



HGM100				HGM125				HGM160				HGM250			
100				125				160				250			
2, 3, 4 ¹⁾				2, 3, 4 ¹⁾				2 ³⁾ , 3, 4 ¹⁾				2 ³⁾ , 3, 4 ¹⁾			
16, 20, 25, 32, 40, 50, 63, 75, 80, 100				16, 20, 25, 32, 40, 50, 63, 75, 80, 100, 125				100, 125, 150, 160				100, 125, 150, 160, 175, 200, 225, 250			
E	S	H	L	E	S	H	L	E	S	H	L	E	S	H	L
2.5	5	7.5	8	5	7.5	8	10	7.5	8	8	10	7.5	8	8	10
7.5	10	14	26	10	14	26	35	14	20	26	35	14	20	26	35
16	20	26	30	20	26	38	55	20	26	38	55	20	26	38	55
16	20	26	30	20	26	38	55	20	26	38	55	20	26	38	55
35	50	50	50	50	65	85	100	50	65	85	100	50	65	85	100
5	10	15	15	10	15	20	30	10	15	20	30	10	15	20	30
100	100	75	50	100	100	100	100	100	100	100	100	100	100	100	100
30,000				30,000				25,000				25,000			
10,000				10,000				10,000				10,000			
(1.0) x In				(1.0) x In				(1.0) x In				(1.0) x In			
(0.8 - 0.9 - 1.0) x In				(0.8 - 0.9 - 1.0) x In				(0.8 - 0.9 - 1.0) x In				(0.8 - 0.9 - 1.0) x In			
16 - 32 A: 400 A, 40 - 100 A: 10 x In				16 - 32 A: 400 A, 40 - 125 A: 10 x In				10 x In				10 x In			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
●				●				●				●			
● (3P Only)				● (3P Only)				● (3P Only)				● (3P Only)			
● (3P Only)				● (3P Only)				● (3P Only)				● (3P Only)			
● (3P Only)				● (3P Only)				-				-			
● (3P Only)				● (3P Only)				-				-			
● (2, 3P Only)				● (3P Only)				-				-			
●				●				●				●			
●				●				●				●			
●				●				●				●			
-				-				●				●			
Terminal screw				Terminal screw				Terminal screw, Terminal busbar				Terminal screw, Terminal busbar			
Horizontal/Vertical				Horizontal/Vertical				Horizontal/Vertical				Horizontal/Vertical			
Switchboard type (Line & Load, Line only), Distribution board type ²⁾				Switchboard type (Line & Load, Line only) ²⁾				Switchboard type (Line & Load, Line only) ²⁾				Switchboard type (Line & Load, Line only) ²⁾			
Possible for using DIN rail adapter				-				-				-			
50/75/100				60/90/120				105/105/140				105/105/140			
130				155				165				165			
68				68				68				68			
0.6/0.8/1.0				0.8/1.0/1.3				1.1/1.3/1.7				1.1/1.3/1.7			
122 Page				122 Page				122 Page				122 Page			
70 - 80 Page				70 - 80 Page				70 - 80 Page				70 - 80 Page			

Model Selection Table

MCCB (HGM Type): 400 - 800 AF

Things in Common

Rated Insulation Voltage, U_i	1,000 V
Rated Operational Voltage, U_e	690 V
Impulse Withstand Voltage, U_{imp}	8 kV
Protective Function	Overload, short-circuit and instantaneous protection

Suitability for Isolation	Yes
Utilization Category	A
Pollution Degree	3
Reference Standard	IEC 60947-2

Model		HGM400				HGM630				HGM800		
Frame	(AF)	400				630				800		
Pole	(P)	2, 3, 4 ¹⁾				2, 3, 4 ¹⁾				2, 3, 4 ¹⁾		
Rated current, at 40 °C	(A)	250, 300, 350, 400				500, 630				700, 800		
Rated short-circuit breaking capacity [Icu] (kA rms)	Recognition code for order	E	S	H	L	E	S	H	L	S	H	L
	AC660/690 V	5	8	10	14	5	8	10	14	8	10	14
	AC480/500 V	18	35	50	65	25	45	50	65	45	50	65
	AC440/460 V	38	50	70	85	38	50	70	85	50	70	85
	AC380/415 V	45	65	85	100	45	65	85	100	65	85	100
	AC220/240 V	50	75	100	125	50	75	100	125	75	100	125
	DC250 V (2P)	20	25	40	40	20	25	40	40	25	40	40
Service breaking capacity [Ics = % Icu]		100	100	100	100	100	100	100	100	100	100	100
Endurance (Durability)	Mechanical	4,000				2,500				2,500		
	Electrical	1,000				500				500		

Trip Device

Thermal magnetic	Long time [LT]	Fixed	(1.0) x In				(1.0) x In				(1.0) x In		
		Adjustable	(0.63 - 0.8 - 1.0) x In				(0.63 - 0.8 - 1.0) x In				(0.63 - 0.8 - 1.0) x In		
	Instantaneous [INST]	10 x In				10 x In				10 x In			

Accessory

Internal	Auxiliary switch	AUX	●				●				●			
	Alarm switch	ALT	●				●				●			
	Shunt trip	SHT	●				●				●			
	Undervoltage trip	UVT	●				●				●			
External	Rotary handle	Front contact	TFG	●				●				●		
		Extended	TFH	●				●				●		
	Motor operator	MOT	●				●				●			
	Mechanical interlock	MIF	●				●				●			
	Locking device	PLD	●				●				●			
	Plug-in	TDM (LINE/LOAD)		● (3P Only)				● (3P Only)				● (3P Only)		
		TDM (LINE only)		● (3P Only)				● (3P Only)				● (3P Only)		
		TDF (LINE only)		-				-				-		
		TDA (1 row)		-				-				-		
		TDA (2 row)		-				-				-		
Cage terminal block	CTB	●				●				●				
Insulation terminal cover	TCF	●				●				●				
Insulation barrier	TQQ	●				●				●				
Terminal extensions	TBB	●				●				●				

Installation and Dimensions

Connection/Installation	Front connection	Terminal screw	Terminal screw, Terminal busbar	
	Rear connection	Horizontal/Vertical wiring	Horizontal/Vertical wiring	
	Plug-in	Switchboard type (Line & Load, Line only) ²⁾	Switchboard type (Line & Load, Line only) ²⁾	
Dimensions (mm)	a (2/3/4P)	140/140/184	210/210/280	210/210/280
	b	257	280	280
	c	110	110	110
Weight (kg)	2/3/4P	4/4.5/5.4	8.7/9.5/12.5	8.7/9.5/12.5
Detailed rating and select		122 Page	122 Page	122 Page
Characteristics curve and outside view		70 - 80 Page	70 - 80 Page	70 - 80 Page



※ ¹⁾ 4 pole arrangement: Basic specification is R-S-T-N (N-R-S-T is optional).

²⁾ Plug-in: Applicable only 3P.

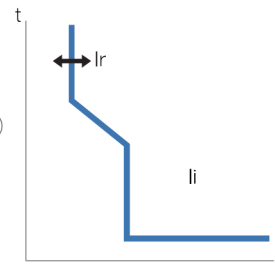


• 30 - 250 AF



Overload Protection (Thermal)
Setting Dial, (Ir)

• 400 - 800 AF



Characteristic Curve
(I - t Curve)

Trip Unit Characteristics - Thermal Magnetic

Rated Current (A) [In]		16	20	25	32	40	50	63	75	80	100	125
MCCB	HGM30	●	●	●	●							
	HGM50	●	●	●	●	●	●					
	HGM60	●	●	●	●	●	●	●				
	HGM100	●	●	●	●	●	●	●	●	●	●	
	HGM125	●	●	●	●	●	●	●	●	●	●	●

Time Pick-Up Characteristics [Ir]

Settings (A)		16	20	25	32	40	50	63	75	80	100	125
Settings (A)	0.8 x In	12.8	16	20	25.6	32	40	50.4	60	64	80	100
	0.9 x In	14.4	18	22.5	28.8	36	45	56.7	67.5	72	90	112.5
	1.0 x In	16	20	25	32	40	50	63	75	80	100	125

Instantaneous Pick-Up Characteristics [Ii]

Settings (A)			400		400	500	630	750	800	1,000	1,250
Settings (A)	10 x In		400		400	500	630	750	800	1,000	1,250
	Instantaneous pick-up characteristics (A)		320		320	400	504	600	640	800	1,000
	The minimum operating current (A)		480		480	600	756	900	960	1,200	1,500

Neutral Pole Protection

4P3D	Unprotected
4P4D	-

Rated Current (A) [In]		100	125	150	160	175	200	225	250
MCCB	HGM160	●	●	●	●				
	HGM250	●	●	●	●	●	●	●	●

Time Pick-Up Characteristics [Ir]

Settings (A)		Fixed	100	125	150	160	175	200	225	250
Settings (A)	0.8 x In	80	100	120	128	140	160	180	200	200
	0.9 x In	90	112.5	135	144	157.5	180	202.5	225	225
	1.0 x In	100	125	150	160	175	200	225	250	250

Instantaneous Pick-Up Characteristics [Ii]

Settings (A)		10 x In	1,000	1,250	1,500	1,600	1,750	2,000	2,250	2,500
Settings (A)	10 x In	1,000	1,250	1,500	1,600	1,750	2,000	2,250	2,500	2,500
	Instantaneous pick-up characteristics (A)	800	1,000	1,200	1,280	1,400	1,600	1,800	2,000	2,000
	The minimum operating current (A)	1,200	1,500	1,800	1,920	2,100	2,400	2,700	3,000	3,000

Neutral Pole Protection

4P3D	Unprotected
4P4D	-

Rated Current (A) [In]		250	300	350	400	500	630	700	800
MCCB	HGM400	●	●	●	●				
	HGM630					●	●		
	HGM800							●	●

Time Pick-Up Characteristics [Ir]

Settings (A)		Fixed	250	300	350	400	500	630	700	800
Settings (A)	Fixed	250	300	350	400	500	630	700	800	800
	0.63 x In	158	189	221	252	315	397	441	504	504
	0.8 x In	200	240	280	320	400	504	560	640	640
	1.0 x In	250	300	350	400	500	630	700	800	800

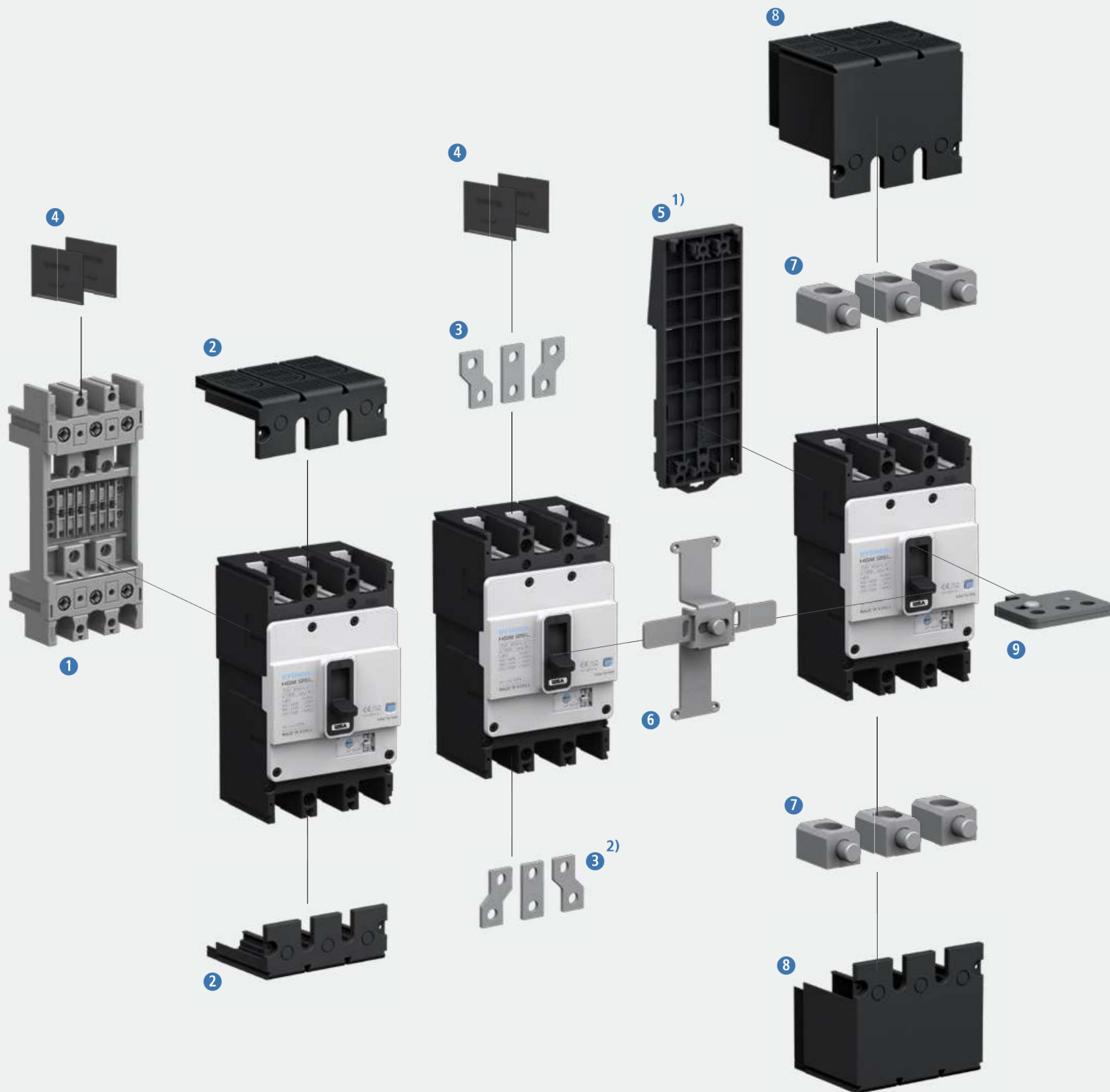
Instantaneous Pick-Up Characteristics [Ii]

Settings (A)		10 x In	2,500	3,000	3,500	4,000	5,000	6,300	7,000	8,000
Settings (A)	10 x In	2,500	3,000	3,500	4,000	5,000	6,300	7,000	8,000	8,000
	Instantaneous pick-up characteristics (A)	2,000	2,400	2,800	3,200	4,000	5,040	5,600	6,400	6,400
	The minimum operating current (A)	3,000	3,600	4,200	4,800	6,000	7,560	8,400	9,600	9,600

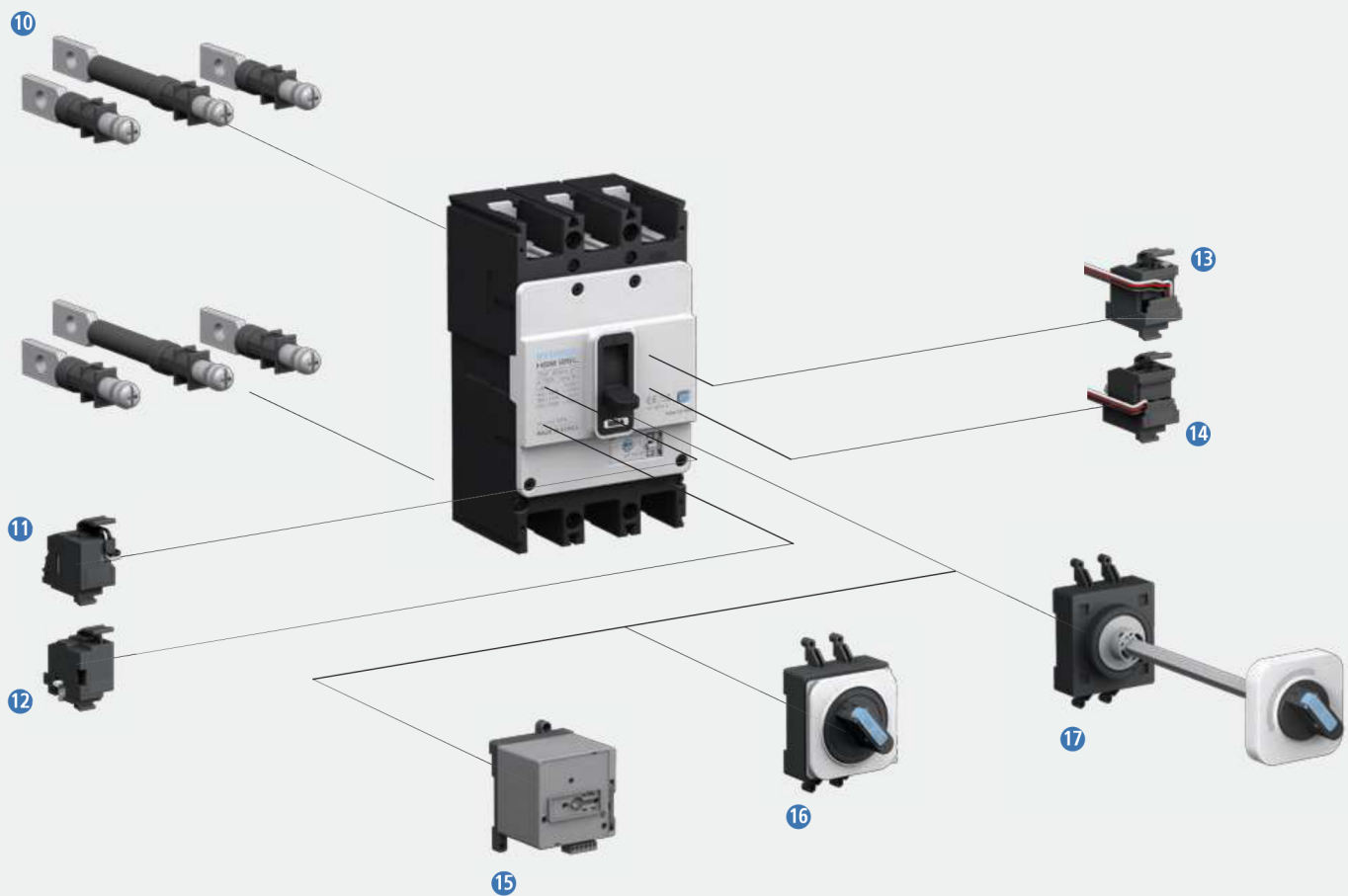
Neutral Pole Protection

4P3D	Unprotected
4P4D	-

Accessories



- ※ **1**) DIN rail adaptor (DRA): HGM/HGE100 only
2) Busbar (TBB): HGM/HGE250 only



HGM Type Molded Case Circuit Breakers

- | | | |
|-----------------------------------|-----------------------------|---------------------------|
| 1 Plug in Devices | 7 Lug Terminal | 13 Auxiliary Switch |
| 2 Terminal Cover for Plug-In Type | 8 Terminal Cover | 14 Trip Alarm Switch |
| 3 Busbar | 9 Padlock for Rotary Handle | 15 Motor Operator |
| 4 Insulation Barrier | 10 Rear Connection Terminal | 16 Direct Rotary Handle |
| 5 DIN Rail Adaptor | 11 Shunt Trip Coil | 17 Extended Rotary Handle |
| 6 Mechanical Interlock | 12 Undervoltage Trip Coil | |

Internal Accessories



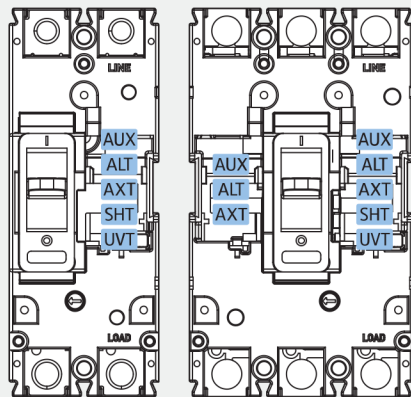
AUX, ALT, AXT, SHT, UVT



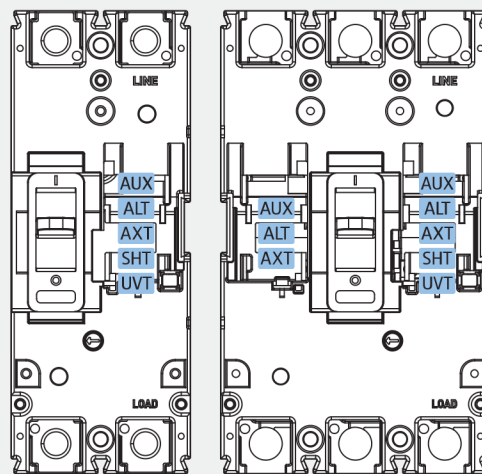
AUX, ALT, AXT



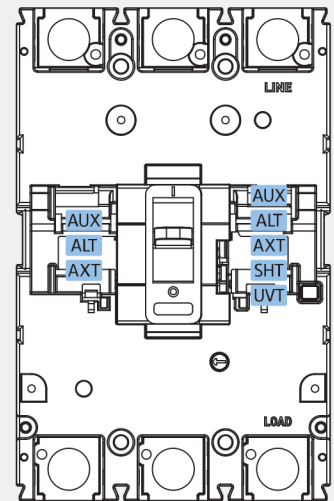
HGM100



HGM125



HGM250



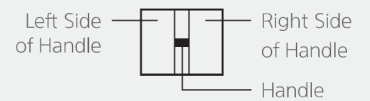
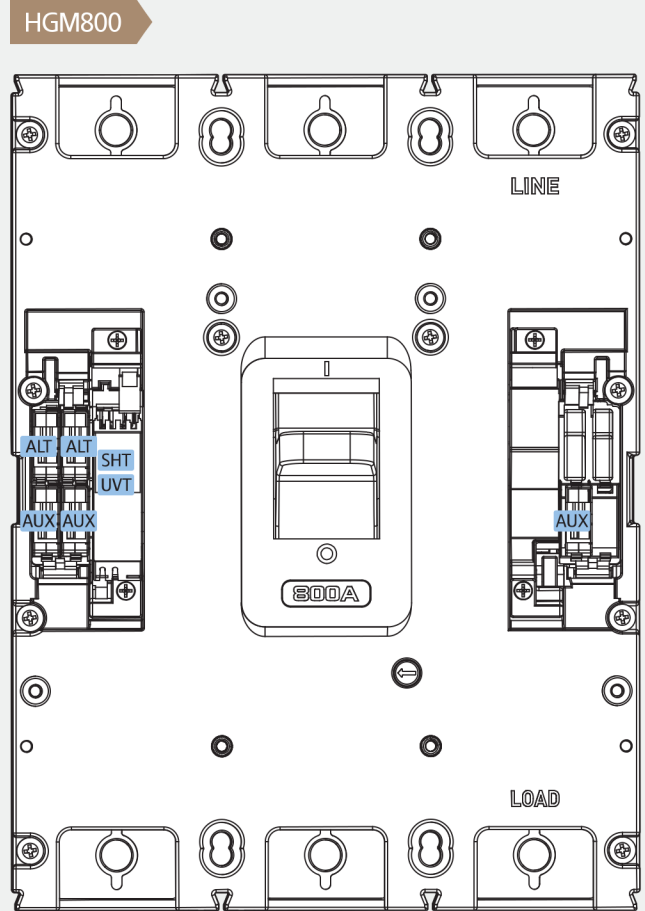
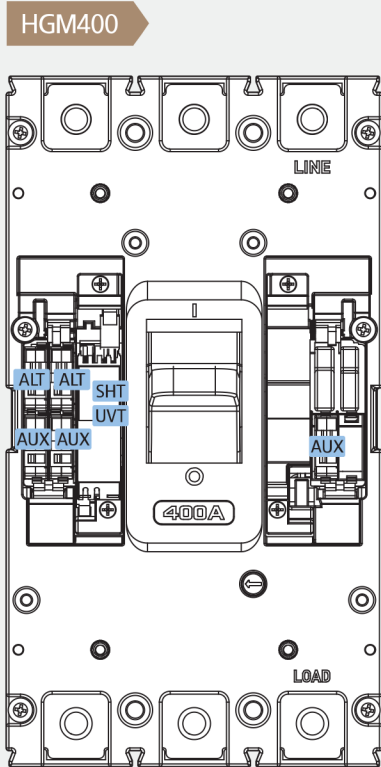
Combinations of Internal Accessories (250 AF or less)

Type	Pole	AUX	ALT	SHT	UVT	AXT	AUX	AUX	SHT	UVT	SHT	UVT	SHT	UVT
		ALT	ALT	AUX	AUX	ALT	ALT	AXT	AXT					
HGM100 HGM125	2													
HGM100 HGM125 HGM250	3/4													
HGE100 HGE125 HGE250	2/3/4													

※ AUX: Auxiliary switch / ALT: Alarm switch / SHT: Shunt trip / UVT: Under-voltage trip / AXT: Auxiliary alarm switch

Installation of Internal Accessories

- Auxiliary switch (AUX)
- Alarm switch (ALT)
- Auxiliary + Alarm switch (AXT)
- Shunt trip (SHT)
- Undervoltage trip (UVT)



Combinations of Internal Accessories (400 - 800 AF)

Type	Pole	AUX	ALT	SHT	UVT	AUX	SHT	UVT	SHT	UVT	SHT	UVT
						ALT	AUX	AUX	ALT	ALT	AUX	AUX
						ALT	ALT	ALT	ALT			
HGM400	2/3/4											
HGM800	2/3 4RSTN											
HGM800	4NRST											
HGE400	2/3/4											
HGE800	2/3											

※ AUX: Auxiliary switch □ / ALT: Alarm switch ■ / SHT: Shunt trip ☒ / UVT: Under-voltage trip ☒

Internal Accessories

Auxiliary Switch (AUX), Alarm Switch (ALT)

Indicates the status of circuit breaker contacts from a remote position as well as using for electric locking.

Auxiliary Switch (AUX)

- Indicating ON/OFF status of circuit breaker.
- Status is OFF when TRIP.
- Consists of C contact.



AUX

Alarm Switch (ALT)

- Activated when the circuit breaker has tripped due to an overload, short circuit or ground fault excepting manual ON/OFF operation.
- Return to original state, when circuit breaker reset.
- Consist of C contact.



Auxiliary + Alarm Switch (AXT)

- Combined AUX and ALT auxiliary switch.

Contact Circuit Diagram

	Auxiliary Switch (AUX)	Alarm Switch (ALT)
MCCB ON		
MCCB OFF		
MCCB TRIP		

Rating of Contact

Rated Conventional Thermal Current		5 A	
Minimum Load		160 mA, 5 VDC	
Rated Operational Current		Resistive load	Inductivce load
AC125 V		5 A	3 A
AC250 V		3 A	2 A
DC30 V		4 A	3 A
DC125 V		0.4 A	0.4 A
DC250 V		0.2 A	0.2 A

Possible Location for Installation

Type	극수	AUX	ALT	AXT
HGM100 HGM125	2			
HGM100 HGM125 HGM250	3/4			
HGE100 HGE125 HGE250	2/3/4			
HGM400	2/3/4			
HGE400	2/3/4			
HGM800	2/3/4			
HGE800	2/3			

※ AUX: Auxiliary switch □
 ALT: Alarm switch ■
 AXT: Auxiliary alarm switch □■

Shunt Trip (SHT)

Remotely trip circuit breakers by voltage shunt trip (SHT) device.

Operation Condition

- $U \geq 0.7 \times U_n$ (Apply more than 70 % of the rated voltage.)
- In case of impulse type voltage, apply more than 20 ms



Rated Voltage and Characteristics (100 - 250 AF)

Rated Voltage (Un)		Power consumption	
		VA (W)	A (A)
DC	24 V	50.2	2.1
	48 V	94.6	1.97
	60 V	91.2	1.52
	100 - 120 V	11.8	0.1
	125 V	58.1	0.47
AC (50/60 Hz)	100 - 120 V	75.2	0.63
	200 - 250 V	64.8	0.26
	380 - 480 V	131	0.27
Rated Operational Voltage		0.7 - 1.1 x Un	
Operating Time		50 ms	



Possible Location for Installation

Type	Pole	SHT	UVT
HGM100 HGM125	2		
HGM100 HGM125 HGM250	3/4		
HGE100 HGE125 HGE250	2/3/4		
HGM400	2/3/4		
HGE400	2/3/4		
HGM800	2/3/4		
HGE800	2/3		

※ SHT: Shunt trip
 UVT: Under-voltage trip

Internal Accessories

Undervoltage Trip (UVT)

In case circuit voltage is less than the reference value, the circuit breaker will not trip or close (ON). If circuit voltage falls less than 35 % of Rated voltage (U_n), UVT initiates a trip automatically to prevent damage to the load.

Opening Conditions

- Operating characteristics is guaranteed based on IEC 60947-2 standard criteria.
- Trip condition: $U \leq 0.35 \times U_n$
- Fixed: 50 ms
- Time Delay: 500 ms
- No Trip condition: $U \geq 0.7 \times U_n$
- In $U = 0.35 - 0.7 \times U_n$ interval, circuit breaker can be tripped but, does not warrant the operation.

Closing Conditions

- For the circuit breakers installed with UVT when voltage is not applied to the UVT, the circuit breakers is possible OFF/RESET but can not be ON (Closing).
- Voltage must be applied at UVT for closing (ON).
- Closing condition: $U \geq 0.85 \times U_n$

Time Delay Function

To prevent a malfunction in the short time voltage drop of less than 500 ms.

Rated Voltage and Characteristic (100 - 250 AF)

Rated Voltage (U_n)		Power consumption	
		VA (W)	A (mA)
DC	24 V	0.96	40
	48 V	1.1	22.7
	100 - 110 V	2.2	20
AC (50/60 Hz)	100 - 120 V	5.1	42
	200 - 230 V	6	26
	380 - 415 V	9.6	23
	440 - 480 V	12.5	26
Operating Inception Voltage	In the Case of Trip	0.35 - 0.7 x U_n	
	In the Case of Closing	0.85 x U_n	
Rated Operational Voltage		0.85 - 1.1 x U_n	
Operating Time		500 ms	



UVT



UVT Controller

External Accessories

Rotary Handle

Rotary handle is the device to check for MCCB's ON/OFF/TRIP status from outside of switchgear. There are two types of rotary handle-extended type and direct type. All the rotary handles provide panel door locking and handle locking function by rotating clockwise the rotary handle, the circuit breaker operates "ON". Each rotary handle is divided into these three types the upper line, the right line, and the left line-according to attachment direction of MCCB. The IP rating of the handle is IP40.

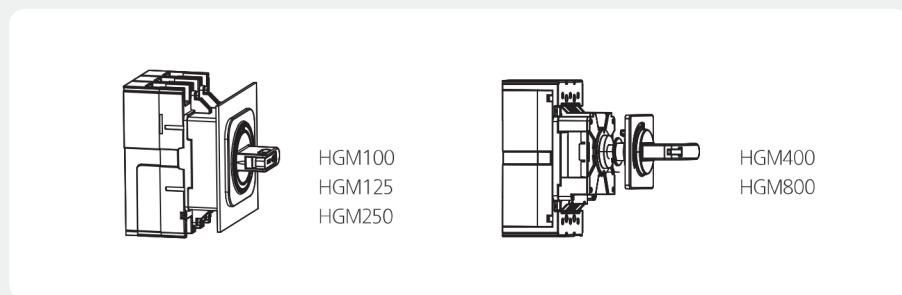
Direct Rotary Handle (TFG Type)

- 100 - 250 AF: Attach handle directly to the circuit breaker.
- 400 - 800 AF: Attach handle to the door of switchgear.

Type			Application
Upper Line	Right Line	Left Line	
TFG 10GM U	TFG 10GM R	TFG 10GM L	HGM100/HGE100
TFG 12GM U	TFG 12GM R	TFG 12GM L	HGM125/HGE125
TFG 25GM U	TFG 25GM R	TFG 25GM L	HGM250/HGE250
TFG 40GM U	TFG 40GM R	TFG 40GM L	HGM400/HGE400
TFG 80GM U	TFG 80GM R	TFG 80GM L	HGM800/HGE800



Direct Rotary Handle



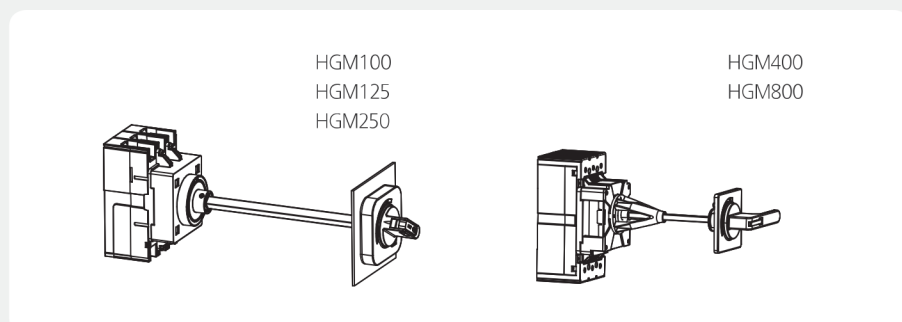
Extended Rotary Handle (TFH Type)

Suitable for the case that long the distance between circuit breaker and door switchgear is long. The handle is attached to the door of switchgear so there is no trip-button function.

Type	Application
TFH 10GM	HGM100/HGE100
TFH 12GM	HGM125/HGE125
TFH 25GM	HGM250/HGE250
TFH 40GM	HGM400/HGE400
TFH 80GM	HGM800/HGE800



Extended Rotary Handle



HG-MCCB Plug-in CBM Wiring Position (TDM Front Side)

OPTION	HGM100/ 2P	HGM100	HGM125/250	HGM400/630/ 800	HGP160	HGP250	HGP630	HGP800
AUX	12:11:10	12:11:10	12:11:10	10 11 12	12:11:10	12:11:10	10 11 12	10 11 12
AUX2		12:11:10 22:21:20	12:11:10 22:21:20	20 21 22 10 11 12	12:11:10 22:21:20	12:11:10 22:21:20	10 11 12 20 21 22	10 11 12 20 21 22
AUX3			12:11:10 22:21:20 32:31:30	30 31 32 10 11 12			10 11 12 30 31 32	10 11 12 30 31 32
ALT	9:8:7	9:8:7	9:8:7	7 8 9	9:8:7	9:8:7	7 8 9	9:8:7
SHT/UVT	2/5 - 3/3	2/5 - 3/3	2/5 - 3/3	1/3 2/5	2/5 - 3/3	2/5 - 3/3	1/3 2/5	1/3 2/5
AUX+ALT	9:8:7 12:11:10	9:8:7 12:11:10	9:8:7 12:11:10	7 8 9 10 11 12	9:8:7 12:11:10	9:8:7 12:11:10	10 11 12 7 8 9	10 11 12 9:8:7
AUX2+ALT			9:8:7 12:11:10 22:21:20	7 8 9 10 11 12	9:8:7 12:11:10 22:21:20	9:8:7 12:11:10 22:21:20	10 11 12 7 8 9	10 11 12 9:8:7
AUX3+ALT			9:8:7 32:31:30 12:11:10 22:21:20	7 8 9 30 31 32 10 11 12			10 11 12 7 8 9	10 11 12 9:8:7
AUX+SHT/UVT	12:11:10 2/5 - 3/3	12:11:10 2/5 - 3/3	12:11:10 2/5 - 3/3	1/3 2/5 10 11 12	12:11:10 2/5 - 3/3	2/5 - 3/3 12:11:10	1/3 2/5 10 11 12	1/3 2/5 10 11 12
AUX2+SHT/UVT			12:11:10 2/5 - 3/3 22:21:20	20 21 22 1/3 2/5 10 11 12	12:11:10 2/5 - 3/3 22:21:20	2/5 - 3/3 12:11:10 22:21:20	1/3 2/5 10 11 12 20 21 22	1/3 2/5 10 11 12 20 21 22
AUX3+SHT/UVT				30 31 32 1/3 2/5 10 11 12			1/3 2/5 10 11 12 30 31 32	1/3 2/5 10 11 12 30 31 32
ALT+SHT/UVT	9:8:7 2/5 - 3/3	9:8:7 2/5 - 3/3	9:8:7 2/5 - 3/3	7 8 9 1/3 2/5	9:8:7 2/5 - 3/3	9:8:7 2/5 - 3/3	1/3 2/5 7 8 9	1/3 2/5 9:8:7
AUX+ALT+SHT/UVT			9:8:7 2/5 - 3/3 12:11:10	7 8 9 1/3 2/5 10 11 12	9:8:7 12:11:10 2/5 - 3/3	9:8:7 12:11:10 2/5 - 3/3	1/3 2/5 10 11 12 7 8 9	1/3 2/5 10 11 12 9:8:7
AUX+ALT+SHT/UVT				7 8 9 30 31 32 1/3 2/5 10 11 12	9:8:7 12:11:10 2/5 - 3/3 22:21:20	9:8:7 12:11:10 2/5 - 3/3 22:21:20	1/3 2/5 10 11 12 7 8 9	1/3 2/5 10 11 12 9:8:7

External Accessories

Plug-in Devices

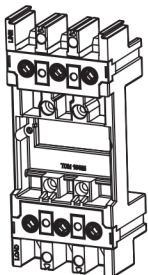
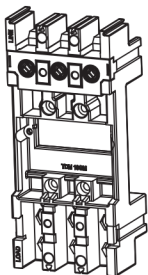
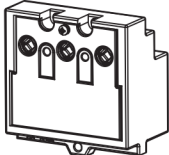
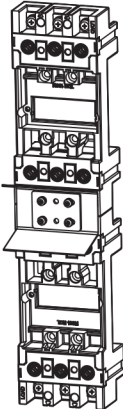
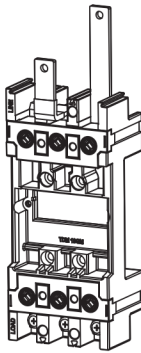
This device is used to connect plug-in MCCB to switchgear.

TDM Type

- TDM-P: Both LINE and LOAD sides consist of plug-in terminal.
- TDM-F: Only LINE side consists of plug-in terminal.

TDF Type

- Only LINE side consists of plug-in terminal but available for fixing plug-in device at switchgear as same as TDM-P

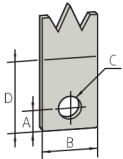
Application	For Switchgear			For Panel Board	
	Type	TDM-P	TDM-F	TDF	TDA (2 row)
Composition					
Use	LINE/LOAD	LINE	LINE	Duble base	Single base
HGM/HGE Type	100 - 800 AF	100 - 800 AF	100 - 125 AF	100 - 125 AF	100 - 125 AF
Pole	3P	3P	3P	2P (100 AF only), 3P	3P

Connection Busbar

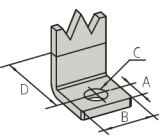
It is used for connecting switchgear busbar to plug-in device directly.

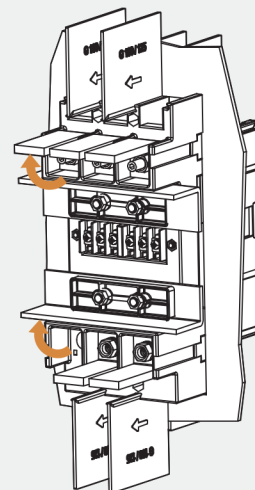
The specifications of the applicable busbar are as follows.

(unit: mm)

Application	A	B	C	D	Remark
100 AF	< 10	< 21	$\varnothing \geq 6.5$	< 17.5	
125 AF	< 10	< 21	$\varnothing \geq 6.5$	< 19.5	
250 AF	< 17.5	< 25	$\varnothing \geq 8.5$	< 27.5	
400 AF	< 22	< 32	$\varnothing \geq 10.5$	< 38	
800 AF	< 30	< 40	$\varnothing \geq 17$	< 48.5	

(unit: mm)

Application	A	B	C	D	Remark
100 AF	< 7.5	< 15	$\varnothing \geq 7$	< 13	
125 AF	< 7.5	< 15	$\varnothing \geq 7$	< 13	
250 AF	-	-	-	-	
400 AF	-	-	-	-	
800 AF	-	-	-	-	



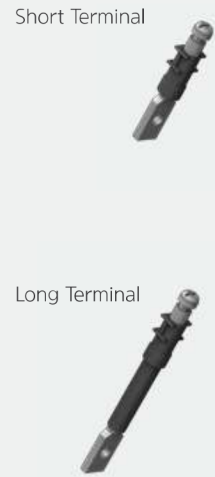
Rear Connection Terminal

This device is used for connecting MCCB from rear side of switchgear.

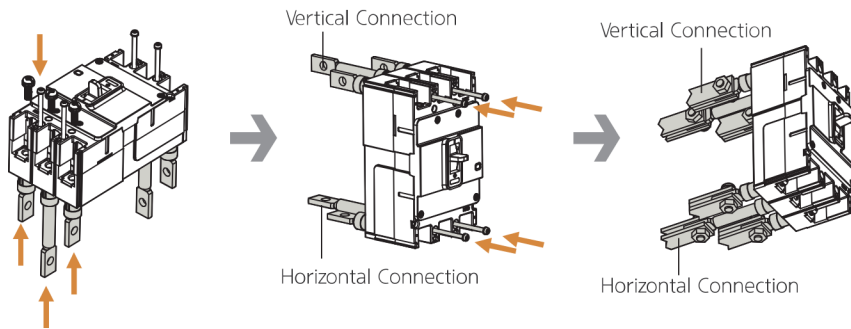
It is possible to array buabar vertically or horizontally according to assembling direction of connection.

Flat Type

Application		Rear Connection of Fixed Devices		Quantity Per Set	
Type	Pole	LINE	LOAD	Short Terminal	Long Terminal
HGM50 HGE50	2	RCT 05GM F2	RCT 05GM F2	1	1
	3	RCT 05GM F3	RCT 05GM F3	2	1
	4	RCT 05GM F4	RCT 05GM F4	2	2
HGM100 HGE100	2	RCT 10GM F2	RCT 10GM F2	1	1
	3	RCT 10GM F3	RCT 10GM F3	2	1
	4	RCT 10GM F4	RCT 10GM F4	2	2
HGM125 HGE125	2	RCT 12GM F2	RCT 12GM F2	1	1
	3	RCT 12GM F3	RCT 12GM F3	2	1
	4	RCT 12GM F4	RCT 12GM F4	2	2
HGM250 HGE250	2	RCT 25GM F2 LINE	RCT 25GM F2 LOAD	1	1
	3	RCT 25GM F3 LINE	RCT 25GM F3 LOAD	2	1
	4	RCT 25GM F4 LINE	RCT 25GM F4 LOAD	2	2
HGM400	3	RCT 63GP F3 LINE	RCT 63GP F3 LOAD	2	1
	4	RCT 63GP F4 LINE	RCT 63GP F4 LOAD	2	2
HGM630	3	RCT 80GP F3 LINE	RCT 80GP F3 LOAD	2	1
HGM800	4	RCT 80GP F4 LINE	RCT 80GP F4 LOAD	2	2



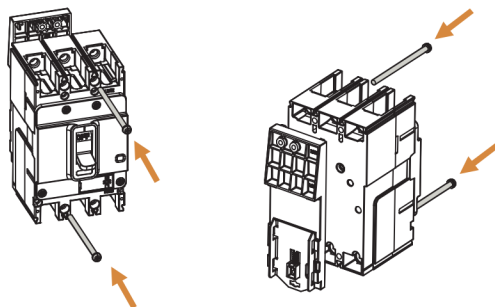
HGM100, 125, 250
HGE100, 125, 250



DIN Rail Adaptor

This device is used for DIN rail mounting of MCCB. (HGM/HGE100 Only)

Application		DIN Rail Adapter	Quantity
Type	Pole		
HGM100 HGE100	2	DRA 10GM	1
	3	DRA 10GM	1
	4	DRA 10GM	2



External Accessories

Motor Operator

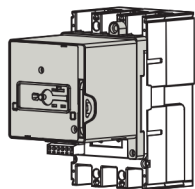
This device is used for turning ON/OFF circuit breakers from remote position. It can be applied at low-voltage automation system or emergency power system.

Application		MOT	Control Voltage
Type	Pole		
HGM100	3, 4	MOT 10GM	DC24 V AC/DC110 V AC/DC240 V
HGM125	3, 4	MOT 12GM	
HGM250	3, 4	MOT 25GM	
HGM400	3, 4	MOT 40GM	
HGM800	3, 4	MOT 80GM	



※ Note

- Motor operator should be attached, only when MCCB's handle is OFF.
- If not, there is possibility of burning the motor.

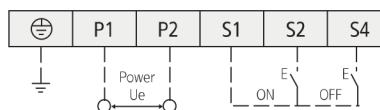
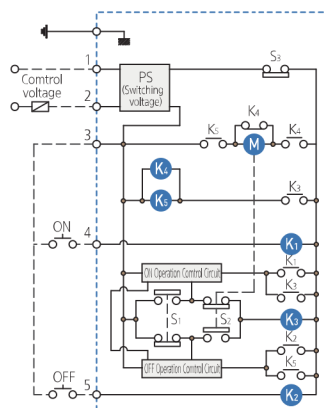


Ratings

Application	Mechanical Lifetime	Control Voltage	Operating Current	Operation Time (ms)		Power Consumption (W)
				Closing	Opening	
MOT 10GM	25,000	DC24 V	≤ 2.5	310	200	14
		AC/DC110 V	≤ 0.5			
		AC/DC240 V	≤ 0.5			
MOT 12GM	10,000	DC24 V	≤ 2.5	350	230	14
		AC/DC110 V	≤ 0.5			
		AC/DC240 V	≤ 0.5			
MOT 25GM	8,000	DC24 V	≤ 2.5	350	230	14
		AC/DC110 V	≤ 0.5			
		AC/DC240 V	≤ 0.5			
MOT 40GM	5,000	DC24 V	≤ 6.0	500	350	14
		AC/DC110 V	≤ 3.0			
		AC/DC240 V	≤ 2.0			
MOT 80GM	5,000	DC24 V	≤ 6.0	500	350	35
		AC/DC110 V	≤ 3.0			
		AC/DC240 V	≤ 2.0			

※ Voltage range: 85 - 110 % (DC24 V: 95 - 110 %)

Control Circuit Diagram



- M** : Motor
- K1** : ON Relay
- K2** : OFF Relay
- K3, K4, K5, K6** } Relay for Motor
- S1** : ON Limit Switch
- S2** : OFF Limit Switch
- S4** : AUTO/Manual Limit Switch

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Technical Information

Standard Use Environment

Temperature Derating

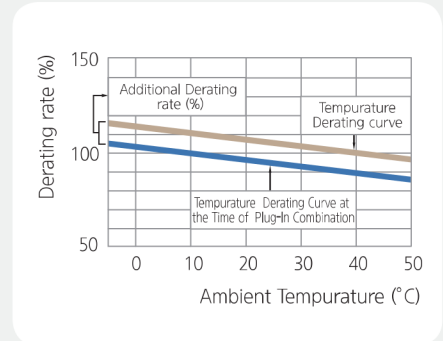
Overcurrent characteristics of MCCB has been set to the ambient temperature 40 degrees celsius. If the ambient temperature is less or more than 40 degrees celsius, the overcurrent characteristics can be changed.

If the Ambient Temperature is Less than 40 Degrees Celsius

In order to ensure that circuit breaker's overcurrent meet the derating curve at the given ambient temperature, the rear current (Ir) should be adjusted. The temperature correction ratio for each MCCB is shown on the circuit breaker derating curve.

If the Ambient Temperature is More than 40 Degrees Celsius

If the internal temperature of the MCCB is over 40 degrees, thermal damage to the insulating material inside the MCCB can occur causing the circuit breaker to trip at an early stage. When applying ambient temperatures at higher than 40 degrees celsius, you must adjust the rated current as shown in the rated current correction table below.



In (Rated Current): Circuit breaker's rating at about ambient temperature 40 °C

Ir (Real Current): Circuit breaker's rating at about ambient temperature

$I_r = \text{Correction ratio (\%)} \times I_n$



Rated Current Derating Table: HG Type / Standard Mounting (Fixed)

Model	Rated Current (A)	Ambient Temperature (°C)									
		(A)	20	30	40	45	50	55	60	65	70
HGM100 HGE100	16	18.9	18.6	17.8	16	15.2	14.6	14.1	13.6	13.2	12.8
	20	23.58	23.3	22.2	20	19.1	18.3	17.6	17.0	16.5	16.0
	25	26.8	26.2	25.6	25	24.7	24.4	24.1	23.8	23.5	23.2
	32	34.3	33.5	32.8	32	31.6	31.3	30.9	30.5	30.1	29.7
	40	42.9	41.9	41.0	40	39.5	39.0	38.6	38.1	37.6	37.1
	50	53.6	52.4	51.2	50	49.4	48.8	48.2	47.6	47.0	46.4
	63	67.5	66.0	64.5	63	62.2	61.5	60.7	60.0	59.2	58.5
	75	80.4	78.6	76.8	75	74.1	73.2	72.3	71.4	70.5	69.6
	80	85.8	83.8	81.9	80	79.0	78.1	77.1	76.2	75.2	74.2
HGM125 HGE125	16	18.9	18.6	17.8	16	15.2	14.6	14.1	13.6	13.2	12.8
	20	23.6	23.3	22.2	20	19.1	18.3	17.6	17.0	16.5	16.0
	25	27.3	26.6	25.8	25	24.6	24.2	23.8	23.4	23.0	22.6
	32	35.0	34.0	33.0	32	31.5	31.0	30.5	30.0	29.5	29.0
	40	43.8	42.5	41.3	40	39.4	38.8	38.1	37.5	36.8	36.2
	50	54.7	53.1	51.6	50	49.2	48.4	47.7	46.9	46.1	45.3
	63	68.9	66.9	65.0	63	62.0	61.0	60.1	59.1	58.0	57.0
	75	82.0	79.7	77.3	75	73.8	72.7	71.5	70.3	69.1	67.9
	80	87.5	85.0	82.5	80	78.8	77.5	76.3	75.0	73.7	72.4
HGM250 HGE250	100	109.4	106.3	103.1	100	98.4	96.9	95.3	93.8	92.1	90.5
	125	136.7	132.8	128.9	125	123.1	121.1	119.1	117.2	115.1	113.1
	100	107.8	105.2	102.6	100	96.0	94.0	92.0	88.0	85.5	83.0
	125	134.8	131.5	128.3	125	120.0	117.5	115.0	110.0	106.9	103.8
	150	161.7	157.8	153.9	150	144.0	141.0	138.0	132.0	128.3	124.5
	160	172.5	168.3	164.2	160	153.6	150.4	147.2	140.8	136.8	132.8
	175	188.7	184.1	179.6	175	168.0	164.5	161.0	154.0	149.6	145.3
200	215.6	210.4	205.2	200	192.0	188.0	184.0	176.0	171.0	166.0	
225	242.6	236.7	230.9	225	216.0	211.5	207.0	198.0	192.4	186.8	
250	269.5	262.9	256.5	250	240.0	235.0	230.0	220.0	213.8	207.5	



Rated Current Derating Tabel: HG Type / Standard Mounting (Fixed)

Model	Rated current (A)	Ambient temperature (°C)									
		10	20	30	40	45	50	55	60	65	70
HGM400 HGE400	250	269.5	263.0	256.5	250	246.8	243.5	240.2	237.0	233.6	230.3
	300	324	316.5	309	300	291	282	273	264	255	246
	350	378	369.25	360.5	350	340	330	320	310	300	290
	400	432	422	412	400	388	376	364	352	340	328
HGM630/800 HGE630/800	500	540	527.5	515	500	485	470	455	440	425	410
	630	680.4	664.65	648.9	630	611	592	573	554	535	516
	700	756	738.5	721	700	679	658	637	616	595	574
	800	864	844	824	800	776	752	728	704	680	656





Rated Current Derating Tabel: HG Type / Plug-In Type

Model	Rated Current (A)	Ambient Temperature (°C)									
		10	20	30	40	45	50	55	60	65	70
HGM100 HGE100	16	18.5	18.3	17.4	16	14.9	14.3	13.8	13.3	12.9	12.5
	20	23.1	22.8	21.8	20	18.7	17.9	17.2	16.7	16.1	15.7
	25	26.3	25.7	25.1	25	24.2	23.9	23.6	23.3	23.0	22.7
	32	33.6	32.9	32.1	31	31.0	30.6	30.2	29.9	29.5	29.1
	40	42.0	41.1	40.1	39	38.7	38.3	37.8	37.3	36.8	36.4
	50	52.5	51.4	50.2	49	48.4	47.8	47.2	46.6	46.1	45.5
	63	66.2	64.7	63.2	62	61.0	60.3	59.5	58.8	58.0	57.3
	75	78.8	77.0	75.3	74	72.6	71.7	70.9	70.0	69.1	68.2
	80	84.0	82.2	80.3	78	77.5	76.5	75.6	74.6	73.7	72.8
	100	105.1	102.7	100.4	98	96.8	95.6	94.5	93.3	92.1	90.9
HGM125 HGE125	16	18.5	18.2	17.4	16	14.9	14.3	13.8	13.3	12.9	12.5
	20	23.1	22.8	21.8	20	18.7	17.9	17.2	16.7	16.1	15.7
	25	26.8	26.0	25.3	25	24.1	23.7	23.4	23.0	22.6	22.2
	32	34.3	33.3	32.3	31	30.9	30.4	29.9	29.4	28.9	28.4
	40	42.9	41.7	40.4	39	38.6	38.0	37.4	36.8	36.1	35.5
	50	53.6	52.0	50.5	49	48.2	47.5	46.7	45.9	45.1	44.4
	63	67.5	65.6	63.7	62	60.8	59.8	58.8	57.9	56.9	55.9
	75	80.4	78.1	75.8	74	72.4	71.2	70.1	68.9	67.7	66.5
	80	85.8	83.3	80.9	78	77.2	76.0	74.7	73.5	72.2	71.0
	100	107.2	104.1	101.1	98	96.5	94.9	93.4	91.9	90.2	88.7
HGM250 HGE250	125	134.0	130.2	126.3	123	120.6	118.7	116.8	114.8	112.8	110.9
	100	103.5	101.0	98.5	96	92.2	90.2	88.3	84.5	82.1	79.7
	125	129.4	126.2	123.1	120	115.2	112.8	110.4	105.6	102.6	99.6
	150	155.3	151.5	147.8	144	138.2	135.4	132.5	126.7	123.1	119.5
	160	165.6	161.6	157.6	154	147.5	144.4	141.3	135.2	131.3	127.5
	175	181.1	176.7	172.4	168	161.3	157.9	154.6	147.8	143.6	139.4
	200	207.0	202.0	197.0	192	184.3	180.5	176.6	169.0	164.2	159.4
	225	232.9	227.3	221.6	216	207.4	203.0	198.7	190.1	184.7	179.3
	250	258.7	252.5	246.2	240	230.4	225.6	220.8	211.2	205.2	199.2
	HGM400 HGE400	250	261.4	255.1	248.8	242.5	239.3	236.2	233.0	229.9	226.6
300		314.3	307.0	299.7	291.0	282.3	273.5	264.8	256.1	247.4	238.6
350		366.7	358.2	349.7	339.5	329.8	320.1	310.4	300.7	291.0	281.3
400		405.2	395.8	387.6	378	373.7	367.9	363.2	357.9	352.6	347.3
HGM630/800 HGE630/800	500	523.8	511.7	499.6	485.0	470.5	455.9	441.4	426.8	412.3	397.7
	630	660.0	644.7	629.4	611.1	592.7	574.2	555.8	537.4	519.0	500.5
	700	725.8	709.0	692.2	672.0	651.8	631.7	611.5	591.4	571.2	551.0
	800	864.0	844.0	824.0	800.0	776.0	752.0	728.0	704.0	680.0	656.0

Technical Information

Power Consumption & Resistance

HGM Type MCCB

Type	Rated Current (A)	HGM100		HGM125		HGM250		HGM400		HGM800	
		R/Pole (mΩ)	P/Pole (W)	R/Pole (mΩ)	P/Pole (W)	R/Pole (mΩ)	P/Pole (W)	R/Pole (mΩ)	P/Pole (W)	R/Pole (mΩ)	P/Pole (W)
Fixed / Adj 	16	16.0	4.10	17.0	4.35						
	20	16.0	6.40	17.0	6.80						
	25	4.0	2.50	4.3	2.69						
	32	4.0	4.10	3.0	3.07						
	40	2.9	4.64	2.6	4.16						
	50	2.3	5.75	1.7	4.25						
	63	1.7	6.75	1.3	5.16						
	75	1.2	6.75	1.0	5.63						
	80	0.9	5.76	1.0	6.40						
	100	0.9	9.00	0.7	6.50	0.6	5.60				
	125			0.6	9.38	0.4	6.72				
	150					0.4	8.55				
	160					0.3	8.70				
	175					0.3	9.80				
	200					0.3	10.80				
	225					0.3	13.67				
	250					0.2	13.75	0.2	14.38		
	300							0.2	18.90		
	350							0.2	23.28		
	400							0.2	27.20		
500									0.1	32.50	
600									0.1	43.20	
700									0.1	53.90	
800									0.1	64.00	
Plug-in 	16	16.1	4.12	17.1	4.37						
	20	16.1	6.43	17.1	6.83						
	25	4.1	2.55	4.4	2.74						
	32	4.1	4.18	3.1	3.15						
	40	3.0	4.77	2.7	4.29						
	50	2.4	5.95	1.8	4.45						
	63	1.8	7.06	1.4	5.48						
	75	1.3	7.20	1.1	6.08						
	80	1.0	6.27	1.1	6.91						
	100	1.0	9.80	0.7	7.30	0.6	6.40				
	125			0.7	10.63	0.5	7.97				
	150					0.5	10.35				
	160					0.4	10.75				
	175					0.4	12.25				
	200					0.4	14.00				
	225					0.4	17.72				
	250					0.3	18.75	0.3	19.38		
	300							0.3	26.10		
	350							0.3	33.08		
	400							0.3	40.00		
500									0.2	52.50	
600									0.2	72.00	
700									0.2	93.10	
800									0.2	115.20	

Technical Information

Cascading Table

AC220/240 V

Upstream: HGM30, HGM50, HGM60, HGM100, HGM125, HGM160, HGM250, HGM400

Downstream: HiBD63, HiBD125, HGM30, HGM50, HGM60, HGM100

Upstream	HGM30		HGM50				HGM60				HGM100				
	E	S	E	S	H	L	E	S	H	L	E	S	H	L	
Breaking capacity [Icu] (kA r.m.s.)	35	50	35	50	85	100	35	50	50	50	35	50	50	50	
Downstream breaking capacity [Icu] (kA r.m.s.)	Enhanced breaking capacity														
HiBD63E	10	15	15	15	15	15	15	15	15	15	15	15	15	15	15
HiBD63S	15	20	20	20	20	20	20	20	20	20	20	20	20	20	20
HiBD63N	20			35	40	40	40	35	40	40	40	35	40	40	40
HiBD63H	25			35	50	50	50	35	40	40	40	35	40	40	40

Upstream	HGM125				HGM160				HGM250				
	E	S	H	L	E	S	H	L	E	S	H	L	
Breaking capacity [Icu] (kA r.m.s.)	50	65	85	100	50	65	85	100	50	65	85	100	
Downstream breaking capacity [Icu] (kA r.m.s.)	Enhanced breaking capacity												
HiBD63E	10	15	15	15	15	15	15	15	15	15	15	15	15
HiBD63S	15	20	20	20	20	20	20	20	20	20	20	20	20
HiBD63N	20	40	40	40	40	40	40	40	40	40	40	40	40
HiBD63H	25	40	50	50	50	40	50	50	50	40	50	50	50
HiBD125	25	40	40	40	40	40	40	40	40	40	40	40	40

Upstream	HGM30		HGM50				HGM60				HGM100				
	E	S	E	S	H	L	E	S	H	L	E	S	H	L	
Breaking capacity [Icu] (kA r.m.s.)	35	50	35	50	85	100	35	50	50	50	35	50	50	50	
Downstream breaking capacity [Icu] (kA r.m.s.)	Enhanced breaking capacity														
HGM30E	35		50		50	65	65		50	50	50		50	50	50
HGM50E	35				50	65	70		50	50	50		50	50	50
HGM50S	50					70	85								
HGM50H	85						100								
HGM60E	35								50	50	50		50	50	50
HGM100E	35												50	50	50

Upstream	HGM125				HGM160				HGM250				HGM400				
	E	S	H	L	E	S	H	L	E	S	H	L	E	S	H	L	
Breaking capacity [Icu] (kA r.m.s.)	50	65	85	100	50	65	85	100	50	65	85	100	50	75	100	125	
Downstream breaking capacity [Icu] (kA r.m.s.)	Enhanced breaking capacity																
HGM30E	35	50	65	65	65	50	65	65	65	50	65	65	65	50	65	65	65
HGM30S	50		65	65	65		65	65	65		65	65	65		65	65	65
HGM50E	35	50	65	65	70	50	65	65	70	50	65	65	70	50	65	65	70
HGM50S	50		65	70	85		65	70	85		65	70	85		65	70	85
HGM50H	85				100				100				100				100
HGM60E	35	50	65	70	70	50	65	70	70	50	65	70	70	50	65	70	70
HGM60S	50		65	70	70		65	70	70		65	70	70		65	70	70
HGM60H	50		65	70	70		65	70	70		65	70	70		65	70	70
HGM60L	50		65	70	70		65	70	70		65	70	70		65	70	70
HGM100E	35	50	65	70	70	50	65	70	70	50	65	70	70	50	65	70	70

AC220/240 V

Upstream: HGM125, HGM160, HGM250, HGM400, HGM600, HGM800

Downstream: HGM100, HGM160, HGM250, HGM400, HGM600, HGM800

Upstream	HGM125				HGM160				HGM250				HGM400			
	E	S	H	L	E	S	H	L	E	S	H	L	E	S	H	L
Breaking capacity [Icu] (kA r.m.s.)	50	65	85	100	50	65	85	100	50	65	85	100	50	75	100	125
Downstream breaking capacity [Icu] (kA r.m.s.)	Enhanced breaking capacity															
HGM100S	50	65	70	70	65	70	70	65	70	70	65	70	70	65	70	70
HGM100H	50	65	70	70	65	70	70	65	70	70	65	70	70	65	70	70
HGM100L	50	65	70	70	65	70	70	65	70	70	65	70	70	65	70	70
HGM125E	50	65	85	100	65	85	100	65	85	100	65	85	100	65	85	100
HGM125S	65		85	100		85	100		85	100		85	100		85	100
HGM125H	85			100			100			100			100			100

Upstream	HGM160				HGM250				HGM400			
	E	S	H	L	E	S	H	L	E	S	H	L
Breaking capacity [Icu] (kA r.m.s.)	50	65	85	100	50	65	85	100	50	75	100	125
Downstream breaking capacity [Icu] (kA r.m.s.)	Enhanced breaking capacity											
HGM160E	50	65	85	100	65	85	100	75	85	100		
HGM160S	65		85	100		85	100		85	100		
HGM160H	85			100			100			100	125	
HGM160L	100										125	
HGM250E	50				65	85	100	75	85	100		
HGM250S	65					85	100		85	100		
HGM250H	85						100			100	125	
HGM250L	100										125	

Upstream	HGM600				HGM800		
	E	S	H	L	S	H	L
Breaking capacity [Icu] (kA r.m.s.)	50	75	100	125	75	100	125
Downstream breaking capacity [Icu] (kA r.m.s.)	Enhanced breaking capacity						
HGM250E	50	75	85	100	75	85	100
HGM250S	65		85	100		85	100
HGM250H	85		100	125		100	125
HGM250L	100			125			125
HGM400E	50	75	85	100	75	85	100
HGM400S	75		85	100		85	100
HGM400H	100			125			125
HGM600E	50	75	85	100	75	85	100
HGM600S	75		85	100		85	100
HGM600H	100			125			125
HGM800S	75					70	85
HGM800H	100						85

Technical Information

Cascading Table

AC440/460 V

Upstream: HGM30, HGM50, HGM60, HGM100, HGM125, HGM160, HGM250, HGM400

Downstream: HiBD63, HiBD125, HGM30, HGM50, HGM60, HGM100

Upstream	HGM30		HGM50				HGM60				HGM100			
	E	S	E	S	H	L	E	S	H	L	E	S	H	L
Breaking capacity [Icu] (kA r.m.s.)	16	20	16	20	38	55	16	20	26	30	16	20	26	30
Downstream breaking capacity [Icu] (kA r.m.s.)	Enhanced breaking capacity													
HiBD63E	6	10	10	10	10	10	10	10	10	10	10	10	10	10
HiBD63S	7.5	14	14	14	14	14	14	14	14	14	14	14	14	14
HiBD63N	10			16	20	20	20	16	20	20	20	16	20	20
HiBD63H	15			16	20	26	26	16	20	20	20	16	20	20

Upstream	HGM125				HGM160				HGM250			
	E	S	H	L	E	S	H	L	E	S	H	L
Breaking capacity [Icu] (kA r.m.s.)	20	26	38	55	20	26	38	55	20	26	38	55
Downstream breaking capacity [Icu] (kA r.m.s.)	Enhanced breaking capacity											
HiBD63E	6	10	10	10	10	10	10	10	10	10	10	10
HiBD63S	7.5	14	14	14	14	14	14	14	14	14	14	14
HiBD63N	10	16	20	20	20	16	20	20	20	16	20	20
HiBD63H	15	16	20	26	26	16	20	26	26	16	20	26
HiBD125	15	16	20	26	26	16	20	26	26	16	20	26

Upstream	HGM30		HGM50				HGM60				HGM100			
	E	S	E	S	H	L	E	S	H	L	E	S	H	L
Breaking capacity [Icu] (kA r.m.s.)	16	20	16	20	38	55	16	20	26	30	16	20	26	30
Downstream breaking capacity [Icu] (kA r.m.s.)	Enhanced breaking capacity													
HGM30E	16	20		20	26	30		20	20	20		20	20	20
HGM30S	20				30	30			26	26			26	26
HGM50E	16			20	26	30		20	20	20		20	20	20
HGM50S	20				30	38			26	26			26	26
HGM50H	38					55								
HGM60E	16							20	20	20		20	20	20
HGM60S	20								26	26			26	26
HGM60H	26									30				30
HGM100E	16											20	20	20
HGM100S	20												26	26
HGM100H	26													30

Upstream	HGM125				HGM160				HGM250				HGM400				
	E	S	H	L	E	S	H	L	E	S	H	L	E	S	H	L	
Breaking capacity [Icu] (kA r.m.s.)	20	26	38	55	20	26	38	55	20	26	38	55	38	50	70	85	
Downstream breaking capacity [Icu] (kA r.m.s.)	Enhanced breaking capacity																
HGM30E	16	20	26	26	30	20	26	26	30	20	26	26	30	26	26	30	30
HGM30S	20		26	30	30		26	30	30		26	30	30		30	30	30
HGM50E	16	20	26	26	30	20	26	30	30	20	26	30	30	20	26	30	30
HGM50S	20		26	30	38		26	30	38		26	30	38	20	30	38	38
HGM50H	38				55				55				55		50	70	70
HGM50L	55														70	70	
HGM60E	16	20	26	26	30	20	26	26	30	20	26	26	30	26	26	30	30
HGM60S	20		26	30	30		26	30	30		26	30	30	26	30	30	30
HGM60H	26			30	38			30	38			30	38	30	38	38	38
HGM60L	30				38				38				38		38	38	38
HGM100E	16	20	26	26	30	20	26	26	30	20	26	26	30	26	26	30	30
HGM100S	20		26	30	30		26	30	30		26	30	30	26	30	30	30
HGM100H	26			30	38			30	38			30	38	30	38	38	38
HGM100L	26				38				38				38		38	38	38

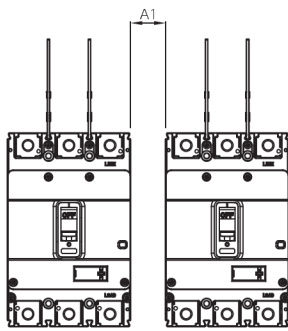
Technical Information

Installation

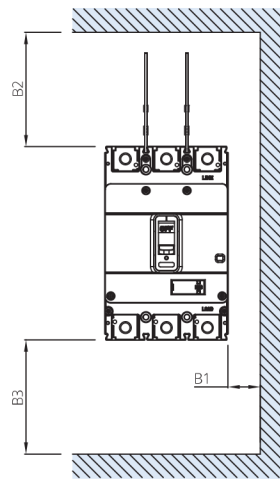
Insulation Distance

When installing a circuit breaker, safety clearances must be kept among the breakers, panels, busbars and other protection devices installed nearby. When a short circuit interruption occurs, high temperature gas occurs and the gas is expelled above the arc chambers of the circuit breaker. In order to allow the gas to be distributed and to prevent fire and arcing or short-circuit currents, safety clearances are required.

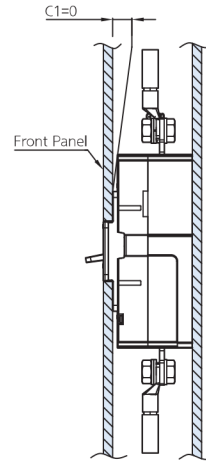
The separation distance in the case the circuit breaker is installed side by side.



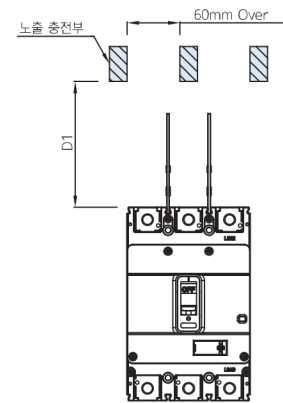
In the case of iron panels, the distance between the upper and base side or the right and left side.



In the case of iron panels, the distance between the front and back.



In the case that the live part is exposed, the distance from the circuit breaker.



※ Using minimum separation distance (A=0), you should assemble terminal cover and phase barrier between the product.

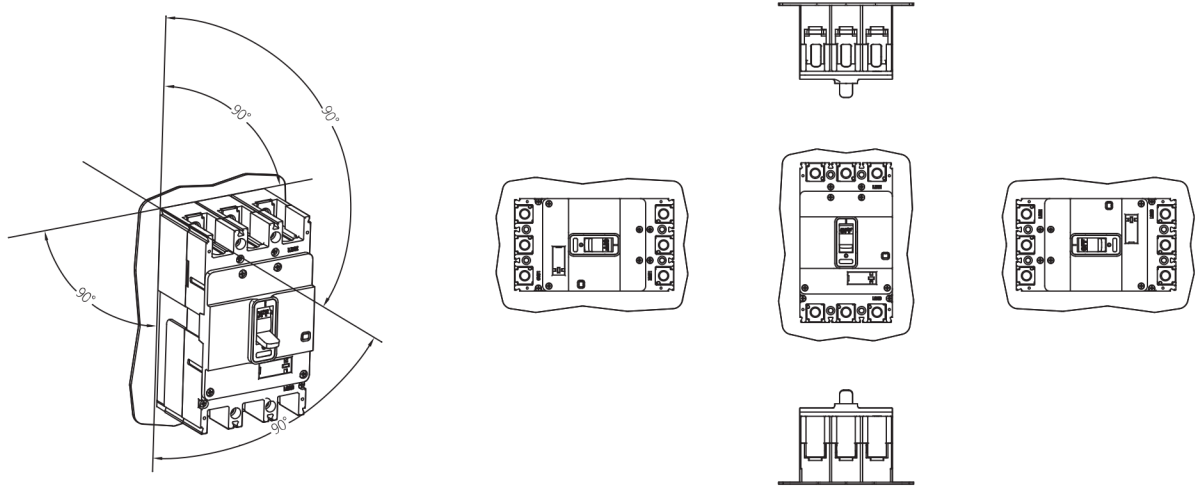
※ If the distance of both conductors is less than 60mm, please insulate the charging part.

HGM Type's Minimum Insulation Distance.

Type	Minimum Clearance (mm)											
	460V						240V					
	A1	B1	B2	B3	C1	D1	A	B1	B2	B3	C1	D1
HGM30 E/S	0	25	50	25	0	85	0	15	50	25	0	70
HGM50 E/S	0	25	50	25	0	85	0	15	50	25	0	70
HGM100 E/S/H/L	0	25	50	25	0	85	0	15	50	25	0	70
HGM50 H/L	0	25	50	25	0	85	0	15	50	25	0	70
HGM125 E/S/H/L	0	25	50	25	0	85	0	15	50	25	0	70
HGM160 E/S	0	25	80	40	0	140	0	15	80	40	0	110
HGM160 H/L	0	40	80	40	0	140	0	20	80	40	0	110
HGM250 E/S	0	25	80	40	0	140	0	15	80	40	0	110
HGM250 H/L	0	40	80	40	0	140	0	20	80	40	0	110
HGE30 E/S	0	25	50	25	0	85	0	15	50	25	0	70
HGE50 E/S	0	25	50	25	0	85	0	15	50	25	0	70
HGE100 E/S/H/L	0	25	50	25	0	85	0	15	50	25	0	70
HGE50 H/L	0	25	50	25	0	85	0	15	50	25	0	70
HGE125 E/S/H/L	0	25	50	25	0	85	0	15	50	25	0	70
HGE160 E/S	0	25	80	40	0	140	0	15	80	40	0	110
HGE160 H/L	0	40	80	40	0	140	0	20	80	40	0	110
HGE250 E/S	0	25	80	40	0	140	0	15	80	40	0	110
HGE250 H/L	0	40	80	40	0	140	0	20	80	40	0	110
HGM400 E/S	0	60	120	60	0	200	0	30	120	60	0	160
HGM400 H/L	0	80	120	60	0	200	0	40	120	60	0	160
HGM800 E/S	0	60	120	60	0	200	0	30	120	60	0	160
HGM800 H/L	0	80	120	60	0	200	0	40	120	60	0	160
HGE400 E/S	0	60	120	60	0	200	0	30	120	60	0	160
HGE400 H/L	0	80	120	60	0	200	0	40	120	60	0	160
HGE800 E/S	0	60	120	60	0	200	0	30	120	60	0	160
HGE800 H/L	0	80	120	60	0	200	0	40	120	60	0	160

Installation Angle

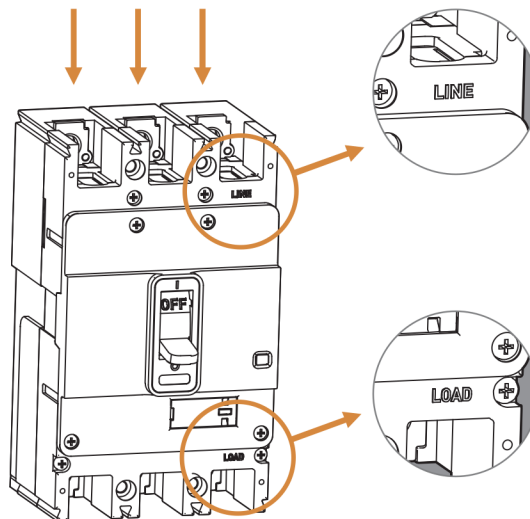
The HGM circuit breakers can be installed vertically or horizontally without changing any characteristics. Please refer to detail installation direction shown in the figure below.



Direction of Power Supply

HGM/HGE Type

Please confirm LINE/LOAD mark at circuit breaker's front cover before connecting terminal wire.

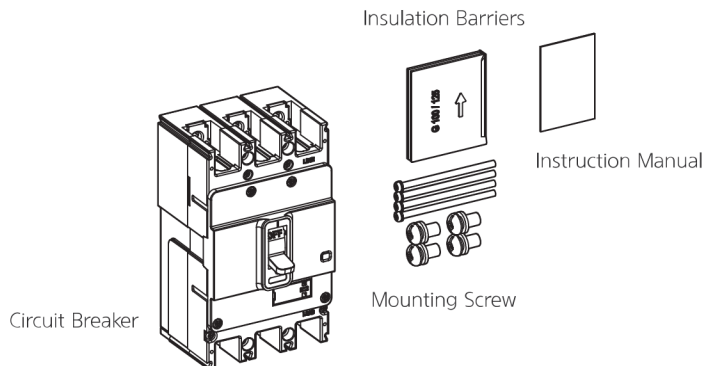






Technical Information

Standard Configuration

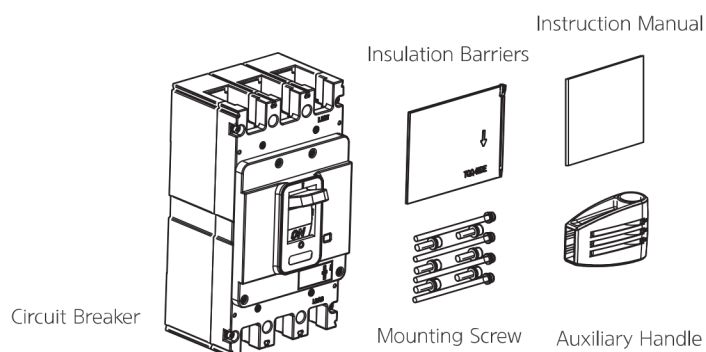
HGM/HGE Type





HGM/HGE100, 125, 250



MCCB/ELCB		Part				
HGM/HGE100	2P	2 EA (M4 x L70)	4 EA	(M5 x L15) (15 - 50 A)	(M8 x L15) (60 - 100 A)	1 EA
	3P	4 EA (M4 x L70)	6 EA			2 EA
	4P	6 EA (M4 x L70)	8 EA			3 EA
HGM/HGE125	2P	2 EA (M4 x L70)	4 EA (M8 x L15)		1 EA	
	3P	4 EA (M4 x L70)	6 EA (M8 x L15)		2 EA	
	4P	6 EA (M4 x L70)	8 EA (M8 x L15)		3 EA	
HGM/HGE250	2P	4 EA (M4 x L70)	4 EA (Hex socket M8 x L15)		1 EA	
	3P	4 EA (M4 x L70)	6 EA (Hex socket M8 x L15)		2 EA	
	4P	6 EA (M4 x L70)	8 EA (Hex socket M8 x L15)		3 EA	

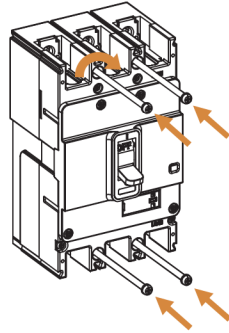
HGM/HGE400, 800



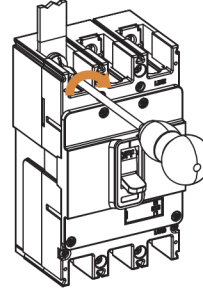
MCCB		Part				
HGM/HGE400	2P	4 EA (M5 x L98)	4 EA (M10 x L30)	1 EA	1 EA	
	3P	4 EA (M5 x L98)	6 EA (M10 x L30)	2 EA	1 EA	
	4P	6 EA (M5 x L98)	8 EA (M10 x L30)	3 EA	1 EA	
HGM/HGE630/800	2P	4 EA (M6 x L103)	4 EA (M12 x L30)	1 EA	1 EA	
	3P	4 EA (M6 x L103)	6 EA (M12 x L30)	2 EA	1 EA	
	4P	6 EA (M6 x L103)	8 EA (M12 x L30)	3 EA	1 EA	

MCCB/ELCB Assembly and Terminal Mounting Specification

HGM/HGE Type



Mounting



Terminal Connection

No	MCCB Type	Panel Mounting	Connection Terminal			
		Screw	Terminal (mm)	Screwing Torque	Conductor	Mounting Torque
1	HGM100	M4: 13 kgf.cm		 M5 x L15 (≤50) M8 x L15 (>50)	 0.5 (1.5 A-50 A) 0.9 (60 A-100 A)	M5: 28.5 kgf.cm M8: 110 kgf.cm
2	HGM125	M4: 13 kgf.cm		 M8 x L15		M8: 110 kgf.cm
3	HGM250	M4: 13 kgf.cm		 Hex Socket Bolt M8 x L15		Hex M8: 110 kgf.cm
4	HGM400	M5: 28.5 kgf.cm		 Hex Socket Bolt M10 x L30		Hex M10: 270 kgf.cm
5	HGM800	M6: 45 kgf.cm		 Hex Socket Bolt M12 x L30		Hex M12: 470 kgf.cm

Characteristic Curves & Dimensions

Characteristic Curves

Operation Characteristic Curve	70
Current & Energy-Limiting Characteristic Curve	75

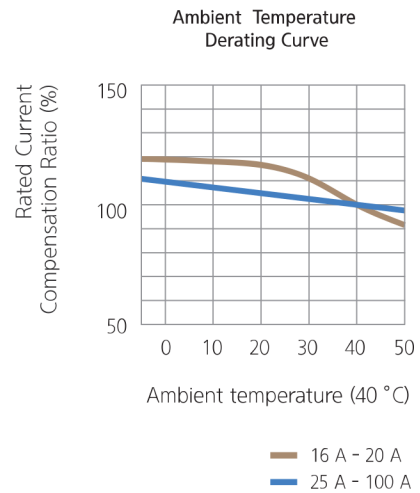
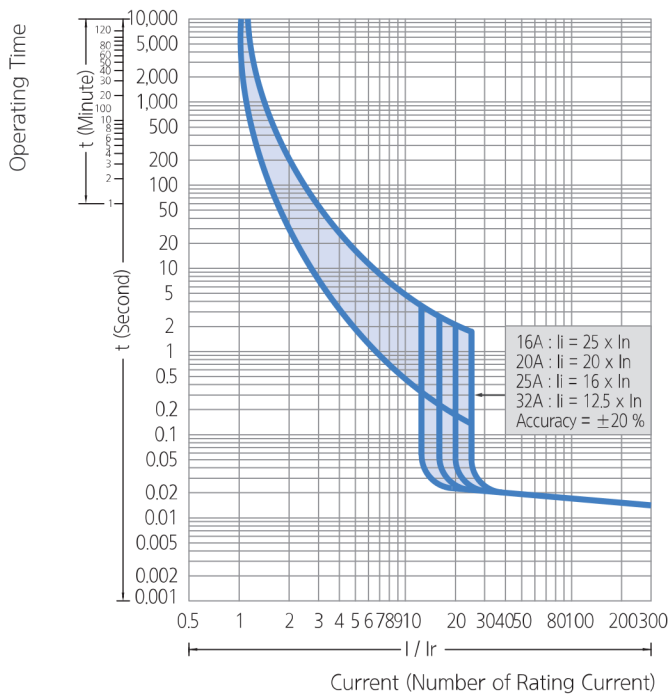
Dimensions

Front Connection Type	76
Rear Connection Type	86
Plug-In Type	91
Rotary Handle	102
Mechanical Interlock	107
Terminal Cover	112
Motor Operator	115
Lug Terminal	117
DIN Rail Adaptor	119

Operation Characteristic Curve

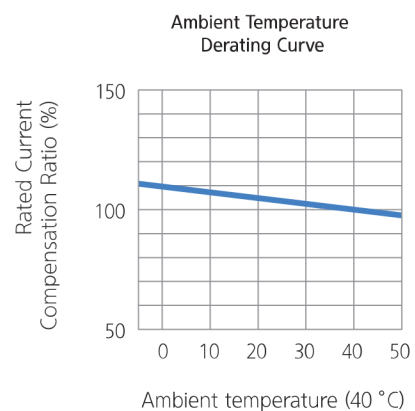
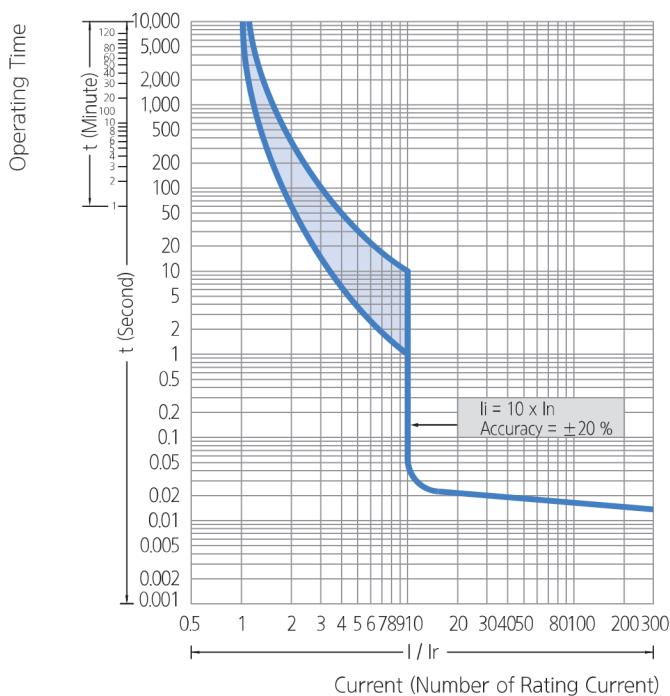
HGM/HGE100 (16 - 32 A)

• HGM/HGE30



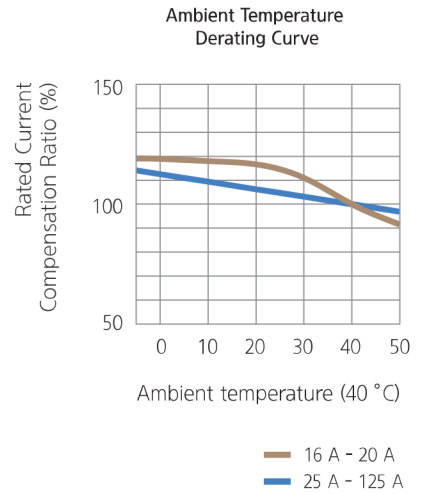
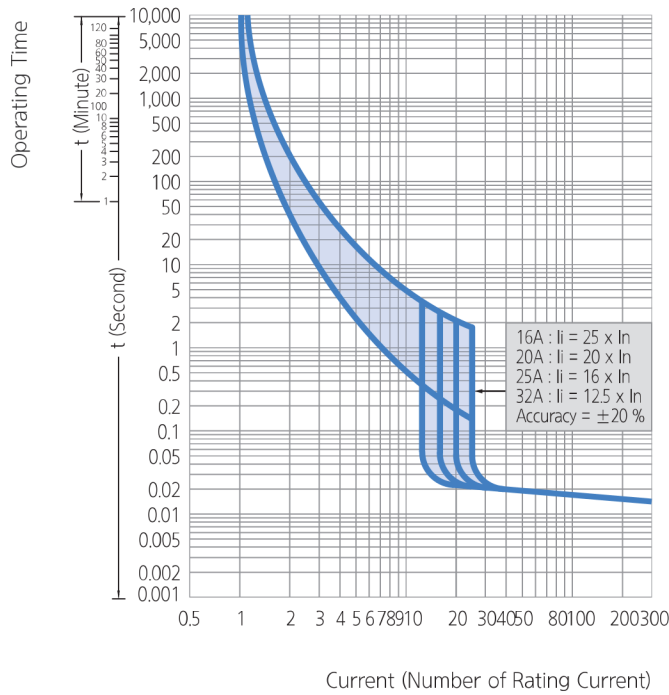
HGM/HGE100 (40 - 100 A)

• HGM/HGE50E/S, 60, 100



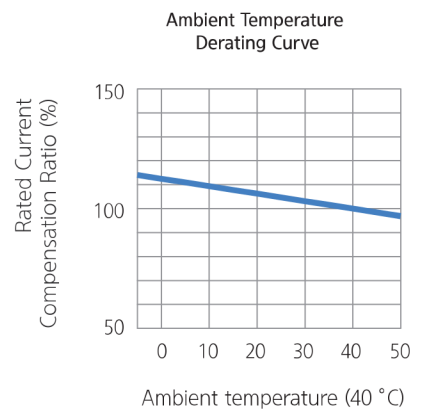
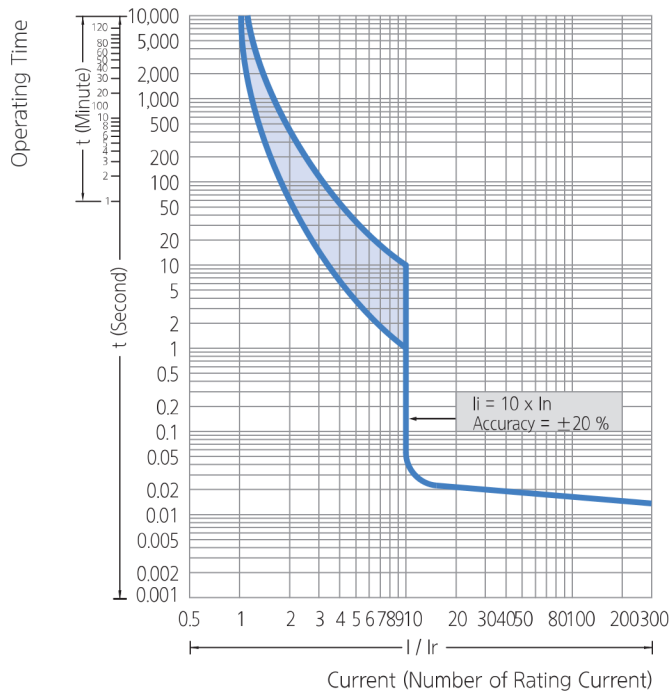
HGM/HGE125 (16 - 32 A)

• HGM/HGE50H/L



HGM/HGE125 (40 - 125 A)

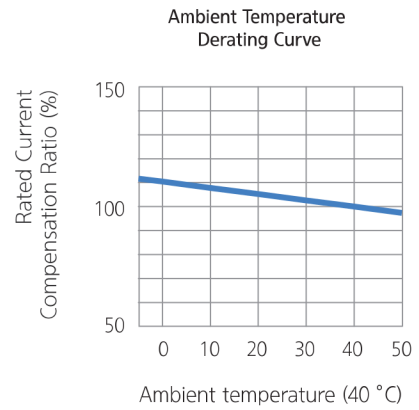
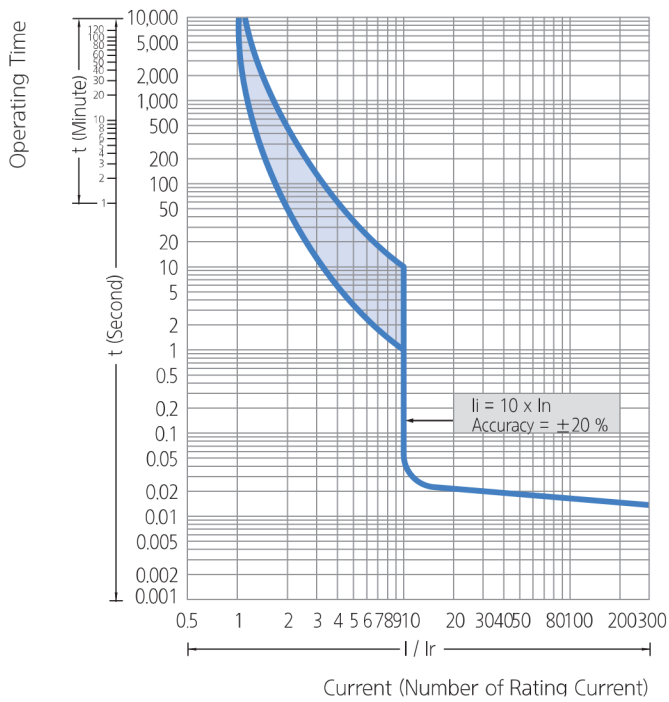
• HGM/HGE50H/L, 125



Operation Characteristic Curve

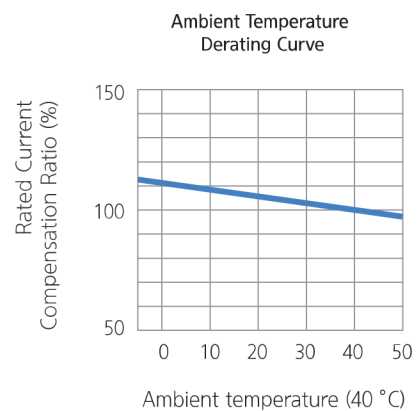
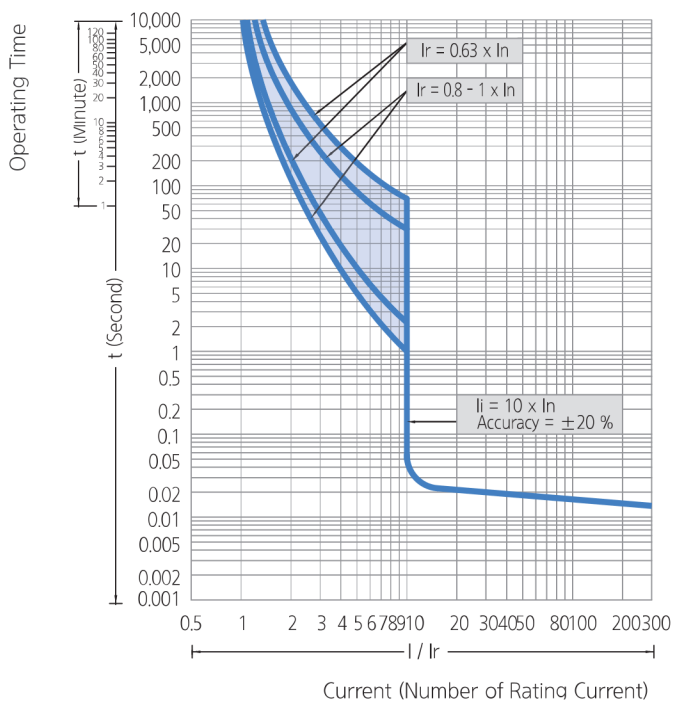
HGM/HGE250 (100 - 250 A)

• HGM/HGE250



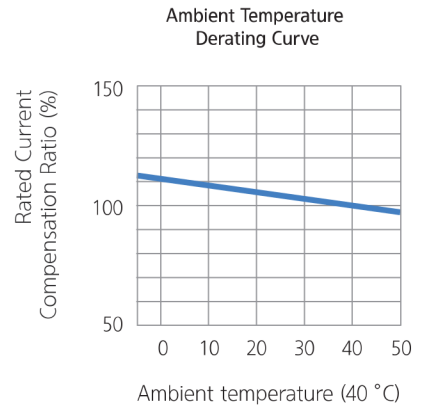
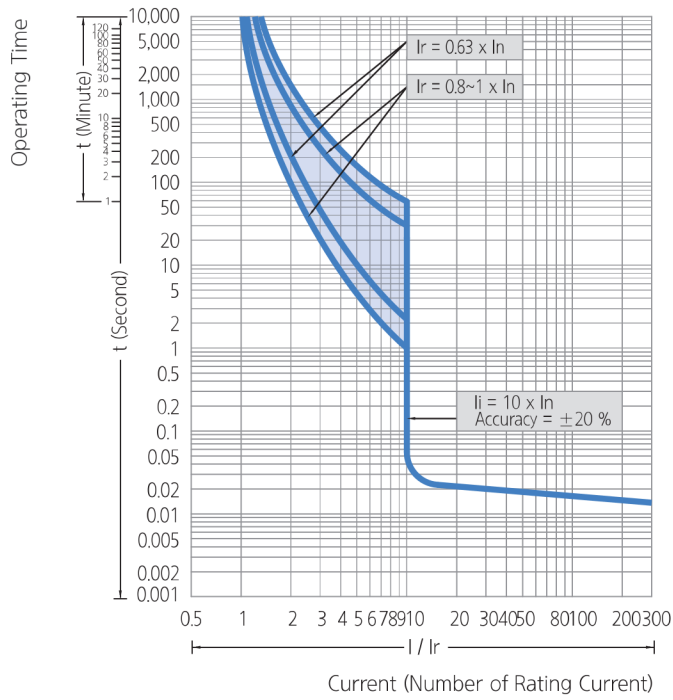
HGM400

• HGM400



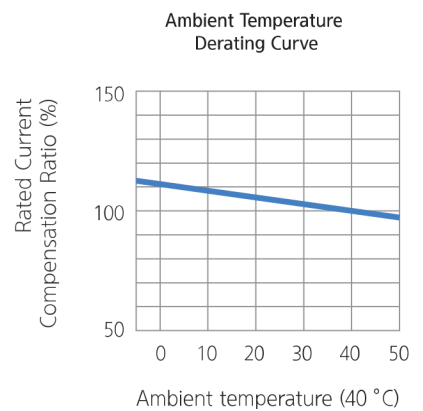
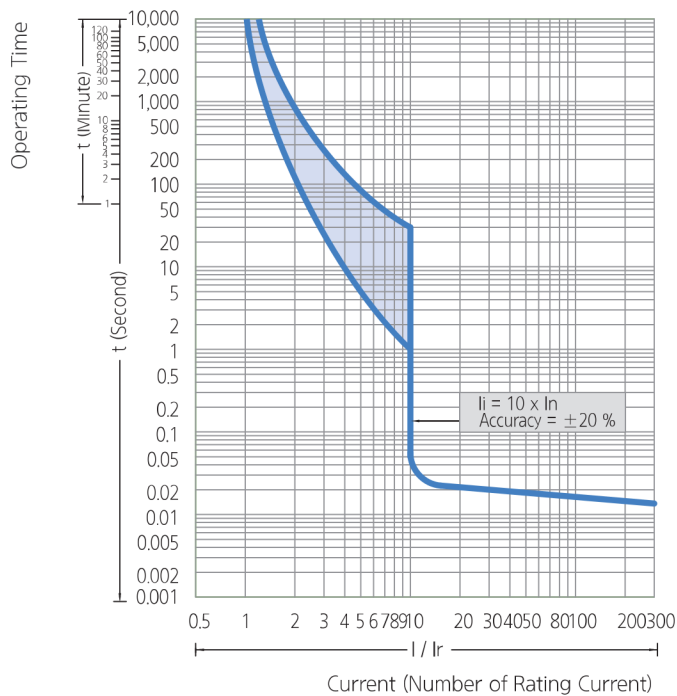
HGM800 (630 - 800 A)

• HGM630, 800



HGE400

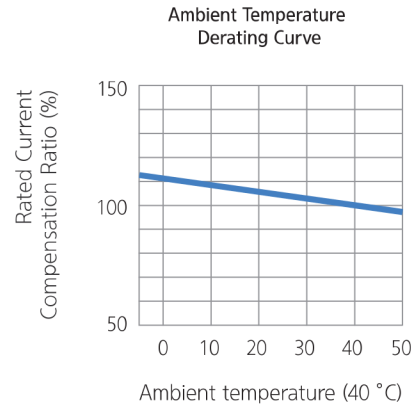
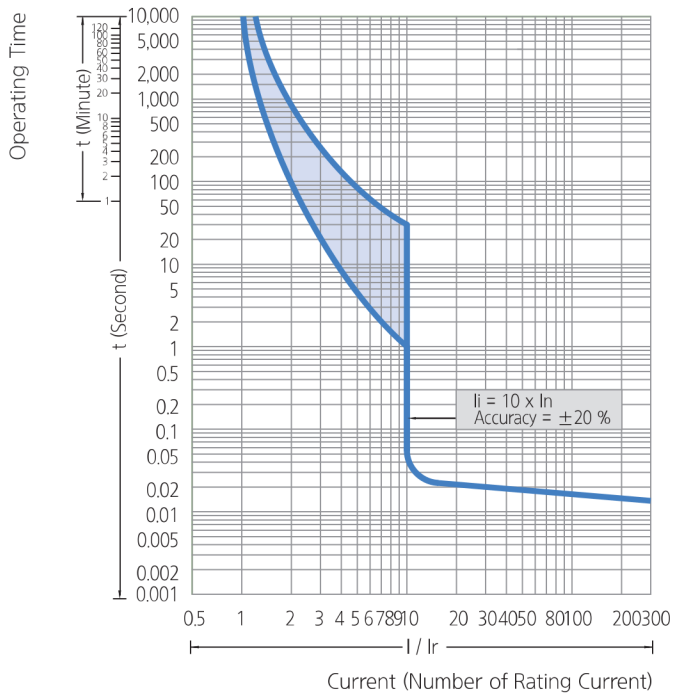
• HGE400



Operation Characteristic Curve

HGE800 (630 - 800A)

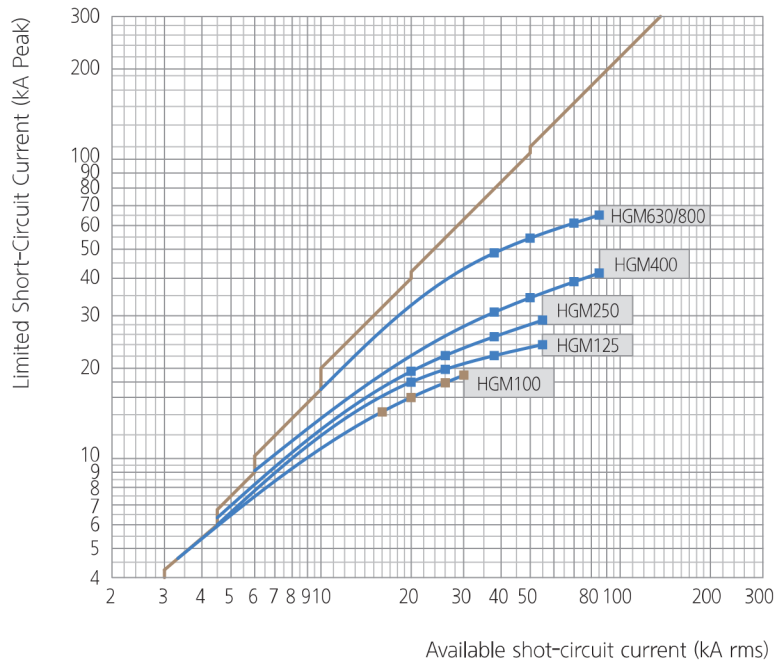
• HGE630, 800



Current & Energy-Limiting Characteristic Curve

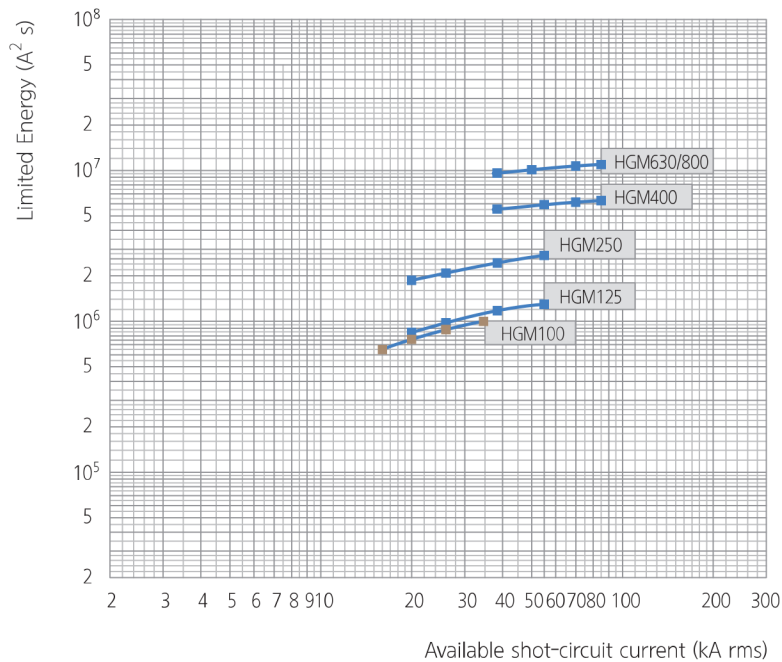
Current-Limiting Characteristic Curve

400/460V



Energy-Limiting Characteristic Curve

400/460V

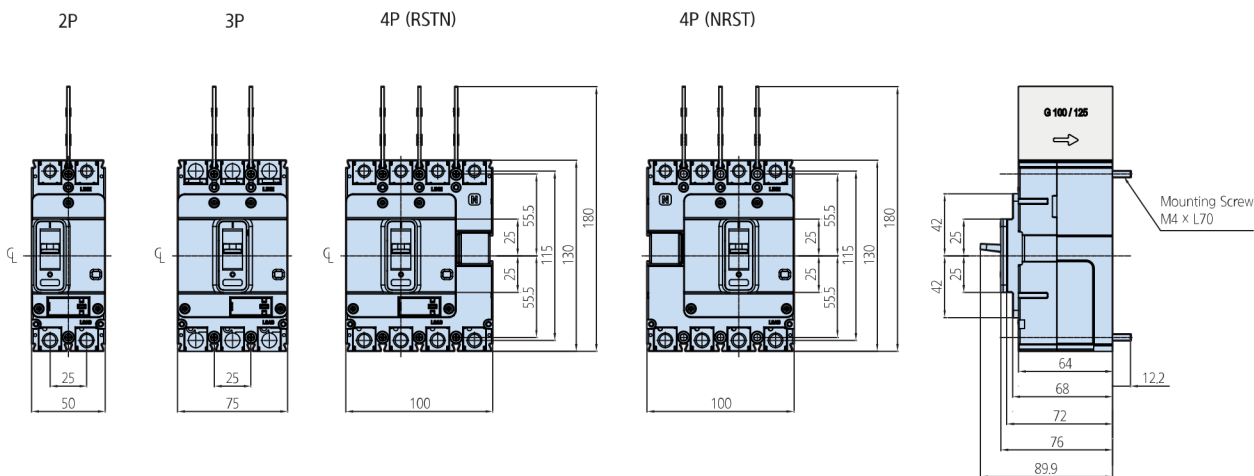


Dimensions

Front Connection Type HGM100

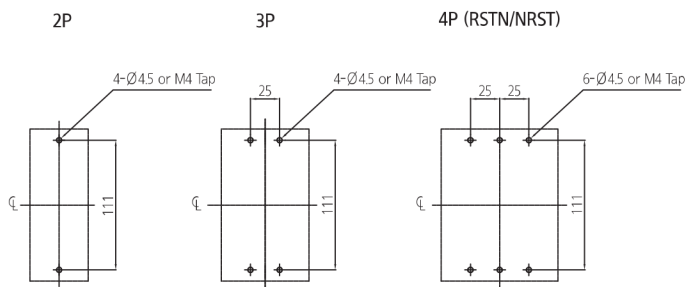
• HGM30, 50E/S, 60, 100

Dimensions

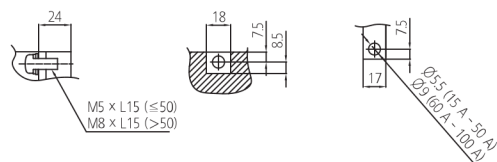


※ Insulation barriers for line side are provided as basic option.

Dimensions for Mounting Body



Terminal/Connection Bus Dimension

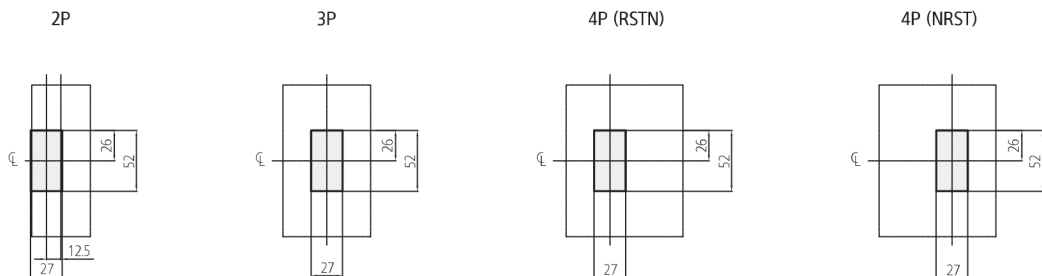


100AF

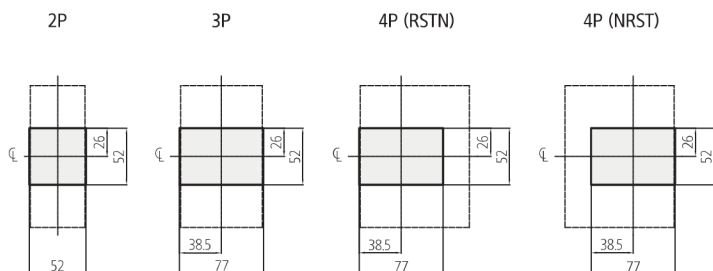
Specification of Mounting Screw: M4 x L70 P/W

Specification of Terminal Screw: (Less than 50 A) M5 x L15 P/W P/W
(Excess than 50 A) M8 x L15 S/W P/W

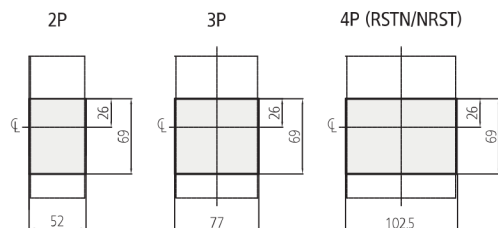
Panel Cover Cutting Dimensions for Handle



Panel Cover Cutting Dimensions for Handle/Test Button



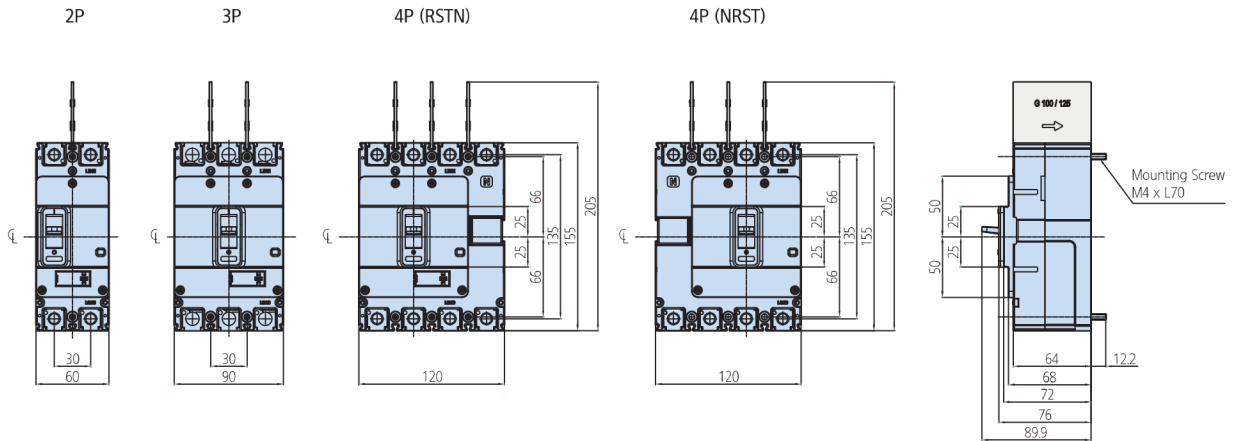
Panel Cover Cutting Dimensions for Handle/Trip Unit



Front Connection Type HGM125

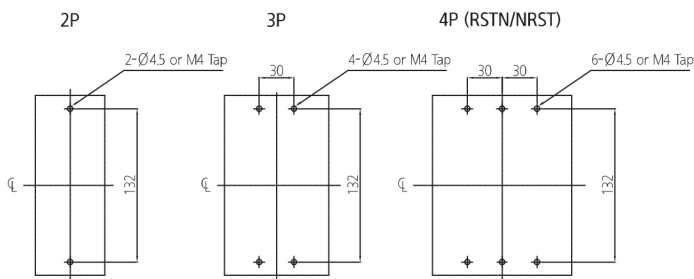
• HGM50H/L, 125

Dimensions

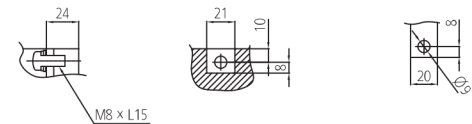


※ Insulation barriers for line side are provided as basic option.

Dimensions for Mounting Body



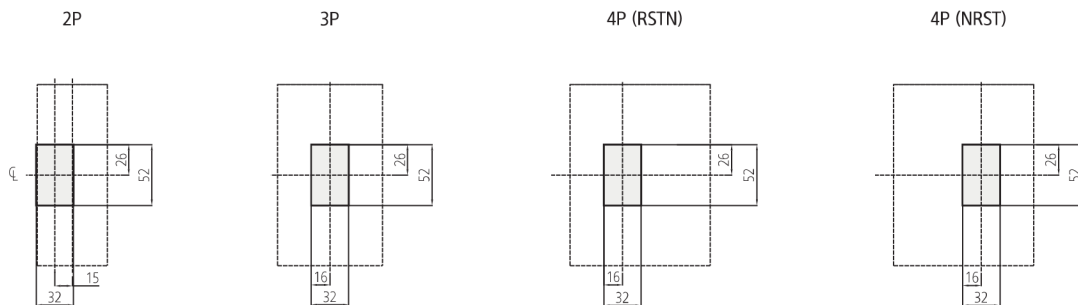
Terminal/Connection Bus Dimension



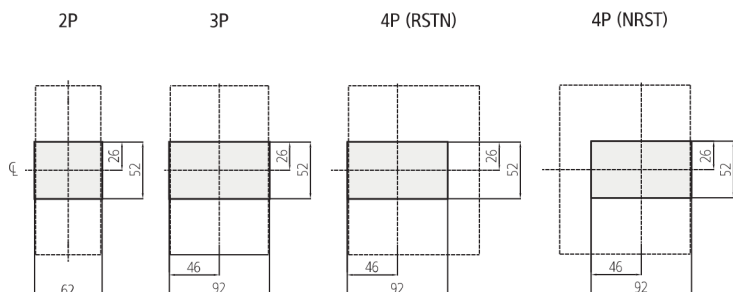
125AF

Specification of Mounting Screw: M4 x L70 P/W
Specification of Terminal Screw: M8 x L15 S/W P/W

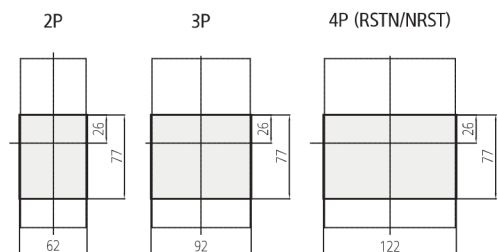
Panel Cover Cutting Dimensions for Handle



Panel Cover Cutting Dimensions for Handle/Test Button



Panel Cover Cutting Dimensions for Handle/Trip Unit

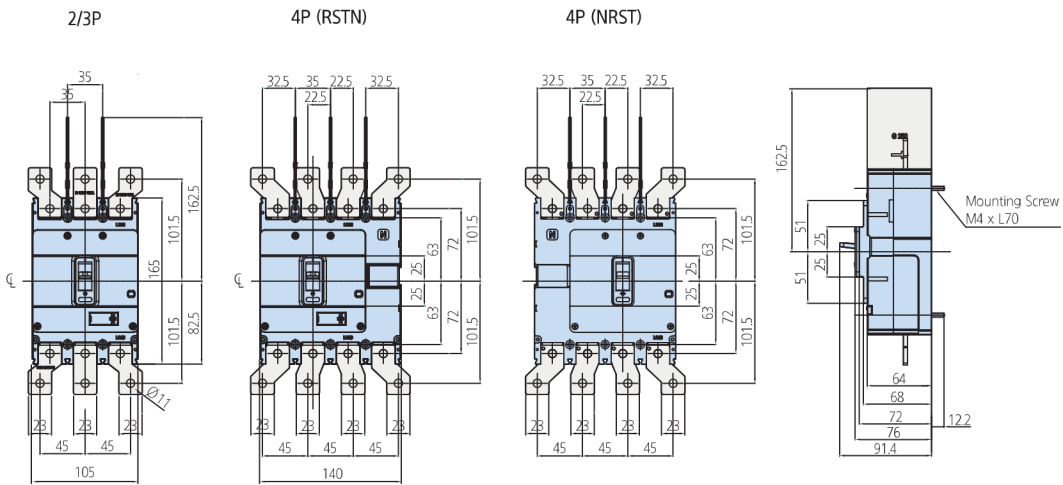


Dimensions

Front Connection Type HGM250

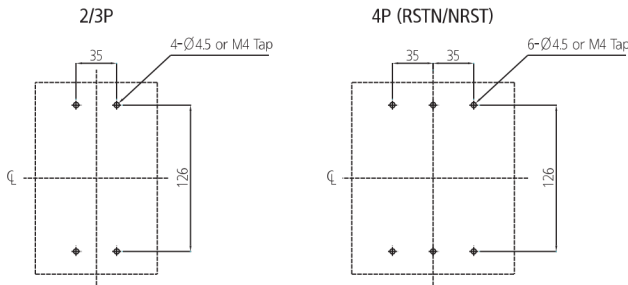
• HGM160, 250

Dimensions

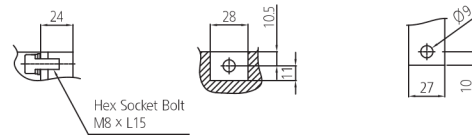


※ Insulation barriers for line side are provided as basic option.

Dimensions for Mounting Body



Terminal/Connection Bus Dimension

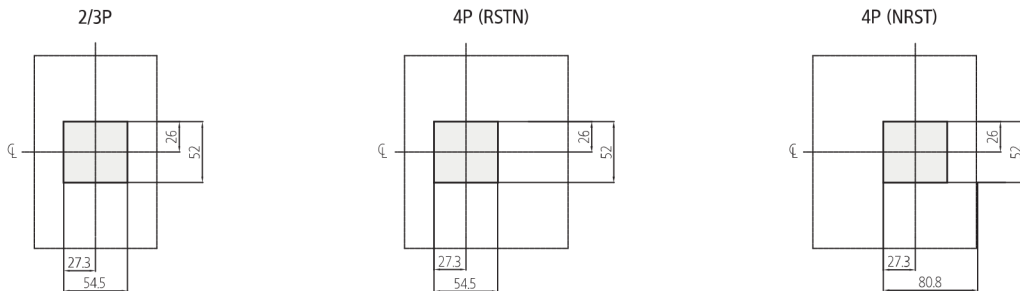


250AF

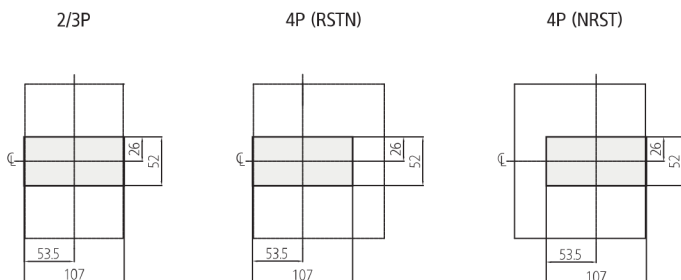
Specification of Mounting Screw: M4 x L70 P/W

Specification of Terminal Screw: Hex Socket Bolt: M8 x L15 S/W P/W

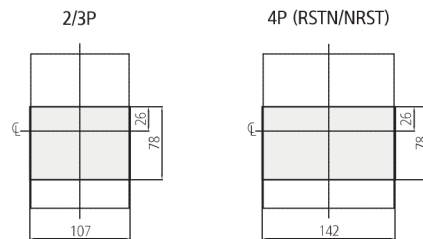
Panel Cover Cutting Dimensions for Handle



Panel Cover Cutting Dimensions for Handle/Test Button



Panel Cover Cutting Dimensions for Handle/Trip Unit

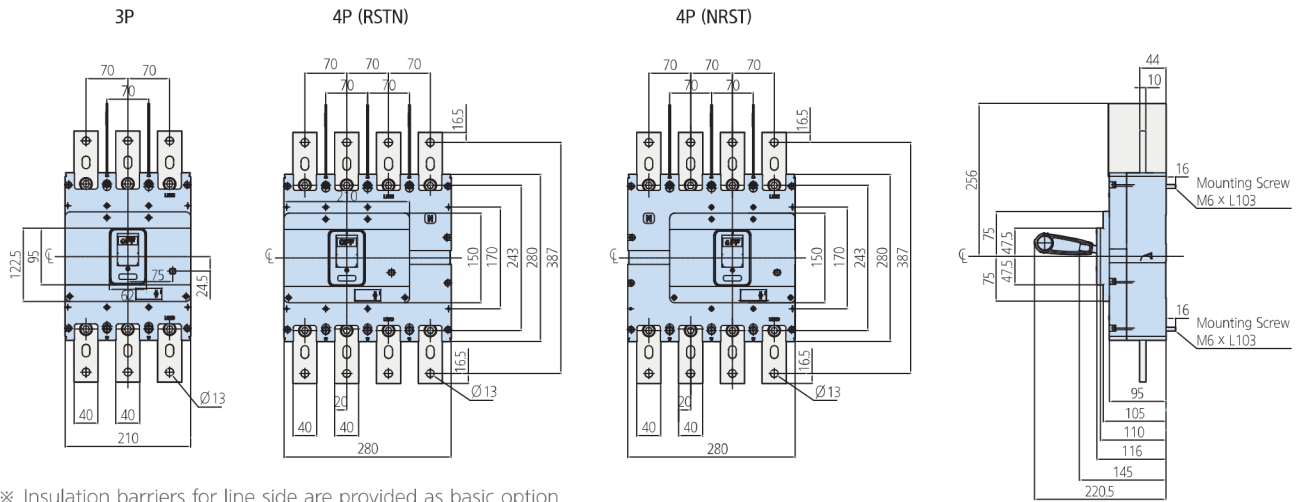


Dimensions

Front Connection Type HGM800

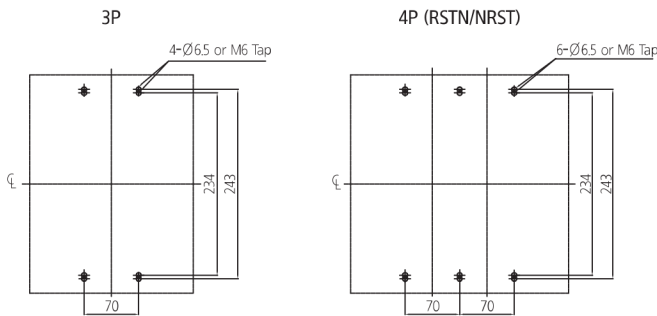
• HGM630, 800

Dimensions

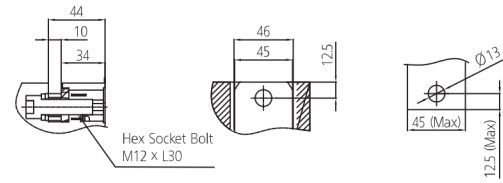


※ Insulation barriers for line side are provided as basic option.

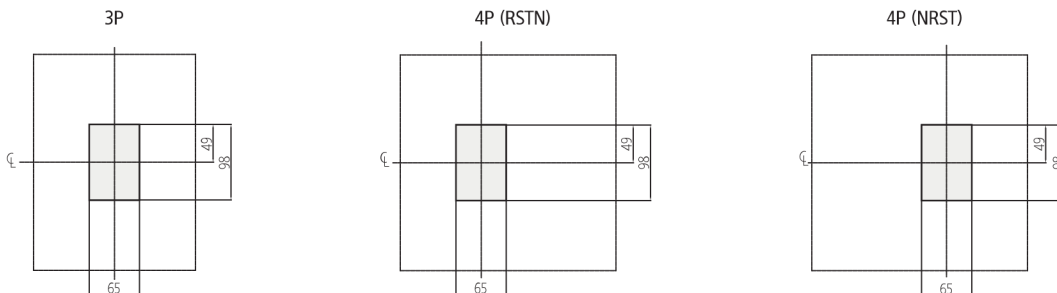
Dimensions for Mounting Body



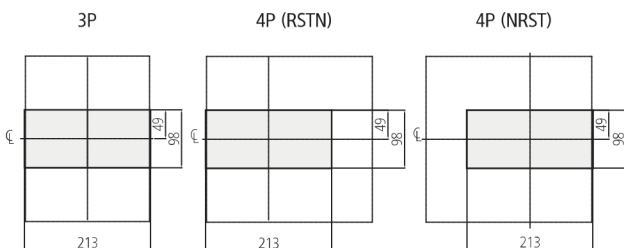
Terminal/Connection Bus Dimension



Panel Cover Cutting Dimensions for Handle



Panel Cover Cutting Dimensions for Handle/Test Button



Panel Cover Cutting Dimensions for Handle/Trip Unit

