## H series **General information**

#### H series

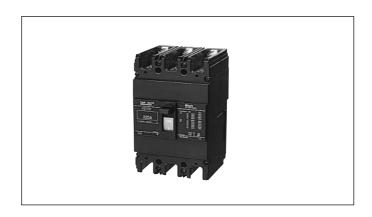
#### **■** Description

- · Models with high breaking capacities
- Line protection
  - : 15 to 800A

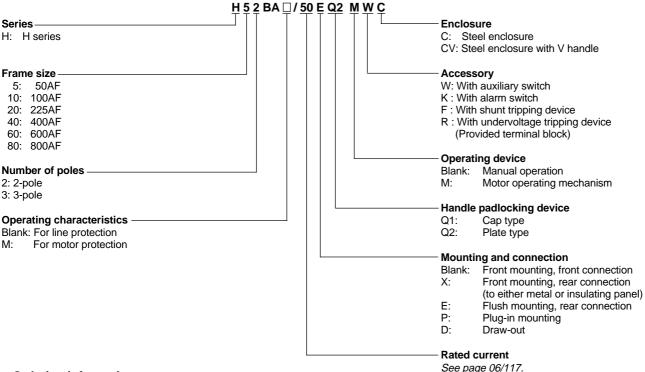
Motor protection

: 16 to 45A

· Molded case color: Black



#### **■** Type number nomenclature



#### **■** Ordering information

Specify the following:

- 1. Type number
- 2. Optional accessories Lead wire or terminal block connection
- 3. When ordering MCCB with shunt tripping device, undervoltage tripping device or motor operating mechanism, specify rated voltage and frequency.
- 4. Handle type if required

See page 06/117.

## Molded Case Circuit Breakers H series **Quick reference guide / Line protection**

#### ■ H series/2, 3-pole

Frame	50A		100A		
Pole	2	3	2	3	3
Type <i>Page 06/110</i>	H52BA	H53BA	H102BA	H103BA	H103R
Rated current (A)	15, 20, 30 40, 50		15, 20, 30, 40 50, 60, 75, 100	)	40, 50, 60 75, 100
Rated insulation voltage Ui (Volts) AC DC	690 250		690 250		660 250
Rated breaking capacity (kA)    CAPACITY   CAPACITY   CAPACITY	25/7 35/9 65/17 65/17 65/17 65/17 125/32 40/10		25/7 35/9 65/17 65/17 65/17 65/17 125/32 40/10		42 85 85 85 100 125 40
Dimensions (mm)  Page 06/118  a  b  c  d  b  c  d  d  d  d  d  d  d  d  d  d  d  d	90 155 60 82		90 155 60 82		105 165 99 127
Mass (kg) Front mounting type	1.1	1.2	1.1	1.2	2.3
Tripping device	Thermal-magnetic		Thermal-magn	etic	Thermal-magnetic
Trip button	Provided		Provided		Provided
Front mounting, front connection rear connection X	•		•		•
Flush mounting, rear connection top & bottom connection Y Plug-in mounting P Draw-out D					• • -
Internal accessories Page 06/126 Alarm switch K Auxiliary switch W Undervoltage trip R Shunt trip F	BZ-K35B□ BZ-W35B□ BZ-R35BT BZ-F35BT		BZ-K35B□ BZ-W35B□ BZ-R35BT BZ-F35BT		BZ-K50B□ BZ-W50B□ BZ-R50BT BZ-F50BT
External accessories Page 06/125  Motor operating mechanism M Padlocking device Q Mechanical interlocking device M1 Operating handle N type N Operating handle V type V	▲ ▲ BZ-M130C-3 BZ-N30C BZ-V30C		▲ ■ BZ-M130C-3 BZ-N30C BZ-V30C		▲ ▲ BZ-M140C BZ-N50C BZ-V50C
Steel enclosure C Steel enclosure with V type handle CV	BZ-C30B-3 BZ-CV30C		BZ-C30B-3 BZ-CV30C		BZ-C50B —
Terminal cover Short TS Terminal cover Long TB Insulation barrier Interphase B Insulation barrier Earth BL	BZ-TS30B-3 BZ-TB30B-3 BZ-B30B BZ-BL35B		BZ-TS30B-3 BZ-TB30B-3 BZ-B30B BZ-BL35B		BZ-TS50B BZ-TB50B BZ-B50B BZ-BL50B

Available Not available ▲ Factory-mounted accessory

Notes: • The breaking capacity for the 240V, 380V and 415V circuits are equivalent to that of 230V, 400V and 440V, resprctively.

Interphase insulation barriers are standard provided for the front mounting type breakers.
 \* H103R do not conform to IEC 60947-2.

## Molded Case Circuit Breakers

## H series

## **Quick reference guide / Line protection**

#### ■ H series/2, 3-pole

Frame	225A			400A
Pole	2	3	3	3
Type <i>Page 06/110</i>	H202BA	H203BA	H203R	H403R
Rated current (A)	125, 150, 175 200, 225		125, 150, 175 200, 225	250, 300 350, 400
Rated insulation voltage Ui (Volts) AC DC	690 250		660 250	690 250
Rated breaking capacity (kA)  Rated JIS C8201-2-1 500V AC Ann.2 [Icu] 440V AC 415V AC 400V AC 230V AC 250V DC	25/7 35/9 65/17 65/17 65/17 65/17 125/32 40/10		— 42 85 85 85 100 125 40	— 85 125 125 125 125 125 125 40
Dimensions (mm)  Page 06/120  a b c d b c d d d	105 165 60 84		105 165 99 127	140 257 103 146
Mass (kg) Front mounting type	1.1	1.3	2.3	5
Tripping device	Thermal-magne	etic	•	Thermal-magnetic
Trip button	Provided			Provided
Front mounting, front connection rear connection X	•		•	•
Flush mounting, rear connection top & bottom connection Y Plug-in mounting P Draw-out D	• • -		• • -	• • -
Internal accessories  Alarm switch  Auxiliary switch  Undervoltage trip  Shunt trip  Page 06/126  K  W  R  R  R  F	BZ-K40B□ BZ-W40B□ BZ-R40BT BZ-F40BT		BZ-K40B□ BZ-W40B□ BZ-R40BT BZ-F40BT	BZ-K70B□ BZ-W70B□ BZ-R70BT BZ-F70BT
External accessories Page 06/128  Motor operating mechanism M Padlocking device Q Mechanical interlocking device M1 Operating handle N type N Operating handle V type V	A BZ-M140C BZ-N40C BZ-V40C		▲	▲ A BZ-M160C BZ-N60C BZ-V60C
Steel enclosure C Steel enclosure with V type handle CV	BZ-C40B —		BZ-C50B —	BZ-C60B BZ-CV60B
Terminal cover Short TS Terminal cover Long TB Insulation barrier Interphase B Insulation barrier Earth BL	BZ-TS40B BZ-TB40B BZ-B40B BZ-BL40B		BZ-TS50B BZ-TB50B BZ-B50B BZ-BL50B	

 Available — Not available ▲ Factory-mounted accessory

Notes: • The breaking capacity for the 240V, 380V and 415V circuits are equivalent to that of 230V, 400V and 440V, resprctively.

Interphase insulation barriers are standard provided for the front mounting type breakers.
 \* H203R, H403R do not conform to IEC 60947-2.

# Molded Case Circuit Breakers H series Quick reference guide / Line protection

#### ■ H series/3-pole

■ H series/3-pole		
Frame	600A	800A
Pole	3	3
Type <i>Page 06/110</i>	H603R	H803R
Rated current (A)	500, 600	700, 800
Rated insulation voltage Ui (Volts) AC DC	690 250	690 250
Rated breaking capacity (kA)    IEC 60947-2 [Icu/Ics]* 600V AC JIS C8201-2-1 500V AC AC ANN.2 [Icu] 440V AC 415V AC 400V AC 380V AC 230V AC 250V DC	85 125 125 125 125 125 125 40	
Dimensions (mm) a a b c c c Page 06/119	210 275 103 146	210 275 103 146
Mass (kg) Front mounting type	9	10
Tripping device	Thermal-magnetic	Thermal-magnetic
Trip button	Provided	Provided
Front mounting, front connection rear connection X	•	•
Flush mounting, rear connection top & bottom connection Plug-in mounting P Draw-out E	<u>•</u> •	<u>-</u>
Internal accessories         Page 06/126           Alarm switch         K           Auxiliary switch         W           Undervoltage trip         R           Shunt trip         F	BZ-K70B□ BZ-W70B□ BZ-R70BT BZ-F70BT	BZ-K70B□ BZ-W70B□ BZ-R70BT BZ-F70BT
External accessories Page 06/125  Motor operating mechanism Padlocking device Q Mechanical interlocking device M1 Operating handle N type N Operating handle V type V	▲	▲
Steel enclosure C Steel enclosure with V type handle CV	BZ-70B BZ-CV70C	BZ-70B BZ-CV70C
Terminal cover Short TS Terminal cover Long TB Insulation barrier Interphase B Insulation barrier Earth BL	— BZ-TB70B B-43A —	 BZ-TB70B B-43A 

Notes: • Interphase insulation barriers are standard provided for the front mounting type breakers. • Available

Available — Not available

▲ Factory-mounted accessory

 $^{\star}$  H603R, H803R do not conform to IEC 60947-2.

## Molded Case Circuit Breakers

## H series

## **Quick reference guide / Motor protection**

#### ■ H series/3-pole (Motor protection)

Pole  Type Page 06/110  Rated current (A) *1	3 <b>H53BAM</b> 16, 24, 32, 40, 45
<u> </u>	
Rated current (A) *1	16, 24, 32, 40, 45
Rated insulation voltage Ui (Volts) AC DC	660 —
Rated breaking capacity (kA)  IEC 60947-2 [lcu/lcs]*2 600V AC 500V AC 500V AC 440V AC 440V AC 440V AC 400V AC 230V AC 230V AC 500V AC 600V AC	42/11 65/17 65/17 65/17 65/17
Dimensions (mm)  Page 06/118	90 155 60 82
Mass (kg) Front mounting type	1.4
Tripping device	Thermal-magnetic Thermal-magnetic
Trip button	
Front mounting, front connection rear connection X	
Flush mounting, rear connection top & bottom connection Y Plug-in mounting P Draw-out D	
Internal accessories  Alarm switch  Auxiliary switch  Undervoltage trip  Shunt trip  Page 06/126  K  W  R  R  F	BZ-K35B□ BZ-W35B□ BZ-R35BT□ BZ-F35BT□
External accessories Page 06/125  Motor operating mechanism Padlocking device Q Mechanical interlocking device Operating handle N type N Operating handle V type V	
Steel enclosure C Steel enclosure with V type handle CV	BZ-C30B-3 BZ-CV30C
Terminal cover Short TS Terminal cover Long TB Insulation barrier Interphase B Insulation barrier Earth BL	

Notes: \*1 For further information related to motor capacity, see page 06/117.

● Available — Not available ▲ Factory-mounted accessory

## Molded Case Circuit Breakers H series **Mounting modifications**

#### ■ Mounting modifications

Standard type FUJI breakers are front mounting with front connections. The standard breaker can easily be modified to become front mounting rear connection type, flush mounting type and plug-in type. The additional parts such as insulation bases, barriers, covers and similar parts are added as required.

#### Standard type Front mounting Front connection



## Mounting modification kits:

See page 06/145

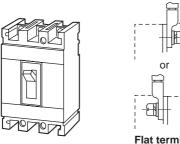




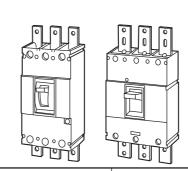
	7		47	47	
Additional main parts	Front mounting Rear connection (X type)	Additional main parts	Flush mounting Rear connection (E type)	Additional main parts	Plug-in mounting (P type)
Bar stud terminal	H50BA H100BA H100R H225BA H225R H400R H600R H800R	Bar stud terminal	H50BA H100BA H100R H225BA H225R H400R H600R H800R	Round stud terminal	H50BA H100BA
	Each stud can be turned by 90°		Each stud can be turned by 90°		
				Bar stud terminal	H100R H400R H225BA H600R H225R H800R
				age of the same of	

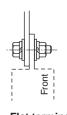
Each stud can be turned by 90°

## ■ Terminal connection/Front mounting, front connection



	Flat terminal	
Self lifting screw	Breaker type	Size
Pan-head screw	H50BA H100BA	M8×14
Hexagonal socket head bolt	H100R H225BA H225R	M8×20





Flat	terminal

Hexagonal head bolt	Breaker type	Size
	H400R	M12×35
	H600R H800R	M12×40

## Molded Case Circuit Breakers

## H series Wire size and terminal

#### ■ Wire size and crimp terminal

The following is the size recommendations for crimp terminals.

Crimp terminal R: JIS C2805

CB: JEM-1399
JST: Product of Japan Crimp Terminal Co., Ltd.

FUJI special crimp terminal F:

Ampere Breaker Wire size(mm				m <sup>2</sup> )								
frame		1.04	2.63	6.64	10.52	16.78	26.66	42.42	96.3	117.2	192.6	242.27
		2.63	6.64	10.52	  16.78	26.66	   42.42	60.57	   117.2	   152.05	242.27	325
50	H50BA	R2-8	R5.5-8	R8-8	R14-8	JST22-S8						
100	H100BA, H100R	R2-8	R5.5-8	R8-8	R14-8	R22-8	JST38-S8	CB60-8				
225	H225BA, H225R				R14-8	R22-8	R38-8	R60-8	CB100-8	CB150-8		
400	H400R						R38-12	R60-12	R100-12	R150-12	R200-12	JST325-12 *1
600	H600R								R100-12	R150-12	R200-12	JST325-12
800	H800R								R100-12	R150-12	R200-12	JST325-12

Note: For solid-state trip types, same as the standard types.

#### **■** Breaker termination

MCCB type	Front connection	Rear connection X	Flush mounting E	Plug-in mounting
H50BA H100BA	Flat terminal		=:	
H100R H225BA H225R	Flat terminal			
H400R H600R H800R	Flat terminal			90° rotational stud

 $<sup>^{\</sup>star 1}$  When this crimp terminal is used, the terminal cover cannot be mounted.

#### ■ H series, 2-pole / Line protection

Breaker ampere frame	Rated current (A)	Туре	: Available mounting and connection
50	15 20 30 40 50	H52BA/15□ H52BA/20□ H52BA/30□ H52BA/40□ H52BA/50□	Blank, X, E, P
100	15 20 30 40 50 60 75 100	H102BA/15  H102BA/20  H102BA/30  H102BA/40  H102BA/50  H102BA/50  H102BA/75  H102BA/100	Blank, X, E, P
225	125 150 175 200 225	H202BA/125□ H202BA/150□ H202BA/175□ H202BA/200□ H202BA/225□	Blank, X, E, P

#### ■ H series, 3-pole / Motor protection

Breaker ampere frame	Motor (kW) 200/ 220V	capacity 400/ 440V	Rated current (A)	Туре	: Available mounting and connection
50	3.7 5.5 7.5 — 11	7.5 11 15 18.5 22	16 24 32 40 45	H53BAM/16 H53BAM/24 H53BAM/32 H53BAM/40 H53BAM/45	Blank, X, E, P

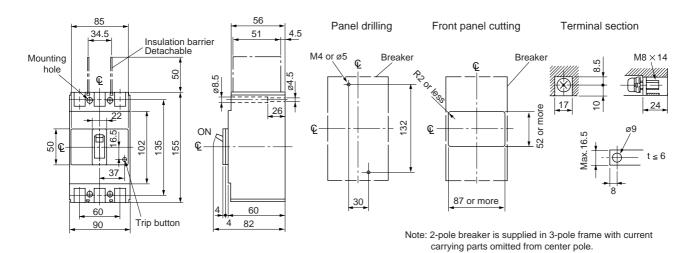
#### ■ H series, 3-pole / Line protection

Breaker ampere frame	Rated current (A)	Туре	: Available mounting and connection
50	15 20 30 40 50	H53BA/15□ H53BA/20□ H53BA/30□ H53BA/40□ H53BA/50□	Blank, X, E, P
100	15 20 30 40 50 60 75	H103BA/15 H103BA/20 H103BA/30 H103BA/40 H103BA/50 H103BA/60 H103BA/75 H103BA/100	Blank, X, E, P
	40 50 60 75 100	H103R/40 H103R/50 H103R/60 H103R/75 H103R/100	Blank, X, E, P
225	125 150 175 200 225	H203BA/125□ H203BA/150□ H203BA/175□ H203BA/200□ H203BA/225□	Blank, X, E, P
	125 150 175 200 225	H203R/125□ H203R/150□ H203R/175□ H203R/200□ H203R/225□	Blank, X, E, P
400	250 300 350 400	H403R/250□ H403R/300□ H403R/350□ H403R/400□	Blank, X, E, P
600	500 600	H603R/500□ H603R/600□	Blank, X, E, P, D
800	700 800	H803R/700□ H803R/800□	Blank, X, E, P, D

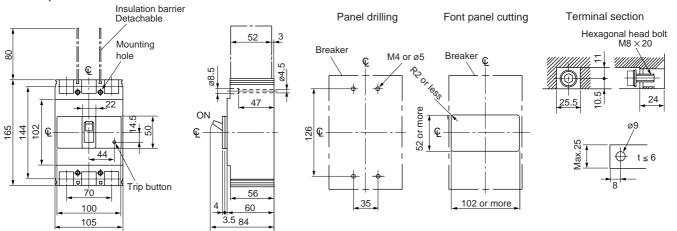
## H series Dimensions

- **■** Dimensions, mm
- Front mounting, front connection

#### H52BA, H53BA, H102BA, H103BA



#### H202BA, H203BA

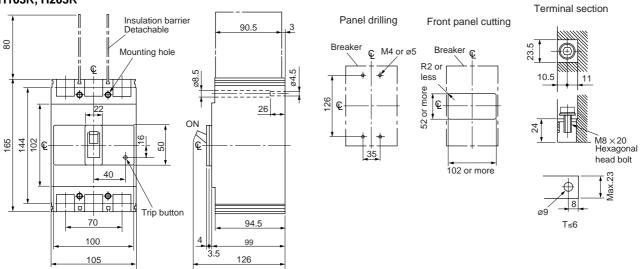


Note: 2-pole breaker is supplied in 3-pole frame with current carrying parts omitted from center pole.

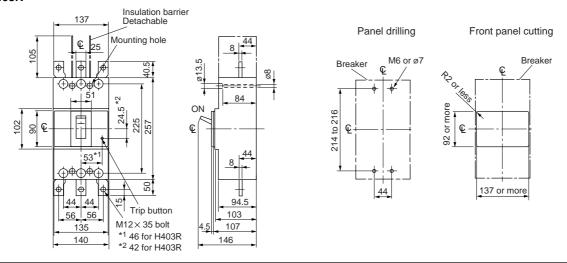
#### **■** Dimensions, mm

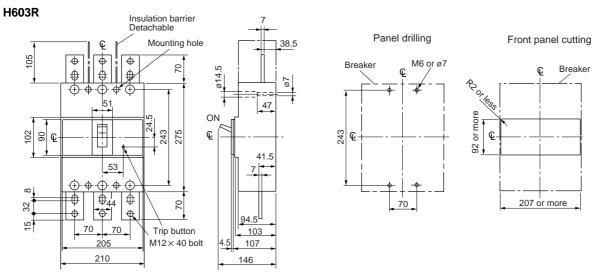
#### • Front mounting, front connection





#### H403R

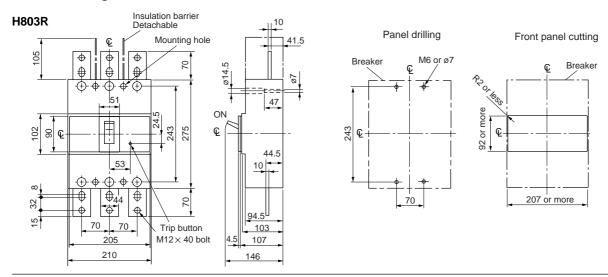




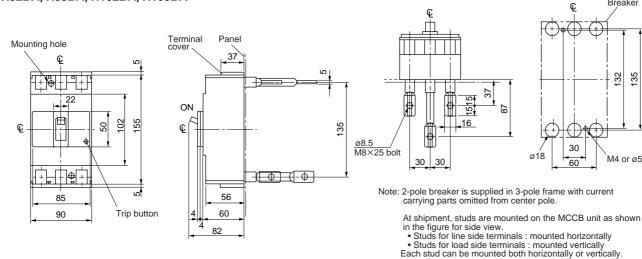
## H series **Dimensions**

#### **■** Dimensions, mm

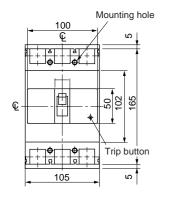
#### • Front mounting, front connection

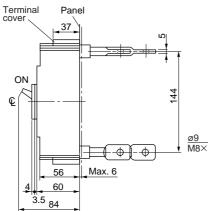


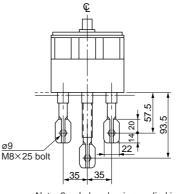
#### • Front mounting, rear connection (type X) H52BA, H53BA, H102BA, H103BA

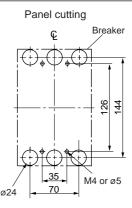












Panel cutting

Breaker

135 32

M4 or ø5

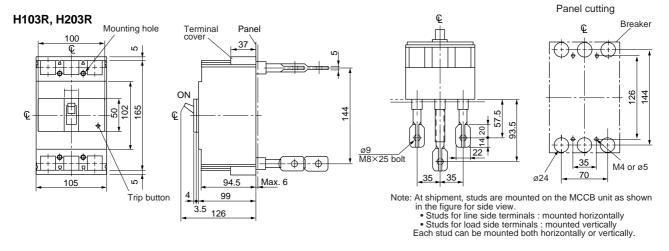
Note: 2-pole breaker is supplied in 3-pole frame with current carrying parts omitted from center pole.

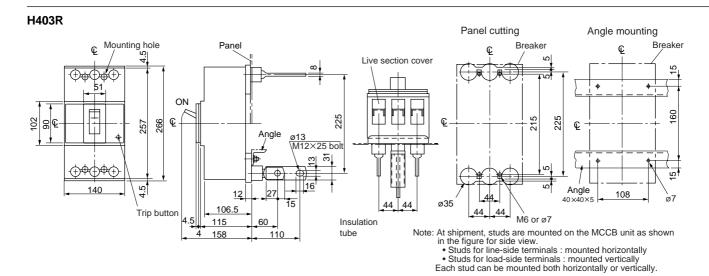
At shipment, studs are mounted on the MCCB unit as shown in the figure for side view.

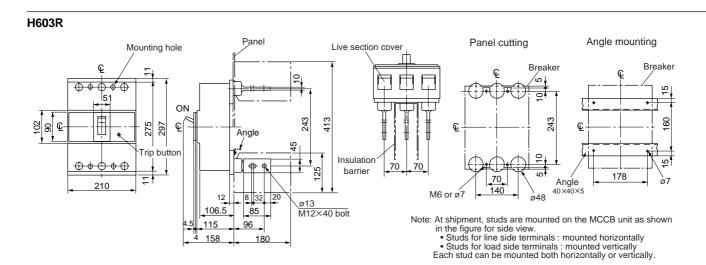
- Studs for line side terminals : mounted horizontally
- Studs for load side terminals: mounted vertically Each stud can be mounted both horizontally or vertically.

#### **■** Dimensions, mm

#### • Front mounting, rear connection (type X)





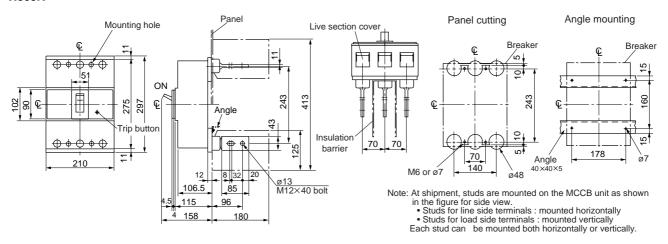


## Molded Case Circuit Breakers

## H series Dimensions

- **■** Dimensions, mm
- Front mounting, rear connection (type X)

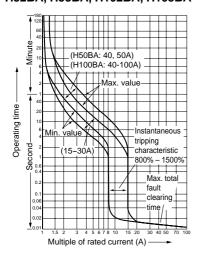
#### H803R

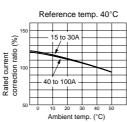


Dimensions for reference only. Confirm before construction begins.

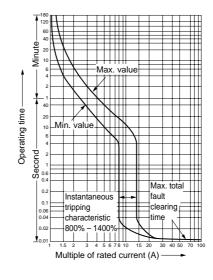
## Line protection

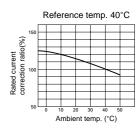
#### ■ H series, 2, 3-pole H52BA, H53BA, H102BA, H103BA



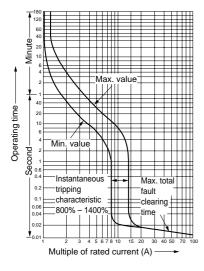


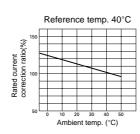
■ H series, 2, 3-pole H403R



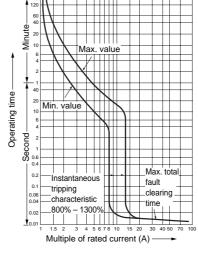


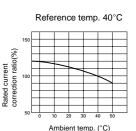
#### H103R



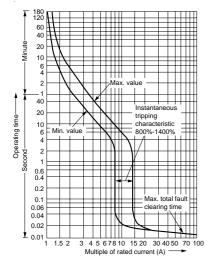


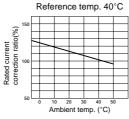
#### H603R





#### H202BA, H203BA, H203R





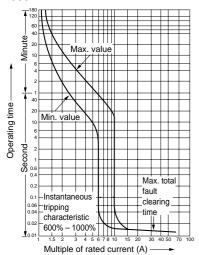
Fuji Electric FA Components & Systems Co., Ltd./D & C Catalog Information subject to change without notice

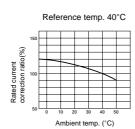
#### H series Characteristic curves

## Line protection

■ H series, 3-pole

#### H800R

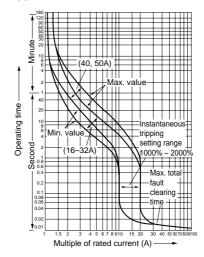


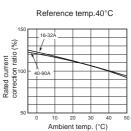


## **Motor protection**

■ H series

#### H50BAM



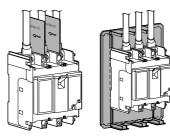


#### Variation of external accessory

#### Insulation barriers

The interphase barrier reinforces the insulation between terminals, while the earth barrier increases the insulation between the terminal and the mounting panel.

See page 06/143



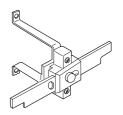
Interface barrier

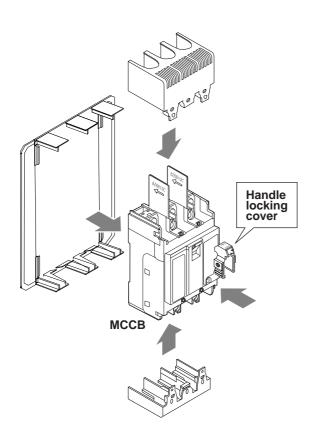
Earth barrier

#### Mechanical interlock device

The mechanical interlock device can be mounted onto two separate breakers to maintain a mutual ON or OFF condition. The device can also be locked with a padlock.

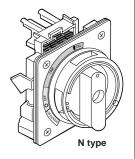
See page 06/132

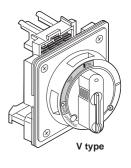




#### **External operating handles**

There are two handles available in the series: the V type handle on panel mount and the N type handle on breaker mount. An extension shaft (sold separately) for the V type handle allows the distance between the handle and the breaker to be adjusted. The protective structure of the V type handle operation section conforms to IP54. Both handle types can be locked with a padlock conforming to IEC 60204-1. The panel cutout dimensions are the same for both handles. See page 06/133

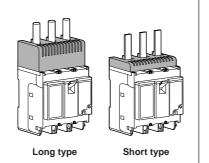




#### **Terminal covers**

Finger protection guards against shock from accidentally touching live terminals.

Two types of terminal covers are available—long type and short type. See page 06/143



#### Steel enclosures

Enclosures are available in three types—two with V-type handle which allows the operation from the outside, and other direct operating.

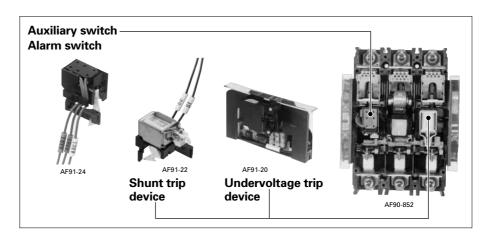
See page 06/141



## H series Internal accessories

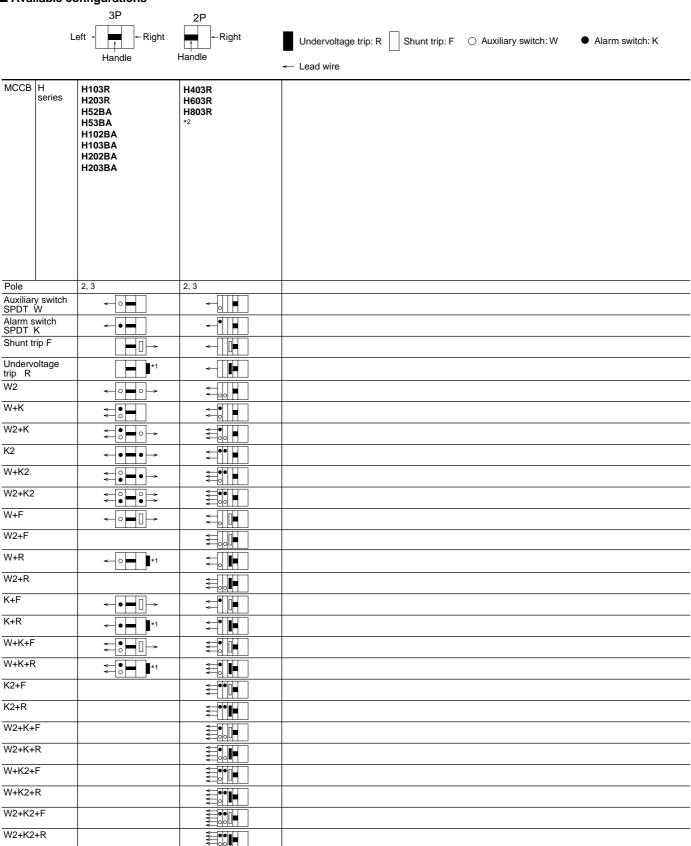
#### Terminal blocks for auxiliary circuit

- It indicates the terminal No. of internal accessory. The connection method of internal accessory is lead-wire system and terminal block system.
- Specify the connection method when ordering. It is lead-wire system unless specified.
- The lead wires are pulled out and terminal blocks are attached on the same side of the internal accessory will be attached
- For the available configuration of internal accessory, see page 06/127.



Accessory		Terminal number
•		H100R, H225R, H400R, H600R, H800R
		H50BA, H100BA, H225BA
Auxiliary switch	SPDT: W	11 12 14 AXc1 AXb1 AXa1
	2PDT: W2	11 12 14 21 22 24 AXc1 AXb1 AXa1 AXc2 AXb2 AXa2
Alarm switch	SPDT: K	91 92 94 ALc1 ALb1 ALa1
	2PDT: K2	91 92 94 01 02 04 ALc1 ALb1 ALa1 ALc2 ALb2 ALa2
Shunt trip device : F	With 1NO contact to prevent coil burn-out	C2 C1 S2 S1
	Continuous rating	C2 C1 S2 S1
Undervoltage trip device	: R	D2 D1 P2 P1

#### ■ Available configurations



Notes: • The lead wires are pulled out and terminal blocks are attached on the same side of the accessory.attached.

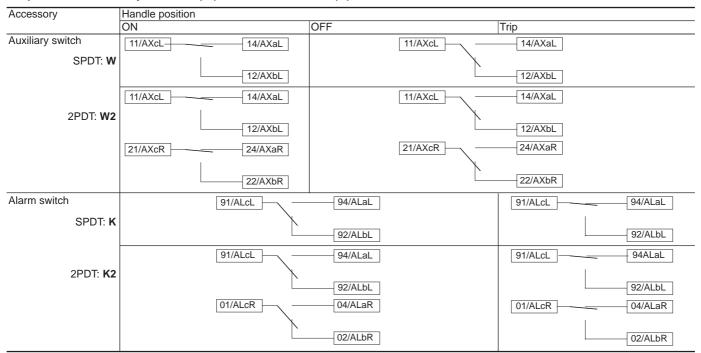
<sup>\*1</sup> The side on which the undervoltage trip device "R" is mounted has the terminal block.

<sup>\*2</sup> H400R, H600R, H800R: Factory-mounted

## H series

#### Internal accessories

#### ■ Operation of auxiliary switches(W) and alarm switches(K)



Note: Ring mark indication

## ■ Ratings of auxiliary switches(W) and alarm switches(K)

#### Standard type

Applicable breaker type	Rated operating current (A) IEC60947-5-1, JIS C8201-5-1				Minimum	
Н	AC		DC	DC		
series	Voltage (V)	AC15 Ind. load	Voltage (V)	DC14 Ind. load		
H50BA	125	2	125	0.5	5V DC 160mA	
H100BA, H100R	250	1	250	0.2	30V DC 30mA	
H225BA, H225R						
H400R						
H600R						
H800R						

#### Low level circuit

Applicable breaker type	DC	DC			
Н	Voltage (V)	Make/break current (A)	load current		
series					
H50BA	30	0.1	5V DC 1mA		
H100BA, H100R			30V DC 1mA		
H225BA, H225R					
H400R					
H600R					
H800R					

#### ■ Rating of shunt trip (F)

MCCB type	Power consumption	Power consumption				Operating
H series	AC	AC			of coil	time
	V	VA	V	W		(ms)
H50BA	24 (50/60Hz)	30	24	35	Continuous	7-21
H100BA	48 (50/60Hz)		48		/With 1NO \	
H100R	100-125 (50/60Hz)		100-110		contact to prevent coil	
H225BA	200-240 (50/60Hz)		200-220			
H225R	380-450 (50/60Hz)		_		\burn-out /	
	440-480 (50/60Hz)		_			
H400R	24-48 (50/60Hz)	2	24-48	2	Continuous	8-20
H600R	100-240 (50/60Hz)	3	100-220	3		
H800R	380-550 (50/60Hz)	4	-	_		

Note: Allowable voltage function 70% to 110% of coil rated voltage

#### ■ Rating of undervoltage trip (R)

MCCB type	Power consumption	Power consumption				
H series	AC		DC		7	
	V	VA	V	W		
H 50BA *1	24 (50/60Hz)	0.76	24	0.76	Tripping voltage:	
H100BA *1	48 (50/60Hz)	1.5	48	1.5	70 to 35% of coil rating voltage	
H100R *1	100-110 (50/60Hz)	3.5	100-110	3.5	7	
H225BA *1	200-220 (50/60Hz)	2.0	200-220	2.0	Closing voltage:	
H225R *1	380-440 (50/60Hz)	2.9	_	_	85% or more of coil rating voltage	
	440-480 (50/60Hz)	4.3	_	_	7	
H400R	24 (50/60Hz)	2	24	2		
H600R	48 (50/60Hz)	2	48	2		
H800R	100-110 (50/60Hz)	3	100-110	3	7	
	200-240 (50/60Hz)	3	200-220	3		
	380-480 (50/60Hz)	4	_	_		

Notes: • Specify the operating voltage when ordering.

\*1 Terminal block connection is standard method.

## Molded Case Circuit Breakers

## H series

## Internal accessories

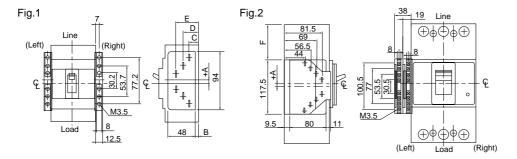
#### ■ Lead wire specifications

H series	Wire size	Wire length
H50BA	0.5mm <sup>2</sup>	500mm
H100BA, H100R		
H225BA, H225R		
H400R		
H600R		
H800R		

#### ■ Terminal block specifications

MCCB type	Terminal	Dimension	Dimensions (mm)					
H series	screw	Fig.	A	B	C	D	E	F
H50BA, H100BA	M3.5	Fig.1	+4.7	2.9	19.8	32.2	44.5	_
H225BA			+5.5	2.8	19.7	32.1	44.4	
H100R, H225R			+0.2	34.9	51.8	64.2	76.5	
H400R		Fig.2	-6.5	-	_	_	_	76.5
H600R, H800R								85.5

Notes: • Available wire Solid wire : ø1.6 Stranded wire : 2mm²



## Molded Case Circuit Breakers H series Internal accessories

#### **■** Type number

#### Auxiliary switches (W) and alarm switches (K)

MCCB type	Type number		
H series	Auxiliary switch / W SPDT: W	Alarm switch / K SPDT: K	Auxiliary switch + Alarm switch / WK
H50BA H100BA	BZ-W35B□	BZ-K35B□	BZ-WK35B□
H225BA	BZ-W40B□	BZ-K40B□	BZ-WK40B□
H100R H225R	BZ-W50B□	BZ-K50B□	BZ-WK50B□
H400R H600R H800R	Factory-mounted accessory	Factory-mounted accessory	Factory-mounted accessory

Notes: • Auxiliary switch and alarm switch for low level circuit are also available on request, in this case add  ${\bf D}$  to the type number when ordering. Example: WD, KD

- Replace the 

  mark by the R when an auxiliary switch or an alarm switch is mounted
  on right hand side of the breaker. Enter the L when it is mounted on left hand side of the breaker.

#### ■ Ordering information

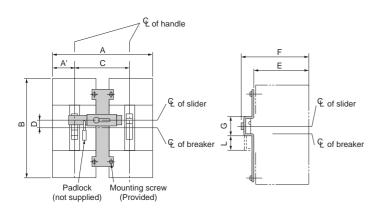
Specifty the following.

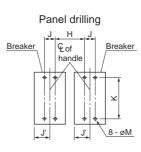
- 1. Type number
- 2. Lead-wire connection or terminal block type

<sup>\* 2-</sup>pole types are mountable on right side only.

## Mechanical interlocking device

#### **■** Dimensions, mm





Туре	Breaker type	Dimensions, m	nm											Mass
		A (A')	В	С	D	Е	F	G	Н	J (J')	K	L	М	(kg)
BZ-M130C-3	H52BA H53BA H102BA H103BA	210 (45)	155	120	8.8	56	85	35	90	30 (45)	132	-	5	0.177
BZ-M140C	H202BA H203BA	240 (52.5)	165	135	9.8	56	85	35	100	35 (52.5)	126	-	5	0.188
	H103R H203R	240 (52.5)	165	135	9	107	123.5	35	100	35 (52.5)	126	-	5	
BZ-M160C	H403R	355 (70)	257	215	0	94.5	126	54.5	171	44 (70)	215	38	7	0.56
BZ-M170C	H603R H803R	500 (105)	275	290	20	94.5	126	54.5	220	70 (105)	243	38	7	0.64

Note: • Applicable padlock(ø3.5) dimensions, mm



#### **External operating handles**

#### **■** Description

Molded case circuit breaker handles are generally directly manual-operated but when mounted in motor control centers or on control panels they are sometimes required to be operated externally. To meet such applications FUJI offers the following three types of handles.

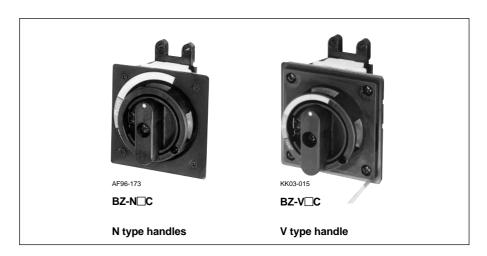
#### N type handle

This type has a knob handle directly attached to the breaker. It is easily fitted by cutting a hole in the panel, which is provided with a door interlock. They may be fitted to all breakers up to 800 ampere frame sizes.

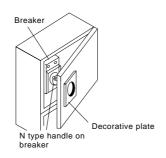
#### V type handle

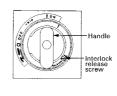
The V type handle may be fitted to breakers of up to 800AF.
A separately sold extension shaft provides distance adjustment between the handle and breaker.
Conformed to EN60947-1 isolation function.

Available for EN60204-1 power breaking device.

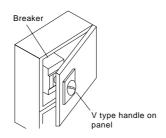


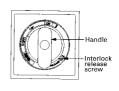
#### N type handles BZ-N□C





#### V type handles BZ-V□C





#### N type handles

• •	
H series	N type handle
H52BA, 53BA	BZ-N30C
H102BA, 103BA	
H202BA, 203BA	BZ-N40C
H103R, 203R	BZ-N50C
H403R	BZ-N60C
H603R	BZ-N70C
H803R	

#### V type handles

H series	V type handle
H52BA, 53BA	BZ-V30C
H102BA, 103BA	
H202BA, 203BA	BZ-V40C
H103R, 203R	BZ-V50C
H403R	BZ-V60C
H603R	BZ-V70C
H803R	

#### H series

#### **External accessories**

#### N type operating handles

#### ■ Operating instructions

#### 1. MCCB operation

- Close the door with the handle in the OFF position. Turn the handle to the ON position and the MCCB will be ON.
- Turn the handle to the OFF position and MCCB will be OFF.
- When the breaker trips, the handle moves to the TRIP position.
   To reset, move the handle to the RESET position.

#### 2. Door locking

- The door cannot be opened when the handle is in the ON, OFF or TRIP position, and can be opened only when the handle is in the OPEN position.
- The breaker cannot be ON when the door is open.
- If it is necessary to open the door with the breaker closed, turn the door lock release screw counterclockwise using a screwdriver.

#### 3. Handle locking

The handle can be locked in either the ON or OFF position when a padlock (not supplied) is used . Pull out the handle lock plate and fit your padlock to the lock plate. If the breaker trips while it is locked in the ON position, the handle moves to the TRIP position.

#### ■ Installation

#### ● BZ-N30C, BZ-N40C

#### 1. Drilling and cutting the door

Drill and cut the door. The dimensions for drilling and cutting are the same whether the MCCB is installed horizontally or vertically.

#### 2. Preparing a base plate (Fig. 1)

Prepare a base plate to adjust breaker mounting position (base plate: not supplied). Front mounting, front connection type breakers can only be suitable for this handle. Drill the breaker mounting holes on the base plate.

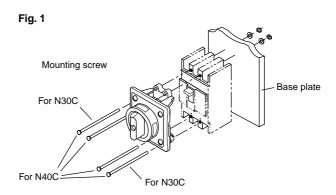
# 3. Fitting the N-handle mechanism and MCCB to the base plate (Fig. 1)

Commonly tighten the N-handle body and MCCB to the base plate with the mounting screws. For N30C, tighten two mounting screws on a diagonal line, and for N40C, tighten four mounting screws. Assemble the driving unit so that the breaker handle engages the N handle arm. (Fig. 4)

#### 4. Mounting the decorative plate

Mount the decorative plate and the retaining plate to the door with screws provided. (Fig. 2)

Adjust the position of the handle unit so that it does not tilt against the breaker. (Fig. 3)



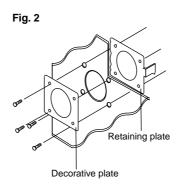


Fig. 3

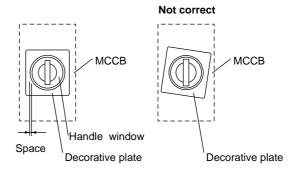
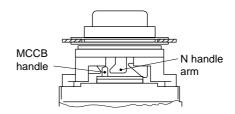


Fig. 4



#### ■ Installation

#### ● BZ-N60C, BZ-N70C

#### 1. Drilling and cutting the door

Drill and cut the door. The dimensions for drilling and cutting are the same whether the MCCB is installed horizontally or vertically.

#### 2. Preparing a base plate (Fig. 1)

Prepare a base plate to adjust breaker mounting position (base plate: not supplied). Front mounting, front connection type breakers can only be suitable for this handle. Drill the breaker mounting holes on the base plate.

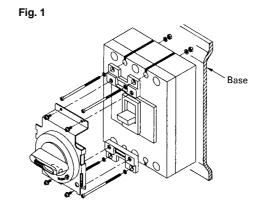
## 3. Fitting the N-handle mechanism and MCCB to the base plate (Fig. 1)

Commonly tighten the N-handle body and MCCB to the base plate with the four mounting screws. Assemble the driving unit so that the breaker handle engages the N handle arm. (Fig. 4)

#### 4. Mounting the decorative plate

Mount the decorative plate and the retaining plate to the door with screws provided. (Fig. 2)

Adjust the position of the handle unit so that it does not tilt against the breaker. (Fig. 3)



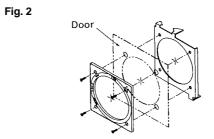


Fig. 3

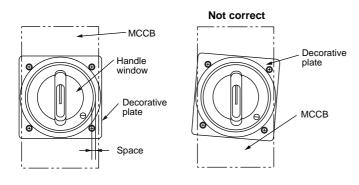
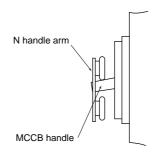
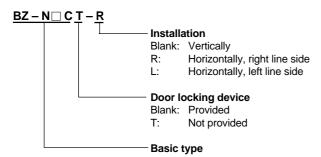


Fig. 4



#### **■** Type number nomenclature



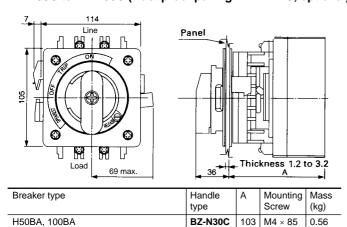
#### Note

To order an N handle for front-mounting rear connection breakers, add "-X" to the type number, for plug-in mounting breakers, add "-P" to the type number.

#### H series

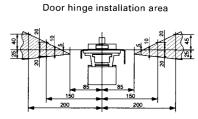
#### **External accessories**

#### ■ Dimensions, mm BZ-N30C to BZ-N50C (Dust proof paking: BZ-NP-1C, optional)



75 - 75	8 🙀
•	<b>—</b>
æ ( &	$\stackrel{\checkmark}{\longrightarrow}$
	/

Door panel cutting

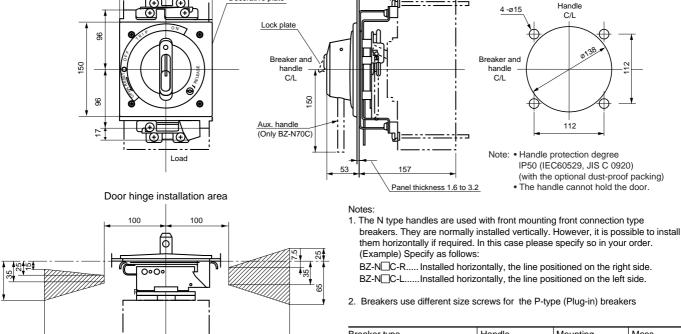


Door panel cutting

Breaker type	Handle type		Mounting Screw	Mass (kg)
H225BA	BZ-N40C	103	M4 × 85	0.56
H100R, H225R	BZ-N50C	142	M4 × 125	0.62

#### BZ-N60C, BZ-N70C (Dust proof packing: BZ-NP-2, optional)

Line



Decorative plate

200

Mounting screw

Breaker type	Handle type	Mounting screw	Mass (kg)
H400R	BZ-N60C	M6 x 110	1.9
H600R, H800R	BZ-N70C	M6 x 110	1.9

200

Install the door hinge in the shaded area

#### V type operating handles, up to 225AF

#### **■** Operating instructions

#### 1. MCCB operation

- Close the door and turn the handle to the ON position and the breaker will be positioned at ON.
- When the breaker is interrupted automatically the handle will move to the TRIP position.
- To reset move the handle to the RESET position.

#### 2. Door panel locking

- Turn the handle to the RESET position and the lock mechanism will be released thus allowing the door to be opened.
- The door cannot be opened when the breaker is positioned at ON.

#### 3. Handle locking

The padlock can lock the handle in the OFF position.

- Locking MCCB with the door open: Fig.1
- Locking MCCB with the door closed: Fig.2

Pull out the lock plate and hook the padlock.

#### 4. Interlock release

This type is provided with an interlock release screw. Turn this screw if it is necessary to open the door in the ON position. This release the lock and allows the door to be opened. When reclosing the door, make sure the handle of the breaker coincides with the position (ON or OFF) of the external handle position.

#### ■ Installation

## BZ-V20C to BZ-V50C

#### 1. Drilling and cutting of the door panel

Drill and cut the door panel as shown in the drawing.

#### 2. Mounting of the MCCB

The distance between the backside of the door panel and breaker mounting plate should be the dimension "H" shown in the drawing below.

H dimensions, mm (Fig.3)

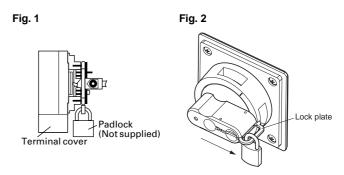
BZ-V30C: 105BZ-V40C: 105BZ-V50C: 144

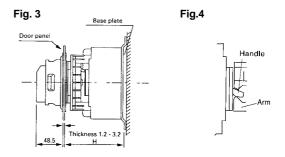
#### 3. Mounting the driving unit

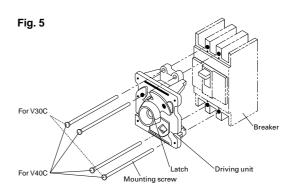
- Set the breaker handle to the OFF position. Assemble the driving unit so that the breaker handle engages the V handle arm. (Fig.4)
- Secure the driving unit and breaker together to the mounting plate by tightening the four attached mounting screws. (Fig.5)

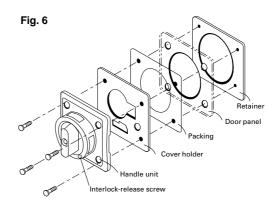
#### 4. Mounting the handle unit

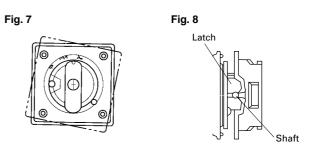
- Put the handle unit, cover holder, packing, and retainer in front of and behind the panel and tighten the screws temporarily as shown in Fig.6. Adjust the position of the handle unit so that it does not tilt against the breaker. (Fig.7)
- Put the handle of the handle unit in the OFF position and close the door. Check that the shaft engages the latch when the door closes. (Fig.8)









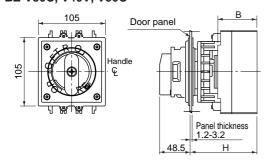


## Molded Case Circuit Breakers

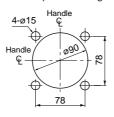
## H series

## **External accessories**

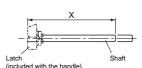
## ■ Dimensions, mm BZ-V30C, V40V, V50C



#### Door panel cutting

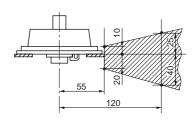


# Optional shaft BZ-VS1 X = H - 96



The distance between the handle and breaker can be shortened by cutting the optional shaft.

#### Door hinge installation area



Install the door hinge in the shaded area.

Breaker type	Handle type			optional shaft (X=154)		Mass	
H series		type H	Н	Area in which the hinge with H can be installed	В	screw	(kg)
H50BA H100BA	BZ-V30C	105	250	142 to 250	60	M4 x 85	0.67
H225BA	BZ-V40C	105	250	142 to 250	60	M4 x 85	0.67
H100R H225R	BZ-V50C	144	289	181 to 289	99	M4 x 125	0.67

#### Notes:

Handle protection degree IP54 (IEC60529, JIS C 0920)

<sup>•</sup> The handle cannot hold the door.

#### V type operating handles, 400AF to 800AF

#### **■** Operating instructions

#### 1. MCCB operation

- Close the door and turn the handle to the ON position and the MCCB will be positioned at ON.
- When the MCCB is interrupted automatically the handle will move to the TRIP position.
- •To reset move the handle to the RESET position.

#### 2. Door panel locking

- Turn the handle to the RESET position and the lock mechanism will be released thus allowing the door to be opened.
- The door cannot be opened when the breaker is positioned at ON.

#### 3. Handle locking

The padlock can lock the handle in the OFF position.

- Locking MCCB with the door open: Fig. 1
- Locking MCCB with the door closed: Flg. 2

#### 4. Interlock release

This type is provided with an interlock release screw. Turn this screw if it is necessary to open the door at the ON position. This releases the lock and allows the door to be opened. When reclosing the door, make sure the handle of the breaker coincides with the position (ON or OFF) of the external handle position.

#### ■ Installation

#### BZ6V60C, V70C

#### 1. Drilling and cutting of the door panel

Drill and cut the door panel as shown in the drawing.

#### 2. Mounting of the MCCB

The distance between the backside of the door panel and MCCB mounting plate should be the dimension as shown in Fig.3.

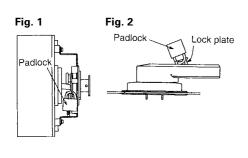
#### 3. Mounting the driving unit

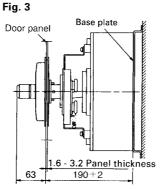
- Set the MCCB handle to the OFF position. Assemble the driving unit so that the MCCB handle engages the V handle arm. (Fig. 4)
- Secure the driving unit and MCCB together to the mounting plate by tightening the four attached mounting screws. (Fig. 5)

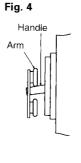
#### 4. Mounting the handle unit

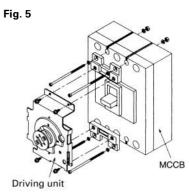
- Put the handle unit, packing and retainer in front of and behind the door panel and tighten the screws temporarily as shown in Fig.6. Adjust the position of the handle unit so that it does not tilt against the MCCB. (Fig. 7)
- Put the handle of the handle unit at OFF position and check the latch engages the keeper and close the door while holding the handle unit cover by hand.

Final tightening the screws should be performed as keep the engaging position. (Fig. 8)

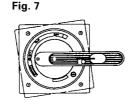




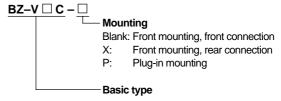




Packing Handle unit Door panel

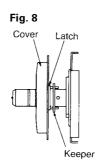


■ Type number nomenclature



Note

To order a V handle for front-mounting rear connection breakers, add "-V" to the type number; for plug-in mounting breakers, add "-P" to the type number.

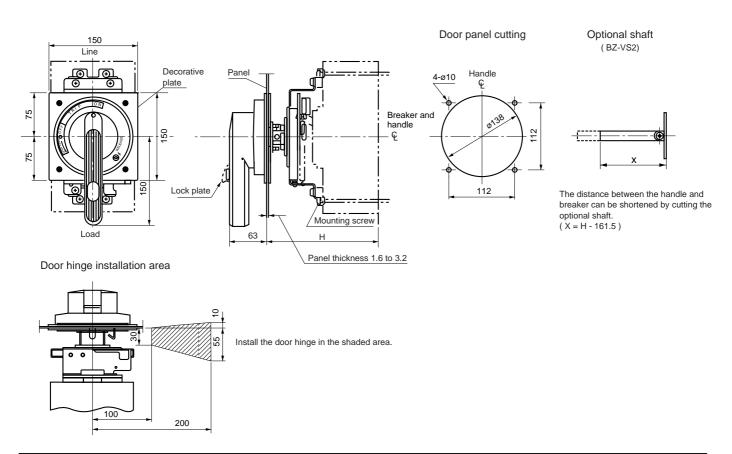


## Molded Case Circuit Breakers

#### H series

## **External accessories**

#### ■ Dimnsions, mm BZ6V60C, 6V70C, BZ-V60C, V70C



Breaker	Handle type	Standard type	With the optiona		Mass
H series		П	H	Area in which the hinge with H can be installed	(kg)
H400R	BZ-V60C	190±2	250±2	202 to 250	2.2
H600R H800R	BZ-V70C				2.2

#### Notes:

- Handle protection degree IP54 (IEC60529, JIS C0920).
- The handle cannot hold the door.
- Breakers use different size screws for the X type (rear connection) or P-type (Pulg-in) breakers.

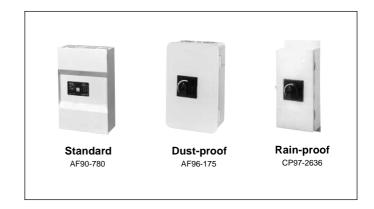
#### Pressed steel enclosures

#### **■** Description

BZ-type enclosures are available in three types — with V-type handle which allows the operation from the outside and other with the operating handle of the breaker extending from it to allow it to be directly switched ON or OFF from outside the enclosure.

Enclosures with V-type handles are provided with a door interlocking mechanism which prevents the door from being opened in the ON condition.

Knockout holes for wiring use are provided as shown in the diagram.



#### ■ Type of enclosures

Breaker type	Enclosure	
H series	Standard	With V type handle Dustproof : IP40
H52BA, H53BA H102BA, H103BA	BZ-C30B-3	BZ-CV30C
H202BA, H203BA	BZ-C40B	-
H103R H203R	BZ-C50B	-
H403R	BZ-C60B	BZ-CV60C
H603R H803R	BZ-C70B	BZ-CV70C

Notes: • The provided V type handles do not conform to EN and IEC standards.

## ■ Ordering information

Specify the following:

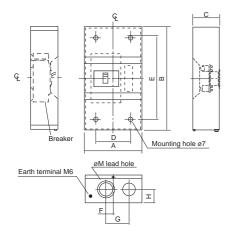
1. Type number of enclosures

## H series

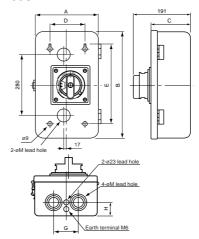
## **External accessories**

#### **■** Dimensions, mm

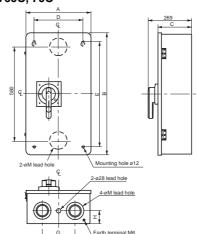
#### Standard



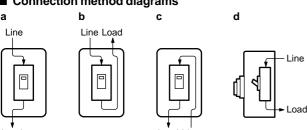
#### With V type handle BZ-CV30C



#### BZ-CV60C, 70C



#### **■** Connection method diagrams



Туре	Connection	Α	В	С	D	E	F	G	Н	M (Ø)	Mass (kg)
BZ-C30B-3	a, b, c	200	320	95	120	240	25	80	40	30, 45	2.4
BZ-C40B		200	360	95	120	280	25	80	45	40, 55	2.5
BZ-C50B		200	360	140	120	280	25	80	45	40, 55	3.1
BZ-C60B		400	750	175	300	650	100	200	80	63, 78, 106	19.3
BZ-C70B											19.3
BZ-CV30C	a, b, c, d	250	400	142	170	320	-	110	50	35, 52, 63	6.4
BZ-CV60C		400	750	206	300	650	-	200	80	63, 78, 106	21.7
BZ-CV70C											21.7

## Molded Case Circuit Breakers H series **External accessories**

#### **Terminal covers**

#### **■** Description

These terminal covers are used as guards to prevent accidental touch with live line terminations.

These terminal covers can be fitted to either line or load side.

● Up to 225AF

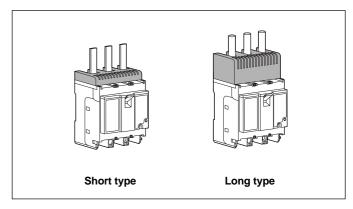
Short type BZ-TS

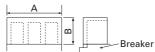
• Snap-on fitting Long type BZ-TB

Crimp connection use400AF and larger

Long type BZ-TB

Transparent





IEC and CE marking conform	ned						Pa	cking quantity: 2 p	CS.
Breaker type	Terminal cover	Α	В	Mass	Terminal cover	Α	В	Mass	
H series	Short type	(mm)	(mm)	(g)	Long type	(mm)	(mm)	(g)	
H52BA, H53BA H102BA, H103BA	BZ-TS30B-3	90	10	43	BZ-TB30B-3	90	40	86	
H202BA, H203BA	BZ-TS40B	105	10	60	BZ-TB40B	105	50	107	
H103R H203R	BZ-TS50B	105	10	76	BZ-TB50B	105	40	175	
H403R	-	_	_	_	BZ-TB60B	172	110	549	
H603R H803R	-	_	_	_	BZ-TB70B	230	135	568	

#### H series

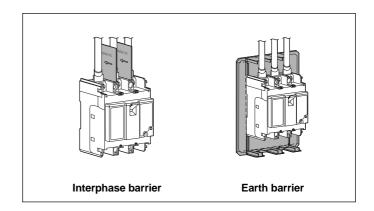
#### **External accessories**

## **Insulation barriers**

#### **■** Description

The interphase barriers are provided on frame size of 50AF to 800AF breakers for front mounting. The barriers are installed in the molded slots between terminals.

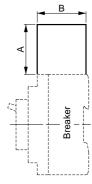
The earth barrier is used to increase the insulation with the mounting plate surface when two crimp terminals are wired. Installation of these barriers after wiring is possible even when an external accessory is installed.



#### Interphase barrier

Breaker type	Interphase ba	Interphase barrier							
	Type	Dimensio	ns, mm	Packing	Mass				
H series		Α	В	quantity	(g)				
H52BA, 53BA	BZ-B30B	50	51	4	29				
H102BA, 103BA									
H202BA	BZ-B40B	80	52	4	48				
H203BA									
H103R	BZ-B50B	80	90.5		82				
H203R				4					
H403R	B-43A	105	95		131				
H603R				4					
H803R									



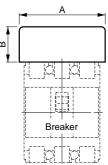


Interphase barriers are standard provided for the front mounting type breaker.

#### Earth barrier

Breaker type	Earth barrier				
	Туре	Dimensions,	mm* <sup>2</sup>	Packing	Mass
H series		Α	В	quantity	(g)
H52BA, 53BA	BZ-BL35B	130	70	2	16
H102BA, 103BA		(90, 110)	(40)		
H202BA	BZ-BL40B	190	100	2	48
H203BA		(105, 147)	(50, 72)		
H103R	BZ-BL50B	190	100	2	48
H203R		(105, 147)	(50, 72)		

Earth barrier



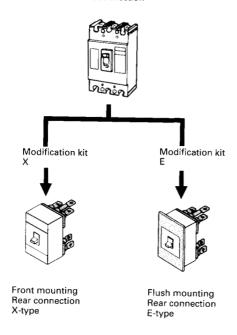
Note:  $^{\star 2}$  The value in parentheses is the dimensions after the barrier is cut.

Note: \*1 Barrier type for the load side is BZ-B35B.

## Mounting modification kits

Standard type breakers are front mounting front connections. The standard breaker can easily be modified to become front mounting rear connection and flush mounting types by using the modification kits.

Standard type Front mounting Front connection



#### **Modification kits**

#### • For front mounting, front connection (Flat terminal)

Breaker type	Kit type For 2-pole	For 3-pole
H50BA, 100BA	BZ-S35B-1002	BZ-S35B-1003
H225BA	BZ-S50B-2252	BZ-S50B-2253
H100R, 225R	_	BZ-S50B-2253

#### • For front mounting, rear connection (X type)

Breaker type	Kit type For 2-pole	For 3-pole
H50BA, 100BA	BZ-X31C-1002	BZ-X30C-1003
H225BA	BZ-X40B-2252	BZ-X40B-2253
H100R, 225R	_	BZ-X50B-2253
H400R	_	BZ-X60B-4003

#### • For flush mounting, rear connection (E type)

Breaker type	Kit type For 2-pole	For 3-pole
H50BA, 100BA	BZ-E31C-1002	BZ-E30C-1003
H225BA	BZ-E40B-2252	BZ-E40B-2253
H100R, 225R	_	BZ-E50B-2253
H400R	-	BZ-E60B-4003

## H series

## **Accessories**

#### ■ Mass

For front mounting, front connection		For front mounting, rear connection (X type	For front mounting, rear connection (X type)		For flush mounting, rear connection (E type)	
Kit type	Mass (kg)	Kit type	Mass (kg)	Kit type	Mass (kg)	
BZ-S35B-1002 BZ-S35B-1003	0.25 0.35	BZ-X30C-1003	0.63	BZ-E31C-1002 BZ-E30C-1003	0.86 1.11	
BZ-333B-1003	0.33	BZ-X31C-1002	0.39	BZ-E30C-1003	1.11	
BZ-S50B-2252	0.35			BZ-E40B-2252	0.97	
BZ-S50B-2253	0.5	BZ-X40B-2252 BZ-X40B-2253	0.52 0.77	BZ-E40B-2253	1.22	
				BZ-E50B-2253	1.27	
		BZ-X50B-2253	0.80			
				BZ-E60B-4002	3.40	
		BZ-X60B-4002 BZ-X60B-4003	1.98 2.71	BZ-E60B-4003	3.67	

#### ■ Padlocking device

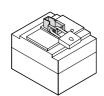
Breaker handles can be fitted with locks. The handle can be locked at either the ON or OFF position. If an overcurrent flows, the breaker trips even when the handle is kept locking. Add the suffix Q1 or Q2 to the ELCB type number to order the padlocking device (not sold separately).

#### Q1: Cap type, Q2: Plate type

#### Applicable padlocking device

#### H series

H50BA H100BA H100R H225BA H225R H400R H600R H800R



Cap type Q1\*(400 to 800AF)

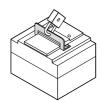


Plate type Q2 A padlock is not provided.

#### ■ Handle locking covers/50 to 800AF

Breaker type Handle locking cover	Handle locking cover
H50BA, H100BA	BZ6L30C
H225BA	BZ6L40C
H100R, H225R	BZ-L50B
H400R H600R H800R	B7-I 70B