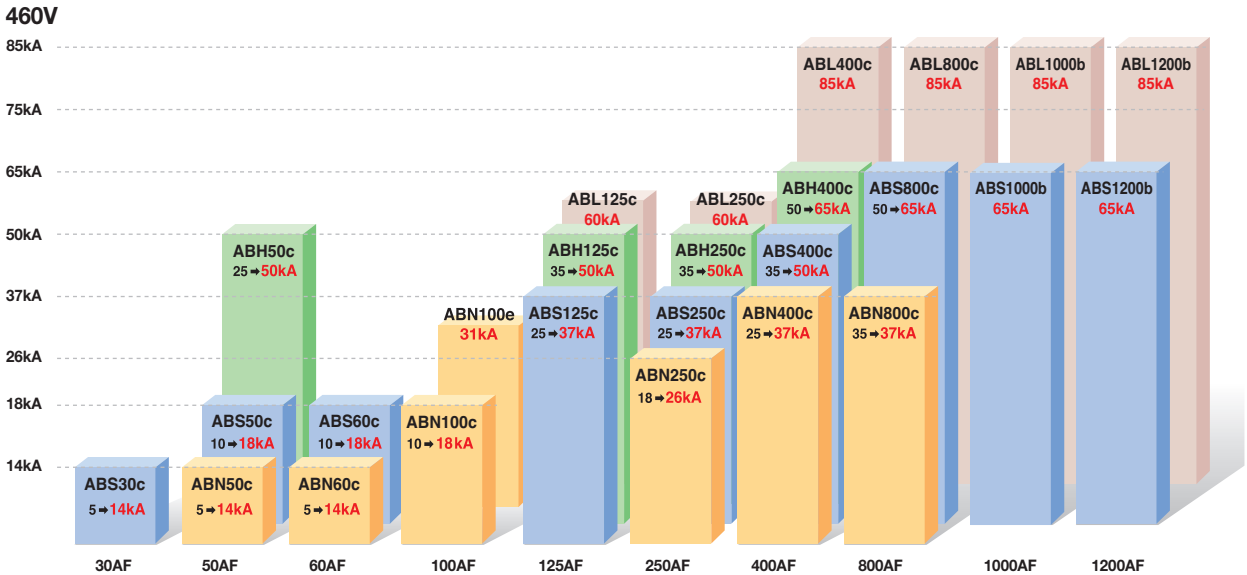
- **Compatible and differentiated design**
  - Compatible with the Meta-MEC
  - Outlook differentiated design
- **Same external dimension with MCCB and ELCB**
- **Upgrade the coordination**
  - Upgrade the coordination with Susol / Meta-MEC mass capacity

- **Upgrade breaking capacity**
  - N100AF : 10 ➡ 18kA
  - S125AF : 25 ➡ 37kA
  - S250AF : 25 ➡ 37kA
  - H250AF : 35 ➡ 50kA
  - N400AF : 25 ➡ 37kA
  - S400AF : 35 ➡ 50kA
  - S800AF : 50 ➡ 65kA

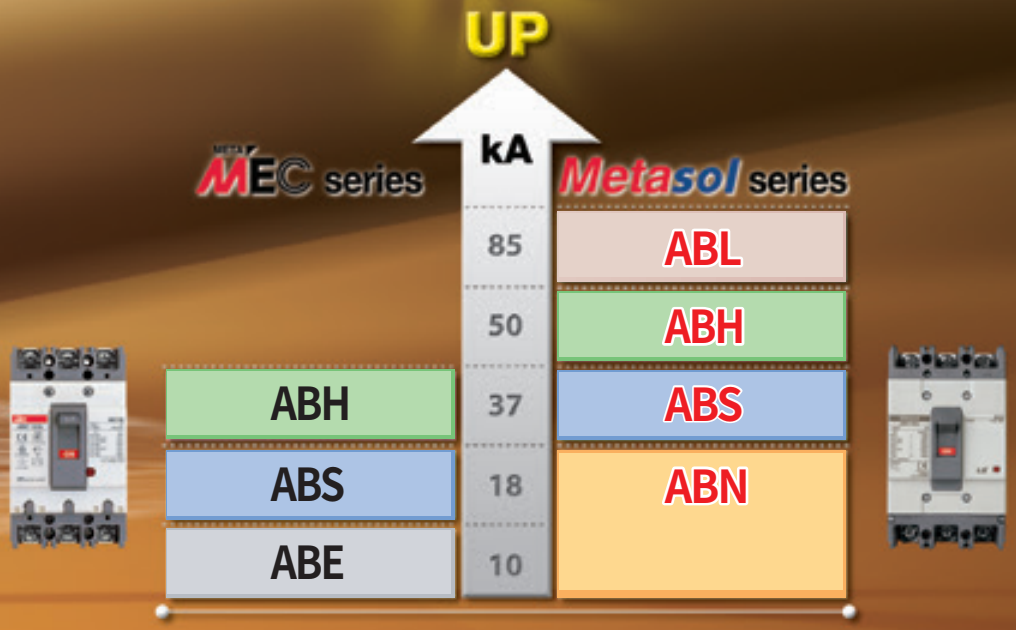
Metasol MCCB/ELCB

Metasol MCCB

Upgrade breaking capacity



Short-circuit breaking capacity

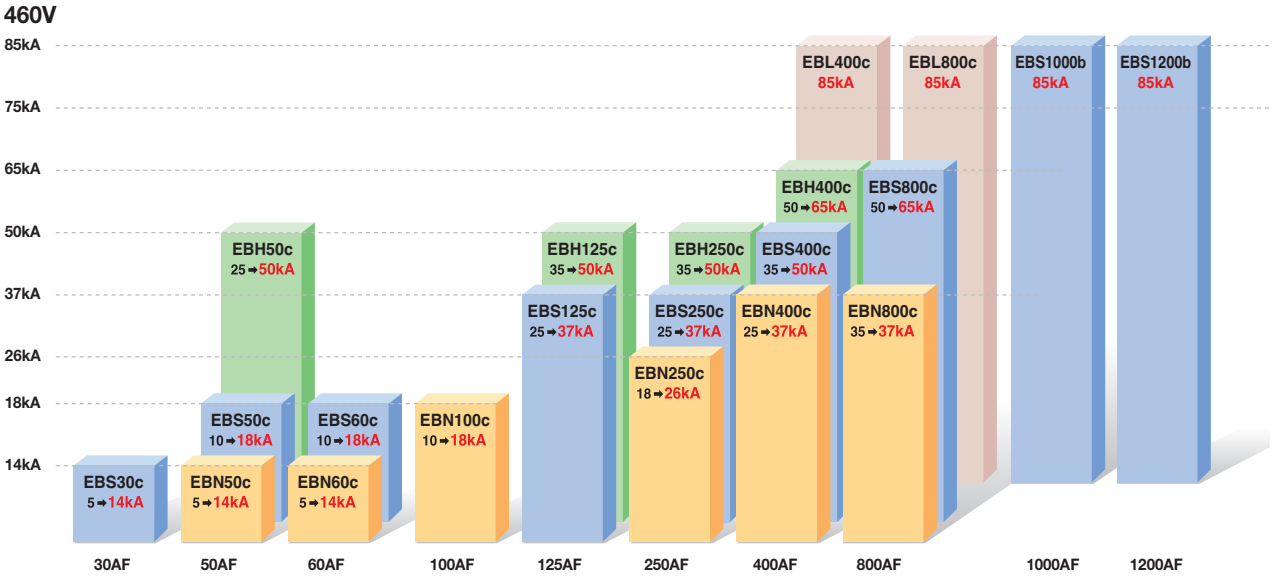


Upgrade breaking capacity

- N100AF : 10 ➡ 18kA
- S125AF : 25 ➡ 37kA
- S250AF : 25 ➡ 37kA
- H250AF : 35 ➡ 50kA
- N400AF : 25 ➡ 37kA
- S400AF : 35 ➡ 50kA
- S630AF : 50 ➡ 65kA
- S800AF : 50 ➡ 65kA

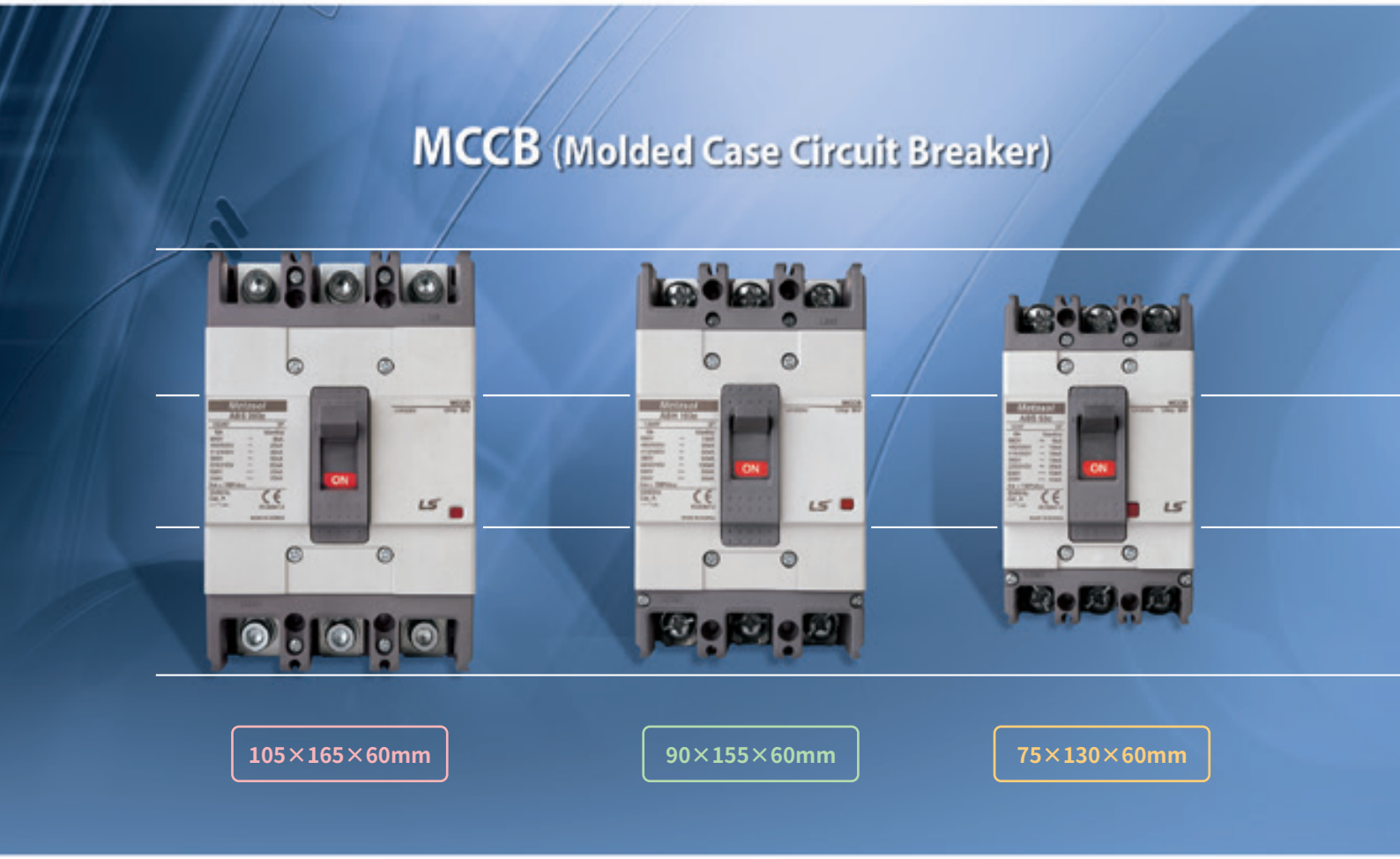
Metasol ELCB

Upgrade breaking capacity



Metasol MCCB/ELCB Compatible and standard

- 100% compatible with Meta-MEC series.
- Standardized dimension (Depth, cutout) when the panel is made.



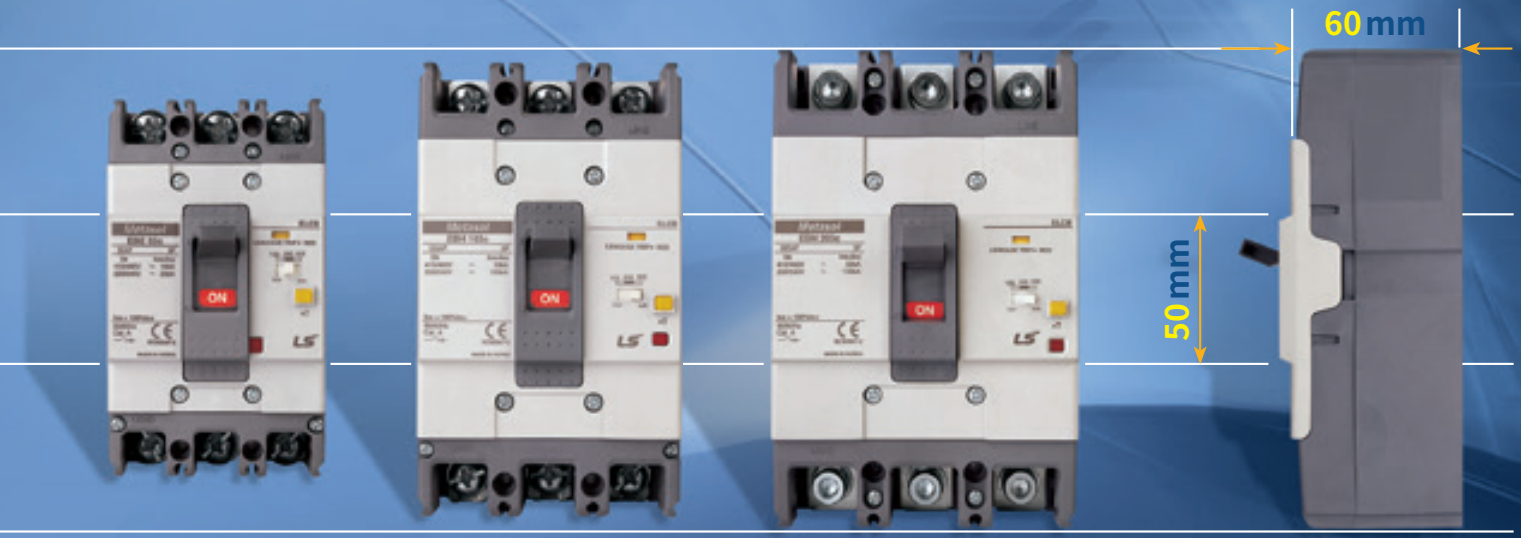
Metasol MCCB

Type \ AF	30AF	50AF	60AF	100AF	125AF	250AF	400AF	800AF	1000AF	1200AF
ABN		ABN50c 14kA	ABN60c 14kA	ABN100c 18kA ABN100e 31kA		ABN250c 26kA	ABN400c 37kA	ABN800c 37kA		
ABS	ABS30c 14kA	ABS50c 18kA	ABS60c 18kA		ABS125c 37kA	ABS250c 37kA	ABS400c 50kA	ABS800c 65kA	ABS1000b 65kA	ABS1200b 65kA
ABH		ABH50c 50kA			ABH125c 50kA	ABH250c 50kA	ABH400c 65kA			
ABL					ABL125c 60kA	ABL250c 60kA	ABL400c 85kA	ABL800c 85kA	ABL1000b 85kA	ABL1200b 85kA

Note) Dimension is for 3 pole and breaking capacity is for AC460V.

• Same external dimension with MCCB and ELCB.

ELCB (Earth Leakage Circuit Breaker)



75×130×60mm

90×155×60mm

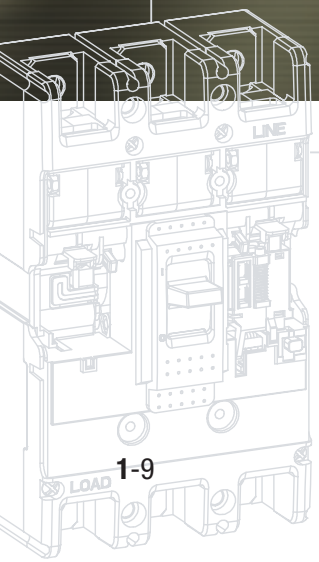
105×165×60mm

Metasol ELCB

Type \ AF	30AF	50AF	60AF	100AF	125AF	250AF	400AF	800AF	1000AF	1200AF
EBN		EBN50c 14kA	EBN60c 14kA	EBN100c 18kA		EBN250c 26kA	EBN400c 37kA	EBN800c 37kA		
EBS	EBS30c 14kA	EBS50c 18kA	EBS60c 18kA		EBS125c 37kA	EBS250c 37kA	EBS400c 50kA	EBS800c 65kA	EBS1000b 85kA	EBS1200b 85kA
EBH		EBH50c 50kA			EBH125c 50kA	EBH250c 50kA	EBH400c 65kA			
EBL							EBL400c 85kA	EBL800c 85kA		

Note) Dimension is for 3 pole and breaking capacity is for AC460V.

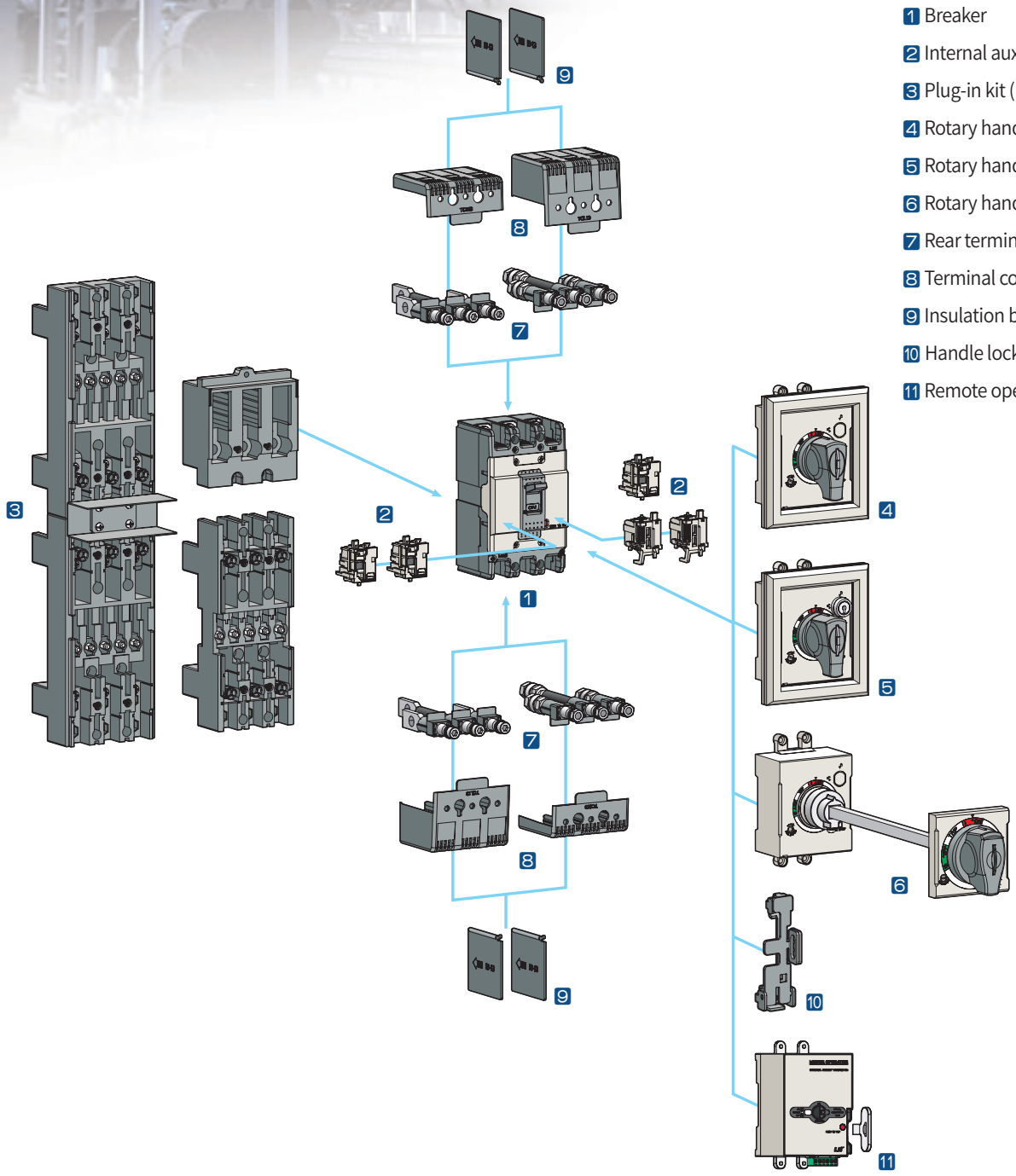
Metasol MCCB/ELCB System overview



Various installable accessories

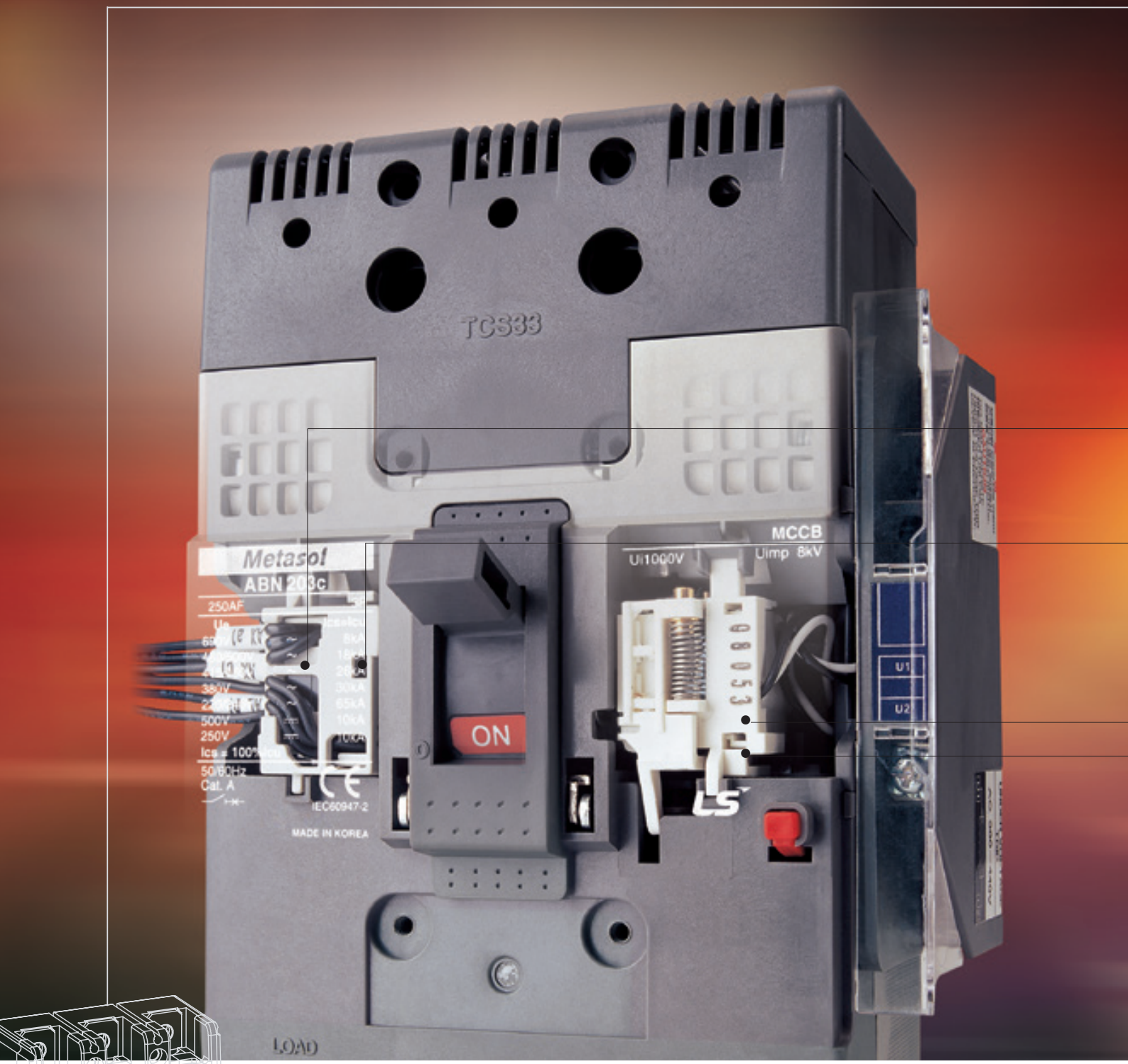
- Wider range of installable accessories compared to Meta MEC series.
- Composed of user friendly method.

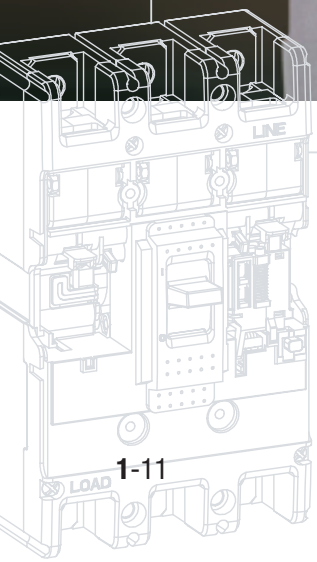
System overview



1 Breaker
2 Internal auxiliaries
3 Plug-in kit (ELCB only)
4 Rotary handle (Direct)
5 Rotary handle (Direct, key lock)
6 Rotary handle Extended)
7 Rear terminal
8 Terminal cover (Short, long)
9 Insulation barrier
10 Handle lock
11 Remote operation

Metasol MCCB/ELCB Internal accessories





Internal accessories

Internal accessories can be commonly used in all Metasol MCCB and ELCB
(Notice: Exception of SHT, UVT in ELCB)

Common use to all Metasol MCCBs and ELCBs

Alarm switch (AL)

Alarm switches offer provisions for immediate audio or visual indication of a tripped breaker due to overload, short-circuit, operation of shunt trip, or undervoltage trip conditions, operation of push button.
They are particularly useful in automated plants where operators must be signaled about changes in the electrical distribution system. This switch features a closed contact when the circuit breaker is tripped automatically. In other words, this switch does not function when the breaker is operated manually. Its contact is open when the circuit breaker is reset.

Auxiliary switch (AX)

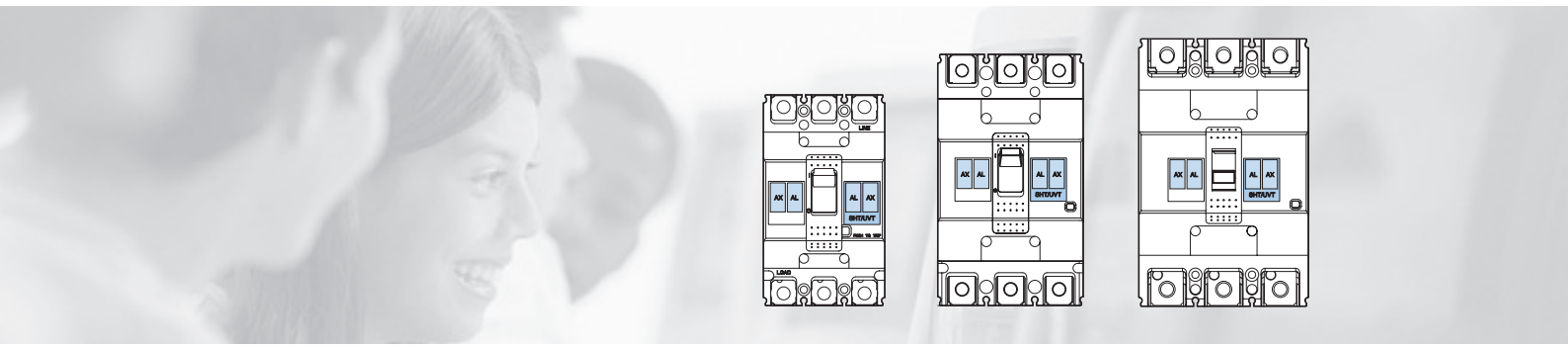
Auxiliary switch is for applications requiring remote "On" and "Off" indication. Each switch contains two contacts having a common connection. One is open and the other closed when the circuit breaker is open, and vice-versa.

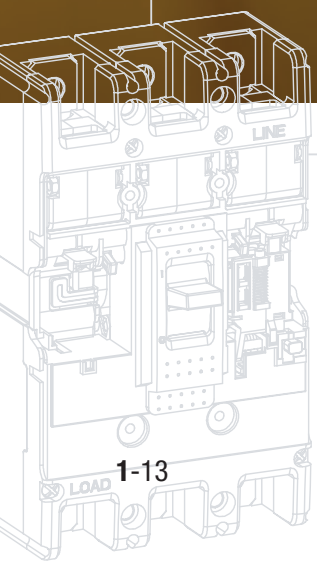
Undervoltage trip (UVT)

The undervoltage trip automatically opens a circuit breaker when voltage drops to a value ranging between 35% to 70% of the line voltage. The operation is instantaneous, and the circuit breaker cannot be reclosed until the voltage returns to 85% of line voltage.
Continuously energized, the undervoltage trip must be operating be fore the circuit breaker can be closed.

Shunt trip (SHT)

The shunt trip opens the mechanism in response to an externally applied voltage signal. LS shunt trips include coil clearing contacts that automatically clear the signal circuit when the mechanism has tripped.contact with live parts and thereby guarantee protection against direct contacts.





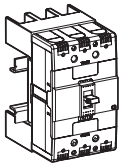
External accessories

Designed for various mount and user safety.

External accessories

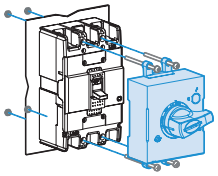
Front and rear connection

Several kinds of terminals can be equipped with ELCBs as well as MCCBs.
- Terminals for front connection
- Rear connection terminals



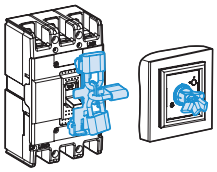
Plug-in base

It makes to extract and/or rapidly replace the circuit breaker without having to touch connections. (Easy replacement and maintenance)



Direct & extended rotary handle

There are two types of rotary handles.
- Direct rotary handle (with or w/o key lock device)
- Extended rotary handle

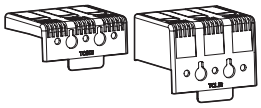


Locking device

- Fixed padlock
- Removable padlock
- Key lock device on direct handle

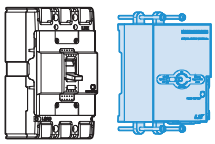
Insulation barrier

These allow the insulation characteristics between the phases at the connections to be increased.



Insulation terminal cover

The terminal covers are applied to the circuit-breaker to prevent accidental contact with live parts and thereby guarantee protection against direct contacts.

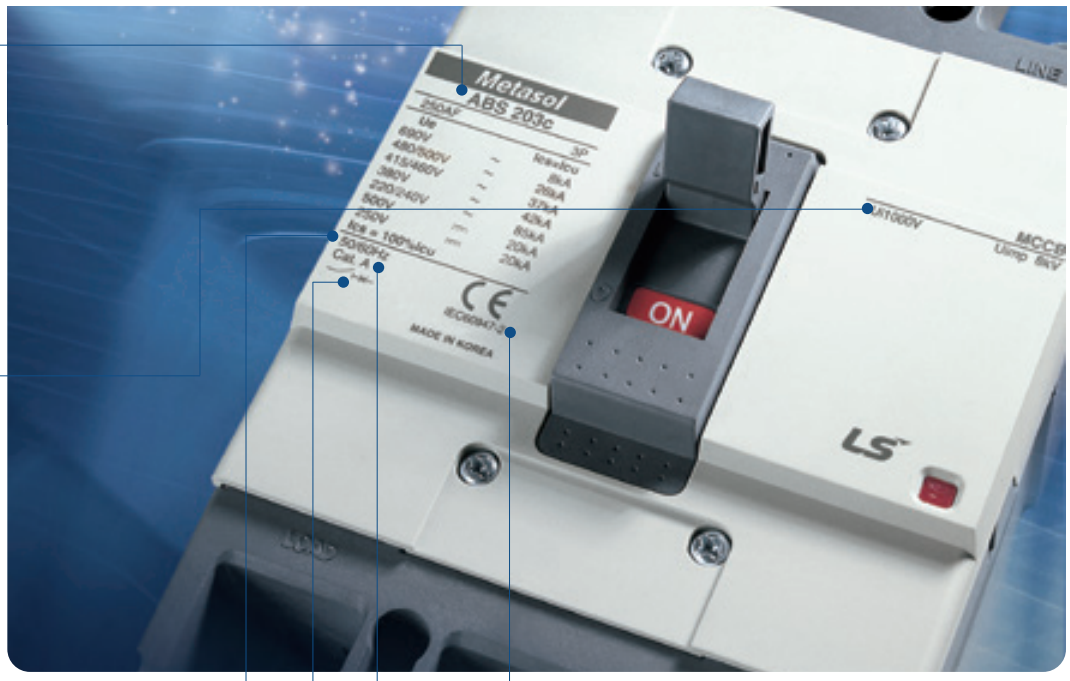


Remote operation

It is a device that makes it possible to turn On / Off the breaker even in the remote place. It is safe because it does not have to operate the handle of the circuit breaker by hand, and it is suitable for automation.

Marking and configuration

MCCB



MCCB model
- ABN: Economic type
- ABS: Standard type
- ABH: High capacity type

Standardized characteristics
Ui: Rated insulation voltage
Uimp: Impulse withstand voltage
Ue: Rated operational voltage
Icu: Ultimate breaking capacity
Ics: Service breaking capacity

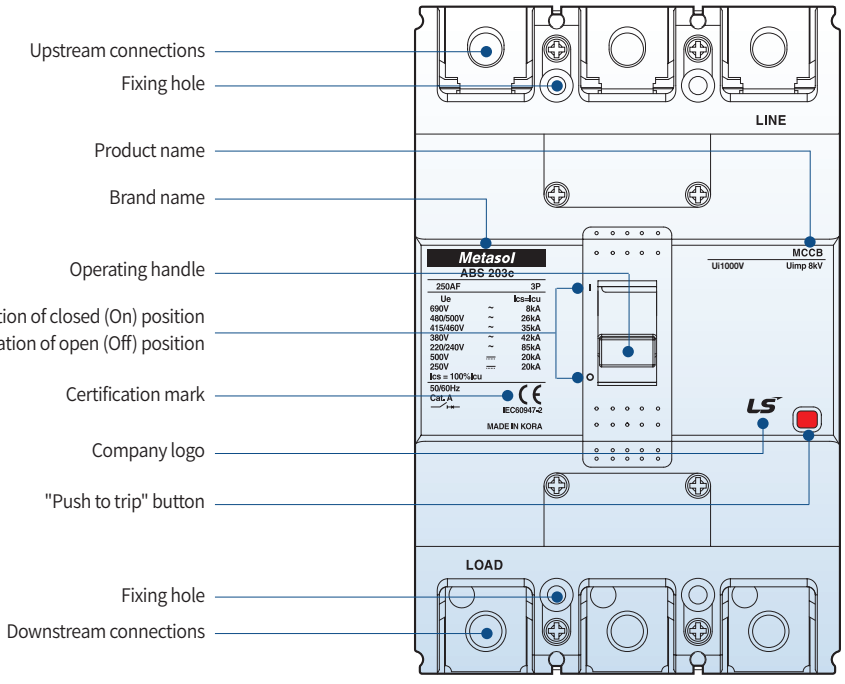
Rated frequency

Utilization category

Standard

Symbol indicating suitability for isolation as defined by IEC 947-2

MCCB



ELCB

ELCB model
- EBN: Economic type
- EBS: Standard type
- EBH: High capacity type

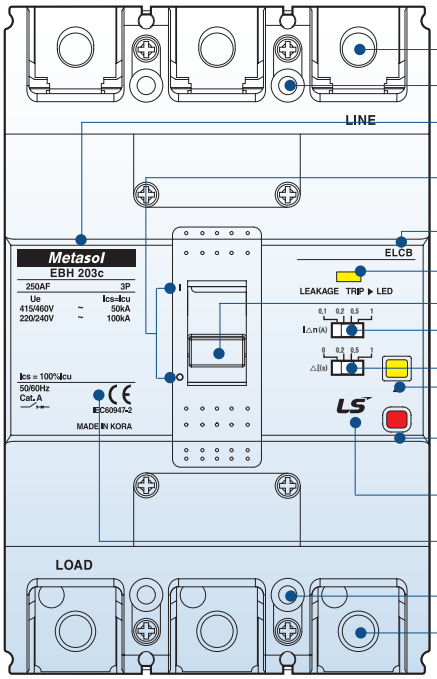
Rated frequency

Utilization category

Standard

Symbol indicating suitability for isolation as defined by IEC 947-2

ELCB



Upstream connections
Fixing hole
Brand name
Indication of closed (On) position
Indication of open (Off) position
Product name
Trip indication by earth fault
Operating handle
Residual current (I△n) setting
Non-operating current setting
"Push to trip" button for earth fault
"Push to trip" button for overcurrent trip
Company logo
Certification mark
Fixing hole
Downstream connections

MCCB

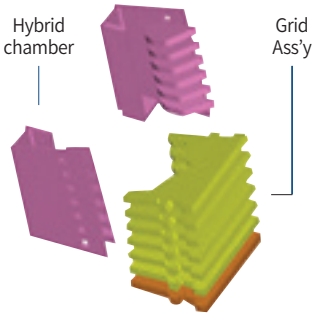
① Handle

- Function of indications
  - "On" "Off" "Trip"
- Resetting
  When the handle indicates "Tripped" position it must first be reset by moving the handle to the "Off" position and then closing is possible
- Trip-free even if the handle is held at "On", the Breaker will trip if an over current flows
- Suitable for verification of the main contact position under abnormal conditions because the handle doesn't indicate open position

② Arc-Extinguishing unit

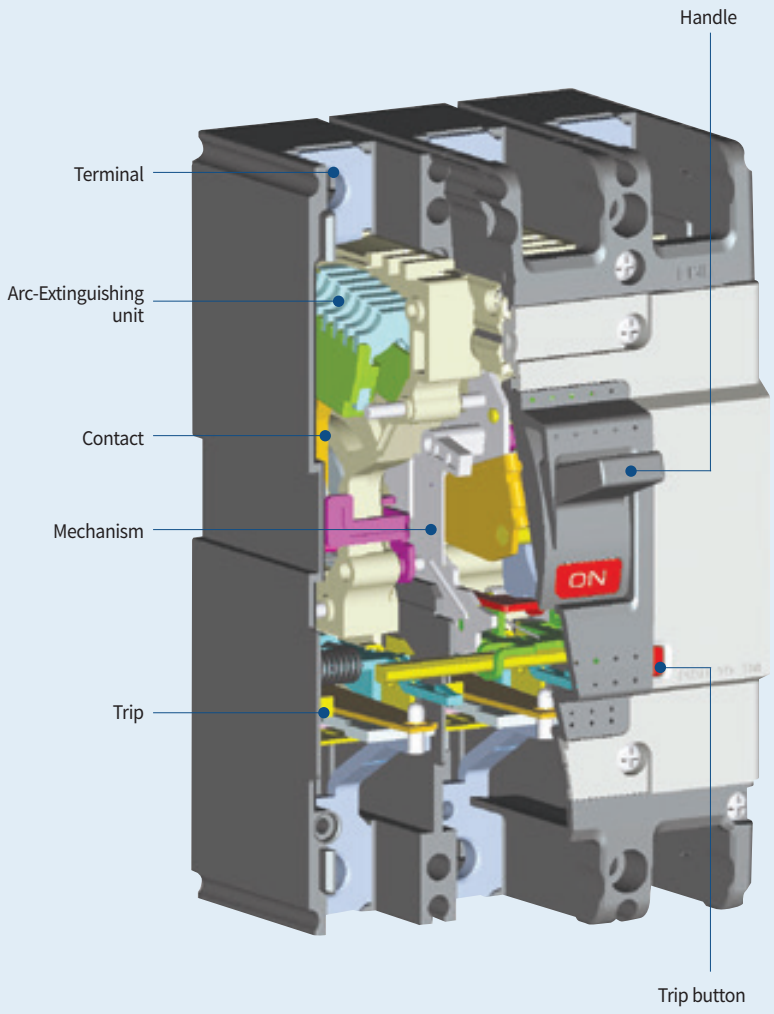
LS patent technique PASQ
Arc-extinguishing unit
PASQ : Puffer assisted self-quenching

- Reduction of arc voltage for a short time

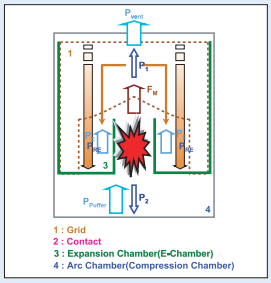


③ Trip button (Push to trip)

- Enables tripping mechanically from outside, for confirming the operation of the accessory switches and the manual resetting function.



A application of PASQ arc extinguishing

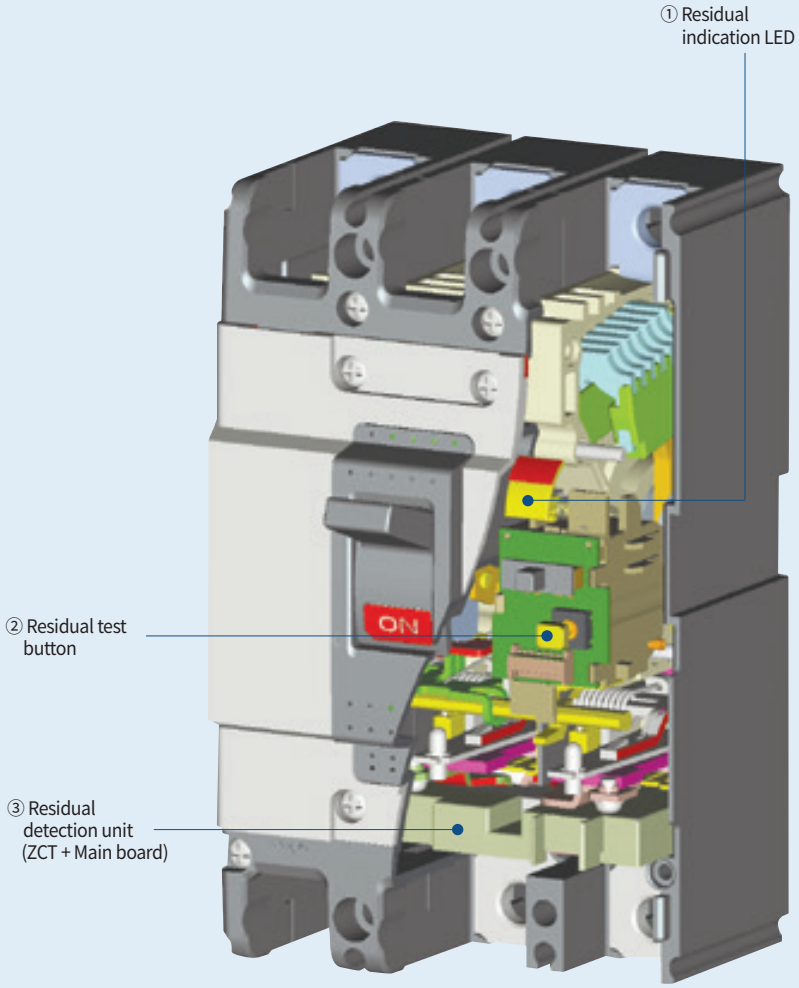


- The reduction of breaking time by applying PASQ arc extinguishing for inhibition of arc voltage for a short time.

A application of current limiting structure

- Current limiting repulsion structure
  (U fixed structure)
- Toggle structure
  - When the operating unit repulses by short circuit current, repulsion structure at bigger angle.

ELCB

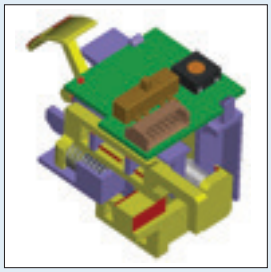


① Residual indication LED
- Normal situation is yellow, trio situation is red

② Residual test button
- Special design for upgrade to prohibit resistance accident

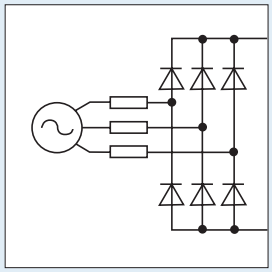
③ Residual detection unit (ZCT + Main board)
- For upgrade the design is selected the 3 phase input power method and in case of voltage problem, it can break residual current safely.

Upgrade coil operation by special design



- Sliding structure application of trip lever
- Trip special design by applying design button method.
- Upgrade the testing unit

3 phase power supply method



- In case of 1 phase loss residual operation upgrade
- New IEC standard

Quick selection table
Molded Case Circuit Breakers

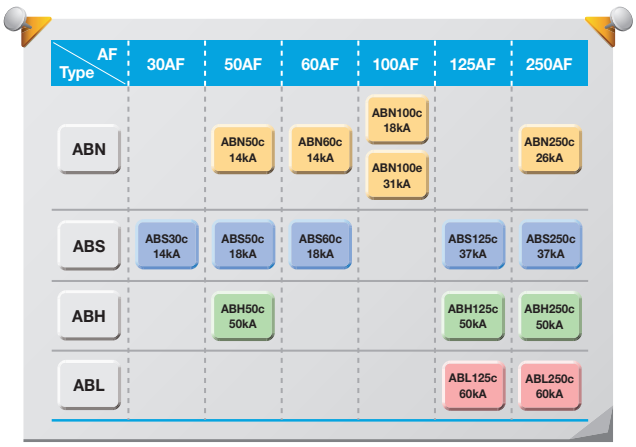
MCCBs

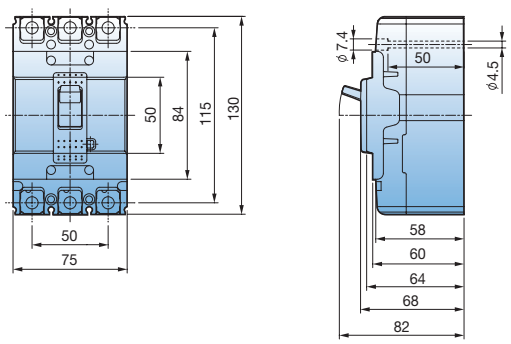


AF		30AF		50AF			60AF	
Type		E-type	S-type	N-type	S-type	H-type	N-type	S-type
Type and pole	2-pole	ABE32b	ABS32c	ABN52c	ABS52c	ABH52c	ABN62c	ABS62c
	3-pole	ABE33b	ABS33c	ABN53c	ABS53c	ABH53c	ABN63c	ABS63c
	4-pole	-	ABS34c	ABN54c	ABS54c	ABH54c	ABN64c	ABS64c
Rated current, In	A	3, 5, 10, 15, 20, 30	(3, 5, 10),Note1) 15, 16, 20, 25,30	15, 16, 20, 25, 30, 32, 40, 50			15, 16, 20, 25, 30, 32, 40, 50, 60	
Rated operational voltage, Ue	AC (V)	460	690	690	690	690	690	690
	DC (V)	-	500	500	500	500	500	500
Rated insulation voltage, Ui	V	460	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage, Uimp	kV	6	8	8	8	8	8	8
Rated short-circuit breaking capacity (Icu) kA (Sym) , IEC 60947-2								
AC	690V	-	2.5	2.5	5	10	2.5	5
	480/500V	-	7.5 (5)	7.5	10	35	7.5	10
	415/460V	2.5	14 (10)	14	18	50	14	18
	380V	2.5	18 (14)	18	22	50	18	22
	220/250V	5	30 (25)	30	35	100	30	35
DC	500V (3P)	-	5	5	10	30	5	10
	250V (2P)	-	5	5	10	30	5	10
Ics=%×Icu		50	100	100	100	100	100	100
Dimensions (mm)	W×H×D (3-pole)	75×96×60	75×130×60 (Fig. 1)	75×130×60 (Fig. 1)		90×155×60 (Fig. 2)	75×130×60 (Fig. 1)	

* For more detail see the page. Ratings 5-1page ~ 5-14page, Curves 8-1page ~ 8-3page, and Drawings 9-1page ~ 9-4page

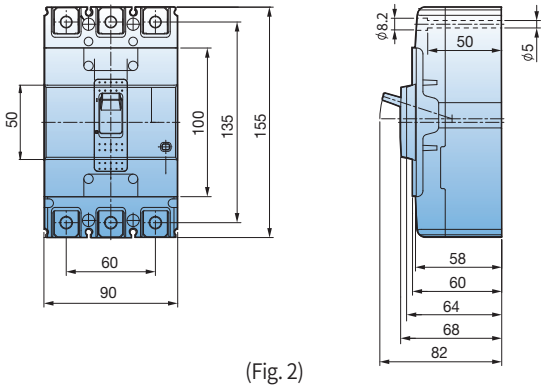
Note) 1. The short-circuit breaking capacities of ABS30AF type in ( ) are applied to the rated current in (3, 5, 10A)
2. MCCBs can be applied to both 50 and 60Hz.
3. Standard type is designed on the basis of 40°C of ambient temperature.
4. There are certain products for hot areas. (30~250AF on the basis of 55°C)
5. The Ics(service breaking capacity) of ABN100e, ABL125/250AF are in ( )
6. Rated current of 100AF, ( ) applies only to ABN100c products.
7. 125AF, 250AF rated current, ( ) does not apply to L-Type.



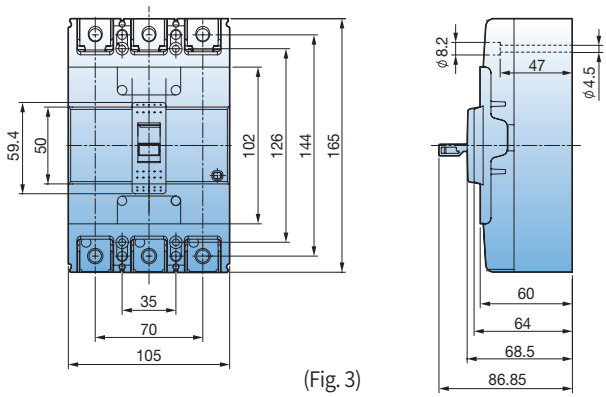


(Fig. 1)

	100AF		125AF			250AF			
	N-type		S-type	H-type	L-type	N-type	S-type	H-type	L-type
	ABN102c	ABN102e	ABS102c	ABH102c	ABL102c	ABN202c	ABS202c	ABH202c	ABL202c
	ABN103c	ABN103e	ABS103c	ABH103c	ABL103c	ABN203c	ABS203c	ABH203c	ABL203c
	ABN104c	ABN104e	ABS104c	ABH104c	ABL104c	ABN204c	ABS204c	ABH204c	ABL204c
	15, (16), 20, (25), 30, (32), 40, 50, 60, (63), 75, (80), 100 Note6)		15, (16), 20, (25), 30, (32), 40, 50, 60, (63), 75, (80), 100, 125 Note7)			100, 125, 150, (160), 175, 200, 225, 250 Note7)			
	690	690	690	690	690	690	690	690	690
	500	500	500	500	500	500	500	500	500
	1000	1000	1000	1000	1000	1000	1000	1000	1000
	8	8	8	8	8	8	8	8	8
	5	7.5 (5)	8	10	10 (10)	8	8	10	10 (10)
	10	14 (10)	26	35	35 (35)	18	26	35	35 (35)
	18	31 (18)	37	50	60 (50)	26	37	50	60 (50)
	22	31 (22)	42	50	60 (50)	30	42	50	60 (50)
	35	65 (35)	85	100	125 (100)	65	85	100	125 (100)
	10	15 (10)	20	30	30 (30)	10	20	30	30 (30)
	10	15 (10)	20	30	30 (30)	10	20	30	30 (30)
	100	( )	100	100	( )	100	100	100	( )
	75×130×60 (Fig. 1)		90×155×60 (Fig. 2)			105×165×60 (Fig. 3)			



(Fig. 2)



(Fig. 3)

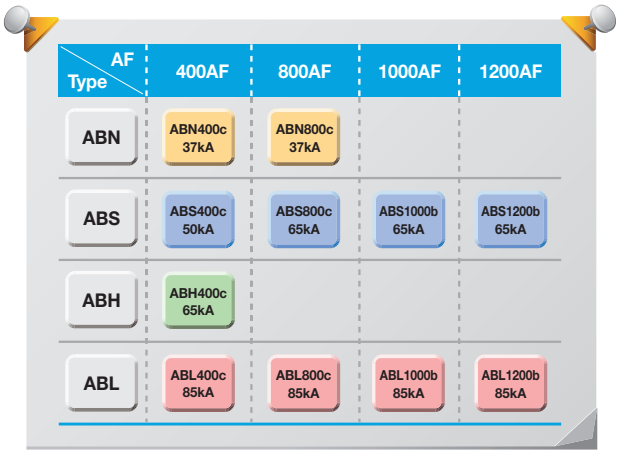
Quick selection table
Molded Case Circuit Breakers

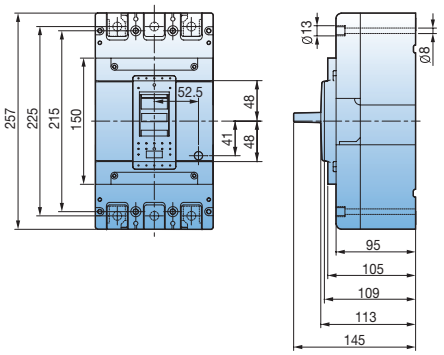
MCCBs

AF		400AF			
Type		N-type	S-type	H-type	L-type
Type and pole	2-pole	ABN402c	ABS402c	ABH402c	ABL402c
	3-pole	ABN403c	ABS403c	ABH403c	ABL403c
	4-pole	ABN404c	ABS404c	ABH404c	ABL404c
Rated current, In	A	250, 300, 350, 400			
Rated operational voltage, Ue	AC (V)	690	690	690	690
	DC (V)	500	500	500	500
Rated insulation voltage, Ui	V	1000	1000	1000	1000
Rated impulse withstand voltage, Uimp	kV	8	8	8	8
Rated short-circuit breaking capacity (Icu) kA (Sym) , IEC 60947-2					
AC	690V	5	8	10	14
	480/500V	18	35	50	65
	415/460V	37	50	65	85
	380V	42	65	70	100
	220/250V	50	75	85	125
DC	500V (3P)	10	20	40	40
	250V (2P)	10	20	40	40
Ics=%×Icu		100	100	100	75
Dimensions (mm)	W×H×D (3-pole)	140×257×109 (Fig. 4)			

* For more detail see the page. Ratings 5-15page ~ 5-22page, Curves 8-4page ~ 8-5page, and Drawings 9-5page ~ 9-8page

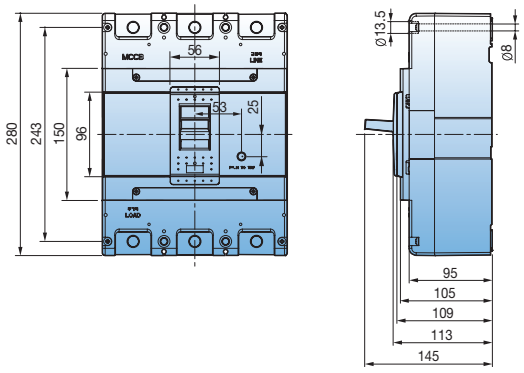
Note) 1. MCCBs can be applied to both 50 and 60Hz.
2. Standard type is designed on the basis of 40°C of ambient temperature.
3. There are certain products for hot areas. (400~800AF on the basis of 50°C)



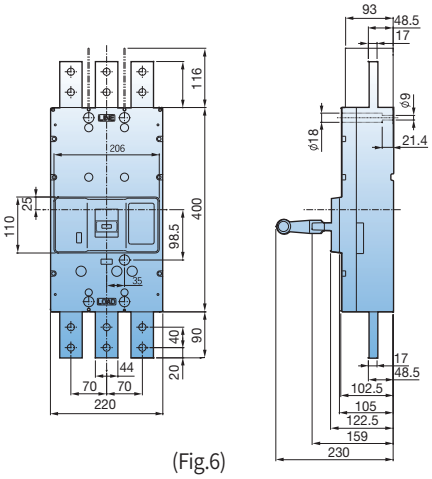


(Fig. 4)

	800AF			1000AF		1200AF		
	N-type	S-type	L-type	S-type	L-type	S-type		L-type
	ABN802c	ABS802c	ABL802c	-	-	-	-	-
	ABN803c	ABS803c	ABL803c	ABS1003b	ABL1003b	ABS1203b	ABS1203bE	ABL1203b
	ABN804c	ABS804c	ABL804c	ABS1004b	ABL1004b	ABS1204b	-	ABL1204b
	500, 600, 630, 700, 800			1000		1200		
	690	690	690	600	600	600	600	600
	500	500	500	-	-	-	-	-
	1000	1000	1000	690	690	690	690	690
	8	8	8	6	6	6	6	6
	8	10	14	-	-	-	-	-
	25	45	65	50	75	50	50	75
	37	65	85	65	85	65	65	85
	45	75	100	65	85	65	65	85
	50	85	125	100	125	100	100	125
	10	20	40	-	-	-	-	-
	10	20	40	-	-	-	-	-
	100	100	75	50	50	50	50	50
	210×280×109 (Fig. 5)			220×400×105 (Fig. 6)		220×400×105 (Fig. 6)		



(Fig. 5)



(Fig.6)

Quick selection table

Motor protection Molded Case Circuit Breakers

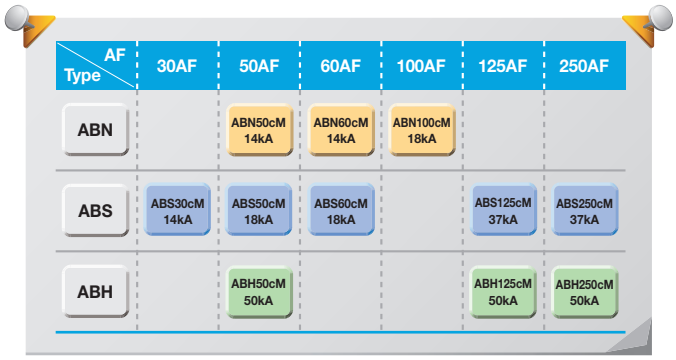
MCCBs

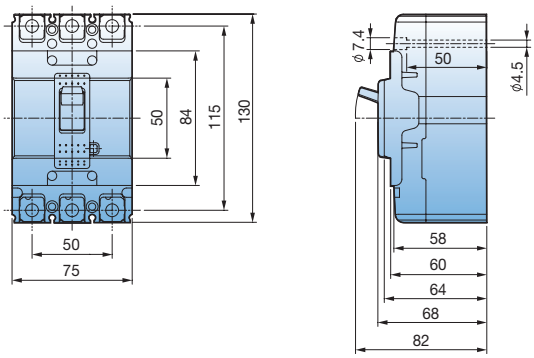


AF		30AF	50AF			60AF	
Type		S-type	N-type	S-type	H-type	N-type	S-type
Type and pole	3-pole	ABS33cM	ABN53cM	ABS53cM	ABH53cM	ABN63cM	ABS63cM
Rated current, In	A	16, 24	16, 24, 32, 45			60	
Rated operational voltage, Ue	AC (V)	690	690	690	690	690	690
	DC (V)	500	500	500	500	500	500
Rated insulation voltage, Ui	V	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage, Uimp	kV	8	8	8	8	8	8
Rated short-circuit breaking capacity (Icu) kA (Sym) , IEC 60947-2							
AC	690V	2.5	2.5	5	10	2.5	5
	480/500V	7.5	7.5	10	35	7.5	10
	415/460V	14	14	18	50	14	18
	380V	18	18	22	50	18	22
	220/250V	30	30	35	100	30	35
DC	500V (3P)	5	5	10	30	5	10
Ics=%×Icu		100	100	100	100	100	100
Dimensions (mm)	W×H×D (3-pole)	75×130×60 (Fig. 1)	75×130×60 (Fig. 1)		90×155×60 (Fig. 2)	75×130×60 (Fig. 1)	

* For more detail see the page. Ratings 5-3page ~ 5-14page, Curves 8-7page ~ 8-8page, and Drawings 9-2page ~ 9-4page

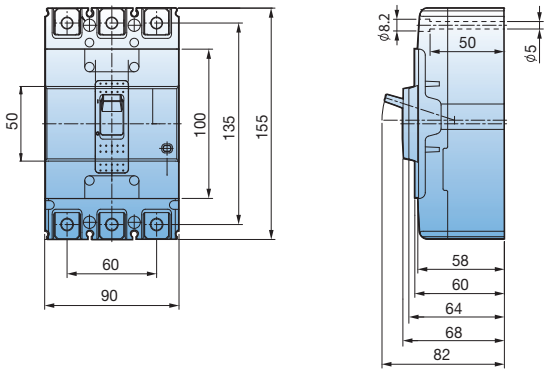
Note) 1. Same electrical and physical specification with MCCB.
2. Accessory: same application with MCCB
3. MCCBs can be applied to both 50 and 60Hz.



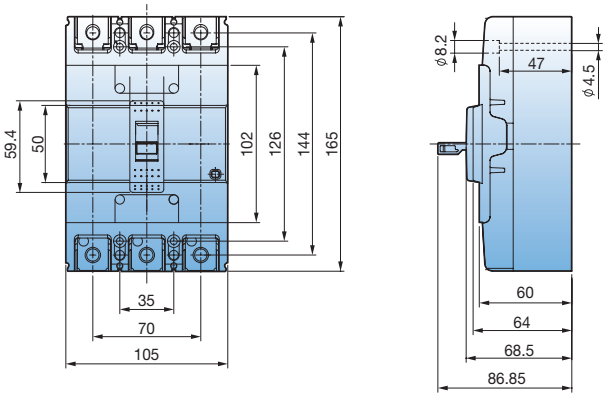


(Fig. 1)

	100AF	125AF		250AF		
	N-type	S-type	H-type	N-type	S-type	H-type
	ABN103cM	ABS103cM	ABH103cM	ABN203cM	ABS203cM	ABH203cM
	60, 75, 90	60, 75, 90		125, 150, 175, 225		
	690	690	690	690	690	690
	500	500	500	500	500	500
	1000	1000	1000	1000	1000	1000
	8	8	8	8	8	8
	5	8	10	8	8	10
	10	26	35	18	26	35
	18	37	50	26	37	50
	22	42	50	30	42	50
	35	85	100	65	85	100
	10	20	30	10	20	30
	100	100	100	100	100	100
	75×130×60 (Fig. 1)	90×155×60 (Fig. 2)		105×165×60 (Fig. 3)		



(Fig. 2)



(Fig. 3)

Quick selection table
ZCT Molded Case Circuit Breakers

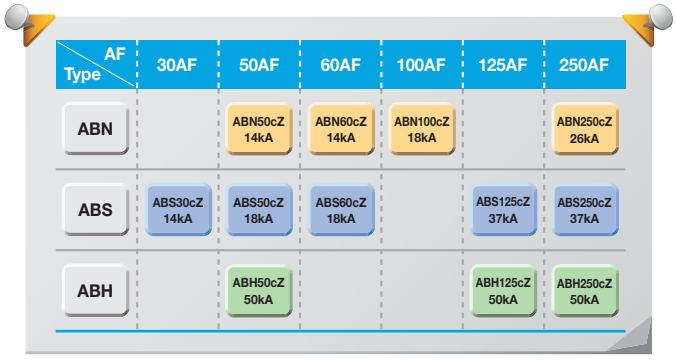
MCCBs

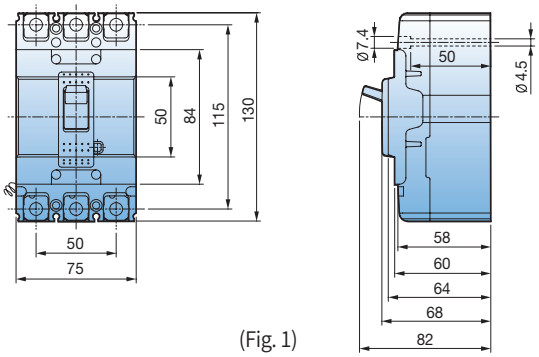


AF		30AF	50AF			60AF	
Type		S-type	N-type	S-type	H-type	N-type	S-type
Type and pole	2-pole	-	-	-	ABH52cZ	-	-
	3-pole	ABS33cZ	ABN53cZ	ABS53cZ	ABH53cZ	ABN63cZ	ABS63cZ
	4-pole	ABS34cZ	ABN54cZ	ABS54cZ	ABH54cZ	ABN64cZ	ABS64cZ
Rated current, In	A	15, 16, 20, 25, 30	15, 16, 20, 25, 30, 32, 40, 50			15, 16, 20, 25, 30, 32, 40, 50, 60	
Rated operational voltage, Ue	AC (V)	690	690	690	690	690	690
Rated insulation voltage, Ui	V	1000	1000	1000	1000	1000	1000
Rated impulse withstand voltage, Uimp	kV	8	8	8	8	8	8
Rated short-circuit breaking capacity (Icu) kA (Sym) , IEC 60947-2							
AC	690V	2.5	2.5	5	10	2.5	5
	480/500V	7.5	7.5	10	35	7.5	10
	415/460V	14	14	18	50	14	18
	380V	18	18	22	50	18	22
	220/250V	30	30	35	100	30	35
Ics=%×Icu		100	100	100	100	100	100
Dimensions (mm)	W×H×D (3-pole)	75×130×60 (Fig. 1)	75×130×60 (Fig. 1)		90×155×60 (Fig. 2)	75×130×60 (Fig. 1)	

* For more detail see the page. Ratings 5-3page ~ 5-14page, Curves 8-1page ~ 8-3page, and Drawings 9-2page ~ 9-4page

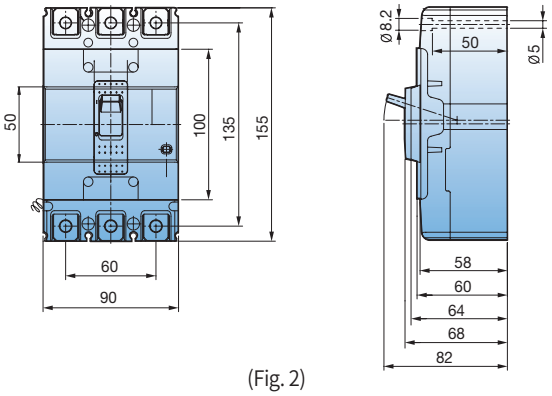
Note) 1. Same electrical and physical specification with MCCB.
2. Accessory: Same application with MCCB
3. MCCBs can be applied to both 50 and 60Hz.
4. Marking ZCT on the Aux. cover right side
5. Dimension of ABH52c, ABS102c and ABH102, which have a built-in ZCT, is 60 (W) X 155 (H) X 60 (D) mm
6. 4-pole product's ampacity on neutral conductor is equal to or less than 50% of the rated current.



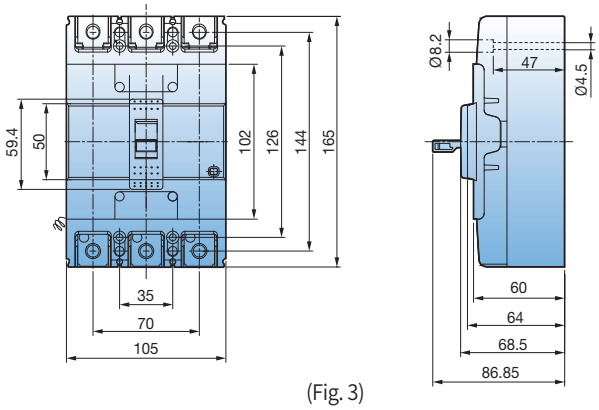


(Fig. 1)

	100AF	125AF		250AF		
	N-type	S-type	H-type	N-type	S-type	H-type
	-	ABS102cZ	ABH102cZ	-	-	-
	ABN103cZ	ABS103cZ	ABH103cZ	ABN203cZ	ABS203cZ	ABH203cZ
	ABN104cZ	ABS104cZ	ABH104cZ	ABN204cZ	ABS204cZ	ABH204cZ
	15, 16, 20, 25, 30, 32, 40, 50, 60, 63, 75, 80, 100	15, 16, 20, 25, 30, 32, 40, 50, 60, 63, 75, 80, 100, 125		100, 125, 150, 160, 175, 200, 225, 250		
	690	690	690	690	690	690
	1000	1000	1000	1000	1000	1000
	8	8	8	8	8	8
	5	8	10	8	8	10
	10	26	35	18	26	35
	18	37	50	26	37	50
	22	42	50	30	42	50
	35	85	100	65	85	100
	100	100	100	100	100	100
	75×130×60 (Fig. 1)	90×155×60 (Fig. 2)		105×165×60 (Fig. 3)		



(Fig. 2)



(Fig. 3)

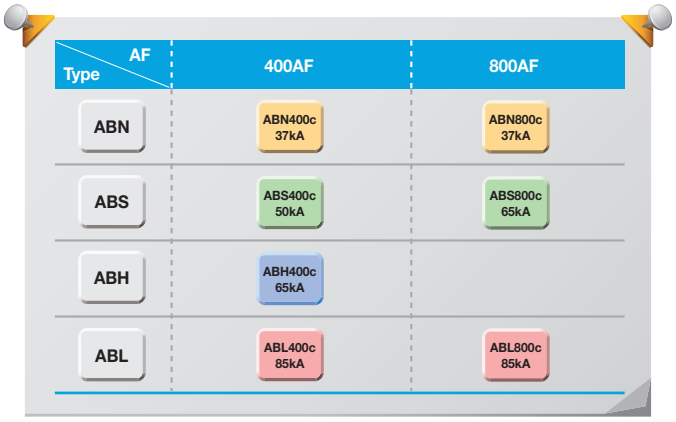
Quick selection table
ZCT Molded Case Circuit Breakers

MCCBs

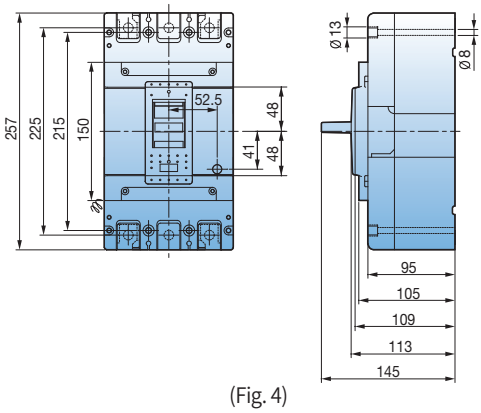
AF		400AF				
Type		N-type	S-type	H-type	L-type	
Type and pole	2-pole	-	-	-	-	
	3-pole	ABN403cZ	ABS403cZ	ABH403cZ	ABL403cZ	
	4-pole	ABN404cZ	ABS404cZ	ABH404cZ	ABL404cZ	
Rated current, In	A	250, 300, 350, 400				
Rated operational voltage, Ue	AC (V)	690	690	690	690	
Rated insulation voltage, Ui	V	1000	1000	1000	1000	
Rated impulse withstand voltage, Uimp	kV	8	8	8	8	
Rated short-circuit breaking capacity (Icu) kA (Sym) , IEC 60947-2						
AC	690V	5	8	10	14	
	480/500V	18	35	50	65	
	415/460V	37	50	65	85	
	380V	42	65	70	100	
	220/250V	50	75	85	125	
Ics=%×Icu		100	100	100	75	
Dimensions (mm)	W×H×D (3-pole)	140×257×109 (Fig. 4)				

* For more detail see the page. Ratings 5-15page ~ 5-18page, Curves 8-4page and Drawings 9-5page ~ 9-6page

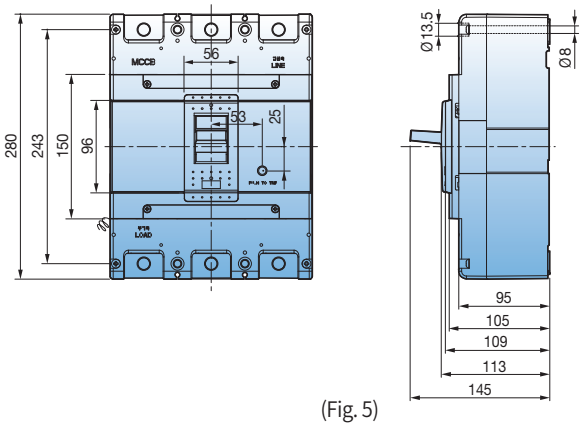
Note) 1. Same electrical and physical specification with MCCB.
2. Accessory: Same application with MCCB
3. MCCBs can be applied to both 50 and 60Hz.
4. Marking ZCT on the Aux. cover right side
5. 4-pole product's ampacity on neutral conductor is equal to or less than 50% of the rated current.



	800AF		
	N-type	S-type	L-type
	-	-	-
	ABN803cZ	ABS803cZ	ABL803cZ
	-	-	-
	500, 630, 700, 800		
	690	690	690
	1000	1000	1000
	8	8	8
	8	10	14
	25	45	65
	37	65	85
	45	75	100
	50	85	125
	100	100	75
	210×280×109 (Fig. 5)		



(Fig. 4)



(Fig. 5)

Quick selection table
Earth Leakage Circuit Breakers (AC Type)

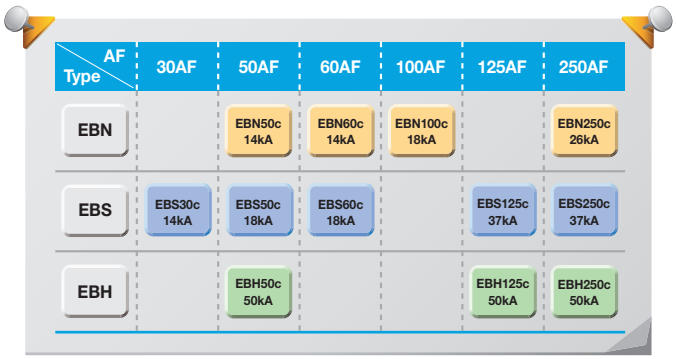
ELCBs

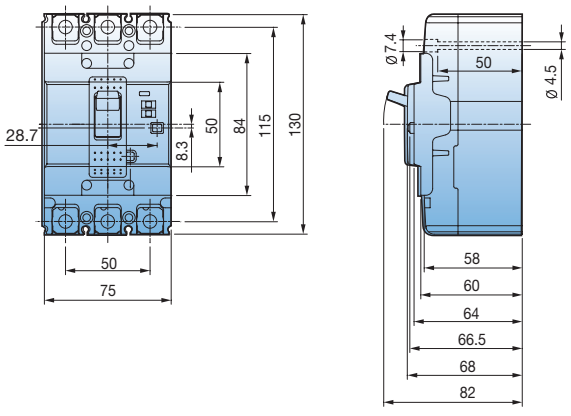


AF			30AF	50AF			60AF	
Type			S-type	N-type	S-type	H-type	N-type	S-type
Type and pole		2-pole	EBS32c	EBN52c	-	-	-	-
		3-pole	EBS33c	EBN53c	EBS53c	EBH53c	EBN63c	EBS63c
		4-pole	EBS34c	-	EBS54c	EBH54c	-	EBS64c
Protective function			Overload, short-circuit and ground fault	Overload, short-circuit and ground fault			Overload, short-circuit and ground fault	
Rated current, In		A	(5, 10) Note)3, 15, 16, 20, 25, 30	15, 16, 20, 25, 30, 32, 40, 50			60	
Rated impulse withstand voltage, Uimp		kV	6	6			6	
Instantaneous type	Rated residual current, I∆n	mA	30, 100, 100/200/500	30, 100, 100/200/500			30, 100, 100/200/500	
	Residual current off-time at I∆n	sec	≤0.1	≤0.1			≤0.1	
	Rated operational voltage, Ue	AC (V)	220/460	220/460			220/460	
Time delay type	Rated residual current	1A	0.1/0.2/0.5/1	0.1/0.2/0.5/1			0.1/0.2/0.5/1	
	Intentional time delay	1s	0/0.2/0.5/1	0/0.2/0.5/1			0/0.2/0.5/1	
	Rated residual current	2A	0.1/0.4/1/2	0.1/0.4/1/2			0.1/0.4/1/2	
	Intentional time delay	2s	0.5/1/1.5/2	0.5/1/1.5/2			0.5/1/1.5/2	
Rated short-circuit breaking capacity (Icu) kA (Sym) , IEC 60947-2								
AC		415/460V	14 (10)	14	18	50	14	18
		220/250V	30 (25)	30	35	100	30	35
Ics=%×Icu			100	100	100	100	100	100
Dimensions (mm)		W×H×D (3-pole)	75×130×60 (Fig. 1)	75×130×60 (Fig. 1)		90×155×60 (Fig. 2)	75×130×60 (Fig. 1)	

* For more detail see the page. Ratings 6-1page ~ 6-12page, Curves 8-1 ~ 8-3page and Drawings 9-9page ~ 9-11page

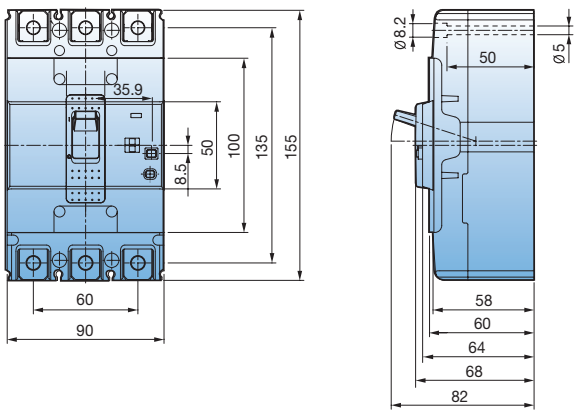
Note) 1. MCCBs can be applied to both 50 and 60Hz.
2. Do not test withstand voltage or insulation resistance test between poles to avoid the damage of the PCB.
3. The short-circuit breaking capacities in ( ) are applied to the rated current in (5, 10A)
4. Below 250AF Some ELCBs have a test lead type for remote testing.



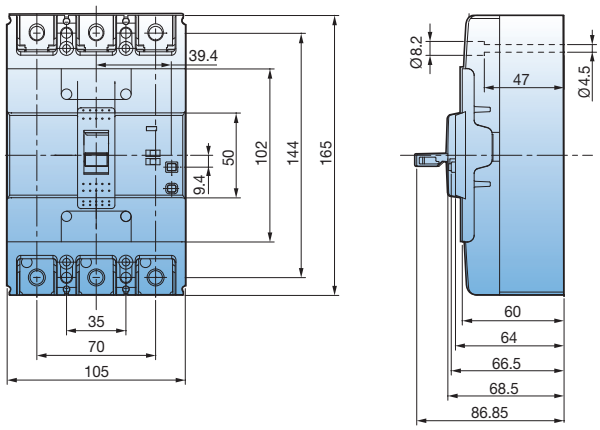


(Fig. 1)

	100AF	125AF		250AF		
	N-type	S-type	H-type	N-type	S-type	H-type
	EBN102c	-	-	EBN202c	-	-
	EBN103c	EBS103c	EBH103c	EBN203c	EBS203c	EBH203c
	EBN104c	EBS104c	EBH104c	-	EBS204c	EBH204c
	Overload, short-circuit and ground fault	Overload, short-circuit and ground fault		Overload, short-circuit and ground fault		
	60, 63, 75, 80, 100	15, 16, 20, 25, 30, 32, 40, 50, 60, 63, 75, 80, 100, 125		100, 125, 150, 160, 175, 200, 225, 250		
	6	6		6		
	30, 100, 100/200/500	30, 100, 100/200/500		30, 100, 100/200/500		
	≤0.1	≤0.1		≤0.1		
	220/460	220/460		220/460		
	0.1/0.2/0.5/1	0.1/0.2/0.5/1		0.1/0.2/0.5/1		
	0/0.2/0.5/1	0/0.2/0.5/1		0/0.2/0.5/1		
	0.1/0.4/1/2	0.1/0.4/1/2		0.1/0.4/1/2		
	0.5/1/1.5/2	0.5/1/1.5/2		0.5/1/1.5/2		
	18	37	50	26	37	50
	35	85	100	65	85	100
	100	100	100	100	100	100
	75×130×60 (Fig. 1)	90×155×60 (Fig. 2)		105×165×60 (Fig. 3)		



(Fig. 2)



(Fig. 3)

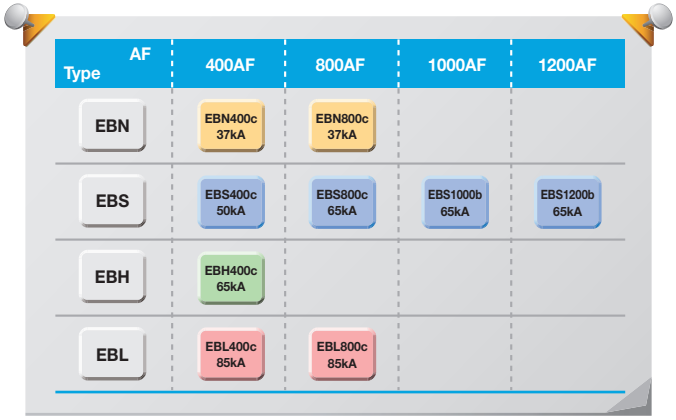
Quick selection table
Earth Leakage Circuit Breakers (AC Type)

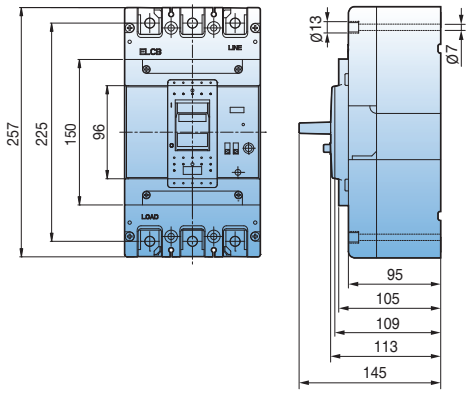
ELCBs

AF			400AF				
Type			N-type	S-type	H-type	L-type	
		3-pole	EBN403c	EBS403c	EBH403c	EBL403c	
		4-pole	EBN404c	EBS404c	EBH404c	EBL404c	
Protective function			Overload, short-circuit and ground fault				
Rated current, In		A	250, 300, 350, 400				
Rated impulse withstand voltage, Uimp		kV	6	6	6	6	
Rated operational voltage, Ue		AC (V)	220/460	220/460	220/460	220/460	
Instantaneous type	Rated residual current, I∆n	mA	30, 100/200/500				
	Residual current off-time at I∆n	sec	≤0.1	≤0.1	≤0.1	≤0.1	
Time delay type	Rated residual current	A	0.1/0.4/1/2				
	Intentional time delay	s	0.5/1/1.5/2				
Rated short-circuit breaking capacity (Icu) kA (Sym) , IEC 60947-2							
	AC	415/460V	37	50	65	85	
		220/250V	50	75	85	125	
	Ics=%×Icu		100	100	100	75	
Dimensions (mm)		W×H×D (3-pole)	140×257×109 (Fig. 4)				

* For more detail see the page. Ratings 6-13page ~ 6-18page, Curves 8-4~ 8-5page and Drawings 9-12page ~ 9-14page

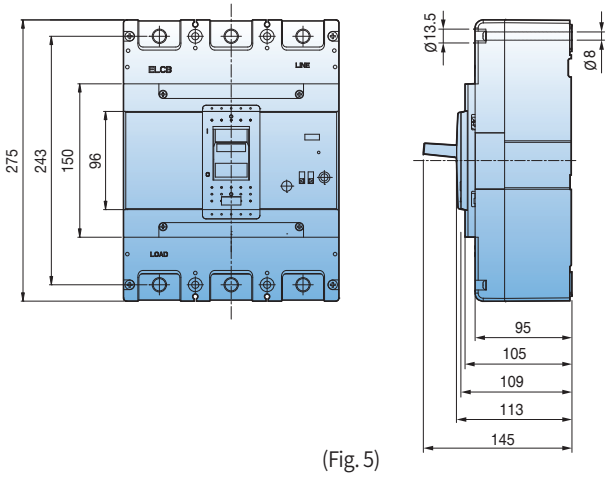
Note) 1. MCCBs other than 1000/1200AF can be applied to both 50 and 60Hz.
2. Do not test withstand voltage or insulation resistance test between poles to avoid the damage of the PCB.



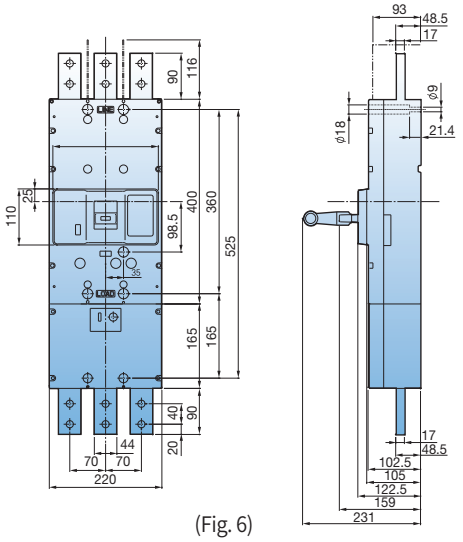


(Fig. 4)

	800AF			1000AF	1200AF
	N-type	S-type	L-type	S-type	S-type
	EBN803c	EBS803c	EBL803c	EBN1003b	EBS1203b
	-	-	-	-	-
	Overload, short-circuit and ground fault			Overload, short-circuit and ground fault	
	500, 630, 700, 800			1000	1200
	6	6	6	-	-
	220/460	220/460	220/460	220/460	220/460
	30, 100/200/500			100/200/500	100/200/500
	≤0.1	≤0.1	≤0.1	≤0.1	≤0.1
	0.1/0.4/1/2			-	
	0.5/1/1.5/2			-	
	37	65	85	85	85
	50	85	125	125	125
	100	100	75	-	-
	210×280×109 (Fig. 5)			220×565×105 (Fig. 6)	



(Fig. 5)



(Fig. 6)

Quick selection table
Earth Leakage Circuit Breakers (A Type)

ELCBs



AF			30AF	50AF			60AF	
Type			S-type	N-type	S-type	H-type	N-type	S-type
		3-pole	EBS33c	EBN53c	EBS53c	EBH53c	EBN63c	EBS63c
		4-pole	EBS34c	-	EBS54c	EBH54c	-	EBS64c
Protective function			Overload, short-circuit and ground fault	Overload, short-circuit and ground fault			Overload, short-circuit and ground fault	
Rated current, In		A	(5, 10), 15, 16, 20, 25, 30	15, 16, 20, 25, 30, 32, 40, 50			60	
Rated impulse withstand voltage, Uimp		kV	6	6			6	
Rated operational voltage, Ue			A	A			A	
Instantaneous type	Rated residual current, I△n	0.5A	0.03/0.1/0.3/0.5	0.03/0.1/0.3/0.5			0.03/0.1/0.3/0.5	
	Residual current off-time at I△n	1s	0/0.2/0.5/1	0/0.2/0.5/1			0/0.2/0.5/1	
Time delay type	Rated residual current	1A	0.1/0.2/0.5/1	0.1/0.2/0.5/1			0.1/0.2/0.5/1	
	Intentional time delay	1s	0/0.2/0.5/1	0/0.2/0.5/1			0/0.2/0.5/1	
Rated short-circuit breaking capacity (Icu) kA (Sym) , IEC 60947-2								
AC		415/460V	14(10)	14	18	50	14	18
		220/250V	30(25)	30	35	100	30	35
Ics=%×Icu			100	100	100	100	100	100
Dimensions (mm)	3-pole	W×H×D	75×130×60	75×130×60		90×155×60	75×130×60	
	4-pole	W×H×D	100×130×60	100×130×60		120×155×60	100×130×60	

* For more detail see the page. Ratings 6-1page ~ 6-12page, Curves 8-1 ~ 8-3page and Drawings 9-9page ~ 9-11page

Note) 1. MCCBs can be applied to both 50 and 60Hz.
2. Do not test withstand voltage or insulation resistance test between poles to avoid the damage of the PCB.
3. The short-circuit breaking capacities in ( ) are applied to the rated current in (5, 10A)
4. Below 250AF Some ELCBs have a test lead type for remote testing.

What is an A Type Earth Leakage Circuit Breaker (ELCB)?

In electrical systems, an A Type ELCB can detect and block residual currents that include pulsating DC leakage currents in addition to conventional AC leakage currents. These types of leakages commonly occur in loads such as UPS, rectifiers, motors, and electric vehicle chargers.

AC Type

ELCB Type	Detected waveform	Tripping current	Applicable loads
AC Type 		0.5~1I△n	• General loads • Power distribution loads • Electrical heaters • Electronic equipment composed of passive components



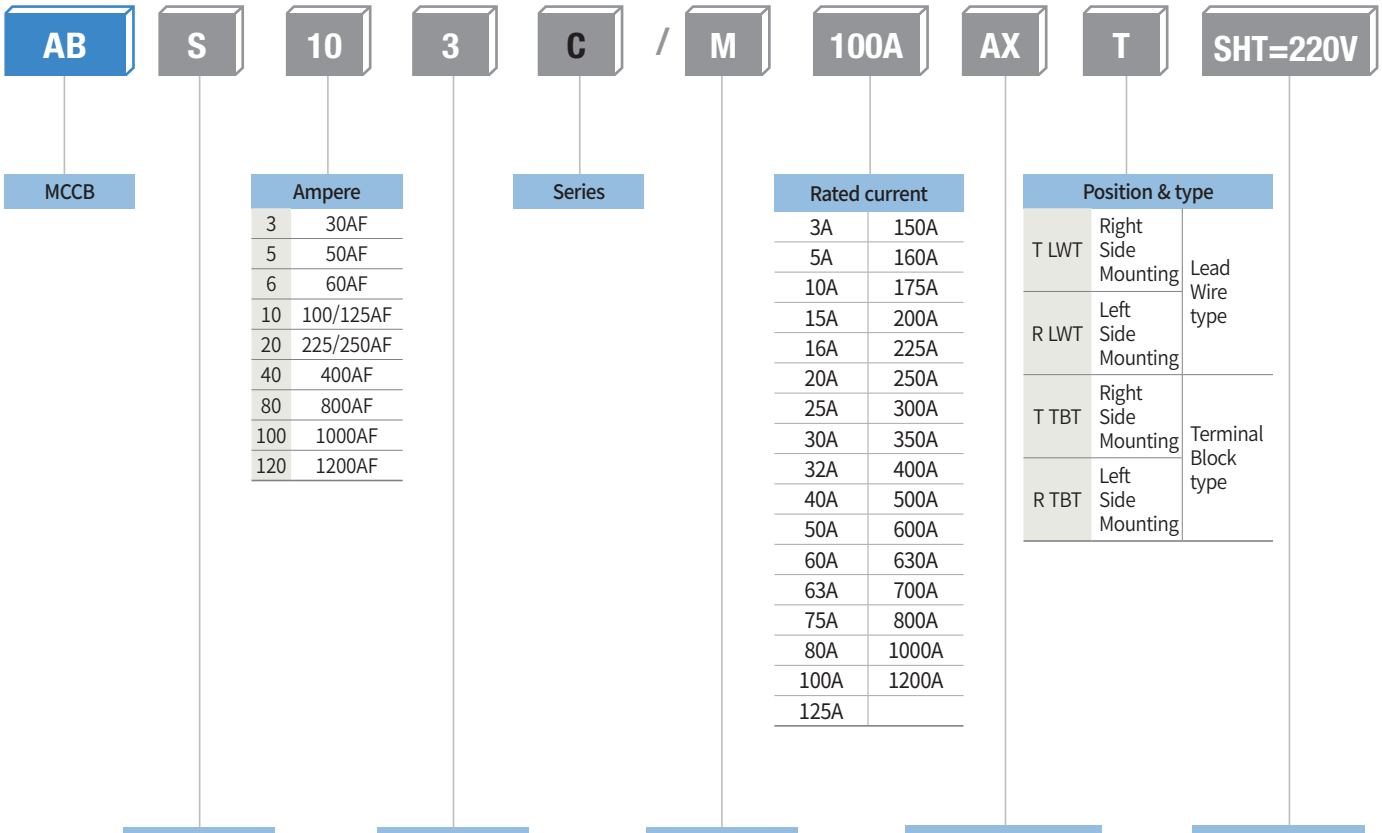

	100AF	125AF		250AF			400AF			
	N-type	S-type	H-type	N-type	S-type	H-type	N-type	S-type	H-type	L-type
	EBN103c	EBS103c	EBH103c	EBN203c	EBS203c	EBH203c	EBN403c	EBS403c	EBH403c	EBL403c
	EBN104c	EBS104c	EBH104c	-	EBS204c	EBH204c	EBN404c	EBS404c	EBH404c	EBL404c
	Overload, short-circuit and ground fault	Overload, short-circuit and ground fault		Overload, short-circuit and ground fault			Overload, short-circuit and ground fault			
	60, 63, 75, 80, 100	15, 16, 20, 25, 30, 32, 40, 50, 60, 63, 75, 80, 100, 125		100, 125, 150, 160, 175, 200, 225, 250			250, 300, 350, 400			
	6	6		6			6			
	A	A		A			A			
	0.03/0.1/0.3/0.5	0.03/0.1/0.3/0.5		0.03/0.1/0.3/0.5			-			
	0/0.2/0.5/1	0/0.2/0.5/1		0/0.2/0.5/1			-			
	0.1/0.2/0.5/1	0.1/0.2/0.5/1		0.1/0.2/0.5/1			0.1/0.2/0.5/1			
							0.1/0.3/0.5/1			
	0/0.2/0.5/1	0/0.2/0.5/1		0/0.2/0.5/1			0/0.2/0.5/1			
	18	37	50	26	37	50	37	50	65	85
	35	85	100	65	85	100	50	75	85	125
	100	100	100	100	100	100	100	100	100	75
	75×130×60	90×155×60		105×165×60			140×257×109			
	100×130×60	120×155×60		140×165×60			184×257×109			

A Type

ELCB Type	Detected waveform	Tripping current	Applicable loads
A Type		0.5~1I△n	• General loads • Power distribution loads • Electrical heaters • Electronic equipment composed of passive components
		0.35~1.4I△n	• Single-phase UPS • Single-phase PV System • Motor Drive • Electric Vehicle Charger • Load including Rectifiers
		0.25~1.4I△n	
		0.11~1.4I△n	
		6mA + 0.35~1.4I△n	

Type numbering system

MCCB



MCCB

Ampere	
3	30AF
5	50AF
6	60AF
10	100/125AF
20	225/250AF
40	400AF
80	800AF
100	1000AF
120	1200AF

Series

Rated current	
3A	150A
5A	160A
10A	175A
15A	200A
16A	225A
20A	250A
25A	300A
30A	350A
32A	400A
40A	500A
50A	600A
60A	630A
63A	700A
75A	800A
80A	1000A
100A	1200A
125A	

Position & type		
T LWT	Right Side Mounting	Lead Wire type
R LWT	Left Side Mounting	
T TBT	Right Side Mounting	Terminal Block type
R TBT	Left Side Mounting	

Type	
N	N-type
S	S-type
H	H-type
L	L-type

Pole	
2	2-pole
3	3-pole
4	4-pole

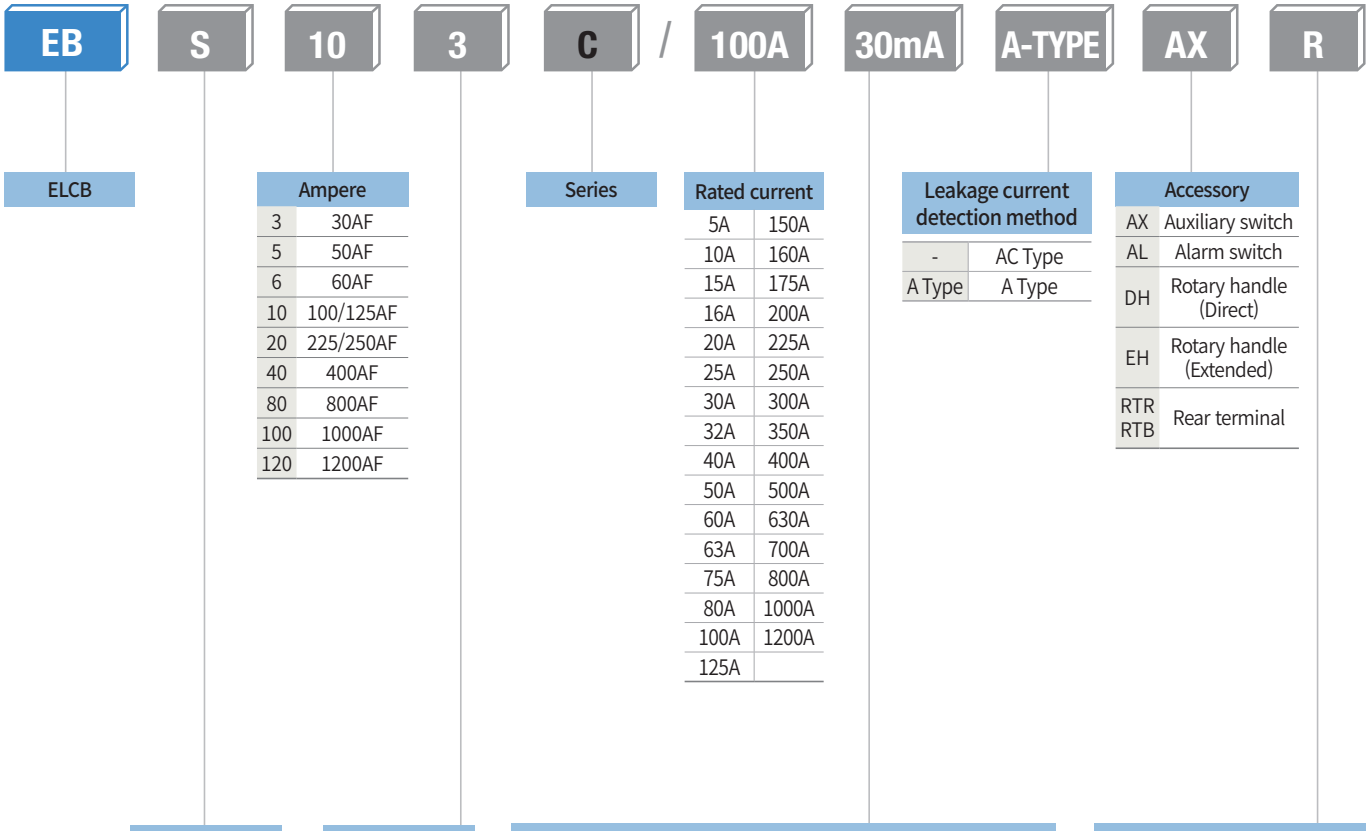
Application	
-	General purpose
M	Motor protection

Accessory	
AX	Auxiliary switch
AL	Alarm switch
SHT	Shunt trip
UVT	Undervoltage trip
DH	Rotary handle (Direct)
EH	Rotary handle (Extended)
RTR RTB	Rear terminal

Control voltage of accessory
SHT
AC/DC 12V
AC/DC 24V
AC/DC 48V
AC/DC 60V
AC/DC 100V~130V
AC/DC200V~250V
AC 380V~450V
AC 440V~500V
UVT
AC/DC 24V
AC/DC 48V
AC/DC 100V~110V
AC/DC 200V~220V
AC 380V~440V
AC 440V~480V

* Warning: Mounting accessories is not available at the left side of 2pole MCCB (Up to 125AF)

ELCB



ELCB

Ampere	
3	30AF
5	50AF
6	60AF
10	100/125AF
20	225/250AF
40	400AF
80	800AF
100	1000AF
120	1200AF

Series

Rated current	
5A	150A
10A	160A
15A	175A
16A	200A
20A	225A
25A	250A
30A	300A
32A	350A
40A	400A
50A	500A
60A	630A
63A	700A
75A	800A
80A	1000A
100A	1200A
125A	

Leakage current detection method	
-	AC Type
A Type	A Type

Accessory	
AX	Auxiliary switch
AL	Alarm switch
DH	Rotary handle (Direct)
EH	Rotary handle (Extended)
RTR RTB	Rear terminal

Type	
N	N-type
S	S-type
H	H-type
L	L-type

Pole	
2	2-pole
3	3-pole
4	4-pole

Rated residual current, Intentional time delay		
Instantaneous type	30mA	30mA
	100mA	100mA
	100/200/500mA	100/200/500mA
Time delay (AC type)	1A, 1s	0.1/0.2/0.5/1A, 0/0.2/0.5/1s
	2A, 2s	0.1/0.4/1/2A, 0.5/1/1.5/2s
Time delay (A type)	0.03/0.1/0.3/0.5A,1s	0.03/0.1/0.3/0.5A, 0/0.2/0.2/1s
	0.1/0.2/0.5/1A,1s	0.1/0.2/0.5/1A,1s, 0/0.2/0.2/1s
	0.1/0.3/0.5/1A,1s	0.1/0.3/0.5/1A,1s, 0/0.2/0.2/1s

Position & type		
R LWT	Left Side Mounting	Lead Wire type
R TBT	Left Side Mounting	Terminal Block type

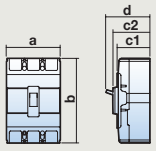
* Warning: Mounting accessories is not available at the right side ELCB (Up to 250AF)

ABE32b

ABE33b

Ratings

Frame size			30AF	
Type and pole			**E-type**	
	2-pole		**ABE32b**	
	3-pole		**ABE33b**	
	4-pole		-	
Rated current, In			3-5-10-15-20-30A	
Rated operational voltage, Ue			AC: 460V	
			-	
Rated insulation voltage, Ui			AC: 460V	
Rated impulse withstand voltage, Uimp			6kV	
Rated short-circuit breaking			**E-type**	
capacity, Icu	AC	690V	-	
IEC 60947-2 (Icu)		480/500V	-	
		460V	**2.5kA**	
		415V	2.5kA	
		380V	2.5kA	
		220/250V	**5kA**	
	DC	500V (3P)	-	
		250V (2P)	-	
Ics=%×Icu			50%	
Protective function			Overload, short-circuit	
Type of trip unit			Hydraulic-magnetic	
Magnetic trip range			12In	
Life cycle Note2)	Mechanical		8,500 operations	
	Electrical		1,500 operations	
Connection	Standard		Front connection	
	Optional		-	
			-	
Mounting	Standard		Screw fixing	

Dimensions (mm)	Pole	2p	3p
	a	50	75
	b	96	96
	c1 Note1)	60	60
	c2 Note1)	-	-
	d	80	80
Weight, kg	Standard	0.5	0.7

Certification	Pole	2p	3p
CE marking	CE	○	○

Note) 1. Depth by door cut size: c1 for large cut, c2 for small cut
2. Life cycle means not guarantee but limitation
(Quality guarantee: On/Off frequency on the basis of IEC60947-2 within the term of guarantee.)

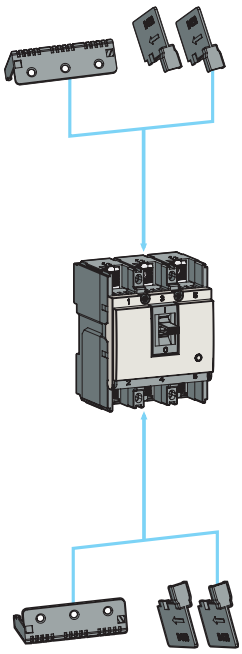
For more information

- Accessories ▶ 7-1 page
- Trip curves ▶ 8-1 page
- Drawings ▶ 9-1 page
- Connection and mounting ▶ 10-2 page

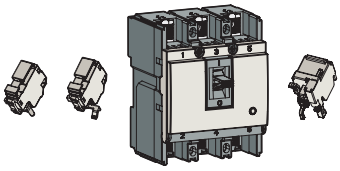
Ordering types

Breaker types

ABE type (2.5kA/460V)		
Rated current, In	2-pole	3-pole
3 A	ABE32b/3	ABE33b/3
5 A	ABE32b/5	ABE33b/5
10 A	ABE32b/10	ABE33b/10
15 A	ABE32b/15	ABE33b/15
20 A	ABE32b/20	ABE33b/20
30 A	ABE32b/30	ABE33b/30

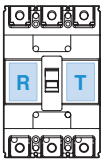


Breaker types



Electrical auxiliaries

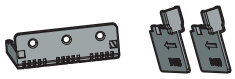
AX	Auxiliary switch
AL	Alarm switch
SHT	Shunt trip



Maximum possibilities

T-position	One of above auxiliaries
R-position	Option of AX or AL

Note) For more detail see 7-1 page



External accessories

ABE30b	Name
B-03B	Insulation barrier
TBS23	Short type

Note) For more detail see 7-9 ~ 7-26 page


ABS32c


ABS33c


ABS34c

Ratings

Frame size			30AF		
Type and pole			**S-type**		
	2-pole		**ABS32c**		
	3-pole		**ABS33c**		
	4-pole		**ABS34c**		
Rated current, In			(3-5-10)Note1)-15-16-20-25-30A		
Rated operational voltage, Ue			AC: 690V		
			DC: 500V		
Rated insulation voltage, Ui			AC: 1000V		
Rated impulse withstand voltage, Uimp			8kV		
Rated short-circuit breaking			**S-type**		
capacity, Icu	AC	690V	2.5kA		
IEC 60947-2 (Icu)		480/500V	7.5 (5)kA		
		460V	**14 (10)kA**		
		415V	14 (10)kA		
		380V	18 (14)kA		
		220/250V	**30 (25)kA**		
	DC	500V (3P)	5kA		
		250V (2P)	5kA		
Ics=%×Icu			100%		
Protective function			Overload, short-circuit		
Type of trip unit			Thermal-magnetic		
Magnetic trip range			400A		
Life cycle Note4)	Mechanical		20,000 operations		
	Electrical		5,000 operations		
Connection	Standard		Front connection		
	Optional		Rear connection		
			Plug-in		
Mounting	Standard		Screw fixing		
Dimensions (mm)		Pole	2p	3p	4p
		a	50	75	100
		b	130	130	130
		c1 Note2)	60	60	60
		c2 Note2)	64	64	64
		d	82	82	82
Weight, kg		Standard	0.5	0.7	0.9
Certification		Pole	2p	3p	4p
CE marking		CE	○	○	○

Note) 1. The short-circuit breaking capacities in ( ) are applied to the rated current in (3, 5, 10A)
2. Depth by door cut size: c1 for large cut, c2 for small cut
3. 4-pole product's ampacity on neutral conductor is equal to or less than 50% of the rated current.
4. Life cycle means not guarantee but limitation
(Quality guarantee: On/Off frequency on the basis of IEC60947-2 within the term of guarantee.)

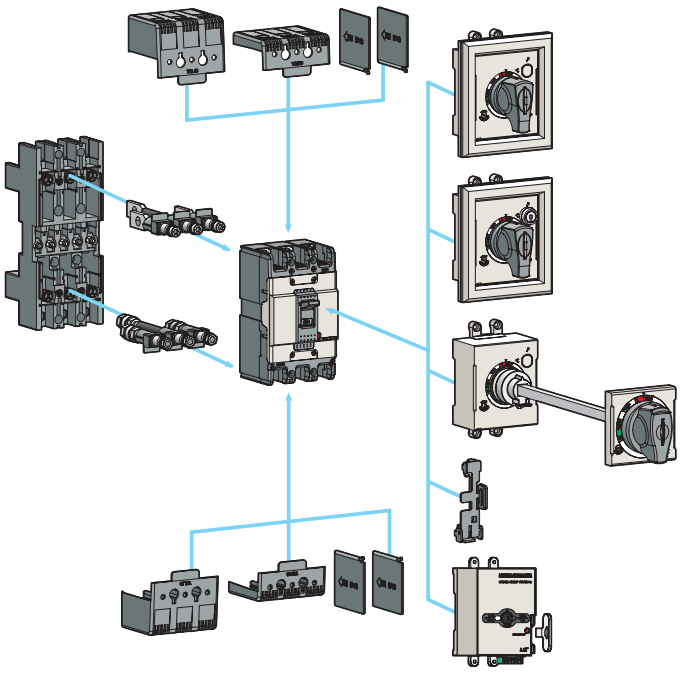
For more information
- Accessories ▶ 7-1 page
- Trip curves ▶ 8-1 page
- Drawings ▶ 9-2 page
- Connection and mounting ▶ 10-2 page

Ordering types

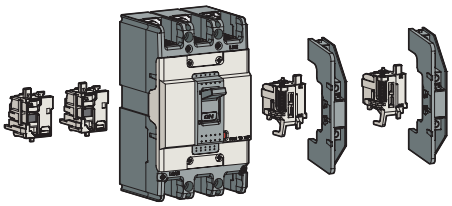
Breaker types

ABS type (10kA/460V)			
Rated current, In	2-pole	3-pole	4-pole
3 A	ABS32c/3	ABS33c/3	ABS34c/3
5 A	ABS32c/5	ABS33c/5	ABS34c/5
10 A	ABS32c/10	ABS33c/10	ABS34c/10

ABS type (14kA/460V)			
Rated current, In	2-pole	3-pole	4-pole
15 A	ABS32c/15	ABS33c/15	ABS34c/15
16 A	ABS32c/16	ABS33c/16	ABS34c/16
20 A	ABS32c/20	ABS33c/20	ABS34c/20
25 A	ABS32c/25	ABS33c/25	ABS34c/25
30 A	ABS32c/30	ABS33c/30	ABS34c/30

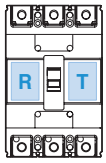


Breaker types



Electrical auxiliaries

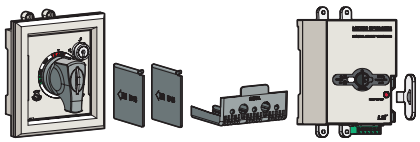
AX	Auxiliary switch
AL	Alarm switch
AX+AL	Combination switch
SHT	Shunt trip
UVT	Undervoltage trip



Maximum possibilities

T-position	One of above auxiliaries
R-position	Option of AX or AL or AX+AL

Note) For more detail see 7-1 page



External accessories

ABS30c	Name
IB13	Insulation barrier
TCL13	Terminal cover (Long) - Single type, D-handle type, N-handle type
TCS13	Terminal cover (Short) - Single type, D-handle type, N-handle type
N-30c	Rotary handle (Direct) - applicable for either 2, 3pole
DH100	Rotary handle (Direct)
DHK100	Rotary handle (Direct, key lock)
EH100	Rotary handle (Extended)
RTR1	Rear terminal (Round)
PB-A3	Plug-in kit
Handle lock	
MOP-M1	Remote operation

Note) For more detail see 7-9 ~ 7-26 page
- Single type: This cover is used without auxiliary handle.
- D-handle type: This cover is used with D-handle.
- N-handle type: This cover is used with N-handle.

50AF MCCB
ABN50c, ABS50c, ABH50c

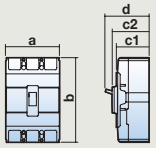

ABS52c


ABS53c


ABS54c

Ratings

Frame size			50AF		
Type and pole			**N-type**	**S-type**	**H-type**
	2-pole		**ABN52c**	**ABS52c**	**ABH52c**
	3-pole		**ABN53c**	**ABS53c**	**ABH53c**
	4-pole		**ABN54c**	**ABS54c**	**ABH54c**
Rated current, In			15-16-20-25-30-32-40-50A		
Rated operational voltage, Ue			AC: 690V		
			DC: 500V		
Rated insulation voltage, Ui			AC: 1000V		
Rated impulse withstand voltage, Uimp			8kV		
Rated short-circuit breaking			**N-type**	**S-type**	**H-type**
capacity, Icu	AC	690V	2.5kA	5kA	10kA
IEC 60947-2 (Icu)		480/500V	7.5kA	10kA	35kA
		460V	**14kA**	**18kA**	**50kA**
		415V	14kA	18kA	50kA
		380V	18kA	22kA	50kA
		220/250V	**30kA**	**35kA**	**100kA**
	DC	500V (3P)	5kA	10kA	30kA
		250V (2P)	5kA	10kA	30kA
Ics=%×Icu			100%	100%	100%
Protective function			Overload, short-circuit		
Type of trip unit			Thermal-magnetic		
Magnetic trip range			12×In (30A and under: 400A)		
Life cycle Note3)	Mechanical		20,000 operations		
	Electrical		5,000 operations		
Connection	Standard		Front connection		
	Optional		Rear connection		
			Plug-in		
Mounting	Standard		Screw fixing		

Dimensions (mm)	Pole	2p	3p	4p	2p	3p	4p	2p	3p	4p
	a	50	75	100	50	75	100	60	90	120
	b	130			130			155		
	c1 Note1)	60			60			60		
	c2 Note1)	64			64			64		
	d	82			82			82		
Weight, kg	Standard	0.5	0.7	0.9	0.5	0.7	0.9	0.7	1	1.2

Certification	Pole	2p	3p	4p	2p	3p	4p	2p	3p	4p
CE marking	CE		○			○			○	

Note) 1. Depth by door cut size: c1 for large cut, c2 for small cut
2. 4-pole product's ampacity on neutral conductor is equal to or less than 50% of the rated current.
3. Life cycle means not guarantee but limitation
(Quality guarantee: On/Off frequency on the basis of IEC60947-2 within the term of guarantee.)

For more information

- Accessories ▶ 7-1 page
- Trip curves ▶ 8-1 page
- Drawings ▶ 9-2 page
- Connection and mounting ▶ 10-2 page

Ordering types

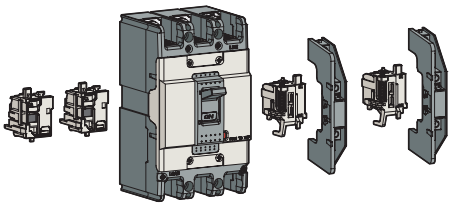
Breaker types

ABN type (14kA/460V)			
Rated current, In	2-pole	3-pole	4-pole
15 A	ABN52c/15	ABN53c/15	ABN54c/15
16 A	ABN52c/16	ABN53c/16	ABN54c/16
20 A	ABN52c/20	ABN53c/20	ABN54c/20
25 A	ABN52c/25	ABN53c/25	ABN54c/25
30 A	ABN52c/30	ABN53c/30	ABN54c/30
32 A	ABN52c/32	ABN53c/32	ABN54c/32
40 A	ABN52c/40	ABN53c/40	ABN54c/40
50 A	ABN52c/50	ABN53c/50	ABN54c/50

ABS type (18kA/460V)			
Rated current, In	2-pole	3-pole	4-pole
15 A	ABS52c/15	ABS53c/15	ABS54c/15
16 A	ABS52c/16	ABS53c/16	ABS54c/16
20 A	ABS52c/20	ABS53c/20	ABS54c/20
25 A	ABS52c/25	ABS53c/25	ABS54c/25
30 A	ABS52c/30	ABS53c/30	ABS54c/30
32 A	ABS52c/32	ABS53c/32	ABS54c/32
40 A	ABS52c/40	ABS53c/40	ABS54c/40
50 A	ABS52c/50	ABS53c/50	ABS54c/50

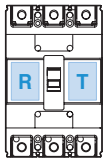
ABH type (50kA/460V)			
Rated current, In	2-pole	3-pole	4-pole
15 A	ABH52c/15	ABH53c/15	ABH54c/15
16 A	ABH52c/16	ABH53c/16	ABH54c/16
20 A	ABH52c/20	ABH53c/20	ABH54c/20
25 A	ABH52c/25	ABH53c/25	ABH54c/25
30 A	ABH52c/30	ABH53c/30	ABH54c/30
32 A	ABH52c/32	ABH53c/32	ABH54c/32
40 A	ABH52c/40	ABH53c/40	ABH54c/40
50 A	ABH52c/50	ABH53c/50	ABH54c/50

Accessories



Electrical auxiliaries

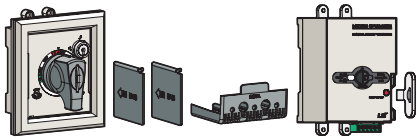
AX	Auxiliary switch
AL	Alarm switch
AX+AL	Combination switch
SHT	Shunt trip
UVT	Undervoltage trip



Maximum possibilities

T-position	One of above auxiliaries
R-position	Option of AX or AL or AX+AL

Note) For more detail see 7-1 page



External accessories

ABN50c ABS50c	ABH50c	Name
IB13	**IB23**	Insulation barrier
TCL13	**TCL23**	Terminal cover (Long) - Single type, D-handle type, N-handle type
TCS13	**TCS23**	Terminal cover (Short) - Single type, D-handle type, N-handle type
N-30c	**N-40c**	Rotary handle (Direct) - applicable for either 2, 3pole
DH100	**DH125**	Rotary handle (Direct)
DHK100	**DHK125**	Rotary handle (Direct, key lock)
EH100	**EH125**	Rotary handle (Extended)
-	**RTB2**	Rear terminal (Bar)
RTR1	**RTR2**	Rear terminal (Round)
PB-A3	**PB-C3**	Plug-in kit
Handle lock		
MOP-M1	**MOP-M2**	Remote operation

Note) For more detail see 7-9 ~ 7-26 page
- Single type: This cover is used without auxiliary handle.
- D-handle type: This cover is used with D-handle.
- N-handle type: This cover is used with N-handle.

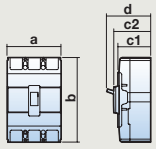

ABS62c


ABS63c


ABS64c

Ratings

Frame size			60AF	
Type and pole			**N-type**	**S-type**
	2-pole		**ABN62c**	**ABS62c**
	3-pole		**ABN63c**	**ABS63c**
	4-pole		**ABN64c**	**ABS64c**
Rated current, In			15-16-20-25-30-32-40-50-60A	
Rated operational voltage, Ue			AC: 690V	
			DC: 500V	
Rated insulation voltage, Ui			AC: 1000V	
Rated impulse withstand voltage, Uimp			8kV	
Rated short-circuit breaking			**N-type**	**S-type**
capacity, Icu	AC	690V	2.5kA	5kA
IEC 60947-2 (Icu)		480/500V	7.5kA	10kA
		460V	**14kA**	**18kA**
		415V	14kA	18kA
		380V	18kA	22kA
		220/250V	**30kA**	**35kA**
	DC	500V (3P)	5kA	10kA
		250V (2P)	5kA	10kA
Ics=%×Icu			100%	100%
Protective function			Overload, short-circuit	
Type of trip unit			Thermal-magnetic	
Magnetic trip range			12×In (30A and under: 400A)	
Life cycle Note3)	Mechanical		20,000 operations	
	Electrical		5,000 operations	
Connection	Standard		Front connection	
	Optional		Rear connection	
			Plug-in	
Mounting	Standard		Screw fixing	

Dimensions (mm)	Pole	2p	3p	4p	2p	3p	4p
	a	50	75	100	50	75	100
	b	130			130		
	c1 Note1)	60			60		
	c2 Note1)	64			64		
	d	82			82		
Weight, kg	Standard	0.5	0.7	0.9	0.5	0.7	0.9

Certification	Pole	2p	3p
CE marking	CE	○	○

Note) 1. Depth by door cut size: c1 for large cut, c2 for small cut
2. 4-pole product's ampacity on neutral conductor is equal to or less than 50% of the rated current.
3. Life cycle means not guarantee but limitation
(Quality guarantee: On/Off frequency on the basis of IEC60947-2 within the term of guarantee.)

For more information

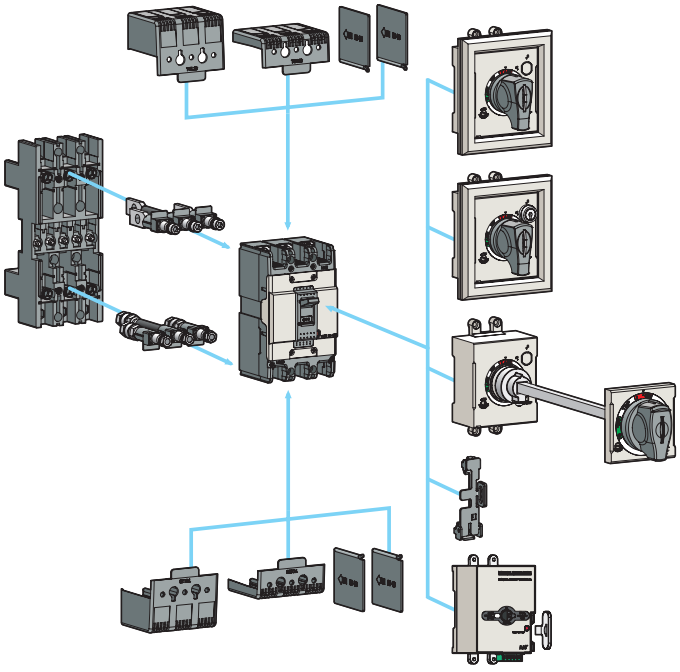
- Accessories ▶ 7-1 page
- Trip curves ▶ 8-1 page
- Drawings ▶ 9-2 page
- Connection and mounting ▶ 10-2 page

Ordering types

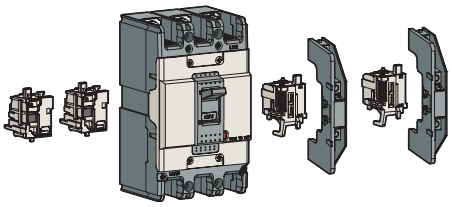
Breaker types

ABN type (14kA/460V)			
Rated current, In	2-pole	3-pole	4-pole
15 A	ABN62c/15	ABN63c/15	ABN64c/15
16 A	ABN62c/16	ABN63c/16	ABN64c/16
20 A	ABN62c/20	ABN63c/20	ABN64c/20
25 A	ABN62c/25	ABN63c/25	ABN64c/25
30 A	ABN62c/30	ABN63c/30	ABN64c/30
32 A	ABN62c/32	ABN63c/32	ABN64c/32
40 A	ABN62c/40	ABN63c/40	ABN64c/40
50 A	ABN62c/50	ABN63c/50	ABN64c/50
60 A	ABN62c/60	ABN63c/60	ABN64c/60

ABS type (18kA/460V)			
Rated current, In	2-pole	3-pole	4-pole
15 A	ABS62c/15	ABS63c/15	ABS64c/15
16 A	ABS62c/16	ABS63c/16	ABS64c/16
20 A	ABS62c/20	ABS63c/20	ABS64c/20
25 A	ABS62c/25	ABS63c/25	ABS64c/25
30 A	ABS62c/30	ABS63c/30	ABS64c/30
32 A	ABS62c/32	ABS63c/32	ABS64c/32
40 A	ABS62c/40	ABS63c/40	ABS64c/40
50 A	ABS62c/50	ABS63c/50	ABS64c/50
60 A	ABS62c/60	ABS63c/60	ABS64c/60

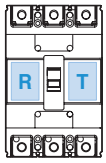


Accessories



Electrical auxiliaries

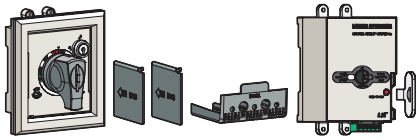
AX	Auxiliary switch
AL	Alarm switch
AX+AL	Combination switch
SHT	Shunt trip
UVT	Undervoltage trip



Maximum possibilities

T-position	One of above auxiliaries
R-position	Option of AX or AL or AX+AL

Note) For more detail see 7-1 page



External accessories

ABN50c ABS50c	Name
IB13	Insulation barrier
TCL13	Terminal cover (Long) - Single type, D-handle type, N-handle type
TCS13	Terminal cover (Short) - Single type, D-handle type, N-handle type
N-30c	Rotary handle (Direct) - applicable for either 2, 3pole
DH100	Rotary handle (Direct)
DHK100	Rotary handle (Direct, key lock)
EH100	Rotary handle (Extended)
RTB1	Rear terminal (Bar)
RTR1	Rear terminal (Round)
PB-A3	Plug-in kit
handle lock	
MOP-M1	Remote operation

Note) For more detail see 7-9 ~ 7-26 page
- Single type: This cover is used without auxiliary handle.
- D-handle type: This cover is used with D-handle.
- N-handle type: This cover is used with N-handle.

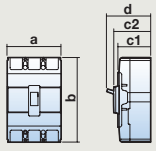
ABN102c

ABN103c

ABN104c

Ratings

Frame size			100AF	
Type and pole			**N-type**	
	2-pole		**ABN102c**	**ABN102e**
	3-pole		**ABN103c**	**ABN103e**
	4-pole		**ABN104c**	**ABN104e**
Rated current, In			15, (16), 20, (25), 30, (32), 40, 50, 60, (63), 75, (80), 100A Note4)	
Rated operational voltage, Ue			AC: 690V	
			DC: 500V	
Rated insulation voltage, Ui			AC: 1000V	
Rated impulse withstand voltage, Uimp			8kV	
Rated short-circuit breaking			**N-type**	
capacity, Icu	AC	690V	5kA	7.5 (5)kA
IEC 60947-2 (Icu)		480/500V	10kA	14 (10)kA
		460V	**18kA**	**31 (18)kA**
		415V	18kA	31 (18)kA
		380V	22kA	31 (22)kA
		220/250V	**35kA**	**65 (35)kA**
	DC	500V (3P)	10kA	15 (10)kA
		250V (2P)	10kA	15 (10)kA
Ics=%×Icu			100%	( )
Protective function			Overload, short-circuit	
Type of trip unit			Thermal-magnetic	
Magnetic trip range			400A	
Life cycle Note5)	Mechanical		20,000 operations	
	Electrical		5,000 operations	
Connection	Standard		Front connection	
	Optional		Rear connection	
			Plug-in	
Mounting	Standard		Screw fixing	

Dimensions (mm)	Pole	2p	3p	4p
	a	50	75	100
	b	130	130	130
	c1 Note1)	60	60	60
	c2 Note1)	64	64	64
	d	82	82	82
Weight, kg	Standard	0.5	0.7	0.9

Certification	Pole	2p	3p	4p
CE marking	CE	○	○	○

Note) 1. Depth by door cut size: c1 for large cut, c2 for small cut
2. 4-pole product's ampacity on neutral conductor is equal to or less than 50% of the rated current.
3. The Ics(Service breaking capacity) of ABN100e are in ( )
4. Rated current of 100AF, ( ) applies only to ABN100c products.
5. Life cycle means not guarantee but limitation
(Quality guarantee: On/Off frequency on the basis of IEC60947-2 within the term of guarantee.)

For more information

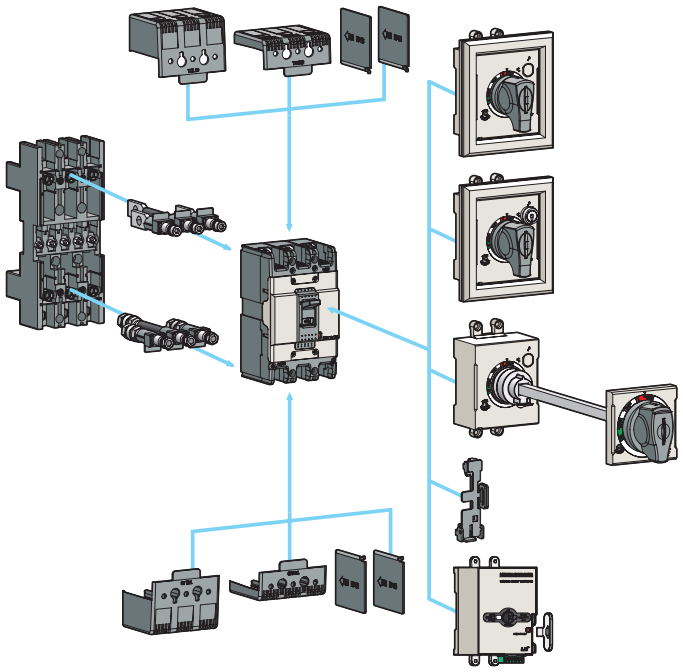
- Accessories ▶ 7-1 page
- Trip curves ▶ 8-1 page
- Drawings ▶ 9-2 page
- Connection and mounting ▶ 10-2 page

Ordering types

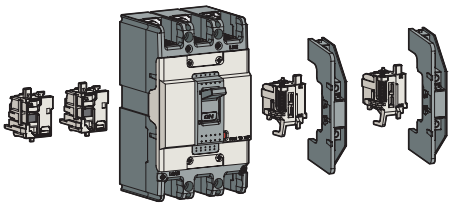
Breaker types

ABN-c type (18kA/460V)			
Rated current, In	2-pole	3-pole	4-pole
15 A	ABN102c/15	ABN103c/15	ABN104c/15
16 A	ABN102c/16	ABN103c/16	ABN104c/16
20 A	ABN102c/20	ABN103c/20	ABN104c/20
25 A	ABN102c/25	ABN103c/25	ABN104c/25
30 A	ABN102c/30	ABN103c/30	ABN104c/30
32 A	ABN102c/32	ABN103c/32	ABN104c/32
40 A	ABN102c/40	ABN103c/40	ABN104c/40
50 A	ABN102c/50	ABN103c/50	ABN104c/50
60 A	ABN102c/60	ABN103c/60	ABN104c/60
63 A	ABN102c/63	ABN103c/63	ABN104c/63
75 A	ABN102c/75	ABN103c/75	ABN104c/75
80 A	ABN102c/80	ABN103c/80	ABN104c/80
100 A	ABN102c/100	ABN103c/100	ABN104c/100

ABN-e type (31kA/460V)			
Rated current, In	2-pole	3-pole	4-pole
15 A	ABN102e/15	ABN103e/15	ABN104e/15
20 A	ABN102e/20	ABN103e/20	ABN104e/20
30 A	ABN102e/30	ABN103e/30	ABN104e/30
40 A	ABN102e/40	ABN103e/40	ABN104e/40
50 A	ABN102e/50	ABN103e/50	ABN104e/50
60 A	ABN102e/60	ABN103e/60	ABN104e/60
75 A	ABN102e/75	ABN103e/75	ABN104e/75
100 A	ABN102e/100	ABN103e/100	ABN104e/100

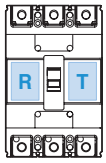


Accessories



Electrical auxiliaries

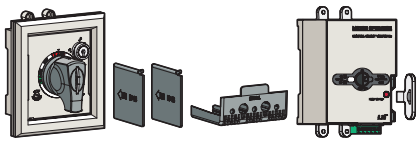
AX	Auxiliary switch
AL	Alarm switch
AX+AL	Combination switch
SHT	Shunt trip
UVT	Undervoltage trip



Maximum possibilities

T-position	One of above auxiliaries
R-position	Option of AX or AL or AX+AL

Note) For more detail see 7-1 page



External accessories

ABN100c	Name
IB13	Insulation barrier
TCL13	Terminal cover (Long) - Single type, D-handle type, N-handle type
TCS13	Terminal cover (Short) - Single type, D-handle type, N-handle type
N-30c	Rotary handle (Direct) - applicable for either 2, 3pole
DH100	Rotary handle (Direct)
DHK100	Rotary handle (Direct, key lock)
EH100	Rotary handle (Extended)
RTB1	Rear terminal (Bar)
RTR1	Rear terminal (Round)
PB-A3	Plug-in kit
Handle lock	
MOP-M1	Remote operation

Note) For more detail see 7-9 ~ 7-26 page
- Single type: This cover is used without auxiliary handle.
- D-handle type: This cover is used with D-handle.
- N-handle type: This cover is used with N-handle.