

Speedfax™ 2011-2012

Supplement to Product Catalog

**Electrical, Commercial, and Industrial
Power Distribution and Control Products**

www.usa.siemens.com/speedfax

SIEMENS



VL circuit breakers

New features and enhanced functionality

The next generation VL electronic trip unit

Designed with the customer in mind, Siemens is announcing the next generation of VL electronic trip units, Model 555 and Model 586. The new trip units offer many new valuable features.

Model 555 (rotary switch version)

- Communication via Modbus RTU or Profibus DP
- Adjustable ground fault protection

Model 586 (LCD)

- Ground fault alarm only (no trip)
- Backlit LCD
- Large membrane keypad

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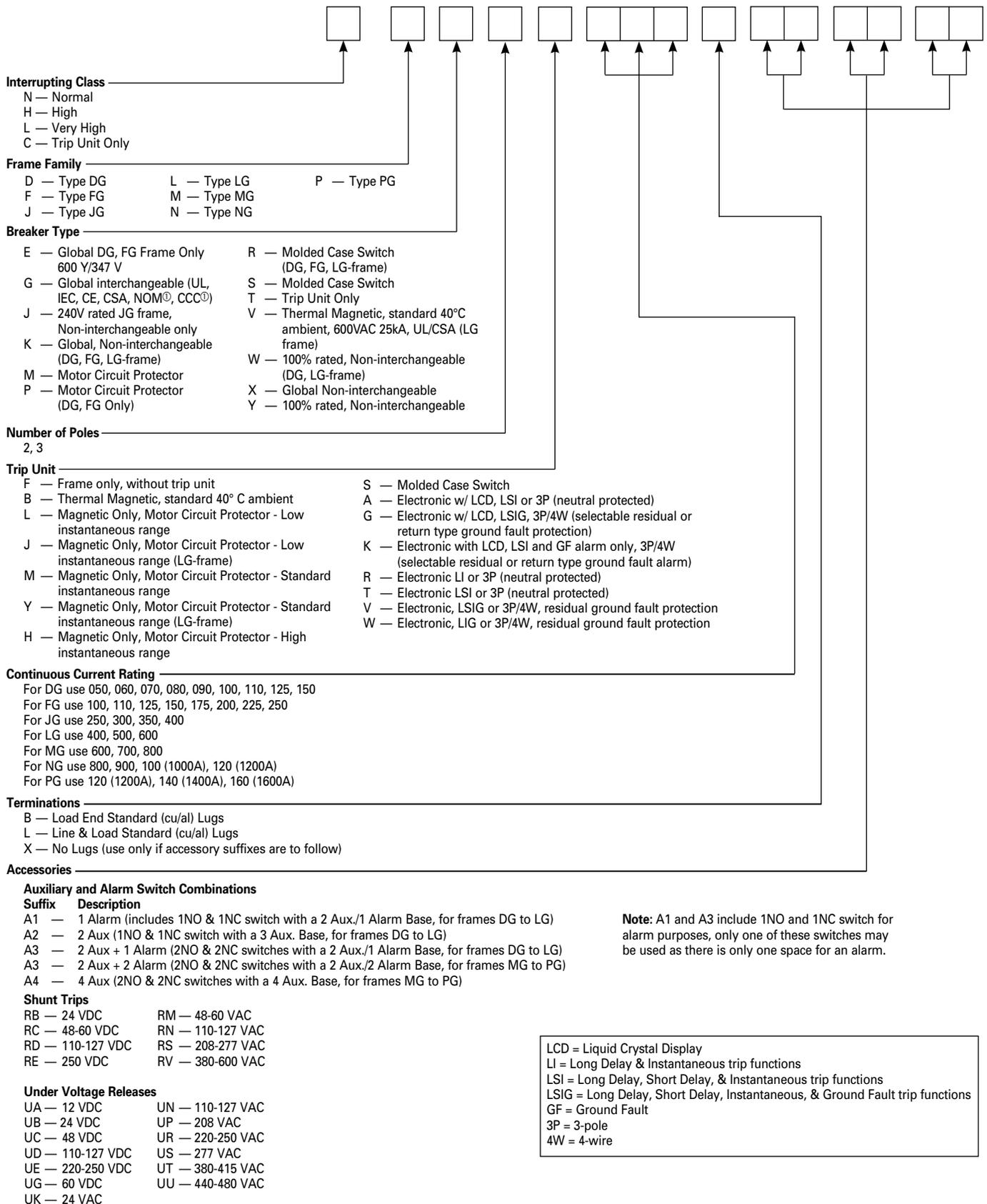
This is a supplement to the SPEEDFAX™ 2011 Catalog. Please refer to this supplement for products related to **VL Thermal Magnetic and Electronic Circuit Breakers**, instead of the printed SPEEDFAX catalog. Many new and replacement products are listed here and discontinued products have been removed from this document.

Notes

VL Molded Case Circuit Breakers

Catalog Numbering System

Selection/Application



VL Circuit Breakers

Catalog Numbering System

Selection

If ordering factory-installed accessories or special modifications, you must order a 15-digit catalog number. See the examples below for a detailed explanation. The 15 digit number is achieved by placing X's in positions not being occupied by an accessory/modification. Contact Siemens for circuit breakers configured with accessories.

Auxiliary Switch Example:

H F G 3 B 2 0 0 L **A 2** **X X X X**
 Standard 9-digit Aux. Switch Completes Cat #

Shunt Trip / UVR Example:

H F G 3 B 2 0 0 L **X X** **U N** **X X**
 Standard 9-digit UVR Completes Cat #

Shunt Trip / Auxiliary Switch Example:

H F G 3 B 2 0 0 L **A 2** **R N** **X X**
 Standard 9-digit Aux. Switch Shunt Trip Completes Cat #

Non-Interchangeable Trip Breakers Example:

H F X 3 B 2 0 0 L
 Standard 9-digit

Siemens VL Circuit Breakers

Technical Overview

Technical

Frame Summary and Ratings Table

Frame Family	DG	FG	JG	
				
Continuous Ampere Range	30 to 150A	40 to 250A	70 to 400A	
Number of Poles	2, 3	2, 3	2, 3	
Maximum Voltage Rating	600V	600V	600V	
Type of Protection				
Thermal-Magnetic	◆	◆	◆	
Electronic	◆	◆	◆	
Electronic with LCD	◆	◆	◆	
Motor Circuit Protector	◆	◆	◆	
Molded Case Switch	◆	◆	◆	
100% Rated Breaker	◆	—	◆	
Interchangeable Trip Unit	◆	◆	◆	
 W In.(mm)	4.1 (105)		5.5 (139)	
H	7.3 (175)		11 (279)	
D	3.4 (81)		4.2 (102)	
D1	4.2 (107)		5.4 (138)	
Type N – Normal Interrupting Rating^①, RMS Symmetrical Amperes (kA)				
UL	240Vac	65	65	65
	480Vac	35	35	35
	600Vac ^②	18	18	25
IEC (I _{cu} /I _{cs})	240Vac	65/65	65/65	65/65
	415Vac	40/40	40/40	45/45
	690Vac	12/6	12/6	12/6
DC Voltages – Interrupting Rating (kA)^④				
	250Vdc - 2p	30	30	30
	500Vdc - 3p ^③	18	18	25
Type H – High Interrupting Rating^①, RMS Symmetrical Amperes (kA)				
UL	240Vac	100	100	100
	480Vac	65	65	65
	600Vac ^②	18	18	25
IEC (I _{cu} /I _{cs})	240Vac	100/75	100/75	100/75
	415Vac	70/70	70/70	70/70
	690Vac	12/6	12/6	15/8
DC Voltages – Interrupting Rating (kA)^④				
	250Vdc - 2p	30	30	30
	500Vdc - 3p ^③	18	25	35
	600Vdc - 3p ^②	42	42	65
Type L – Very High Interrupting Rating^①, RMS Symmetrical Amperes (kA)				
UL	240Vac	200	200	200
	480Vac	100	100	100
	600Vac ^②	18	18	25
IEC (I _{cu} /I _{cs})	240Vac	200/150	200/150	200/150
	415Vac	100/75	100/75	100/75
	690Vac	12/6	12/6	15/8
DC Voltages – Interrupting Rating (kA)^④				
	250Vdc - 2p	30	30	30
	500Vdc - 3p ^③	18	30	35

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MOLDED CASE
CIRCUIT BREAKERS

① UL does not recognize AIC ratings for Molded Case Switches or Motor Circuit Protectors.

② For 600 VDC breakers see page 7-136.

③ 500Vdc nominal, 600Vdc max. for ungrounded DC UPS systems.

④ DC Interruption Ratings do not apply to electronic trip circuit breakers.

⑤ DG & FG breakers are 600Y/347V.

Siemens VL Circuit Breakers

Technical Overview

Technical

Frame Summary and Ratings Table — Continued

Frame Family	LG	MG	NG	PG	
					
Continuous Ampere Range	150 to 600A	200 to 800A	300 to 1200A	400 to 1600A	
Number of Poles	2, 3	2, 3	2, 3	3	
Maximum Voltage Rating	600V	600V	600V	600V	
Type of Protection					
Thermal-Magnetic	◆	◆	◆	◆	
Electronic	◆	◆	◆	◆	
Electronic with LCD	◆	◆	◆	◆	
Motor Circuit Protector	◆	◆	◆	—	
Molded Case Switch	◆	◆	◆	◆	
100% Rated	400/500 Amp	◆	◆	◆	
Interchangeable Trip Unit	—	◆	◆	◆ ^⑥	
	W In.(mm)	5.5 (139)	7.5 (190)	9 (229)	
	H	11 (279) ^⑦	16 (406)	16 (406)	
	D	4.2 (102)	4.7 (114)	6.2 (157)	
	D1	5.4 (138)	5.9 (151)	8.1 (207)	
Type N – Normal Interrupting Rating ^① , RMS Symmetrical Amperes (kA)					
UL	240Vac	65	65	65	65
	480Vac	35	35	35	35
	600Vac	18	25	25	25
IEC (I _{cu} /I _{cs})	240Vac	65/65	65/65	65/65	65/65
	415Vac	45/45	50/50	50/25	50/25
	690Vac	12/6	20/10	20/10	20/10
DC Voltages – Interrupting Rating (kA)^④					
	250Vdc - 2p	30	22	22	22
	500Vdc - 3p ^③	25	35	35	35
Type H – High Interrupting Rating ^① , RMS Symmetrical Amperes (kA)					
UL	240Vac	100	100	100	100
	480Vac	65	65	65	65
	600Vac	18 ^②	35	35	35
IEC (I _{cu} /I _{cs})	240Vac	100/75	100/75	100/75	100/50
	415Vac	70/70	70/70	70/35	70/35
	690Vac	15/8	30/15	30/15	30/15
DC Voltages – Interrupting Rating (kA)^④					
	250Vdc - 2p	30	25	25	25
	500Vdc - 3p ^③	35	50	50	50
	600Vdc - 3p ^⑤	65	65	65	65
Type L – Very High Interrupting Rating ^① , RMS Symmetrical Amperes (kA)					
UL	240Vac	200	200	200	200
	480Vac	100	100	100	100
	600Vac	18	50	65	65
IEC (I _{cu} /I _{cs})	240Vac	200/150	200/150	200/150	200/150
	415Vac	100/75	100/75	100/75	100/75
	690Vac	15/8	35/17	35/17	35/17
DC Voltages – Interrupting Rating (kA)^④					
	250Vdc - 2p	30	42	42	42
	500Vdc - 3p ^③	35	65	65	65

MOLDED CASE
CIRCUIT BREAKERS
7

① UL does not recognize AIC ratings for Molded Case Switches or Motor Circuit Protectors.
② 25kA available in a special version. Standard breakers rated 18kA. See page 7-120.

③ 500Vdc nominal, 600Vdc max. for ungrounded DC UPS systems.
④ DC Interruption Ratings do not apply to electronic trip circuit breakers.

⑤ For 600 VDC breakers see page 7-136.
⑥ Thermal-magnetic available non-interchangeable only.
⑦ 13.6" with extended shields.

VL Circuit Breakers

• Revised •
03/08/13

Trip Unit Overview

Selection

The interchangeability of the VL circuit breaker trip units allow for easy conversion from any of 3 types of protection. They are thermal-magnetic, electronic, or electronic with a built-in LCD. The thermal-magnetic trip unit features an adjustable magnetic trip setting. The electronic trip units are microprocessor based true RMS sensing devices and are available with a variety of adjustable trip settings, configurations, and infor-

mation menus. With precise control over the circuit breaker functions and access to system status, diagnostics, and information, these trip units allow for unsurpassed flexibility in circuit coordination.

An example of coordination is the out of the box Ground Fault function on the Model 555 trip units. The pick-up and time delay settings are set at the

factory for each frame and do not overlap with the settings on the other frames. Therefore, when VL breakers are used together in a system the GF protection is automatically coordinated. The user also has the ability to program a custom coordination scheme with adjustable settings on both the 555 and 586 trip units.

Trip Unit Functions	VL Trip Units							
	Model 525	Model 555				Model 586		
	Thermal-magnetic	Electronic LI	Electronic LIG	Electronic LSI	Electronic LSIG	Electronic with LCD LSI	Electronic with LCD LSIG	Electronic with LCD LSI + G alarm only
Continuous Current Setting (I_r)	Fixed	◆	◆	◆	◆	◆	◆	◆
Long Time Delay (t_r)	□	◆	◆	◆	◆	◆	◆	◆
Instantaneous Function	●	●	●	●	●	(ON/OFF)	(ON/OFF)	(ON/OFF)
Instantaneous Pickup (I_i)	◆	◆	◆	◆	◆	◆	◆	◆
Short Time Function	□	□	□	●	●	(ON/OFF)	(ON/OFF)	(ON/OFF)
Short Time Pick-up (I_{sd})	□	□	□	◆	◆	◆	◆	◆
Short Time Delay (t_{sd})	□	□	□	◆	◆	◆	◆	◆
Ground Fault Pick-up (I_g)	□	□	◆	□	◆	□	◆	□
Ground Fault Delay (t_g)	□	□	◆	□	◆	□	◆	□
Ground Fault Alarm Pick-up	□	□	□	□	□	□	◆	◆
Ground Fault Alarm Delay	□	□	□	□	□	□	◆	◆
Alarm & Status Indicator	□	●	●	●	●	●	●	●
Built-in Display (LCD)	□	□	□	□	□	●	●	●
Pre-Trip Alarm ^①	□	●	●	●	●	●	●	●
Last Trip Information	□	● ^①	● ^①	● ^①	● ^①	●	●	●
Zone Selective ^①	□	●	●	●	●	●	●	●
Communications ^①	□	●	●	●	●	●	●	●

◆ Adjustable setting
 ● This feature is included
 □ Feature is not included.
 ① Requires a COMPRO20 or COMMOD21 module in a communication system.

Continuous Amps Rating (I_r)

This setting is the continuous current that the breaker will carry without tripping. It can be set up to 100% of the trip unit's nominal rating (I_n).

Long Time Delay (t_r)

Sometimes referred to as the "overload" position, this function controls the breaker's "pause-in-tripping" time. It allows low level, temporary inrush currents such as those encountered when starting a motor to pass without tripping. The time delay begins when the current reaches $6 \times I_r$.

Instantaneous Pick-up (I_i)

This function sets the breaker to trip instantaneously during high fault conditions. This function may be turned off on Model 586 trip units. Turning this function off will enable an instantaneous trip

override function to ensure self protection of circuit breaker.

Short Time Pick-Up (I_{sd})

This function controls the level of fault current the breaker will carry for a short time without tripping, thus allowing downstream devices to clear short circuits ahead of up-stream protection. It may be defeated (turned-off) on Model 586 trip units.

Short Time Delay (t_{sd})

This controls the interval of time the breaker will remain closed against a fault (at the Short Time Pick-up current level) without tripping. The time delay may be set at fixed points or at short time intervals based on I^2t curves. This function is used with the Short Time Pick-up to achieve selectivity and better system coordination.

Ground Fault Pick-Up (I_g)

This setting controls the level of ground fault current that will cause the breaker to trip. Model 555 Electronic Trip Units act on the residual current to sense ground current. The Model 586 Electronic Trip Unit is programmable and allows the user to select either the residual current method or direct detection (via a separate current transformer) to detect ground current.

Ground Fault Time Delay (t_g)

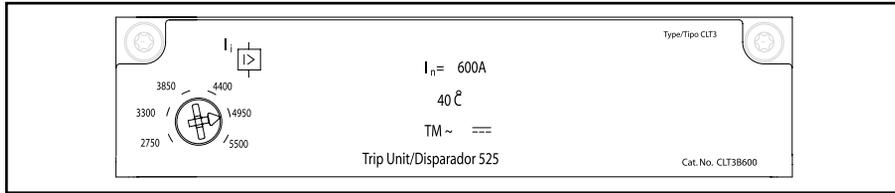
This controls the interval of time the breaker will remain closed after a ground fault is detected (at the Ground Fault Pick-up current level) without tripping.

VL Circuit Breakers

General Information

Selection

Thermal-Magnetic trip units, Model 525, combine the inverse time element design for low level overloads, and instantaneous magnetic action for short circuit protection. The standard unit has preset overload protection and an adjustable instantaneous trip setting, with 6 set points. Thermal-Magnetic trip units are available throughout the VL family, from 50 to 1600A.



Electronic Trip Units

Electronic trip units are available through the VL family, from 60A (which can be set as low as 30A) up through 1600A. They are also available in four trip configurations (LI, LIG, LSI, LSIG) and features can include a built-in LCD display.

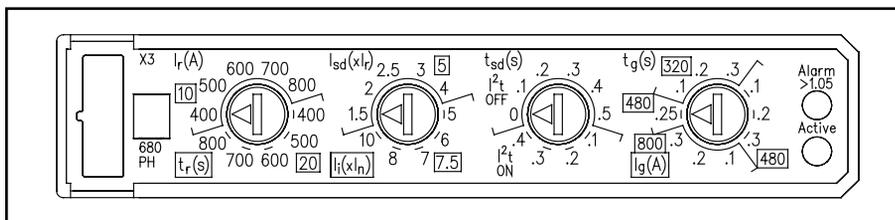
microprocessor is in operating and another indicates an overload condition. For ease-of-use and to insure proper coordination, the set points for the continuous current are shown on the face of these trip units in amps.

On the Model 555 Electronic Trip Unit a flashing LED confirms that the

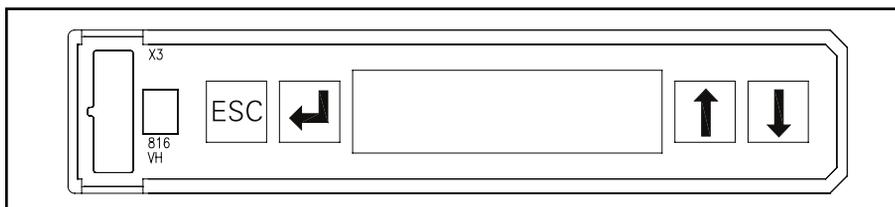
On the Model 586, the LCD version, the current in each phase is continuously shown on the display. Unlike many

displays, no secondary or auxiliary voltage is required as long as the breaker is energized and a minimal load current is present. These trip units can also indicate the "last trip" status (date, time, amps) when they're connected to a PC via one of our communications modules. Without being connected via a communication module, the last trip status can be viewed on Model 586 trip units (no time stamp).

Typical Trip Unit Labeling and Adjustment Positions



Model 555 Electronic Trip Unit with LSIG trip functions



Model 586 Electronic Trip Unit has an LCD display

VL Circuit Breakers

DG 150A Frame, VL Series

Selection

Ordering Information

Complete Assembled Breaker

A complete factory assembled DG breaker includes the frame, trip unit, and standard line and load connectors, all factory installed and shipped as a complete breaker. Assembled breakers are only available with standard connectors.

For DC applications, use thermal magnetic trip unit only.

Breakers are suitable for reverse feed applications.

For special applications, refer to page 7-156.

Mounting hardware is included with each frame or complete breaker.

For 100% rated breakers with a non-interchangeable trip unit, change the 3rd character of the catalog number to "W". Available in electronic and electronic with LCD only.

HACR rated.



Interrupting Ratings

Interrupting Class	Breaker Type	RMS Symmetrical Amperes (KA)										
		UL 489					IEC 60947-2					
		Volts AC (50/60 Hz)			Volts DC		Volts AC (50/60 Hz)					
		240	480	600Y /347	250	500	220/240		380/415		690	
N	NDGB	65	35	18	30	18	65	65	40	40	12	6
H	HDGB	100	65	18	30	18	100	75	70	70	12	6
L	LDGB	200	100	18	30	18	200	150	100	75	12	6

Dimensions, inches (mm)

Number of Poles	Width	Length	Depth	To Handle D1
2, 3	4.1 (105)	6.9 (175)	3.4 (81)	4.2(107)

Connectors for 75°C Wire

Construction	Ampere Rating	Wire Range	No. of cables per connector	Catalog Number
Steel	30-150	#8-1/0 Cu	1	3TW1DG20 ^②
Aluminum	30-150	#6-3/0 Al/Cu	1	3TA1DG30 ^{①②}
Copper	30-150	#6-3/0 Cu	1	3TC1DG30 ^{②④}
Distribution Lugs				
	30-150	#14-#2 Al/Cu (3pcs. Max)	3	3TA3DG02 ^②
	30-150	#14-#4 Cu, #14-#6 Al	6	3TA6DG04 ^②
Compression Lugs				
	30-150	#14-2/0 kcmil Al/Cu	-	2CLD20 ^③
	30-150	#14-2/0 kcmil Al/Cu	-	3CLD20 ^②

- ① Standard connector supplied with complete breakers.
- ② Kit consists of 3 terminal connectors.
- ③ 2 Lugs for 2-pole breakers.
- ④ Required for 100% rated DG breakers. Requires 90°C Cu cable sized at 75°C ampacity

DG Thermal-Magnetic, Instantaneous Trip Adjustment Range

Trip Unit Continuous Amp Rating (I _n)	Instantaneous Overcurrent Setting (I _t)	
	Min.	Max.
50	450	600
60	450	600
70	450	700
80	450	800
90	500	1000
100	500	1000
110	550	1100
125	625	1250
150	800	1600

Note: Each breaker has 6 trip settings in this range.

Approx. Shipping Weight, lbs. (kg)

Poles	Frame	Trip Unit		Complete Breaker
		Thermal-Mag.	Electronic	
2, 3	3.7 (1.7)	2.2 (1.0)	2.6 (1.2)	5.9 (2.7)

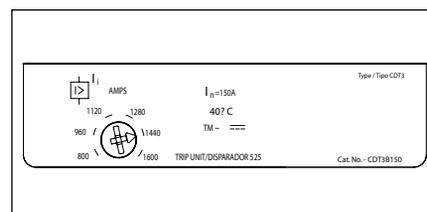
External Accessories pages 7-137 through 7-151

VL Circuit Breakers

DG 150A Thermal-Magnetic Trip Unit

• Revised •
03/08/13

Selection



Model 525 Trip Unit

DG 150A Frame 2-Pole with Thermal-Magnetic Trip Unit

Continuous Ampere Rating	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER		
	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class
	Catalog Number	Catalog Number	Catalog Number
50	NDK2B050L	HDK2B050L	LDK2B050L
60	NDK2B060L	HDK2B060L	LDK2B060L
70	NDK2B070L	HDK2B070L	LDK2B070L
80	NDK2B080L	HDK2B080L	LDK2B080L
90	NDK2B090L	HDK2B090L	LDK2B090L
100	NDK2B100L	HDK2B100L	LDK2B100L
110	NDK2B110L	HDK2B110L	LDK2B110L
125	NDK2B125L	HDK2B125L	LDK2B125L
150	NDK2B150L	HDK2B150L	LDK2B150L

DG 150A Frame 3-Pole with Thermal-Magnetic Trip Unit

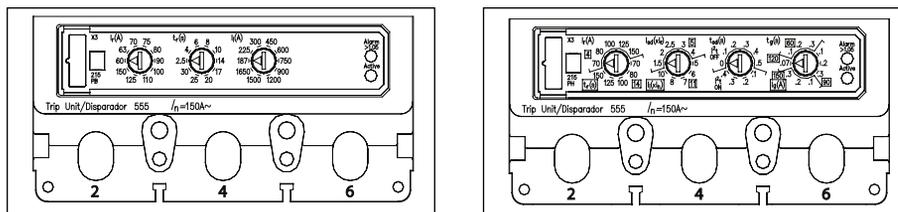
Continuous Ampere Rating	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER		
	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class
	Catalog Number	Catalog Number	Catalog Number
50	NDK3B050L	HDK3B050L	LDK3B050L
60	NDK3B060L	HDK3B060L	LDK3B060L
70	NDK3B070L	HDK3B070L	LDK3B070L
80	NDK3B080L	HDK3B080L	LDK3B080L
90	NDK3B090L	HDK3B090L	LDK3B090L
100	NDK3B100L	HDK3B100L	LDK3B100L
110	NDK3B110L	HDK3B110L	LDK3B110L
125	NDK3B125L	HDK3B125L	LDK3B125L
150	NDK3B150L	HDK3B150L	LDK3B150L

VL Circuit Breakers

DG 150A Electronic Trip Units

• Revised •
03/08/13

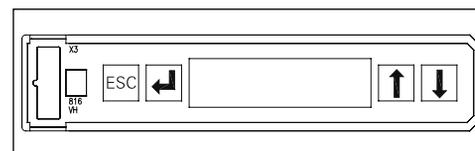
Selection



Model 555 Trip Units

DG 150A Frame 3-Pole Electronic Trip Unit^①

Continuous Ampere Rating	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER		
	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class
	Catalog Number	Catalog Number	Catalog Number
ELECTRONIC LI TRIP			
60	NDK3R060L	HDK3R060L	LDK3R060L
100	NDK3R100L	HDK3R100L	LDK3R100L
150	NDK3R150L	HDK3R150L	LDK3R150L
ELECTRONIC LSI TRIP			
60	NDK3T060L	HDK3T060L	LDK3T060L
100	NDK3T100L	HDK3T100L	LDK3T100L
150	NDK3T150L	HDK3T150L	LDK3T150L
ELECTRONIC LSIG TRIP			
60	NDK3V060L	HDK3V060L	LDK3V060L
100	NDK3V100L	HDK3V100L	LDK3V100L
150	NDK3V150L	HDK3V150L	LDK3V150L
ELECTRONIC LIG TRIP			
60	NDK3W060L	HDK3W060L	LDK3W060L
100	NDK3W100L	HDK3W100L	LDK3W100L
150	NDK3W150L	HDK3W150L	LDK3W150L



Model 586 Trip Unit

DG 150A Frame 3-Pole Electronic LCD Trip Unit^①

Continuous Ampere Rating	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER		
	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class
	Catalog Number	Catalog Number	Catalog Number
LCD ELECTRONIC LSI TRIP			
60	NDK3A060L	HDK3A060L	LDK3A060L
100	NDK3A100L	HDK3A100L	LDK3A100L
150	NDK3A150L	HDK3A150L	LDK3A150L
LCD ELECTRONIC LSIG TRIP			
60	NDK3G060L	HDK3G060L	LDK3G060L
100	NDK3G100L	HDK3G100L	LDK3G100L
150	NDK3G150L	HDK3G150L	LDK3G150L
LCD ELECTRONIC LSI TRIP + GF ALARM ONLY			
60	NDK3K060L	HDK3K060L	LDK3K060L
100	NDK3K100L	HDK3K100L	LDK3K100L
150	NDK3K150L	HDK3K150L	LDK3K150L

^① Due to the location of the magnetic tripping solenoid, the left accessory pocket is not available for accessories.

7
MOLDED CASE
CIRCUIT BREAKERS

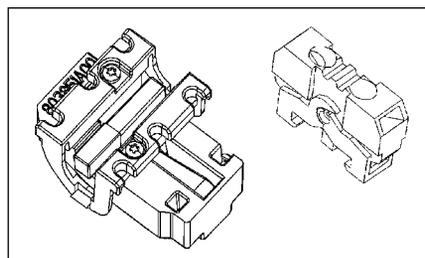
VL Circuit Breakers

Internal Accessories for DG 150A and FG 250A Frames

Selection

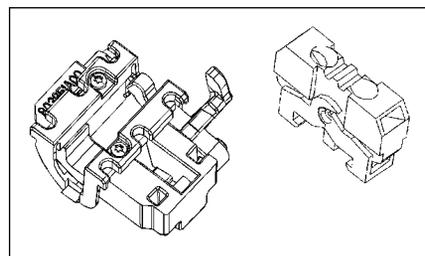
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket ^①	Catalog Number
1 Alarm Switch 1A/B ^③ Bases AMBL2 & AMBL3	Left, Right ^②	ASKL1
2 Aux. Switches 1A + 1B Bases AMBL1	Left, Right	ASKL2
2 Aux. + 1 Alarm Switch 1A + 1B, 1A/B ^③ Bases AMBL2 & AMBL3	Left, Right ^②	ASKL3



Auxiliary/Alarm Switch Mounting Base Only

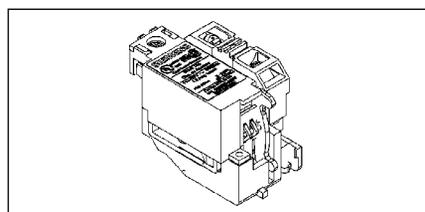
Description	Mounting Pocket	Catalog Number
Up to 3 Auxiliary Switches	Left, Right	AMBL1
2 Aux. + 1 Alarm Switch	Left Pocket Only	AMBL2
2 Aux. + 1 Alarm Switch	Right Pocket Only	AMBL3



Auxiliary/Alarm Switch Only

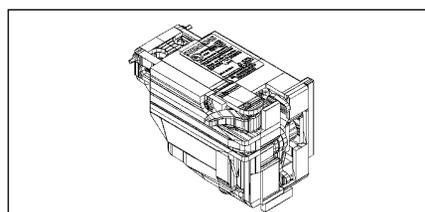
Common to DG - PG Frames

Description	Catalog Number
1 Normally Open Contact (1A)	ASWPA
1 Normally Closed Contact (1B)	ASWPB



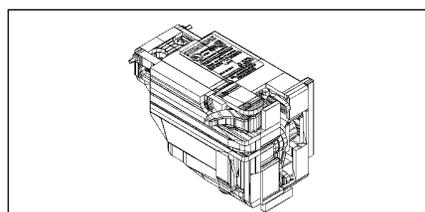
Shunt Trips

Description	Mounting Pocket	Catalog Number
24 VDC	Right Pocket Only	STRLB24DC
48-60 VDC		STRLC60DC
110-127 VDC		STRLD125DC
220-250 VDC		STRLE250DC
48-60 VAC		STRLM60
110-127 VAC		STRLN120
208-277 VAC		STRLS277
380-600 VAC		STRLV600



Undervoltage Release

Description	Mounting Pocket	Catalog Number
12 VDC	Right Pocket Only	UVRLA12DC
24 VDC		UVRLB24DC
48 VDC		UVRLC48DC
60 VDC		UVRLG60DC
110-127 VDC		UVRLD125DC
220-250 VDC		UVRLE250DC
24 VAC		UVRL24
110-127 VAC		UVRLN120
220-240 VAC		UVRLR240
208 VAC		UVRLP208
277 VAC		UVRLS277
380-415 VAC		UVRLT415
440-480 VAC		UVRLU480



① Refer to the "Accessory Locations" chart on page 7-152 for guidelines and limitations about which pockets may be used for accessory combinations.

② These kits include two bases, one for mounting switches in the left pocket and another for mounting in the right.

③ Includes 1A and 1B contact for alarm purposes, only one of which may be installed at any time.

'A' refers to a normally open contact (open when the breaker contacts are open).

'B' refers to a normally closed contact (closed when the breaker contacts are open).

External Accessories pages 7-137 through 7-151

VL Circuit Breakers

FG 250A Frame, VL Series

Selection/Dimensions

Ordering Information

Complete Assembled Breaker

A complete factory assembled FG breaker includes the frame, trip unit, and standard line and load connectors, all factory installed and shipped as a complete breaker. Assembled breakers are available only with standard connectors.

For DC applications, use thermal magnetic trip unit only.

Breakers are suitable for reverse feed applications.

For special applications, refer to page 7-156.

Mounting hardware is included with each frame or complete breaker.

HACR rated.



Dimensions, inches (mm)

Number of Poles	Width	Length	Depth	To Handle D1
2, 3	4.1 (105)	6.9 (175)	3.4 (81)	4.2 (107)

Shipping Weight, lbs. (kg)

Poles	Frame	Trip Unit		Complete Breaker
		Thermal-Mag.	Electronic	
2, 3	4.0 (1.8)	2.2 (1.0)	2.6 (1.2)	6.2 (2.8)

Interrupting Ratings

Interrupting Class	Breaker Type	RMS Symmetrical Amperes (KA)										
		UL 489					IEC 60947-2					
		Volts AC (50/60 Hz)			Volts DC		Volts AC (50/60 Hz)					
		240	480	600Y /347	250	500	220/240	380/415	690	I _{cu}	I _{cs}	
N	NFGB	65	35	18	30	18	65	65	40	40	12	6
H	HFGB	100	65	18	30	25	100	75	70	70	12	6
L	LFGB	200	100	18	30	30	200	150	100	75	12	6

Connectors for 75°C Wire

Construction	Ampere Rating	Wire Range	No. of cables per connector	Catalog Number
Steel	50-250	#3-350 kcmil Cu	1	3TW1FG350 ^②
Aluminum	50-250	#4-350 kcmil Al/Cu	1	3TAW1FG350 ^{①②}
Copper	50-250	#4-350 kcmil Cu	1	3TCW1FG350 ^②
Distribution Lugs				
	50-250	#14-2/0 Cu	3	3TA3FG20 ^②
	50-250	#14-#4 Cu, #14-#6 Al	6	3TA6FG04 ^②
Compression Lugs				
	50-250	#6-350 Al/Cu	1	3CLF350 ^②

① Standard connector supplied with complete breakers.

② Kit consists of 3 terminal connectors.

FG Thermal-Magnetic, Instantaneous Trip Adjustment Range

Trip Unit Continuous Amp Rating (I _n)	Instantaneous Overcurrent Setting (I _t)	
	Min.	Max.
100	625	1250
110	800	1600
125	800	1600
150	800	1600
175	1000	2000
200	1000	2000
225	1250	2500
250	1250	2500

Note: Each breaker has 6 trip settings in this range.

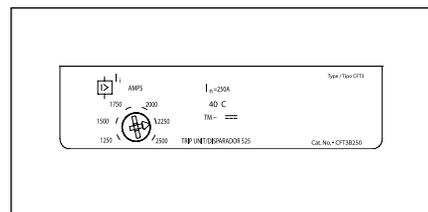
External Accessories pages 7-137 through 7-151

VL Circuit Breakers

FG 250A Thermal-Magnetic Trip Unit

• Revised •
03/08/13

Selection



Model 525 Trip Unit

FG 250A Frame 2-Pole with Thermal-Magnetic Trip Unit

Continuous Ampere Rating	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER		
	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class
	Catalog Number	Catalog Number	Catalog Number
100	NFK2B100L	HFK2B100L	LFK2B100L
110	NFK2B110L	HFK2B110L	LFK2B110L
125	NFK2B125L	HFK2B125L	LFK2B125L
150	NFK2B150L	HFK2B150L	LFK2B150L
175	NFK2B175L	HFK2B175L	LFK2B175L
200	NFK2B200L	HFK2B200L	LFK2B200L
225	NFK2B225L	HFK2B225L	LFK2B225L
250	NFK2B250L	HFK2B250L	LFK2B250L

FG 250A Frame 3-Pole with Thermal-Magnetic Trip Unit

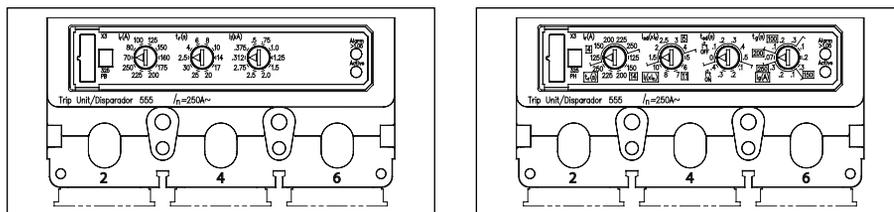
Continuous Ampere Rating	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER		
	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class
	Catalog Number	Catalog Number	Catalog Number
100	NFK3B100L	HFK3B100L	LFK3B100L
110	NFK3B110L	HFK3B110L	LFK3B110L
125	NFK3B125L	HFK3B125L	LFK3B125L
150	NFK3B150L	HFK3B150L	LFK3B150L
175	NFK3B175L	HFK3B175L	LFK3B175L
200	NFK3B200L	HFK3B200L	LFK3B200L
225	NFK3B225L	HFK3B225L	LFK3B225L
250	NFK3B250L	HFK3B250L	LFK3B250L

VL Circuit Breakers

FG 250A Electronic Trip Units

• Revised •
03/08/13

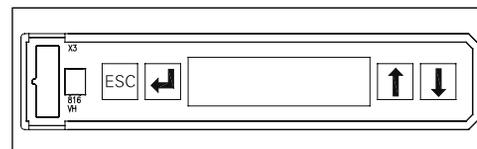
Selection



Model 555 Trip Units

FG 250A Frame 3-Pole Electronic Trip Unit^①

Continuous Ampere Rating	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER		
	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class
	Catalog Number	Catalog Number	Catalog Number
ELECTRONIC LI TRIP			
100	NFK3R100L	HFK3R100L	LFK3R100L
150	NFK3R150L	HFK3R150L	LFK3R150L
250	NFK3R250L	HFK3R250L	LFK3R250L
ELECTRONIC LSI TRIP			
100	NFK3T100L	HFK3T100L	LFK3T100L
150	NFK3T150L	HFK3T150L	LFK3T150L
250	NFK3T250L	HFK3T250L	LFK3T250L
ELECTRONIC LSIG TRIP			
100	NFK3V100L	HFK3V100L	LFK3V100L
150	NFK3V150L	HFK3V150L	LFK3V150L
250	NFK3V250L	HFK3V250L	LFK3V250L
ELECTRONIC LIG TRIP			
100	NFK3W100L	HFK3W100L	LFK3W100L
150	NFK3W150L	HFK3W150L	LFK3W150L
250	NFK3W250L	HFK3W250L	LFK3W250L



Model 586 Trip Unit

FG 250A Frame 3-Pole Electronic LCD Trip Unit^①

Continuous Ampere Rating	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER		
	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class
	Catalog Number	Catalog Number	Catalog Number
LCD ELECTRONIC LSI TRIP			
100	NFK3A100L	HFK3A100L	LFK3A100L
150	NFK3A150L	HFK3A150L	LFK3A150L
250	NFK3A250L	HFK3A250L	LFK3A250L
LCD ELECTRONIC LSIG TRIP			
100	NFK3G100L	HFK3G100L	LFK3G100L
150	NFK3G150L	HFK3G150L	LFK3G150L
250	NFK3G250L	HFK3G250L	LFK3G250L
LCD ELECTRONIC LSI TRIP + GF ALARM ONLY			
100	NFK3K100L	HFK3K100L	LFK3K100L
150	NFK3K150L	HFK3K150L	LFK3K150L
250	NFK3K250L	HFK3K250L	LFK3K250L

^① Due to the location of the magnetic tripping solenoid, the left accessory pocket is not available for accessories.

7
MOLDED CASE
CIRCUIT BREAKERS

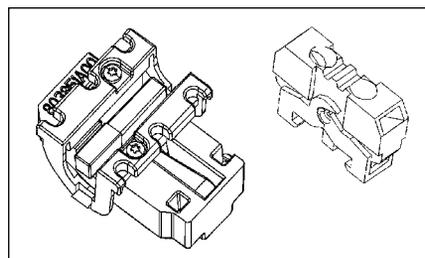
VL Circuit Breakers

Internal Accessories for DG 150A and FG 250A Frames

Selection

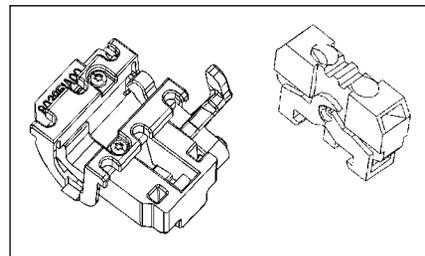
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket ^①	Catalog Number
1 Alarm Switch 1A/B ^③ Bases AMBL2 & AMBL3	Left, Right ^②	ASKL1
2 Aux. Switches 1A + 1B Bases AMBL1	Left, Right	ASKL2
2 Aux. + 1 Alarm Switches 1A + 1B, 1A/B ^③ Bases AMBL2 & AMBL3	Left, Right ^②	ASKL3



Auxiliary/Alarm Switch Mounting Base Only

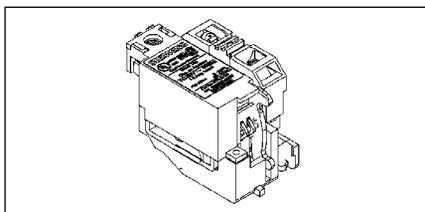
Description	Mounting Pocket	Catalog Number
Up to 3 Auxiliary Switches	Left, Right	AMBL1
2 Aux. + 1 Alarm Switch	Left Pocket Only	AMBL2
2 Aux. + 1 Alarm Switch	Right Pocket Only	AMBL3



Auxiliary/Alarm Switch Only

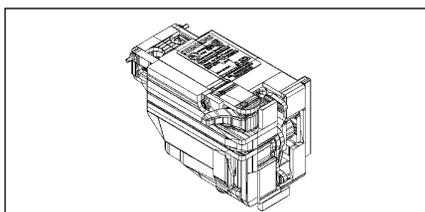
Common to DG - PG Frames

Description	Catalog Number
1 Normally Open Contact (1A)	ASWPA
1 Normally Closed Contact (1B)	ASWPB



Shunt Trips

Description	Mounting Pocket	Catalog Number
24 VDC	Right Pocket Only	STRLB24DC
48-60 VDC		STRLC60DC
110-127 VDC		STRLD125DC
220-250 VDC		STRLE250DC
48-60 VAC		STRLM60
110-127 VAC		STRLN120
208-277 VAC		STRLS277
380-600 VAC		STRLV600



Undervoltage Release

Description	Mounting Pocket	Catalog Number
12 VDC	Right Pocket Only	UVRLA12DC
24 VDC		UVRLB24DC
48 VDC		UVRLC48DC
60 VDC		UVRLG60DC
110-127 VDC		UVRLD125DC
220-250 VDC		UVRLE250DC
24 VAC		UVRL24
110-127 VAC		UVRLN120
220-240 VAC		UVRLR240
208 VAC		UVRLP208
277 VAC		UVRLS277
380-415 VAC		UVRLT415
440-480 VAC		UVRLU480

① Refer to the "Accessory Locations" chart on page 7-152 for guidelines and limitations about which pockets may be used for accessory combinations.

② These kits include two bases, one for mounting switches in the left pocket and another for mounting in the right.

③ Includes 1A and 1B contact for alarm purposes, only one of which may be installed at any time.

'A' refers to a normally open contact (open when the breaker contacts are open).

'B' refers to a normally closed contact (closed when the breaker contacts are open).

External Accessories pages 7-137 through 7-151

VL Circuit Breakers

JG 400A Frame, VL Series

Selection/Dimensions

Ordering Information

Complete Assembled Breaker

A complete factory assembled JG breaker includes the frame, trip unit, and standard line and load connectors, all factory installed and shipped as a complete breaker. Assembled breakers are available only with standard connectors.

For any other configuration, order the frame, trip unit, and terminals as separate items.

For DC applications, use thermal magnetic trip unit only.

For reverse feed applications, select non-interchangeable trip breakers only. For non-interchangeable trip breakers, change the third digit of the catalog number to "X" for standard breakers.

For 100% rated breakers with a non-interchangeable trip unit, change the 3rd character of the catalog number to "Y".

For special applications, refer to page 7-156.

Mounting hardware is included with each frame or complete breaker. HACR rated.



Dimensions, inches (mm)

Number of Poles	Width	Length	Depth	To Handle D1
2, 3	5.5 (139)	11 (279)	4.2 (102)	5.4 (138)

Shipping Weight, lbs. (kg)

Poles	Frame	Trip Unit		Complete Breaker
		Thermal-Mag.	Electronic	
2, 3	9.3 (4.2)	4.0 (1.8)	4.0 (1.8)	12.6 (5.7)

Interrupting Ratings

Interrupting Class	Breaker Type	RMS Symmetrical Amperes (KA)										
		UL 489 AIR (File E10848)					IEC 60947-2					
		Volts AC (50/60 Hz)			Volts DC		Volts AC (50/60 Hz)					
		240	480	600	250	500	220/240		380/415		690	
					I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}		
N	NJGA	65	35	25	30	25	65	65	45	45	12	6
H	HJGA	100	65	25	30	35	100	75	70	70	15	8
L	LJGA	200	100	25	30	35	200	150	100	75	15	8

Connectors for 75°C Wire

Construction	Ampere Rating	Wire Range	No. of cables per connector	Catalog Number
Steel	70-400	1/0-600 kcmil Cu	1	3TW1JG600 ^②
Aluminum	70-400	3/0-250 kcmil Al/Cu	2	3TA2JG250 ^{①②}
Aluminum	70-400	250-750 kcmil Al	1	3TA1JG750 ^②
Aluminum	70-400	3/0-600 kcmil Cu	1	3TA1JG750 ^②
Copper	70-400	3/0-750 kcmil Cu	1	TC1JG750 ^③
Copper	70-400	3/0-250 kcmil Cu	2	TC2JG250 ^③
Distribution Lugs				
	70-400	#14-4 Cu	12	3TA12JG04 ^②
	70-400	#14-2/0 Al/Cu	6	3TA6JG20 ^②
Compression Lugs				
	70-400	#6-350 kcmil	—	3CLJ350 ^②
	70-400	250-600 kcmil	—	3CLJ600 ^②
	70-400	250-750 kcmil	—	3CLJ750 ^②

① Standard construction supplied for each breaker.

② Kit consists of 3 terminal connectors.

③ Required for 100% rated JG breakers. Requires 90°C Cu cable sized at 75°C ampacity.

JG Thermal-Magnetic, Instantaneous Trip Adjustment Range

Trip Unit Continuous Amp Rating (I _n)	Instantaneous Overcurrent Setting (I _i)	
	Min.	Max.
250	1250	2500
300	1500	3000
350	1750	3500
400	2000	4000

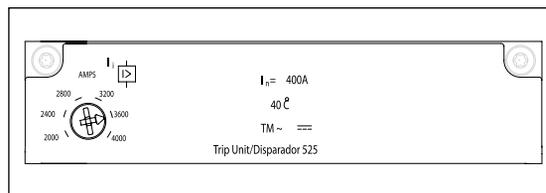
Note: Each breaker has 6 trip settings in this range.

External Accessories pages 7-137 through 7-151

VL Circuit Breakers

JG 400A Thermal-Magnetic Trip Unit

Selection



Model 525 Trip Unit

JG 400A Frame 2-Pole with Thermal-Magnetic Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	Catalog Number
	Catalog Number	Catalog Number	Catalog Number	
	FRAME ONLY			
	NJG2F400	HJG2F400	LJG2F400	
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER			TRIP UNIT ONLY
250	NJG2B250L	HJG2B250L	LJG2B250L	CJT2B250
300	NJG2B300L	HJG2B300L	LJG2B300L	CJT2B300
350	NJG2B350L	HJG2B350L	LJG2B350L	CJT2B350
400	NJG2B400L	HJG2B400L	LJG2B400L	CJT2B400

JG 400A Frame 3-Pole with Thermal-Magnetic Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	Catalog Number
	Catalog Number	Catalog Number	Catalog Number	
	FRAME ONLY			
	NJG3F400	HJG3F400	LJG3F400	
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER			TRIP UNIT ONLY
250	NJG3B250L	HJG3B250L	LJG3B250L	CJT3B250
300	NJG3B300L	HJG3B300L	LJG3B300L	CJT3B300
350	NJG3B350L	HJG3B350L	LJG3B350L	CJT3B350
400	NJG3B400L	HJG3B400L	LJG3B400L	CJT3B400

JJ 400A Frame 240V max., 2-pole with Thermal-Magnetic Non-Interchangeable Trip Unit^①

Continuous Ampere Rating	N-Interrupting Class
	Catalog Number
	COMPLETE BREAKER
250	NJJ2B250
300	NJJ2B300
350	NJJ2B350
400	NJJ2B400

JJ 400A Frame 240V max., 3-pole with Thermal-Magnetic Non-Interchangeable Trip Unit^①

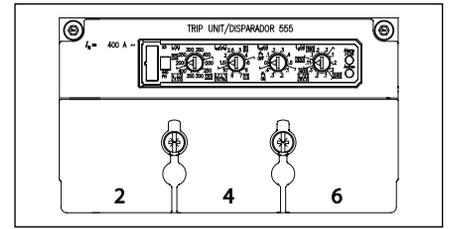
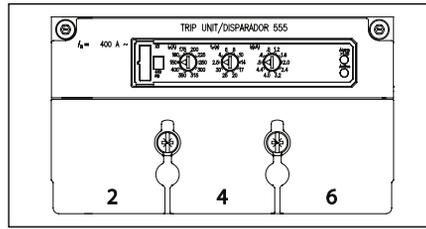
Continuous Ampere Rating	N-Interrupting Class
	Catalog Number
	COMPLETE BREAKER
250	NJJ3B250
300	NJJ3B300
350	NJJ3B350
400	NJJ3B400

^① Terminal connectors must be ordered separately.
Breaker Type NJJA.

VL Circuit Breakers

JG 400A Electronic Trip Units

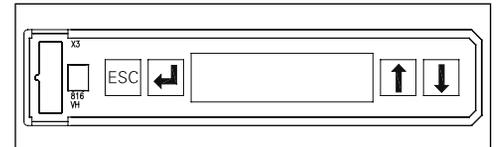
Selection



Model 555 Trip Units

JG 400A Frame 3-Pole Electronic Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	Catalog Number
	Catalog Number	Catalog Number	Catalog Number	
	FRAME ONLY			
	NJG3F400	HJG3F400	LJG3F400	
COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER				TRIP UNIT ONLY
ELECTRONIC LI TRIP				
250	NJG3R250L	HJG3R250L	LJG3R250L	CJT3R250
400	NJG3R400L	HJG3R400L	LJG3R400L	CJT3R400
ELECTRONIC LSI TRIP				
250	NJG3T250L	HJG3T250L	LJG3T250L	CJT3T250
400	NJG3T400L	HJG3T400L	LJG3T400L	CJT3T400
ELECTRONIC LSIG TRIP				
250	NJG3V250L	HJG3V250L	LJG3V250L	CJT3V250
400	NJG3V400L	HJG3V400L	LJG3V400L	CJT3V400
ELECTRONIC LIG TRIP				
250	NJG3W250L	HJG3W250L	LJG3W250L	CJT3W250
400	NJG3W400L	HJG3W400L	LJG3W400L	CJT3W400



Model 586 Trip Unit

JG 400A Frame 3-Pole Electronic LCD Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	Catalog Number
	Catalog Number	Catalog Number	Catalog Number	
	FRAME ONLY			
	NJG3F400	HJG3F400	LJG3F400	
COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER				TRIP UNIT ONLY
LCD ELECTRONIC LSI TRIP				
250	NJG3A250L	HJG3A250L	LJG3A250L	CJT3A250
400	NJG3A400L	HJG3A400L	LJG3A400L	CJT3A400
LCD ELECTRONIC LSIG TRIP				
250	NJG3G250L	HJG3G250L	LJG3G250L	CJT3G250
400	NJG3G400L	HJG3G400L	LJG3G400L	CJT3G400
LCD ELECTRONIC LSI TRIP + GF ALARM ONLY				
250	NJG3K250L	HJG3K250L	LJG3K250L	CJT3K250
400	NJG3K400L	HJG3K400L	LJG3K400L	CJT3K400

7 MOLDED CASE CIRCUIT BREAKERS

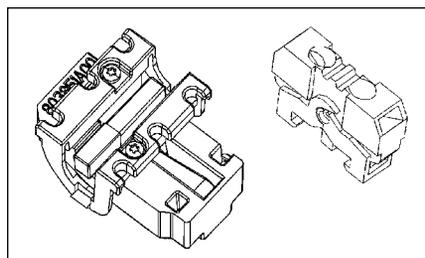
VL Circuit Breakers

Internal Accessories for JG 400A and LG 600A Frames

Selection

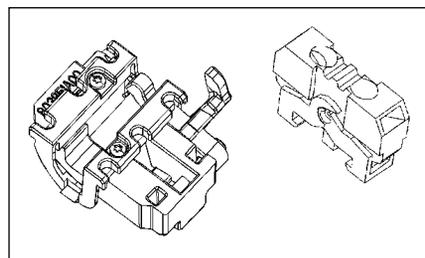
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket ^①	Catalog Number
1 Alarm Switch 1A/B ^③ Bases AMBL2 & AMBL3	Left, Right ^②	ASKL1
2 Aux. Switches 1A + 1B Bases AMBL1	Left, Right	ASKL2
2 Aux. + 1 Alarm Switches 1A + 1B, 1A/B ^③ Bases AMBL2 & AMBL3	Left, Right ^②	ASKL3



Auxiliary/Alarm Switch Mounting Base Only

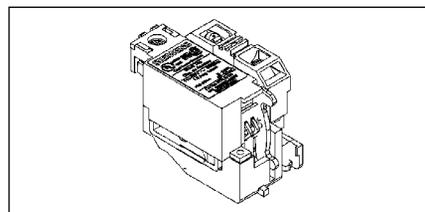
Description	Mounting Pocket	Catalog Number
Up to 3 Auxiliary Switches	Left, Right	AMBL1
2 Aux. + 1 Alarm Switch	Left Pocket Only	AMBL2
2 Aux. + 1 Alarm Switch	Right Pocket Only	AMBL3



Auxiliary/Alarm Switch Only

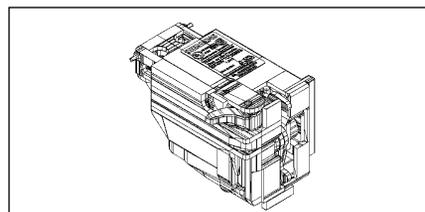
Common to DG - PG Frames

Description	Catalog Number
1 Normally Open Contact (1A)	ASWPA
1 Normally Closed Contact (1B)	ASWPB



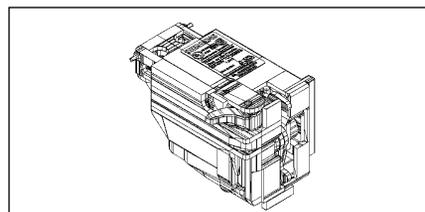
Shunt Trips

Description	Mounting Pocket	Catalog Number
24 VDC	Right Pocket Only	STRLB24DC
48-60 VDC		STRLC60DC
110-127 VDC		STRLD125DC
220-250 VDC		STRLE250DC
48-60 VAC		STRLM60
110-127 VAC		STRLN120
208-277 VAC		STRLS277
380-600 VAC		STRLV600



Undervoltage Release

Description	Mounting Pocket	Catalog Number
12 VDC	Right Pocket Only	UVRLA12DC
24 VDC		UVRLB24DC
48 VDC		UVRLC48DC
60 VDC		UVRLG60DC
110-127 VDC		UVRLD125DC
220-250 VDC		UVRLE250DC
24 VAC		UVRLL24
110-127 VAC		UVRLN120
220-240 VAC		UVRLR240
208 VAC		UVRLP208
277 VAC		UVRLS277
380-415 VAC		UVRLT415
440-480 VAC		UVRLU480



① Refer to the "Accessory Locations" chart on page 7-152 for guidelines and limitations about which pockets may be used for accessory combinations.

② Includes 1A and 1B contact for alarm purposes, only one of which may be installed at any time. 'A' refers to a normally open contact (open when the breaker contacts are open).

'B' refers to a normally closed contact (closed when the breaker contacts are open).

External Accessories pages 7-137 through 7-151

VL Circuit Breakers

LG 600A Frame, VL Series

Selection/Dimensions

Ordering Information

Complete Assembled Breaker

A complete factory assembled LG breaker includes the frame, trip unit, and standard line and load lugs, all factory installed and shipped as a complete breaker. Assembled breakers are available only with standard connectors.

For DC applications, use thermal magnetic trip unit only.

Breakers are suitable for reverse feed applications.

For special applications, refer to page 7-156.

Mounting hardware is included with each breaker.

For 100% rated breakers, change the 3rd character of the catalog number to "W". Available on 400/500 Amp only.

HACR rated.



Interrupting Ratings

Interrupting Class	Breaker Type	RMS Symmetrical Amperes (KA)										
		UL 489					IEC 60947-2					
		Volts AC (50/60 Hz)			Volts DC		Volts AC (50/60 Hz)					
		240	480	600	250	500	220/240		380/415		690	
						I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	
N	NLGB	65	35	18	30	25	65	65	45	45	12	6
H	HLGB	100	65	18 ^①	30	35	100	75	70	70	15	8
L	LLGB	200	100	18	30	35	200	150	100	75	15	8

① Special 600Vac 25kA thermal-magnetic version (Type HLGC) available, see page 7-120.

Connectors for 75°C Wire

Construction	Ampere Rating	Wire Range	No. of cables per connector	Catalog Number ^③
Aluminum	150-600	#2-600 kcmil Al/Cu	2 (load side)	3TA2LG600LD ^②
Aluminum	150-600	#2-600 kcmil Al/Cu	2 (line side)	3TA2LG600LN ^②
Copper	150-600	#2-600 kcmil Cu	2 (load side)	3TC2LG600LD ^⑤
Copper	150-600	#2-600 kcmil Cu	2 (line side)	3TC2LG600LN ^⑤
Compression Lugs				
	150-600	#6-350 kcmil Al/Cu	—	6CLL350 ^④
	150-600	250-750 kcmil Al/Cu	—	3CLL750 ^③
	150-600	250-600 kcmil Al/Cu	—	6CLL600 ^⑤

② Standard construction supplied for each breaker.

③ Kit consists of 3 terminal connectors.

④ Kit consists of 6 lugs for Line or Load end.

⑤ Required for 100% rated LG breakers. Requires 90°C Cu cable sized at 75°C ampacity.

LG Thermal-Magnetic, Instantaneous Trip Adjustment Range

Trip Unit Continuous Amp Rating (I _n)	Instantaneous Overcurrent Setting (I _i)	
	Min.	Max.
400	2000	4000
500	2500	5000
600	2750	5500

Note: Each breaker has 6 trip settings.

Dimensions, inches (mm)

Number of Poles	Width	Length	Depth	To Handle D1
2, 3	5.5 (139)	11 (279)	4.2 (102)	5.4 (138)
Ext. Shield		13.6 (345.5)		

Shipping Weight, lbs. (kg)

Poles	Frame	Trip Unit		Complete Breaker
		Thermal-Mag.	Electronic	
2, 3	17.4 (7.9)	3.5 (1.6)	4.2 (1.9)	20.9 (9.5)

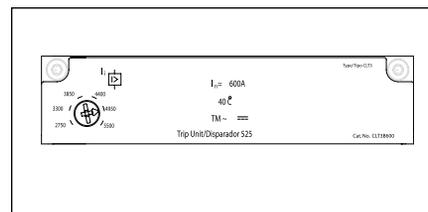
External Accessories pages 7-137 through 7-151

VL Circuit Breakers

LG 600A Thermal-Magnetic Trip Unit

• Revised •
03/08/13

Selection



Model 525 Trip Unit

LG 600A Frame 2-Pole with Thermal-Magnetic Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class
	Catalog Number	Catalog Number	Catalog Number
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER		
400	NLK2B400L	HLK2B400L	LLK2B400L
500	NLK2B500L	HLK2B500L	LLK2B500L
600	NLK2B600L	HLK2B600L	LLK2B600L

LG 600A Frame 3-Pole with Thermal-Magnetic Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class
	Catalog Number	Catalog Number	Catalog Number
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER		
400	NLK3B400L	HLK3B400L	LLK3B400L
500	NLK3B500L	HLK3B500L	LLK3B500L
600	NLK3B600L	HLK3B600L	LLK3B600L

LG 600A Frame 2-Pole with Thermal-Magnetic Trip Unit , 600Vac 25kA only^{①②}

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class
	Catalog Number	Catalog Number	Catalog Number
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER		
400	—	HLV2B400L	—
500	—	HLV2B500L	—
600	—	HLV2B600L	—

LG 600A Frame 3-Pole with Thermal-Magnetic Trip Unit , 600Vac 25kA only^{①②}

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class
	Catalog Number	Catalog Number	Catalog Number
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER		
400	—	HLV3B400L	—
500	—	HLV3B500L	—
600	—	HLV3B600L	—

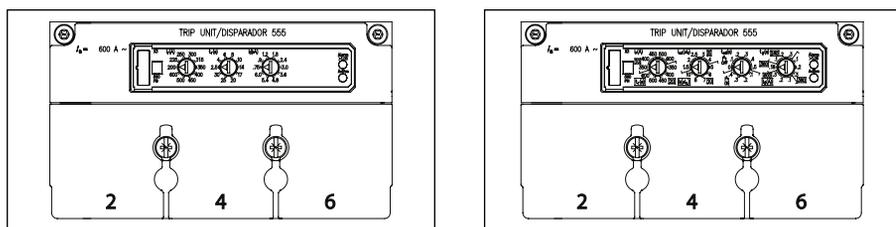
① For 100% rated 400A or 500A versions, change the third character of the catalog number to "Z".

② Consult sales office for availability.

VL Circuit Breakers

LG 600A Electronic Trip Units

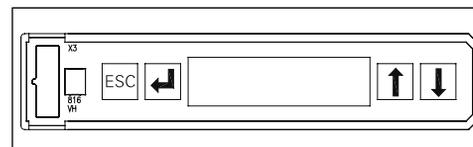
Selection



Model 555 Trip Unit

LG 600A Frame 3-Pole Electronic Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class
	Catalog Number	Catalog Number	Catalog Number
COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER			
ELECTRONIC LI TRIP			
400	NLK3R400L	HLK3R400L	LLK3R400L
600	NLK3R600L	HLK3R600L	LLK3R600L
ELECTRONIC LSI TRIP			
400	NLK3T400L	HLK3T400L	LLK3T400L
600	NLK3T600L	HLK3T600L	LLK3T600L
ELECTRONIC LSIG TRIP			
400	NLK3V400L	HLK3V400L	LLK3V400L
600	NLK3V600L	HLK3V600L	LLK3V600L
ELECTRONIC LIG TRIP			
400	NLK3W400L	HLK3W400L	LLK3W400L
600	NLK3W600L	HLK3W600L	LLK3W600L



Model 586 Trip Unit

LG 600A Frame 3-Pole Electronic LCD Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class
	Catalog Number	Catalog Number	Catalog Number
COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER			
ELECTRONIC LSI TRIP			
400	NLK3A400L	HLK3A400L	LLK3A400L
600	NLK3A600L	HLK3A600L	LLK3A600L
ELECTRONIC LSIG TRIP			
400	NLK3G400L	HLK3G400L	LLK3G400L
600	NLK3G600L	HLK3G600L	LLK3G600L
ELECTRONIC LSI TRIP + GF ALARM ONLY			
400	NLK3K400L	HLK3K400L	LLK3K400L
600	NLK3K600L	HLK3K600L	LLK3K600L

7
MOLDED CASE
CIRCUIT BREAKERS

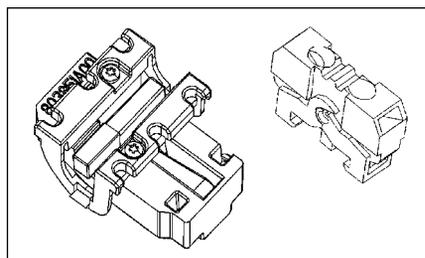
VL Circuit Breakers

Internal Accessories for JG 400A and LG 600A Frames

Selection

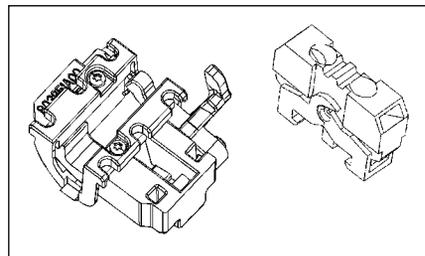
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket ^①	Catalog Number
1 Alarm Switch 1A/B ^③ Bases AMBL2 & AMBL3	Left, Right ^②	ASKL1
2 Aux. Switches 1A + 1B Bases AMBL1	Left, Right	ASKL2
2 Aux. + 1 Alarm Switches 1A + 1B, 1A/B ^③ Bases AMBL2 & AMBL3	Left, Right ^②	ASKL3



Auxiliary/Alarm Switch Mounting Base Only

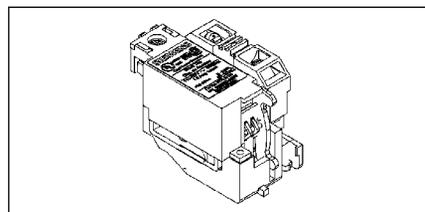
Description	Mounting Pocket	Catalog Number
Up to 3 Auxiliary Switches	Left, Right	AMBL1
2 Aux. + 1 Alarm Switch	Left Pocket Only	AMBL2
2 Aux. + 1 Alarm Switch	Right Pocket Only	AMBL3



Auxiliary/Alarm Switch Only

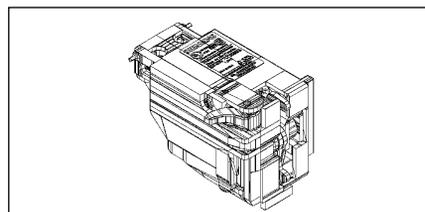
Common to DG - PG Frames

Description	Catalog Number
1 Normally Open Contact (1A)	ASWPA
1 Normally Closed Contact (1B)	ASWPB



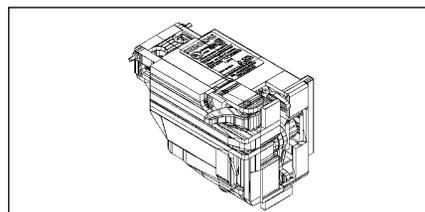
Shunt Trips

Description	Mounting Pocket	Catalog Number
24 VDC	Right Pocket Only	STRLB24DC
48-60 VDC		STRLC60DC
110-127 VDC		STRLD125DC
220-250 VDC		STRLE250DC
48-60 VAC		STRLM60
110-127 VAC		STRLN120
208-277 VAC		STRLS277
380-600 VAC		STRLV600



Undervoltage Release

Description	Mounting Pocket	Catalog Number
12 VDC	Right Pocket Only	UVRLA12DC
24 VDC		UVRLB24DC
48 VDC		UVRLC48DC
60 VDC		UVRLG60DC
110-127 VDC		UVRLD125DC
220-250 VDC		UVRLE250DC
24 VAC		UVRL24
110-127 VAC		UVRLN120
220-240 VAC		UVRLR240
208 VAC		UVRLP208
277 VAC		UVRLS277
380-415 VAC		UVRLT415
440-480 VAC		UVRLU480



① Refer to the "Accessory Locations" chart on page 7-152 for guidelines and limitations about which pockets may be used for accessory combinations.

② Includes 1A and 1B contact for alarm purposes, only one of which may be installed at any time.

'A' refers to a normally open contact (open when the breaker contacts are open).

'B' refers to a normally closed contact (closed when the breaker contacts are open).

External Accessories pages 7-137 through 7-151

VL Circuit Breakers

MG 800A Frame, VL Series

• Revised •
03/08/13

Selection/Dimensions



Dimensions, inches (mm)

Number of Poles	Width	Length	Depth	To Handle D1
2, 3	7.5 (190)	16 (406)	4.7 (119)	5.9 (151)

Shipping Weight, lbs. (kg)

Poles	Frame	Trip Unit	Complete Breaker
2, 3	31.3 (14.2)	4.0 (1.8)	35.3 (16.0)

Ordering Information

Complete Assembled Breaker

A complete factory assembled MG breaker includes the frame, trip unit, and standard line and load lugs, all factory installed and shipped as a complete breaker. Assembled breakers are available only with standard connectors.

For any other configuration, order the frame, trip unit, and terminals as separate items.

For DC applications, use thermal magnetic trip unit only.

For reverse feed applications, select non-interchangeable trip breakers only. For non-interchangeable trip breakers, change the third digit of the catalog number to "X" for standard breakers.

For 100% rated breakers with a non-interchangeable trip unit, change the 3rd character of the catalog number to "Y".

For special applications, refer to page 7-156.

Mounting hardware is included with each frame or complete breaker.
HACR rated.

Interrupting Ratings

Interrupting Class	Breaker Type	RMS Symmetrical Amperes (KA)										
		UL 489					IEC 60947-2					
		Volts AC (50/60 Hz)			Volts DC		Volts AC (50/60 Hz)					
		240	480	600	250	500	220/240		380/415		690	
						I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	
N	NMG	65	35	25	22	35	65	65	50	50	20	10
H	HMG	100	65	35	25	50	100	75	70	70	30	15
L	LMG	200	100	50	42	65	200	150	100	75	35	17

Connectors for 75°C Wire

Construction	Ampere Rating	Wire Range	No. of cables per connector	Catalog Number
Aluminum	200-800A	1/0-500 kcmil Al/Cu	3	3TA3MG500 ^{①②}
Aluminum	200-800A	500-750 kcmil Al/Cu	2	3TA2MG750 ^②
Copper	200-800A	1/0-500 kcmil Cu	3	TC3MG500 ^{③⑤}
Aluminum	200-800A	#2-600 kcmil Al/Cu	3	3TA3MG600 ^{②④}

① Standard connector supplied with complete breakers.

② Kit consists of 3 terminal connectors.

③ Consists of one terminal.

④ Includes extended terminal cover.

⑤ Required for 100% rated MG breakers. Requires 90°C Cu cable sized at 75°C ampacity.

MG Thermal-Magnetic, Instantaneous Trip Adjustment Range

Trip Unit Continuous Amp Rating (I _n)	Instantaneous Overcurrent Setting (I _t)	
	Min.	Max.
600	3000	6000
700	3250	6500
800	3250	6500

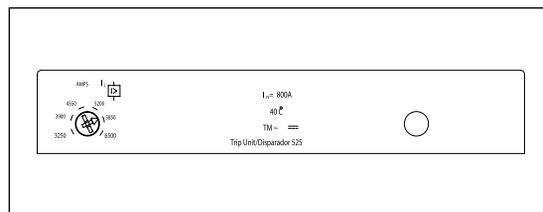
Note: Each breaker has 6 trip settings.

External Accessories pages 7-137 through 7-151

VL Circuit Breakers

MG 800A Thermal-Magnetic Trip Unit

Selection



Model 525 Trip Unit

MG 800A Frame 2-Pole with Thermal-Magnetic Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	
	Catalog Number	Catalog Number	Catalog Number	Catalog Number
	FRAME ONLY			TRIP UNIT ONLY
	NMG2F800	HMG2F800	LMG2F800	
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER			
600	NMG2B600L	HMG2B600L	LMG2B600L	CMT2B600
700	NMG2B700L	HMG2B700L	LMG2B700L	CMT2B700
800	NMG2B800L	HMG2B800L	LMG2B800L	CMT2B800

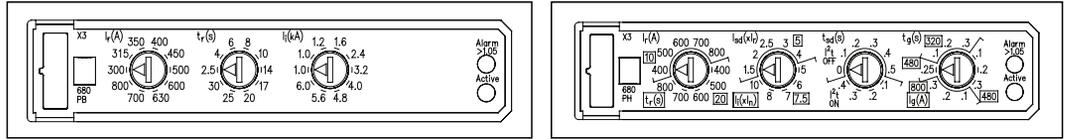
MG 800A Frame 3-Pole with Thermal-Magnetic Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	
	Catalog Number	Catalog Number	Catalog Number	Catalog Number
	FRAME ONLY			TRIP UNIT ONLY
	NMG3F800	HMG3F800	LMG3F800	
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER			
600	NMG3B600L	HMG3B600L	LMG3B600L	CMT3B600
700	NMG3B700L	HMG3B700L	LMG3B700L	CMT3B700
800	NMG3B800L	HMG3B800L	LMG3B800L	CMT3B800

VL Circuit Breakers

MG 800A Electronic Trip Units

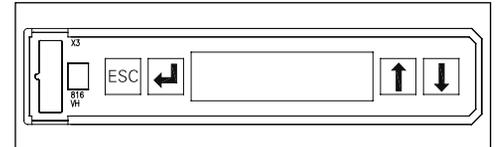
Selection



Model 555 Trip Units

MG 800A Frame 3-Pole Electronic Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	Catalog Number
	Catalog Number	Catalog Number	Catalog Number	
	FRAME ONLY			
	NMG3F800	HMG3F800	LMG3F800	
COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER				
TRIP UNIT ONLY				
ELECTRONIC LI TRIP				
600 800	NMG3R600L NMG3R800L	HMG3R600L HMG3R800L	LMG3R600L LMG3R800L	CMT3R600 CMT3R800
ELECTRONIC LSI TRIP				
600 800	NMG3T600L NMG3T800L	HMG3T600L HMG3T800L	LMG3T600L LMG3T800L	CMT3T600 CMT3T800
ELECTRONIC LSIG TRIP				
600 800	NMG3V600L NMG3V800L	HMG3V600L HMG3V800L	LMG3V600L LMG3V800L	CMT3V600 CMT3V800
ELECTRONIC LIG TRIP				
600 800	NMG3W600L NMG3W800L	HMG3W600L HMG3W800L	LMG3W600L LMG3W800L	CMT3W600 CMT3W800



Model 586 Trip Unit

MG 800A Frame 3-Pole Electronic LCD Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	Catalog Number
	Catalog Number	Catalog Number	Catalog Number	
	FRAME ONLY			
	NMG3F800	HMG3F800	LMG3F800	
COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER				
TRIP UNIT ONLY				
LCD ELECTRONIC LSI TRIP				
600 800	NMG3A600L NMG3A800L	HMG3A600L HMG3A800L	LMG3A600L LMG3A800L	CMT3A600 CMT3A800
LCD ELECTRONIC LSIG TRIP				
600 800	NMG3G600L NMG3G800L	HMG3G600L HMG3G800L	LMG3G600L LMG3G800L	CMT3G600 CMT3G800
LCD ELECTRONIC LSI TRIP + GF ALARM ONLY				
600 800	NMG3K600L NMG3K800L	HMG3K600L HMG3K800L	LMG3K600L LMG3K800L	CMT3K600 CMT3K800

7
MOLDED CASE
CIRCUIT BREAKERS

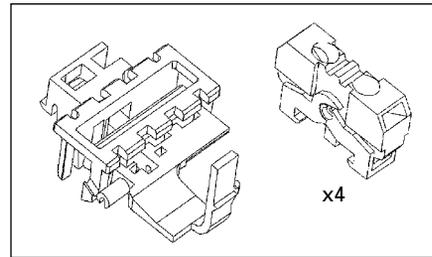
VL Circuit Breakers

Internal Accessories for MG 800A, NG 1200A and PG 1600A Frames

Selection

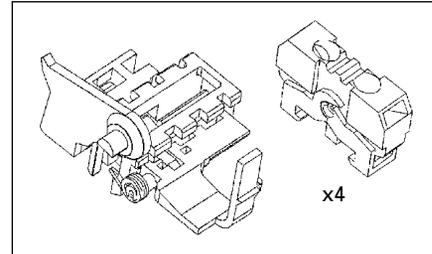
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket ^①	Catalog Number
2 Aux. + 2 Alarm Switches 2A + 2B Bases AMBP2	Left Pocket Only	ASKP3
4 Aux. Switches 2A + 2B Bases AMBP1	Left, Right	ASKP4



Auxiliary/Alarm Switch Mounting Base Only

Description	Mounting Pocket	Catalog Number
Up to 4 Auxiliary Switches	Left, Right	AMBP1
2 Aux. + 2 Alarm Switches	Left Pocket Only	AMBP2



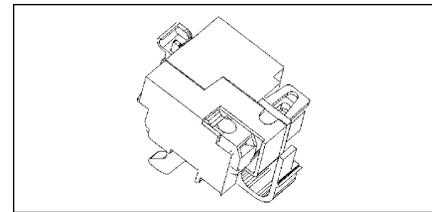
Auxiliary/Alarm Switch Only

Common to DG - PG Frames

Description	Catalog Number
1 Normally Open Contact (1A)	ASWPA
1 Normally Closed Contact (1B)	ASWPB

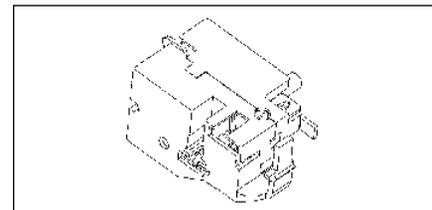
Shunt Trips

Description	Mounting Pocket	Catalog Number
24 VDC	Right Pocket Only	STRPB24DC
48-60 VDC		STRPC60DC
110-127 VDC		STRPD125DC
220-250 VDC		STRPE250DC
48-60 VAC		STRPM60
110-127 VAC		STRPN120
208-277 VAC		STRPS277
380-600 VAC		STRPV600



Undervoltage Release

Description	Mounting Pocket	Catalog Number
12 VDC	Right Pocket Only	UVRPA12DC
24 VDC		UVRPB24DC
48 VDC		UVRPC48DC
60 VDC		UVRPG60DC
110-127 VDC		UVRPD125DC
220-250 VDC		UVRPE250DC
110-127 VAC		UVRPN120
220-240 VAC		UVRPR240
208 VAC		UVRPP208
277 VAC		UVRPS277
380-415 VAC		UVRPT415
440-480 VAC		UVRPU480



^① Refer to the "Accessory Locations" chart on page 7-152 for guidelines and limitations about which pockets may be used for accessory combinations.

'A' refers to a normally open contact (open when the breaker contacts are open).

'B' refers to a normally closed contact (closed when the breaker contacts are open).

VL Circuit Breakers

NG 1200A Frame, VL Series

Selection/Dimensions



Dimensions, inches (mm)

Number of Poles	W	L	D	To Handle D1
2, 3	9 (229)	16 (406)	6 (152)	8.1 (207)

Shipping Weight, lbs. (kg)

Poles	Frame	Trip Unit	Complete Breaker
2, 3	46.3 (21.0)	8.8 (4.0)	55.1 (25.0)

Ordering Information

Complete Assembled Breaker with Lugs

A complete factory assembled NG breaker includes the frame, trip unit, and standard line and load lugs, all factory installed and shipped as a complete breaker. Assembled breakers are available only with standard connectors.

For any other configuration, order the frame, trip unit, and terminals as separate items.

For DC applications, use thermal magnetic trip unit only.

For reverse feed applications, select non-interchangeable trip breakers only. For non-interchangeable trip breakers, change the third digit of the catalog number to "X" for standard breakers.

For 100% rated breakers with a non-interchangeable trip unit, change the 3rd character of the catalog number to "Y".

For special applications, refer to page 7-156.

Mounting hardware is included with each frame or complete breaker.

A Toggle Handle Extension is included with each frame or complete breaker. HACR rated.

Interrupting Ratings

Interrupting Class	Breaker Type	RMS Symmetrical Amperes (KA)										
		UL 489					IEC 60947-2					
		Volts AC (50/60 Hz)			Volts DC		Volts AC (50/60 Hz)					
		240	480	600	250	500	220/240		380/415		690	
						I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	
N	NNG	65	35	25	22	35	65	35	50	25	20	10
H	HNG	100	65	35	25	50	100	50	70	35	30	15
L	LNG	200	100	65	42	65	200	100	100	50	35	17

Connectors for 75°C Wire

Construction	Ampere Rating	Wire Range	No. of cables per connector	Catalog Number
Aluminum	300-1200A	1/0-500 kcmil Al/Cu	4	3TA4NG500 ^{③④}
Aluminum	300-1200A	500-750 kcmil Al/Cu	3	3TA3NG750 ^④
Copper	300-1200A	1/0-500 kcmil Cu	4	3TC4NG500 ^{②④}
Aluminum	300-1200A	1/0-500 kcmil Al/Cu	4	3TA4NG500H ^{②④}
Compression Lugs				
	300-1200A	1/0-500 kcmil Al/Cu	—	12CLN500 ^①

① Total of 12 connectors (4 per phase Line or Load).

② For 100% rated NG breakers. Requires 90°C Cu cable sized at 75°C ampacity.

③ Standard connector provided with complete breakers.

④ Kit consists of 3 terminal connectors.

NG Thermal-Magnetic, Instantaneous Trip Adjustment Range

Trip Unit Continuous Amp Rating (I _n)	Instantaneous Overcurrent Setting (I _b)	
	Min.	Max.
800	4000	8000
900	5000	10000
1000	5000	10000
1200	7000	12000

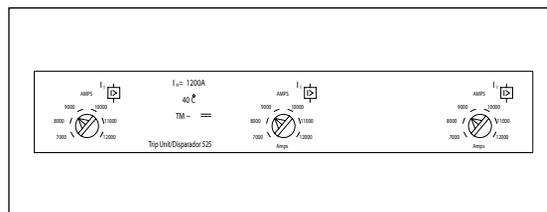
Note: Each breaker has 6 trip settings.

External Accessories pages 7-137 through 7-151

VL Circuit Breakers

NG 1200A Thermal-Magnetic Trip Unit

Selection



Model 525 Trip Unit

NG 1200A Frame 2-Pole with Thermal-Magnetic Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	
	Catalog Number	Catalog Number	Catalog Number	Catalog Number
	FRAME ONLY			TRIP UNIT ONLY
	NNG2F120	HNG2F120	LNG2F120	
COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER				
800	NNG2B800L	HNG2B800L	LNG2B800L	CNT2B800
900	NNG2B900L	HNG2B900L	LNG2B900L	CNT2B900
1000	NNG2B100L	HNG2B100L	LNG2B100L	CNT2B100
1200	NNG2B120L	HNG2B120L	LNG2B120L	CNT2B120

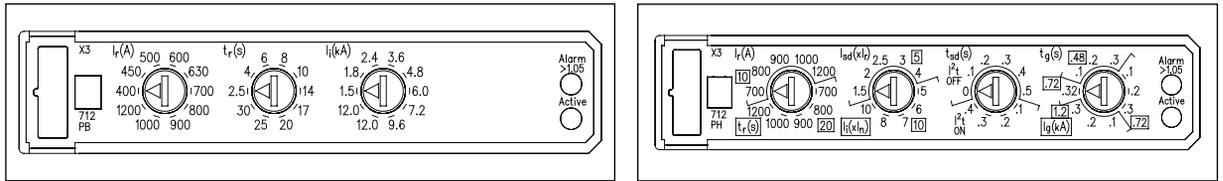
NG 1200A Frame 3-Pole with Thermal-Magnetic Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	
	Catalog Number	Catalog Number	Catalog Number	Catalog Number
	FRAME ONLY			TRIP UNIT ONLY
	NNG3F120	HNG3F120	LNG3F120	
COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER				
800	NNG3B800L	HNG3B800L	LNG3B800L	CNT3B800
900	NNG3B900L	HNG3B900L	LNG3B900L	CNT3B900
1000	NNG3B100L	HNG3B100L	LNG3B100L	CNT3B100
1200	NNG3B120L	HNG3B120L	LNG3B120L	CNT3B120

VL Circuit Breakers

NG 1200A Electronic Trip Units

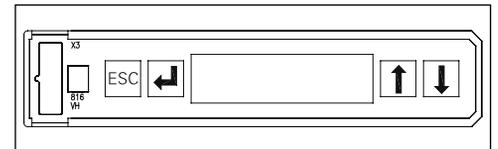
Selection



Model 555 Trip Units

NG 1200A Frame 3-Pole Electronic Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	Catalog Number
	Catalog Number	Catalog Number	Catalog Number	
	FRAME ONLY			
	NNG3F120	HNG3F120	LNG3F120	
COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER				TRIP UNIT ONLY
ELECTRONIC LI TRIP				
800	NNG3R800L	HNG3R800L	LNG3R800L	CNT3R800
1000	NNG3R100L	HNG3R100L	LNG3R100L	CNT3R100
1200	NNG3R120L	HNG3R120L	LNG3R120L	CNT3R120
ELECTRONIC LSI TRIP				
800	NNG3T800L	HNG3T800L	LNG3T800L	CNT3T800
1000	NNG3T100L	HNG3T100L	LNG3T100L	CNT3T100
1200	NNG3T120L	HNG3T120L	LNG3T120L	CNT3T120
ELECTRONIC LSIG TRIP				
800	NNG3V800L	HNG3V800L	LNG3V800L	CNT3V800
1000	NNG3V100L	HNG3V100L	LNG3V100L	CNT3V100
1200	NNG3V120L	HNG3V120L	LNG3V120L	CNT3V120
ELECTRONIC LIG TRIP				
800	NNG3W800L	HNG3W800L	LNG3W800L	CNT3W800
1000	NNG3W100L	HNG3W100L	LNG3W100L	CNT3W100
1200	NNG3W120L	HNG3W120L	LNG3W120L	CNT3W120



Model 586 Trip Unit

NG 1200A Frame 3-Pole Electronic LCD Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	Catalog Number
	Catalog Number	Catalog Number	Catalog Number	
	FRAME ONLY			
	NNG3F120	HNG3F120	LNG3F120	
COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER				TRIP UNIT ONLY
LCD ELECTRONIC LSI TRIP				
800	NNG3A800L	HNG3A800L	LNG3A800L	CNT3A800
1000	NNG3A100L	HNG3A100L	LNG3A100L	CNT3A100
1200	NNG3A120L	HNG3A120L	LNG3A120L	CNT3A120
LCD ELECTRONIC LSIG TRIP				
800	NNG3G800L	HNG3G800L	LNG3G800L	CNT3G800
1000	NNG3G100L	HNG3G100L	LNG3G100L	CNT3G100
1200	NNG3G120L	HNG3G120L	LNG3G120L	CNT3G120
LCD ELECTRONIC LSI TRIP + GF ALARM ONLY				
800	NNG3K800L	HNG3K800L	LNG3K800L	CNT3K800
1000	NNG3K100L	HNG3K100L	LNG3K100L	CNT3K100
1200	NNG3K120L	HNG3K120L	LNG3K120L	CNT3K120

7 MOLDED CASE
CIRCUIT BREAKERS

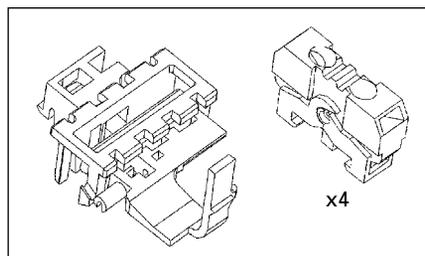
VL Circuit Breakers

Internal Accessories for MG 800A, NG 1200A, and PG 1600A Frames

Selection

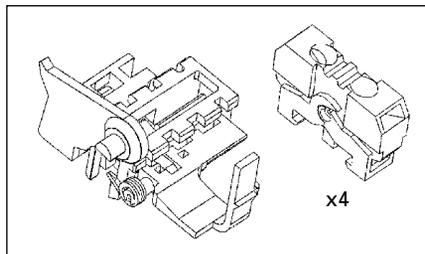
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket ^①	Catalog Number
2 Aux. + 2 Alarm Switches 2A + 2B Base AMBP2	Left Pocket Only	ASKP3
4 Aux. Switches 2A + 2B Base AMBP1	Left, Right	ASKP4



Auxiliary/Alarm Switch Mounting Base Only

Description	Mounting Pocket ^①	Catalog Number
Up to 4 Auxiliary Switches 2 Aux. + 2 Alarm Switches	Left, Right Left Pocket Only	AMBP1 AMBP2



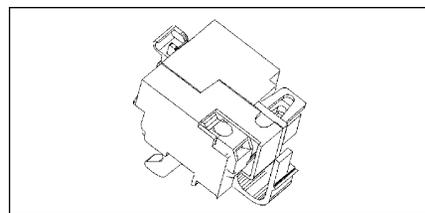
Auxiliary/Alarm Switch Only

Common to DG-PG Frames

Description	Catalog Number
1 Normally Open Contact (1A)	ASWPA
1 Normally Closed Contact (1B)	ASWPB

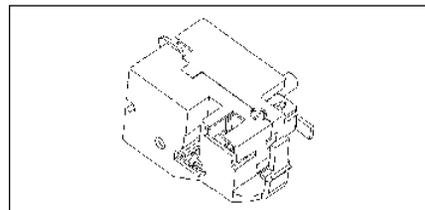
Shunt Trips

Description	Mounting Pocket	Catalog Number
24 VDC	Right Pocket Only	STRPB24DC
48-60 VDC		STRPC60DC
110-127 VDC		STRPD125DC
220-250 VDC		STRPE250DC
48-60 VAC		STRPM60
110-127 VAC		STRPN120
208-277 VAC		STRPS277
380-600 VAC		STRPV600



Undervoltage Release

Description	Mounting Pocket	Catalog Number
12 VDC	Right Pocket Only	UVRPA12DC
24 VDC		UVRPB24DC
48 VDC		UVRPC48DC
60 VDC		UVRPG60DC
110-127 VDC		UVRPD125DC
220-250 VDC		UVRPE250DC
110-127 VAC		UVRPN120
220-240 VAC		UVRPR240
208 VAC		UVRPP208
277 VAC		UVRPS277
380-415 VAC		UVRPT415
440-480 VAC		UVRPU480



① Refer to the "Accessory Locations" chart on page 7-152 for guidelines and limitations about which pockets may be used for accessory combinations.
 'A' refers to a normally open contact (open when the breaker contacts are open).
 'B' refers to a normally closed contact (closed when the breaker contacts are open).

VL Circuit Breakers

PG 1600A Frame, VL Series & Thermal-Magnetic Trip Unit

Selection/Dimensions

Ordering Information

A complete factory assembled PG breaker includes the frame and trip unit only. The connectors must be ordered as separate items.

PG thermal-magnetic breakers sold as non-interchangeable only.

For any other configuration, order the frame, trip unit, and connectors as separate items.

Connectors require a Breaker Lug Mounting Assembly or Breaker Mounting Base and must be ordered as a separate item.

For DC applications, use Thermal magnetic trip unit only.

For reverse feed applications select non-interchangeable trip breakers only. Change the third digit of the catalog number to "X" for non-interchangeable trip breakers.

For 100% rated breakers with a non-interchangeable trip unit, change the 3rd character of the catalog number to "Y".

For special applications, refer to page 7-156.

Mounting hardware is included with each frame or complete breaker.

A Toggle Handle Extension is included with each frame or complete breaker.



Dimensions, inches (mm)

Number of Poles	W	L	D	To Handle D1
2, 3	9 (229)	16 (406)	6 (152)	8.1 (207)

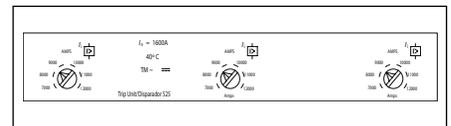
Shipping Weight, lbs. (kg)

Poles	Frame	Trip Unit	Complete Breaker
2, 3	60.2 (27.3)	8.8 (4.0)	69.0 (31.3)

PG Thermal-Magnetic, Instantaneous Trip Adjustment Range

Trip Unit Continuous Amp Rating (I _n)	Instantaneous Overcurrent Setting (I _t)	
	Min.	Max.
1200	7000	12000
1400	7000	12000
1600	7000	12000

Note: Each breaker has 6 trip settings in this range.



Model 525 Trip Unit

Interrupting Ratings

Interrupting Class	Breaker Type	RMS Symmetrical Amperes (KA)										
		UL 489					IEC 60947-2					
		Volts AC (50/60 Hz)			Volts DC		Volts AC (50/60 Hz)					
		240	480	600	250	500	220/240		380/415		690	
					I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}		
N	NPG	65	35	25	22	35	65	35	50	25	20	10
H	HPG	100	65	35	25	50	100	50	70	35	30	15
L	LPG	200	100	65	42	65	200	100	100	50	35	17

Connectors for 75°C Wire

Construction	Ampere Rating	Wire Range	No. of cables per phase	Catalog Number
Aluminum	1200-1600A	1/0-750 kcmil Al/Cu	6	3TA6PG750 ^{①②③}
Aluminum	1200-1600A	300-600 kcmil Al/Cu	5	TA5P600 ^{②④}
Aluminum	1200-1600A	600-750 kcmil Al/Cu	4	TA4P750 ^{②④}
Aluminum	1200-1600A	300-600 kcmil Al/Cu	6	TA6R600 ^{②④}
Copper	1200-1600A	300-600 kcmil Cu	5	TC5R600 ^{②④⑤}

① Requires Lug Mounting Assembly LMAP1600.

② Requires Breaker Mounting Base MBPG1600 Kit or MBPG1601.

③ Consists of 3 connectors.

④ Consists of 1 connector.

⑤ Required for 100% rated PG breakers. Requires 90°C cable sized at 75°C ampacity.

Mounting Arrangement

Description	Catalog Number
Lug Mounting Assembly	LMAP1600
Breaker Mounting Base (Front Connect)	MBPG1600
Breaker Mounting Base (Rear Connect)	MBPG1601

PG 1600A Frame 3-Pole with Thermal-Magnetic Trip Unit

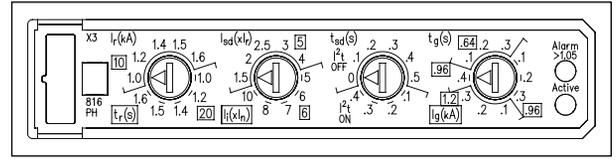
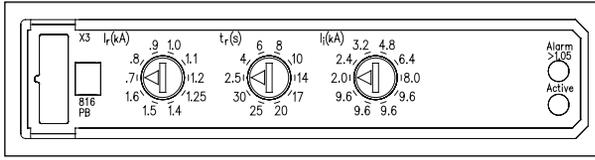
Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class
	Catalog Number	Catalog Number	Catalog Number
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER		
1200	NPX3B120	HPX3B120	LPX3B120
1400	NPX3B140	HPX3B140	LPX3B140
1600	NPX3B160	HPX3B160	LPX3B160

External Accessories pages 7-137 through 7-151

VL Circuit Breakers

PG 1600A Electronic Trip Units

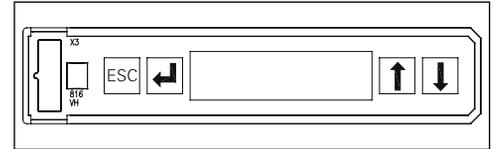
Selection



Model 555 Trip Unit

PG 1600A Frame 3-Pole Electronic Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	Catalog Number
	Catalog Number	Catalog Number	Catalog Number	
	FRAME ONLY			
	NPG3F160	HPG3F160	LPG3F160	
COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER				TRIP UNIT ONLY
ELECTRONIC LI TRIP				
1200	NPG3R120	HPG3R120	LPG3R120	CPT3R120
1600	NPG3R160	HPG3R160	LPG3R160	CPT3R160
ELECTRONIC LSI TRIP				
1200	NPG3T120	HPG3T120	LPG3T120	CPT3T120
1600	NPG3T160	HPG3T160	LPG3T160	CPT3T160
ELECTRONIC LSIG TRIP				
1200	NPG3V120	HPG3V120	LPG3V120	CPT3V120
1600	NPG3V160	HPG3V160	LPG3V160	CPT3V160
ELECTRONIC LIG TRIP				
1200	NPG3W120	HPG3W120	LPG3W120	CPT3W120
1600	NPG3W160	HPG3W160	LPG3W160	CPT3W160



Model 586 Trip Unit

PG 1600A Frame 3-Pole Electronic LCD Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	Catalog Number
	Catalog Number	Catalog Number	Catalog Number	
	FRAME ONLY			
	NPG3F160	HPG3F160	LPG3F160	
COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER				TRIP UNIT ONLY
LCD ELECTRONIC LSI TRIP				
1200	NPG3A120	HPG3A120	LPG3A120	CPT3A120
1600	NPG3A160	HPG3A160	LPG3A160	CPT3A160
LCD ELECTRONIC LSIG TRIP				
1200	NPG3G120	HPG3G120	LPG3G120	CPT3G120
1600	NPG3G160	HPG3G160	LPG3G160	CPT3G160
LCD ELECTRONIC LSI TRIP + GF ALARM ONLY				
1200	NPG3K120	HPG3K120	LPG3K120	CPT3K120
1600	NPG3K160	HPG3K160	LPG3K160	CPT3K160

MOLDED CASE
CIRCUIT BREAKERS
7

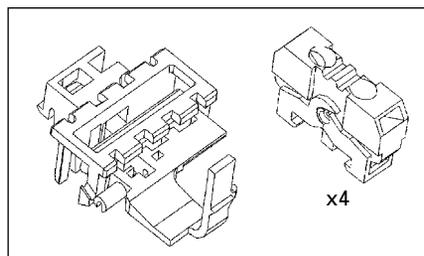
VL Circuit Breakers

Internal Accessories for MG 800A, NG 1200A, and PG 1600A Frames

Selection

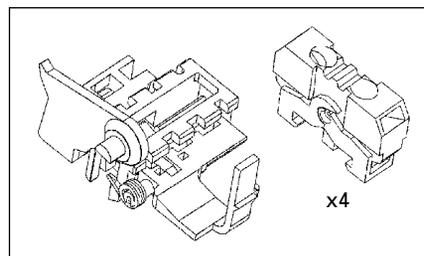
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket ^①	Catalog Number
2 Aux. + 2 Alarm Switches 2A + 2B Base AMBP2	Left Pocket Only	ASKP3
4 Aux. Switches 2A + 2B Base AMBP1	Left, Right	ASKP4



Auxiliary/Alarm Switch Mounting Base Only

Description	Mounting Pocket ^①	Catalog Number
Up to 4 Auxiliary Switches 2 Aux. + 2 Alarm Switches	Left, Right Left Pocket Only	AMBP1 AMBP2



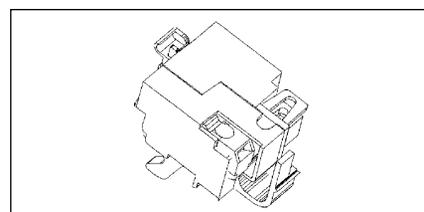
Auxiliary/Alarm Switch Only

Common to DG-PG Frames

Description	Catalog Number
1 Normally Open Contact (1A)	ASWPA
1 Normally Closed Contact (1B)	ASWPB

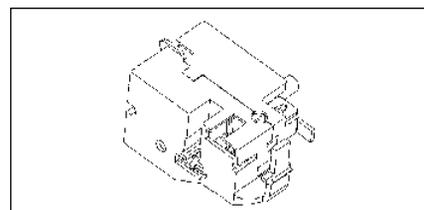
Shunt Trips

Description	Mounting Pocket	Catalog Number
24 VDC	Right Pocket Only	STRPB24DC
48-60 VDC		STRPC60DC
110-127 VDC		STRPD125DC
220-250 VDC		STRPE250DC
48-60 VAC		STRPM60
110-127 VAC		STRPN120
208-277 VAC		STRPS277
380-600 VAC		STRPV600



Undervoltage Release

Description	Mounting Pocket	Catalog Number
12 VDC	Right Pocket Only	UVRPA12DC
24 VDC		UVRPB24DC
48 VDC		UVRPC48DC
60 VDC		UVRPG60DC
110-127 VDC		UVRPD125DC
220-250 VDC		UVRPE250DC
110-127 VAC		UVRPN120
220-240 VAC		UVRPR240
208 VAC		UVRPP208
277 VAC		UVRPS277
380-415 VAC		UVRPT415
440-480 VAC		UVRPU480



① Refer to the "Accessory Locations" chart on page 7-152 for guidelines and limitations about which pockets may be used for accessory combinations.

'A' refers to a normally open contact (open when the breaker contacts are open).

'B' refers to a normally closed contact (closed when the breaker contacts are open).

VL Circuit Breakers

Molded Case Switch

Selection

General

Typically a molded case switch is used when a compact load-break switch is needed for disconnect purposes. The VL line of molded case switches from Siemens is made of the same materials and components as the VL circuit breakers but do not provide overcurrent protection. Each molded case

switch has a fixed instantaneous self-protecting trip element which may open the switch under high fault conditions.

Application Note

Overcurrent protection must be provided by an appropriate overcurrent protective device located upstream from

the molded case switch. Also, the short-circuit current rating of the switch is limited to the interrupting rating of the upstream protective device or the ratings in the table below, **whichever is less.**

Ordering Information	
Each type VL molded case switch accepts the same terminals and accessories as the equivalent VL circuit breakers.	
All type VL molded case switches are suitable for reverse feed applications.	
Mounting hardware and standard line and load terminals are included on ratings through 250A. For 400 – 1600A ratings, order the lugs separately.	
All ratings are UL listed and CSA certified.	

Molded Case Switch

Maximum Ampere Rating / Frame	2-Pole	3-Pole	Short-Circuit Current Rating ^①			Self Protective Instantaneous Override
	Catalog Number	Catalog Number	240V	480V	600V	
150A / DG	HDR2S150L	HDR3S150L	100k	65k	20k	2,500A
250A / FG	HFR2S250L	HFR3S250L	100k	65k	20k	3,500A
400A / JG	HJS2S400	HJS3S400	100k	65k	25k	4,400A
600A / LG	HLR2S600	HLR3S600	100k	65k	18k	5,500A
800A / MG	HMS2S800	HMS3S800	100k	65k	35k	6,500A
1200A / NG	HNS2S120	HNS3S120	100k	65k	35k	12,000A
1600A / PG	—	HPS3S160	100k	65k	35k	14,000A

Maximum Ampere Rating / Frame	3-Pole	Short-Circuit Current Rating ^①			Self Protective Instantaneous Override
	Catalog Number	240V	480V	600V	
250A / FG	LFR3S250L	200k	100k	25k	3,500A
400A / JG	LJS3S400	200k	100k	25k	4,400A
600A / LG	LLR3S600	200k	100k	18k	5,500A
800A / MG	LMS3S800	200k	100k	65k	6,500A
1200A / NG	LNS3S120	200k	100k	65k	12,000A
1600A / PG	LPS3S160	200k	100k	65k	14,000A

^①The Short-Circuit Current Rating is the maximum available current of the circuit where the switch is used, when protected by an appropriate overcurrent protective device.

VL Circuit Breakers

• Revised •
03/08/13

Motor Circuit Protectors

Selection

General

Protection of Motor Circuits

Molded case circuit breakers are used in motor circuits as a disconnecting means and for short-circuit protection. They should be used in conjunction with motor-running, over-current protection devices, and should permit the motor to start without nuisance tripping from motor-inrush current. The circuit breaker should have a continuous current rating of not less than 115% of the motor full-load current.

The recommended motor circuit protectors listed have continuous-current ratings of at least 115% of motor full-load currents. The trip setting positions are approximately 11 times motor full-load current. The suggested trip settings may need to be adjusted upward to no higher than 1300% of full-load current for non-design E type motors, and no greater than 1700% of full-load current for design E motors, to allow for motor startup due to in-rush current.

Breaker Mounted Immediately Ahead of Motor Starter

Siemens motor circuit protectors are recommended for use in combination motor starters to provide selective short-circuit protection for the motor branch circuit. The adjustable instantaneous trip feature of the Siemens motor circuit protector provides for a trip setting slightly above the peak motor in-rush current. With this setting, no delay is introduced in opening the circuit when a fault occurs. This circuit breaker has no time-delay trip element. Therefore it must be used in conjunction with, and immediately ahead of, the motor-running overcurrent protection device.

Important: The information below does not apply to all motor applications: it is recommended that the user refer to the National Electrical Code (NEC) for specific needs.

Table 1 (When Breaker is Mounted Immediately Ahead of Motor Starter)

3-Phase Induction Type Motors (Siemens motor circuit protectors for branch circuit use with alternating-current combination, full voltage motor starters)

Motor Full Load Amperes	Trip Setting (A)	Catalog Number ^①
35-50	450	HDP3L150L
42-60	540	
48-70	630	
55-80	720	
62-90	810	
69-100	900	
58-83	750	HDP3M150L
69-100	900	
81-117	1050	
92-133	1200	
104-150	1350	
115-150 ^②	1500	
96-139	1250	HDP3H150L
115-150 ^②	1500	
135-150 ^②	1750	
135-150 ^②	2000	
135-150 ^②	2250	
135-150 ^②	2500	
46-67	600	HFP3L250L
55-80	720	
65-93	840	
74-107	960	
83-120	1080	
92-133	1200	
77-111	1000	HFP3M250L
92-133	1200	
108-156	1400	
123-178	1600	
138-200	1800	
154-222	2000	
135-194	1750	HFP3H250L
162-210	2100	
188-220	2450	
215-241	2800	
242-250 ^②	3150	
242-250 ^②	3500	

① Motor circuit protectors rated 150A and 250A are supplied with line and load lugs installed. If lugs are required on 400A to 1200A motor circuit breakers, order required lugs separately.

Motor Full Load Amperes	Trip Setting (A)	Catalog Number ^①
96-139	1250	HJM3L400
115-167	1500	
135-194	1750	
154-222	2000	
173-250	2250	
192-278	2500	
154-222	2000	HJM3M400
185-267	2400	
215-311	2800	
246-356	3200	
277-400	3600	
308-400 ^②	4000	
154-222	2000	HLM3J600
185-267	2400	
215-311	2800	
246-356	3200	
277-400	3600	
308-444	4000	
212-306	2750	HLM3Y600
254-367	3300	
296-428	3850	
338-489	4400	
381-550	4950	
423-600	5500	
250-361	3250	HMM3M800
292-422	3800	
335-483	4350	
385-556	5000	
442-638	5740	
500-722	6500	
385-556	5000	HNM3M120
462-667	6000	
538-778	7000	
615-889	8000	
692-1000	9000	
769-1111	10,000	

② These settings are provided for starting currents greater than 11X but not to exceed 17X. Full Load Amps (FLA) not to exceed ampere rating of MCP.

VL Circuit Breakers

600 Volt DC Circuit Breakers

Selection

General

Siemens UL Listed non-interchangeable trip DC Thermal/magnetic Molded Case Circuit Breakers shown below are for use in grounded & ungrounded general DC circuits and ungrounded battery supply circuits of UPS systems. These breakers are rated at 600Vdc closed circuit and feature rated interruption levels from 42,000 to 65,000 amperes as indicated in

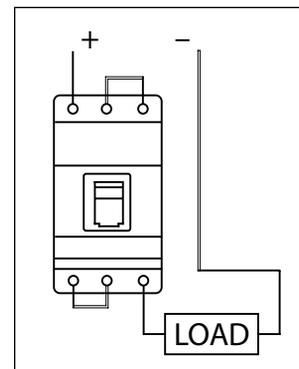
the table. This family of circuit breakers is rated from 50 to 1600 Amperes.

Types HDGD through HPGD circuit breakers are provided with an adjustable magnetic over-current function located on the face of the circuit breaker. Contact Siemens for specific magnetic over-current values.

To properly use these UL Listed circuit breakers at 600Vdc and the indicated

interruption level, it is necessary to connect the terminals of the 3 pole circuit breaker in a series configuration as shown in the diagram below.

Types HDGD through HPGD use the same internal and external accessories as the standard DG through PG frames and associated types. Consult the individual frame section for accessory information.

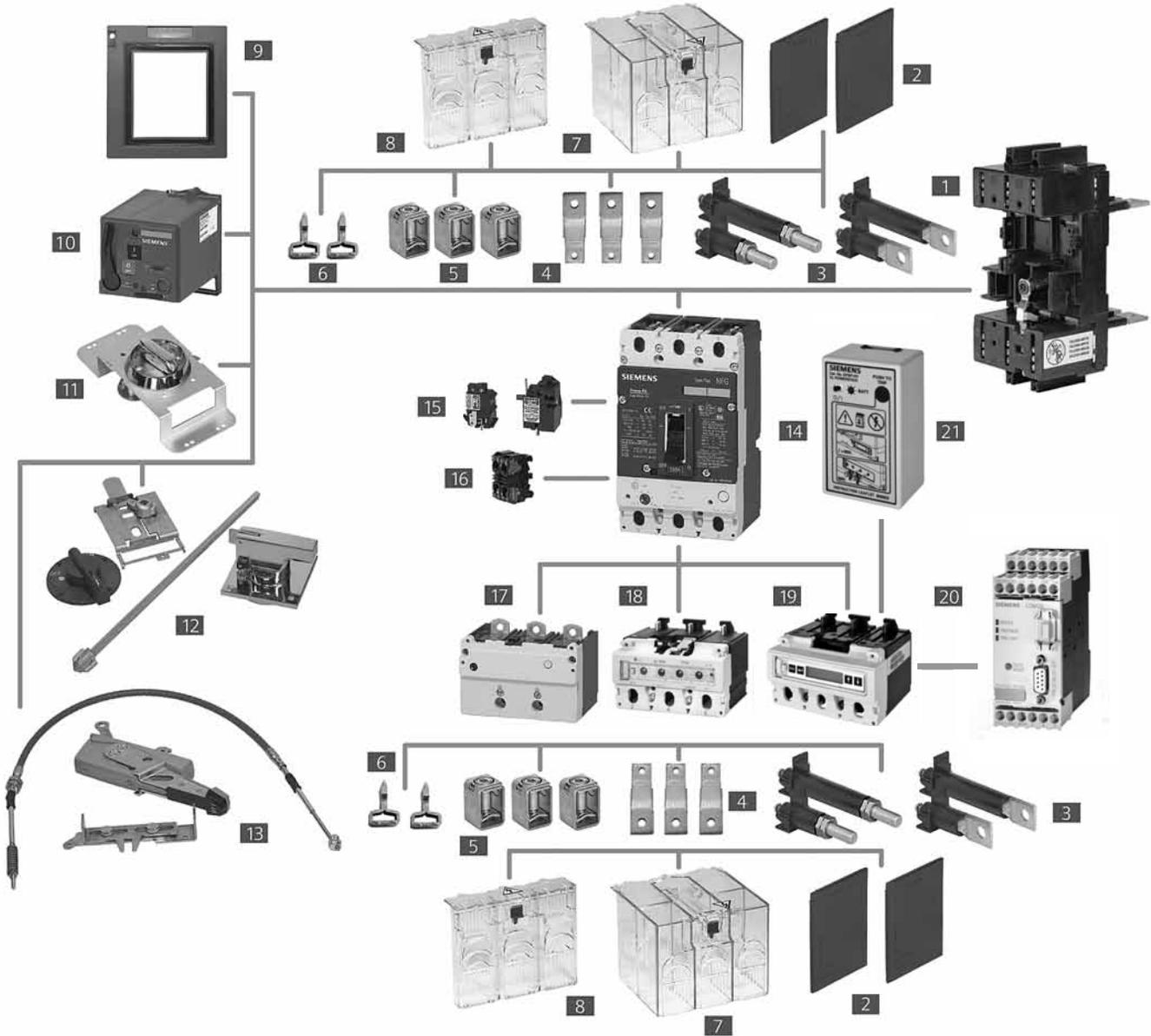


Frame	Type	Continuous Ampere Rating	Catalog Number (3-pole) ^①	Short-Circuit Current Rating 600VDC ^②
DG	HDGD	50	HDC3B050	42K
		60	HDC3B060	42K
		70	HDC3B070	42K
		80	HDC3B080	42K
		90	HDC3B090	42K
		100	HDC3B100	42K
		110	HDC3B110	42K
		125	HDC3B125	42K
		150	HDC3B150	42K
FG	HFGD	100	HFC3B100	42K
		150	HFC3B150	42K
		250	HFC3B250	42K
JG	HJGD	250	HJC3B250	65K
		300	HJC3B300	65K
		350	HJC3B350	65K
		400	HJC3B400	65K
LG	HLGD	400	HLC3B400	65K
		600	HLC3B600	65K
MG	HMGD	600	HMC3B600	65K
		700	HMC3B700	65K
		800	HMC3B800	65K
NG	HNGD	800	HNC3B800	65K
		900	HNC3B900	65K
		1000	HNC3B1000	65K
		1200	HNC3B1200	65K
PG	HPGD	1200	HPC3B1200	65K
		1400	HPC3B1400	65K
		1600	HPC3B1600	65K

^① Terminal connectors must be ordered separately; see page 7-146.

^② Standard VL breakers DG - PG feature DC ratings up to 500V for ungrounded UPS applications. Consult the individual frame section for more information.

Modularity To Support All Your Application Needs Modules and More: VL Circuit Breakers with Optional Accessories



7
MOLDED CASE
CIRCUIT BREAKERS

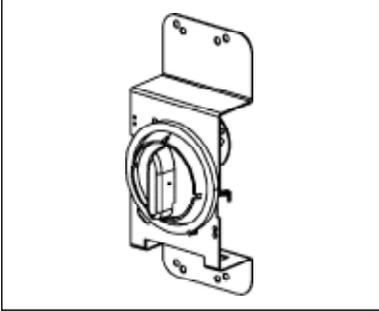
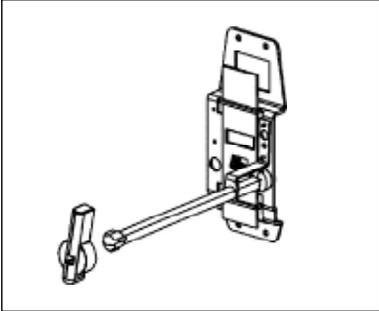
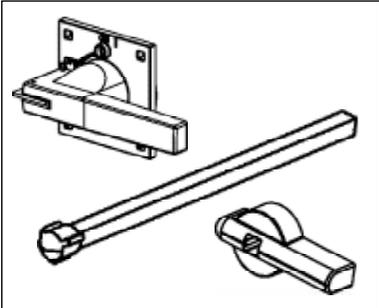
- 1** Base for Plug-In or Draw-Out
- 2** Interphase Barriers
- 3** Rear Terminals – Flat and Round
- 4** Bus Extensions
- 5** Terminal Connectors
- 6** Plug-In Terminal Blades
- 7** Extended Terminal Shield
- 8** Standard Terminal Shield

- 9** Cover Frame for Door Cutout
- 10** Stored Energy Operator
- 11** Rotary Handle Operator
- 12** Variable Depth Rotary Operator
- 13** Max Flex Operator
- 14** Circuit Breaker
- 15** Shunt Trip or Undervoltage Releases
- 16** Auxiliary/Alarm Switches

- 17** Thermal Magnetic Trip Unit (525)
- 18** Electronic Trip Unit (555)
- 19** Elec. Trip Unit with LCD (586)
- 20** Communication Module with ZSI
- 21** Electronic Trip Unit Tester and LCD Power Supply

External Accessories

Operating Mechanisms

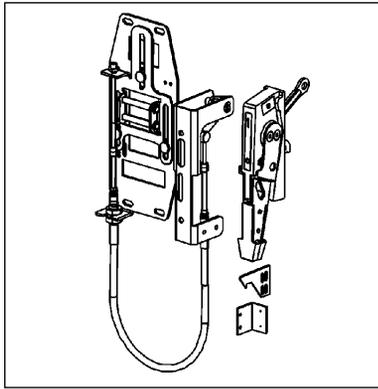
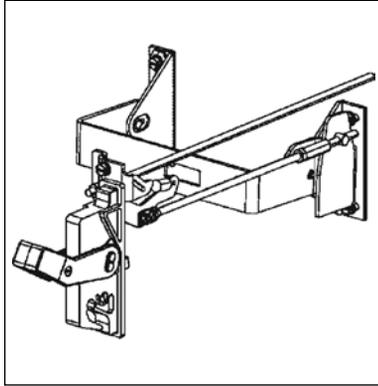
Description	For DG to FG Frame 150 to 250 A		For JG to LG Frame 400 A to 600 A	
	Catalog Number	List Price \$	Catalog Number	List Price \$
 <p>Through-Door Rotary Handle Operator Kit Fixed depth and the handle is mounted directly on the circuit breaker. Lockable knob (for up to 3 padlocks). NEMA 1, 12</p> <p>Red Handle Version with red knob, yellow indicator plate NEMA 1, 12</p>	RHFF		RHFL	
	RHFFEM		RHFLEM	
	<p>Door-Mounted Rotary Handle Operator Kit Variable depth, door mounted handle. Includes knob with masking frame, indicator plate, detachable door coupling, 12" shaft, and breaker mounted rotary operator. Lockable knob (for up to 3 padlocks). NEMA 1, 12</p>		RHVF12	RHVL12
 <p>Auxiliary Switch Kits For Direct or Extended Rotary Handle Operators (RHF and RHV). Form C, Early Break type2 Aux. Switch Kit[Ⓞ] Includes 1 switch with 5' wire For Door-Mounted Operator For Through-Door Operator</p> <p>Includes 2 switches with 5' wire For Door-Mounted Operator For Through-Door Operator</p>	—	—	RHSLA1 RHSLA1F	
	RHSFA1F			
	—	—	RHSLA2 RHSLA2F	
	RHSFA2F			
<p>Door-Mounted Rotary Operator Mechanism Breaker mechanism only</p>		RHVFBM	RHVLBM	
<p>Door-Mounted Rotary Handle Only Standard version NEMA 1, 12 NEMA 3R NEMA 4X</p> <p>Red Handle version</p>		RHVM12H RHVM3RH RHVM4XH RHVMEMH	RHVM12H RHVM3RH RHVM4XH RHVMEMH	
<p>NFPA-79 Handle Kit Intermediate handle for NFPA-79 compliance with door-mounted rotary operator</p>		RHVF79H	RHVM79H	
<p>Extension Shaft Only, for Door Mounted Operator 2 inches (50.8mm) 3 inches (76.2mm) 12 inches (304.8 mm) 16 inches (406.4 mm) 24 inches (609.6mm) w/ support bracket</p>		RHVMS02 — RHVMS12 RHVMS16 RHVMS24	RHVMS02 — RHVMS12 RHVMS16 RHVMS24	
				

[Ⓞ] During manual operation, Early Break auxiliary switch contacts open before the breaker opens.

Description	For MG Frame 800 A		For NG to PG Frame 1200 to 1600 A	
	Catalog Number	List Price \$	Catalog Number	List Price \$
Through-Door Rotary Handle Operator Kit Fixed depth, breaker mounted. For direct fitting to the circuit breaker. Lockable with up to 3 padlocks. NEMA 1, 12	RHFM	—	—	—
Red Handle version with red knob, yellow indicator plate NEMA 1, 12	—	—	—	—
Door-Mounted Rotary Handle Operator Kit Variable depth, door mounted handle. Includes knob with masking frame, indicator plate, detachable door coupling, 12" shaft, and breaker mounted rotary operator. Lockable knob (for up to 3 padlocks). NEMA 1, 12	RHVM12	—	—	—
Auxiliary Switch Kits For Direct or Extended Rotary Handle Operators (RHF and RHV). Early Break type2 Aux. Switch Kit Includes 1 switch with 5' wire For Door-Mounted Operator For Through-Door Operator	RHSMA1 —	—	RHSPA1 —	—
Includes 2 switches with 5' wire For Door-Mounted Operator For Through-Door Operator	RHSMA2 —	—	RHSPA2 —	—
Door-Mounted Rotary Operator Mechanism Breaker mechanism only	RHVMBM	—	RHVPBM	—
Door-Mounted Rotary Handle Only Standard version NEMA 1, 12 NEMA 3R NEMA 4X Red Handle version	RHVM12H RHVM3RH RHVM4XH RHVMEMH	—	RHVP3RH RHVP3RH RHVP4XH RHVPEMH	—
NFPA-79 Handle Kit Intermediate handle for NFPA-79 compliance with door-mounted rotary operator	RHVM79H	—	RHVP79H	—
Extension Shaft Only, for Door Mounted Operator 2 inches (50.8mm) 3 inches (76.2mm) 12 inches (304.8 mm) 16 inches (406.4 mm) 24 inches (609.6mm) w/ support bracket	RHVMS02 — RHVMS12 RHVMS16 RHVMS24	—	— RHVPS03 RHVPS12 — RHVPS24	—

External Accessories

Operating Mechanisms



Description	For DG and FG Frame 150 to 250 A	For JG and LG Frame 400 to 600 A
	Catalog Number	Catalog Number
Variable Depth Flange Mounted Operator Kit Adjustable from 8" to 16" Complete kit, includes handle and variable depth operator. NEMA 1, 3R, 12 NEMA 4X IEC Black Handle NEMA 1, 3R, 12 NEMA 4X	FHV3R FHV4X FHV3RB FHV4XB	FHV3R FHV4X FHV3RB FHV4XB
Max-Flex™, Variable Depth Flange Mounted Operator Kit Complete kit, includes plastic handle, breaker operator, and cable. NEMA 1, 3R, 12 For DG and FG operators, the cable is 36", all others are 48" May be right- or left-hand mounted	MFKF3R	MFKL3R
Handle Only, for Max-Flex™ Variable Depth NEMA 1, 3R, 12 Plastic NEMA 1, 3R, 12 Steel - epoxy coated NEMA 4, 4X Steel - chrome plated Solid color (all gray) Plastic ^① NEMA 1, 3R, 12 Solid color (black handle) Steel epoxy coated ^① NEMA 1, 3R, 12	MFHM3R MFHM3RS MFHM4X MFHM3RB MFHM3RSB	MFHM3R MFHM3RS MFHM4X MFHM3RB MFHM3RSB
Breaker Operator Mechanism Only, for Max-Flex™	MFMF	MFML
Cable Only, for Max-Flex™ Variable Depth 36" 48" 60" 72" 84" 96" 120" 144"	MFCF036 MFCF048 MFCF060 MFCF072 MFCF084 MFCF096 MFCF120 MFCF144	MFCM036 MFCM048 MFCM060 MFCM072 MFCM084 MFCM096 MFCM120 MFCM144
Handle Auxiliary Switch Form C (1NO - 1NC), early break ^② 1 Aux. switch 2 Aux. switch	MFSFA1 MFSFA2	MFSLA1 MFSLA2

① Max-Flex™ handles are available with solid gray or black handles instead of the customary "Red for On" flange handle.

The black handle is preferred for IEC markets, where red handles have a specific meaning.

② During manual operation, Early Break aux. contacts open before the breaker opens.

Description	For MG Frame 800 A	For NG Frame 1200 A	For PG Frame 1600 A
	Catalog Number	Catalog Number	Catalog Number
Variable Depth Flange Mounted Operator Kit Adjustable from 8" to 16" Complete kit, includes handle and variable depth operator.			
NEMA 1, 3R, 12	—	—	
NEMA 4X	—	—	
IEC Black Handle	—	—	
NEMA 1, 3R, 12	—	—	
NEMA 4X	—	—	
Max-Flex™, Variable Depth Flange Mounted Operator Kit Complete kit, includes plastic handle, breaker operator, and cable. NEMA 1, 3R, 12 For DG and FG operators, the cable is 36", all others are 48" May be right- or left-hand mounted	MFKM3R	MFKP3RS	MFKP3RS
Handle Only, for Max-Flex™ Variable Depth			
NEMA 1, 3R, 12 Plastic	MFHM3R	—	—
NEMA 1, 3R, 12 Steel - epoxy coated	MFHM3RS	MFHP3RS	MFHP3RS
NEMA 4, 4X Steel - chrome plated	MFHM4X	MFHP4X	MFHP4X
Solid color (all gray) Plastic [Ⓢ]			
NEMA 1, 3R, 12	MFHM3RB	—	—
Solid color (black handle) Steel epoxy coated [Ⓢ]			
NEMA 1, 3R, 12	MFHM3RSB	MFHP3RSB	MFHP3RSB
Breaker Operator Mechanism Only, for Max-Flex™	MFMM	MFMP	MFMP
Cable Only, for Max-Flex™ Variable Depth			
36"	MFCM036	—	—
48"	MFCM048	MFCP048	MFCP048
60"	MFCM060	MFCP060	MFCP060
72"	MFCM072	MFCP072	MFCP072
84"	MFCM084	MFCP084	MFCP084
96"	MFCM096	MFCP096	MFCP096
120"	MFCM120	MFCP120	MFCP120
144"	MFCM144	MFCP144	MFCP144
Handle Auxiliary Switch Form C (1NO - 1NC), early break [Ⓢ] 1 Aux. switch 2 Aux. switch	MFSPA1 MFSPA2	MFSPA1 MFSPA2	MFSPA1 MFSPA2

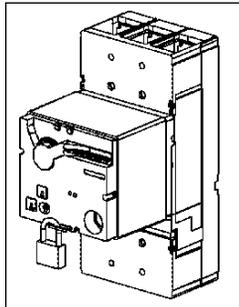
Ⓢ Max-Flex™ handles are available with solid gray or black handles instead of the customary "Red for On" flange handle.

The black handle is preferred for IEC markets, where red handles have a specific meaning.

Ⓢ During manual operation, Early Break aux. contacts open before the breaker opens.

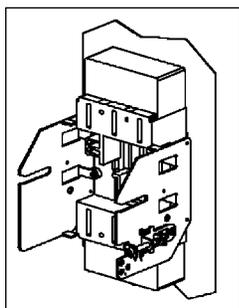
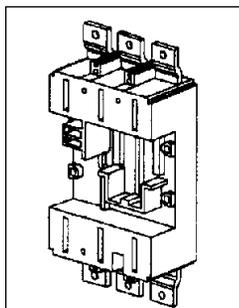
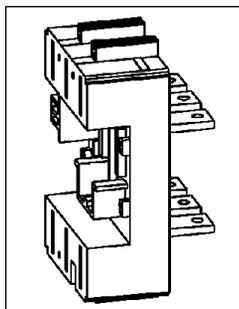
External Accessories

Operating Mechanisms



Description	For DG to FG Frame 150 to 250 A	
	Catalog Number	
Stored Energy and Motor Operators Lockable with up to 3 padlocks.		
AC Voltage DC Voltage	Stored Energy Type	
— 24	SEAFB	
42-48 42-48	SEAFM	
60 60	SEAFY	
110-127 110-127	SEAFN	
220-250 220-250	SEAFR	
Cylinder Locks for Field Installation	CLKF	

Plug-In and Draw-Out Bases



Description	For DG Frame 150 A	For FG Frame 250 A
	Catalog Number	Catalog Number
Plug-in Mounting Base Assembly Includes base, terminal blade kit, sec. terminal block assembly, base trip interlock, and mounting hardware.		
Rear Connected 3-pole	PCBDRC3	PCBFRC3
Front Connected 3-pole	PCBDFC3	PCBFFC3
Draw-out Assembly Includes base, position indicator switch, socket, base trip interlock, crank handle, connectors, and necessary shields.		
Rear Connected 3-pole	DCADRC3	DCAFRC3
Front Connected 3-pole (Draw-out assembly includes side plates and all hardware)	DCADFC3	DCAFFC3
Hex Wrench for racking draw-out assembly and position indicator	DCHP	DCHP
Position Indicator Switch Form "C" switch to indicate breaker engaged/de-engaged position. ^①	DCIP	DCIP
Secondary Terminal Block Assy. Accessory connections for plug-in or draw-out breakers. Pre-wired plug and block with 8 terminal points. ^②	PCTF83	PCTF83
Plug-In Spare Breaker Kit Set of 6 terminal blades, 2 terminal shield, & 1 trip interlock	PCXD3	PCXF3
Draw-out Spare Breaker Kit Set of 6 terminal blades, & 1 trip interlock	DCXD3	DCXF3
Spare Breaker Trip Interlock	PCXFT	PCXFT

① Up to 2 position indicator switches may be mounted per plug-in or draw-out base.

② Up to 2 plugs per breaker (16 terminal points) may be mounted on DG, and FG breakers. Up to 3 plugs per breaker (24 terminal points) may be mounted on JG, LG, MG, NG, and PG breakers.

For JG to LG Frame
400 to 600 A

For MG Frame
800 A

For NG to PG Frame
1200 to 1600 A

Catalog Number	Catalog Number	Catalog Number
Stored Energy Type SEALB SEALM SEALY SEALN SEALR CLKP	Stored Energy Type SEAMB SEAMM SEAMY SEAMN SEAMR CLKP	Motor Operator Type MTRPB MTRPM MTRPY MTRPN MTRPR CLKP

For JG Frame
400 A

For LG Frame
600 A

For MG Frame
800 A

For NG Frame
1200 A

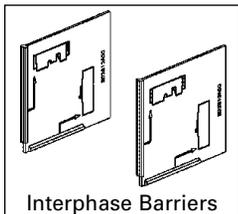
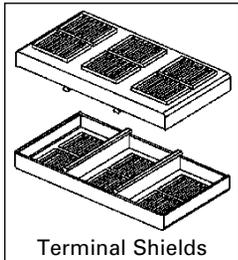
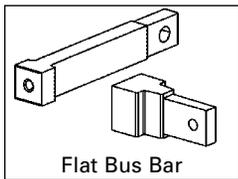
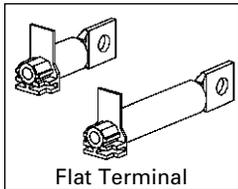
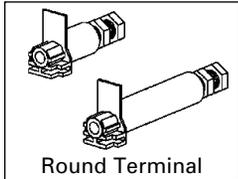
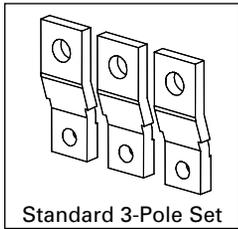
For PG Frame
1600 A

| Catalog Number |
|----------------|----------------|----------------|----------------|----------------|
| PCBJRC3 | PCBLRC3 | PCBMRC3 | PCBNRC3 | — |
| PCBJFC3 | PCBLFC3 | — | — | — |
| DCAJRC3 | DCALRC3 | DCAMRC3 | DCANRC3 | — |
| DCAJFC3 | DCALFC3 | DCAMFC3 | DCANFC3 | — |
| DCHP | DCHP | DCHP | DCHP | — |
| DCIP | DCIP | DCIP | DCIP | — |
| PCTL83 | PCTL83 | PCTM83 | PCTN83 | — |
| PCXJ3 | PCXL3 | PCXM3 | PCXN3 | — |
| DCXJ3 | DCXL3 | DCXM3 | DCXN3 | — |
| PCXLT | PCXLT | PCXMT | PCXPT | — |

7
MOLDED CASE
CIRCUIT BREAKERS

External Accessories

Connections



Description	For DG Frame 150 A	For FG Frame 250 A
	Catalog Number	Catalog Number
Front Bus Bar Connections Includes nut keeper plates and shield. Standard (straight) 3-Pole Set Bus Bar Connection Strap Kit Includes 6 - Bus Bars, 6 Nut Keepers & Shields 100% rated applications	FB CD3 ^② — —	FB CF3 ^② — —
Rear-Connecting Studs Short length round term. (1piece) Long length round term. (1piece) 3-Pole round term. kit, 2 short + 1 long Short length flat term. (1piece) Long length flat term. (1piece) 3-Pole flat term. kit, 2 short + 1 long Flat bus bar type (1 piece) 3-Pole set of flat bus bar	RT L D S R RT L D L R S R T D R 3 RT L D S F RT L D L F S R T D F 3 — —	RT L F S R RT L F L R S R T F R 3 RT L F S F RT L F L F S R T F F 3 — —
Terminal Shields^① Includes 2 terminal shields. 3-Pole Standard Shield 3-Pole Extended Shield	T S S F 3 T S L F 3	T S S F 3 T S L F 3
Interphase Barriers^① Set of 2 barriers Also fits plug-in and draw-out bases.	I P B F	I P B F
Lug Mounting Assy.	—	—
Breaker Mounting Base Front connected Rear connected	— —	— —

① Not UL listed.
 ② Consult Siemens for availability.

For JG Frame 400 A	For LG Frame 600 A	For MG Frame 800 A	For NG Frame 1200 A	For PG Frame 1600 A
Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number
FBCJ3 ^① —	FBCL3 ^① —	FBCM3 ^① —	SSBP SSBPH	SSBP SSBPH
RTLJSR RTLJLR SRTJR3 RTLJSF RTLJLF SRTJF3 — —	— — — — — — RTLLSF SRTL3F3	— — — — — — RTLMSF SRTMF3	— — — — — — RTLNSF SRTNF3	— — — — — — — —
TSSL3 TSL3	TSSL3 ^② TSL3 ^②	TSSM3 TSLM3	TSSP3 TSLP3	TSSP3 TSLP3
IPBM	IPBM	IPBM	IPBP	IPBP
—	—	—	—	LMAP1600 ^③
— —	— —	— —	— —	MBPG1600 MBPG1601

7
MOLDED CASE
CIRCUIT BREAKERS

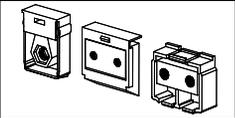
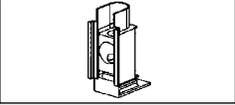
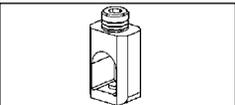
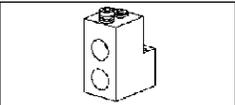
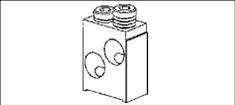
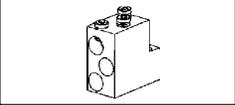
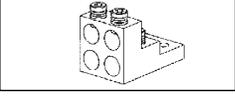
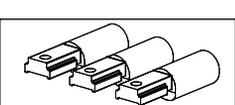
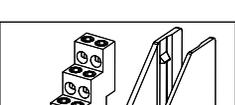
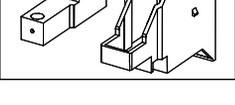
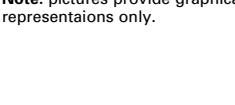
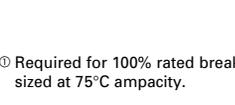
① Consult Siemens for availability.

② Not for use with standard AI terminals. Use Standard Shield for rear connection and Extended Shield for bus-bar connection.

③ Kit includes connection for one side of breaker only. Order quantity 2 if connecting line and load side.

External Accessories

Connections

		For DG Frame 150 A	For FG Frame 250 A
	Discription	Catalog Number	Catalog Number
	Nut Keeper Plates For ring/tongue terminal or bus bar connections. (For metric threads on other than the JG frame, change "TNK" to "TMK") 1 Nut Keeper Plate Kit of 3	TNKD TNKD3	TNKF TNKF3
			
	Mechanical Lugs <i>Steel Wrap Around Body (Cu Wire Only)</i> Cable Size; (cables per phase) Single Lug Kit of 3	#8-1/0; 1-hole TW1DG20 3TW1DG20	#4-350 kcmil; 1-hole TW1FG350 3TW1FG350
	<i>Aluminum Body (Al or Cu Wire)</i> Cable Size; (cables per phase) Single Lug Kit of 2	#6-3/0; 1-hole TA1DG30 —	#4-350 kcmil; 1-hole TAW1FG350 —
	Kit of 3	3TA1DG30	3TAW1FG350
	Cable Size; (cables per phase)	—	—
	Single Lug Kit of 2 Kit of 3	— — —	— — —
	Cable Size; (cables per phase) Single Lug	— —	— —
	<i>Copper Body (Cu Wire Only)</i> Cable Size; (cables per phase) Single Lug Kit of 2	#6-3/0; 1-hole TC1DG30 [Ⓞ] —	#4-350 kcmil; 1-hole TCW1FG350 [Ⓞ] —
	Kit of 3	3TC1DG30 [Ⓞ]	3TCW1FG350 [Ⓞ]
	Cable Size; (cables per phase) Single Lug	— —	— —
	Compression Lugs Cable Size; (cables per phase) Kit of 2 Kit of 3	#14-2/0; 1-cable 2CLD20 3CLD20	#4-350 kcmil; 1-cable — 3CLF350
	Cable Size; (cables per phase) Kit of 2 Kit of 3	— —	— —
	Cable Size; (cables per phase) Kit of 3	— —	— —
	Distribution Lugs (Cu Wire Only) Cable Size; (cables per phase) Single Lug Kit of 3 Cable Size; (cables per phase) Single Lug Kit of 3	#14-#2; 3-hole TA3DG02 3TA3DG02 #14-#4; 6-hole TA6DG04 3TA6DG04	#14-#1; 2-hole and #14-2/0; 1-hole TA3FG20 3TA3FG20 #14-#4; 6-hole TA6FG04 3TA6FG04
	Control Wire Terminals Control Wire Terminal (Single) Control Wire Terminal (Kit of 3)	— —	— —

Note: pictures provide graphical representations only.

Ⓞ Required for 100% rated breakers. Requires 90°C cable sized at 75°C ampacity.

For JG Frame 400 A	For LG Frame 600 A	For MG Frame 800 A	For NG Frame 1200 A	For PG Frame 1600 A
Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number
TMKJ TMKJ3 <i>metric only</i>	TNKL TNKL3	TNKM TNKM3	TNKP TNKP3	TNKP TNKP3
1/0-600 kcmil; 1-hole TW1JG600 3TW1JG600	— — —	— — —	— — —	— — —
3/0-250 kcmil; 2-hole TA2JG250 — 3TA2JG250 AL: 250-750 kcmil CU: 3/0-600 kcmil; 1-hole TA1JG750 — 3TA1JG750 — — —	#2-600 kcmil; 2-hole — — 3TA2LG600LD ^① 3TA2LG600LN ^② AL: 250-750 kcmil CU: 3/0-600 kcmil; 1-hole TA1JG750 (400A max) 3TA1JG750 (400A max) — — —	1/0-500 kcmil; 3-hole TA3MG500 3TA3MG500 500 -750 kcmil; 2-hole TA2MG750 — 3TA2MG750 #2-600 kcmil; 3-hole — 3TA3MG600 ^③ (Kit of 3)	1/0-500 kcmil; 4-hole — 2TA4NG500 3TA4NG500 3TA4NG500H ^④ 500 -750 kcmil; 3-hole 2TA3NG750 3TA3NG750 —	1/0-750 kcmil; 6-hole — 3TA6PG750 ^⑤ 600-750 kcmil; 4-hole TA4P750 ^⑥ — 300-600 kcmil; 5; 6-hole TA5P600 ^⑥ TA6R600 ^⑥ —
3/0-250 kcmil; 2-hole TC2JG250 ^③ — — 3/0-750 kcmil; 1-hole TC1JG750 ^③	#2-600 kcmil; 2-hole — — 3TC2LG600LD ^{①③} 3TC2LG600LN ^{②③} — —	1/0-500 kcmil; 3-hole TC3MG500 ^③ — — — —	1/0-500 kcmil; 4-hole — — 3TC4NG500 ^③ — —	— — — 300-600 kcmil; 5-hole TC5R600 ^{③④}
#6-350 kcmil; 1-cable — 3CLJ350 250-600 kcmil; 1-cable 3CLJ600 — 250-750 kcmil; 1-cable 3CLJ750 —	#6-350 kcmil; 2-cable 6CLL350 (kit of 6) 250-750 kcmil; 1-cable 3CLL750 — 250-600 kcmil; 2-cable 6CLL600 (kit of 6) —	— — — — — —	1/0-500 kcmil; 4-cable — 12CLN500 (kit of 12) — — — — —	— — — — — —
#14-#4; 12-hole TA12JG04 3TA12JG04 #14-2/0; 6-hole TA6JG20 3TA6JG20	— — — — —	— — — — —	— — — — —	— — — — —
TA2JG250PT —	— 3TA2LG600LNPT	TA3MG500PT —	— 3TA4NG500PT	— —

7
MOLDED CASE
CIRCUIT BREAKERS

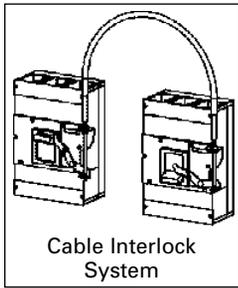
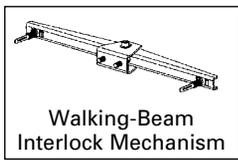
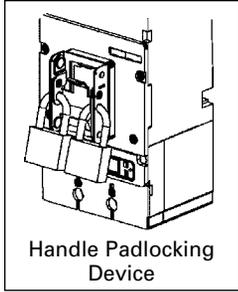
All lug kits include the nut keepers.
 ① Mounted on Load Side Only.
 ② Mounted on Line Side Only.

③ Required for 100% rated breakers. Requires 90°C cable sized at 75°C ampacity.
 ④ Requires extended modified shield.

⑤ Used only with LMAP1600 mounting base.
 ⑥ Used only with MBPG1600 or MBPG1601 mounting base.

External Accessories

General

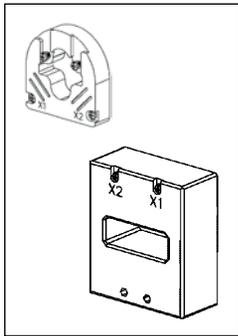


Description	For DG Frame 150 A	For FG Frame 250 A
	Catalog Number	Catalog Number
Handle Padlocking Device To padlock breaker toggle in the "OFF" position. Accepts up to 3 padlocks with 5–8 mm shackles.	HPLF	HPLF
Handle Blocking Device For holding the handle in the "ON" position. Not a lockout/tagout device.	HBDF	HBDF
Walking-Beam Interlock Mechanism Provides mechanical interlocking between two adjacent circuit breakers. Fixed mounted breakers	WBMFFM	WBMFFM
Note: Both breakers must be of the same frame size.		
Cable Interlock Mechanism Provides mechanical interlocking between 2 circuit-breakers - includes operator mechanism for one circuit breaker only. Combination with the next larger or smaller frame size is possible.	CBTF	CBTF
Interlock Cable Cable only, to connect 2 circuit breakers. Cable length 18 in. .46m (recommended up to 250A) Cable length 36 in. .91m (recommended from 400–800A) Cable length 54 in. 1.37m (recommended from 1200–1600A)	CBCF18 CBCM36 CBCP54	CBCF18 CBCM36 CBCP54
Mounting Screw Kit Includes the necessary hardware to mount a circuit breaker to the user's prepared surface Kit with 2 screws (SAE thread) Kit with 4 screws (SAE thread)	MSKF2 MSKF4	MSKF2 MSKF4
Trip Adjustment Sealing Cover Includes a trip unit cover to prevent tampering or adjustment of trip settings. Seal not included. Thermal-Magnetic Trip Units	TSCFTM	TSCFTM

For JG Frame 400 A	For LG Frame 600 A	For MG Frame 800 A	For NG Frame 1200 A	For PG Frame 1600 A
Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number
HPLL	HPLL	HPLM	HPLP	HPLP
HBDL	HBDL	HBDM	HBDP	HBDP
WBMLFM	WBMLFM	WBMMFM	WBMPFM	WBMPFM
CBTL	CBTL	CBTM	CBTP	CBTP
— CBCM36 CBCP54	— CBCM36 CBCP54	— CBCM36 CBCP54	— — CBCP54	— — CBCP54
— MSKL4	— MSKL4	— MSKM4	— MSKP4	— MSKP4
TSLTLM	TSLTLM	TSCMTM	—	—

External Accessories

Ground Sensors & Electronic Accessories



Description

Neutral Current Transformer (Ground Sensor, N-pole)

Neutral = 35/60A
 Neutral = 100A
 Neutral = 150A
 Neutral = 250A
 Neutral = 400A
 Neutral = 600A
 Neutral = 800A
 Neutral = 1000/1200A
 Neutral = 1600A

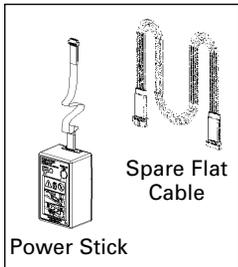
For DG Frame
150 A

For FG Frame
250 A

Catalog Number

Catalog Number

For DG Frame 150 A	For FG Frame 250 A
NGSD060	—
NGSF100	NGSF100
NGSF150	NGSF150
—	NGSJ250
—	—
—	—
—	—
—	—
—	—
—	—



Communications & Electronics

Power Stick - Hand held, battery operated power supply for LCD trip units. (Requires two 9V batteries.) Trip testing for both 555 & 586 trip units.

EPSP18V

EPSP18V

Spare flat cable for Power Stick.

COMPCA

COMPCA

COM20 Profibus Communications Module with ZSI for electronic trip units (order cable separately)

COMPRO20

COMPRO20

COM21 Modbus Communications Module with ZSI for electronic trip units (order cable separately)

COMMOD21

COMMOD21

Cable for COM20/21, 1.5 m (4.9 ft)

COMKIT3

COMKIT3

Cable for COM20/21, 3.0 m (9.8 ft)

COMKIT6

COMKIT6

Addressing Plug - assigns a field bus address without a PC by plugging into COM20/21

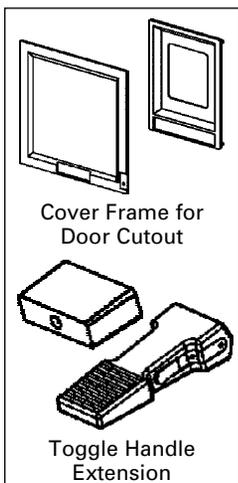
3UF79100AA000

3UF79100AA000



Com20 Profibus & Com21 Modbus Communications Module

Door Cutouts & Extensions



Cover Frame for Door Cutout

For fixed or plug-in mounted circuit breakers. (IP30)
 2-Pole & 3-Pole

BZLF3

BZLF3

For breakers with stored energy operator. (IP40)

BZLFRHSE

BZLFRHSE

Circuit-breaker draw-out mounted and toggle handle operated. Kit includes cover frame (bezel) and escutcheon as needed. (IP40) (not for use with rotary handle or stored energy operator)

BZLFBDC

BZLFBDC

Toggle Handle Extension

For spare or replacement. (One is included with each NG - PG frame.)

—

—

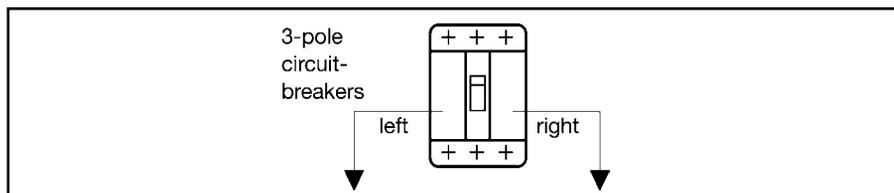
For JG Frame 400 A	For LG Frame 600 A	For MG Frame 800 A	For NG Frame 1200 A	For PG Frame 1600 A
Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number
— — — NGSJ250 NGSL400 — — — —	— — — — NGSL400 NGSM600 — — — —	— — — — — NGSM600 NGSN800 — — —	— — — — — — NGSN800 NGSP120 —	— — — — — — — NGSP120 NGSP160
EPSP18V	EPSP18V	EPSP18V	EPSP18V	EPSP18V
COMPCA	COMPCA	COMPCA	COMPCA	COMPCA
COMPRO20	COMPRO20	COMPRO20	COMPRO20	COMPRO20
COMMOD21	COMMOD21	COMMOD21	COMMOD21	COMMOD21
COMKIT4	COMKIT4	COMKIT5	COMKIT5	COMKIT5
COMKIT7	COMKIT7	COMKIT8	COMKIT8	COMKIT8
3UF79100AA000	3UF79100AA000	3UF79100AA000	3UF79100AA000	3UF79100AA000
BZLL3	BZLL3	BZLM3	BZLP3	BZLP3
BZLLRHSE	BZLLRHSE	BZLMRHSE	BZLPRHSE	BZLPRHSE
BZLLBDC	BZLLBDC	BZLMBDC	BZLPBDC	BZLPBDC
THEL	THEL	THEM	THEP	THEP

7
MOLDED CASE
CIRCUIT BREAKERS

VL Circuit Breakers

Accessory Locations

Selection



Locations of Internally Mounted Accessories

Frame Family	Left Pocket	Right Pocket
DG*, FG*, JG, LG 150 to 600A	Up to 3 Auxiliary Switches	Shunt Trip or UVR or up to 3 Auxiliary Switches or up to 2 Auxiliary Switches + 1 Alarm Switch
	Up to 2 Auxiliary Switches + 1 Alarm Switch	Shunt Trip or UVR or up to 3 Auxiliary Switches or up to 2 Auxiliary Switches + 1 Alarm Switch
MG, NG, PG 800 to 1600A	Up to 4 Auxiliary Switches	Shunt Trip or UVR or up to 4 Auxiliary Switches
	Up to 2 Auxiliary Switches + 2 Alarm Switches	Shunt Trip or UVR or up to 4 Auxiliary Switches

* Except DG and FG breakers with Electronic Trip Units. Due to the location of the Magnetic Latch, the Left Pocket is not available for accessories.

Accessory Information

- Aux. Switch is an Auxiliary Switch, 1A or 1B contact
- Alarm Switch has 1A or 1B contact
- UVR is an Undervoltage Release
- The standard location for factory mounted Auxiliary and Alarm Switches is the Left Pocket

Accessory Maximums

DG, FG, JG, LG Maximum Accessories:

- Maximum of six (6) switches total
- DG, FG Maximum of two (2) Alarm Switches, one each in the Left and Right Pockets. JG, LG Max. of 1 Alarm, Left only

MG, NG, PG Maximum Accessories:

- Maximum of eight (8) switches total
- Maximum of two (2) Alarm Switches, Left Pocket only

For applications using COMMOD20 and COMMOD21 for communication using Modbus or Profibus

DG, FG

COMKIT3 & COMKIT6 provide auxiliary contact kit. May add only one or two contact blocks for Alarm or Auxiliary function.

JG, LG

COMKIT4 & COMKIT7 provide auxiliary contact kit mounted in left pole pocket. One contact block can be added for Auxiliary function. Right pole pocket available for other release or an additional Auxiliary contact kit.

MG, NG, PG

COMKIT5 & COMKIT8 provide auxiliary contact kit mounted in Left pole pocket. Two contact blocks can be added for Auxiliary function and one for Alarm function. Right pole pocket available for other release or an additional Auxiliary Contact kit.

VL Circuit Breakers

Selection

Suffix for factory mounted Switch Combinations

If the frame is:	And you need these functions:	Then add this suffix:	Device Catalog Number
DG, FG, JG or LG	1 Alarm Switch 1 NO Alarm 1 NC Alarm	A1	ASKL1
DG, FG, JG or LG	2 Aux. Switches 1 NO + 1 NC Aux. Contacts	A2	ASKL2
DG, FG, JG or LG	2 Aux. + 1 Alarm Switches 1NO + 1NC Aux. and 1NC Alarm 2NO Aux. and 1NC Alarm	A3	ASKL3
MG, NG or PG	2 Aux. + 2 Alarm Switches 1NO + 1NC Aux. and 1NO + 1NC Alarm 2NO Aux. and 2NC Alarm 2NC Aux. and 2NO Alarm	A3	ASKP3
MG, NG or PG	4 Aux. Switches 2NO + 2NC Aux.	A4	ASKP4

Suffix for factory mounted Shunt Trips

If the frame is:	And you need these functions:	Then add this suffix:	Device Catalog Number
DG, FG, JG or LG	24V DC 48-60V DC 110-127V DC 220-250V DC 48-60V AC 110-127V AC 208-277V AC 380-600V AC	RB RC RD RE RM RN RS RV	STRLB24DC STRLC60DC STRLD125DC STRLE250DC STRLM60 STRLN120 STRLS277 STRLV600
MG, NG or PG	24V DC 48-60V DC 110-127V DC 220-250V DC 48-60V AC 110-127V AC 208-277V AC 380-600V AC	RB RC RD RE RM RN RS RV	STRPB24DC STRPC60DC STRPD125DC STRPE250DC STRPM60 STRPN120 STRPS277 STRPV600

Suffix for factory mounted Undervoltage Releases

If the frame is:	And you need these functions:	Then add this suffix:	Device Catalog Number
DG, FG, JG or LG	12V DC 24V DC 48V DC 60V DC 110-127V DC 220-250V DC 24V AC 110-127V AC 220-240V AC 208V AC 277V AC 380-415V AC 440-480V AC	UA UB UC UG UD UE UL UN UR UP US UT UU	UVRLA12DC UVRLB24DC UVRLC48DC UVRLG60DC UVRLD125DC UVRLE250DC UVRL24 UVRLN120 UVRLR240 UVRLP208 UVRLS277 UVRLT415 UVRLU480
MG, NG or PG	12V DC 24V DC 48V DC 60V DC 110-127V DC 220-250V DC 110-127V AC 220-240V AC 208V AC 277V AC 380-415V AC 440-480V AC	UA UB UC UG UD UE UN UR UP US UT UU	UVRPA12DC UVRPB24DC UVRPC48DC UVRPG60DC UVRPD125DC UVRPE250DC UVRPN120 UVRPR240 UVRPP208 UVRPS277 UVRPT415 UVRPU480

7
MOLDED CASE
CIRCUIT BREAKERS

		DG	FG	JG	LG	MG	NG	PG
Max rated continuous current		150	250	400	600	800	1200	1600
Rated operational voltage								
NEMA	V AC	600 ^③	600 ^③	600	600	600	600	600
IEC	V AC	690	690	690	690	690	690	690
Rated impulse withstand voltage								
Main conducting paths	kV	8	8	8	8	8	8	8
Auxiliary circuits	kV	4	4	4	4	4	4	4
Ambient temperature range	°C	-25 to +75	-25 to +75	-25 to +75	-25 to +75	-25 to +75	-25 to +75	-25 to +75
High ambient derating (thermal-mag.)	50°C	93%	93%	93%	93%	95%	95%	95%
	60°C	86%	86%	86%	86%	86%	86%	80%
	70°C	80%	80%	80%	80%	80%	80%	74%
Operating cycles		20,000	20,000	20,000	10,000	5,000	3,000	3,000
Max switching rate (per hour)		120	120	120	60	60	30	30
Power loss (at max. rated current)								
Thermal-magnetic	W	15 – 48	32 – 80	60 – 175	85 – 230	170 – 250	150 – 220	200 – 260
Electronic trip unit	W	40	60	90	160	250	210	260
IEC ^①								
Time constant t = 10 ms								
1 current path		—	—	—	—	—	—	—
2 current paths in series		—	—	—	—	—	—	—
3 current paths in series		—	—	—	—	—	—	—
Up to 250V DC		—	—	—	—	—	—	—
440V DC		—	—	—	—	—	—	—
600V DC		—	—	—	—	—	—	—
NEMA								
Time constant t = 8 ms								
2 poles switching								
1 current path		30	30	30	30	42	42	42
250V DC max. ^②								
3 poles switching		18	25	35	35	65	65	65
2 current paths in series								
500V DC max. ^②								
Accessories								
Auxiliary/Alarm switch								
Current rating (1 or 2 switches)		10	10	10	10	10	10	10
Current rating (3 or 4 same switch)	A	5	5	5	5	5	5	5
Shunt trip								
Pick-up voltage	V	0.7 – 1.1	0.7 – 1.1	0.7 – 1.1	0.7 – 1.1	0.7 – 1.1	0.7 – 1.1	0.7 – 1.1
Power consumption (short-time) at:								
48 – 60 V AC	VA	158 – 200	158 – 200	158 – 200	158 – 200	380 – 480	380 – 480	380 – 480
110 – 127 V AC	VA	136 – 158	136 – 158	136 – 158	136 – 158	302 – 353	302 – 353	302 – 353
208 – 277 V AC	VA	274 – 350	274 – 350	274 – 350	274 – 350	330 – 439	330 – 439	330 – 439
380 – 600 V AC	VA	158 – 237	158 – 237	158 – 237	158 – 237	243 – 384	243 – 384	243 – 384
24 V DC	W	110	110	110	110	360	360	360
48 – 60 V DC	W	110 – 172	110 – 172	110 – 172	110 – 172	512 – 820	512 – 820	512 – 820
110 – 127 V DC	W	220 – 254	220 – 254	220 – 254	220 – 254	302 – 353	302 – 353	302 – 353
220 – 250 V DC	W	97 – 110	97 – 110	97 – 110	97 – 110	348 – 397	348 – 397	348 – 397
Max. operating time	ms	50	50	50	50	50	50	50

① Consult Siemens for short circuit values.
 ② Review individual frame and type values.
 ③ 600Y/347 V DG and FG only.

Technical Data

		DG	FG	JG	LG	MG	NG	PG
Undervoltage trip								
Drop voltage (percentage)	V	35% – 70%	35% – 70%	35% – 70%	35% – 70%	35% – 70%	35% – 70%	35% – 70%
Pick-up voltage (percentage)	V	70% – 85%	70% – 85%	70% – 85%	70% – 85%	70% – 85%	70% – 85%	70% – 85%
Power consumption (continuous) at:								
110 – 127 V AC	VA	1.5	1.5	1.5	1.5	1.1	1.1	1.1
220 – 250 V AC	VA	1.5	1.5	1.5	1.5	2.1	2.1	2.1
208 V AC	VA	1.8	1.8	1.8	1.8	2.2	2.2	2.2
277 V AC	VA	2.1	2.1	2.1	2.1	1.6	1.6	1.6
380 – 415 V AC	VA	1.6	1.6	1.6	1.6	2.0	2.0	2.0
440 – 480 V AC	VA	1.8	1.8	1.8	1.8	2.3	2.3	2.3
500 – 525 V AC	VA	2.5	2.5	2.5	2.5	2.9	2.9	2.9
Max. opening time	ms	50	50	50	50	50	50	50
Motorized operating mechanism								
Motor with stored energy mechanism (synchronizable)								
		X	X	X	X	X	—	—
Motor Operator								
						—	X	X
Max. switching rate (per hour)		120	120	120	60	60	30	30
Command duration	ms	20 – 50	20 – 50	20 – 50	20 – 50	20 – 50	50	50
Closing time	ms	<100	<100	<100	<100	<100	<5,000	<5,000
Charging time	s	<5	<5	<5	<5	<5	<5	<5
Break time	s	<5	<5	<5	<5	<5	<5	<5
Power consumption	VA/W	<100	<100	<100	<100	<250	<250	<250
Control voltages 24 V DC								
42 – 48 V AC / DC								
60 V AC / DC								
110 - 127 V AC/ DC								
220 - 250 V AC/ DC								

Operating range: 85 – 110% of rated control voltage

Technical Data

Unusual Operating Conditions

Reference

Note: The information provided on this and the next page is intended for reference and recommendation only. Because several variables can act on a circuit breaker's performance at the same time, the data below is based less on controlled testing, than on experience and engineering judgment. Contact Siemens for further information on special conditions and treatment.

High Ambient Temperatures

Because thermal-magnetic trip breakers are temperature sensitive and calibrated for a specific ambient of 40° C (104° F) (average enclosure temperature), a higher ambient will cause the breaker to trip at lower current than its nameplate rating, in other words, causing the breaker to "derate" (see Table 1). Similarly, the current carrying capacity of a circuit conductor is based upon a certain ambient temperature, a higher ambient will reduce its current carrying capacity, causing it to "derate." Thus, with a fluctuating temperature, a thermal-magnetic breaker will derate nearly parallel with its connected circuit conductors and maintain close circuit protection. If the application temperature exceeds 40° C (104° F) and is known, either a breaker specially calibrated for the higher ambient or one oversized according to Table 1 may be selected. In a case such as this, the circuit conductors should be oversized as well.

Siemens Electronic Trip Unit Breakers are insensitive to temperature changes. However, they do include circuitry to protect the components from abnormally high temperatures.

Altitude

Reduced air density at altitudes greater than 6600 ft. (2000 meters) affects the ability of a molded case circuit breaker to transfer heat and interrupt faults. Therefore, circuit breakers applied at these altitudes should have interrupting, insulation and continuous currents derated as indicated in Figure 1.

Table 1 – Temperature derating data for thermal-magnetic breakers

Reference Ampere Rating at 40° C (104° F)	Ampere Rating at:			Siemens Breaker Frames
	25° C (77° F)	50° C (122° F)	60° C (140° F)	
50	55	46	42	DG
60	66	56	52	
70	77	65	60	
90	99	84	78	
100	110	94	87	
125	137	114	100	
150	165	136	120	
175	192	159	140	
200	220	182	160	
225	247	205	180	
250	275	235	220	
300	330	276	252	
350	385	325	301	
400	440	372	340	
500	550	468	435	
600	660	564	525	
700	770	658	613	
800	880	754	704	
900	990	828	749	
1000	1100	900	825	
1200	1320	1090	1000	
1400	1540	1304	1148	
1600	1760	1500	1320	
				FG
				JG
				LG
				MG
				NG
				PG

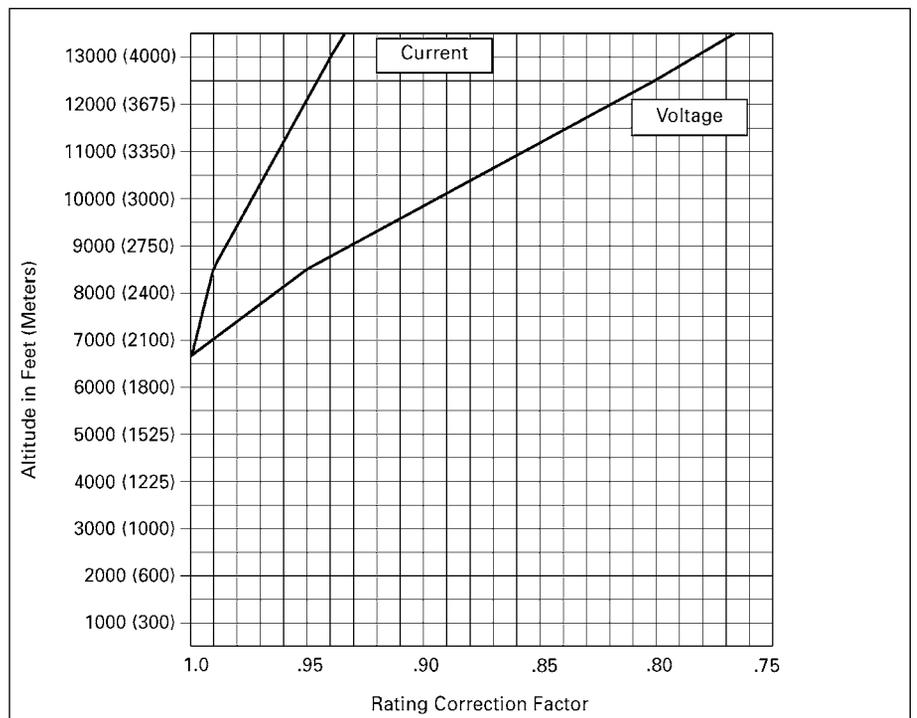


Figure 1 – Altitude adjustment

Technical Data

Unusual Operating Conditions

Reference

Unusual Operating Conditions 400 Hz Systems

Circuit Breaker Derating Required

This table lists the maximum continuous current carrying capacity for Siemens breakers at 400Hz. Due to the increased resistance of the copper sections resulting from the skin effect produced by eddy currents at these frequencies, circuit breakers in many cases require derating. The thermal derating on these devices is based upon 100%, three phase application in open air in a maximum of 40°C (104° F) with 48 in. (1219 mm) of the specified cable or bus at the line and load side. Additional derating of not less than 20% will be required if the circuit breaker is to be utilized in an enclosure. Further derating may be required if the enclosure ambient temperature exceeds 40°C(104° F).

Cable and Bus Sizing

The cable and bus sizes to be utilized at 400Hz are not based on standard National Electric Codes tables for 60Hz application. Larger cross sections are necessary at 400Hz. All bus bars specified are based upon mounting the bars in the vertical plane to allow maximum air flow. All bus bars are spaced at a minimum of 0.25 in. (6 mm) apart. Mounting of bus bars in the horizontal plane will necessitate additional drafting. Edgewise orientation of the bus may change the maximum ratings indicated. If additional information is required for other connections of cable or bus, contact Siemens for information.

Application Recommendations

It is recommended that temperatures be measured on the line and load terminals or T-connectors of the center pole. These are usually the hottest terminals with a balanced load. A maximum temperature of 75°C (35°C over a maximum ambient of 40°C) would verify the particular application. Temperature profiles taken on these breakers can be correlated to ensure that the hottest points within the breaker are within the required temperature limits.

Interrupting Rating

Circuit breakers used in 400 Hz systems are limited to a 5000 A interrupting rating. If higher ratings are required, consult Siemens.

Breaker type	Maximum continuous ampere rating at 40°C (104°F)②			75°C (167F) Copper cable per pole	
	60HZ		Enclosed after derating	No of pieces	Wire size
	Open air	Open air③			
DG	50	48	38	1	#8
	60	57	46	1	#6
	70	63	50	1	#4
	80	72	58	1	#4
	90	80	64	1	#3
	100	90	72	1	#3
	110	95	75	1	#2
	125	105	84	1	#1
FG	150	125	100	1	#1/0
	100	90	72	1	#3
	110	95	75	1	#2
	125	105	84	1	#1
	150	125	100	1	#1/0
	175	140	112	1	#2/0
	200	160	128	1	#3/0
	225	180	144	1	#4/0
JG	250	200	160	1	250 kcmil
	250	210	168	1	250 kcmil
	300	240	192	1	350 kcmil
	350	260	208	1	500 kcmil
JG 100% Rated	400	300	240	2	#2/0
	250	210	210	1	250 kcmil
	300	240	240	1	350 kcmil
	350	260	260	1	500 kcmil
LG	400	300	300	2	#3/0
	400	300	300	2	#3/0
	400	300	300	2	#3/0
LG	400	300	240	2	#3/0
	500	375	300	2	250 kcmil
	600	420	336	2	350 kcmil

Breaker type	Maximum continuous ampere rating at 40°C (104°F)②			75°C (167F) Copper cable per pole	
	60HZ		Enclosed after derating	No of pieces	Wire size
	Open air	Open air③			
LG	400	300	240	2	#3/0
	500	375	300	2	250 kcmil
	600	420	336	2	350 kcmil
MG	600	430	360	2	350 kcmil
	700	500	400	3	250 kcmil
	800	560	448	3	300 kcmil
MG 100% Rated	600	430	430	2	350 kcmil
	700	500	500	3	250 kcmil
	800	560	560	3	300 kcmil
NG	800	560	448	3	300 kcmil
	900	600	480	3	350 kcmil
	1000	650	520	3	400 kcmil
	1200	780	624	4	350 kcmil
NG 100% Rated	900	600	600	3	350 kcmil
	1000	650	650	3	400 kcmil
	1200	780	780	4	350 kcmil
	1200	780	624	4	400 kcmil
PG	1400	850	680	4	500 kcmil
	1600	960	768	5	500 kcmil
	1200	780	780	4	400 kcmil
PG 100% Rated	1400	850	850	4	500 kcmil
	1600	960	960	5	500 kcmil

① The information provided on this page is intended for reference and recommendation only. Because several variables can act on a circuit breaker's performance at the same time, the data above is based less on controlled testing, than on experience and engineering

judgment. Contact Siemens for further information on special conditions and treatment.

② Additional derating may be required if the ambient temperature is greater than 40°C (104°F).

③ Calculated after derating to compensate for the heating of the copper conductor, caused by the skin effect generated by eddy currents produced at 400/415HZ.

7 MOLDED CASE CIRCUIT BREAKERS



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