SIEMENS

Product Guide

G-Frame Circuit Breakers

siemens.ca/powerdistribution

Advantages to reduce your installed cost

- Compact size saves space and helps reduce overall panel size.

- Interchangeable lugs and nut keepers for customer-supplied connections allow for last minute changes on site.

- CSA Certified / UL Listed field installable accessories allow for last minute changes on site. Also, inventory can be minimized as these accessories cover two families of Siemens breakers.

- Integral DIN rail or base mounting capability simplifies mounting the breaker without having to add plates or adapters.

General information

The Siemens GG circuit breaker is a compact, industrial design thermal magnetic breaker with valuable features for the global markets. These features include a design that meets multi-national standards, is suitable for DIN rail or base mounting without the need for adapters, and includes UL listed field installable accessories. The GG also has an overcenter toggle mechanism that is trip free and uses repulsion contact arm construction. Therefore, should a short circuit or tripping condition occur, the contacts are forced apart and the breaker cannot be held closed by means of the handle.

The GB/GB2 circuit breaker includes the same design features as the GG except the line end of the breaker is configured for panelboard mounting applications and it is without some of the global markings.

Applications:

- With their compact size, the GG circuit breakers are well suited for OEM designed equipment in both light commercial and industrial applications.
- The GG can be independently mounted on DIN rail or held in place by mounting screws.
- The GB/GB2 breaker is for panelboard mounted applications.
- These circuit breakers may be used as branch breakers in distribution systems.

Operating conditions:

- The GG circuit breakers are designed for use in enclosed rooms, in which there are no adverse operating conditions (e.g. dust, corrosive vapors, destructive gases).
- For installation in dusty and damp rooms or outdoors, suitable enclosures must be used.
- The G-Frame is factory calibrated for 40° C ambient.

125A frame
Type GG/GB/GB2

- Global rated (CSA/UL)
  CSA-C22.2 No. 5-02
  UL489
- HACR, SWD, and HID marked (at applicable ratings)
- Integral DIN rail or base mount without adapters (GG)
- CSA certified / UL Listed Listed field installable accessories
- Removable lugs
- 14kA@ 600/347V AC (GG)
  14kA @ 600/347V AC (NGB)
  14kA, 22kA, 25kA @600/347V AC(GB2)
- Compact Size
  3.0”W x 5.4”H x 2.8”D (1.0” wide per pole)
- 1, 2, 3 pole units
- Overcenter toggle and trip free mechanism
- Suitable for reverse feed applications
- Common trip
- Voltage ratings of 120V, 240V, 277V, 480V,
  480Y/277V AC, 600Y/347V AC
  DC rated at 125V, 250V DC

General information

Ratings and markings

Type	Current range (A)	HACR rated	SWD marked	HID marked
1 pole	15 - 125	15 - 125	15 - 20	15 - 50
2 pole	15 - 125	15 - 125	—	15 - 50
3-pole	15 - 125	15 - 125	—	15 - 50

Shipping weight

1 pole	2 poles	3 poles
0.9 lbs. / 0.4 kgs.	1.9 lb. / 0.9 kgs.	2.9 lbs. / 1.2 kgs.

Interrupting ratings (max. RMS symmetrical amperes kA)

		CSA-22.2 No. 5 / UL489								IEC 60947-2 (Ics = 50% Icu)		
		Volts AC						Volts DC		Volts AC		Volts DC
	Poles	120	240	277	347	480	600Y/347	125	125/250	240	415	125/250
NGG	1	65	—	25	14	—	—	14	—	25	—	—
	2, 3	—	65	—	—	25	14	—	14 [1)]	65	25	14 [1)]
HGGA	1	85	—	35	14	—	—	14	—	—	—	—
	2, 3	—	85	—	—	35	14	—	14 [1)]	—	—	—
LGGA	1	100	—	65	14	—	—	14	—	—	—	—
	2, 3	—	100	—	—	65	14	—	14 [1)]	—	—	—

		CSA-22.2 No. 5 / UL489							
		Volts AC						Volts DC	
	Poles	120	240	277	347	480Y/277	600Y/347	125	125/250
NGB/ NGB2	1	100	—	25	14	—	—	14	—
	2, 3	—	100	—	—	25	14	—	14 [1)]
HGB2	1	100	—	35	22	—	—	14	—
	2, 3	—	100	—	—	35	22	—	14 [1)]
LGB2	1	100	—	65	25	—	—	14	—
	2, 3	—	100	—	—	65	25	—	14 [1)]

G-Frame 1, 2 and 3 poles

Ampere rating	NGG catalog no.	HGG catalog number	LGG catalog number	NGB/NGB2 catalog number	HGB2 catalog number	LGB2 catalog number
In	(Cable in - Cable out)	(Cable in - Cable out)	(Cable in - Cable out)	(Low Tab Panelboard Mount)	(Low Tab Panelboard Mount)	(Low Tab Panelboard Mount)
15	NGG_B015L	HGG_B015L	LGG_B015L	NGB_K015B	HGB_K015B	LGB_K015B
20	NGG_B020L	HGG_B020L	LGG_B020L	NGB_K020B	HGB_K020B	LGB_K020B
25	NGG_B025L	HGG_B025L	LGG_B025L	NGB_K025B	HGB_K025B	LGB_K025B
30	NGG_B030L	HGG_B030L	LGG_B030L	NGB_K030B	HGB_K030B	LGB_K030B
35	NGG_B035L	HGG_B035L	LGG_B035L	NGB_K035B	HGB_K035B	LGB_K035B
40	NGG_B040L	HGG_B040L	LGG_B040L	NGB_K040B	HGB_K040B	LGB_K040B
45	NGG_B045L	HGG_B045L	LGG_B045L	NGB_K045B	HGB_K045B	LGB_K045B
50	NGG_B050L	HGG_B050L	LGG_B050L	NGB_K050B	HGB_K050B	LGB_K050B
60	NGG_B060L	HGG_B060L	LGG_B060L	NGB_K060B	HGB_K060B	LGB_K060B
70	NGG_B070L	HGG_B070L	LGG_B070L	NGB_K070B	HGB_K070B	LGB_K070B
80	NGG_B080L	HGG_B080L	LGG_B080L	NGB_K080B	HGB_K080B	LGB_K080B
90	NGG_B090L	HGG_B090L	LGG_B090L	NGB_K090B	HGB_K090B	LGB_K090B
100	NGG_B100L	HGG_B100L	LGG_B100L	NGB_K100B	HGB_K100B	LGB_K100B
110	NGG_B110L	HGG_B110L	LGG_B110L	NGB_K110B	HGB_K110B	LGB_K110B
125	NGG_B125L 1=1 pole 2=2 pole 3=3 pole L = Line & Load side lugs [2)]	HGG_B125L 1=1 pole 2=2 pole 3=3 pole L = Line & Load side lugs [2)]	LGG_B125L 1=1 pole 2=2 pole 3=3 pole L = Line & Load side lugs [2)]	NGB_K125B 1=1 pole 2=2 pole 3=3 pole B = Load side lugs [3)] K = NGB2 B = NGB	HGB_K125B 1=1 pole 2=2 pole 3=3 pole B = Load side lugs [3)]	LGB_K125B 1=1 pole 2=2 pole 3=3 pole B = Load side lugs [3)]

1) 2-pole only or two outer poles of 3-pole breaker.

2) This "L" indicates Line Side and Load Side lugs are supplied as standard. To order a GG without lugs, remove the L suffix.

3) This "B" indicates Load Side lugs are supplied as standard. To order a GB without lugs, remove the B suffix.

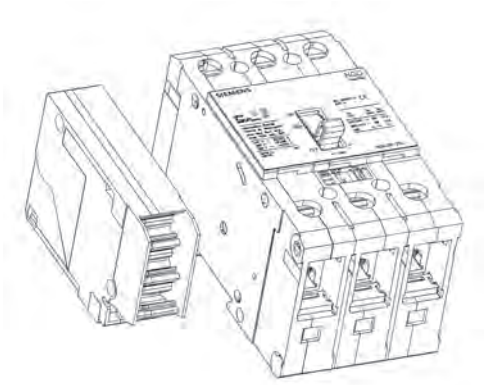
Internal accessories

Shunt trip, auxiliary switches, and alarm switches are operational devices that are contained within an add-on module for the GG/GB/GB2 circuit breakers. One module can be attached to the left side only of GG/GB/GB2 type circuit breaker. Each module can be installed in the field.

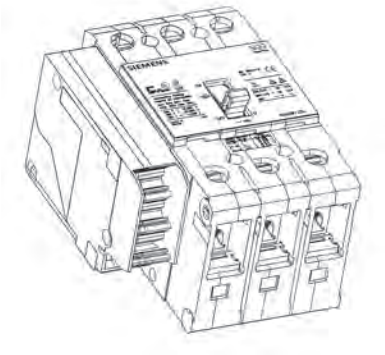
Shunt trip – A shunt trip is used to trip the breaker remotely. It is operated by providing voltage to the shunt trip coil. The coil in this device is designed to be energized only momentarily, so included is a built-in limit switch which opens the coil circuit after the breaker trips. With the circuit breaker in the tripped position, voltage cannot be applied through the coil circuit due to the open contacts in the limit switch. The operational range of this device is (70 to 110%) of the marked voltage rating.

Auxiliary switches – Auxiliary switches are used for remote indication of breaker contact position (ON or OFF). Each switch consists of "A" (normally open) and "B" (normally closed) contact with a common connection. These devices are typically used for signaling purposes.

Alarm switch – The alarm switch provides indication of breaker tripping. Alarm contacts operate off of the tripping mechanism of the circuit breaker and only change state when the breaker is tripped. Each alarm switch consists of 1 "A" (normally open) and 1 "B" (normally closed) contact, with a common connection. Sometimes these are also called Bell Alarms.



Mounted left side only, not available on single pole breakers.



Available accessory combinations

Shunt trip	Auxiliary switch	Alarm contact
1	0	0
0	1	0
0	2	0
1	1	0
0	0	1
0	1	1

Accessories

Shunt trip – Contains (1) shunt trip device. A combination includes a shunt trip device and an auxiliary switch with 1A-1B contacts.

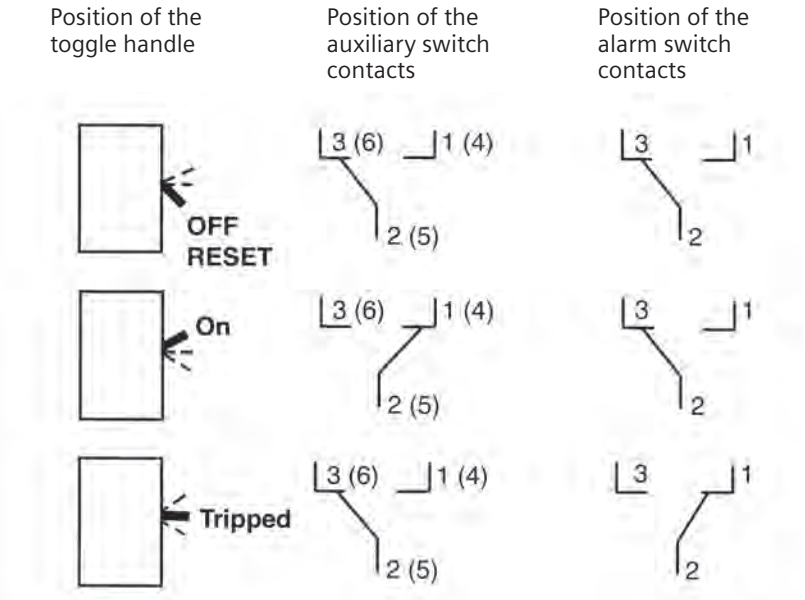
Control Voltage			Shunt trip	Shunt trip and auxiliary switch combination
AC	DC	Current draw	Catalog number	Catalog number
120	—	0.09A	CQDST120	CQDST120AAS
240	—	0.50A	CQDST240	CQDST240AAS
277	—	0.55A	CQDST277	CQDST277AAS
480	—	0.45A	CQDST480	CQDST480AAS
600	—	0.50A	CQDST600	CQDST600AAS
—	12	1.20A	CQDST12	CQDST12DAS
—	24	0.80A	CQDST24	CQDST24DAS
—	48	0.80A	CQDST48	CQDST48DAS
—	125	0.35A	CQDST125	CQDST125DAS

Auxiliary switch – Contains (1) or (2) sets of "A" contacts and "B" contacts.

Maximum control supply voltage U_s		Single auxiliary switch 1A-1B contact		Double auxiliary 2A-2B switch contacts	
AC	DC	Catalog number	Maximum operational current	Catalog number	Maximum operational current
240	125	CQDA1	@240V AC – 15A @125V DC – 0.5A	CQDA2	@240V AC – 15A @125V DC – 0.5A

Alarm switch – Contains (1) set of "A" and "B" contacts.

Maximum control supply voltage U_s		Single alarm switch Catalog number	Auxiliary and alarm switch Catalog number	Maximum operational current
AC	DC			
240	125	CQDBA	CQDA1BA	@240V AC – 15A @125V DC – 0.5A



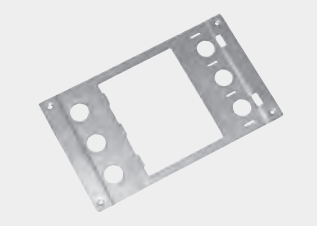
External accessories

Handle blocking device
BQDHBD

Handle padlock device
HPLG
(use BQDPLD in panelboards)

Mounting screw kit
MSKG4

Handle tie
BQDHT2 and BQDHT3
(with padlock)



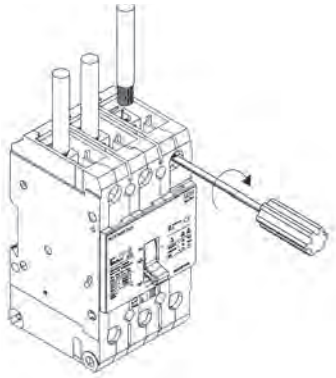
Face mounting plate
FMPG1 1-pole
FMPG2 2-pole
FMPG3 3-pole

Nut keeper plate
TNKG3 (kit of 3)

Terminal connectors

Lug information for G-Frame

Breaker Type	Ampere Rating	Cables Per Lug	Lug Wire Range	Catalog Number
NGG, HGG, LGG, NGB2, HGB2, LGB2, NGB	15-30	1	#14 - #6 AWG Cu #12 - #6 AWG Al	TC1Q1 (pkg. of 1)
	15-30	1	#14 - #6 AWG Cu #12 - #6 AWG Al	3TC1Q1 (pkg. of 3)
	35-125	1	#8 - #1/0 AWG Cu #8 - #2/0 AWG Al	3TC1GG20 (pkg. of 3)
NGG, HGG, LGG	15-125	-	NUT KEEPER PLATE	TNKG3 (pkg. of 3)



Distribution Lugs

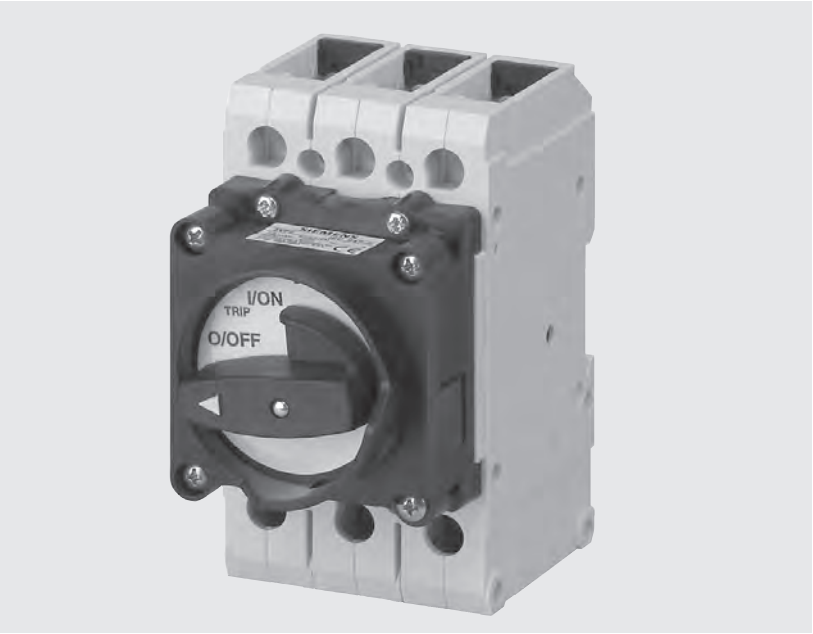
For circuit breaker types	Ampere rating	Poles	Lugs per kit	Wires per lug	Lug wire size	Catalog number
GG	15-125	1,2,3	1	6	#6-#4 AL #14-#4 Cu	TA6GG04

It is possible to remove these terminals of the G-Frame breaker to allow customer-supplied connections.

Nut Keeper Plates are available instead of lugs for use with customer-supplied connections.

1) For use with HGGA & LGGA breakers.

Accessories



Strap Kits

Catalog number	Description	Panelboard type
SGB2D	Branch breaker kit	S5/SMP/FCI/FCII
BBKGB32	Branch breaker kit CU/TIN	P2/P3
BBKGB32CS	Branch breaker kit CU/SILVER	P2/P3
BBKNB32 [3)]	_GB 6-pole 3" branch breaker kit – P2/P3	P2/P3

[3)] Kit contains top barrier, (3) A/C connectors, (1) B connector, hardware.

Handle Operators

Catalog number	Type	Description	NEMA enclosure	For use on breaker frame
RHVM12H	Manual Rotary Door Mount Handle Operator - D/M-FR	Standard Handle	1, 12, 12K	NGG, HGG, LGG, NGB, NGB2, HGB2, LGB2
RHVM3RH	Manual Rotary Door Mount Handle Operator - D-M	Metal Handle	1, 2, 3, 3R, 12, 12K, 13	NGG, HGG, LGG, NGB, NGB2, HGB2, LGB2
RHVMEMH	Manual Rotary Door Mount Handle Operator - DG-MG	Red & Yellow Handle	1, 2, 3, 3R, 12, 12K, 13	NGG, HGG, LGG, NGB, NGB2, HGB2, LGB2
RHVM4XH	Manual Rotary Door Mount Handle Operator - D-M	Metal Chrome Handle	1, 2, 3, 3R, 4, 4X, 12, 12K, 13	NGG, HGG, LGG, NGB, NGB2, HGB2, LGB2
RHVG79H	NFPA-79 Intermediate Handle	NFPA 79 Handle	ANY	NGG, HGG, LGG, NGB, NGB2, HGB2, LGB2
RHVGSxx [1]	Breaker Shaft with Bracket	Shaft	ANY	NGG, HGG, LGG, NGB, NGB2, HGB2, LGB2
RHVG163R	Rotary Handle Kit [2]	RHVM3RH + RHVGBM + RHVGS16	1, 2, 3, 3R, 12, 12K, 13	NGG, HGG, LGG, NGB, NGB2, HGB2, LGB2
RHVG164X	Rotary Handle Kit [2]	RHVM4XH + RHVGBM + RHVGS16	1, 2, 3, 3R, 4, 4X, 12, 12K, 13	NGG, HGG, LGG, NGB, NGB2, HGB2, LGB2
MFHG3R	MaxFlex Handle - 3R	Handle/Frame	1, 3, 3R, 4, 12, 12K	NGG, HGG, LGG, NGB, NGB2, HGB2, LGB2
MFMG	MaxFlex Breaker Operating Mechanism	Breaker Operator	ANY	NGG, HGG, LGG, NGB, NGB2, HGB2, LGB2
MFKG3R3	MaxFlex Kit [3]	MFHG3R + MFMG + MFCF036 + 36″ cable	1, 2, 3, 3R, 12, 12K, 13	NGG, HGG, LGG, NGB, NGB2, HGB2, LGB2
MFKG3R4	MaxFlex Kit [3]	MFHG3R + MFMG + MFCF048 + 36″ cable	1, 2, 3, 3R, 12, 12K, 13	NGG, HGG, LGG, NGB, NGB2, HGB2, LGB2
MFKG4X3	MaxFlex Kit [3]	MFHG4X + MFMG + MFCF036 + 36″ cable	1, 2, 3, 3R, 4, 4X, 12, 12K, 13	NGG, HGG, LGG, NGB, NGB2, HGB2, LGB2
MFKG4X4	MaxFlex Kit [3]	MFHG4X + MFMG + MFCF048 + 48″ cable	1, 2, 3, 3R, 4, 4X, 12, 12K, 13	NGG, HGG, LGG, NGB, NGB2, HGB2, LGB2

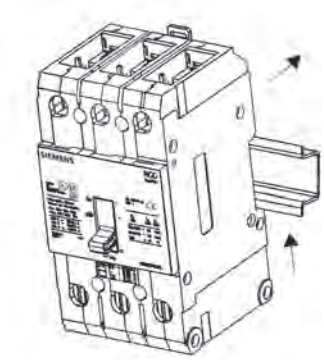
[1] xx = Represents length of shaft ; 12 or 16.
[2] Rotary Handle Kit includes: Handle, breaker operating mechanism, breaker shaft
[3] MaxFlex Kit includes: 3R/4X handle, breaker operating mechanism, cable

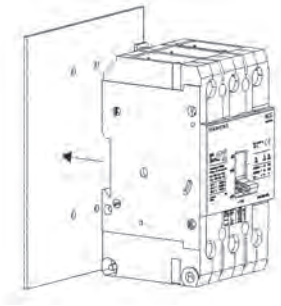
Accessories

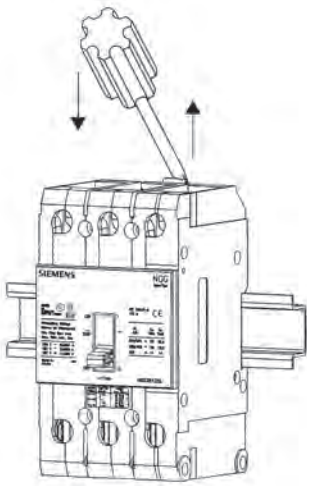
The GG series of Siemens circuit breakers can be mounted in several manners.

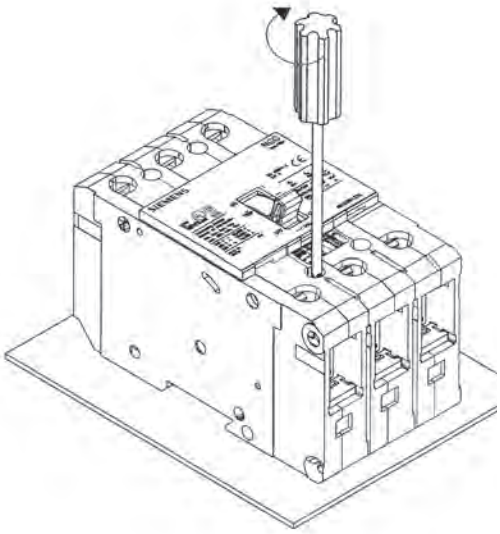
1) Mounted on 35x7.5mm or 35x15mm DIN rail

2) Mounted to customer supplied surface using Mounting Screw Kit – MSKG4



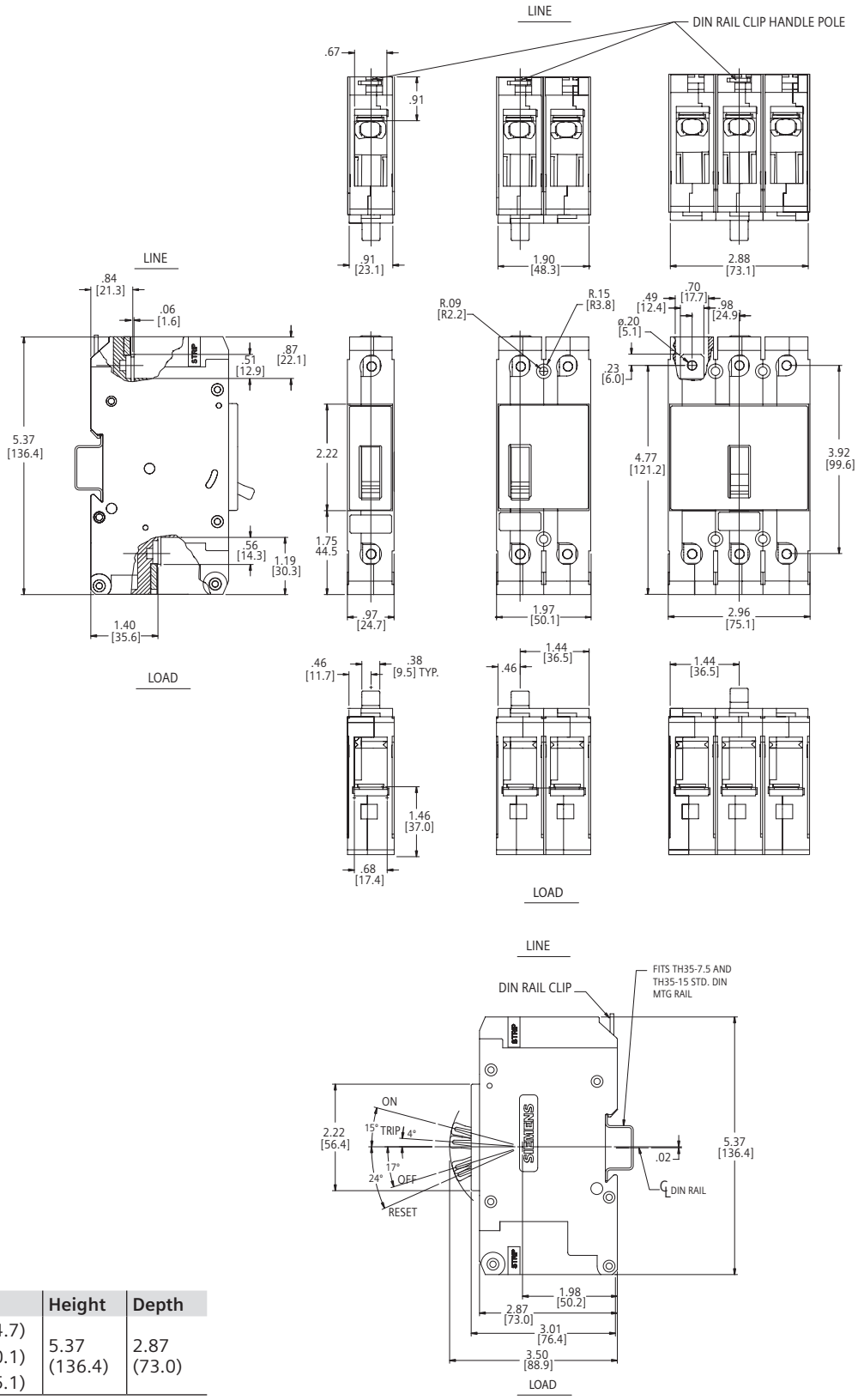






Dimensions

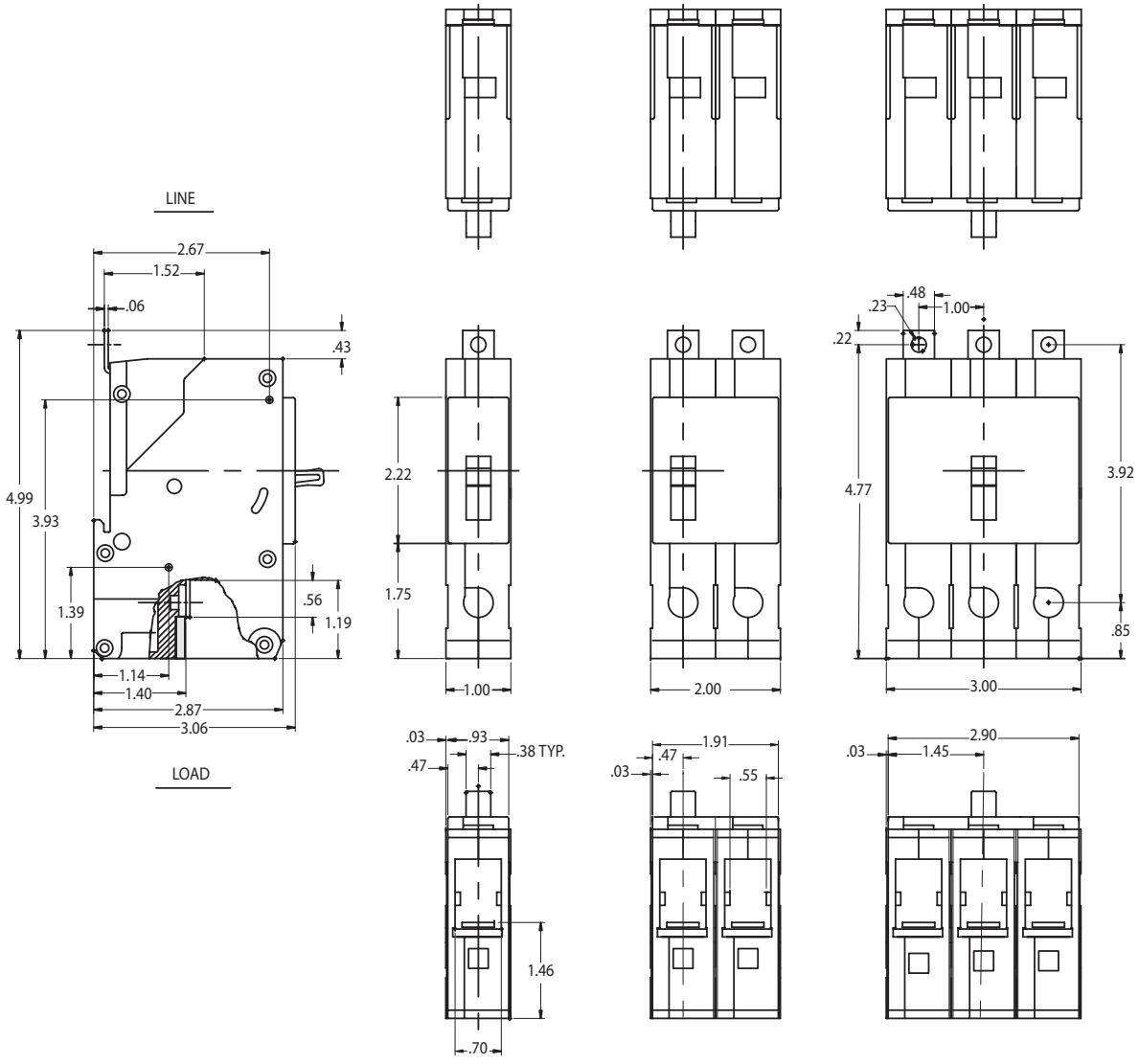
GG Frame Outline Drawing – 1, 2, 3 Pole

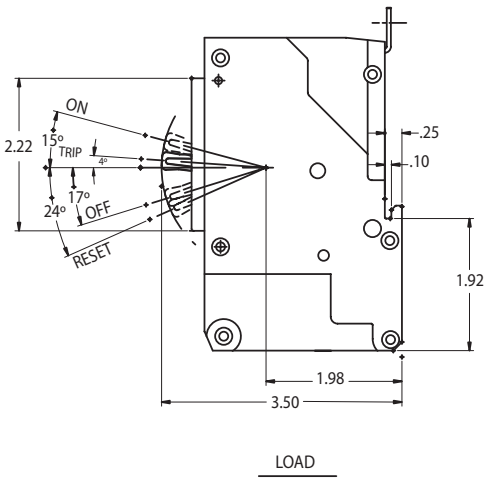


	Width	Height	Depth
1 Pole	0.97 (24.7)	5.37 (136.4)	2.87 (73.0)
2 Pole	1.97 (50.1)		
3 Pole	2.96 (75.1)		

Dimensions

GB/GB2 Frame Outline Drawing – 1, 2, 3 Pole

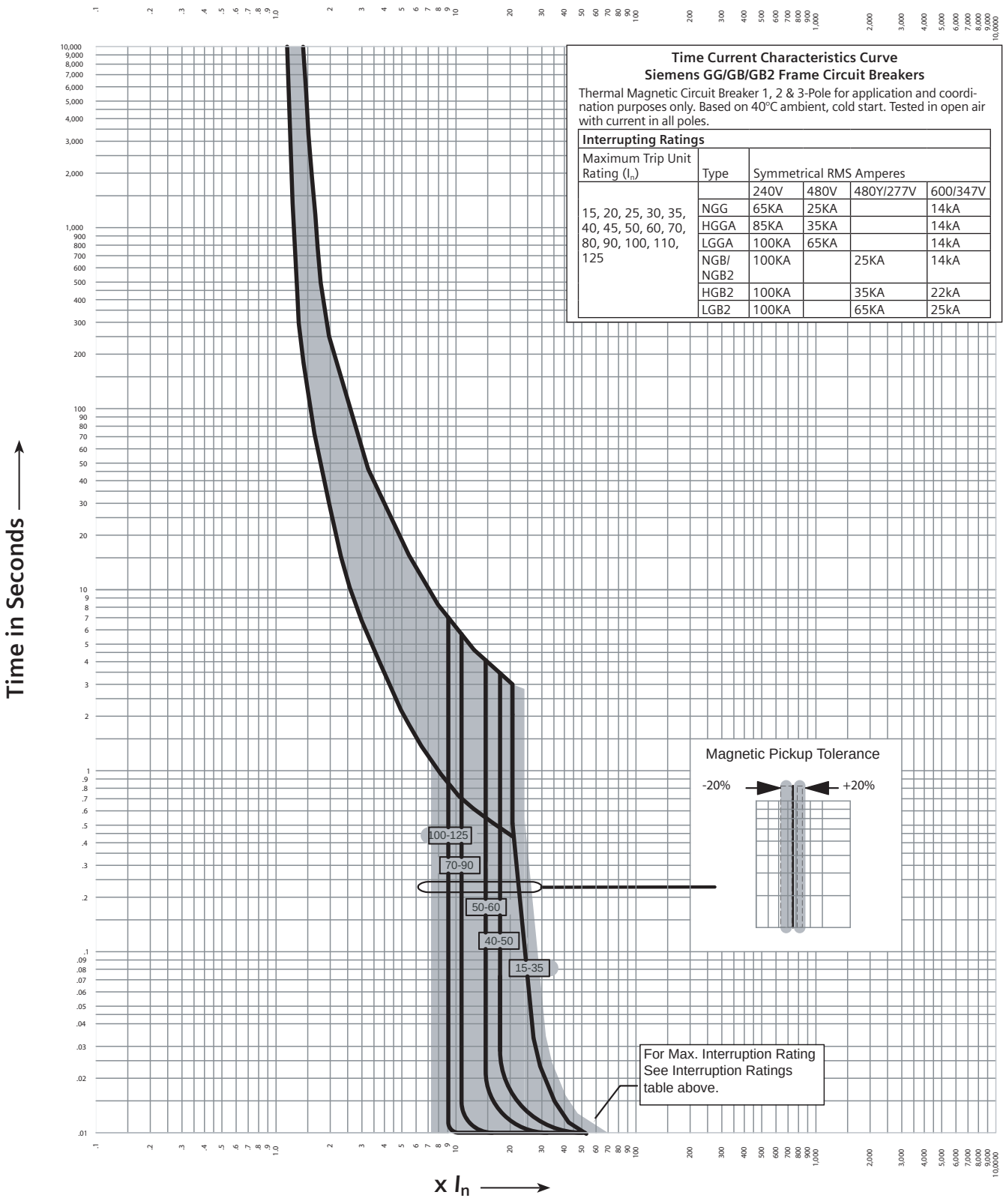




	Width	Height	Depth
1 Pole	0.97 (24.7)	4.99 (126.7)	2.87 (73.0)
2 Pole	1.97 (50.1)		
3 Pole	2.96 (75.1)		

GG/GB/GB2 time current curve – example

(Contact Siemens for specific curves)



Application data

General
In the application of circuit breakers, consideration should be given to the following factors:
1. Voltage of circuit.
2. Ampacity of circuit.
3. Frequency of power source.
4. Operating conditions.
5. Fault current available.

Voltage of circuit – The system voltage should not exceed the listed voltage rating of the circuit breaker, fuse or switch.

Ampacity of circuit – The listed continuous current rating of the circuit breaker should not exceed the allowable ampacity of the conductors. Where the allowable ampacity of the conductor does not correspond to listed current ratings for fuses or circuit breakers, the next larger rating of fuses or circuit breakers is permitted providing it does not exceed the conductor ampacity by more than 25%. An exception to this rule is permitted for motor circuits or other circuits where high inrush currents may persist for an appreciable time.

Frequency of power source – Circuit breakers are calibrated for use on direct current or 48-60-Hertz alternating current. For frequencies above 62-Hertz, some fuses, switches and circuit breakers must be derated. The derating varies with each type and size of protective device. Consult your local representative for specific information.

Operating conditions – Molded case circuit breakers and fuses are calibrated without any enclosure as specified by the Underwriters' Laboratories, Inc. Sound engineering practice dictates that continuous loads should not exceed 80% of the breaker or fuse current rating for most applications.

Electrical connections – Molded Case Circuit Breakers are to be connected with 60 or 75°C wire for breakers having a rated ampacity of 125 amperes or less. For circuit breakers having a rated ampacity greater than 125 amperes, only 75°C cable shall be used unless otherwise indicated on the circuit breaker label.

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Conductors should be derated in accordance with the Canadian Electrical Code for both ambient temperature and continuous loading. Conductors which are loaded continuously should be derated to 80% of their allowable current-carrying capacity except when supplied by an assembly including its overcurrent device that is listed for continuous operation at 100% of its rating.

When the type of load is unusual, intermittent, or one which involves momentary peak currents such as motor loads, consideration should be given to the heating effect on the protective device over a period of time. The duty cycle of a motor which is started and stopped frequently may require a circuit breaker or fuses with a higher rating than an infrequently started motor.

The presence of excessive dust, moisture, corrosive fumes, or explosive atmosphere requires the use of enclosures suitable for such atmospheres. For application in regions where fungus growth may occur, some circuit breakers should be treated with a fungus and moisture resistant material.

Fault current available – The interrupting rating of the circuit breaker should be greater than the available short circuit current at the point of application. The short circuit current from some power sources, such as engine driven generators, is limited, and the protective device characteristics should be selected to clear such faults without delay.

Some systems require a study of protective device characteristics to assure proper protection and coordination for any possible value of fault current. Your representative is available to assist in making coordination studies.

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