



HGM1250, 1600

Molded Case Circuit Breakers

Model Selection Table

Things in common

Rated insulation voltage, U_i	1000 V
Rated operational voltage, U_e	690 V
Impulse withstand voltage, U_{imp}	8 kV
Protection function	Overload, short-circuit and instantaneous protection

Things in common

Suitability for isolation	Yes
Utilization category	B
Pollution degree	3
Reference standard	IEC60947-2

Model			HGM1000	HGM1250	HGM1600
Frame	(AF)		1,000	1,250	1,600
Pole	(P)		3,4 ¹⁾	3,4 ¹⁾	3
Rated current, at 40°C, Electric	(A)		1,000	1,000/1,250	1,600
Rated short-circuit breaking capacity [I _{cu}] (kA rms)	Recognition code for order		S	S	S
	AC660/690 V		25	25	25
	AC480/500 V		35	35	35
	AC440/460 V		45	45	45
	AC380/415 V		70	70	70
	AC220/240 V		100	100	100
Service breaking capacity [I _{cs}] (kA rms)	AC660/690 V		12.5	12.5	17.5
	AC480/500 V		17.5	17.5	24.5
	AC440/460 V		22.5	22.5	31.5
	AC380/415 V		65	65	50
	AC220/240 V		50	50	70
Rated short-time withstand current [I _{cw}] (kA) 1s			15	15	12*In
Endurance (Durability)	Mechanical		10,000	10,000	10,000
	Electrical		3,000	3,000	3,000
Trip Device			●	●	●
Electronic	Long time [LT, I _t]		0.4-0.5-0.6-0.7-0.8-0.9-0.95-1×In	0.4-0.5-0.6-0.7-0.8-0.9-0.95-1×In	0.4-0.5-0.6-0.7-0.8-0.9-0.95-1×In
	Short time [STD, I _t]		2-3-4-5-6-7-8-10×I _t	2-3-4-5-6-7-8-10×I _t	2-3-4-5-6-7-8-10×I _t
	Instantaneous [INST, I _t]		2-3-4-5-6-7-8-10×I _t	2-3-4-5-6-7-8-10×I _t	2-3-4-5-6-7-8-10×I _t
Accessory					
Internal	Auxiliary switch	AUX	●	●	●
	Alarm switch	ALT	●	●	-
	Shunt trip	SHT	●	●	●
	Undervoltage trip	UVT	●	●	●
External	Rotary handle	Extended TFH	●	●	-
	Motor operator	MOT	●	●	●
	Mechanical interlock	MIF	●	●	-
	Lock Mechanism with Key		●	●	-
	Draw-out		-	-	-
	Plug-in	TDM(LINE/LOAD)	-	-	-
		TDM(LINE Only)	-	-	-
	Cage terminal block	CTB	●	●	-
	Insulation terminal cover	TCF	●	●	●
	Insulation barrier	TQQ	Standard	Standard	Standard
	Terminal extensions	TBB	Standard	Standard	Standard
Installation and dimensions					
Connection/Installation	Front connection		Terminal busbar	Terminal busbar	Terminal busbar
	Rear connection		-	-	-
	Plug-in		-	-	-
Dimensions (mm)	a (3/4P)		210/280	210/280	210
	b		370	370	370
	c		124	124	155

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

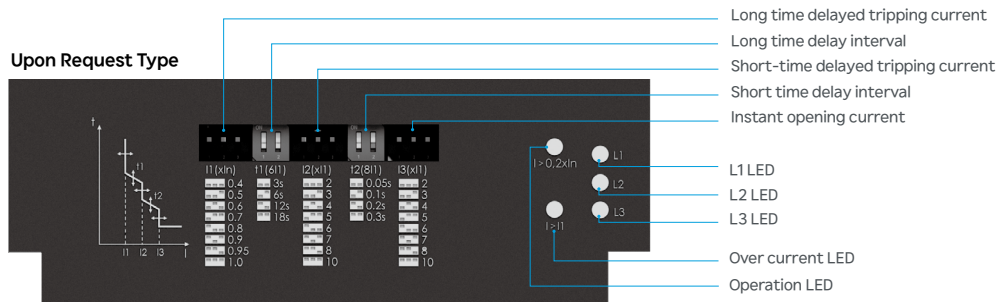
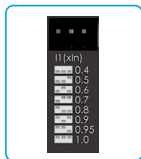
Product Features

HGM1000/1250/1600

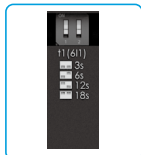
The HGM type maximizes diversity in product selection by developing a variety of products.

In addition, the newly developed HGM1250&1600 MCCB is an electronic type, so its characteristics can be adjusted.

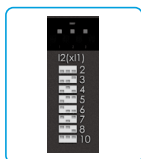
1250/1600AF



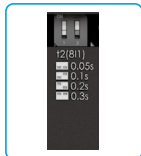
- The desired value can be set between %40 and %100 of I_1 switch and I_n breaker value.



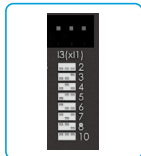
- Long time delay setting range is from 3~18 seconds. As tripping on $6I_1$ is time switched, tripping formula for over current outside $6I_1$ (Tripping time) = $[(6I_1)^2 \times t_1] / I^2$



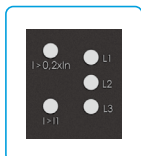
- I_2 switches may be adjusted in 2 to 10 times the current I_1



- I^2t "ON"; There are time delay in proportion with $(8 \times I_1)^2$ at the "ON" section. Card detects period of time in inverse proportion with the square root of the tripping current. (Tripping time) = $[(8 \times I_1)^2 / I^2] \times t_2$



- I_3 switch can be adjusted between 2 and 10 times the current I_1 . There is no any delay function.

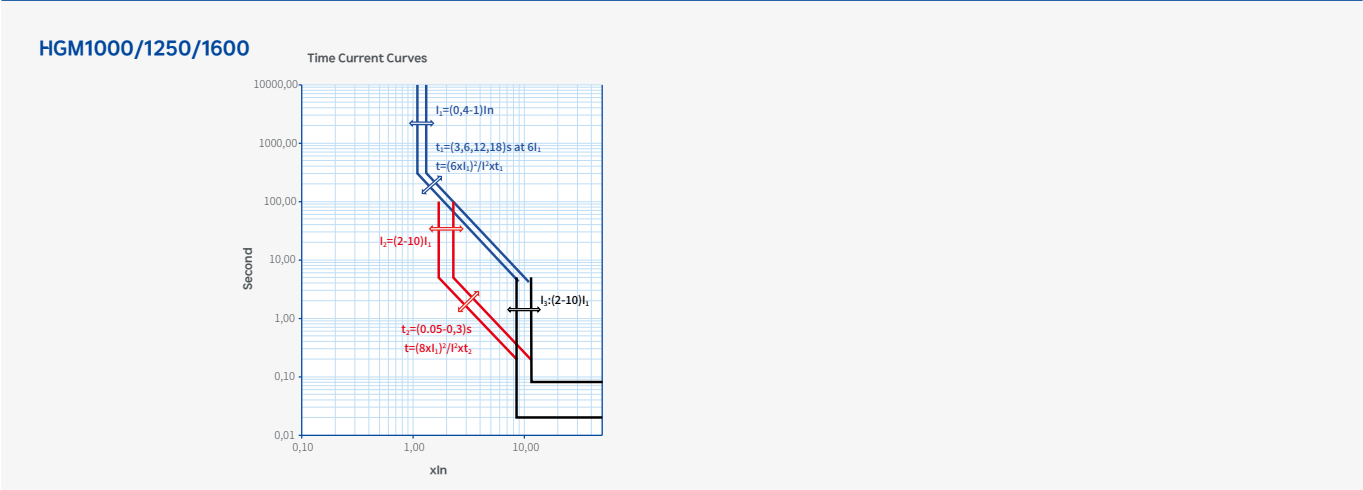


- L1, L2, L3: Indicates on which phase the over current passes through.
- $I > 0.2I_n$: Indicates that the card is operational and current passes through the circuit breaker.
- $I > I_n$: Indicates that current passes through the circuit breaker and if the situation does not return to normal, In accordance with release curve the circuit breaker will trip after a while.

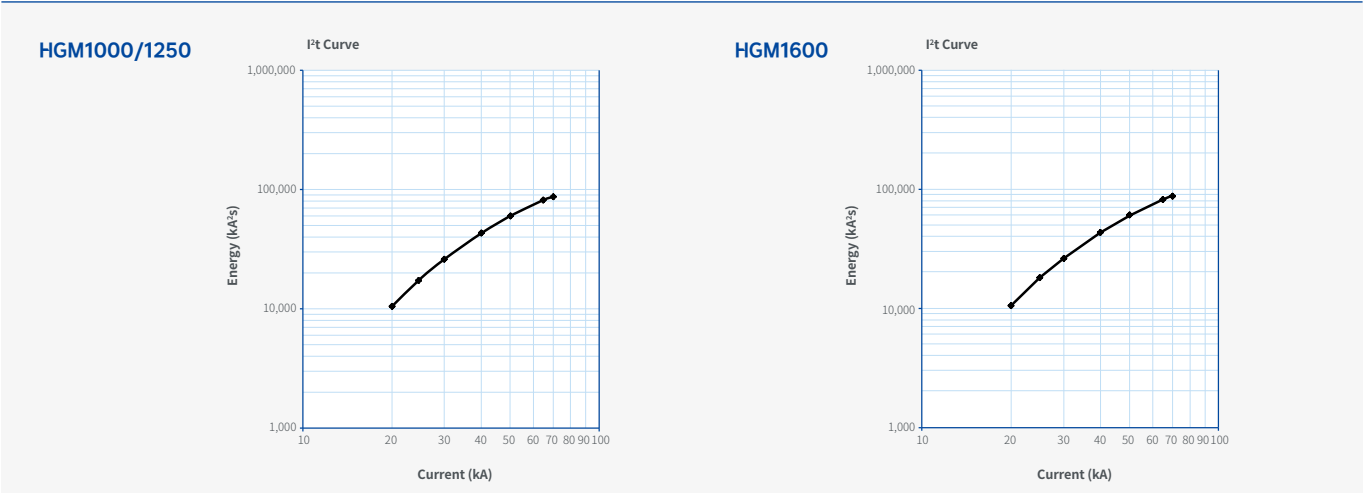


Characteristic Curve

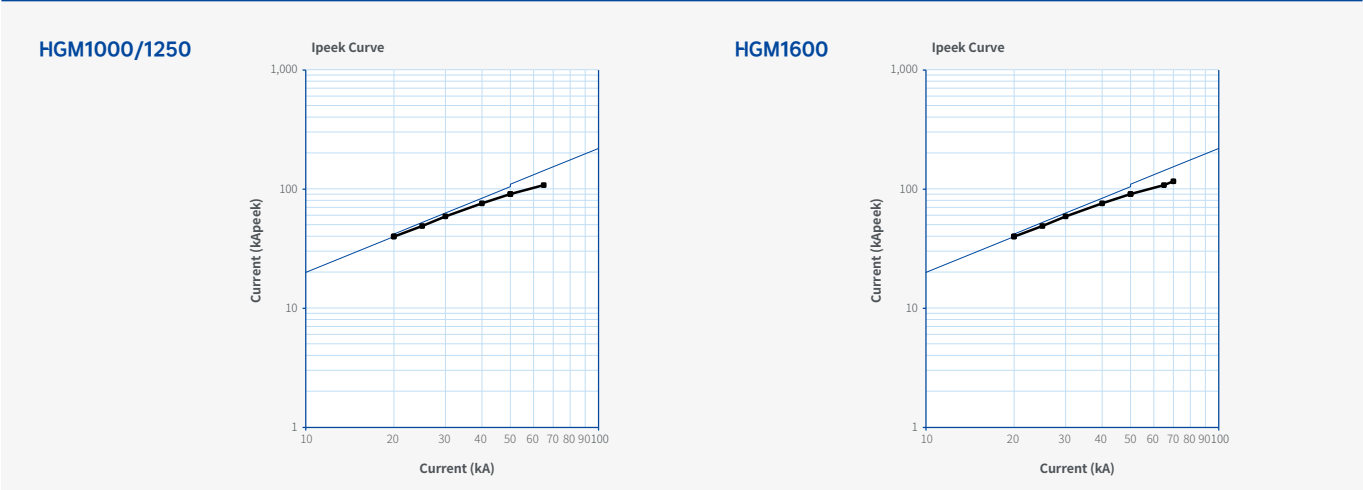
Operation Characteristic Curve



Energy-Limiting Characteristic Curve

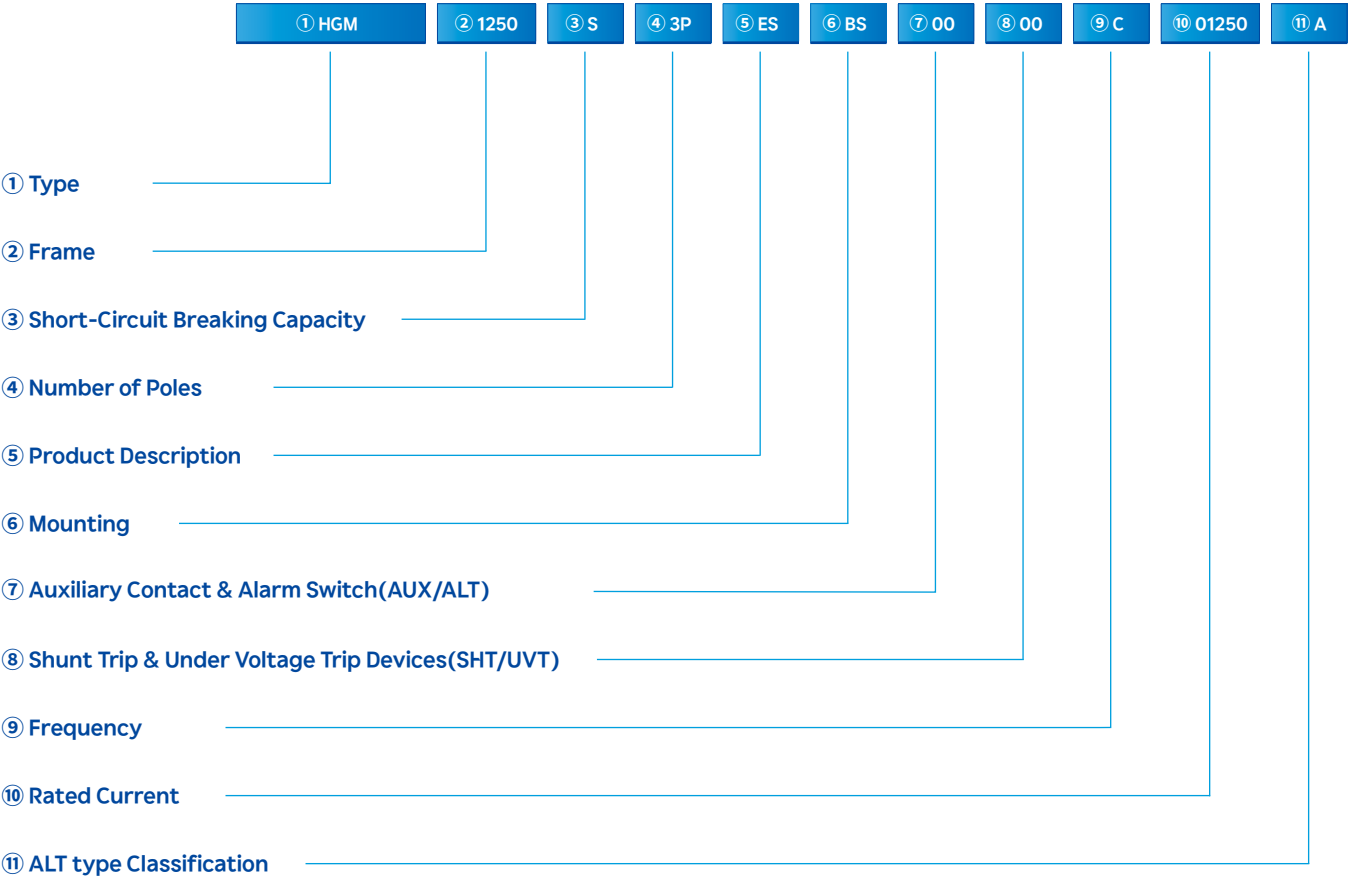


Current-Limiting Characteristic Curve



Order Information

Ordering Guidelines



① Type		④ Number of Poles		⑦ Auxiliary Contact & Alarm Switch(AUX/ALT)		⑩ Rated Current	
HGM	MCCB	3P	3 pole	00	Without	01000	1,000 A
		4PN ²⁾	4 pole(NRST)			01250	1,250 A
						01600	1,600 A
② Frame		⑤ Product Description		⑧ Shunt Trip & Under Voltage Trip Devices(SHT/UVT)		⑪ ALT type Classification	
1000	1,000 AF	MCCB	Electronic	00	Without	A	ALT mounting available
1250	1,250 AF	ES	Dip switch type				
1600	1,600 AF						
③ Short-Circuit Breaking Capacity ¹⁾		⑥ Mounting		⑨ Frequency			
S	70 kA	BS ³⁾	Terminal Bus Bar (Straight Type)	C	50/60 Hz in common		

※ 1) In case that the rated voltage is AC380/415 V
2) In case of 4P, The N phase is located on the left.(N-R-S-T)
3) A straight busbar is provided as standard.

Order Code for Accessories of HGM1000/1250/1600

① Signal

※ It is contact for indicating the status of the circuit breaker in a remote position.
This contact can be used realize not only the indication function but also electrical functions such as electrical lock and relay.

Product	HGM1000/1250	HGM1600	Note
Auxiliary Switch	AUX120GMSAC1	AUX160NER1	<ul style="list-style-type: none"> Indicates the ON/OFF status of the circuit breaker contact. Status is OFF during TRIP.
	AUX120GMSAC2	AUX160NER2	
Trip Alarm Switch	ALT120GMSR1	-	<ul style="list-style-type: none"> It is only activated when the circuit breaker has tripped due to an overload, short circuit or operation of shunt trip switch and does not operate during general ON/OFF. Returns to original state when circuit breaker has been reset.
Under Voltage Trip	UVT120GMSAC100-120V	UVT160NEP	<ul style="list-style-type: none"> In case the circuit voltage drops to less than 35% of the rated voltage (Un), UVT automatically initiates a trip in the circuit breaker to prevent damage to the load. Operation condition : $U < 0.7 \times U_n$ Closing condition : $U \geq 0.85 \times U_n$
	UVT120GMSAC200-230V		
	UVT120GMSAC380-415V		
	UVT120GMSAC440-480V		
Shunt Trip	SHT120GMSAC100-120V	SHT160NEH	<ul style="list-style-type: none"> Shunt trip device (SHT) is a device that remotely trips the circuit breaker by applying voltage to both terminals of the coil. Opening condition : $0.7 \times U_n \leq U < 1.1 \times U_n$
	SHT120GMSAC200-230V		
	SHT120GMSAC380-415V		
	SHT120GMSAC440-480V		

② Operating

Product	HGM1000/1250		HGM1600
	3P	4P	3P
Motor Operator	MOT120GMSAC/DC230V		MOT160GMSAC/DC230V
Operating Handle (Extended)	TFH120GMS3	TFH120GMS4	-
Auxiliary Handle	THA120GMS		-
Lock Mechanism with Key	KEY120GMS		-

③ Motor Operator Technical Data

Product	Order Code	Mechanical Life	Operational Voltage	Voltage Range	Max Operational Current(A)	Operating Time(s)		Power Consumption(W)
						Closing	Opening	
MOT120GMSAC/DC230V	MOT120GMSAC/DC230V	5000	230V AC/DC	85-110%	0.75	1	1	165
MOT160GMSAC/DC230V	MOT160GMSAC/DC230V	5000	230V AC/DC	85-110%	0.75	1	1	165

④ Terminal

Product	HGM1000/1250	
	3P	4P
Terminal Cover	TCF120GMSS3	TCF120GMSS4
Terminal Barrier	TQQ120GMS3	TQQ120GMS4

⑤ Possible Installation Combinations

Type	Pole	AUX	ALT	SHT	UVT	AXT	AUX ALT	SHT AUX	UVT AUX	SHT ALT	UVT ALT	SHT AXT	UVT AXT
HGM1000 HGM1250	3,4												

※ AUX : Auxiliary Switch □ / ALT : Alarm Switch ■ / SHT : Shunt Trip ▣ / UVT : Under-Voltage Trip ▤
AXT : Auxiliary Alarm Switch □■ (AUX/ALT Integrated Type)

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