SIEMENS

Distribution Equipment

SPEEDFAX

Section 6
Molded Case Circuit Breakers

Contents

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A-Z

OEM Circuit Breakers
In this issue of the Speedfax, Siemens introduces the modular and flexible design of Siemens VL molded case circuit breakers (MCCB) for OEM applications. This family of MCCB's allow the OEM customer the flexibility of last minute changes, with a minimum level of stock due to product modularity. The VL family of MCCB's also offer the widest range of field installable accessories in the industry. lay contact for alarms such as Ground Fault Warning and a latching alarm relay contact for trip indication.

Interruption Ratings (UL/CSA)

N	35kA @ 480Vac Voltage
H	65kA @ 480Vac
L	100kA @ 480Vac

Ratings 30-1600A
Voltage 600Vac
690Vac (IEC)

Standards UL, CSA, NOM, IEC, CE Marked

Ordering

In the FD through RD frames, you may order molded case circuit breakers three basic ways:

- As separately ordered frames, trip units and lugs
- As frame, trip unit and lugs ordered as one catalog number and shipped unassembled or assembled
- As Frame and Trip Unit shipped assembled and with the trip unit made non-removable, in compliance with UL 489 requirements that to be reverse fed the circuit breaker must **not** have an interchangeable trip unit.

These two options are described in the following

Components Ordered Separately

To get the components for a 3 pole, 400 Amp standard interrupting circuit breaker, you would order the frame (JD63F400), the trip unit (JD63T400) and six lugs (TA2J6500). This option is normally useful only if you stock and use large volumes of product and wish to reduce your inventory cost. You may stock, for example, a smaller number of frames (JD63F400) and a variety of trip units (JD63T300, JD63T350, etc.) and assemble breakers as you need them.

Frame, Trip Unit and Lugs Ordered Together

If you order the catalog number JD63B400, you will receive a frame, a trip unit and 6 lugs in separate packages. By suffixing this number with "L" (e.g. JD63B400L), you will receive frame, trip unit and lugs assembled in one container. Pursuant to UL 489, a product ordered thus will have the markings "LINE" and "LOAD", and may not be "reverse fed" (with power flowing from the "OFF" end of the breaker toward the "ON" end).

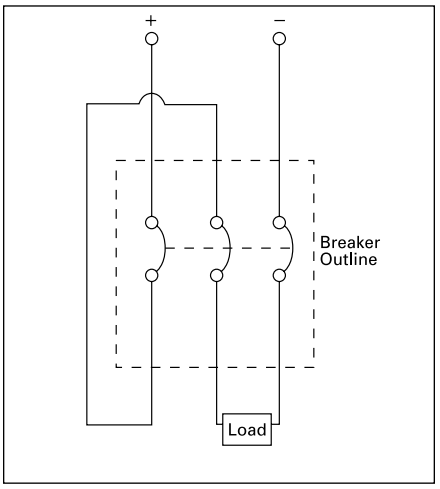
Non-Interchangeable Trip Breakers

If you place an "X" after the frame size designator (e.g. JXD63B400), you will receive a frame and trip unit assembled, with the trip unit made non-removable. If you suffix an "L" to this catalog number (e.g. JXD63B400L), you will recieve the breaker, non-removable trip unit and lugs assembled. Unless you anticipate a specific need to change the breaker's ampere rating in the future, this is the preferred ordering method, as the products are assembled to Siemens' specifications in our factories. These breakers are suitable for use reverse fed according to UL 489, since the trip unit is not removable.

The smaller frames (QJ, ED and below) do not have removable trip units, and consequently are shipped only as assembled products. To add lugs, see the ordering instructions on each product's catalog page.

Connecting Breakers for DC Application

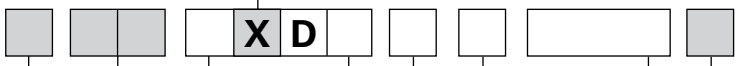
Most Siemens thermal magnetic trip MCCBs are applicable on direct current (dc) systems. Generally, for 250 V dc systems a two pole breaker is used, with one pole on each leg of the supply circuit. For three pole breakers applied on 500 V dc systems, it is important to connect the power supply "zig-zag" through the breaker as shown in the figure below. This assures that the Voltage between phases on the breaker terminals is uniformly distributed.



500V DC Wiring Configuration

Catalog Numbering System

If used on 250A frame and above means non-interchangeable trip breaker with factory assembled frame and trip. Solid state trip and current limiting (S or C in first character) are non-interchangeable only, and the "X" is omitted.



Trip Unit Type
□ — Omitted –Thermal-Magnetic
S — Sensitrip® Electronic Trip

Sentron Series Type/Interrupting Range
□ — Omitted – Standard Rating
H — High IC Rating
HH — Extra High IC Rating
C — Highest IC Rating and Current Limiting

Frame Identifier

E — Type ED	M — Type MD
F — Type FD	N — Type ND
J — Type JD	P — Type PD
L — Type LD	R — Type RD
LM — Type LMD	T — Type TD

Maximum Voltage
2 — 240 Vac
4 — 480 Vac
6 — 600 Vac

Number of Poles
1
2
3
9 used to indicate the max. functions for an electronic trip circuit breaker (always 3 poles)

(Specific Application Type)
B — Standard 40°C Breaker
M — Calibrated for 50°C Application
F — Frame Only
T — 40°C Trip Unit Only
W — 50°C Trip Unit Only
S — Molded Case Switch
L — Low Instantaneous Range ETI Breaker
A — Standard Range ETI Breaker
H — High Instantaneous Range ETI Breaker

Maximum Continuous Current Rating
ED Frame — 015, 020, 025, 030, 035, 040, 045, 050, 060, 070, 080, 090, 100, 110, 125
FD Frame — 070, 080, 090, 100, 110, 125, 150, 175, 200, 225, 250
JD Frame — 200, 225, 250, 300, 350, 400
LD Frame — 250, 300, 350, 400, 450, 500, 600
LMD Frame — 500, 600, 700, 800
MD Frame — 500, 600, 700, 800
ND Frame — 900, 100 (1000A), 120 (1200A)
PD Frame — 120 (1200A), 140 (1400A), 160 (1600A)
RD Frame — 160 (1600A), 180 (1800A), 200 (2000A)
TD Frame — 2000, 2500, 3200

Suffix
L — where applicable indicates a breaker shipped with line/loads lugs installed
A — used with a switch to show automatic self protection
Y — 400 Hertz
H — 100% rated

NOTE:

□ — Position omitted if not used.

Applicable Standards

UL489 — Molded Case Circuit Breakers and Circuit Breaker Enclosures.

UL486A — Wire Connectors and Solderless Lugs for use with copper wire

UL486B — Wire Connectors and Solderless Lugs for use with aluminum wire

UL943 — Ground Fault Interrupters (for personnel protectors)

UL1087 — Molded Case Switches

UL50 — Cabinets and Boxes

UL869 — Service Equipment

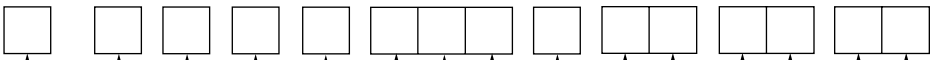
NEMA AB-1 — Molded Case Circuit Breakers and Molded Case Switches

CSA–C22.2 No. 5,

C22.2 No. 14

Note:
(A) Molded case circuit breakers are designed and tested in accordance to applicable portions of UL489 and CSAC22.2 No 5 and meet application requirements of the National Electric Code. Unless marked otherwise, circuit breakers are 80% duty rated.

(B) Molded case circuit breakers are to be connected with 60 or 75°C wire for circuit breakers having a rated ampacity of 125 amperes or less. Circuit breakers having a rated ampacity greater than 125 amperes shall only be cabled with 75°C cable unless otherwise indicated on the circuit breaker label. Exceptions to this rule are outlined in the article 110-14 C(1)(2) of the 2002 National Electric Code and Canadian Electrical Code.



Interrupting Class
- N — Normal
- H — High
- L — Very High
- C — Trip Unit Only

Frame Family
- G — Type GG
- E — Type EG
- D — Type DG
- F — Type FG
- J — Type JG
- L — Type LG
- M — Type MG
- N — Type NG
- P — Type PG

Breaker Type
- G — Global (UL, IEC, CE, CSA, NOM)
- T — Trip Unit Only (Global)
- H — 100% rated
- X — Non-Interchangeable
- M — Motor Circuit Protector
- S — Molded Case Switch
- J — 240V only rated, Non-interchangeable only
- Y — 100% rated, Non-interchangeable
- N — Naval

Number of Poles
- 1, 2, 3, 4, 5 (4P w/ neutral protection)

Trip Unit
- B — Thermal Magnetic, standard 40° C ambient
- C — Thermal Magnetic, calibrated for 50° C ambient (non-UL)
- D — Electronic w/ LCD, LSI, 3P or 4P (neutral protected)
- E — Electronic w/ LCD, LSIG, 3P/4W (selectable residual or return type ground fault protection)
- F — Frame only, without trip unit
- H — Magnetic only, Motor Circuit Protector - High instantaneous range
- L — Magnetic Only, Motor Circuit Protector - Low instantaneous range
- M — Magnetic Only, Motor Circuit Protector - Standard instantaneous range
- N — Electronic LI, 3P or 4P (neutral protected)
- P — Electronic LSI, 3P or 4P (neutral protected)
- S — Molded Case Switch
- U — Electronic, LSIG, 3P/4W or 4P, residual ground fault protection
- X — Electronic, LIG, 3P/4W or 4P, residual ground fault protection

Continuous Current Rating
- For GG use 015, 020, 025, 030, 035, 040, 050, 060, 070, 080, 090, 100, 110, 125
- For EG use 015, 020, 025, 030, 035, 040, 050, 060, 070, 080, 090, 100, 110, 125
- For DG use 050, 060, 070, 080, 090, 100, 110, 125, 150
- For FG use 100, 110, 125, 150, 175, 200, 225, 250
- For JG use 250, 300, 350, 400
- For LG use 400, 500, 600
- For MG use 600, 700, 800
- For NG use 800, 900, 100 (1000A), 120 (1200A)
- For PG use 120 (1200A), 140 (1400A), 160 (1600A)

Terminations
- B — Load End Standard (cu/al) Lugs
- L — Line & Load Standard (co/al) Lugs
- X — No Lugs (use only if accessory suffixes are to follow)

Accessories

Auxiliary and Alarm Switch Combinations

Suffix		Description
A1	—	1 Alarm (includes 1NO & 1NC switch with a 2 Aux./1 Alarm Base, for frames EG to JG)
A2	—	2 Aux (1NO & 1NC switch with a 3 Aux. Base, for frames EG to JG)
A3	—	2 Aux + 1 Alarm (2NO & 2NC switches with a 2 Aux./1 Alarm Base, for frames EG to JG)
A3	—	2 Aux + 2 Alarm (2NO & 2NC switches with a 2 Aux./2 Alarm Base, for frames LG to PG)
A4	—	4 Aux (2NO & 2NC switches with a 4 Aux. Base, for frames LG to PG)

Note: A1 and A3 include 1NO and 1NC switch for alarm purposes, only one of these switches may be used as there is only one space for an alarm.

Shunt Trips
- RB — 24 VDC
- RC — 48-60 VDC
- RD — 110-127 VDC
- RE — 250 VDC
- RM — 48-60 VAC
- RN — 110-127 VAC
- RS — 208-277 VAC
- RV — 380-600 VAC

Under Voltage Releases
- UA — 12 VDC
- UB — 24 VDC
- UC — 48 VDC
- UD — 110-127 VDC
- UE — 220-250 VDC
- UG — 60 VDC
- UN — 110-127 VAC
- UP — 208 VAC
- UR — 220-250 VAC
- US — 277 VAC
- UT — 380-415 VAC
- UU — 440-480 VAC
- UV — 600 VAC

LCD = Liquid Crystal Display
LS = Long Delay & Short Delay trip functions
LSI = Long Delay, Short Delay, & Instantaneous trip functions
LSIG = Long Delay, Short Delay, Instantaneous, & Ground Fault trip functions
GF = Ground Fault
3P = 3-pole
4W = 4-wire

Reference Guide

Thermal-Magnetic Trip Breakers

				Load Center Breakers						Panelboard Breakers			
				QT[1]	QP, QPP[2]	QPH, QPPH[2]	HQP, HQPP[2]	HQPPH[2]	QPJ[9]	BL	BLH	HBL	BQD, BQD6[1]
Page				**1-23**	**1-22, 1-27**	**1-22, 1-27**	**1-22, 1-27**	**1-27**	**1-27**	**6-13**	**6-13**	**6-13**	**6-16**
Ratings	**AC**	Poles		1, 2	1, 2, 3	1, 2, 3	1, 2, 3[2]	2	2,3	1, 2, 3,	1, 2, 3	1, 2, 3[2]	1, 2, 3
		Amperes, Continuous		15–50	15–125[3,4]	15–125[3,4]	15–125[7]	100–200	150–200	15–125[5]	15–125[5]	15–100[7]	15–100
		Volts (60 Hertz)	1-Pole	120/240	120/240	120/240	120/240	120/240	120/240	120/240	120/240	120/240	277
			2-Pole										
			3-Pole	—	240	240	240	240	240	240	240	240	480/277
		CSA/UL Interrupting Rating — Symmetrical RMS Amperes	120V	10,000	10,000	22,000	65,000	—	—	10,000	22,000	65,000	65,000
			240V	10,000	10,000	22,000	65,000	100,000	10,000	10,000	22,000	65,000	65,000
			277V	—	—	—	—	—	—	—	—	—	14,000
			347V	—	—	—	—	—	—	—	—	—	10,000[11]
			480/277V	—	—	—	—	—	—	—	—	—	14,000
			600/347V	—	—	—	—	—	—	—	—	—	10,000[11]
	DC	Volts — 2-Pole		—	—	—	—	—	—	—	—	—	250
		Interrupting Rating — DC Amperes		—	—	—	—	—	—	—	—	—	14,000[15]
Dimensions in inches		Height	15–50A	—	2.87	2.87	—	—	7.00	3.56	3.56	—	4.50
			15–30A	—	—	—	—	—	—	—	3.75	—	—
			15–60A	3.12	—	—	—	—	—	—	—	—	—
			55–125A	—	3.12	3.12	3.12	3.12	3.00[9]	3.75	—	3.75	4.50
		Width	1-Pole	1.00	1.00	1.00	1.00	—	—	1.00	1.00	1.00	1.00
			2-Pole	2.00[10]	2.00[2]	2.00[2]	2.00	4.00[2]	[9]	2.00	2.00	2.00	2.00
			3-Pole	2.00[10]	3.00	3.00	3.00	—	3.00[9]	3.00	3.00	3.00	3.00
		Depth		2.06	2.37	2.37	2.37	2.37	2.34	2.37	2.37	2.69	2.23
Overcurrent Devices		Thermal and Fixed Magnetic Trip		√	√	√	√	√	√	√	√	√	√
		Molded Case Switch		—	√[6]	—	—	—	—	—	—	—	—
Accessories & Modifications		Undervoltage Trip		—	—	—	—	—	—	—	—	—	√
		Shunt Trip		—	√[6]	√[6]	√[8]	√[8]	—	√	√	√	√
		Auxiliary Switch		—	—	—	—	√[8]	—	√	√	√	√
		Alarm Switch		—	—	—	—	—	—	—	—	—	√
Individual Enclosures		Type 1 — Indoor Surface		√	√	√	√	√	—	—	—	—	—
		Type 1 — Indoor, Flush		—	√	√	√	√	—	—	—	—	—
		Type 3R — Outdoor-Rainproof		—	√	√	√	√	—	—	—	—	—

QP, QPH, HQP

BL, BLH, HBL

BQD, BQD6

For inches / millimeters conversion, see Application Data section.

[1] BQD6 CSA cerified 10,000A @ 600Y/347V 15–70A only.
[2] Types QPP, QPPH, HQPP and HQPPH are special 2-pole configurations for load center mains. Amperage range = 125–225A, width = 4 in.
[3] Single pole breakers available in ratings 15–70A only.
[4] 125A, 2-pole 120/240V AC only.
[5] 14,000A IR at 277/480V AC only.
[6] Not applicable to types QPP and QPPH.
[7] Single pole circuit breakers available in ratings 15-70A only, 125A available as a 2-pole only.
[8] Not applicable to type HQPP.
[9] Fits only Siemens EQIII load centers. Breaker is 2 or 3 poles wide.

Reference Guide

Thermal-Magnetic Trip Breakers

				General Purpose Breakers							
				BQ	**BQH**	**HBQ**	**QJ2**	**QJH2**	**QJ2-H**	**HQJ2-H**	**CQD**
Page				**6-17**	**6-17**	**6-17**	**6-19**	**6-19**	**6-19**	**6-19**	**6-20**
Ratings	**AC**	Poles		1, 2, 3	1, 2, 3	1, 2, 3	2, 3	2, 3	2, 3	3	1, 2, 3
		Amperes, Continuous	1-Pole	15–70	15–70	15–50	—	—	—	—	15–100
			2-Pole	15–125	15–100	15–70	60–225	60–225	60–225	—	15–100
			3-Pole	15–100	15–100	15–100				100–225	15–100
		Volts (60 Hertz)	1-Pole	120/240	120/240	120/240	—	—	—	—	277
			2-Pole				240	240	240	—	480/277
			3-Pole	240	240	240				240	
		CSA/UL Interrupting Rating — Symmetrical RMS Amperes	120V	10,000	22,000	65,000	—	—	—	—	65,000
			240V	10,000	22,000	65,000	10,000	22,000	42,000	100,000	65,000
			480/277V	—	—	—	—	—	—	—	14,000
			600/347V	—	—	—	—	—	—	—	10,000❷
	DC	Volts — 2-Pole		—	—	—	—	—	—	—	250
		Interrupting Rating — DC Amperes		—	—	—	—	—	—	—	14,000
Dimensions in inches		Height	15–50A	3.75	3.75	4.00	—	—	—	—	4.50
			55–125A	4.00	4.00	4.00	—	—	—	—	4.50
			60–225A	—	—	—	7.00	7.00	7.00	7.00	—
		Width	1-Pole	1.00	1.00	1.00	—	—	—	—	1.00
			2-Pole	2.00	2.00	2.00	3.00	3.00	3.00	—	2.00
			3-Pole	3.00	3.00	3.00	4.50	4.50	4.50	4.50	3.00
		Depth		2.37	2.37	2.37	2.34	2.34	2.53	2.53	2.87
Overcurrent Devices		Thermal and Fixed Magnetic Trip		√	√	√	√	√	√	√	√
		Molded Case Switch		√	—	—	√	—	—	—	—
Accessories & Modifications		Undervoltage Trip		—	—	—	—	—	—	—	√
		Shunt Trip		√	√	√	√❶	√❶	√❶	√❶	√
		Auxiliary Switch		√	√	√	√❶	√❶	√❶	√❶	√
		Alarm Switch		—	—	—	√	√	—	—	√
		Mechanical Interlock		—	—	—	√	√	√	√	—
		Fungus Proofing (ref. page 106)		√	√	√	√	√	√	√	√
Individual Enclosures		Type 1 — Indoor Surface		√	√	√	√	√	√	√	—
		Type 1 — Indoor, Flush		√	√	√	√	√	√	√	—
		Type 3R — Outdoor-Rainproof		√	√	√	√	√	√	√	—

BQ, BQH, HBQ

QJ2, QJH2, QJ2-H

CQD

NGG

For inches / millimeters conversion, see Application Data section.

❶ 3-pole breakers only (factory installed only).
❷ Type CQD6—CSA only.

Reference Guide

Thermal-Magnetic Trip Breakers

						General Purpose Breakers								
						ED2	ED4	ED6	HED4	CED6	FD6A, FXD6A	HFD6, HFXD6	HHFD6, HHFXD6	CFD6
Page						6-23	6-23	6-23	6-24	6-24	6-26	6-27	6-27	6-27
Ratings		Poles				1, 2, 3	1, 2, 3	1❶, 2, 3	1, 2, 3	2, 3	2, 3`	2, 3	2, 3	2, 3
		Amperes, Continuous				15–100	15–125	15–125	15–125	15–125	70–250	70–250	70–250	70–250
		Volts 50/60HZ			1-Pole	120	277	347	277`	—	—	—	—	—
					2-Pole	240	480	600	480	600	600	600	600	600
					3-Pole									
	AC	Interrupt Rating Symmetrical RMS Amperes	CSA / UL		120V	10,000	—	—	—	—	—	—	—	—
					240V	10,000	65,000	65,000	100,000	200,000	65,000	100,000	200,000	200,000
					277V	—	22,000❶	—	65,000❷	—	—	—	—	—
					347V	—	—	30,000	—	—	—	—	—	—
					480V	—	18,000	25,000	42,000	200,000	35,000	65,000	100,000	200,000
					600V	—	—	18,000	—	100,000	18,000	25,000	25,000	100,000
			IEC 947-2 50/60HZ	220/240V	Icu	—		65,000	—	200,000❸	65,000	100,000	200,000	—
					Ics	—	—	17,000	—	—	33,000	50,000	100,000`	—
				380/415V	Icu	—		35,000	—	200,000❸	35,000	65,000	100,000	—
					Ics	—	—	9,000	—	—	18,000	33,000	50,000	—
				500V	Icu	—	—	18,000	—	—	20,000	42,000	65,000	—
					Ics	—	—	5,000	—	—	10,000	21,000	33,000	—
	DC	2-Pole, 250V DC Interrupting Ratings				5,000	30,000	30,000	30,000	30,000	30,000	30,000	—	30,000
		3-Pole, 500V DC Interrupting Ratings❸				—	—	18,000	—	50,000	18,000	25,000	—	50,000
Dimensions in inches		Height				6.34	6.34	6.34	6.34	9.26	9.50	9.50	11.00	14.12
		Width			1-Pole	1.00	1.00	1.00	1.00`	—	—	—	—	—
					2-Pole	2.00	2.00	2.00	2.00`	2.00	4.50	4.50	4.50	4.50
					3-Pole	3.00	3.00	3.00	3.00`	3.00	4.50`	4.50`	4.50	4.50
		Depth				4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Overcurrent Devices		Thermal and Fixed Magnetic Trip				√	√	√	√	√	—	—	—	—
		Thermal and Adjustable Magnetic Trip				—	—	—	—	—	√	√	√	√
		Adjustable Magnetic Trip Only Motor Circuit Protector				—	—	√	—	√	√	—	—	√
		Molded Case Switch				√	√	√	—	√	√	—	—	√
Accessories & Modifications		Undervoltage Trip				√	√	√	√	√	√	√	√	√
		Shunt Trip				√	√	√	√	√	√	√	√	√
		Auxiliary Switch				√	√	√	√	√	√	√	√	√
		Alarm Switch				√	√	√	√	√	√	√	√	√
		Mechanical Interlock				—	—	—	—	—	√	√	√	√
		Rear Connection Studs				√	√	√	√	√`	√	√	√`	√
		Electric Motor Operator				√	√	√	√	√	√	√	√	√
		Plug-In Mounting Assembly				√	√	√	√	√`	√	√	√`	√
		Fungus Proofing (ref. page 106)				√	√	√	√	√	√	√	√	√
Individual Enclosures		Type 1 — Indoor Surface				√	√	√	√	√	√	√	√	√
		Type 1 — Indoor, Flush				√	√	√	√	√	—	√	—	√
		Type 3R — Outdoor-Rainproof				√	√	√	√	√	√`	√	√	√
		Type 7 — Flammable Gas Atmosphere				√	√	√	√	—	√	√	√	—
		Type 9 — Combustion Dusttight					√	√	√	√	—	√	√	√
		Type 5, 12 — Lint, Fine Dust, Oils, Coolants				√	√	√	√	√`	√	√	√	√
		Type 12K — Semi-Dusttight				√	√	√	√	√`	√	√	√	√

For inches / millimeters conversion, see Application Data section.

❶-1-pole only.
❷-40–100A: 25,000 AIR at 277V AC.
❸-For DC UPS system application.
❹-Single pole ED6 (15–30A) 30kA, (35–100A) 18 kA. CSA Only.

Reference Guide

Thermal-Magnetic Trip Breakers

						General Purpose Breakers								
						JXD2-A	JD6-A, JXD6-A	HJD6-A, HJXD6-A	HHJD6-A, HHJXD6-A	CJD6	LD6, LXD6	HLD6, HLXD6	HHLD6, HHLXD6	CLD6
Page						6-29	6-29	6-30	6-30	6-30	6-33	6-33	6-34	6-34
Ratings	**AC**	Poles				2, 3	2, 3	2, 3	2, 3	2, 3	2, 3	2, 3	2, 3	2, 3
		Amperes, Continuous				200-400	200-400	200-400	200-400	200-400	450-600	250-600	250-600	450-600
		Volts 50/60HZ			2-Pole	240	600	600	600	600	600	600	600	600
					3-Pole									
		Interrupt Rating Symmetrical RMS Amperes	CSA / UL		240V	65,000	65,000	100,000	200,000	200,000	65,000	100,000	200,000	200,000
					480V	—	35,000	65,000	100,000	150,000	35,000	65,000	100,000	150,000
					600V	—	25,000	35,000	50,000	100,000	25,000	35,000	50,000	100,000
			IEC 947-2 50/60HZ	220/240V	Icu	—	65,000	100,000	200,000	—	65,000	100,000	200,000	—
					Ics	—	33,000	50,000	100,000	—	33,000	50,000	100,000	—
				380/415V	Icu	—	40,000	65,000	100,000	—	40,000	65,000	100,000	—
					Ics	—	20,000	33,000	50,000	—	20,000	33,000	50,000	—
				500V	Icu	—	30,000	42,000	65,000	—	30,000	42,000	65,000	—
					Ics	—	15,000	21,000	33,000	—	15,000	21,000	33,000	—
	DC	2-Pole 250V DC Interrupting Ratings				30,000	30,000	30,000	—	30,000	30,000	30,000	—	30,000
		3-Pole, 500V DC Interrupting Ratings❶				—	25,000	35,000	—	50,000	25,000	35,000	—	50,000
Dimensions in inches		Height				11.00	11.00	11.00	11.00	17.86	11.00	11.00	11.00	17.86
		Width			2-Pole	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
					3-Pole									
		Depth				4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Overcurrent Devices		Thermal and Adjustable Magnetic Trip				√	√	√	√	√	√	√	√	√
		Adjustable Magnetic Trip Only Motor Circuit Protector				—	—	—	—	√	√	—	—	√
		Molded Case Switch				√	√	—	—	√	√	—	—	√
Accessories & Modifications		Undervoltage Trip				√	√	√	√	√	√	√	√	√
		Shunt Trip				√	√	√	√	√	√	√	√	√
		Auxiliary Switch				√	√	√	√	√	√	√	√	√
		Alarm Switch				√	√	√	√	√	√	√	√	√
		Mechanical Interlock				√	√	√	√	√	√	√	√	√
		Rear Connection Studs				√	√	√	√	√	√	√	√	√
		Electric Motor Operator				√	√	√	√	√	√	√	√	√
		Plug-In Mounting Assembly				√	√	√	√	√	√	√	√	√
		Fungus Proofing (ref. page 106)				√	√	√	√	√	√	√	√	√
Individual Enclosures		Type 1 — Indoor Surface				√	√	√	√	√	√	√	√	√
		Type 1 — Indoor, Flush				—	—	—	—	—	√	—	—	—
		Type 3R — Outdoor-Rainproof				√	√	√	√	—	√	√	√	—
		Type 7 — Flammable Gas Atmosphere				√	√	√	√	—	√	√	√	—
		Type 9 — Combustion Dusttight					√	√	√	√	—	√	√	√ —
		Type 5, 12 — Lint, Fine Dust, Oils, Coolants				√	√	√	√	√	√	√	√	√
		Type 12K — Semi-Dusttight				—	√	√	√	—	√	√	√	—

For inches / millimeters conversion, see Application Data section.

❶-For DC UPS application.

Reference Guide

Thermal-Magnetic Trip Breakers

						General Purpose Breakers							
						LMD6, LMXD6	HLMD6, HLMXD6	MD6, MXD6	HMD6, HMXD6	CMD6	ND6, NXD6	HND6, HNXD6	CND6
Page						6-37	6-37	6-40	6-41	6-41	6-44	6-45	6-45
Ratings	**AC**	Poles				2, 3	2, 3	2, 3	2, 3	3	2, 3	2, 3	3
		Amperes, Continuous				500-800	500-800	500-800	500-800	400-800	800-1200	800-1200	800-1200
		Volts 50/60 HZ			2-Pole	600	600	600	600	600	600	600	600
					3-Pole								
		Interrupt Rating Symmetrical RMS Amperes	CSA / UL		240V	65,000	100,000	65,000	100,000	200,000	65,000	100,000	200,000
					480V	50,000	65,000	50,000	65,000	100,000	50,000	65,000	100,000
					600V	25,000	25,000	25,000	50,000	65,000	25,000	50,000	65,000
			IEC 947-2 50/60HZ	220/240V	Icu	65,000	100,000	65,000	100,000	200,000	65,000	100,000	200,000
					Ics	33,000	50,000	33,000	50,000	100,000	33,000	50,000	100,000
				380/415V	Icu	40,000	65,000	40,000	65,000	100,000	40,000	65,000	100,000
					Ics	20,000	33,000	20,000	33,000	50,000	20,000	33,000	50,000
				500V	Icu	30,000	42,000	30,000	42,000	65,000	30,000	42,000	65,000
					Ics	15,000	21,000	15,000	21,000	33,000	15,000	21,000	33,000
	DC	2-Pole 250V DC Interrupting Ratings				30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
		3-Pole, 500V DC Interrupting Ratings❶				25,000	50,000	25,000	50,000	50,000	25,000	50,000	50,000
Dimensions in inches		Height				16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
		Width			2-Pole	7.50	7.50	9.00	9.00	—	9.00	9.00	—
					3-Pole					9.00			9.00
		Depth				4.59	4.59	6.19	6.19	6.19	6.19	6.19	6.19
Overcurrent Devices		Thermal and Fixed Magnetic Trip				—	—√	—	—	—	—	—	—
		Thermal and Adjustable Magnetic Trip				√	√	√	√	√	√	√	√
		Adjustable Magnetic Trip Only Motor Circuit Protector				√	—	√	—	√	—	—	—
		Molded Case Switch				√	√	√	—	√	√	—	√
Accessories & Modifications		Undervoltage Trip				√	√	√	√	√	√	√	√
		Shunt Trip				√	√	√	√	√	√	√	√
		Auxiliary Switch				√	√	√	√	√	√	√	√
		Alarm Switch				√	√	√	√	√	√	√	√
		Mechanical Interlock				√	√	√	√	√	√	√	√
		Rear Connection Studs				√	√	√	√	√	√	√	√
		Electric Motor Operator				√	—	√	√	√	√	√	√
		Plug-In Mounting Assembly				—	√	√	√	√	—	√	√
		Fungus Proofing (ref. page 6/73)					√	√	√	√	√	√	√
Individual Enclosures		Type 1 — Indoor Surface				√	—	√	√	√	√	√	√
		Type 1 — Indoor, Flush				—	√	—	—	—	—	—	—
		Type 3R — Outdoor-Rainproof				√	—	√	√	√	√	—	√
		Type 5, 12 — Lint, Fine Dust, Oils, Coolants				—	—	√	√	√	√	√	√
		Type 7 — Flammable Gas Atmosphere				—	—	—	—	—	—	—	—
		Type 9 — Combustion Dusttight					—	—	—√	—	—	—	—
		Type 12K — Semi-Dusttight				√	√	√	√	—	√	√	—

❶ For DC UPS application.

For inches / millimeters conversion, see Application Data section.

Reference Guide

Thermal-Magnetic Trip Breakers

						General Purpose Breakers				
						PD6[2], PXD6[2]	HPD6[2], HPXD6[2]	CPD6[2]	RD6[2], RXD6[2]	HRD6[2], HRXD6[2]
Page						**6-48**	**6-48**	**6-48**	**6-51**	**6-51**
Ratings	**AC**	Poles				3	3	3	3	3
		Amperes, Continuous				1200-1600	1200-1600	1200-1600	1600-2000	1600-2000
		Volts 50/60 HZ			3-Pole	600	600	600	600	600
		Interrupt Rating Symmetrical RMS Amperes	CSA / UL		240V	65,000	100,000	200,000	65,000	100,000
					480V	50,000	65,000	100,000	50,000	65,000
					600V	25,000	50,000	65,000	25,000	50,000
			IEC 947-2 50/60HZ	220/240V	Icu	65,000	100,000	200,000	65,000	100,000
					Ics	33,000	50,000	100,000	33,000	50,000
				380/415V	Icu	40,000	65,000	100,000	40,000	65,000
					Ics	10,000	17,000	25,000	10,000	17,000
				500V	Icu	30,000	42,000	65,000	30,000	42,000
					Ics	8,000	21,000	17,000	8,000	21,000
	DC	2-Pole 250V DC Interrupting Ratings				30,000	30,000	30,000	30,000	30,000
		3-Pole, 500V DC Interrupting Ratings[1]				25,000	50,000	50,000	25,000	50,000
Dimensions in inches		Circuit breakers require Connect-all mounting block. Dimensions shown are for circuit breaker only.			Height	16.00	16.00	16.00	16.00	16.00
					Width	9.00	9.00	9.00	9.00	9.00
					Depth	6.19	6.19	6.19	6.19	6.19
Overcurrent Devices		Thermal and Adjustable Magnetic Trip				√	√	√	√	√
		Molded Case Switch				√	—	—	√	—
Accessories & Modifications		Undervoltage Trip				√	√	√	√	√
		Shunt Trip				√	√	√	√	√
		Auxiliary Switch				√	√	√	√	√
		Alarm Switch				√	√	√	√	√
		Mechanical Interlock				√	√	√	√	√
		Electric Motor Operator				√	√	√	√	√
		Fungus Proofing (ref. page 106)				√	√	√	√	√
		Mounting Block (required)				√	√	√	√	√
Individual Enclosures		Type 1 — Indoor Surface				√	√	√	√	√
		Type 1 — Indoor, Flush				—	—	—	—	—
		Type 3R — Outdoor-Rainproof				—	—	—	—	—
		Type 7 — Flammable Gas Atmosphere				—	—	—	—	—
		Type 9 — Combustion Dusttight					—	—	—	— —
		Type 5, 12 — Lint, Fine Dust, Oils, Coolants				—	—	—	—	—
		Type 12K — Semi-Dusttight				—	—	—	—	—

For inches / millimeters conversion, see Application Data section.

[1] For DC UPS application.
[2] Requires Connect-all mounting assembly. Dimensions shown are for circuit breaker only.

Reference Guide

Electronic Trip Breakers

					Solid State Trip Cicuit Breakers								
					SJD6	SHJD6	SCJD6	SLD6	SHLD6	SCLD6	SMD6	SHMD6	SCMD6
Page					6-31	6-31	6-31	6-35	6-35	6-35	6-42	6-42	6-42
Ratings	**AC**	Poles			3	3	3	3	3	3	3	3	3
		Amperes, Continuous			200-400	200-400	200-400	300-600	300-600	300-600	600-800	600-800	600-800
		Volts 50/60 HZ		3-Pole	600	600	600	600	600	600	600	600	600
		Interrupt Rating Symmetrical RMS Amperes	CSA / UL	240V	65,000	100,000	200,000	65,000	100,000	200,000	65,000	100,000	200,000
				480V	35,000	65,000	150,000	35,000	65,000	150,000	50,000	65,000	100,000
				600V	25,000	35,000	100,000	25,000	35,000	100,000	25,000	50,000	65,000
Dimensions in inches		Height			11.00	11.00	17.86	11.0	11.00	17.86	10.00	16.00	16.00
		Width		3-Pole	7.50	7.50	7.50	7.50	7.50	7.50	9.00	9.00	9.00
		Depth			4.00	4.00	4.00	4.00	4.00	4.00	6.19	6.19	6.19
Overcurrent Devices		Solid State Trip			√	√	√	√	√	√	√	√	√
Accessories & Modifications		Undervoltage Trip			√	√	√	√	—	√	√	√	√
		Shunt Trip			√	√	√	√	√	√	√	√	√
		Auxiliary Switch			√	√	√	√	√	√	√	√	√
		Alarm Switch			√	√	√	√	√	√	√	√	√
		Mechanical Interlock			—	—	—	—	—	—	√	√	√
		Rear Connection Studs			√	√	√	√	√	√	√	√	√
		Electric Motor Operator			√	√	√	√	√	√	√	√	√
		Plug-In Mounting Assembly			√	√	√	√	√	√	√	√	√
		Fungus Proofing (ref. page 106)			√	√	√	√	√	√	√	√	√
Individual Enclosures		Type 1 — Indoor Surface			√	√	—	√	√	—	√	√	√
		Type 1 — Indoor, Flush			—	—	—	—	—	—	—	—	—
		Type 3R — Outdoor-Rainproof			√	√	—	√	√	—	√	√	√
		Type 7 — Flammable Gas Atmosphere			√	√	—	√	√	—	—	—	—
		Type 9 — Combustion Dusttight				√	√	—	√	√	—	—	—
		Type 5, 12 — Lint, Fine Dust, Oils, Coolants			√	√	√	√	√	√	√	√	√
		Type 12K — Semi-Dusttight			√	√	—	√	√	—	√	√	—

For inches / millimeters conversion, see Application Data section.

Reference Guide

Electronic Trip Breakers

					Solid State Trip Circuit Breakers							
					SND6	SHND6	SCND6	SPD6[1]	SHPD6[1]	STD6[2]	SHTD6[2]	SHHTD6[2]
Page					**6-46**	**6-46**	**6-46**	**6-49**	**6-49**	**6-53**	**6-53**	**6-53**
Ratings	**AC**	Poles			3	3	3	3	3	3	3	3
		Amperes, Continuous			800-1200	800-1200	800-1200	1200-1600	1200-1600	2000-3200	2000-3200	2000-3200
		Volts 50/60HZ		3-Pole	600	600	600	600	600	600	600	600
		Interrupt Rating Symmetrical RMS Amperes	CSA / UL	240V	65,000	100,000	200,000	65,000	100,000	65,000	100,000	200,000
				480V	50,000	65,000	100,000	50,000	65,000	35,000	65,000	150,000
				600V	25,000	50,000	65,000	25,000	50,000	25,000	35,000	100,000
			EC 947-2 50/60HZ 380/415V	Icu	–	–	–	–	–	–	–	–
				Ics	–	–	–	–	–	–	–	–
			EC 947-2 50/60HZ 690V	Icu	–	–	–	–	–	–	–	–
				Ics	–	–	–	–	–	–	–	–
Dimensions in inches		Height			16.00	16.00	16.00	16.00	16.00	27.5	27.5	27.5
		Width			9.00	9.00	9.00	9.00	9.00	14.12	14.12	14.12
		Depth			6.19	6.19	6.19	6.19	6.19	11.38	11.38	11.38
Overcurrent Devices		Solid State Trip			√	√	√	√	√	√	√	√
Accessories & Modifications		Undervoltage Trip			√	√	√	√	√	√	√	√
		Shunt Trip			√	√	√	√	√	√	√	√
		Auxiliary Switch			√	√	√	√	√	√	√	√
		Alarm Switch			√	√	√	√	√	√	√	√
		Mechanical Interlock			√	√	√	√	–	√	√	√
		Rear Connection Studs			√	√	√	–	√	√	√	√
		Electric Motor Operator			√	√	√	√	–	–	–	–
		Plug-In Mounting Assembly			–	–	√	–	√	–	–	–
		Stored Energy Mechanism			–	–	–	–	–	–	–	–
		Drawout Construction			–	–	–	–	–	–	–	–
		Fungus Proofing (ref. page 106)			√	√	√	√	√	√	√	√
Individual Enclosures		Type 1 — Indoor Surface			√	√	√	√	–	–	–	–
		Type 1 — Indoor, Flush			–	–	–	–	–	–	–	–
		Type 3R — Outdoor-Rainproof			√	–	√	–	–	–	–	–
		Type 7 — Flammable Gas Atmosphere				–	–	–	–	–	–	–
		Type 9 — Combustion Dusttight			–	–	–	–	–	–	–	–
		Type 5, 12 — Lint, Fine Dust, Oils, Coolants			√	√	√	–	–	–	–	–
		Type 12K — Semi-Dusttight			√	√	–	–	–	–	–	–

For inches / millimeters conversion, see Application Data section.

[1] Requires connect-all mounting block assembly. Dimensions shown are for circuit breaker.

[2] Breaker has rating plugs which can be changed within each frame rating.

Panelboard Mounting Circuit Breakers

Type **BL**–Low Tab Bolt-on (10,000A IR)④

Non-Interchangeable Trip

Continuous Current Rating @ 40° C	1-Pole 120/240V AC Catalog Number	2-Pole 120/240V AC Common Trip Catalog Number	2-Pole③ 240V AC Common Trip Catalog Number	3-Pole 240V AC Common Trip Catalog Number
15	B115①②	B215③	B215R■	B315②
20	B120①②	B220③	B220R■	B320②
25	B125③	B225③	B225R■	B325②
30	B130②	B230③	B230R■	B330②
35	B135②	B235③	B235R■	B335②
40	B140②	B240③	B240R■	B340②
45	B145②■	B245②	B245R■	B345②
50	B150②	B250②	B250R■	B350②
60	B160②	B260②	B260R■	B360②
70	B170③	B270③	B270R■	B370③
80	—	B280③	B280R■	B380②
90	—	B290③	B290R■	B390②
100	—	B2100③	B2100R■	B3100③

Type **BLH**–Low Tab Bolt-on (22,000A IR)④

15	B115H①	B215H	—	B315H
20	B120H①	B220H	—	B320H
25	B125H	B225H	—	B325H
30	B130H	B230H	—	B330H
40	B140H	B240H	—	B340H
50	B150H■	B250H	—	B350H
60	B160H■	B260H	—	B360H
70	B170H■	B270H	—	B370H
80	— —	B280H	—	B380H
90	— —	B290H	—	B390H
100	— —	B2100H	—	B3100H

Type **HBL**–Low Tab Bolt-on (65,000A IR)④

15	B115HH①	B215HH	—	B315HH
20	B120HH①	B220HH	—	B320HH
30	B130HH	B230HH	—	B330HH
40	B140HH	B240HH	—	B340HH
50	B150HH■	B250HH	—	B350HH
60	— —	B260HH	—	B360HH
70	— —	B270HH■	—	B370HH
80	— —	B280HH■	—	B380HH
90	— —	B290HH■	—	B390HH
100	— —	B2100HH	—	B3100HH

Types BL/BLH/HBL

Internal Accessories (Factory installed only; require one additonal pole width)

Control Voltage		Shunt Trip	Auxiliary Switches 1A and 1B
AC	DC	Suffix	Suffix
120V	—	...00S01■	...01■
24V	—	...00S07■	...01■

■ Built to order. Allow 3–4 weeks for delivery.
①CSA Certified / UL Listed for frequent switching applications (SWD). 120V AC fluorescent lighting.
②For 400 cycle CSA Certified/ UL Listed devices, add "Y" suffix to catalog number. Add 25% to list price. 5000A interrupting rating — Built To Order.
③CSA Certified / UL Listed for 3 phase 240V grounded B at 10,000 AIR.
④HACR rated.

Modifications - page 6/73
Accessories - page 6/75 to 6/80

Panelboard Mounting Circuit Breakers

Ordering Instructions

- All BL circuit breakers are supplied with load side connectors.
- All standard circuit breakers are calibrated for 40° C maximum ambient application.

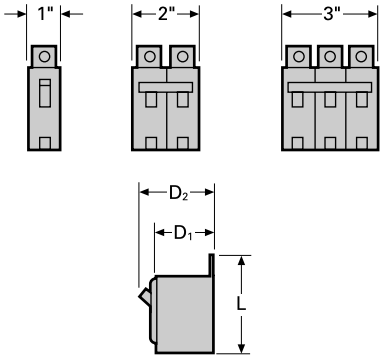
Shipping Weights - BL, BLH, HBL

Number of Poles	Number Per Carton / Master	Shipping Weight (lbs.) Master
1	12/48	15.3
2 (15–50A)	6/24	15.3
2 (60–70A)	6/24	19.4
2 (80–125A)	6/24	24.9
3 (15–100A)	4/16	20.1

Lugs (Load Side)

Type	Circuit Breaker Ampere Rating	Cables Per Lug	Wire Range Cu/Al	Catalog Number
BL, BLH, HBL	15–40	1 1	#14–#10 AWG Cu #12-#10 AWG Al	Fixed in Breaker
	25-35	1 1	#14–#6 AWG Cu #12-#6 AWG Al	
	40-50	1 1	#8–#6 AWG Cu #8-#4 AWG Al	
	55-70	1 1	#8–#4 AWG Cu #8-#2 AWG Al	
	80-100	1 1	#4–#1/0 AWG Cu #2-#1/0 AWG Al	
	110-125	1 1	#2–#1/0 AWG Cu #1/0-#2/0 AWG Al	

BL/BLH/HBL



Breaker Type	Amperes	Dimensions (inches) L	D1	D2
BL, BLH	15–50	3 9/16	2 3/8	3
BL, BLH	55–125	3 3/4	2 3/8	3
HBL	15–125	3 3/4	2 3/8	3

Accessories page 6/75 to 6/ 80.

For inches / millimeters conversion, see Application Data section.

Special Application Panelboard Mounting Breakers

GFCI Personnel Protection (Class A) (5MA)①

Breaker Type	Ampere Rating	Complete Breaker UL Unenclosed Catalog Number	Interrupting Ratings (KA) (RMS Symmetrical Amperes) Volts AC 120	120/240
BLF 1-Pole	15	BF115	10	—
	20	BF120	10	—
	25	BF125■	10	—
	30	BF130	10	—
BLF 2-Pole	15	BF215	—	10
	20	BF220	—	10
	30	BF230	—	10
	40	BF240■	—	10
	50	BF250■	—	10
	60	BF260■	—	10
BLHF 1-Pole	15	BF115H	22	—
	20	BF120H	22	—
	30	BF130H■	22	—
BLHF 2-Pole	15	BF215H■	—	22
	20	BF220H■	—	22
	30	BF230H■	—	22
	40	BF240H■	—	22
	50	BF250H■	—	22
	60	BF260H■	—	22

EQF Equipment Protection (30MA)①

BLE 1-Pole 120V AC	15	BE115■	10	—
	20	BE120	10	—
	30	BE130	10	—
BLE 2-Pole 120/240V AC	15	BE215■	—	10
	20	BE220	—	10
	30	BE230	—	10
	40	BE240■	—	10
	50	BE250■	—	10
	60	BE260■	—	10
BLEH 1-Pole	20	BE120H■	22	—
	30	BE130H■	22	—
BLEH 2-Pole	15	BE215H■	—	22
	20	BE220H■	—	22
	30	BE230H■	—	22
	40	BE240H■	—	22
	50	BE250H■	—	22
	60	BE260H■	—	22

AFCI Arc Fault Circuit Interrupter②

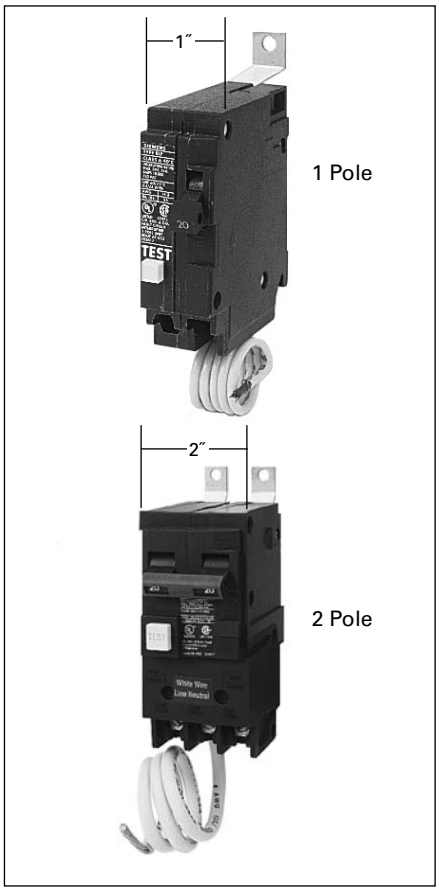
BAF 1-Pole	15	B115AF	10	—
	20	B120AF	10	—
BAFH 1-Pole	15	B115AFH	22	—
	20	B120AFH	22	—

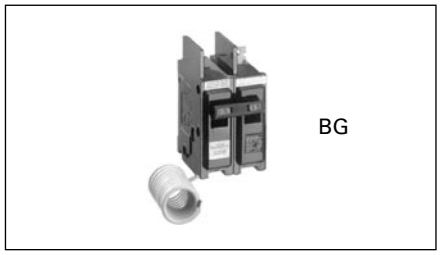
HID Lighting①

BL 1-Pole	15	B115HID③■	10	—
	20	B120HID③	10	—
	30	B130HID■	10	—
BL 2-Pole	15	B215HID③■	—	10
	20	B220HID③	—	10
	30	B230HID■	—	10

Switching Neutrals①

BG 2 Wire Common Trip	15	BG215■	10	—
	20	BG220■	10	—
	30	BG230■	10	—
BG 3 Wire Common Trip	15	BG315■	—	10
	20	BG320■	—	10
	30	BG330■	—	10





■ Built to order. Allow 2–3 weeks for delivery.
①-HACR rated.
②-Meets 2002 NEC Section 210-12.
③-CSA Certified / UL Listed for frequent switching applications (SWD). 120V AC fluorescent lighting.

BQD 100A Frame Panelboard Mounting Circuit Breakers

BQD④

Continuous Current Rating @ 40°C	1-Pole 277V AC–125V DC Catalog Number	2-Pole⑤ 480Y/277V AC–125/250V DC Catalog Number	3-Pole⑤ 480Y/277V AC Catalog Number
15	BQD115①②	BQD215	BQD315
20	BQD120①②	BQD220	BQD320
25	BQD125②	BQD225	BQD325
30	BQD130②	BQD230	BQD330
35	BQD135	BQD235	BQD335
40	BQD140	BQD240	BQD340
45	BQD145■	BQD245	BQD345
50	BQD150	BQD250	BQD350
60	BQD160	BQD260	BQD360
70	BQD170■	BQD270	BQD370
80	BQD180■	BQD280	BQD380
90	BQD190	BQD290	BQD390
100	BQD1100■	BQD2100	BQD3100

BQD6 CSA Certified

Continuous Current Rating @ 40°C	1-Pole 347V AC Catalog Number	2-Pole⑤ 600/347V AC Catalog Number	3-Pole⑤ 600/347V AC Catalog Number
15	BQD6115	BQD6215	BQD6315
20	BQD6120	BQD6220	BQD6320
25	BQD6125■	BQD6225■	BQD6325■
30	BQD6130	BQD6230	BQD6330
35	BQD6135■	BQD6235■	BQD6335■
40	BQD6140	BQD6240	BQD6340
45	BQD6145■	BQD6245■	BQD6345■
50	BQD6150	BQD6250	BQD6350
60	BQD6160	BQD6260	BQD6360
70	BQD6170	BQD6270	BQD6370

Interrupting Ratings

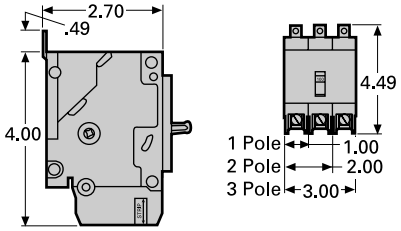
Breaker Type	Number of Poles	RMS Symmetrical Amperes (KA) Volts AC 120	240	277	480/277	347	600/347	Volts DC 125	250
BQD (UL&CSA)	1	65	—	14	—	—	—	14	—
	2	—	65	—	14	—	—	—	14
	3	—	65	—	14	—	—	—	—
BQD6 (CSA)	1	65	—	10	—	10	—	14	—
	2	—	65	—	10	—	10	—	14
	3	—	65	—	10	—	10	—	—

BQD Internal Accessories

Control Voltage V AC	Control Voltage V DC	Shunt Trip Catalog Number	Shunt Trip and Auxiliary Switch Combinations Catalog Number
120	—	BQDST120	BQDST120AAS▲
240	—	BQDST240▲	BQDST240AAS▲
277	—	BQDST277▲	BQDST277AAS▲
480	—	BQDST480▲	BQDST480AAS▲
600	—	BQDST600▲	BQDST600AAS▲
—	12	BQDST12▲	BQDST12DAS▲
—	24	BQDST24▲	BQDST24DAS▲
—	48	BQDST48▲	BQDST48DAS▲
—	125	BQDST125▲	BQDST125DAS▲

Maximum Voltage AC	Maximum Voltage DC	Auxiliary Switch Catalog Number	Alarm Switch Catalog Number
240	125	BQDA1▲	BQDBA▲
240	125	BQDA2▲	—

BQD, BQD6



BQD, BQD6

Shipping Weights

Number of Poles	Number per Carton	Shipping Weight (lbs.) (ea.)
1	1/12/48	.6
2	1/6/24	1.2
3	1/4/16	2.0

Lugs For 60/70°C Wire

BQD – Load End Only	
15–40	#14–#6 AWG Cu #12–#6 AWG Al
45–100	#8–#1 AWG Cu #6–#1/0 AWG Al

Alarm and Auxiliary Switch Combination Catalog Number
BQDA1BA

For inches / millimeters conversion, see Application Data section.

■ Built to order. Allow 2–3 weeks for delivery.

▲ Built to order. Allow 6–8 weeks for delivery.

①SWD rated for switching 277V AC fluorescent lighting.

②HID rated at 277V AC.

⑤Not suitable for 3 phase delta 480V and 600V applications.

④HACR rated.

Accessories pages 6/75 to 6/80

BQ 125A Frame

Ordering Instructions

- All BQ circuit breakers are supplied with load side lugs. All standard circuit breakers are calibrated for 40°C maximum ambient application.

BQ 125A Frame — BQ (10,000A IR)②

Non-Interchangeable Trip

Continuous Current Rating @ 40°C	1-Pole 120/240V AC Catalog Number	2-Pole 120/240V AC Common Trip Catalog Number	2-Pole 240V AC Common Trip ⑥ Catalog Number	3-Pole 240V AC Common Trip Catalog Number
15	BQ1B015①②⑤	BQ2B015⑤	BQ2H015⑤	BQ3B015⑤
20	BQ1B020①②⑤	BQ2B020⑤	BQ2H020⑤■	BQ3B020⑤
25	BQ1B025②⑤	BQ2B025⑤	—	BQ3B025⑤
30	BQ1B030②⑤	BQ2B030⑤	BQ2H030⑤■	BQ3B030⑤
35	BQ1B035②⑤■	BQ2B035⑤	—	BQ3B035⑤
40	BQ1B040②⑤	BQ2B040⑤	BQ2H040⑤■	BQ3B040⑤
45	BQ1B045②⑤■	BQ2B045⑤■	—	BQ3B045⑤
50	BQ1B050②⑤	BQ2B050⑤	BQ2H050⑤■	BQ3B050⑤
55	BQ1B055②⑤■	—	—	—
60	BQ1B060②⑤	BQ2B060⑤	BQ2H060⑤■	BQ3B060⑤
70	BQ1B070⑤	BQ2B070⑤	BQ2H070⑤■	BQ3B070⑤
80	—	BQ2B080⑤	—	BQ3B080⑤
90	—	BQ2B090⑤	BQ2H090⑤■	BQ3B090⑤
100	—	BQ2B100⑤	BQ2H100⑤■	BQ3B100⑤

BQH (22,000A IR)②

15	BQ1B015H①	BQ2B015H	—	BQ3B015H
20	BQ1B020H①	BQ2B020H	—	BQ3B020H
30	BQ1B030H	BQ2B030H	—	BQ3B030H
40	BQ1B040H■	BQ2B040H	—	BQ3B040H
50	BQ1B050H■	BQ2B050H	—	BQ3B050H
55	BQ1B055H■	—	—	—
60	BQ1B060H■	BQ2B060H	—	BQ3B060H
70	BQ1B070H■	BQ2B070H	—	BQ3B070H■
80	—	BQ2B080H	—	BQ3B080H■
90	—	BQ2B090H	—	BQ3B090H■
100	—	BQ2B100H	—	BQ3B100H

HBQ (65,000A IR)②

15	HB1B015①	HB2B015■	—	HB3B015■
20	HB1B020①	HB2B020■	—	HB3B020■
30	HB1B030■	HB2B030■	—	HB3B030■
40	HB1B040■	HB2B040■	—	HB3B040■
50	HB1B050■	HB2B050■	—	HB3B050■
60	—	HB2B060■	—	HB3B060■
70	—	HB2B070■	—	HB3B070■
80	—	—	—	HB3B080■
90	—	HB2B090■	—	HB3B090■
100	—	HB2B100■	—	HB3B100

BQ/BQH/HBQ

Internal Accessories (Factory installed only)

Control Voltage		Shunt Trip	Auxiliary Switches
			1A and 1B
AC	DC	Suffix	Suffix
120V		...00S01	...A01■

■ Built to order. Allow 3–4 weeks for delivery.

①CSA Certified / UL Listed for frequent switching applications (SWD). 120V AC fluorescent lighting.

②HCAR rated.

⑤For 400 cycle CSA Certified / UL Listed devices, add "Y" suffix to catalog number. Add 25% to list price. 5000A interrupting rating.■

⑥UL Listed for use on 3 phase grounded "B" systems–5000A IR for this application.

Interrupting Ratings page 6/6
Accessories pages 6/75 to 6/80
Modifications page 6/75

DIN Rail Mounted Circuit Breakers

Type BQXD — BQ Breaker with DIN Rail Mounting - UL Listed only

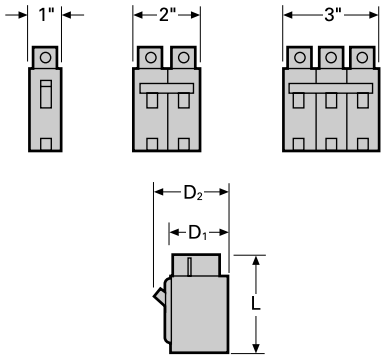
Continuous Current Rating	1-Pole Catalog Number	2-Pole Catalog Number	Interrupting Ratings (KA) (RMS Symmetrical Amperes) Volts AC 120/240
15	BQ1B015QLD	BQ2B015QLD	10
20	BQ1B020QLD	BQ2B020QLD	
25	BQ1B025QLD	BQ2B025QLD	
30	BQ1B030QLD	BQ2B030QLD	
35	BQ1B035QLD	BQ2B035QLD	
40	BQ1B040QLD	BQ2B040QLD	
45	BQ1B045QLD	BQ2B045QLD	
50	BQ1B050QLD	BQ2B050QLD	
60	BQ1B060QLD	BQ2B060QLD	

2-Pole DIN Rail mtd
(UL listed only)

Finger Safe Terminal Shield

Protects against accidental contact with lugs–1 per lug. Fits line and load end.

Catalog Number	Qty
BQFS2	2
BQFS1K	1000



Breaker Type	Amperes	Dimensions (inches) L	D1	D2
BQ, BQH	15–50	3¾	2⅜	3
BQ, BQH	55–125	4	2⅜	3
HBQ	15–125	4	2⅜	3
BQXD	15–60	4½	2⅜	3

Shipping Weights

Number of Poles	Number Per Carton / Master	Shipping Weight (lbs.) Master
BQ		
1 (15–50A)	6/72	23
1 (55–70A)	6/66	23
1 (15–70A, 22 and 65K A IR)	6/66	23
2 (15–50A)	3/36	24
2 (60–125A)	3/33	23
2 (15–100A, 22 and 65K A IR)	3/33	24
2 (15–100A, 240V)	3/33	23
3 (15–100A)	2/22	23
BQH and HBQ		
1	6/66	23
2	3/33	24
3	2/22	24

Enclosures	
Type	Catalog Number ⑥
1	EB3100S③⑦
3R	WB3100

Lugs-For Use with BQ, BQH, HBQ⑨

Circuit Breaker Amp. Rtg.	Cables Per Lug	Lug Wire Range AWG	Catalog Number
Line Side			
15–40	1 1	#14–#6 Cu #12–#6 Al	TC1Q1①②⑧
50–100	1 1	#8–#1 Cu #6–#1/0 Al	TA1Q1⑧
Load Side			
15–20	1 1	#14–#10 Cu #14–#10 Al	Connectors are Supplied with Circuit Breaker
25–35	1 1	#14–#6 Cu #14–#6 Al	
40–50	1 1	#8–#6 Cu #8–#4 Al	
55–70	1 1	#8–#4 Cu #8–#2 Al	
80–100	1 1	#4–#1/0 Cu #2–#1/0 Al	
110–125	1 1	#2–#1/0 Cu #1/0–#2/0 Cu	

For inches / millimeters conversion, see Application Data section.

■ Built to order. Allow 3–4 weeks for delivery.

①Terminals are CSA Certified / UL Listed for 60°/75°C conductors.

②Connector has steel construction.

③Surface mounted indoor. If flush mounting is required, replace suffix "S" in catalog number with suffix "F".

④Discount Schedule B.

⑤Does not include circuit breaker. Order circuit breaker separately.

⑥Neutral included in enclosure.

⑦Enclosure will not accept circuit breakers with shunt trips or auxiliary switches installed.

⑧Package of 6 connectors.

⑨BQXD uses TA1Q1 or TC1Q1 lugs on both line and load ends.

Accessories pages 6/75 to 6/80

QJ 225A Frame

Type QJ2[2]

Continuous Current Rating @ 40°C	2-Pole 240V AC Catalog Number	3-Pole 240V AC Catalog Number
60	**QJ22B060■**	**QJ23B060**
70	**QJ22B070■**	**QJ23B070**
80	**QJ22B080■**	**QJ23B080**
90	**QJ22B090■**	**QJ23B090**
100	**QJ22B100**	**QJ23B100**
110	**QJ22B110■**	**QJ23B110**
125	**QJ22B125**	**QJ23B125**
150	**QJ22B150**	**QJ23B150**
175	**QJ22B175**	**QJ23B175**
200	**QJ22B200**	**QJ23B200**
225	**QJ22B225**	**QJ23B225**

Type QJH2[2]

60	**QJH22B060■**	**QJH23B060■**
70	**QJH22B070■**	**QJH23B070■**
80	**QJH22B080■**	**QJH23B080■**
90	**QJH22B090■**	**QJH23B090■**
100	**QJH22B100■**	**QJH23B100**
110	**QJH22B110■**	**QJH23B110**
125	**QJH22B125**	**QJH23B125**
150	**QJH22B150**	**QJH23B150**
175	**QJH22B175■**	**QJH23B175**
200	**QJH22B200**	**QJH23B200**
225	**QJH22B225**	**QJH23B225**

Type QJ2H[2]

60	**QJ22B060H■**	**QJ23B060H■**
70	**QJ22B070H■**	**QJ23B070H■**
80	**QJ22B080H■**	**QJ23B080H■**
90	**QJ22B090H■**	**QJ23B090H■**
100	**QJ22B100H■**	**QJ23B100H**
110	**QJ22B110H■**	**QJ23B110H■**
125	**QJ22B125H**	**QJ23B125H**
150	**QJ22B150H**	**QJ23B150H**
175	**QJ22B175H■**	**QJ23B175H**
200	**QJ22B200H**	**QJ23B200H**
225	**QJ22B225H**	**QJ23B225H**

Type HQJ2H[2]

100	—	**HQJ23B100H**
110	—	**HQJ23B110H**
125	—	**HQJ23B125H**
150	—	**HQJ23B150H**
175	—	**HQJ23B175H**
200	—	**HQJ23B200H**
225	—	**HQJ23B225H**

QJ2

Internal Accessories **(Factory installed only)** 3-pole only[3].
Add suffix to catalog number.

Control Voltage AC	Control Voltage DC	Shunt Trip Suffix	Auxiliary Switches 1A and 1B Suffix	Auxiliary Switches 2A and 2B Suffix	Shunt Trip and 1A and 1B Auxiliary Switch Suffix
120/240	—	00S01■	A01■	A02■	01S01■
—	24	00S07■	A01■	A02■	01S07■
—	25	00S11■	A01■	A02■	01S11■

■ Built to order. Allow 3–4 weeks for delivery.

▲ Built to order. Allow 7–9 weeks for delivery.

[1] See **Note: A** page 6-70.

[2] HACR rated.

[3] Internal accessories are **not available** on 2-pole QJ breakers.

Ordering Information

Load side TA1Q300 lugs are mounted and included when circuit breaker is ordered. For line and load lugs (TA1Q300) installed at no additional charge, add suffix "L" to catalog number.

50°C Calibration - See page 6-72.
400HZ. - See page 6-72.

Shipping Weights

QJ2, QJH2, QJ2H, HQJ2H		
Number of Poles	**Number per Carton**	**Shipping Weight (lbs.)**
2	10	30
3	10	41

Lugs For 75°C Wire[1]

Catalog Number	Lug Body	Lug Wire Range
TA1Q300	Al	(1) #6—300 kcmil Cu (1) #4—300 kcmil Al
TC1Q250	Cu	(1) #6—250 kcmil Cu

Enclosures (Neutral Included)

Type	Catalog Number
1	**EB3225**(S)(F)
3R (2-pole)	**WB2225**
3R (3-pole)	**WB3225**

UL 489 Interrupting Ratings

Breaker Type	AIR @ 240V AC
QJ2	10,000
QJH2	22,000
QJ2H	42,000
HQJ2H	100,000

Accessories pages 6/73 to 6/86

CQD 100A Frame

Type CQD (Cable In - Cable Out) DIN Rail Mount④

Continuous Current Rating @ 40°C	1-Pole 277V AC 125V DC Catalog Number	2-Pole 480Y/277V AC 125/250V DC Catalog Number	3-Pole 480Y/277V AC Catalog Number
15 20 25 30	CQD115②③ CQD120②③ CQD125⑤ CQD130⑤	CQD215 CQD220 CQD225 CQD230	CQD315 CQD320 CQD325 CQD330
35 40 45 50 60	CQD135■ CQD140■ CQD145■ CQD150■ CQD160■	CQD235■ CQD240 CQD245■ CQD250 CQD260	CQD335 CQD340 CQD345■ CQD350 CQD360
70 80 90 100	CQD170■ CQD180■ CQD190■ CQD1100■	CQD270 CQD280 CQD290■ CQD2100	CQD370 CQD380 CQD390 CQD3100

Type CQD6 (Cable In - Cable Out) CSA Certified (not UL)

Continuous Current Rating @ 40°C	1-Pole 347V AC 125V DC Catalog Number	2-Pole 600Y/347V AC 125/250V DC Catalog Number	3-Pole 600Y/347V AC Catalog Number
15	—	CQD6215■	CQD6315■
20	CQD6120⑤■	CQD6220■	CQD6320■
25	CQD6125⑤■	CQD6225■	CQD6325■
30	CQD6130⑤■	CQD6230■	CQD6330■
35	CQD6135■	CQD6235■	CQD6335■
40	CQD6140■	CQD6240■	CQD6340■
45	CQD6145■	CQD6245■	CQD6345■
50	CQD6150■	CQD6250■	CQD6350■
60	CQD6160■	CQD6260■	CQD6360■
70	CQD6170■	CQD6270■	—

Interrupting Ratings

Breaker Type	Number of Poles	RMS Symmetrical Amperes (KA)					
		Volts AC (50/60 Hz)				Volts DC	
		120	240	480/277	600/347	125	250
CQD (UL)	1	65	—	14	—	14	—
	2	—	65	14	—	—	14
	3	—	65	14	—	—	—
CQD6 (CSA)	1	65	—	—	14	14	—
	2	—	65	—	14	—	14
	3	—	65	—	14	—	—

Shunt Trip

Control Voltage		CQD, CQD6, NGG Catalog Number
V AC	V DC	
120	—	CQDST120
240	—	CQDST240▲
277	—	CQDST277▲
480	—	CQDST480▲
600	—	CQDST600
—	12	CQDST12
—	24	CQDST24
—	48	CQDST48
—	125	CQDST125

Auxiliary Switch

Maximum Voltage		Number of Contacts	CQD, CQD6, NGG Catalog Number
AC	DC		
240	125	1A–1B	CQDA1
240	125	2A–2B	CQDA2

Alarm Switch

Maximum Voltage		CQD, CQD6, NGG Catalog Number
AC	DC	
240	125	CQDBA

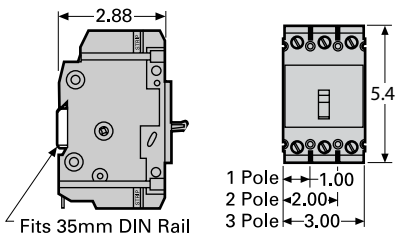
Shipping Weights

Number of Poles	Number per Carton	Shipping Weight lbs. (kg)
1	1	0.5 (0)
2	1	1.0 (0)
3	1	1.5 (1)

Lugs For 60/75°C Wire

Amps	Wire Size
15–40	#14–#6 AWG Cu #12–#6 AWG Al
45–100	#8–#1 AWG Cu #6–#1/0 AWG Al

CQD, CQD6



CQD, CQD6

Shunt Trip and Auxiliary Switch

Shunt Trip Voltage		CQD, CQD6, NGG Catalog Number
AC	DC	
120	—	CQDST120AAS▲
240	—	CQDST240AAS▲
277	—	CQDST277AAS▲
480	—	CQDST480AAS▲
600	—	CQDST600AAS▲
—	12	CQDST12DAS▲
—	24	CQDST24DAS▲
—	48	CQDST48DAS▲
—	125	CQDST125DAS▲

Alarm and Auxillary Switch Combinations

For Breaker	Catalog #
CQD, CQD6, NGG	CQDA1BA▲

For inches / millimeters conversion, see Application Data section.

■ Built to order. Allow 3–4 weeks for delivery.

②SWD rated.

③HID rated.

④HACR rated.

Accessories pages 6/23 and 6/73 to 6/81

Sentron Thermal Magnetic and Electronic Circuit Breakers

ED 125A Frame Sentron Series

Ordering Instructions

- All ED Frame Sentron circuit breakers are supplied with load side lugs. If line side lugs are required, add "L" suffix to catalog number, and breaker will be supplied with line lugs installed at no charge.
- 50°C Calibration, 400HZ - see page 6-72. All ED frame circuit breakers may be reverse connected.

Type ED2⑤

Blue Label

Continuous Current Rating @ 40°C	1-Pole 120V AC 125V DC Catalog Number	2-Pole 240V AC 125V DC 250V DC Catalog Number	3-Pole 240V AC Catalog Number
15	ED21B015④■	ED22B015	ED23B015
20	ED21B020④■	ED22B020	ED23B020
25	ED21B025■	ED22B025■	ED23B025■
30	ED21B030■	ED22B030	ED23B030
35	ED21B035■	ED22B035■	ED23B035■
40	ED21B040■	ED22B040	ED23B040
45	ED21B045■	ED22B045■	ED23B045■
50	ED21B050■	ED22B050	ED23B050
60	ED21B060■	ED22B060	ED23B060
70	ED21B070■	ED22B070	ED23B070
80	ED21B080■	ED22B080■	ED23B080
90	ED21B090■	ED22B090■	ED23B090
100	ED21B100■	ED22B100	ED23B100

Type ED4⑤

Blue Label

Continuous Current Rating @ 40°C	1-Pole 120V AC 277V AC 125V DC Catalog Number	2-Pole 480V AC 250V DC Catalog Number	3-Pole 480V AC Catalog Number
15	ED41B015④	ED42B015	ED43B015
20	ED41B020④	ED42B020	ED43B020
25	ED41B025	ED42B025	ED43B025
30	ED41B030	ED42B030	ED43B030
35	ED41B035■	ED42B035■	ED43B035
40	ED41B040	ED42B040	ED43B040
45	ED41B045■	ED42B045■	ED43B045
50	ED41B050	ED42B050	ED43B050
60	ED41B060	ED42B060	ED43B060
70	ED41B070	ED42B070	ED43B070
80	ED41B080■	ED42B080■	ED43B080
90	ED41B090■	ED42B090■	ED43B090
100	ED41B100	ED42B100	ED43B100
110	—	ED42B110■	ED43B110
125`	—	ED42B125	ED43B125

Type ED6⑤

Blue Label

Continuous Current Rating @ 40°C	1-Pole① 347V AC Catalog Number	2-Pole 600V AC 250V DC Catalog Number	3-Pole 600V AC 500V DC Catalog Number
15	ED61B015	ED62B015	ED63B015
20	ED61B020	ED62B020	ED63B020
25	ED61B025	ED62B025■	ED63B025
30	ED61B030	ED62B030	ED63B030
35	ED61B035	ED62B035■	ED63B035
40	ED61B040	ED62B040■	ED63B040
45	ED61B045■	ED62B045■	ED63B045
50	ED61B050	ED62B050■	ED63B050
60	ED61B060	ED62B060■	ED63B060
70	ED61B070■	ED62B070■	ED63B070
80	ED61B080	ED62B080■	ED63B080
90	ED61B090	ED62B090■	ED63B090
100	ED61B100■	ED62B100■	ED63B100
110	—	—	ED63B110
125`	—	—	ED63B125

Note: ED frame circuit breakers qualified to UL 489 Supplement SB "Naval" — See page 6-72 for additional information

■ Built to order. Allow 2–3 weeks for delivery.

①CSA Certified only (Not UL)
②For CED types and all 110–125 ampere ED frames.
③See **Note: A,** page 6-70.
④SWD rated.
⑤HACR rated.

Shipping Weights

Number of Poles	Number per Carton	Shipping Weight (lbs.)
ED2, ED4, ED6, HED4		
1	30	38
2	10	25
3	10	38
CED6		
2	5	20
3	5	30

Lugs

Ampere Rating	No. of Poles	Catalog Number	Wire Range
Aluminum Body Lugs			
All 15–25A	1, 2, 3	Line/Load **SA1E025**	#14–#10 Cu #12–#10 Al
All 30–100A	1, 2, 3	Line Side **LN1E100**	#10–1/0 Cu/Al
ED2, 4, CED6 30–60A	1	Load Side **LD1E060**	#10–#4 Cu/Al
ED2, 4, CED6 70–100A	1	Load Side **LD1E100**	#6–#1/0 Cu/Al
ED2, 4, 6, HED4 30–100A	2, 3	Load Side **LN1E100**	#10–1/0 Cu/Al
All 110, 125A	2, 3	Line/Load **TA1E6125**	#3–3/0 Cu #1–2/0 Al
Copper Body Lugs			
All 30–125A	1, 2, 3	Line/Load **TC1ED6150**③	#10–1/0 Cu only
Compression Lugs			
All ED, CED		**CCE125**	2/0

Enclosures (Neutral Included)

Type	Catalog Number
1 (Surface)	**E2N1S**(15–100A)
1 (Flush)	**E2N1F**(15–100A)
3R	**E2N3R**(15–100A)
4–4X	**ED6SS4**(15–100A)
7–9	**EA**(15–60A)
7–9	**EB**(70–100A)
12	**E2N12** (15–100A)
1 (Surface)	**CED6N1S**②
1 (Flush)	**CED6N1F**②
3R	**CED6N3R**②
12	**CED6N12**②

Modifications page 6-72
Accessories pages 6-25 and 6-73 to 6-86

ED 125A Frame Sentron Series

Type HED4⑥

Black Label

Continuous Current Rating @ 40°C	1-Pole 277V AC 125V DC Catalog Number	2-Pole 480V AC 250V DC Catalog Number	3-Pole 480V AC Catalog Number
15	HED41B015①	HED42B015	HED43B015
20	HED41B020①	HED42B020	HED43B020
25	HED41B025	HED42B025■	HED43B025
30	HED41B030	HED42B030	HED43B030
35	HED41B035■	HED42B035■	HED43B035
40	HED41B040	HED42B040	HED43B040
45	HED41B045■	HED42B045■	HED43B045
50	HED41B050■	HED42B050	HED43B050
60	HED41B060■	HED42B060■	HED43B060
70	HED41B070■	HED42B070■	HED43B070
80	HED41B080■	HED42B080■	HED43B080
90	HED41B090■	HED42B090■	HED43B090
100	HED41B100■	HED42B100■	HED43B100
110	—	HED42B110■	HED43B110
125	—	HED42B125■	HED43B125

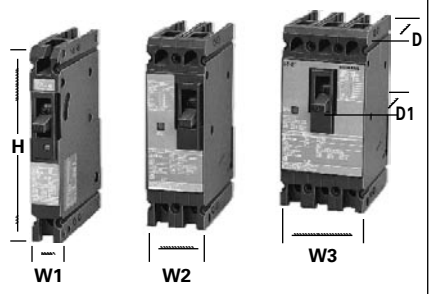
Fuseless Current Limiting

Type CED6

Red Label

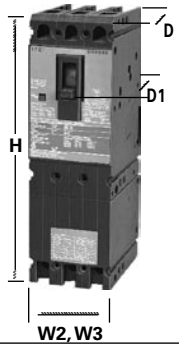
Continuous Current Rating @ 40°C	2-Pole 600V AC, 250V DC Catalog Number	3-Pole 600V AC, 500V DC② Catalog Number
15	CED62B015	CED63B015
20	CED62B020■	CED63B020
25	—	—
30	CED62B030■	CED63B030
35	—	—
40	CED62B040■	CED63B040
45	—	—
50	CED62B050■	CED63B050
60	CED62B060■	CED63B060
70	CED62B070■	CED63B070
80	CED62B080■	CED63B080
90	CED62B090■	CED63B090
100	CED62B100■	CED63B100
110	—	CED63B110■
125	CED62B125■	CED63B125

FIGURE1 - ED, HED



1 POLE 2 POLE 3 POLE

FIGURE 2 - CED (3 Pole shown)



Dimensions (in inches)

Breaker Type	W1	W2	W3	H	D	D1
Figure 1 ED2, ED4, ED6, HED4, ED6 ETI·	1	2	3	6.35	3.92	4.56
Figure 2 CED6, CED6 ETI	—	2	3	9.58	3.92	4.56

Interrupting Ratings

Breaker Type	CSA C22.2 / UL 489 AIR (File #E10848) RMS Symmetrical Amperes (KA) Volts AC 120	240	277	347	480	600	Volts DC 125	250	500③	IEC 947-2 Volts AC (50/60Hz) 220/240 Icu	Ics	380/415 Icu	Ics	500 Icu	Ics
ED2 (1-P)	10	—	—	—	—	—	5	—	—	—	—	—	—	—	—
ED2 (2, 3-P)	—	10	—	—	—	—	—	5 (2-P)	—	—	—	—	—	—	—
ED4 (1-P)	65	—	22	—	—	—	30	—	—	—	—	—	—	—	—
ED4 (2, 3-P)	—	65	—	—	18	—	—	30 (2-P)	—	—	—	—	—	—	—
ED6 (1P)	—	—	—	30⑤	—	—	—	—	—	—	—	—	—	—	—
ED6 (2, 3-P)	—	65	—	—	25	18	—	30 (2-P)	18 (3-P)	65	17	35	9	18	5
HED4 (1-P) (15–30A)	100	—	65	—	—	—	30	—	—	—	—	—	—	—	—
HED4 (1-P) (35–100A)	100	—	25	—	—	—	30	—	—	—	—	—	—	—	—
HED4 (2, 3-P)③	—	100	—	—	42		—	30 (2-P)		—	—	—	—	—	—
CED6 (2, 3-P)	—	200	—	—	200	100	—	30 (2-P)	50 (3-P)	—	—	—	—	—	—

■ Built to order. Allow 2–3 weeks for delivery.

①SWD rated.

②When wired as shown on page 6-2, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems.

③HED4 type circuit breakers meet the CSA / UL criteria for "current limiting" at 240V AC.

④ED6-ETI, CED6-ETI, see page 6-56 for ordering information.

⑤Single Pole 15-30A 30KA @ 347V
35-100A 18KA @ 347V

⑥HACR rated.

Internal Accessories

Accessories for:

ED 125A Frame

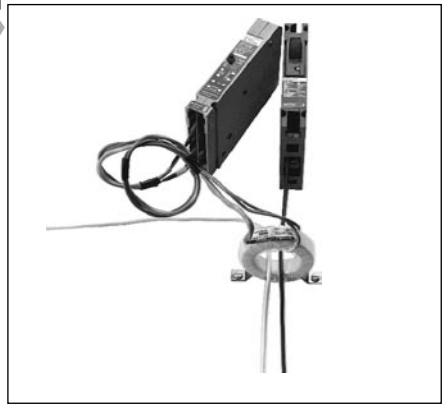
Combinations

Available only when ordered together. **Only one module can be added to a breaker.** Additional accessories, which always attach to the left pole, cannot be added to the combination later.

Equipment Ground Sensing

A field addable kit containing 30mA or 5 mA ground fault accessory module, current transformer with 24 inch leads, and current transformer mounting equipment. Current transformer to mount in gutter of lighting panel or any control panel. **Accessory module operates from separate 120V control power source**.

Both 30MA and 5MA devices are equipment protection devices only. **Do not use for personnel protection.**



Shunt Trip Combinations

Control Voltage		1 Shunt Trip	1 Shunt Trip and 1 Auxiliary Switch	1 Shunt Trip 1 Auxiliary Switch and 1 Alarm Switch	1 Shunt Trip and 1 Alarm Switch	1 Shunt Trip and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number
24	—	S17ED60	—	—	—	—
48	—	S18ED60	—	—	—	—
120	—	S01ED60	S01ED62A	S01ED62AB	S01ED62B	S01ED62AA
208	—	—	S02ED62A▲	S02ED62AB▲	S02ED62B▲	S02ED62AA▲
240	—	S03ED60	S03ED62A	S03ED62AB	S03ED62B▲	S03ED62AA▲
277	—	S15ED60▲	S15ED64A▲	S15ED64AB▲	S15ED64B▲	—
480	—	S04ED60	S04ED64A▲	S04ED64AB▲	S04ED64B▲	—
—	12	S16ED60▲	S16ED62A▲	—	—	—
—	24	S07ED60	S07ED62A	S07ED62AB▲	S07ED62B▲	S07ED62AA▲
—	48	S09ED60▲	S09ED62A▲	S09ED62AB▲	S09ED62B▲	S09ED62AA▲
—	125	S11ED60▲	S11ED62A▲	S11ED62AB▲	S11ED62B▲	S11ED62AA▲
—	250	S13ED60▲	S13ED62A▲	S13ED62AB▲	S13ED62B▲	S13ED62AA▲

Undervoltage Trip Combinations

Control Voltage		1 Undervoltage Trip	1 Undervoltage Trip and 1 Auxiliary Switch	1 Undervoltage Trip and 1 Auxiliary Switch and 1 Alarm Switch	1 Undervoltage Trip and 1 Alarm Switch	1 Undervoltage Trip and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number
120	—	U01ED60	U01ED62A	U01ED62AB▲	U01ED62B▲	U01ED62AA▲
208	—	U02ED60▲	U02ED62A▲	U02ED62AB▲	U02ED62B▲	U02ED62AA▲
240	—	U03ED60	U03ED62A▲	U03ED62AB▲	U03ED62B▲	U03ED62AA▲
277	—	U16ED60▲	U16ED64A▲	U16ED64AB▲	U16ED64B▲	—
480	—	U06ED60▲	U06ED64A▲	U06ED64AB▲	U06ED64B▲	—
600	—	U08ED60▲	—	—	—	—
—	24	U13ED60	U13ED62A▲	U13ED62AB▲	U13ED62B▲	U13ED62AA▲
—	48	U14ED60▲	U14ED62A▲	U14ED62AB▲	U14ED62B▲	U14ED62AA▲
—	125	U10ED60▲	U10ED62A▲	U10ED62AB▲	U10ED62B▲	U10ED62AA▲
—	250	U12ED60▲	U12ED62A▲	—	—	U12ED62AA▲

Auxiliary and Alarm Switch Combinations

Maximum Voltage		1 Auxiliary Switch*	1 Alarm Switch	Alarm Switch and 1 Auxiliary Switch	2 Auxiliary Switches	1 Alarm Switch and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number
240	250	A01ED62	B00ED62	A01ED62B	A02ED62	A02ED62B
480	—	A01ED64	B00ED64	A01ED64B	—	—
—	12	A01EDLV*	Gold Plated Contacts — for PLC use			

Ground Fault Sensing Relay Kit — Equipment Protection Only

For Use With Breaker Frame	Number of Poles	Description	Catalog Number	
			30mA	5mA
ED2, ED4, ED6, HED4	1, 2, 3	Basic Kit	GF01ED60	GF01ED65
		Basic Kit with Normally Open Bell Alarm	GF01ED60B0	GF01ED65B0▲
		Basic Kit with Normally Closed Bell Alarm	GF01ED60BC	GF01ED65BC▲

▲ Built to order. Allow 7–9 weeks for delivery.

FD 250A Frame Sentron Series

Type FXD6-A①⑦

Blue Label

Non-Interchangeable Trip (Assembled Circuit Breaker – Without Lugs)

Continuous Current Rating @ 40°C	2-Pole③ Catalog Number	3-Pole Catalog Number
70	FXD62B070■	FXD63B070
80	FXD62B080■	FXD63B080
90	FXD62B090■	FXD63B090
100	FXD62B100	FXD63B100
110	FXD62B110■	FXD63B110
125	FXD62B125	FXD63B125
150	FXD62B150	FXD63B150
175	FXD62B175	FXD63B175
200	FXD62B200	FXD63B200
225	FXD62B225	FXD63B225
250	FXD62B250	FXD63B250

Type FD6-A⑦

Blue Label

Interchangeable Trip

Continuous Current Rating @ 40°C	Complete Breaker Unassembled with Lugs Catalog Number	Frame Only Catalog Number	Trip Unit Only Catalog Number
2-Pole 600V AC, 250V DC②			
70	FD62B070■	FD62F250	FD62T070■
80	FD62B080■		FD62T080■
90	FD62B090■		FD62T090■
100	FD62B100■		FD62T100■
110	FD62B110■		FD62T110■
125	FD62B125■		FD62T125■
150	FD62B150■		FD62T150■
175	FD62B175■		FD62T175■
200	FD62B200■		FD62T200■
225	FD62B225■		FD62T225■
250	FD62B250■		FD62T250■
3-Pole 600V AC, 500V DC③			
70	FD63B070■	FD63F250	FD63T070■
80	FD63B080■		FD63T080■
90	FD63B090■		FD63T090■
100	FD63B100		FD63T100
110	FD63B110■		FD63T110■
125	FD63B125		FD63T125
150	FD63B150		FD63T150
175	FD63B175		FD63T175
200	FD63B200		FD63T200
225	FD63B225		FD63T225
250	FD63B250		FD63T250

Interrupting Ratings

Breaker Type	RMS Symmetrical Amperes (KA)											
	CSA / UL 489 AIR (File E10848)					IEC 947-2						
	Volts AC (50/60Hz)			Volts DC		Volts AC (50/60Hz)						
	240	480	600	250	500③	220/240		380/415		500	
						Icu	Ics	Icu	Ics	Icu	Ics
FXD6-A, FD6-A	65	35	22	30 (2-P)	18 (3-P)	65	33	35	9	20	10
HFXD6⑥, HFD6⑥	100	65	25	30 (2-P)	25 (3-P)	100	50	65	33	42	21
HHFD6⑥, HHFXD6⑥	200	100	25	—	—	200	100	100	50	65	33
CFD6	200	200	100	50 (2-P)	50 (3-P)	—	—	—	—	—	—

Instantaneous Adjustment Trip Range

Breaker Ampere Rating	Nominal Instantaneous Values							
	Low	2	3	4	5	6	7	High
70-90	600	640	690	730	770	810	850	900
100-110	700	770	840	920	990	1060	1140	1200
125-150	800	900	1000	1100	1200	1300	1400	1500
175-200	900	1060	1210	1370	1520	1780	1930	2000
225-250	1100	1300	1500	1700	1900	2100	2300	2500

Note: FD frame qualified to UL489 supplement SB "NAVAL"
See page 6-73 for additional information.

Ordering Information

Complete Breaker Unassembled with Lugs

Prices of FD6, HFD6, and HHFD6 breakers includes frame, trip and both line and load lugs (TA1FD350). When ordered by these catalog numbers, the customer will receive the frame, trip, and lugs separately packaged. For applications requiring different lugs, order individual items as needed.

Complete Breaker Assembled without Lugs

Prices of FXD6, HFXD6, HHFXD6, and CFD6 includes frame with non-interchangeable trip unit installed only. Order required lugs separately. For line and load lugs (TA1FD350A) installed, add suffix "L" to catalog number (add 2 times list price of lugs for each pole).

50°C Applications see page 6-72.

400 Hz Applications see page 6-72.

Lugs For 75°C Wire⑤

Catalog Number	Wire Range
TA1FD350A	#6—350 kcmil Cu #4—350 kcmil Al
TC1FD350	#6—350 kcmil Cu
Compression Lug	
CCF250	350 kcmil Cu/Al

Enclosures

Type	Catalog Number
1	F6N1S(F)
3R	F6N3R
4-4X	FD6SS4
7-9	EC2
12	F6N12
Neutral④	N250

Modifications page 6-72
Accessories pages 6-28 and 6-73 to 6-86

■ Built to order. Allow 3–4 weeks for delivery.

①Type FXD6-A circuit breakers are UL Listed for reverse fed applications.

②2-pole units are 3-pole width.

③When wired as shown on page 6-2, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems only.

④Order neutral as separate item.

⑤See **Note**: **A**, page 6-69.

⑥HFD6 and HHFD6 type circuit breakers meet the UL criteria for "current limiting" at 240 and 480V AC.

⑦HACR rated.

FD 250A Frame Sentron Series

Type HFD6⑤, Type HFXD6③④⑤⑥

Black Label

Interchangeable Trip

Continuous Current Rating @ 40°C	Complete Breaker Unassembled with Lugs Catalog Number	Frame Only Catalog Number	Trip Unit Only Catalog Number
2-Pole 600V AC, 250V DC (3 Pole Width)			
70	HFD62B070■	HFD62F250	FD62T070■
80	HFD62B080■		FD62T080■
90	HFD62B090■		FD62T090■
100	HFD62B100■		FD62T100■
110	HFD62B110■		FD62T110■
125	HFD62B125■		FD62T125■
150	HFD62B150■		FD62T150■
175	HFD62B175■		FD62T175■
200	HFD62B200■		FD62T200■
225	HFD62B225■		FD62T225■
250	HFD62B250■		FD62T250■
3-Pole 600V AC, 500V DC①			
70	HFD63B070■	HFD63F250	FD63T070■
80	HFD63B080■		FD63T080■
90	HFD63B090■		FD63T090■
100	HFD63B100		FD63T100
110	HFD63B110■		FD63T110■
125	HFD63B125		FD63T125
150	HFD63B150		FD63T150
175	HFD63B175		FD63T175
200	HFD63B200		FD63T200
225	HFD63B225		FD63T225
250	HFD63B250		FD63T250

Type HHFD④, HHFXD6②③④⑥

3-Pole 600V AC, Extra High Interrupting

70	HHFD63B070■	HHFD63F250	FD63T070■
80	HHFD63B080■		FD63T080■
90	HHFD63B090■		FD63T090■
100	HHFD63B100		FD63T100
110	HHFD63B110■		FD63T110■
125	HHFD63B125		FD63T125
150	HHFD63B150		FD63T150
175	HHFD63B175		FD63T175
200	HHFD63B200		FD63T200
225	HHFD63B225		FD63T225
250	HHFD63B250		FD63T250

Type CFD6③⑥

Red Label

Fuseless Current Limiting

Non-Interchangeable Trip (Assembled Circuit Breaker Without Lugs)

Continuous Current Rating @ 40°C	3-Pole 600V AC/500V DC Catalog Number
70	CFD63B070■
80	CFD63B080■
90	CFD63B090■
100	CFD63B100■
110	CFD63B110■
125	CFD63B125■
150	CFD63B150
175	CFD63B175
200	CFD63B200
225	CFD63B225
250	CFD63B250

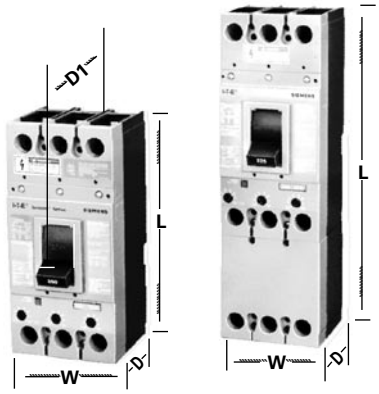


Figure 1 Figure 2

Dimensions (in inches)

Breaker Type	W	L	D	D1 (to handle)
Figure 1 FXD6-A, FD6-A, HFD6, HFXD6, HHFD6, FD6-ETI⑤	4.50	9.50	4	5.25
Figure 2 CFD6, CFD6-ETI⑤	4.50	14.25	4	5.25

Shipping Weights

Number of Poles	Number per Carton	Shipping Weight (lbs.)
FD6-A, HFD6, HHFD6, FXD6-A Assembled Circuit Breaker (less connectors)		
2	1	8.6
3	1	10
FD6-A, HFD6, HHFD6 Frame Only		
2	1	7.5
3	1	8.7
FD6 Trip Unit Only		
2	1	1.1
3	1	1.3
CFD6 Assembled Circuit Breaker (less terminals)		
2	1	31
3	1	34

■ Built to order. Allow 3–4 weeks for delivery.

① When wired as shown on page 6-3, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems.

② For non-interchangeable trip 3-pole HFD6 type circuit breaker, change prefix identifier from HFD6 to HFXD6. Price equals frame and trip prices combined, e.g. price of HFXD63B250 equals price of HFD63F250 plus price of FD63T250. Order lugs separately.

③ Type HFXD6, HHFXD6, CFD6 are CSA Certified / UL Listed for reverse feed applications.

④ Type HFXD6, HFD6, HHFD6, HHFXD6 meet the CSA Certified / UL criteria for "Current Limiting" at 240 VAC and 480V AC.

⑤ FXD6, ETI, CFD6, ETI — See page 6-55 for ordering information.

⑥ HACR rated.

Internal Accessories

Accessories for:
FD 250A Frame

Shunt Trip Combinations

Control Voltage		1 Shunt Trip
AC	DC	Catalog Number
24	—	**S17FD60**
120	—	**S01FD60**
240	—	**S03FD60**
277	—	**S15FD60▲**
480	—	**S04FD60**
600	—	**S06FD60▲**
—	12	**S16FD60▲**
—	24	**S07FD60**
—	48	**S09FD60▲**
—	125	**S11FD60**
—	250	**S13FD60▲**

Undervoltage Trip Combinations

Control Voltage		1 Undervoltage Trip	1 Undervoltage Trip and 1 Auxiliary Switch ①
AC	DC	Catalog Number	Catalog Number
120	—	**U01FD60**	**W01FD64**
208	—	**U02FD60▲**	**W02FD64▲**
240	—	**U03FD60**	**W03FD64▲**
277	—	**U16FD60▲**	**W16FD64▲**
480	—	**U06FD60▲**	**W06FD64▲**
600	—	**U08FD60▲**	**W08FD64▲**
—	24	**U13FD60**	**W13FD64**
—	48	**U14FD60▲**	**W14FD64▲**
—	125	**U10FD60▲**	**W10FD64▲**
—	250	**U12FD60▲**	**W12FD64▲**

Auxiliary Switch Combinations

Voltage		1 Auxiliary Switch*	2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number
480	—	**A01FD64**	**A02FD64**
—	12	**A01FDLV***	Gold Plated Contacts - for PLC use

Alarm Switch Combinations

Maximum Voltage		1 Alarm Switch	1 Alarm Switch and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
480	250	**B00FD64**	**C01FD64**

▲ Built to order. Allow 7–9 weeks for delivery.
①Auxiliary switch application is for 480V AC maximum.

Note: Old F-frame accessories cannot be used in new Sentron line. Likewise, new FD-frame accessories cannot be used on old F-frame circuit breakers.

JD 400A Frame Sentron Series

Type JXD2-A⑤

240V AC, 250V DC

Blue Label

Non-Interchangeable Trip (Assembled Circuit Breaker without Lugs)		
Continuous Current Rating @ 40°C	2-Pole (3 Pole Width) Catalog Number	3-Pole Catalog Number
200	JXD22B200■	JXD23B200
225	JXD22B225■	JXD23B225
250	JXD22B250■	JXD23B250
300	JXD22B300	JXD23B300
350	JXD22B350■	JXD23B350
400	JXD22B400	JXD23B400

Type JXD6-A①⑤

600V AC, 500V DC②

Blue Label

Non-Interchangeable Trip (Assembled Circuit Breaker without Lugs)		
200	JXD62B200■	JXD63B200
225	JXD62B225■	JXD63B225
250	JXD62B250■	JXD63B250
300	JXD62B300	JXD63B300
350	JXD62B350■	JXD63B350
400	JXD62B400	JXD63B400

Type JD6-A⑤

Blue Label

Interchangeable Trip			
Continuous Current Rating @ 40°C	Complete Breaker Unassembled with Lugs Catalog Number	Frame Only Catalog Number	Trip Unit Only Catalog Number
2-Pole 600V AC, 250V DC (3 Pole Width)			
200	JD62B200■	JD62F400	JD62T200■
225	JD62B225■		JD62T225■
250	JD62B250■		JD62T250■
300	JD62B300■		JD62T300■
350	JD62B350■		JD62T350■
400	JD62B400		JD62T400
3-Pole 600V AC, 500V DC②			
200	JD63B200	JD63F400	JD63T200
225	JD63B225		JD63T225
250	JD63B250		JD63T250
300	JD63B300		JD63T300
350	JD63B350		JD63T350
400	JD63B400		JD63T400

Interrupting Ratings

Breaker Type	RMS Symmetrical Amperes (KA) CSA / UL 489 AIR (File E10848) Volts AC (50/60Hz) 240	480	600	Volts DC 250	500②	IEC 947-2 Volts AC (50/60Hz) 220/240 Icu	Ics	380/415 Icu	Ics	500 Icu	Ics
JXD2-2	65	—	—	30 (2-P)	—	—	—	—	—	—	—
JXD6-2, JD6-A	65	35	25	30 (2-P)	25 (3-P)	65	33	40	20	30	15
HJD6-A, HJXD6-A	100	65	35	30 (2-P)	35 (3-P)	100	50	65	33	42	21
HHJD6-A, HHJXD6④	200	100	50	—	—	200	100	100	50	65	33
CJD6	200	150	100	50 (2-P)	50 (3-P)	—	—	—	—	—	—

Instantaneous Adjustment Trip Range

Breaker Ampere Rating	Nominal Instantaneous Values Low	2	3	4	5	6	7	High
200-300	1250	1430	1610	1790	1960	2140	2320	2500
350-400	2000	2290	2570	2860	3140	3430	3710	4000

■ Built to order. Allow 3-4 weeks for delivery.

①Type JXD6 circuit breakers are UL Listed for reverse feed applications.

②When wired as shown on page 6-3, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems only.

③See **Note: A**, page 6-69.

④HHJD6 type circuit breakers meet the CSA / UL criteria for "current limiting" at 240 and 480V AC.

⑤HACR rated.

Note: JD frame qualified to UL489 supplement B "NAVAL." See page 6-72 for additional information.

Ordering Information

Complete Breaker Unassembled with Lugs

Prices of JD6, HJD6, and HHJD6 breakers include frame, trip and both line and load lugs (TA2J6500). When ordered by these catalog numbers, the customer will receive the frame, trip, and lugs separately packaged. For applications requiring different lugs, order individual items as needed.

Complete Breaker Assembled without Lugs

Prices of JXD6, HJXD6, HHJXD6, and CJD6 include frame with non-interchangeable trip unit installed only. Order required lugs separately. For line and load lugs (TA2J6500) installed, add suffix "L" to catalog number (add 2 times list price of lugs for each pole).

100% Rated

Types JXD6 and HJXD6 breakers are available with 100% ratings. To order add suffix "H" to catalog number, and 10% to list price.■ 100% rated JD breakers require the use of 90°C Cu cable and lugs TC1J6600 or TC2J6500.

50°C Applications see page 6-72.

400Hz Applications see page 6-70.

Lugs For 75°C Wire③

Catalog Number	Cables per Lug	Wire Range
TA2J6500	1, 2	#3/0-500 kcmil Cu
	2	#4/0-500 kcmil Al
	1	250-500 kcmil Al
TA1L6750	1	500-750 kcmil Al
	1	500-600 kcmil Cu
TC1J6600	1	#3/0-600 kcmil Cu
TC2J6500	1, 2	#3/0-500 kcmil Cu
Compression Lug		
CCL600	1	500 kcmil Cu/Al

Modifications page 6-72
Accessories pages 6-32 and 6-75 to 6-80

JD 400A Frame Sentron Series

Type HJD6-A, HJXD6-A②④⑥

Black Label

Interchangeable Trip			
Continuous Current Rating @ 40°C	Complete Breaker Unassembled with Lugs Catalog Number	Frame Only Catalog Number	Trip Unit Only Catalog Number
2-Pole 600V AC, 250V DC (3 Pole Width)			
200	HJD62B200■	HJD62F400■	JD62T200■
225	HJD62B225■		JD62T225■
250	HJD62B250■		JD62T250■
300	HJD62B300■		JD62T300■
350	HJD62B350■		JD62T350■
400	HJD62B400■		JD62T400
3-Pole 600V AC, 500V DC①②⑤			
200	HJD63B200	HJD63F400	JD63T200
225	HJD63B225		JD63T225
250	HJD63B250		JD63T250
300	HJD63B300		JD63T300
350	HJD63B350		JD63T350
400	HJD63B400		JD63T400

Type HHJD6, HHJXD6-A ②④⑥

2-Pole 600V AC (3 Pole Width)

Black Label

200	HHJD62B200■	HHJD62F400■	JD62T200■
225	HHJD62B225■		JD62T225■
250	HHJD62B250■		JD62T250■
300	HHJD62B300■		JD62T300■
350	HHJD62B350■		JD62T350■
400	HHJD62B400■		JD62T400

200	HHJD63B200	HHJD63F400	JD63T200
225	HHJD63B225		JD63T225
250	HHJD63B250		JD63T250
300	HHJD63B300		JD63T300
350	HHJD63B350		JD63T350
400	HHJD63B400		JD63T400

Type CJD6 ⑥

Fuseless Current Limiting

Red Label

Non-Interchangeable Trip (Assembled Circuit Breakers Without Lugs)		
Continuous Current Rating @ 40°C	2-Pole 600V AC/250V DC	3-Pole 600V AC/500V DC Catalog Number
200	For 2-pole application use outside poles of 3-pole circuit breaker	CJD63B200■
225		CJD63B225■
250		CJD63B250■
300		CJD63B300■
350		CJD63B350■
400		CJD63B400

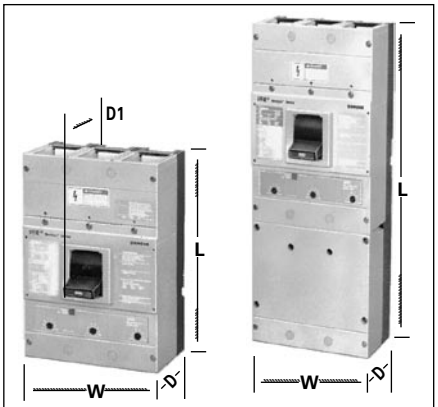


Figure 1

Dimensions (in inches)

Breaker Type	W	L	D	To Handle D1
Figure 1 JXD2-A, JXD6-A, JD6-A HJD6-A, HJXD6-A, HHJD6, HJD6, HJXD6, HHJXD6, JXD6-ETI⑤	7.5	11	4	5.44
Figure 2 CJD6, CJD6-ETI⑤	7.5	17.86	4	5.44

Enclosures

Type	Catalog Number
1	J6N1
3R	J6N3R
12	J6N12
4X	LD6SS4
7, 9 (200-250A)	EC4
7, 9 (300-400A)	EE
Neutral	W60992

Shipping Weights

Number of Poles	Number per Carton	Shipping Weight (lbs.)
JXD2, JXD6, JD6, HJD6, HHJD6 Assembled Breaker (less terminals)		
2	1	17.5
3	1	19.5
JD6, HJD6, HHJD6 Frame Only		
2	1	14
3	1	15.5
JD6 Trip Unit Only		
2	1	3.5
3	1	4
CJD6 Complete Assembled Breaker (less terminals)		
2	1	29.5
3	1	31.5

For inches / millimeters conversion, see Application Data section.

■ Built to order. Allow 3-4 weeks for delivery.
2-pole units available in 3-pole construction.
①When wired as shown on page 6-2, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems only.

②For non-interchangeable 3-pole HJD6 or HHJD6 type circuit breaker change the prefix identifier to HJXD6 or HHJXD6. Order lugs separately.

③JXD6-ETI, CJD6-ETI see page 6-55 for ordering information.
④Type HJXD6, HHJXD6 Circuit Breakers are CSA Certified / UL listed for reverse fed applications.
⑤CE applies to non-interchangeable type HJXD only.
⑥HACR rated.

SJD 400A Frame Digital Solid State Sentron Sensitrip III

Type SJD6(A)

Blue Label

3-Pole, 600V AC	
Catalog Number	Max Current Rating
SJD69200■	200
SJD69300■	300
SJD69400■	400
SJD69200G■	200
SJD69300G■	300
SJD69400G■	400
SJD69200NT■	200
SJD69300NT■	300
SJD69400NT■	400
SJD69200NGT■	200
SJD69300NGT■	300
SJD69400NGT■	400

Type SHJD6(A)

Black Label

3-Pole, 600V AC	
Catalog Number	Max Current Rating
SHJD69200■	200
SHJD69300■	300
SHJD69400■	400
SHJD69200G■	200
SHJD69300G■	300
SHJD69400G■	400
SHJD69200NT■	200
SHJD69300NT■	300
SHJD69400NT■	400
SHJD69200NGT■	200
SHJD69300NGT■	300
SHJD69400NGT■	400

Current Limiting Type SCJD6

Red Label

3-Pole, 600V AC	
Catalog Number	Max Current Rating
SCJD69200■	200
SCJD69300■	300
SCJD69400■	400
SCJD69200G■	200
SCJD69300G■	300
SCJD69400G■	400
SCJD69200NT■	200
SCJD69300NT■	300
SCJD69400NT■	400
SCJD69200NGT■	200
SCJD69300NGT■	300
SCJD69400NGT■	400

SJD 400A Frame – 100% Rated②

Type SJD6A-H

Blue Label

3-Pole, 600V AC	
Catalog Number	Max Current Rating
SJD69200H■	200
SJD69300H■	300
SJD69400H■	400
SJD69200GH■	200
SJD69300GH■	300
SJD69400GH■	400
SJD69200NTH■	200
SJD69300NTH■	300
SJD69400NTH■	400
SJD69200NGTH■	200
SJD69300NGTH■	300
SJD69400NGTH■	400

Type SJD6(A)-H

Black Label

3-Pole, 600V AC	
Catalog Number	Max Current Rating
SHJD69200H■	200
SHJD69300H■	300
SHJD69400H■	400
SHJD69200GH■	200
SHJD69300GH■	300
SHJD69400GH■	400
SHJD69200NTH■	200
SHJD69300NTH■	300
SHJD69400NTH■	400
SHJD69200NGTH■	200
SHJD69300NGTH■	300
SHJD69400NGTH■	400

Trip Unit Adjustable Functions

Suffix Letter Code	Trip Type	Cont Current Setting	Long Time Delay	Instan-taneous Setting	Short Time Pick Up	Short Time Delay	Short Time I^2t Pick Up	Ground Fault Pick Up	Ground Fault Delay
None	LI	√	√	√	—	—	—	—	—
G	LIG	√	√	√	—	—	—	√	√
NT	LSI	√	√	√	√	√	√	—	—
NGT	LSIG	√	√	√	√	√	√	√	√

Interrupting Ratings

Breaker Type	RMS Symmetrical kA CSA / UL 489 (File E10848)		
	240V AC	480V AC	600V AC
SJD6 – SLD6	65	35	25
SHJD6 – SHLD6	100	65	35
SCJD6 – SCLD6	200	150	100

Note: "G" suffix in catalog number denotes circuit breaker for 3 phase, 3 wire systems.
For 3 phase, 4 wire, order correct 4th wire (neutral) transformer as separate and additional item.

■ Built to order. Allow 3-4 weeks for delivery.
①For additional information, see **Note: A,** page 6-69.
②Refer to the NEC for proper application of 100% rated devices.

Ordering Information

Required lugs for Digital Sentron Series SJD and SLD frames are sold as separate items. Separate items – lugs are suitable for 75° C wire.

SJD6, SCJD6, SLD6, SCLD6 are acceptable for reverse connection application.

SHJD6 and SHLD6 are <u>not</u> acceptable for reverse connection application.

Shipping Weights

Breaker Type	Number per Carton	Shipping Weight (lbs)
SJD6(A), SLD6(A)	1	20
SHJD6(A), SHLD6(A)	1	20
SCJD6, SCLD6	1	33

Lugs for 75° C Wire①

Catalog Number	No of Cables per Con-nector	Wire Range
TA2J6500	2 2	#3/0-500 kcmil Cu #4/0-500 kcmil Cu
TA1L6750	1 1	500–750 kcmil Cu/Al 500–600 kcmil Cu
TC1J6600 **TC2J6500** **TA2J630**	1 2 2	#3/0-600 kcmil Cu #3/0-500 kcmil Cu #4–#3/0-Cu/Al
Compression Lug		
CCL600	(1 pc.)	#1/0-500 kcmil Cu/Al

Neutral Transformers

(for 3Ø, 4 wire)

Ampere Rating	Catalog Number
200	**N02SJD**
300	**N03SJD**
400	**N04SJD**
500	**N05SLD**
600	**N06SLD**

Enclosures

(For JD frame, excluding SCJD6)

Type	Catalog Number
1	**J6N1**
3R	**J6N3R**
4–4X	**LD6SS4**
7, 9 (200–250A)	**EC4**
7, 9 (300–400A)	**EE**
12	**J6N12**
Neutral	**W60992**

Accessories pages 6/32 and 6/72 to 6/86

Internal Accessories

Accessories for:

JD 400A Frame
LD 600A Frame
LMD 800A Frame
SJD 400A Frame
SLD 600A Frame

Sensitrip Ammeter

The Ammeter Display Units plug into the Sensitrip Trip Unit and displays the phrase current flowing in the SADU breaker. They are powered by the breaker's CT's with replaceable battery back-up for maintaining trip and max logs.

The SADU reads currents, current imbalance, current demand, and trip status.

Ammeter Mounting Kit

The Ammeter may also be panel or door mounted using the SADURMK18 remote mounting kit.

Shunt Trip Combinations

Control Voltage		1 Shunt Trip	1 Shunt Trip and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
24	—	S17JLD6	—
48	—	S18JLD6▲	—
120	—	S01JLD6	S01JLD62A
240	—	S03JLD6	S03JLD62A
277	—	S15JLD6▲	S15JLD64A▲
480	—	S04JLD6	—
—	12	S16JLD6▲	S16JLD62A▲
—	24	S07JLD6	S07JLD62A
—	48	S09JLD6▲	S09JLD62A
—	125	S11JLD6	S11JLD62A▲
—	250	S13JLD6▲	S13JLD62A▲

Undervoltage Trip Combinations

Control Voltage		1 Undervoltage Trip	1 Undervoltage Trip and 1 Auxiliary Switch	1 Undervoltage Trip and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number
120	—	U01JLD6	U01JLD62A	U01JLD62AA
208	—	U02JLD6▲	U02JLD62A▲	U02JLD62AA▲
240	—	U03JLD6	U03JLD62A▲	U03JLD62AA▲
277	—	U16JLD6▲	U16JLD64A▲	U16JLD62AA▲
480	—	U06JLD6	U06JLD64A▲	U06JLD64AA▲
600	—	U08JLD6▲	—	—
—	24	U13JLD6	U13JLD62A	U13JLD62AA
—	48	U14JLD6▲	U14JLD62A▲	U14JLD62AA▲
—	125	U10JLD6▲	U10JLD62A▲	U10JLD62AA▲
—	250	U12JLD6▲	U12JLD62A▲	U12JLD62AA▲

Auxiliary Switch Combinations

Maximum Voltage		1 Form C*	2 Form C
AC	DC	Catalog Number	Catalog Number
480	250	A01JLD64	A02JLD64
—	12	A01JLDLV*	(Gold Plated Contacts)

Alarm Switch Combinations

Maximum Voltage		1 Alarm Switch	1 Alarm Switch and 1 Auxiliary Switch	1 Alarm Switch and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number
480	250	B01JLD64	A01JLD64B	A02JLD64B

Plug-in Ammeter Display Units

Breaker Type	Desc.	Catalog Number
SJD, SLD	Display Unit	SADU
	Remote Mounting Kit	SADURMK18

Note: Accessory **modules can only be added to right side pole** of solid state SJD and SLD frame circuit breakers. All accessories on this page are useable on superseded JD2, JJ6, JL6, HJ6, SJL, LJ6, LL6, HL6 and SLL circuit breakers.

No accessories can be added if mechanical interlock is used.

▲ Built to order. Allow 7-9 weeks for delivery.

LD 600A Frame Sentron Series

Type LXD6-A①④

Blue Label

Non-Interchangeable Trip (Assembled Circuit Breaker without Lugs)

Continuous Current Rating @ 40°C	2-Pole (3 Pole Width) 600V AC 250V DC Catalog Number	3-Pole 600V AC 500V DC Catalog Number
450	LXD62B450■	LXD63B450
500	LXD62B500■	LXD63B500
600	LXD62B600	LXD63B600

Type LD6-A ④

Blue Label

Interchangeable Trip

Continuous Current Rating @ 40°C	Complete Breaker Unassembled w/Lugs Catalog Number	Frame Only Catalog Number	Trip Unit Only Catalog Number
2-Pole 600V AC, 250V DC (3 Pole Width)			
250	LD62B250■	LD62F600	JD62T250■
300	LD62B300■		JD62T300■
350	LD62B350■		JD62T350■
400	LD62B400		JD62T400
450	LD62B450■		LD62T450■
500	LD62B500■		LD62T500■
600	LD62B600		LD62T600
3-Pole 600V AC, 500V DC②			
250	LD63B250	LD63F600	JD63T250
300	LD63B300		JD63T300
350	LD63B350		JD63T350
400	LD63B400		JD63T400
450	LD63B450		LD63T450
500	LD63B500		LD63T500
600	LD63B600		LD63T600

Interrupting Ratings

Breaker Type	RMS Symmetrical Amperes (KA) CSA / UL 489 AIR (File E10848) Volts AC (50/60Hz) 240	480	600	Volts DC 250	500⑤	IEC 947-2 Volts AC (50/60Hz) 220/240 (Icu)	(Ics)	380/415 (Icu)	(Ics)	500 (Icu)	(Ics)
LXD6, LD6	65	35	25	30 (2-P)	25 (3-P)	65	33	40	20	30	15
HLD6, HLXD6	100	65	35	30 (2-P)	35 (3-P)	100	50	65	33	42	21
HHLD6, HHLXD6	200	100	50	—	—	200	100	100	50	65	33
CLD6	200	150	100	30 (2-P)	50 (3-P)	—	—	—	—	—	—

Instantaneous Adjustment Trip Range

Breaker Ampere Rating	Nominal Instantaneous Values Low	2	3	4	5	6	7	High
250-300	1250	1430	1610	1790	1960	2140	2320	2500
350-450	2000	2290	2570	2860	3140	3430	3710	4000
500-600	3000	3430	3800	4290	4710	5140	5570	6000

■ Built to order. Allow 3-4 weeks for delivery.

①Type LXD6A circuit breakers are CSA Certified / UL Listed for reverse fed applications.

②When wired as shown on page 6-3, this circuit breaker is UL listed and rated for use on 500V DC ungrounded UPS systems only.

③See **Note: A**, page 6-69.

④HACR rated.

Note: LD frame qualified to UL489 supplement SB "NAVAL" See page 6-72 for additional information.

Modifications page 6/72
Accessories pages 6/36 and 6/73 to 6/86

Ordering Information

Complete Breaker Unassembled with Lugs
Prices of LD6, HLD6, and HHLD6 breakers include frame, trip, and both line and load lugs (TA2J6500). When ordered by these catalog numbers, the customer will receive the frame, trip and lugs separately packaged. For applications requiring different lugs, order individual items as needed.

Complete Breaker Assembled without Lugs
Prices of LXD6, HLXD6, HHLXD6, and CLD6 include frame with non-interchangeable trip unit installed only. Order required lugs separately. For line and load lugs (TA2J6500) installed, add suffix "L" to catalog number (add 2 times list price of lugs for each pole).

100% Rated
Types, LXD6 and HLXD6 breakers are available with 100% ratings. To order add suffix "H" to catalog number, and 10% to list price. 100% rated LD breakers require the use of 90°C Cu cable and lugs TC1J6600 or TC2J6500.

50°C Applications see page 6-72.

400Hz Applications see page 6-72.

Shipping Weights

Number of Poles	Number per Carton	Shipping Weight (lbs.)
LXD6, LD6, HLD6, HHLD6 Assembled Breaker (less terminals)		
2	1	17.5
3	1	19.5
LD6, HLD6, HHLD6 Frame Only		
2	1	14
3	1	15.5
LD6, HHLD6 Trip Unit Only		
2	1	3.5
3	1	4
CLD6 Complete Assembled Breaker (less terminals)		
2	1	29.5
3	1	31.5

Lugs For 75°C Wire⑤

Catalog Number	Cables per Lug	Wire Range
TA2J6500	1, 2	#3/0 500 kcmil Cu
	2	#4/0 500 kcmil Al
	1	250-500 kcmil Al
TC2J6500	2	#3/0-500 kcmil Cu
TA1L6750	1	500-750 kcmil Al
	1	500-600 kcmil Cu
TC1J6600	1	#3/0-600 kcmil Cu
Compression Lug		
CCL600	1	500 kcmil Cu/Al

LD 600A Frame Sentron Series

Type HLD6-A, HLXD6[2][5][6]

Black Label

Interchangeable Trip			
Continuous Current Rating @ 40°C	Complete Breaker Unassembled w/Lugs Catalog Number	Frame Only Catalog Number	Trip Unit Only Catalog Number
2-Pole 600V AC, 250V DC (3 Pole Width)			
250	HLD62B250■	HLD62F600■	JD62T250■
300	HLD62B300■		JD62T300■
350	HLD62B350■		JD62T350■
400	HLD62B400■		JD62T400
450	HLD62B450■		LD62T450■
500	HLD62B500■		LD62T500■
600	HLD62B600■		LD62T600
3-Pole 600V AC, 500V DC[1][5]			
250	HLD63B250	HLD63F600	JD63T250
300	HLD63B300		JD63T300
350	HLD63B350		JD63T350
400	HLD63B400		JD63T400
450	HLD63B450		LD63T450
500	HLD63B500		LD63T500
600	HLD63B600		LD63T600

Type HHLD6, HHLXD6[2][5][6]

2-Pole 600V AC (3 Pole Width)

Black Label

250	HHLD62B250■	HHLD62F600■	JD62T250■
300	HHLD62B300■		JD62T300■
350	HHLD62B350■		JD62T350■
400	HHLD62B400■		JD62T400
450	HHLD62B450■		HHLD62T450■
500	HHLD62B500■		HHLD62T500■
600	HHLD62B600■		HHLD62T600■
3-Pole 600V AC			
250	HHLD63B250	HHLD63F600	JD63T250
300	HHLD63B300		JD63T300
350	HHLD63B350		JD63T350
400	HHLD63B400		JD63T400
450	HHLD63B450■		HHLD63T450■
500	HHLD63B500■		HHLD63T500■
600	HHLD63B600■		HHLD63T600■

Type CLD6 [6]

Fuseless Current Limiting

Red Label

Non-Interchangeable Trip (Assembled Circuit Breaker)		
Continuous Current Rating @ 40°C	2-Pole 600V AC/250V DC	3-Pole 600V AC/500V DC Catalog Number
450	For 2-pole application use outside poles of 3-pole circuit breaker	CLD63B450■
500		CLD63B500
600		CLD63B600

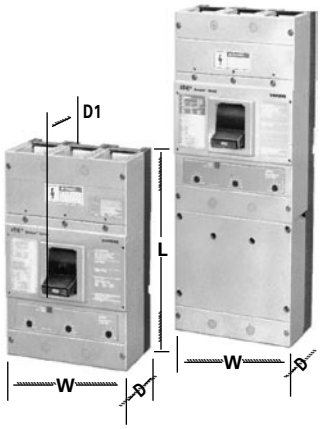


Figure 1 Figure 2

Dimensions (in inches)

Breaker Type	W	L	D	To Handle D1
Figure 1 LXD6-A, LD6-A HLD6-A HHLD6, HHLXD6, LXD6–ETI[4]	7.5	11	4	5.44
Figure 2 CLD6, CLD6-ETI[4]	7.5	17.86	4	5.44

Enclosures

Type	Catalog Number
1	LD6N1
3R	LD6N3R
12	LD6N12
4X	LD6SS4
7,9	ED6
Neutral	W60993

For inches / millimeters conversion, see Application Data section

■ Built to order. Allow 3-4 weeks for delivery.

[1] When wired as shown on page 6-2, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems only.

[2] For complete assembled 3 pole HLD6 or HHLD6 type circuit breaker change the prefix identifier HLD6 or HHLD6 to HLXD6 or HHLXD6. Price is sum of frame and trip units prices, e.g. price of HLXD63B400 is the price of HLD63F600 plus the price of LD63T600. Order the terminal connectors separately.■

[3] Type HLXD6, HHLXD6 Circuit Breakers are CSA Certified / UL Listed for reverse feed applications.

[4] LXD6-ETI, CLD6-ETI see page 6-55 for ordering information.

[5] CE Applies to non-interchangable type HLXD only.

[6] HACR rated.

SLD 600A Frame Digital Solid State Sentron Sensitrip III Series

Type SLD6(A)

Blue Label

3-Pole, 600V AC	
Catalog Number	**Max Current Rating**
SLD69300■	300
SLD69400■	400
SLD69500■	500
SLD69600■	600
SLD69300G■	300
SLD69400G■	400
SLD69500G■	500
SLD69600G■	600
SLD69300NT■	300
SLD69400NT■	400
SLD69500NT■	500
SLD69600NT■	600
SLD69300NGT■	300
SLD69400NGT■	400
SLD69500NGT■	500
SLD69600NGT■	600

Type SHLD6(A)

Black Label

3-Pole, 600V AC	
Catalog Number	**Max Current Rating**
SHLD69300■	300
SHLD69400■	400
SHLD69500■	500
SHLD69600■	600
SHLD69300G■	300
SHLD69400G■	400
SHLD69500G■	500
SHLD69600G■	600
SHLD69300NT■	300
SHLD69400NT■	400
SHLD69500NT■	500
SHLD69600NT■	600
SHLD69300NGT■	300
SHLD69400NGT■	400
SHLD69500NGT■	500
SHLD69600NGT■	600

Current Limiting

Type SCLD6

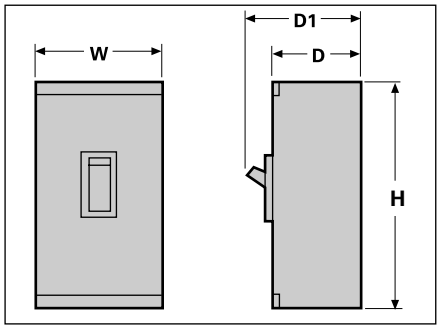
Red Label

3-Pole, 600V AC	
Catalog Number	**Max Current Rating**
SCLD69300■	300
SCLD69400■	400
SCLD69500■	500
SCLD69600■	600
SCLD69300G■	300
SCLD69400G■	400
SCLD69500G■	500
SCLD69600G■	600
SCLD69300NT■	300
SCLD69400NT■	400
SCLD69500NT■	500
SCLD69600NT■	600
SCLD69300NGT■	300
SCLD69400NGT■	400
SCLD69500NGT■	500
SCLD69600NGT■	600

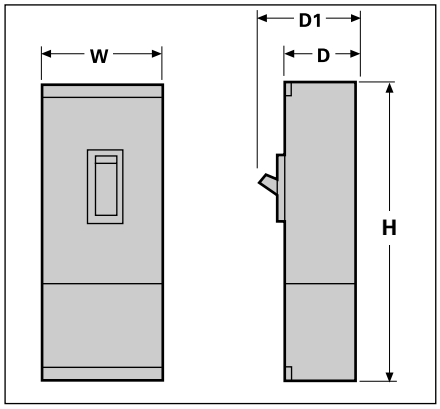
Trip Unit Adjustable Functions

Suffix Letter Code	Trip Type	Cont Current Setting	Long Time Delay	Instan-taneous Setting	Short Time Pick Up	Short Time Delay	Short Time I^2t Pick Up	Ground Fault Pick Up	Ground Fault Delay
None	LI	√	√	√	—	—	—	—	—
G	LIG	√	√	√	—	—	—	√	√
NT	LSI	√	√	√	√	√	√	—	—
NGT	LSIG	√	√	√	√	√	√	√	√

SJD6, SLD6



SJD6, SHJD6, SLD6, SHLD6



SCJD6, SCLD6

Dimensions (Inches)

Breaker Type	W	H	D	D1
SJD6(A), SHJD6(A) SLD6(A), SHLD6(A) SLD6, SHLD6	7.5	11	4	5.44
SCJD6 SCLD6	7.5	17.86	4	5.44

Enclosures

(For LD frame, excluding SCLD6)

Type	Catalog Number
1	**LD6N1**
3R	**LD6N3R**
4–4X	**LD6SS4**
7, 9	**ED6**
12	**LD6N12**
Neutral	**W60993**

Note: "G" suffix in catalog number denotes circuit breaker for 3 phase, 3 wire circuits.
For 3 phase, 4 wire, order correct 4th wire (neutral) transformer as separate and additional item.

For ordering information and terminal connectors, neutral transformers and enclosures, see page 6-31.
100% Rated – Not available in SLD6 Frame.
■ Built to order. Allow 3-4 weeks for delivery.

Internal Accessories

Accessories for:

JD 400A Frame
LD 600A Frame
LMD 800A Frame
SJD 400A Frame
SLD 600A Frame

Sensitrip Ammeter

The Ammeter Display Units plug into the Sensitrip Trip Unit and displays the phrase current flowing in the SADU breaker. They are powered by the breaker's CT's with replaceable battery back-up for maintaining trip and max logs.

The SADU reads currents, current imbalance, current demand, and trip status.

Ammeter Mounting Kit

The Ammeter may also be panel or door mounted using the SADURMK18 remote mounting kit.

Shunt Trip Combinations

Control Voltage		1 Shunt Trip	1 Shunt Trip and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
24	—	S17JLD6	—
48	—	S18JLD6▲	—
120	—	S01JLD6	S01JLD62A
240	—	S03JLD6	S03JLD62A
277	—	S15JLD6▲	S15JLD64A▲
480	—	S04JLD6	—
—	12	S16JLD6▲	S16JLD62A▲
—	24	S07JLD6	S07JLD62A
—	48	S09JLD6▲	S09JLD62A
—	125	S11JLD6	S11JLD62A▲
—	250	S13JLD6▲	S13JLD62A▲

Undervoltage Trip Combinations

Control Voltage		1 Undervoltage Trip	1 Undervoltage Trip and 1 Auxiliary Switch	1 Undervoltage Trip and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number
120	—	U01JLD6	U01JLD62A	U01JLD62AA
208	—	U02JLD6▲	U02JLD62A▲	U02JLD62AA▲
240	—	U03JLD6	U03JLD62A▲	U03JLD62AA▲
277	—	U16JLD6▲	U16JLD64A▲	U16JLD62AA▲
480	—	U06JLD6	U06JLD64A▲	U06JLD64AA▲
600	—	U08JLD6▲	—	—
—	24	U13JLD6	U13JLD62A	U13JLD62AA
—	48	U14JLD6▲	U14JLD62A▲	U14JLD62AA▲
—	125	U10JLD6▲	U10JLD62A▲	U10JLD62AA▲
—	250	U12JLD6▲	U12JLD62A▲	U12JLD62AA▲

Auxiliary Switch Combinations

Maximum Voltage		1 Form C*	2 Form C
AC	DC	Catalog Number	Catalog Number
480	250	A01JLD64	A02JLD64
—	12	A01JLDLV*	(Gold Plated Contacts)

Alarm Switch Combinations

Maximum Voltage		1 Alarm Switch	1 Alarm Switch and 1 Auxiliary Switch	1 Alarm Switch and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number
480	250	B01JLD64	A01JLD64B	A02JLD64B

Plug-in Ammeter Display Units

Breaker Type	Desc.	Catalog Number
SJD, SLD	Display Unit	SADU
	Remote Mounting Kit	SADURMK18

Note: Accessory **modules can only be added to right side pole of solid state** SJD and SLD frame circuit breakers. All accessories on this page are useable on superseded JD2, JJ6, JL6, HJ6, SJL, LJ6, LL6, HL6 and SLL circuit breakers.

No accessories can be added if mechanical interlock is used.

▲ Built to order. Allow 4-9 weeks for delivery.

LMD 800A Frame Sentron Series

Type LMXD6[1][5]

Blue Label

Non-Interchangeable Trip (Assembled Circuit Breaker without Lugs)		
Continuous Current Rating @ 40°C	2-Pole (3 Pole Width) Catalog Number	3-Pole Catalog Number
500	—	LMXD63B500■
600	LMXD62B600■	LMXD63B600
700	LMXD62B700■	LMXD63B700
800	LMXD62B800	LMXD63B800

Type LMD6 [5]

Blue Label

Interchangeable Trip			
Continuous Current Rating @ 40°C	Complete Breaker Unassembled w/Lugs Catalog Number	Frame Only Catalog Number	Trip Unit Only Catalog Number
2-Pole 600V AC, 250V DC (3 Pole Width)			
500	LMD62B500■	LMD62F800■	LMD62T500■
600	LMD62B600■		LMD62T600■
700	LMD62B700■		LMD62T700■
800	LMD62B800■		LMD62T800■
3-Pole 600V AC, 500V DC [5]			
500	LMD63B500■	LMD63F800	LMD63T500■
600	LMD63B600■		LMD63T600■
700	LMD63B700■		LMD63T700■
800	LMD63B800		LMD63T800

Instantaneous Adjustment Trip Range

	Nominal Instantaneous Values							
Ampere Rating	Low	2	3	4	5	6	7	High
500-600	3000	3430	3860	4290	4710	5140	5570	6000
700-800	3200	3500	3700	4200	4700	6400	7300	8000

Ordering Information

Complete Breaker Unassembled with Lugs
Prices of LMD6 and HLMD6 breakers include frame, trip, and both line and load lugs (TA3K500). These catalog numbers include the frame, trip and lugs separately packaged. For applications requiring different lugs, order individual items as needed.

Complete Breaker Assembled without Lugs
Prices of LMXD6 and HLMXD6 include frame with non-interchangeable trip unit installed only. Order required lugs separately. For line and load lugs (TA3K500) installed, add suffix "L" to catalog number (add 2 times list price of lugs for each pole).

50°C Applications see page 6-72.

400Hz Applications see page 6-72.

Shipping Weights

Number of Poles	Number per Carton	Shipping Weight (lbs.)
LMD6, HLMD6, LMXD6, HLMXD6 Complete Breaker (less terminals)		
2	1	53
3	1	61.5
LMD6, HLMD6 Frame Only		
2	1	42.25
3	1	46
LMD6, HLMD6 Trip Unit Only		
2	1	4.5
3	1	6.5

Lugs[4] for 75°C Wire

Catalog Number	Cables per Lug	Wire Range
TA2K500	1, 2	#1-500 kcmil Cu/Al
TA3K500	1-3	#1/0-500 kcmil Cu/Al
TA2N750	1, 2	500-750 kcmil Cu/Al

■ Built to order. Allow 3-4 weeks for delivery.
[1] LMXD6 circuit breakers are CSA Certified / UL Listed for reverse connected applications.
[2] Use 6 lugs for 3-pole, use 4 connectors for 2-pole.
[3] When wired as shown on page 6-2, this circuit breaker is CSA Certified / UL listed and rated for use on 500UDC ungrounded UPS systems only.
[4] See **Note: A**, page 6-69.
[5] HACR rated.

Modifications page 6/72
Accessories pages 6/39 and 6/73 to 6/86

LMD 800A Frame Sentron Series

Type HLMXD6①④

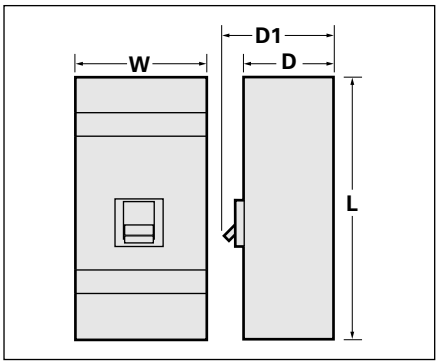
Black Label

Non-Interchangeable Trip (Assembled Circuit Breaker without Lugs)		
Continuous Current Rating @ 40°C	2-Pole 600V AC 250V DC	3-Pole 600V AC 500V DC
		Catalog Number
500	For 2-Pole application use outside poles of 3-Pole circuit breaker.	HLMXD63B500■
600		HLMXD63B600■
700		HLMXD63B700■
800		HLMXD63B800

Type HLMD6 ④

Black Label

Interchangeable Trip			
Continuous Current Rating @ 40°C	Complete Breaker Unassembled	Frame Only	Trip Unit Only
	Catalog Number	Catalog Number	Catalog Number
2-Pole 600V AC, 250V DC (3 Pole Width)			
500	HLMD62B500■	HLMD62F800■	LMD62T500■
600	HLMD62B600■		LMD62T600■
700	HLMD62B700■		LMD62T700■
3-Pole 600V AC, 500V DC⑤			
500	HLMD63B500	HLMD63F800	LMD63T500■
600	HLMD63B600		LMD63T600■
700	HLMD63B700		LMD63T700■
800	HLMD63B800		LMD63T800



Dimensions (in inches)

Breaker Type	W	L	D	D1
LMD6, LMXD6, HLMD6, HLMXD6 LMXD6-ETI⑨	7.5	16	4.5	5.93

Interrupting Ratings

Breaker Type	UL 489A IR					IEC 947-2					
	RMS Symmetrical Amperes (KA)					Volts AC (50/60HZ)					
	Volts AC			Volts DC		220/240		380/415		500	
	240	480	600	250	500④	(Icu)	(Ics)	(Icu)	(Ics)	(Icu)	(Ics)
LMD6, LMXD6	65	50	25	30 (2-P)	25 (3-P)	65	33	40	20	30	15
HLMD6, HLMXD6	100	65	50	30 (2-P)	50 (3-P)	100	50	65	33	42	21

Enclosures

Type	Catalog Number
1	LMD1
3R	LMD3R
12	LMD12■
Neutral	W63623

For inches / millimeters conversion, see Application Data section.

■ Built to order. Allow 3-4 weeks for delivery.

①HLMXD6 circuit breakers are UL Listed for reverse connection applications.

⑨LMXD6-ETI, see page 6-55 for catalog information.

⑤When wired as shown on page 6-2, this circuit breaker is UL listed and rated for use on 500VDC ungrounded UPS systems only.

④HACR rated.

Internal Accessories

Accessories for:

JD 400A Frame
LD 600A Frame
LMD 800A Frame
SJD 400A Frame
SLD 600A Frame

Sensitrip Ammeter

The Ammeter Display Units plug into the Sensitrip Trip Unit and displays the phrase current flowing in the SADU breaker. They are powered by the breaker's CT's with replaceable battery back-up for maintaining trip and max logs.

The SADU reads currents, current imbalance, current demand, and trip status.

Ammeter Mounting Kit

The Ammeter may also be panel or door mounted using the SADURMK18 remote mounting kit.

Shunt Trip Combinations

Control Voltage		1 Shunt Trip	1 Shunt Trip and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
24	—	S17JLD6	—
48	—	S18JLD6▲	—
120	—	S01JLD6	S01JLD62A
240	—	S03JLD6	S03JLD62A
277	—	S15JLD6▲	S15JLD64A▲
480	—	S04JLD6	—
—	12	S16JLD6▲	S16JLD62A▲
—	24	S07JLD6	S07JLD62A
—	48	S09JLD6▲	S09JLD62A
—	125	S11JLD6	S11JLD62A▲
—	250	S13JLD6▲	S13JLD62A▲

Undervoltage Trip Combinations

Control Voltage		1 Undervoltage Trip	1 Undervoltage Trip and 1 Auxiliary Switch	1 Undervoltage Trip and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number
120	—	U01JLD6	U01JLD62A	U01JLD62AA
208	—	U02JLD6▲	U02JLD62A▲	U02JLD62AA▲
240	—	U03JLD6	U03JLD62A▲	U03JLD62AA▲
277	—	U16JLD6▲	U16JLD64A▲	U16JLD62AA▲
480	—	U06JLD6	U06JLD64A▲	U06JLD64AA▲
600	—	U08JLD6▲	—	—
—	24	U13JLD6	U13JLD62A	U13JLD62AA
—	48	U14JLD6▲	U14JLD62A▲	U14JLD62AA▲
—	125	U10JLD6▲	U10JLD62A▲	U10JLD62AA▲

Auxiliary Switch Combinations

Maximum Voltage		1 Form C*	2 Form C
AC	DC	Catalog Number	Catalog Number
480	250	A01JLD64	A02JLD64
—	12	A01JLDLV*	(Gold Plated Contacts)

Alarm Switch Combinations

Maximum Voltage		1 Alarm Switch	1 Alarm Switch and 1 Auxiliary Switch	1 Alarm Switch and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number
480	250	B01JLD64	A01JLD64B	A02JLD64B

Plug-in Ammeter Display Units

Breaker Type	Desc.	Catalog Number
SJD, SLD	Display Unit	SADU
	Remote Mounting Kit	SADURMK18

Note: Accessory modules can only be added to right side pole of solid state SJD and SLD frame circuit breakers. All accessories on this page are useable on superseded JD2, JJ6, JL6, HJ6, SJL, LJ6, LL6, HL6 and SLL circuit breakers.

No accessories can be added if mechanical interlock is used.

▲ Built to order. Allow 7-9 weeks for delivery.

MD 800A Frame Sentron Series

Type MXD6①⑦

Blue Label

Non-Interchangeable Trip (Assembled Circuit Breaker Without Lugs)		
Continuous Current Rating @ 40°C	2-Pole② Catalog Number	3-Pole Catalog Number
500	MXD62B500■	MXD63B500■⑦
600	MXD62B600■	MXD63B600
700	MXD62B700■	MXD63B700
800	MXD62B800■	MXD63B800

Type MD6 ⑦

Blue Label

Interchangeable Trip			
Continuous Current Setting @ 40°C	Complete Breaker Unassembled with Lugs Catalog Number	Frame Only Catalog Number	Trip Unit Only Catalog Number
2-Pole 600V AC, 250V DC②			
500	MD62B500■	MD62F800■	MD62T500■
600	MD62B600■		MD62T600■
700	MD62B700■		MD62T700■
800	MD62B800■		MD62T800■
3-Pole 600V AC, 500V DC④			
500	MD63B500	MD63F800	MD63T500
600	MD63B600		MD63T600
700	MD63B700		MD63T700
800	MD63B800		MD63T800

Lugs⑤

Catalog Number	Cables Per Lug	Lugs Per Kit	Wire Range
TA2K500	1-2	1	#1-500 kcmil Cu/Al
TA3K500	1-3	1	1/0-500 kcmil Cu/Al
TC2K500	1-2	1	#1-500 kcmil Cu
TC3K350	1-3	1	#1-350 kcmil Cu
Kits			
2TA2N8750 3TA2N8750	1-2	2 3	600-750 kcmil Cu/Al
2TA3N8750 3TA3N8750	1-3	2 3	500-750 kcmil Cu/Al
2TA4N8500 3TA4N8500	1-4	2 3	250-500 kcmil Cu/Al
2TA4P8500 3TA4P8500	1-4	2 3	250-500 kcmil Cu/Al

Instantaneous Adjustment Trip Range

Ampere Rating	Nominal Instantaneous Values Low	2	3	4	5	6	7	High
500–600	3000	3430	3860	4280	4710	5140	5570	6000
700–800	4000	4570	5140	5710	6280	6850	7420	8000

■ Built to order. Allow 3-4 weeks for delivery.
①MXD6 circuit breakers are CSA Certified / UL Listed for reverse connection applications.
②2-pole units available in 3-pole width only.
③Use 6 connectors for 3-pole, use 4 connectors for 2-pole.
④When wired as shown on page 6-3, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems.
⑤See **Note: A**, page 6-69.
⑥80% rated breakers with the CE mark will also be marked in the 100% rated version.
⑦HACR rated.
Note: MD frame qualified to UL489 supplement B "NAVAL" See page 6-72 for additional information.

Ordering Information

Complete Breaker Unassembled with Lugs
Pricing information for MD6 and HMD6 breakers includes frame, trip, and both line and load lugs (TA3K500). When ordered by these catalog numbers, the customer will receive the frame, trip and lugs separately packaged. For applications requiring different lugs, order individual items as needed.

Complete Breaker Assembled without Lugs
Prices of MXD6, HMXD6 and CMD6 include frame with non-interchangeable trip units installed only. Order required lugs separately. For line and load lugs (TA3K500) installed, add suffix "L" to catalog number (add 2 times list price of lugs for each pole).

100% Rated⑥
Types MXD6, HMXD6 and CMD6 breakers are available with 100% ratings. To order add suffix "H" to catalog number, and 10% to list price. 100% rated MD breakers require the use of 90°C Cu cable and lugs 2TA4P8500 or 2TA2N8750 for 2-pole; 3TA4P8500 or 3TA2N8750 for 3-pole.

50°C Applications see page 6-72.

400Hz Applications see page 6-72.

Shipping Weights

Number of Poles	Number per Carton	Shipping Weight (lbs.)
MD6, HMD6, HMXD6, CMD6 Complete Breaker Assembled (less lugs)		
2	1	53
3	1	61.5
MD6, HMD6 Frame Only		
2	1	42.25
3	1	46
MD6, HMD6 Trip Unit Only		
2	1	4.5
3	1	6.5

Enclosures

Type	Catalog Number
1	MND61
3R	MND63
12	MND612■
Neutral	W63623

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Accessories pages 6/43 and 6/72 to 6/86

MD 800A Frame Sentron Series

Type HMXD6①⑤

Black Label

Non-Interchangeable Trip (Assembled Circuit Breaker Without Lugs)		
Continuous Current Rating @ 40°C	2-Pole 600V AC 250V DC	3-Pole 600V AC 500V DC
		Catalog Number
500	For 2-pole application use outside poles of 3-pole circuit breaker	HMXD63B500■
600		HMXD63B600■
700		HMXD63B700■
800		HMXD63B800

Type HMD6 ⑤

Black Label

Interchangeable Trip			
Continuous Current Rating @ 40°C	Complete Breaker Unassembled with Lugs	Frame Only	Trip Unit Only
	Catalog Number	Catalog Number	Catalog Number
2-Pole 600V AC, 250V DC②			
500	HMD62B500■	HMD62F800■	MD62T500■
600	HMD62B600■		MD62T600■
700	HMD62B700■		MD62T700■
800	HMD62B800■		MD62T800■
3-Pole 600V AC, 500V DC④			
500	HMD63B500	HMD63F800	MD63T500
600	HMD63B600		MD63T600
700	HMD63B700		MD63T700
800	HMD63B800		MD63T800

Type CMD6 ⑤

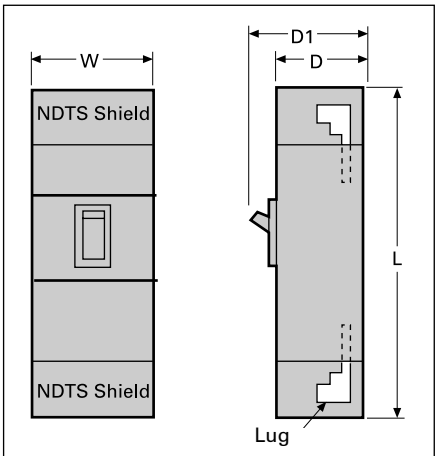
Fuseless Current Limiting

Red Label

Non-Interchangeable Trip (Assembled Circuit Breaker Without Lugs)		
Continuous Current Rating @ 40°C	2-Pole 600V AC/250V DC	3-Pole 600V AC/500V DC
		Catalog Number
500	For 2-pole application use outside poles of 3-pole circuit breaker	CMD63B500■
600		CMD63B600■
700		CMD63B700■
800		CMD63B800■

Interrupting Ratings

Breaker Type	UL 489 AIR—File E10848 RMS Symmetrical Amperes (KA) Volts AC 240	480	600	Volts DC 250	500④	IEC 947-2 AIR Volts AC (50/60HZ) 220/240 (Icu)	(Ics)	380/415 (Icu)	(Ics)	500 (Icu)	(Ics
MD6, MXD6	65	50	25	30 (2-P)	25 (3-P)	65	33	40	20	30	15
HMD6, HMXD6	100	65	50	30 (2-P)	50 (3-P)	100	50	65	33	42	21
CMD6	200	100	65	30 (2-P)	50 (3-P)	200	100	100	50	65	33



When wire lug shield NDTS is used.

Note: NDTS lug shields are required when oversized lugs are used. The kits include the NDTS shield.

Dimensions (in inches)

Breaker Type	W	L	D	(To Handle) D1
MD6, MXD6, HMD6, HMXD6, CMD6, MXD6-ETI, CMD6-ETI	9	16	6	8.25
with lug shields	9	24	6	8.25

For inches / millimeters conversion, see Application Data section.

■ Built to order. Allow 3-4 weeks for delivery.

①HMXD6 circuit breakers are CSA Certified / UL listed for reverse connection applications.

②2-pole units available in 3-pole width only.

③MXD6-ETI, CMD6-ETI see page 6-56 for catalog information.

④When wired as shown on page 6-3, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems only.

⑤HACR rated.

SMD 800A Frame Digital Solid State Sentron Sensitrip III Series

SMD 800A Frame – 100% Rated①

Type SMD6

Blue Label

3-Pole, 600V AC	
Catalog Number	Max Current Rating
SMD69600A■	600
SMD69700A■	700
SMD69800A■	800
SMD69600AG■	600
SMD69700AG■	700
SMD69800AG■	800
SMD69600ANT■	600
SMD69700ANT■	700
SMD69800ANT■	800
SMD69600ANGT■	600
SMD69700ANGT■	700
SMD69800ANGT■	800

Type SHMD6

Black Label

3-Pole, 600V AC	
Catalog Number	Max Current Rating
SHMD69600A■	600
SHMD69700A■	700
SHMD69800A■	800
SHMD69600AG■	600
SHMD69700AG■	700
SHMD69800AG■	800
SHMD69600ANT■	600
SHMD69700ANT■	700
SHMD69800ANT■	800
SHMD69600ANGT■	600
SHMD69700ANGT■	700
SHMD69800ANGT■	800

Current Limiting Type SCMD6

Red Label

3-Pole, 600V AC	
Catalog Number	Max Current Rating
SCMD69600A■	600
SCMD69700A■	700
SCMD69800A■	800
SCMD69600AG■	600
SCMD69700AG■	700
SCMD69800AG■	800
SCMD69600ANT■	600
SCMD69700ANT■	700
SCMD69800ANT■	800
SCMD69600ANGT■	600
SCMD69700ANGT■	700
SCMD69800ANGT■	800

Type SMD6-H

Blue Label

3-Pole, 600V AC	
Catalog Number	Max Current Rating
SMD69600AH■	600
SMD69700AH■	700
SMD69800AH■	800
SMD69600AGH■	600
SMD69700AGH■	700
SMD69800AGH■	800
SMD69600ANTH■	600
SMD69700ANTH■	700
SMD69800ANTH■	800
SMD69600ANGTH■	600
SMD69700ANGTH■	700
SMD69800ANGTH■	800

Type SHMD6-H

Black Label

3-Pole, 600V AC	
Catalog Number	Max Current Rating
SHMD69600AH■	600
SHMD69700AH■	700
SHMD69800AH■	800
SHMD69600AGH■	600
SHMD69700AGH■	700
SHMD69800AGH■	800
SHMD69600ANTH■	600
SHMD69700ANTH■	700
SHMD69800ANTH■	800
SHMD69600ANGTH■	600
SHMD69700ANGTH■	700
SHMD69800ANGTH■	800

Current Limiting Type SCMD6-H

Red Label

3-Pole, 600V AC	
Catalog Number	Max Current Rating
SCMD69600AH■	600
SCMD69700AH■	700
SCMD69800AH■	800
SCMD69600AGH■	600
SCMD69700AGH■	700
SCMD69800AGH■	800
SCMD69600ANTH■	600
SCMD69700ANTH■	700
SCMD69800ANTH■	800
SCMD69600ANGTH■	600
SCMD69700ANGTH■	700
SCMD69800ANGTH■	800

Trip Unit Adjustable Functions

Suffix Letter Code	Trip Type	Cont Current Setting	Long Time Delay	Instan-taneous Setting	Short Time Pick Up	Short Time Delay	Ground Fault Pick Up	Ground Fault Delay
A	LI	√	√	√	—	—	—	—
AG	LIG	√	√	√	—	—	√	√
ANT	LSI	√	√	√	√	√	—	—
ANGT	LSIG	√	√	√	√	√	√	√

Interrupting Ratings

Breaker Type	RMS Symmetrical kA UL 489 (File E10848)		
	240V AC	480V AC	600V AC
SMD6 – SND6	65	50	25
SHMD6 – SHND6	100	65	50
SCMD6 – SCND6	200	100	65

Note: "G" suffix in catalog number denotes circuit breaker for 3 phase, 3 wire circuits.
For 3 phase, 4 wire, order correct 4th wire (neutral) transformer as separate and additional item.

■ Built to order. Allow 3-4 weeks for delivery.

①Use lugs TA2N8750 or TA4P8500 only on 100% rated breakers.

②For additional information, see **Note: A,** page 6-69.

Ordering Information

Pricing information for all Digital Sentron Series MD and ND frames is for complete breaker only. Price requires lugs or lug kits as separate items. Lugs are suitable for 75°C wire or as noted. Connector wire ranges and cavities are established in conjunction with Table 8.1 of UL 489 standards. Choose actual connector for circuit breakers based on customer requirements.

Recommended Terminal Connectors

Breaker Frame	Ampere Rating	Connector or Connector Kit
MD	500–600	**TA2K500`**
MD	700–800	**TA3K500`**
ND	800	**TA3K500`**
ND	900–1200 (kit)	**3TA4N8500**

Types SMD6, SHMD6, SND6, SHND6 are acceptable for reverse connection applications.

Shipping Weights

Breaker Type	Number per Carton	Shipping Weight (lbs)
All types	1	61.5

Lugs for 75°C Wire②

Catalog Number	Cables per Lug	Wire Range
TA2K500	2	#1-500 kcmil Cu/Al
TA3K500	3	#1-500 kcmil Cu/Al
TC2K500	2	#1-500 kcmil Cu
TC3K350	3	#1-350 kcmil Cu
Kits (3 lugs/kit)		
3TA4N8500	4	250–500 kcmil Cu/Al
3TA4P8500	4	250–500 kcmil Cu/Al
3TA2N8750	2	600–750 kcmil Cu/Al
3TA3N8750	3	600–750 kcmil Cu/Al

Each kit contains the following:
3TA4P8500—3 connectors plus 1 NDTS end barrier
3TA3N8750—3 connectors plus 1 NDTS end barrier
3TA2N8750—3 connectors plus 1 NDTS end barrier

Neutral Transformers

Ampere Rating	Catalog Number
600	**N06SMDA**
700	**N07SMDA**
800	**N08SMDA**
1000	**N10SNDA**
1200	**N12SNDA**

Enclosures

Type	Catalog Number
1	**MND61**
3R	**MND63**
12	**MND612**
Neutral	**W63623**

Accessories pages 6/43 and 6/72 to 6/86

Internal Accessories

Accessories for:

MD/SMD 800A Frame
ND/SND 1200A Frame
PD/SPD 1600A Frame
RD 2000A Frame

Accessory modules can mount in either left hand or right hand poles of all circuit breakers, including solid state. Exception: when mechanical interlock is used accessories cannot be mounted in left pole.

Sensitrip Ammeter

The Ammeter Display Units plug into the Sensitrip Trip Unit and displays the phrase current flowing in the SADU breaker. They are powered by the breaker's CT's with replaceable battery back-up for maintaining trip and max logs.

The SADU reads currents, current imbalance, current demand, and trip status.

Ammeter Mounting Kit

The Ammeter may also be panel or door mounted using the SADURMK18 remote mounting kit.

Shunt Trip Combinations

Control Voltage		1 Shunt Trip	1 Shunt Trip and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
120	—	S01MN6	S01MN64A
208	—	S02MN6▲	S02MN64A▲
240	—	S03MN6	S03MN64A▲
277	—	S15MN6▲	S15MN64A▲
480	—	S04MN6▲	S04MN64A▲
600	—	S06MN6▲	—
—	12	S16MN6▲	S16MN64A▲
—	24	S07MN6	S07MN64A
—	48	S09MN6▲	—
—	125	S11MN6	S11MN64A▲
—	250	S13MN6▲	S13MN64A▲

Undervoltage Trip Combinations

Control Voltage		1 Undervoltage Trip	1 Undervoltage Trip and 1 Auxiliary Switch	1 Undervoltage Trip and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number
120	—	U01MN6	U01MN64A	U01MN64AA
208	—	U02MN6▲	U02MN64A▲	U02MN64AA▲
240	—	U03MN6▲	U03MN64A▲	U03MN64AA▲
277	—	U15MN6▲	U15MN64A▲	U15MN64AA▲
480	—	U04MN6▲	U04MN64A▲	U04MN64AA▲
600	—	U06MN6▲	—	—
—	24	U07MN6	U07MN64A	U07MN64AA
—	48	U09MN6▲	U09MN64A▲	U09MN64AA▲
—	125	U11MN6▲	U11MN64A▲	U11MN64AA▲
—	250	U13MN6▲	U13MN64A▲	U13MN64AA▲

Auxiliary Switch Combinations

Maximum Voltage		1 Form C*	2 Form C
AC	DC	Catalog Number	Catalog Number
480	250	A01MN64	A02MN64
—	12	A01MNDLV▲*	(Gold Plated Contacts)

Alarm Switch Combinations

Maximum Voltage		1 Alarm Switch	1 Alarm Switch and 1 Auxiliary Switch	1 Alarm Switch and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number
480	250	B00MN64	A01MN64B	A02MN64B

Plug-in Ammeter Display Units

Breaker Type	Desc.	Catalog Number
SMD, SND, SPD	Display Unit	SADU
	Remote Mounting Kit	SADURMK18

▲ Built to order. Allow 7-9 weeks for delivery.

ND 1200A Frame Sentron Series

Type NXD6①⑨

Blue Label

Non-Interchangeable Trip (Assembled Circuit Breaker Without Lugs)

Continuous Current Rating @ 40°C	2-Pole 600V AC 250V DC Catalog Number	3-Pole 600V AC 500V DC Catalog Number
900	NXD62B900■	NXD63B900
1000	NXD62B100■	NXD63B100
1200	NXD62B120■	NXD63B120

Type ND6 ⑨

Blue Label

Interchangeable Trip

Continuous Current Rating @ 40°C	Complete Breaker Unassembled with Lugs Catalog Number	Frame Only Catalog Number	Trip Unit Only Catalog Number
2-Pole 600V AC, 250V DC②			
800	ND62B800■	ND62F120	MD62T800■
900	ND62B900■		ND62T900■
1000	ND62B100■		ND62T100■
1200	ND62B120		ND62T120
3-Pole 600V AC, 500V DC⑤			
800	ND63B800	ND63F120	MD63T800
900	ND63B900		ND63T900
1000	ND63B100		ND63T100
1200	ND63B120		ND63T120

Interrupting Ratings

Breaker Type	RMS Symmetrical Amperes (KA)											
	CSA / UL 489 A IR					IEC 947-2						
	Volts AC			Volts DC		Volts AC (50/60HZ)						
	240	480	600	250	500③	220/240		380/415		500	
						(Icu)	(Ics)	(Icu)	(Ics)	(Icu)	(Ics)
ND6, NXD6	65	50	25	30 (2-P)	25 (3-P)	65	33	40	20	30	15
HND6, HNXD6	100	65	50	30 (2-P)	50 (3-P)	100	50	65	33	42	21
CND6	200	100	65	30 (2-P)	50 (3-P)	200	100	100	50	65	33

Instantaneous Adjustment Trip Range

Breaker Ampere Rating	Nominal Instantaneous Values Low	2	3	4	5	6	7	High
800	4000	4570	5140	5710	6280	6850	7420	8000
900-1200	5000	5715	6430	7145	7860	8575	9290	10000

Ordering Information

Complete Breaker Unassembled with Lugs
Prices of ND6 and HND6 breakers include frame, trip, and both line and load lugs (3TA4N8500). These catalog numbers are the frame, trip and lugs separately packaged. For applications requiring different lugs, order individual items as needed.

Complete Breaker Assembled without Lugs
Prices of NXD6, HNXD6, and CND6 include frame with non-interchangeable trip units installed only. Order required terminal connectors separately.
For line and load lugs (3TA4N8500) installed, add suffix "L" to catalog number (add 2 times list price of lug kit).

100% Rated⑧
Types NXD6, HNXD6 and CND6 breakers are available with 100% ratings. To order, suffix "H" to catalog number, and add 10% to list price. 100% rated ND breakers require 90°C Cu cable and lug kit 3TA4P8500 or 3TA3N8750.

50°C Applications see page 6-72.

400Hz Applications see page 6-72.

Lugs⑦

Catalog Number	Cables per Lug	Wire Range
TA2K500	2	#1-500 kcmil Cu/Al
TA3K500	3	#1-500 kcmil Cu/Al
TC2K500	2	#1-500 kcmil Cu
TC3K350	3	#1-350 kcmil Cu
Kits (2 Kits required per breaker)		
2TA4P8500⑤ 3TA4P8500⑤	4	250-500 kcmil Cu/Al
2TA4N8500⑥ 3TA4N8500⑥	4	250-500 kcmil Cu/Al
2TA2N8750 3TA2N8750	2	600-750 kcmil Cu/Al
2TA3N8750 3TA3N8750	3	500-750 kcmil Cu/Al

Enclosures

Type	Catalog Number
1	MND61
3R	MND63
12	MND612■
Neutral	W63623

■ Built to order. Allow 3-4 weeks for delivery.
①NXD6 circuit breakers are UL listed for reverse connection applications.
②2-pole units available in 3-pole width only.
③When wired as shown on page 6-3, this circuit breaker is CSA Certified / UL listed and rated for use on 500VDC ungrounded UPS systems only.
④Use 6 connectors for 3-pole, use 4 connectors for 2-pole.
⑤Use 2 – 3TA4P8500 kits for 3-pole, or 2 – 2TA4P8500 kits for 2-pole. Rated for 90°C cable. Use for 100% rated breakers.
⑥Use 2 – 3TA4N8500 for 3-pole or 2 – 2TA4N8500 for 2-pole. Rated for 75°C cable.
⑦See **Note: A**, page 6-69.
⑧80% rated breakers with the CE mark will also be marked in the 100% rated version.
⑨HACR rated.

Note: ND frame qualified to UL489 supplement B "NAVAL" See page 6-72 for additional information.

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Accessories pages 6/47 and 6/73 to 6/86

ND 1200A Frame Sentron Series

Type HNXD6④

Black Label

Non-Interchangeable Trip (Assembled Circuit Breaker Without Lugs)		
Continuous Current Rating @ 40°C	2-Pole 600V AC 250V DC	3-Pole 600V AC 500V DC
		Catalog Number
900 1000 1200	For 2-pole application use outside poles of 3-pole circuit breaker	HNXD63B900 HNXD63B100 HNXD63B120

Type HND6 ④

Black Label

Interchangeable Trip			
Continuous Current Rating @ 40°C	Complete Breaker Unassembled with Lugs	Frame Only	Trip Unit Only
	Catalog Number	Catalog Number	Catalog Number

2-Pole 600V AC, 250V DC②

800 900 1000 1200	For 2-pole application use outside poles of 3-pole circuit breaker

3-Pole 600V AC, 500V DC⑤

800	HND63B800	HND63F120	MD63T800
900	HND63B900		ND63T900
1000	HND63B100		ND63T100
1200	HND63B120		ND63T120

Type CND6 ④

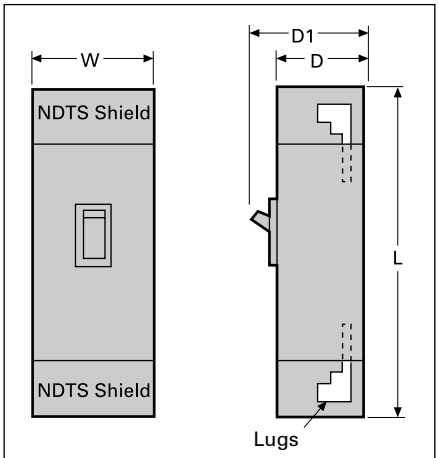
Fuseless Current Limiting

Red Label

Non-Interchangeable Trip (Assembled Circuit Breaker)		
Continuous Current Rating @ 40°C	2-Pole	3-Pole
		Catalog Number
900 1000 1200	For 2-pole application, use outside poles of 3-pole circuit breaker	CND63B900■ CND63B100 CND63B120

Shipping Weights

Number of Poles	Number per Carton	Shipping Weight (lbs.)
ND6, HND6, NXD6, HNXD6, CND6 Assembled Breaker (less terminals)		
2	1	53
3	1	61.5
ND6, HND6 Frame Only		
2	1	42.25
3	1	46
ND6, HND6 Trip Unit Only		
2	1	4.5
3	1	6.5



When lugs shield NDTS is used.

Note: NDTS lug shields are required when oversized lugs (kits on page 88) are used. The kits include the NDTS shield.

Dimensions (in inches)

Breaker Type	W	L	D	D1
ND6, NXD6, HND6, HNXD6, CND6	9	16	6	8.25
with NDTS lug shield	9	29	6	8.25

For inches / millimeters conversion, see Application Data section.

■ Built to order. Allow 3-4 weeks for delivery.

①HNXD6 circuit breakers are CSA Certified / UL Listed for reverse connection applications.

②2-pole units available in 3-pole width only.

③When wired as shown on page 6-3, this circuit breaker is UL listed and rated for use on 500V DC ungrounded UPS systems only.

④HACR rated.

SND 1200A Frame Digital Solid State Sentron Sensitrip III Series

SND 1200A Frame – 100% Rated①

Type SND6

Blue Label

3-Pole, 600V AC	
Catalog Number	**Max Current Rating**
SND69800A■	800
SND69100A■	1000
SND69120A■	1200
SND69800AG■	800
SND69100AG■	1000
SND69120AG■	1200
SND69800ANT■	800
SND69100ANT■	1000
SND69120ANT■	1200
SND69800ANGT■	800
SND69100ANGT■	1000
SND69120ANGT■	1200

Type SHND6

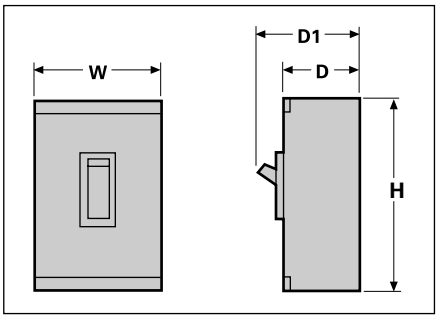
Black Label

3-Pole, 600V AC	
Catalog Number	**Max Current Rating**
SHND69800A■	800
SHND69100A■	1000
SHND69120A■	1200
SHND69800AG■	800
SHND69100AG■	1000
SHND69120AG■	1200
SHND69800ANT■	800
SHND69100ANT■	1000
SHND69120ANT■	1200
SHND69800ANGT■	800
SHND69100ANGT■	1000
SHND69120ANGT■	1200

Current Limiting Type SCND6

Red Label

3-Pole, 600V AC	
Catalog Number	**Max Current Rating**
SCND69800A■	800
SCND69100A■	1000
SCND69120A■	1200
SCND69800AG■	800
SCND69100AG■	1000
SCND69120AG■	1200
SCND69800ANT■	800
SCND69100ANT■	1000
SCND69120ANT■	1200
SCND69800ANGT■	800
SCND69100ANGT■	1000
SCND69120ANGT■	1200



SMD6, SHMD6, SCMD6, SND6, SHND6, SCND6

SND 1200A Frame – 100% Rated①

Type SND6-H

Blue Label

3-Pole, 600V AC	
Catalog Number	**Max Current Rating**
SND69800AH■	800
SND69100AH■	1000
SND69120AH■	1200
SND69800AGH■	800
SND69100AGH■	1000
SND69120AGH■	1200
SND69800ANTH■	800
SND69100ANTH■	1000
SND69120ANTH■	1200
SND69800ANGTH■	800
SND69100ANGTH■	1000
SND69120ANGTH■	1200

Type SHND6H

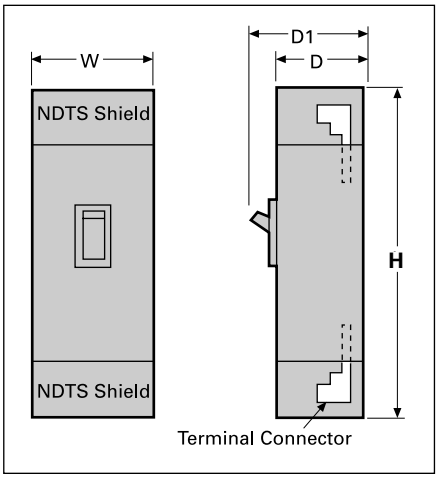
Black Label

3-Pole, 600V AC	
Catalog Number	**Max Current Rating**
SHND69800AH■	800
SHND69100AH■	1000
SHND69120AH■	1200
SHND69800AGH■	800
SHND69100AGH■	1000
SHND69120AGH■	1200
SHND69800ANTH■	800
SHND69100ANTH■	1000
SHND69120ANTH■	1200
SHND69800ANGTH■	800
SHND69100ANGTH■	1000
SHND69120ANGTH■	1200

Current Limiting Type SCND6-H

Red Label

3-Pole, 600V AC	
Catalog Number	**Max Current Rating**
SCND69800AH■	800
SCND69100AH■	1000
SCND69120AH■	1200
SCND69800AGH■	800
SCND69100AGH■	1000
SCND69120AGH■	1200
SCND69800ANTH■	800
SCND69100ANTH■	1000
SCND69120ANTH■	1200
SCND69800ANGTH■	800
SCND69100ANGTH■	1000
SCND69120ANGTH■	1200



When wire connector shield NDTS is used.

Trip Unit Adjustable Functions

Suffix Letter Code	Trip Type	Cont Current Setting	Long Time Delay	Instan-taneous Setting	Short Time Pick Up	Short Time Delay	Short Time I^2t Pick Up	Ground Fault Pick Up	Ground Fault Delay
A	LI	√	√	√	—	—	—	—	—
AG	LIG	√	√	√	—	—	—	√	√
ANT	LSI	√	√	√	√	√	√	—	—
ANGT	LSIG	√	√	√	√	√	√	√	√

Dimensions (in Inches)

Breaker Type	W	H	D	D1
SMD6, SHMD6, SCMD6 SND6, SHND6, SCND6	9	16	6	8.25
With NDTS shields	9	24	6	8.25

For inches / millimeters conversion, see Application Data section.
For ordering information and terminal connectors, neutral transformers and enclosures, see page 6-42.

Note: "G" suffix in catalog number denotes circuit breaker for 3 phase, 3 wire circuits.
For 3 phase, 4 wire, order correct 4th wire (neutral) transformer as separate and additional item.

■ Built to order. Allow 3-4 weeks for delivery.
①→Use 2-3TA4P8500 for 3-pole. These kits are rated for 90°C wire. 90°C Cu only cable must be used, and sized per 75°C conductors.

Internal Accessories

Accessories for:

MD/SMD 800A Frame
ND/SND 1200A Frame
PD/SPD 1600A Frame
RD 2000A Frame

Accessory modules can mount in either left hand or right hand poles of all circuit breakers, including solid state. Exception: when mechanical interlock is used accessories cannot be mounted in left pole.

Sensitrip Ammeter

The Ammeter Display Units plug into the Sensitrip Trip Unit and displays the phrase current flowing in the SADU breaker. They are powered by the breaker's CT's with replaceable battery back-up for maintaining trip and max logs.

The SADU reads currents, current imbalance, current demand, and trip status.

Ammeter Mounting Kit

The Ammeter may also be panel or door mounted using the SADURMK18 remote mounting kit.

Shunt Trip Combinations

Control Voltage		1 Shunt Trip	1 Shunt Trip and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
120	—	S01MN6	S01MN64A
208	—	S02MN6▲	S02MN64A▲
240	—	S03MN6	S03MN64A▲
277	—	S15MN6▲	S15MN64A▲
480	—	S04MN6▲	S04MN64A▲
600	—	S06MN6▲	—
—	12	S16MN6▲	S16MN64A▲
—	24	S07MN6	S07MN64A
—	48	S09MN6▲	—
—	125	S11MN6	S11MN64A▲
—	250	S13MN6▲	S13MN64A▲

Undervoltage Trip Combinations

Control Voltage		1 Undervoltage Trip	1 Undervoltage Trip and 1 Auxiliary Switch	1 Undervoltage Trip and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number
120	—	U01MN6	U01MN64A	U01MN64AA
208	—	U02MN6▲	U02MN64A▲	U02MN64AA▲
240	—	U03MN6▲	U03MN64A▲	U03MN64AA▲
277	—	U15MN6▲	U15MN64A▲	U15MN64AA▲
480	—	U04MN6▲	U04MN64A▲	U04MN64AA▲
600	—	U06MN6▲	—	—
—	24	U07MN6	U07MN64A	U07MN64AA
—	48	U09MN6▲	U09MN64A▲	U09MN64AA▲
—	125	U11MN6▲	U11MN64A▲	U11MN64AA▲
—	250	U13MN6▲	U13MN64A▲	U13MN64AA▲

Auxiliary Switch Combinations

Maximum Voltage		1 Form C*	2 Form C
AC	DC	Catalog Number	Catalog Number
480	250	A01MN64	A02MN64
—	12	A01MNDLV▲*	(Gold Plated Contacts)

Alarm Switch Combinations

Maximum Voltage		1 Alarm Switch	1 Alarm Switch and 1 Auxiliary Switch	1 Alarm Switch and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number
480	250	B00MN64	A01MN64B	A02MN64B

Plug-in Ammeter Display Units

Breaker Type	Desc.	Catalog Number
SMD, SND, SPD	Display Unit	SADU
	Remote Mounting Kit	SADURMK18

▲ Built to order. Allow 7-9 weeks for delivery.

PD 1600A Frame Sentron Series

Type PXD6②Non-Interchangeable Trip ⑤

3-Pole 600V AC, 250-500V DC①

Blue Label

Continuous Current Rating 40°C	Complete Breaker Assembled (Frame/Trip Unit Only)	Mounting Assembly	Lugs (6 required)
	Catalog Number	Catalog Number	Catalog Number
1200 1400 1600	PXD63B120■ PXD63B140■ PXD63B160	MB9301 -or- MBR9302	TA5P600

Type PD6 Interchangeable Trip ⑤

3-Pole 600V AC, 250-500V DC①

Blue Label

Continuous Current 40°C	Complete Breaker Unassembled	Frame Only	Trip Unit Only	Mounting Assembly	Lugs (6 required)
	Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number Rating
1200 1400 1600	PD63B120■ PD63B140 PD63B160	PD63F160	PD63T120■ PD63T140 PD63T160	MB9301 -or- MBR9302	TA5P600

Type HPXD6②Non-Interchangeable Trip ⑤

3-Pole 600V AC, 250-500V DC①

Blue Label

Continuous Current Rating 40°C	Complete BreakerAssembled (Frame/Trip Unit Only)
	Catalog Number
1200 1400 1600	HPXD63B120■ HPXD63B140■ HPXD63B160

Type HPD6 Interchangeable Trip ⑤

3-Pole 600V AC, 250-500V DC①

Black Label

Continuous Current 40°C	Complete Breaker Unassembled	Frame Only	Trip Unit Only	Mounting Assembly	Lugs (6 required)
	Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number Rating
1200 HPD63B140 1600	HPD63B120■ HPD63B160	HPD63F160	PD63T120■ -or- PD63T160	MB9301 TA5P600 MBR9302	1400 PD63T140

Type CPD6 Non-Interchangeable Trip ⑤

Fuseless Current Limiting
3-Pole 600V AC, 250-500V DC①

Red Label

Continuous Current Rating 40°C	Complete BreakerAssembled (Frame/Trip Unit Only)
	Catalog Number
1200 1400 1600	CPD63B120■ CPD63B140■ CPD63B160■

Ordering Instructions

Complete Breaker Unassembled with Lugs

Prices of PD6, HPD6, RD6, and HRD6 type breakers include frame, trip, mounting base (MB9301), and both line and load lugs (PD Frame – TA5P600, RD Frame –TC5R600). When ordered by these catalog numbers, the customer will receive the frame, trip, mounting assembly and lugs separately packaged. For applications requiring different mounting base or lugs, order individual items as needed.

Complete Breaker Assembled without Lugs

Prices of PXD6, HPXD6, RXD6, HRXD6 and CPD6 type breakers include frame with non-interchangeable trip unit installed only. Order required mounting base and lugs separately.

100% Rated

Types PXD6, HPXD6 breakers are available with 100% ratings. To order add suffix "H" to catalog number, and 10% to list price. RD 2000A Frames not available with 100% ratings.

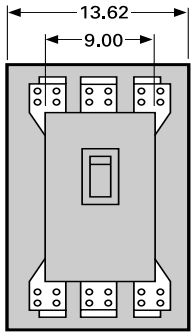
50°C Applications see page 6-72.

400HZ Applications see page 6-72.

Lugs④

Catalog Number	No of Cables per Connector	Wire Range
TA5P600	1-5 Pcs.	300-600 kcmil Cu/Al
TC5R600	1-5 Pcs.	300-600 kcmil Cu only
TC4P750▲	1-4 Pcs.	500-750 kcmil Cu/Al
TA6R600	1-6 Pcs.	300-600 kcmil Cu/Al

Mounting Bases for PD & RD



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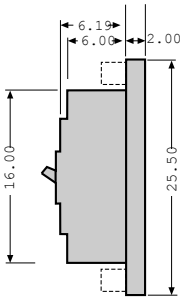
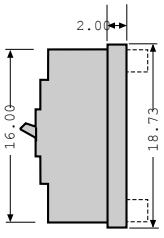


MB9301


MB9301



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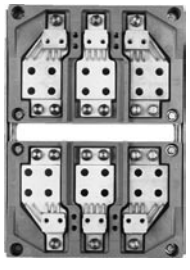

MBR9302

■ Built to order. Allow 3-4 weeks for delivery.
▲ Built to order. Allow 7-9 weeks for delivery.
①Use two outside poles of a 3-pole circuit breaker for 250V
②When wired as shown on page 6-2, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems only.
③PXD6, HPXD6 type circuit breakers are UL Listed for reverse feed applications.
④For additional information See **Note: A**, page 6-69.
⑤HACR rated.
Note: PD frame qualified to UL489 supplement B "NAVAL". See page 6-72 for additional information.

SPD 1600A Frame Digital Solid State Sentron Sensitrip III Series

Ordering Information

Pricing information for all Digital Sentron Series PD frame unit is for breaker only. Price required mounting block assembly and necessary terminal connectors as separate items.

SPD6 and SHPD6 are acceptable for reverse connection applications.

Type SPD6

Blue Label

3-Pole, 600V AC	
Catalog Number	**Max Current Rating**
SPD69140■	1400
SPD69160■	1600
SPD69140G■	1400
SPD69160G■	1600
SPD69140NT■	1400
SPD69160NT■	1600
SPD69140NGT■	1400
SPD69160NGT■	1600

Type SHPD6

Black Label

3-Pole, 600V AC	
Catalog Number	**Max Current Rating**
SHPD69140■	1400
SHPD69160■	1600
SHPD69140G■	1400
SHPD69160G■	1600
SHPD69140NT■	1400
SHPD69160NT■	1600
SHPD69140NGT■	1400
SHPD69160NGT■	1600

Suffix Letter Code	Trip Type	Cont Current Setting	Long Time Delay	Instan-taneous Setting	Short Time Pick Up	Short Time Delay	Short Time I^2t Pick Up	Ground Fault Pick Up	Ground Fault Delay
None	LI	√	√	√	—	—	—	—	—
G	LIG	√	√	√	—	—	—	√	√
NT	LSI	√	√	√	√	√	√	—	—
NGT	LSIG	√	√	√	√	√	√	√	√

Interrupting Ratings

Breaker Type	RMS Symmetrical kA CSA / UL 489		
	240V AC	480V AC	600V AC
SPD6	65	50	25
SHPD6	100	65	50

Lugs①

Catalog Number	No. of Cables per Connector	Wire Range
TA5P600	1–5 pcs.	300–600 kcmil Cu/Al
TC5R600	1–5 pcs.	300–600 kcmil Cu Only
TA6R600	1–5 pcs.	300–600 kcmil Cu/Al

Neutral Transformers

Ampere Rating	Catalog Number
1400	**N14SPD**
1600	**N16SPD**

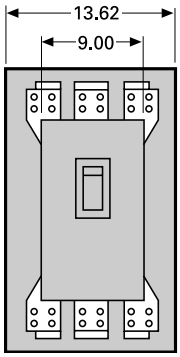
Enclosure

Type	Catalog Number
1	**PRD6N1**

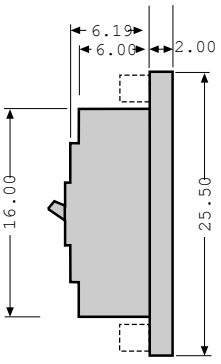
Mounting Block (Required)

Catalog Number
MB9301
MBR9302

All PD, RD Frames:



MB9301 (shown)
MBR9302



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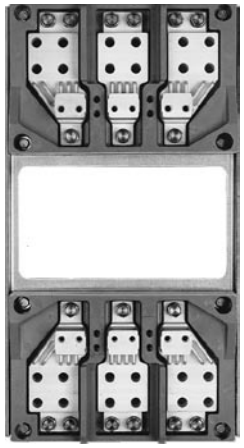

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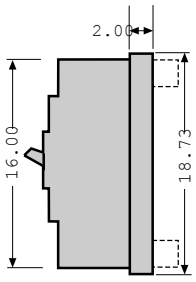

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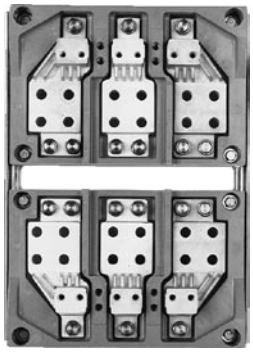


MBR9302

For inches / millimeters conversion, see Application Data section.

■ Built to order. Allow 3-4 weeks for delivery.

①For additional information, see **Note: A,** page 6-69.

Note: The PD frame circuit breaker requires the use of a connect-all mounting assembly to allow for placing into service.

Note: "G" suffix in catalog number denotes circuit breaker for 3 phase, 3 wire circuits.
For 3 phase, 4 wire, order correct 4th wire (neutral) transformer as separate and additional item.

Internal Accessories

Accessories for:

MD/SMD 800A Frame
ND/SND 1200A Frame
PD/SPD 1600A Frame
RD 2000A Frame

Accessory modules can mount in either left hand or right hand poles of all circuit breakers, including solid state. Exception: when mechanical interlock is used accessories cannot be mounted in left pole.

Sensitrip Ammeter

The Ammeter Display Units plug into the Sensitrip Trip Unit and displays the phrase current flowing in the SADU breaker. They are powered by the breaker's CT's with replaceable battery back-up for maintaining trip and max logs.

The SADU reads currents, current imbalance, current demand, and trip status.

Ammeter Mounting Kit

The Ammeter may also be panel or door mounted using the SADURMK18 remote mounting kit.

Shunt Trip Combinations

Control Voltage		1 Shunt Trip	1 Shunt Trip and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
120	—	S01MN6	S01MN64A
208	—	S02MN6▲	S02MN64A▲
240	—	S03MN6	S03MN64A▲
277	—	S15MN6▲	S15MN64A▲
480	—	S04MN6▲	S04MN64A▲
600	—	S06MN6▲	—
—	12	S16MN6▲	S16MN64A▲
—	24	S07MN6	S07MN64A
—	48	S09MN6▲	—
—	125	S11MN6	S11MN64A▲
—	250	S13MN6▲	S13MN64A▲

Undervoltage Trip Combinations

Control Voltage		1 Undervoltage Trip	1 Undervoltage Trip and 1 Auxiliary Switch	1 Undervoltage Trip and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number
120	—	U01MN6	U01MN64A	U01MN64AA
208	—	U02MN6▲	U02MN64A▲	U02MN64AA▲
240	—	U03MN6▲	U03MN64A▲	U03MN64AA▲
277	—	U15MN6▲	U15MN64A▲	U15MN64AA▲
480	—	U04MN6▲	U04MN64A▲	U04MN64AA▲
600	—	U06MN6▲	—	—
—	24	U07MN6	U07MN64A	U07MN64AA
—	48	U09MN6▲	U09MN64A▲	U09MN64AA▲
—	125	U11MN6▲	U11MN64A▲	U11MN64AA▲
—	250	U13MN6▲	U13MN64A▲	U13MN64AA▲

Auxiliary Switch Combinations

Maximum Voltage		1 Form C*	2 Form C
AC	DC	Catalog Number	Catalog Number
480	250	A01MN64	A02MN64
—	12	A01MNDLV▲*	(Gold Plated Contacts)

Alarm Switch Combinations

Maximum Voltage		1 Alarm Switch	1 Alarm Switch and 1 Auxiliary Switch	1 Alarm Switch and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number
480	250	B00MN64	A01MN64B	A02MN64B

Plug-in Ammeter Display Units

Breaker Type	Desc.	Catalog Number
SMD, SND, SPD	Display Unit	SADU
	Remote Mounting Kit	SADURMK18

▲ Built to order. Allow 7-9 weeks for delivery.

RD 2000A Frame Sentron Series

Type RXD6④

Blue Label

Non-Interchangeable Trip (Assembled Circuit Breaker Only Without Lugs)

3-Pole 600V AC, 250-500V DC①

Continuous Current Rating 40°C	Complete Breaker Assembled (Frame/Trip Unit Only) Catalog Number	Mounting Assembly Catalog Number	Lugs (6 required) Catalog Number
1600 1800 2000	RXD63B160 RXD63B180 RXD63B200	MB9301 -or- MBR9302	TC5R600

Type RD6④

Blue Label

Interchangeable Trip (Unassembled Circuit Breaker with Lugs)

3-Pole 600V AC, 250-500V DC①

Continuous Current Rating 40°C	Complete Breaker Unassembled with Lugs Catalog Number	Frame Only Catalog Number	Trip Unit Only Catalog Number	Mounting Assembly Catalog Number	Lugs (6 required) Catalog Number
1600 1800 2000	RD63B160■ RD63B180 RD63B200	RD63F200	RD63T160■ RD63T180 RD63T200	MB9301 -or- MBR9302	TC5R600

Type HRXD6④

Black Label

Continuous Current Rating 40°C	Complete Breaker Assembled (Frame/Trip Unit Only) Catalog Number
1600 1800 2000	HRXD63B160■ HRXD63B180■ HRXD63B200

Type HRD6④

Black Label

Continuous Current Rating 40°C	Complete Breaker Unassembled with Lugs Catalog Number	Frame Only Catalog Number	Trip Unit Only Catalog Number	Mounting Assembly Catalog Number	Lugs (6 required) Catalog Number
1600 1800 2000	HRD63B160■ HRD63B180 HRD63B200	HRD63F200	RD63T160■ RD63T180 RD63T200	MB9301 -or- MBR9302	TC5R600

Interrupting Ratings

Breaker Type	CSA / UL 489 A IR RMS Symmetrical KA Volts AC 240	480	600	Volts DC① 250	500	IEC 947-2 Volts AC (50/60HZ) 220/240 (Icu)	(Ics)	380/415 (Icu)	(Ics)	500 (Icu)	(Ics)
PD6, PXD6, RD6, RXD6	65	50	25	30 (2P)	25 (3P)	65	33	40	10	30	8
HPD6, HPXD6 HRD6, HRXD6	100	65	50	30 (2P)	50 (3P)	100	50	65	17	42	11
CPD6	200	100	65	30 (2P)	50 (3P)	200	100	100	25	65	17

Instantaneous Adjustment Trip Range (PD / RD Frames)

Breaker Ampere Rating	Nominal Instantaneous Values ±25% Tolerance Low	2	3	4	5	6	7	±20% Tolerance High
1200-2000	5000	5715	6430	7145	7860	8575	9790	10,000

■ Built to order. Allow 3-4 weeks for delivery.
①Use two outside poles of a 3-pole circuit breaker for 250V DC applications.
②When wired as shown on page 6-3, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems only.
③RXD6 and HRXD6 type circuit breakers are CSA Certified / UL Listed for reverse feed applications.
④HACR rated.
Note: RD frame qualified to UL489 supplement B "NAVAL" See page 6-72-+ for additional information.

Mounting Block

Catalog Number	Connection Points
MB9301 MBR9302	Front Rear

Shipping Weights

Number of Poles	Number per Carton	Shipping Weight (lbs.)
PXD6, HPXD6, RXD6, HRXD6, CPD6 Assembled Breakers		
3	1	61.5
PD6, HPD6, RD6, HRD6 Frame Only		
3	1	55.0
PD6, RD6 Trip Unit Only		
3	1	6.5
Mounting Assembly		
MB9301	1	53.0
MBR9302	1	50.9

Internal Accessories

Accessories for:

MD/SMD 800A Frame
ND/SND 1200A Frame
PD/SPD 1600A Frame
RD 2000A Frame

Accessory modules can mount in either left hand or right hand poles of all circuit breakers, including solid state. Exception: when mechanical interlock is used accessories cannot be mounted in left pole.

Sensitrip Ammeter

The Ammeter Display Units plug into the Sensitrip Trip Unit and displays the phrase current flowing in the SADU breaker. They are powered by the breaker's CT's with replaceable battery back-up for maintaining trip and max logs.

The SADU reads currents, current imbalance, current demand, and trip status.

Ammeter Mounting Kit

The Ammeter may also be panel or door mounted using the SADURMK18 remote mounting kit.

Shunt Trip Combinations

Control Voltage		1 Shunt Trip	1 Shunt Trip and 1 Auxiliary Switch
AC	DC	Catalog Number	Catalog Number
120	—	S01MN6	S01MN64A
208	—	S02MN6▲	S02MN64A▲
240	—	S03MN6	S03MN64A▲
277	—	S15MN6▲	S15MN64A▲
480	—	S04MN6▲	S04MN64A▲
600	—	S06MN6▲	—
—	12	S16MN6▲	S16MN64A▲
—	24	S07MN6	S07MN64A
—	48	S09MN6▲	—
—	125	S11MN6	S11MN64A▲
—	250	S13MN6▲	S13MN64A▲

Undervoltage Trip Combinations

Control Voltage		1 Undervoltage Trip	1 Undervoltage Trip and 1 Auxiliary Switch	1 Undervoltage Trip and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number
120	—	U01MN6	U01MN64A	U01MN64AA
208	—	U02MN6▲	U02MN64A▲	U02MN64AA▲
240	—	U03MN6▲	U03MN64A▲	U03MN64AA▲
277	—	U15MN6▲	U15MN64A▲	U15MN64AA▲
480	—	U04MN6▲	U04MN64A▲	U04MN64AA▲
600	—	U06MN6▲	—	—
—	24	U07MN6	U07MN64A	U07MN64AA
—	48	U09MN6▲	U09MN64A▲	U09MN64AA▲
—	125	U11MN6▲	U11MN64A▲	U11MN64AA▲
—	250	U13MN6▲	U13MN64A▲	U13MN64AA▲

Auxiliary Switch Combinations

Maximum Voltage		1 Form C*	2 Form C
AC	DC	Catalog Number	Catalog Number
480	250	A01MN64	A02MN64
—	12	A01MNDLV▲*	(Gold Plated Contacts)

Alarm Switch Combinations

Maximum Voltage		1 Alarm Switch	1 Alarm Switch and 1 Auxiliary Switch	1 Alarm Switch and 2 Auxiliary Switches
AC	DC	Catalog Number	Catalog Number	Catalog Number
480	250	B00MN64	A01MN64B	A02MN64B

Plug-in Ammeter Display Units

Breaker Type	Desc.	Catalog Number
SMD, SND, SPD	Display Unit	SADU
	Remote Mounting Kit	SADURMK18

▲ Built to order. Allow 7-9 weeks for delivery.

STD 3200A Frame Digital Solid State Sentron Sensitrip III Series

Type STD6

Blue Label

3-Pole, 600V AC, 80% Rated	
Catalog Number	Max Current Rating
STD63F2000■	2000
STD63F2500■	2500
STD63F3200■	3200

3-Pole, 600V AC, 100% Rated	
Catalog Number	Max Current Rating
STD63F2000H■	2000
STD63F2500H■	2500
STD63F3200H■	3200

Type SHTD6

Black Label

3-Pole, 600V AC, 80% Rated	
Catalog Number	Max Current Rating
SHTD63F2000■	2000
SHTD63F2500■	2500
SHTD63F3200■	3200

3-Pole, 600V AC, 100% Rated	
Catalog Number	Max Current Rating
SHTD63F2000H■	2000
SHTD63F2500H■	2500
SHTD63F3200H■	3200

Type SHHTD6

Red Label

3-Pole, 600V AC, 80% Rated	
Catalog Number	Max Current Rating
SHHTD63F2000■	2000
SHHTD63F2500■	2500
SHHTD63F3200■	3200

3-Pole, 600V AC, 100% Rated	
Catalog Number	Max Current Rating
SHHTD63F2000H■	2000
SHHTD63F2500H■	2500
SHHTD63F3200H■	3200

Trip Unit

Function	Fits Breaker Frame with Continuous Rating		
	2000 Amp	2500 Amp	3200 Amp
	Catalog Numbers		
MLI	STD20TMLI	STD25TMLI	STD32TMLI
LS	STD20TLS	STD25TLS	STD32TLS
LI	STD20TLI	STD25TLI	STD32TLI
LSI	STD20TLSI	STD25TLSI	STD32TLSI
LSG	STD20TLSG	STD25TLSG	STD32TLSG
LIG	STD20TLIG	STD25TLIG	STD32TLIG
LSIG	STD20TLSIG	STD25TLSIG	STD32TLSIG

Rating Plug

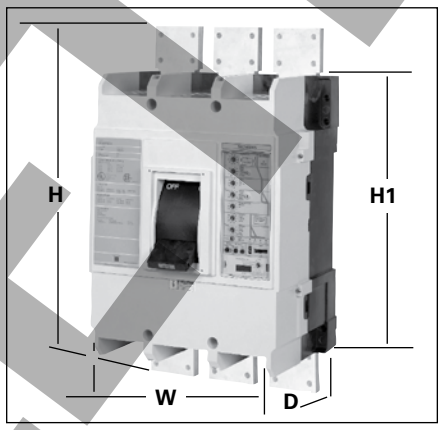
Long Time Amperes	Fits Breaker Frame with Continuous Rating		
	2000 Amp	2500 Amp	3200 Amp
	Catalog Numbers		
1000	20STD1000	—	—
1200	20STD1200	—	—
1600	20STD1600	25STD1600	32STD1600
2000	20STD2000	25STD2000	32STD2000
2500	—	25STD2500	32STD2500
3000	—	—	32STD3000
3200	—	—	32STD3200

Interrupting Ratings

Breaker Type	RMS Symmetrical kA UL 489 (File E 10848)			IEC 947-2 (I_{cu}=I_{cs}, I_{cw}=50kA)	
	240V AC	480V AC	600V AC	415VAC	690VAC
STD6	85	65	50	—	—
SHTD6	150	100	85	100kA	65kA
SHHTD6	200	150	100	—	—

Ordering Information

STD Breakers are ordered by component - Frame, Trip Unit Rating Plug & Accessories. Contact Sales Office for instructions.



Dimensions (in Inches)

Breaker Type	H	H1	W	D
STD SHTD SHHTD	27.5	20.5	15.5	12.5

Terminal Connectors

Catalog Number
STD32TCON

Cable Lugs

(2000A Only)

Catalog Number	No of Cables per Connector	Wire Range
TA6R600STD	(1–6 pcs.)	250-600 kcmil Cu/Al

T. Connector

(For Bus Connector)

Catalog Number
STD32TCON

Neutral Transformers

Ampere Rating	Catalog Number
2000	N20STD
2500	N25STD
3200	N32STD

Accessories pages 6/54 and 6/75 to 6/80

■ Built to order. Allow 3-4 weeks for delivery.

①Dimensions for reference, not for construction.

②Dimensions for reference, not for construction.

③Dimensions for reference, not for construction.

Internal Accessories

Accessories for:

STD 3200A Frame
STD Breakers are built to order. It is recommended that accessories be ordered installed in the breaker. They may also be field added.

Ammeter Dispay Module

The STDDM plugs into the trip unit of the STD 3200 Amp breaker. It provides readout of currents as well as load current alarm (in conjunction with the display module relay).

Ground Fault Monitor

The Ground Fault Monitor for the STD 3200 Amp breaker family plugs into the Trip Unit and reads the ground current. This is either the residual current calculated from the measured three phases and neutral (if present) or the directly measured ground return current in the ground lead of the supply transformer, depending on the configuration of the the trip unit. In addition to displaying the ground current, the display module provides an alarm on ground overcurrent, settable at three pickup levels with three delays (in conjunction with the display module relay).

Shunt Trip / Undervoltage Release

Control Voltage		Shunt Trip	Under Voltage Release
AC	DC	Catalog Number	Catalog Number
120	—	**STDST120▲**	**STDUV120▲**
240	—	**STDST240▲**	**STDUV240▲**
480	—	**STDST480▲**	**STDUV480▲**
600	—	**STDST600▲**	**STDUV600▲**
—	12	**STDST12▲**	**STDUV12▲**
—	24	**STDST24▲**	**STDUV24▲**
—	48	**STDST48▲**	**STDUV48▲**
—	125	**STDST125▲**	**STDUV125▲**

Auxiliary Switches

Control Voltage		Quantity Contacts		
AC	DC	NO	NC	Catalog Number
600	300	1	1	**STDAS2▲**
		2	2	**STDAS4▲**
		3	3	**STDAS6▲**
		4	4	**STDAS8▲**
		5	5	**STDAS10▲**
		6	6	**STDAS12▲**

Alarm Switch

Control Voltage		Catalog Number
AC	DC	
600	300	**STDAS▲**

Auxiliary Power Module

Power Source	Catalog Number
120V AC	**STDAPM▲**

Electronic Bell Alarm / Display Relay

Control Voltage		Bell Alarm	Display Module Relay
AC	DC	Catalog Number	Catalog Number
120	—	**STDBA120▲**	**STDDMR120▲**
—	24	**STDBA24▲**	**STDDMR24▲**
—	48	**STDBA48▲**	**STDDMR48▲**
—	60	**STDBA125▲**	**STDDMR125▲**

Ammeter-Display Module

Catalog Number
STDDM▲

Ground Fault Monitor

Catalog Number
STDGFM▲

Display Module Relay

Provides switch contact output for overload or ground fault alarm.

Voltage	Cat No
120V AC	**STDDMR120▲**
24V DC	**STDDMR24▲**
48V DC	**STDDMR48▲**
125V DC	**STDDMR125▲**

Remote Indicator Panels①

Provides remote cause of trip indication.

Catalog Number
STDRIP120▲

Mounting Bracket for Terminal Block

For mounting Control Terminal Blocks to breakers. One per each side as required.

Catalog Number
STDTBM▲

Secondary Terminal Blocks

The appropriate number and location of terminal blocks should be selected from the table below based on the features and accessories ordered on each circuit breaker. Control Terminal Blocks also require separate mounting brackets for the left and right sides.

Contact Block Position	Catalog Number	Accessory							
		Shunt Trip	Under-voltage Release	Neutral Sensor	Remote① Indication Panel	Zone Interlock and ACCESS	Bell Alarm① or Display Module Relay	Auxiliary Switches 1A and 1B 2A and 2B 3A and 3B	Auxiliary Switches 4A and 4B 5A and 5B 6A and 6B
LEFT TOP	**STDTBLT▲**	✔	✔	✔	—	—	—	—	—
LEFT BOTTOM	**STDTBLB▲**	—	—	—	✔	✔	—	—	—
RIGHT TOP	**STDTBRT▲**	—	—	—	—	—	✔	—	✔
RIGHT BOTTOM	**STDTBRB▲**	—	—	—	—	—	—	✔	✔

▲ Built to order. Allow 7-9 weeks for delivery.
① The STD trip unit has built in trip status indication. Use the STDRIP120 when display of the cause of trip is required at location remote from the trip unit in addition to the intrinsic trip unit capability.

Magnetic Trip Only — ETI Motor Circuit

Breaker Type	Ampere Rating	Instantaneous Trip Range② Minimum③	Instantaneous Trip Range② Maximum③	Complete Circuit Breaker Without Lugs Catalog Number 2-Pole	Complete Circuit Breaker Without Lugs Catalog Number 3-Pole
ED6-A 600V AC 250V DC	1	2.6	9	—	**ED63A001**
	2	7	22	—	**ED63A002**
	3	10	35	—	**ED63A003**
	5	16	54	—	**ED63A005**
	10	30	100	—	**ED63A010**
	25	55	180	—	**ED63A025**
	30	80	270	—	**ED63A030**
	40	115	375	—	**ED63A040**
	50	180	600	—	**ED63A050**
	100	315	1000	—	**ED63A100**
	125	500	1250	—	**ED63A125**
	SHIPPING:				3.8 lbs. each
CED6-A 600V AC 250V DC	1	2.6	9	—	**CED63A001■**
	2	7	22	—	**CED63A002■**
	3	10	35	—	**CED63A003■**
	5	16	54	—	**CED63A005■**
	10	30	100	—	**CED63A010■**
	25	55	180	—	**CED63A025■**
	30	80	270	—	**CED63A030■**
	40	115	375	—	**CED63A040■**
	50	180	600	—	**CED63A050■**
	100	315	1000	—	**CED63A100■**
	125	500	1250	—	**CED63A125■**
	SHIPPING:				6 lbs. each
FXD6④ 600V AC 250V DC	150	400	800	—	**FXD63L150■**
	150	800	1500	—	**FXD63A150**
	150	1100	2500	—	**FXD63H150**
	250	1100	2500	—	**FXD63A250**
	SHIPPING:				9 lbs. each
CFD6④ 600V AC 250V DC	150	400	800	—	**CFD63L150■**
	150	800	1500	—	**CFD63A150■**
	150	1100	2500	—	**CFD63H150■**
	250	1100	2500	—	**CFD63A250■**
	SHIPPING:			12 lbs. each	12 lbs. each
JXD6(A)① 600V AC 250V DC	400	1250	2500	—	**JXD63L400**
	400	2000	4000	**JXD62H400■**	**JXD63H400**
	SHIPPING:			16 lbs. each	20 lbs. each
CJD6① 600V AC 250V DC	400	1250	2500	**CJD62L400■**	**CJD63L400■**
	400	2000	4000	**CJD62H400■**	**CJD63H400■**
	SHIPPING:			29.5 lbs. each	31.5 lbs. each
LXD6(A)① 600V AC 250V DC	600	2000	4000	**LXD62L600■**	**LXD63L600■**
	600	3000	6000	—	**LXD63H600**
	SHIPPING:			16 lbs. each	20 lbs. each
CLD6① 600V AC 250V DC	600	2000	4000	**CLD62L600■**	**CLD63L600■**
	600	3000	6000	**CLD62H600■**	**CLD63H600■**
	SHIPPING:				31.5 lbs. each
LMXD6④ 600V AC 250V DC	800	2800	6000	—	**LMXD63L800■**
	800	3200	8000	—	**LMXD63A800**
	SHIPPING:				35 lbs. each
MXD6④ 600V AC 250V DC	800	3000	6000	—	**MXD63L800■**
	800	4000	8000	—	**MXD63A800■**
	800	5000	10000	—	**MXD63H800**
	SHIPPING:				33 lbs. each
CMD6④ 600V AC 250V DC	800	3000	6000	—	**CMD63L800■**
	800	4000	8000	—	**CMD63A800■**
	800	5000	10000	—	**CMD63H800■**
	SHIPPING:				80 lbs. each

Important Information

ETI interrupting ratings are determined through combination tests with properly sized overload relays and contactors.

Connectors included when ordering by circuit breaker catalog number for ED6 and CED6 ETI's. Order ETI circuit breaker and lugs (2 per pole) separately for the FXD6, CFD6, MXD6, CMD6, JXD6, CJD6, LXD6 and CLD6 ETI's.

Lug Information pages 6/69 to 6/71
Accessories pages 6/73 to 6/86
Application data pages 6/55 to 6/59

■ Built to order. Allow 2–3 weeks for delivery.
①-2-pole available in 3-pole width only.
②-When applied on DC Circuits — Trip levels will increase approximately +15 to 20%.
③-Tolerance -20/+30%
④-For 2-pole application use outside poles of 3-pole circuit breaker.

Motor Circuits

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 (Siemens ETI instantaneous only circuit breakers) 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 currents. The suggested trip settings may have 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 B & E energy efficient motors, to allow for motor start-up due to inrush currents.

Breaker Mounted Immediately Ahead of Motor Starter

Siemens ETI 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 ETI motor circuit protector provides for a trip setting slightly above the peak motor-inrush 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 protective 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 ETI motor circuit protectors for branch circuit use with alternating-current combination, full voltage motor starters).

Motor Full Load Amperes	Catalog Number	ETI Trip Setting	
		Adjustment	Amperes
.20 – .33	ED63A001 CED63A001	Low	2.6
.34 – .45		2	4.5
.46 – .56		3	6
.57 – .68		4	7.5
.69 – .81		High	9
.53 – .83	ED63A002 CED63A002	Low	7
.84 – 1.14		2	11
1.15 – 1.45		3	15
1.46 – 1.68		4	19
1.69 – 2.00		High	22
.76 – 1.29	ED63A003 CED63A003	Low	10
1.30 – 1.75		2	17
1.76 – 2.29		3	23
2.30 – 2.68		4	30
2.69 – 3.18		High	35
1.23 – 1.99	ED63A005 CED63A005	Low	16
2.00 – 2.75		2	26
2.76 – 3.52		3	36
3.53 – 4.14		4	46
4.15 – 4.90		High	54
2.30 – 3.83	ED63A010 CED63A010	Low	30
3.84 – 5.37		2	50
5.38 – 6.52		3	70
6.53 – 7.68		4	85
7.69 – 9.10		High	100
4.23 – 6.91	ED63A025 CED63A025	Low	55
6.92 – 9.61		2	90
9.62 – 11.91		3	125
11.92 – 13.83		4	155
13.84 – 16.40		High	180
6.15 – 10.37	ED63A030 CED63A030	Low	80
10.38 – 14.22		2	135
14.23 – 18.06		3	185
18.07 – 20.75		4	235
20.76 – 24.50		High	270
8.84 – 14.22	ED63A040 CED63A040	Low	115
14.23 – 19.60		2	185
19.61 – 24.99		3	255
25.00 – 28.83		4	325
28.84 – 34.00		High	375
13.84 – 23.06	ED63A050 CED63A050	Low	180
23.07 – 31.52		2	300
31.53 – 39.99		3	410
40.00 – 46.14		4	520
46.15 – 54.50		High	600
24.23 – 41.52	ED63A100 CED63A100	Low	315
41.53 – 56.91		2	540
56.92 – 68.45		3	740
68.46 – 76.91		4	890
76.92 – 90.90		High	1000

Motor Full Load Amperes	Catalog Number	ETI Trip Setting	
		Adjustment	Amperes
38.46 – 55.37	ED63A125 CED63A125	Low	500
55.38 – 70.75		2	720
70.76 – 84.60		3	920
84.61 – 96.14		4	1100
96.15 – 113.60		High	1250
30.76 – 35.37	FXD63L150 CFD63L150	Low	400
35.38 – 39.99		2	460
44.51 – 49.23		4	580
53.84 – 58.45		6	700
58.46 – 63.06		7	760
63.07 – 74.50		High	820
61.53 – 69.22	FXD63A150 CFD63A150	Low	800
69.23 – 76.91		2	900
84.61 – 92.29		4	1100
100.00 – 108.00		6	1300
108.00 – 115.00		7	1400
115.00 – 136.00		High	1500
85.00 – 100.00	FXD63A250 CFD63A250	Low	1100
100.00 – 115.00		2	1300
131.00 – 146.00		4	1700
162.00 – 177.00		6	2100
177.00 – 192.00		7	2300
192.00 – 227.00		High	2500
95.00 – 110.00	JXD63L400 CJD63L400	Low	1250
110.00 – 124.00		2	1430
138.00 – 151.00		4	1790
165.00 – 178.00		6	2140
178.00 – 192.00		7	2320
192.00 – 227.00		High	2500
154.00 – 176.00	JXD63H400 CJD63H400	Low	2000
176.00 – 198.00		2	2290
220.00 – 242.00		4	2860
264.00 – 285.00		6	3430
285.00 – 308.00		7	3710
308.00 – 326.00		High	4000
155.00 – 176.00	LXD63L600 CLD63L600	Low	2000
176.00 – 198.00		2	2290
220.00 – 242.00		4	2860
264.00 – 285.00		6	3430
285.00 – 308.00		7	3710
308.00 – 326.00		High	4000

Motor Full Load Amperes	Catalog Number	ETI Trip Setting	
		Adjustment	Amperes
231.00 – 264.00	LXD63H600 CLD63H600	Low	3000
264.00 – 292.00		2	3430
330.00 – 362.00		4	4290
395.00 – 428.00		6	5140
428.99 – 462.00		7	5570
462.00 – 490.00		High	6000
215.00 – 238.00	LMXD63L800	Low	2800
238.00 – 261.00		2	3100
261.00 – 284.00		3	3400
308.00 – 369.00		5	4000
369.00 – 423.00		6	4800
423.00 – 462.00		7	5500
462.00 – 490.00		High	6000
246.00 – 269.00	LMXD63A800	Low	3200
269.00 – 284.00		2	3500
284.00 – 323.00		3	3700
362.00 – 492.00		5	4700
492.00 – 562.00		6	6400
562.00 – 616.00		7	7300
616.00 – 660.00		High	8000
231.00 – 264.00	MXD63L800 CMD63L800	Low	3000
264.00 – 292.00		2	3430
292.00 – 330.00		3	3800
362.00 – 395.00		5	4710
428.00 – 462.00		7	5570
462.00 – 490.00		High	6000
308.00 – 352.00	MXD63A800 CMD63A800	Low	4000
352.00 – 442.00		2	4570
442.00 – 447.00		3	5740
483.00 – 527.00		5	6280
571.00 – 616.00		7	7240
616.00 – 660.00		High	8000
385.00 – 440.00	MXD63H800 CMD63H800	Low	5000
495.00 – 550.00		3	6430
605.00 – 660.00		5	7860
660.00 – 695.00		6	8575

Motor Circuits

Breaker Mounted at a Distance From Motor Starter

ET thermal-magnetic circuit breakers conform to the National Electrical Code (2002) table 430-52 requirements for motor branch and feeder circuit protection when properly applied in conjunction with motor-running overcurrent protective devices. The recommended circuit-breaker ratings in Table 2 provide adequate time delay for starting the majority of three-phase induction motors.

To determine the ampere ratings of the ET breaker to protect a motor feeder, add the rating of the ET breaker used to protect the largest motor branch circuit in the group to the full-load currents of the remaining motors in the group.

Interrupt Ratings

For normal commercial purposes, available fault current can conveniently be obtained in the Interrupting Selector Tables.

Table 2 (When Breaker is Mounted at a Distance From Motor Starter)

3 Phase Induction Type Motors (EQ and ET circuit breakers (thermal-magnetic trip) for branch breaker use with alternating-current combination motor starters).

Motor Horse-power Rating	200 and 208V Motors			230V Motors			460V Motors			575V Motors		
	240V Circuit Breaker Data①			240V Circuit Breaker Data①			480V Circuit Breaker Data①			600V Circuit Breaker Data①		
	Breaker Type	Catalog Number	Ampere Rating	Breaker Type	Catalog Number	Ampere Rating	Breaker Type	Catalog Number	Ampere Rating	Breaker Type	Catalog Number	Ampere Rating
½	BQ②	**BQ3B015**	15	BQ②	**BQ3B015**	15	ED4	**ED43B015**	15	ED6	**ED63B015**	15
¾		**BQ3B015**	15		**BQ3B015**	15		**ED43B015**	15		**ED63B015**	15
1		**BQ3B015**	15		**BQ3B015**	15		**ED43B015**	15		**ED63B015**	15
1½		**BQ3B015**	15		**BQ3B015**	15		**ED43B015**	15		**ED63B015**	15
2		**BQ3B020**	20		**BQ3B015**	15		**ED43B015**	15		**ED63B015**	15
3		**BQ3B030**	30		**BQ3B020**	20		**ED43B015**	15		**ED63B015**	15
5	BQ②	**BQ3B040**	40	BQ②	**BQ3B030**	30	ED4	**ED43B015**	15	ED6	**ED63B015**	15
7½		**BQ3B060**	60		**BQ3B050**	50		**ED43B030**	30		**ED63B020**	20
10		**BQ3B070**	70		**BQ3B070**	70		**ED43B030**	30		**ED63B030**	30
15		**BQ3B100**	100		**BQ3B090**	90		**ED43B040**	40		**ED63B035**	35
20		—	—		**BQ3B100**	100		**ED43B050**	50		**ED63B050**	50
25	FXD6	**FXD63B125**	125	FXD6	**FXD63B125**	125	FXD6	**FXD63B090**	90	FXD6	**FXD63B060**	60
30		**FXD63B150**	150		**FXD63B150**	150		**FXD63B100**	100		**FXD63B070**	70
40		**FXD63B175**	175		**FXD63B175**	175		**FXD63B125**	125		**FXD63B090**	90
50		**FXD63B200**	200		**FXD63B200**	200		**FXD63B150**	150		**FDX63B100**	100
		FXD63B225	225									
60	JXD2	**JXD23B300**	300	—	—	—	FXD6, FD6	**FXD63B150**	150	FXD6	**FXD63B100**	100
75	JXD2	**JXD23B400**	400	JXD2	**JXD23B350**	350	FXD6, FD6	**FXD63B200**	200	FXD6, FD6	**FXD63B125**	125
100	JXD2	**JXD23B400**	400	JXD2	**JXD23B400**	400	FD6③	**FD63B250**	250	FXD6, FD6	**FD63B175**	175
							JD6③	**FD63B250**	250			
125	LD6③or LMD6	**LD63B600** **LMD63B600**	600	LD6③or LMD6	**LD63B500** or **LMD63B500**	500	JD6③	**JD63B300**	300	FXD6, FD6 OR JD6③	**FXD63B200** **JD63B200**	200 200
150	LD6③or LMD6	**LD63B600** or **LMD63B600**	600	LMD6	**LD63B600** or **LMD63B600**	600	JD6③	**JD63B300**	300	FXD6 or JD6③	**FXD63B225** **JD63B225**	225 225
200	LMD6	**LMD63B800**	800	LMD6	**LMD63B800**	800	JD6③	**JD63B350**	350	JD6③	**JD63B300**	300
250	—	—	—	—	—	—	JD6③	**JD63B400**	400	JD6③	**JD63B400**	400
300	—	—	—	—	—	—	LD6③or LMD6	**LD63B600** or **LMD63B600**	600	JD6③	**JD63B400**	400
350	—	—	—	—	—	—	LMD6	**LMD63B700**	700	LD6③or LMD6	**LD63B500** or **LMD63B500**	500
400	—	—	—	—	—	—	LMD6	**LMD63B800**	800	LD6③or LMD6	**LD63B600** or **LMD63B600**	600
500	—	—	—	—	—	—	—	—	—	LMD6	**LMD63B800**	800

①The selection of breakers for this table is in accordance with Article 430, 2002 National Electric Code. The Canadian electrical code should also be referred to for rating information. Recommended circuit breakers are for full voltage starting, special consideration is necessary for reduced voltage starting.

②For panelboard applications, substitute the BL breaker for the BQ, ED2 circuit breakers may also be used.

③For non-interchangeable trip applications, substitute the FXD6 for the FD6, the JXD6 for the JD6, or the LXD6 for the LD6.

Adjustable Instantaneous Magnetic Trip Settings

Breaker Type	Maximum Continuous Amperes	Nominal AC Adjustable Trip Range								ETI Motor Circuit Protector Catalog Number	Thermal Magnetic Catalog Number	
		Low	2	3	4	5	6	7	High	3-Pole	2-Pole	3-Pole
ED6	1	2.6	4.5	6	7.5	—	—	—	9	**ED63A001**	—	—
	2	7	11	15	19	—	—	—	22	**ED63A002**	—	—
	3	10	17	23	30	—	—	—	35	**ED63A003**	—	—
	5	16	26	36	46	—	—	—	54	**ED63A005**	—	—
	10	30	50	70	85	—	—	—	100	**ED63A010**	—	—
	25	55	90	125	155	—	—	—	180	**ED63A025**	—	—
	30	80	135	185	235	—	—	—	270	**ED63A030**	—	—
	40	115	185	255	325	—	—	—	375	**ED63A040**	—	—
	50	180	300	410	520	—	—	—	600	**ED63A050**	—	—
	100	315	540	740	890	—	—	—	1000	**ED63A100**	—	—
	125	500	720	920	1100	—	—	—	1250	**ED63A125**	—	—
CED6	1	2.6	4.5	6	7.5	—	—	—	9	**CED63A001**	—	—
	2	7	11	15	19	—	—	—	22	**CED63A002**	—	—
	3	10	17	23	30	—	—	—	35	**CED63A003**	—	—
	5	16	26	36	46	—	—	—	54	**CED63A005**	—	—
	10	30	50	70	85	—	—	—	100	**CED63A010**	—	—
	25	55	90	125	155	—	—	—	180	**CED63A025**	—	—
	30	80	135	185	235	—	—	—	270	**CED63A030**	—	—
	40	115	185	255	325	—	—	—	375	**CED63A040**	—	—
	50	180	300	410	520	—	—	—	600	**CED63A050**	—	—
	100	315	540	740	890	—	—	—	1000	**CED63A100**	—	—
	125	500	720	920	1100	—	—	—	1250	**CED63A125**	—	—
FXD6-A	70	600	640	690	730	770	810	850	900	—	**FXD62B070**	**FXD63B070**
	80	600	640	690	730	770	810	850	900	—	**FXD62B080**	**FXD63B080**
	90	600	640	690	730	770	810	850	900	—	**FXD62B090**	**FXD63B090**
	100	700	770	840	920	990	1060	1140	1200	—	**FXD62B100**	**FXD63B100**
	110	700	770	840	920	990	1060	1140	1200	—	**FXD62B110**	**FXD63B110**
	125	800	900	1000	1100	1200	1300	1400	1500	—	**FXD62B125**	**FXD63B125**
	150	400	460	520	580	640	700	760	820	**FXD63L150**	—	—
	150	800	900	1000	1100	1200	1300	1400	1500	**FXD63A150**	**FXD62B150**	**FXD63B150**
	150	1100	1300	1500	1700	1900	2100	2300	2500	**FXD63H150**	—	—
	175	900	1060	1210	1370	1520	1780	1930	2000	—	**FXD62B175**	**FXD63B175**
	200	900	1060	1210	1370	1520	1780	1930	2000	—	**FXD62B200**	**FXD63B200**
	225	1100	1300	1500	1700	1900	2100	2300	2500	—	**FXD62B225**	**FXD63B225**
	250	1100	1300	1500	1700	1900	2100	2300	2500	**FXD63A250**	**FXD62B250**	**FXD63B250**
FD6-A	70	600	640	690	730	770	810	850	900	—	**FD62B070**	**FD63B070**
	80	600	640	690	730	770	810	850	900	—	**FD62B080**	**FD63B080**
	90	600	640	690	730	770	810	850	900	—	**FD62B090**	**FD63B090**
	100	700	770	840	920	990	1060	1140	1200	—	**FD62B100**	**FD63B100**
	110	700	770	840	920	990	1060	1140	1200	—	**FD62B110**	**FD63B110**
	125	800	900	1000	1100	1200	1300	1400	1500	—	**FD62B125**	**FD63B125**
	150	800	900	1000	1100	1200	1300	1400	1500	—	**FD62B150**	**FD63B150**
	175	900	1060	1210	1370	1520	1780	1930	2000	—	**FD62B175**	**FD63B175**
	200	900	1060	1210	1370	1520	1780	1930	2000	—	**FD62B200**	**FD63B200**
	225	1100	1300	1500	1700	1900	2100	2300	2500	—	**FD62B225**	**FD63B225**
	250	1100	1300	1500	1700	1900	2100	2300	2500	—	**FD62B250**	**FD63B250**
HFD6	70	600	640	690	730	770	810	850	900	—	**HFD62B070**	**HFD63B070**
	80	600	640	690	730	770	810	850	900	—	**HFD62B080**	**HFD63B080**
	90	600	640	690	730	770	810	850	900	—	**HFD62B090**	**HFD63B090**
	100	700	770	840	920	990	1060	1140	1200	—	**HFD62B100**	**HFD63B100**
	110	700	770	840	920	990	1060	1140	1200	—	**HFD62B110**	**HFD63B110**
	125	800	900	1000	1100	1200	1300	1400	1500	—	**HFD62B125**	**HFD63B125**
	150	800	900	1000	1100	1200	1300	1400	1500	—	**HFD62B150**	**HFD63B150**
	175	900	1060	1210	1370	1520	1780	1930	2000	—	**HFD62B175**	**HFD63B175**
	200	900	1060	1210	1370	1520	1780	1930	2000	—	**HFD62B200**	**HFD63B200**
	225	1100	1300	1500	1700	1900	2100	2300	2500	—	**HFD62B225**	**HFD63B225**
	250	1100	1300	1500	1700	1900	2100	2300	2500	—	**HFD62B250**	**HFD63B250**
HHFD6	70	600	640	690	730	770	810	850	900	—	—	**HHFD63B070**
	80	600	640	690	730	770	810	850	900	—	—	**HHFD63B080**
	90	600	640	690	730	770	810	850	900	—	—	**HHFD63B090**
	100	700	770	840	920	990	1060	1140	1200	—	—	**HHFD63B100**
	110	700	770	840	920	990	1060	1140	1200	—	—	**HHFD63B110**
	125	800	900	1000	1100	1200	1300	1400	1500	—	—	**HHFD63B125**
	150	800	900	1000	1100	1200	1300	1400	1500	—	—	**HHFD63B150**
	175	900	1060	1210	1370	1520	1780	1930	2000	—	—	**HHFD63B175**
	200	900	1060	1210	1370	1520	1780	1930	2000	—	—	**HHFD63B200**
	225	1100	1300	1500	1700	1900	2100	2300	2500	—	—	**HHFD63B225**
	250	1100	1300	1500	1700	1900	2100	2300	2500	—	—	**HHFD63B250**
CFD6	70	600	640	690	730	770	810	850	900	—	**CFD62B070**	**CFD63B070**
	80	600	640	690	730	770	810	850	900	—	**CFD62B080**	**CFD63B080**
	90	600	640	690	730	770	810	850	900	—	**CFD62B090**	**CFD63B090**
	100	700	770	840	920	990	1060	1140	1200	—	**CFD62B100**	**CFD63B100**
	110	700	770	840	920	990	1060	1140	1200	—	**CFD62B110**	**CFD63B110**
	125	800	900	1000	1100	1200	1300	1400	1500	—	**CFD62B125**	**CFD63B125**
	150	400	460	520	580	640	700	760	820	**CFD63L150**	—	—
	150	800	900	1000	1100	1200	1300	1400	1500	**CFD63A150**	**CFD62B150**	**CFD63B150**
	150	1100	1300	1500	1700	1900	2100	2300	2500	**CFD63H150**	—	—
	175	900	1060	1210	1370	1520	1780	1930	2000	—	**CFD62B175**	**CFD63B175**
	200	900	1060	1210	1370	1520	1780	1930	2000	—	**CFD62B200**	**CFD63B200**
	225	1100	1300	1500	1700	1900	2100	2300	2500	—	**CFD62B225**	**CFD63B225**
	250	1100	1300	1500	1700	1900	2100	2300	2500	**CFD63A250**	**CFD62B250**	**CFD63B250**

Note:
Tolerances for instantaneous trip points meet UL 489 (15.3). Nominal AC instantaneous trip points are given in the tables. For DC instantaneous trip points, add 15% to nominal values. Instantaneous trip adjustment is made through the breaker cover on all frame breakers. To change instantaneous trip point on circuit breaker, depress indicating knob, then rotate to desired position.

Adjustable Instantaneous Magnetic Trip Settings

Breaker Type	Maximum Continuous Amperes	Nominal AC Adjustable Trip Range								ETI Motor Circuit Protector Catalog Number	Thermal Magnetic Catalog Number	
		Low	2	3	4	5	6	7	High	3-Pole	2-Pole	3-Pole
JXD2(A)	200	1250	1430	1610	1790	1960	2140	2320	2500	—	JXD22B200	JXD23B200
	225	1250	1430	1610	1790	1960	2140	2320	2500	—	JXD22B225	JXD23B225
	250	1250	1430	1610	1790	1960	2140	2320	2500	—	JXD22B250	JXD23B250
	300	1250	1430	1610	1790	1960	2140	2320	2500	—	JXD22B300	JXD23B300
	350	2000	2290	2570	2860	3140	3430	3710	4000	—	JXD22B350	JXD23B350
	400	2000	2290	2570	2860	3140	3430	3710	4000	—	JXD22B400	JXD23B400
JXD6(A)	200	1250	1430	1610	1790	1960	2140	2320	2500	—	JXD62B200	JXD63B200
	225	1250	1430	1610	1790	1960	2140	2320	2500	—	JXD62B225	JXD63B225
	250	1250	1430	1610	1790	1960	2140	2320	2500	—	JXD62B250	JXD63B250
	300	1250	1430	1610	1790	1960	2140	2320	2500	—	JXD62B300	JXD62B300
	350	2000	2290	2570	2860	3140	3430	3710	4000	—	JXD62B350	JXD23B350
	400	2000	2290	2570	2860	3140	3430	3710	4000	—	JXD62B400	JXD23B400
JD6(A)	200	1250	1430	1610	1790	1960	2140	2320	2500	—	JD62B200	JD63B200
	225	1250	1430	1610	1790	1960	2140	2320	2500	—	JD62B225	JD63B225
	250	1250	1430	1610	1790	1960	2140	2320	2500	—	JD62B250	JD63B250
	300	1250	1430	1610	1790	1960	2140	2320	2500	—	JD62B300	JD63B300
	350	2000	2290	2570	2860	3140	3430	3710	4000	—	JD62B350	JD63B350
	400	1250	1430	1610	1790	1960	2140	2320	2500	JXD63L400	—	—
	400	2000	2290	2570	2860	3140	3430	3710	4000	JXD63H400	JD62B400	JD63B400
HJD6(A)	200	1250	1430	1610	1790	1960	2140	2320	2500	—	HJD62B200	HJD63B200
	225	1250	1430	1610	1790	1960	2140	2320	2500	—	HJD62B225	HJD63B225
	250	1250	1430	1610	1790	1960	2140	2320	2500	—	HJD62B250	HJD63H250
	300	1250	1430	1610	1790	1960	2140	2320	2500	—	HJD62B300	HJD63B300
	350	2000	2290	2570	2860	3140	3430	3710	4000	—	HJD62B350	HJD63B350
	400	2000	2290	2570	2860	3140	3430	3710	4000	—	HJD62H400	HJD63B400
HHJD6	200	1250	1430	1610	1790	1960	2140	2320	2500	—	HHJD62B200	HHJD63B200
	225	1250	1430	1610	1790	1960	2140	2320	2500	—	HHJD62B225	HHJD63B225
	250	1250	1430	1610	1790	1960	2140	2320	2500	—	HHJD62B250	HHJD63B250
	300	1250	1430	1610	1790	1960	2140	2320	2500	—	HHJD62B300	HHJD63B300
	350	2000	2290	2570	2860	3140	3430	3710	4000	—	HHJD62B350	HHJD63B350
	400	2000	2290	2570	2860	3140	3430	3710	4000	—	HHJD62B400	HHJD63B400
CJD6	200	1250	1430	1610	1790	1960	2140	2320	2500	—	—	CJD63B200
	225	1250	1430	1610	1790	1960	2140	2320	2500	—	—	CJD63B225
	250	1250	1430	1610	1790	1960	2140	2320	2500	—	—	CJD63B250
	300	1250	1430	1610	1790	1960	2140	2320	2500	—	—	CJD63B300
	350	2000	2290	2570	2860	3140	3430	3710	4000	—	—	CJD63B350
	400	2000	2290	2570	2860	3140	3430	3710	4000	CJD63H400	—	CHD63B400
	400	1250	1450	1610	1790	1960	2140	2320	2500	CJD63L400	—	—
LXD6(A)	450	2000	2290	2570	2860	3140	3430	3710	4000	—	LXD62B450	LXD63B450
	500	3000	3430	3860	4290	4710	5140	5570	6000	—	LXD62B500	LXD63B500
	600	3000	3430	3860	4290	4710	5140	5570	6000	—	LXD62B600	LXD63B600
LD6(A)	250	1250	1430	1610	1790	1960	2140	2320	2500	—	LD62B250	LD63B250
	300	1250	1430	1610	1790	1960	2140	2320	2500	—	LD62B300	LD63B300
	350	2000	2290	2570	2860	3140	3430	3710	4000	—	LD62B350	LD63B350
	400	2000	2290	2570	2860	3140	3430	3710	4000	—	LD62B400	LD63B400
	450	2000	2290	2570	2860	3140	3430	3710	4000	—	LD62B450	LD63B450
	500	3000	3430	3800	4290	4710	5140	5570	6000	—	LD62B500	LD63B500
	600	2000	2290	2570	2860	3140	3430	3710	4000	LXD63L600	—	—
	600	3000	3430	3800	4290	4710	5140	5570	6000	LXD63H600	LD62B600	LD63B600
HLD6(A)	250	1250	1430	1610	1790	1960	2140	2320	2500	—	HLD62B250	HLD63B250
	300	1250	1430	1610	1790	1960	2140	2320	2500	—	HLD62B300	HLD63B300
	350	2000	2290	2570	2860	3140	3430	3710	4000	—	HLD62B350	HLD63B350
	400	2000	2290	2570	2860	3140	3430	3710	4000	—	HLD62B400	HLD63B400
	450	2000	2290	2570	2860	3140	3430	3710	4000	—	HLD62B450	HLD63B450
	500	3000	3430	3860	4290	4710	5140	5570	6000	—	HLD62B500	HLD63B500
	600	3000	3430	3860	4290	4710	5140	5570	6000	—	HLD62B600	HLD63B600
HHLD6	250	1250	1430	1610	1790	1960	2140	2320	2500	—	HHLD62B250	HHLD63B250
	300	1250	1430	1610	1790	1960	2140	2320	2500	—	HHLD62B300	HHLD63B300
	350	2000	2290	2570	2860	3140	3430	3710	4000	—	HHLD62B350	HHLD63B350
	400	2000	2290	2570	2860	3140	3430	3710	4000	—	HHLD62B400	HHLD63B400
	450	2000	2290	2570	2860	3140	3430	3710	4000	—	HHLD62B450	HHLD63B450
	500	3000	3430	3860	4290	4710	5140	5570	6000	—	HHLD62B500	HHLD63B500
	600	3000	3430	3860	4290	4710	5140	5570	6000	—	HHLD62B600	HHLD63B600
CLD6	250	1250	1430	1610	1790	1960	2140	2320	2500	—	—	CLD63B250
	300	1250	1430	1610	1790	1960	2140	2320	2500	—	—	CLD63B300
	350	2000	2290	2570	2860	3140	3430	3710	4000	—	—	CLD63B359
	400	2000	2290	2570	2860	3140	3430	3710	4000	—	—	CLD63B400
	450	2000	2290	2570	2860	3140	3430	3710	4000	—	—	CLD63B450
	500	3000	3430	3860	4290	4710	5140	5570	6000	—	—	CLD63B500
	600	2000	2290	2570	2860	3140	3430	3710	4000	CLD63L600	—	—
	600	3000	3430	3860	4290	4710	5140	5570	6000	CLD63H600	—	CLD63B600
LMXD6	500	3000	3430	3860	4290	4710	5140	5570	6000	—	—	LMXD63B500
	600	3000	3430	3860	4290	4710	5140	5570	6000	—	LMXD62B600	LMXD63B600
	700	3200	3500	3700	4200	4700	6400	7300	8000	—	LMXD62B700	LMXD63B700
	800	2800	3100	3400	3700	4000	4800	5500	6000	LMXD63L800	—	—
	800	3200	3500	3700	4200	4700	6400	7300	8000	LMXD63A800	LMXD62B800	LMXD63B800
LMD6	500	3000	3430	3860	4290	4710	5140	5570	6000	—	LMD62B500	LMD63B500
	600	3000	3430	3860	4290	4710	5140	5570	6000	—	LMD62B600	LMD63B600
	700	3200	3500	3700	4200	4700	6400	7300	8000	—	LMD62B700	LMD63B700
	800	3200	3500	3700	4200	4700	6400	7300	8000	—	LMD62B800	LMD63B800

Adjustable Instantaneous Magnetic Trip Settings

Breaker Type	Maximum Continuous Amperes	Nominal AC Adjustable Trip Range								ETI Motor Circuit Protector Catalog Number	Thermal Magnetic Catalog Number	
		Low	2	3	4	5	6	7	High	3-Pole	2-Pole	3-Pole
HLMXD6	500	3000	3430	3860	4290	4710	5140	5570	6000	—	—	**HLMXD63B500**
	600	3000	3430	3860	4290	4710	5140	5570	6000	—	—	**HLMXD63B600**
	700	3200	3500	3700	4200	4700	6400	7300	8000	—	—	**HLMXD63B700**
	800	3200	3500	3700	4200	4700	6400	7300	8000	—	—	**HLMXD63B800**
HLMD6	500	3000	3430	3860	4290	4710	5140	5570	6000	—	**HLMD62B500**	**HLMD63B500**
	600	3000	3430	3860	4290	4710	5140	5570	6000	—	**HLMD62B600**	**HLMD63B600**
	700	3200	3500	3700	4200	4700	6400	7300	8000	—	**HLMD62B700**	**HLMD63B700**
	800	3200	3500	3700	4200	4700	6400	7300	8000	—	**HLMD62B800**	**HLMD63B800**
MD6	500	3000	3430	3860	4290	4710	5140	5570	6000	—	**MD62B500**	**MD63B500**
	600	3000	3430	3860	4290	4710	5140	5570	6000	—	**MD62B600**	**MD63B600**
	700	4000	4570	5140	5710	6280	6850	7420	8000	—	**MD62B700**	**MD63B700**
	800	3000	3430	3860	4280	4710	5140	5570	6000	**MXD63L800**	—	—
	800	4000	4570	5140	5710	6280	6850	7420	8000	**MXD63A800**	**MD62B800**	**MD63B800**
	800	5000	5715	6430	7145	7860	8575	9290	10000	**MXD63H800**	—	—
MXD6	500	3000	3430	3860	4280	4710	5140	5570	6000	—	**MXD62B500**	**MXD63B500**
	600	3000	3430	3860	4280	4710	5140	5570	6000	—	**MXD62B600**	**MXD63B600**
	700	4000	4570	5140	5710	6280	6850	7420	8000	—	**MXD62B700**	**MXD63B700**
	800	3000	3430	3860	4280	4710	5140	5570	6000	**MXD63L800**	—	—
	800	4000	4570	5140	5710	6280	6850	7420	8000	**MXD63A800**	**MXD62B800**	**MXD63B800**
	800	5000	5715	6430	7145	7860	8575	9290	10000	**MXD63H800**	—	—
HMD6	500	3000	3430	3860	4280	4710	5140	5570	6000	—	**HMD62B500**	**HMD63B500**
	600	3000	3430	3860	4280	4710	5140	5570	6000	—	**HMD62B500**	**HMD63B600**
	700	4000	4570	5140	5710	6280	6850	7420	8000	—	**HMD62B700**	**HMD63B700**
	800	4000	4570	5140	5710	6280	6850	7420	8000	—	**HMD62B800**	**HMD63B800**
HMXD6	500	3000	3430	3860	4280	4710	5140	5570	6000	—	—	**HMXD63B500**
	600	3000	3430	3860	4280	4710	5140	5570	6000	—	—	**HMXD63B600**
	700	4000	4570	5140	5710	6280	6850	7420	8000	—	—	**HMXD63B700**
	800	4000	4570	5140	5710	6280	6850	7420	8000	—	—	**HMXD63B800**
CMD6	400	3000	3430	3860	4280	4710	5140	5570	6000	—	—	**CMD63B400**
	500	3000	3430	3860	4280	4710	5140	5570	6000	—	—	**CMD63B500**
	600	3000	3430	3860	4280	4710	5140	5570	6000	—	—	**CMD63B600**
	700	4000	4570	5140	5710	6280	6850	7420	8000	—	—	**CMD63B700**
	800	3000	3430	3860	4280	4710	5140	5570	6000	**CMD63L800**	—	—
	800	4000	4570	5140	5710	6280	6850	7420	8000	**CMD63A800**	—	**CMD63B800**
	800	5000	5715	6430	7145	7860	8575	9290	10000	**CMD63H800**	—	—
ND6	800	4000	4570	5140	5710	6280	6850	7420	8000	—	**ND62B800**	**ND63B800**
	900	5000	5715	6430	7145	7860	8575	9290	10000	—	**ND62B900**	**ND63B900**
	1000	5000	5715	6430	7145	7860	8575	9290	10000	—	**ND62B100**	**ND63B100**
	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	**ND62B120**	**ND63B120**
NXD6	900	5000	5715	6430	7145	7860	8575	9290	10000	—	**NXD62B900**	**NXD63B900**
	1000	5000	5715	6430	7145	7860	8575	9290	10000	—	**NXD62B100**	**NXD63B100**
	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	**NXD62B120**	**NXD63B120**
HND6	800	4000	4570	5140	5710	6280	6850	7420	8000	—	**HND62B800**	**HND63B800**
	900	5000	5715	6430	7145	7860	8575	9290	10000	—	**HND62B900**	**HND63B900**
	1000	5000	5715	6430	7145	7860	8575	9290	10000	—	**HND62B100**	**HND63B100**
	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	**HND62B120**	**HND63B120**
HNXD6	900	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**HNXD63B900**
	1000	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**HNXD63B100**
	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**HNXD63B120**
CND6	800	4000	4570	5140	5710	6280	6850	7420	8000	—	—	**CND63B800**
	900	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**CND63B900**
	1000	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**CND63B100**
	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**CND63B120**
PD6	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**PD63B120**
	1400	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**PD63B140**
	1600	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**PD63B160**
PXD6	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**PXD63B120**
	1400	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**PXD63B140**
	1600	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**PXD63B160**
HPD6	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**HPD63B120**
	1400	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**HPD63B140**
	1600	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**HPD63B160**
HPXD6	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**HPXD63B120**
	1400	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**HPXD63B140**
	1600	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**HPXD63B160**
CPD6	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**CPD63B120**
	1400	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**CPD63B140**
	1600	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**CPD63B160**
RD6	1800	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**RD63B180**
	2000	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**RD63B200**
RXD6	1800	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**RXD63B180**
	2000	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**RXD63B200**
HRD6	1800	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**HRD63B180**
	2000	5000	5715	6430	7145	7860	8575	9290	10000	—	—	**HRD63B200**

Molded Case Switch — Circuit Disconnect

Maximum Frame Rating	2-Pole Catalog Number	3-Pole Catalog Number	Self-Protective Instantaneous Override±20%③
100A	**BQ2S060■** **BQ2S100■**	**BQ3S060■** **BQ3S100■**	1000A 1000A
125A	**ED22S100A■** **ED42S100A■** **ED42S125A■** **ED62S100A■** — **CED62S100A■** **CED62S125A■**	**ED23S100A** **ED43S100A** **ED43S125A** **ED63S100A** **ED63S125A** **CED63S100A■** **CED63S125A■**	1000A 1000A 1000A 1000A 1000A 1000A 1000A
225A	**QJ22S225A■**	**QJ23S225A**	2000A
250	**FXD62S250A** **HFXD62S250A■** ①	**FXD63S250A** **HFXD63S250A■** **CFD63S250A■**	3200A 3200A 3200A
400	**JXD22S400A■** — — ①	**JXD23S400A** **JXD63S400A** **HJXD63S400A■** **CJD63S400A■**	6000A 6000A 6000A 6000A
600	— — ①	**LXD63S600A** **HLXD63S600A■** **CLD63S600A■**	8000A 8000A 8000A
800	— — ①	**LMXD63S800A■** **MXD63S800A** **CMD63S800A**	10000A 10000A 10000A
1200	— ①	**NXD63S120A** **CND63S120A■**	10000A 10000A
1600	①	**PXD63S160A**	10000A
2000	①	**RXD63S200A■**	10000A
Non Automatic Molded Case Switch			
2000	①	**TD63S2000■**	—
2500	①	**TD63S2500■**	—
3200	①	**TD63S3200■**	—
4000-5000	See "SB" Type Insulated Case Breakers		

Ordering Information

Order by catalog number. Switches include frame and self protective (except TD) trip unit only. Order lugs separately from pages 6-70 to 6-72.

Lugs pages 6/70 to 6/71
Accessories pages 6/74 to 6/86

■ Built to order. Allow 3-4 weeks for delivery.
① For 2-pole application use outside poles of 3-pole circuit breaker.
② For additional lugs see pages 6-70 to 6-72.
③ Molded case switches up to R frame contain a self protecting instantaneous element, which may open circuit above their override set point.

Digital Solid State Sentron Sensitrip III Series

The Sentron Sensitrip III circuit breaker is a true RMS current sensing device. Digital microprocessor circuitry within the electronic trip unit provides more precise control over the circuit breaker functions. This control allows circuit coordination flexibility not available with thermal magnetic circuit breakers.

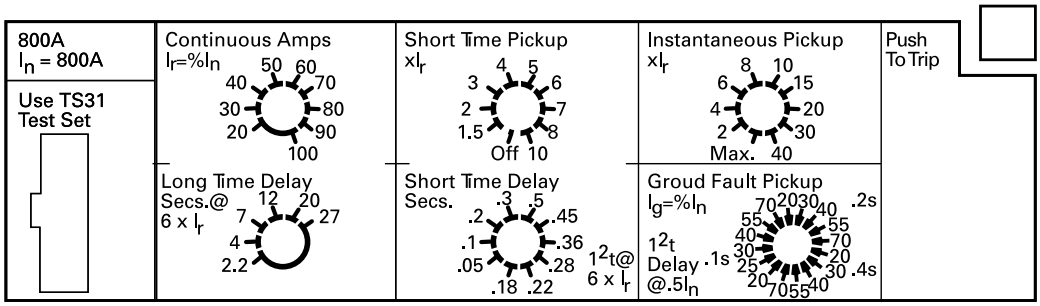
Functions available in Sentron Sensitrip circuit breakers.

Catalog Number (Description + Suffix)	Trip Type	Cont Current Setting	Long Time Delay	Instan-taneous Setting	Short Time Pick Up	Short Time Delay	Short Time I^2t Pick Up	Ground Fault Pick Up	Ground Fault Delay
Basic Unit + (A)	LI	√	√	√	—	—	—	—	—
Basic Unit + (A)G	LIG	√	√	√	—	—	—	√	√
Basic Unit + (A)NT	LSI	√	√	√	√	√	√	—	—
Basic Unit + (A)NGT	LSIG	√	√	√	√	√	√	√	√

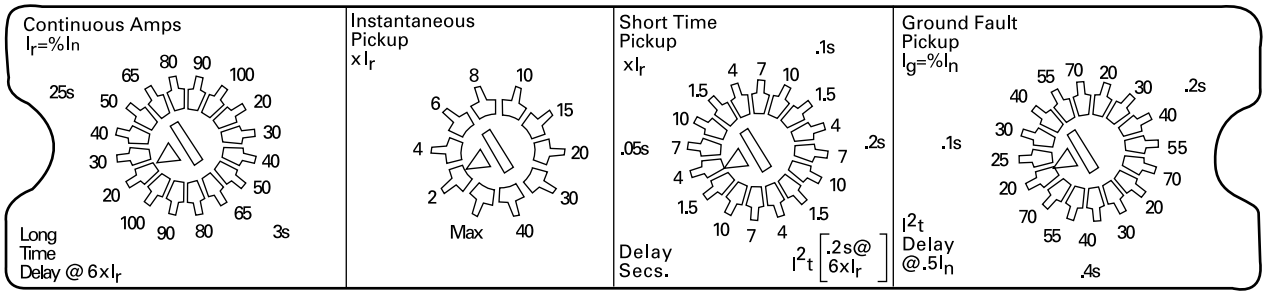
Letter "A" is used for MD and ND Solid State frame types only.

Typical Trip Unit Labeling and Adjustment Positions for the Sentron Sensitrip Circuit Breaker.

SMD6, SHMD6, SCMD6, SND6, SHND6, SCND6, SPD6, SHPD6



SJD6, SHJD6, SCJD6, SCD6, SHLD6, SCLD6

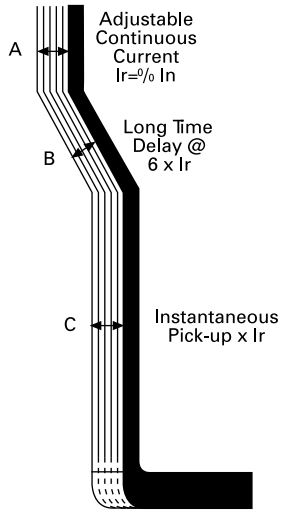


I_n = Maximum circuit breaker ampere rating.

I_r = Current Rating — a function of continuous ampere adjustment setting expressed in % of I_n.

I_g = Ground Fault Pickup — a function of adjustment setting expressed in % of I_n.

Digital Solid State Sentron Sensitrip III Series



A. Adjustable "Continuous Amps" Rating Switch

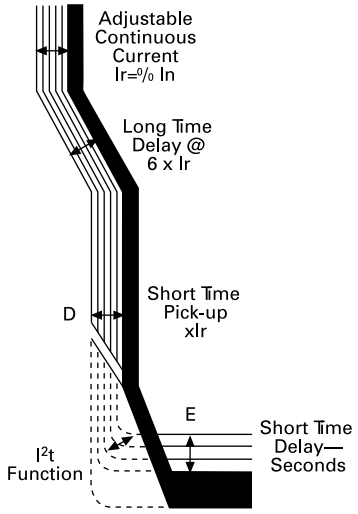
All Sensitrip III solid state molded case circuit breakers have an adjustable ampere rating switch. Adjustments made to this switch change the continuous current rating of the breaker from 20% to 100% of its maximum trip unit rating depending on the circuit breaker frame.

B. Adjustable "Long Time Delay" Switch

All Sensitrip III circuit breakers have an adjustable long time delay switch to allow for selection of long time delays of fixed time intervals at six times the setting of the adjustable "continuous amps" rating switch.

C. Adjustable "Instantaneous Pick-Up" Switch

Sensitrip III circuit breakers with an adjustable instantaneous trip switch allow selection of a tripping point from related to the adjusted circuit breaker Rating (I_r).

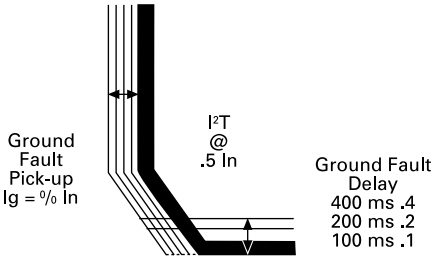


D. Adjustable "Short Time Pick-Up" Switch (Optional)

Sensitrip III circuit breakers with an adjustable short time pick-up switch allow for selection of short time pick-up in a range from 1.5 to 10 times the setting of the maximum current rating.

E. Adjustable "Short Time Delay" Switch (Optional)

Sensitrip III circuit breakers with an adjustable short time pick-up switch also contain a switch for adjustment in time delay. The adjustable short time delay switch allows for either of two modes of short time delays. One range of settings enables the breaker to be set for fixed time delays and the other range of settings enables the breaker to be set for short time delays based on I^2t curves.



Adjustable "Ground Fault Pick-Up" Switch

Sensitrip III circuit breakers containing the optional equipment ground fault protection cover the ground fault pick-up range of 20% to 70% of the circuit breaker frame rating. The ground fault pick-up settings also allow for one of three time delays based on I^2t curves.

For 3-phase, 4-wire systems, an external neutral transformer is required with an ampere rating equal to the trip unit ampere rating.

I_n = Maximum circuit breaker ampere rating.

I_r = Current Rating — a function of adjustment setting expressed in % of I_n.

I_g = Ground Fault Pick-up — a function of adjustment setting expressed in % of I_n.

Examples of Adjustment Settings

Catalog Number SMD69800A

I_n = 800	Continuous Current Setting	Long Time Delay Setting	Instantaneous Setting
I_n = 800 amperes Results	30 240 amperes I_r = 30% of 800	12 12 seconds trip at 6 x 240 amps = 1440.	8 1920 amperes 8 x I_r = 8 x 240

Catalog Number SMD69800ANGT

I_n	I_r Setting	Long Time Delay	Short Time Pick-Up Off	Instantaneous Setting	Short Time Pick-Up On	Short Time Delay	I^2T Set	Ground Fault Pick-Up	Ground Fault Delay
800 amperes Results ①,	70 560 ②	20 20 sec. ③	— — ④	10 I_r 5600A ⑤	8 I_r 4480A ⑥	.5 .5 secs ⑦	.28 .28 sec @ 4480A ⑧	40 320A ⑨	.2 .2 sec ⑩

① I_n = 800 amperes.

② I_r = 560 amperes (70% of 800).

③ Delay = 20 seconds at 3360 amps (6 x I_r). Breaker will trip in 20 seconds with 3360 amperes.

④ Short Time Pick-Up Off — Instantaneous can be used.

⑤ Instantaneous set at 10 x I_r = 10 x 560 = 5600 amperes.

⑥ Short Time Pick-Up On — Set at 8 = 8 x 560 = 4480 amperes.

⑦ Short Time Delay = .5 seconds. (Definite Time)
Note: ⑦ & ⑧ are mutually exclusive.

⑧ I^2t switch on .28 seconds @ 6 x 560 = 3360 amperes. (Inverse time)

⑨ Ground Fault Pick-Up set at 40 = 40% of I_n = 320 amperes. (Definite Time)

⑩ Ground Fault Delay set at .2 seconds. Breaker will trip in 200 milliseconds with a 400 ampere ground fault.

Breaker Description

The ever-increasing use of plant and energy management systems has intensified the demand for circuit breakers supporting multiple open protocols to monitor and control the flow of energy in the power system. The extensive and modular WL family of circuit breakers and accessories provides this for applications from 200A to 5000A.

Applications

WL breakers can be applied as main, tie, feeder or distribution breakers in low-voltage electrical power systems.

Versions

- Frame ratings: 800A to5000A
- 3 physical frame sizes
- Rated nominal operating voltage up to 600VAC
- Seven interrupting classes from 50kA to 200kA at 480V
- Circuit breaker or non-automatic switch
- WL Circuit Breakers aredelivered as complete assembled breakers or individual frames, guide frames, and accessories

Installation Types

Fixed-mounted or Draw-out version.

Standards

- WL ANSI / UL 1066 Circuit Breakers will satisfy: C37.13, C37.16, C37.17, C37.50, NEMA SG3
- WL UL 489 Circuit Breakers will satisfy: UL 489 / CSA C22.2 NO.5
- WL Circuit Breakers are suitable for use in UL 1558 LV Switchgear and UL 891 LV Switchboards

Conditions of Application

WL Circuit Breakers are designed to meet standard Industrial and Commercial application requirements.

Uniform Dimensions

WL Circuit Breaker dimensions differ only in the device width, which varies by frame size. With the exception of the 200kA ANSI Frame Size II which has an additional 5" in depth to accommodate integral fuses.

Minimal Space Requirements

The WL design is extremely compact without sacrificing performance and does not use energy-wasting heat sinks.

Trip Units

The electronic, micro processor-based trip unit is auxiliary voltage-independent for all protective functions and enables adaptation to the different protection requirements of distribution systems, motors, transformers and generators.

Non-Automatic Switch

A special version of the circuit breaker is used as a non-automatic switch.
The non-automatic switch is constructed without a trip unit and has no protective function. A possible application is for use as a tie in systems with parallel feeds.

Main Bus Connectors

Breakers are equipped with standard vertical main bus connections. Horizontal bus connections are available as an option in Frame Size 1 and 2 up to 2000A.

Communication Capability

MODBUS or PROFIBUS communications transmit the acquired and metered data, such as current values, breaker status, trip log, etc. to a central monitoring computer. When the optional metering function is installed, the WL acquires data useful for power management and can contribute to a significant savings in energy costs. A new, internal circuit breaker bus enables the expansion of breaker functionality through the integration of many secondary functions which were previously separate, including:

- Control of analog displays
- Options for testing the communication setup
- Display of breaker status and reason for trip
- Input modules for reading other external signals and transmitting these signalsvia PROFIBUS or MODBUS communication
- A selection of output modules to provide contact closures based on events or measured-value setpoints. It is not only possible to monitor the breaker remotely, it is also possible to open and close the breaker as well as setting parameters remotely

Operating Mechanisms

Circuit breakers can be optionally delivered with different operating mechanisms, including:

- Manual operating mechanism with mechanical closing (standard)
- Manual operating mechanism with mechanical and electrically interlocked closing
- Motorized operating mechanism with mechanical and electrically interlocked closing. Operating mechanisms with electrically interlocked closing are suitable for synchronizing tasks

Auxiliary Contacts

Auxiliary switches can be added according to the type of installation. They are easily mounted via front, top mounted terminal blocks.

Modularity

Common guide frames for the draw-out version make them completely interchangeable between the UL 489 / CSA anc ANSI / UL 1066 rated circuit breakers. Components, such as auxiliary releases, motorized operating mechanisms, trip units, current sensors, auxiliary signal switches, automatic reset devices or interlocks can be used to modify or retrofit any circuit breaker to meet changing requirements. The main contacts can be replaced to extend the life of the circuit breaker and feature integrated contact wear indicators.

Electronic Trip Unit Modularity

Modularity is the outstanding feature of the new WL Circuit Breakers. The trip units themselves can be retrofitted with special LCDs, ground fault modules, rating plugs and communication modules.100% Rated Circuit Breaker WL circuit breakers are designed for continuous operation at 100% of their current rating without the need for external heat sinks.

Conditions of Application

WL Circuit Breakers are designed to meet standard Industrial and Commercial application requirements.

Selection criteria for WL Circuit Breakers

The basic criteria for selecting circuit breakers is:

- Maximum Available Short Circuit at the installation point. This value determines the short circuit current interrupting rating or short circuit current withstand rating of the circuit breaker
- Rated Current In which is to flow through the respective circuit breaker continuously. This value may not be greater than the maximum rated current of the circuit breaker. The rated the rating plug, up to the maximum frame rating
- Ambient Temperature of the circuit breaker. This is usually the temperature inside the cubicle
- Design of the circuit breaker. Protective Functions of the circuit breaker. These are determined by the selection of the appropriate trip unit

Trip Unit Functions

Basic Protective Functions		ETU725	ETU727
Long-time overcurrent protection	L	●	●
Short-time delayed overcurrent protection	S	●	●
Instantaneous overcurrent protection	I	●	●
Neutral conductor protection	N	—	●
Ground fault protection	G	—	●
Additional Functions			
Selectable neutral protection		—	●
Defeatable short-time protection		●	●
Defeatable instantaneous protection		—	—
Selectable thermal memory		—	—
Zone selective interlocking		—	—
Selectable I2t or fixed short-time delay		— ①	— ①
Adjustable instantaneous pick-up		—	—
Selectable I2t or I4t long-time delay		—	—
Adjustable short-time delay and pick-up		●	●
Selectable and adjustable neutral protection		—	—
Dual protective setting capability		—	—
Dynamic arc-flash sentry		—	—
Extended instantaneous protection		●	●
Parameterization and Displays			
Parameterization by rotary switches (10 steps)		●	●
Parameterization by communication (absolute values)		—	—
Parameterization by menu/keypad (absolute values)		—	—
Remote parameterization of the basic functions		—	—
Remote parameterization of the additional functions		—	—
Alphanumeric LCD		—	—
Graphical LCD		—	—
Metering Function			
Metering function		—	—
Metering function Plus		—	—
Communication			
CubicleBUS		—	—
Communication via PROFIBUS-DP		—	—
Communication via the MODBUS		—	—
Communication via the Ethernet (BDA)		—	—

● Standard — Not available ○ Optional

① Fixed, short-time delay only.

Trip Unit Functions

Basic Protective Functions		ETU745	ETU748	ETU755	ETU776
Long-time overcurrent protection	L	●	●	●	●
Short-time delayed overcurrent protection	S	●	●	●	●
Instantaneous overcurrent protection	I	●	●	●	●
Neutral conductor protection	N	●	●	●	●
Ground fault protection	G	○	○	○	○
Additional Functions					
Selectable neutral protection		●	●	●	●
Defeatable short-time protection		●	—	●	●
Defeatable instantaneous protection		●	—	●	●
Selectable thermal memory		●	●	●	●
Zone selective interlocking		●	●	●	●
Selectable I2t or fixed short-time delay		●	●	●	●
Adjustable instantaneous pick-up		●	—	●	●
Selectable I2t or I4t long-time delay		●	●	●	●
Adjustable short-time delay and pick-up		●	●	●	●
Selectable and adjustable neutral protection		●	●	●	●
Dual protective setting capability		—	—	●	●
Dynamic arc-flash sentry		—	—	●	●
Extended instantaneous protection		●	●	●	●
Parameterization and Displays					
Parameterization by rotary switches (10 steps)		●	●	—	—
Parameterization by communication (absolute values)		—	●	●	●
Parameterization by menu/keypad (absolute values)		—	—	—	●
Remote parameterization of the basic functions		—	—	●	●
Remote parameterization of the additional functions		—	—	●	●
Alphanumeric LCD		○	○	—	—
Graphical LCD		—	—	—	●
Metering Function					
Metering function		○	○	○	○
Metering function Plus		○	○	○	○
Communication					
CubicleBUS		●	●	●	●
Communication via PROFIBUS-DP		○	○	○	○
Communication via the MODBUS		○	○	○	○
Communication via the Ethernet (BDA)		○	○	○	○

● Standard — Not available ○ Optional

Rating Plug

It is no longer necessary to replace the current transformer to change the rated current of the breaker. Instead, you simply replace the rating plug which is easily accessible on the front of the trip unit. The circuit breaker is set to the new rated current quickly and is already correctly labeled.

Long Time Overcurrent Protection with Switchable I2t/I4t Characteristics

The long time overcurrent protection in the ETU745, ETU755 and ETU776 trip units can be switched between an I2t and I4t characteristic to improve coordination between upstream circuit breakers and fuses.

Front Panel

The front panel is designed so that it can be accessed through a cutout in the door, which means that all controls and displays are accessible even when the cubicle door is closed. The front panels of all Frame Size II and Frame Size III circuit breakers are identical, and allow for two different through-door access designs: Trip unit and front panel controls or front panel controls only. The degree of protection of the front panel is IP 20.

Environmental Protection

The plastics used are halogen-free and recyclable.

Safety and Reliability

In order to help protect the electrical distribution system and circuit breaker against unauthorized breaker operations, a wide range of locking devices can be installed or retrofit, including:

- Lockable drawout version to protect against unauthorized removal (standard)
- High degree of protection through Plexiglas cover
- Mechanical reclosing lockout after long-time, short-time or instantaneous trip (optional)
- Devices with trip unit ETU745 or higher are equipped with temperature sensors on the BSS and COM15/COM16 (standard)
- Lock provision for locking the breaker in the OPEN position
- Lockable covers for the CLOSE button
- Lockable racking handle prevents moving the breaker
- Lockable charging handle prevents charging the springs

Standard Version Features

WL Circuit Breakers have the following standard equipment:

- Mechanical CLOSE and mechanical OPEN push buttons
- Manual operating mechanism with mechanical closing
- Contact position indicator
- Front panel ready-to-close indicator
- Spring charge indicator
- Rear vertical main contacts
- Main contact replacement flag
- Auxiliary plug system with bare wire pressure screw terminals. Delivery includes all auxiliary plugs necessary for both factory installed and future field installed accessories
- Mechanical trip indicator of the overcurrent release system
- Automatic reset after trip
- The front panel cannot be removed if the circuit breaker closed
- Laminated main contact fingers as part of the breaker contact strip on the drawout circuit breaker
- Breaker position display in the operator's panel
- Captive crank handle for racking out the breaker
- Guide frame with guide rails for easy handling of draw-out version
- Breaker cannot be moved in the CLOSED state
- Rated current coding between the guide frame and the breaker
- Suitable for reverse feed applications
- The breaker is always equipped with the required number of secondary disconnect blocks

Exclusive Features

Generator/Utility Protection Sets

24/7/365 power availability is critical for some systems. On-site generation capability is growing more and more common in many systems. All of the WL digital electronic trip units allow the system designer to precisely tailor trip settings for the most demanding requirements. However, the 755 and 776 trip units allow one set of trip settings for a fully loaded utility feed and with a simple contact closure, the trip unit toggles to a second trip set tailored to provide optimal generator protection. The wide range of settings allows the WL to provide protection for a minimal generator capacity for only essential loads, through full backup for an entire facility. This dual utility/generator protection capability in a single circuit breaker allows the system designer unparalleled, cost effective, flexibility.

Dynamic Arc-Flash Sentry

(Patent Pending)
A unique feature of the WL trip unit allows the system designer to achieve lower levels of arc flash energy and delayed tripping for selective trip coordination purposes. Dynamic Arc-Flash Sentry (DAS) employs the unique dual protective setting capability of the 755 and 776 trip units, coupled with the ability to easily toggle to a lower arc flash parameter set. A normal operation parameter set can be optimized for selective trip coordination, while the second set is optimized for lower arc flash energy levels. The dynamic action comes from the ability to switch from the normal operation set to the arc flash limiting set based on the presence of personnel as they approach the flash protection boundary. A wide variety of switching methods may be used based on the needs of a particular facility. The capabilities range from fully automatic switching using appropriate occupancy sensors to manual switching via a key operation.

Extended Instantaneous Protection

(Patent Pending)
Extended Instantaneous protection (EIP), another unique feature of the WL trip unit, allows the system designer to achieve full selective trip coordination up to the short-time rating of the frame while also allowing application of the breaker up to the interrupting rating of the frame. The typical power circuit breaker with an 'LS' trip unit, or when the instantaneous function is switched off on an 'LSI' trip unit, can only be applied up to it's short-time rating, commonly 85kA or less. For application on systems with levels of available fault current above the short-time rating, the typical 'LS' power circuit breaker cannot be applied or must employ an instantaneous override. This instantaneous override is set at as much as 20% below the short-time rating and can seriously compromise selective trip coordination with downstream breakers.

The WL, equipped with EIP, overcomes these limitations by providing full withstand capability, and full coordination, with a minus 0% short-time band tolerance up to 85kA on frame Size II and 100kA on Size III. Above fault currents of 20% higher than the full short-time rating, the WL breaker is self-protecting, and the EIP function will trip the breaker instantly to protect the frame and the system from these extremely high currents, as high as 150kA on frame Size III. One added benefit is that arc flash energy is greatly reduced in this high current region due to the instantaneous trip response that EIP provides.

Electronic and Communications Accessories

Electronic & Display Devices

Trip Unit Test Set

Type	Catalog Number
Portable	**TS31**
Spare TS-31 Test Set Interconnecting Cable	**TS31CABLE**

The TS-31 test set is used to test the operation of the fault protection functions of the circuit breaker's trip unit, including long-time, short-time, instaneous, and ground fault by means of secondary current injections.

Sensitrip Ammeter Display Unit

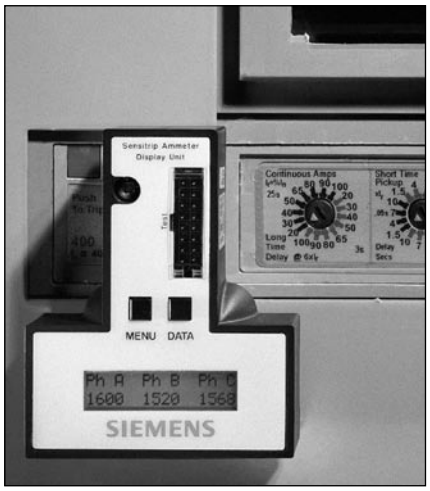
Breaker Type	Catalog Number
SJD, SLD, SMD,	**SADU**
SND, SPD	**SADURMK18**

The Sensitrip Ammeter Display Unit (SADU) provides real-time metering for all Sentron-Sensitrip III Molded Case Circuit Breakers. The unit plugs directly onto the front of the trip unit and provides displays for individual phase currents flowing through the breaker. Additional features include Average, Demand, Ground and Unbalance Current displays, along with impending Trip Status. Current Metering Logs, and a unique diagnostic Trip Log that records the date, time and type of fault for the previous five breaker trips. The device is UL and CSA certified.

The optional panel mount accessory (SADURMK18) allows easy device mounting external from the circuit breaker, in panelboard and switchboard spaces or gutters, with the flexibility of interior panel exterior panel, or wall mounting capability.

The 2 x 16 alphanumeric LCD display provides easy viewing of data, such as viewing all three phase currents simultaneously.

Plug-in Mounting

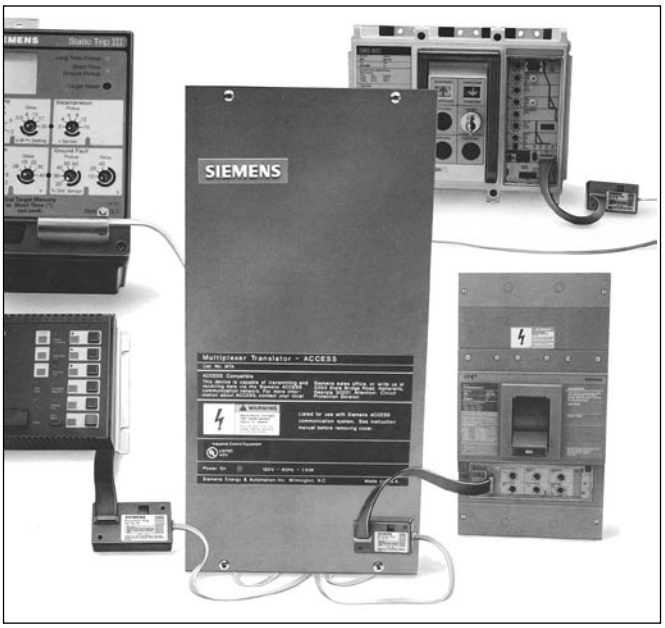


SADU Ammeter Display Unit

- Direct plug-in or Panel Mounting*
- Trip Unit Powered & Battery back-up
- 2 x 16 LCD Alphanumeric Display*
- Ammeter Diplay Functions
  - — RMS Phase Currents
  - — Average Current*
  - — Current Demand*
  - — Ground Current
  - — Current Unbalance (%)*
- Breaker Status
  - — Normal
  - — Impending Trip*
- Time Stamped Trip Log (last 5)
  - — Time & Date*
  - — Trip Cause: LT, ST, GF, SC
- Max Log (with date & time)
  - — Max Phase Current*
  - — Max Average Current*
  - — Max Ground Current*
  - — Max Unbalance Current*
  - — Max Current Demand*

* Unique Features

Communications Accessories



ACCESS™ Communications①

All SB Circuit Breaker trip units feature two levels of communication: Zone Selective Interlocking and ACCESS™ System Open-protocol communications. The SB-EC Trip Unit is fully equipped for direct integration into ACCESS™ or compatible communication systems.

A multiplex/Translator (MTA) and Expansion Plug area required for the TYPE "TL" trip unit when full Access™ communications is specified. The MTA also has Zone Selective Interlocking capability. Refer to Bulletin IPIM-2211A and Instruction Sheet Pc. No. 411152A00 for additional information.

Siemens WinPM™ V4.0 supervisory software delivers a powerful energy management system providing sophisticated monitoring capability to a host computer and other components in the electrical distribution system at an affordable cost. It also provides process control, including peak demand, trend analysis, waveform analysis, and harmonic calculations and displays. These functions help pinpoint energy consumption, power quality issues, and the energy cost of any process. Outages and potential outages can be quickly diagnosed and plans can be generated for expansion and preventative plant maintanence. Refer toBulletins IPIM-2211A for additional information.

Communications is accomplished via EIA-485 twisted pair wire or modem, providing communications to a remote site and allowing access to multiple plants. WinPM™ V4.0 utilizes a WIndows DDE (dynamic data exchange) server that allows data exchange to other Windows software such as spreadsheets and word-processors.

Protocol Converters are available from the Siemens ACCESS group for connection to a variety of open and proprietary automation protocols as part of the ACCESS™ product line, including Profibus DP, LonWorks, the Siemens S7 PLC, and many other third party PLCs and associated networks.

The SB-EC Trip Unit's EIA-232 communications port provides additional PC communications for available trip unit data displays and trip unit configuration via Siemens SBin™ software.

Multiplexor Translator

Breaker Type	Features	Cat No
SJD, SLD SMD, SND SPD, STD SBA, SBS, SBH	Zone Interlocking Only	**MTZ**
	Full Communications with Zone Interlocking	**MTA**

The Multiplexor Translator MTZ is an interface device required in zone selective interlock schemes. The MTA combines the zone selective interlocking function with interface to ACCESS® Systems.

Cables & Connectors

Ribbon Cables

Breaker Type	Length	Cat No
SJD, SLD SMD, SND SPD, STD SBA, SBS, SBH	6″ 8″ 12″ 18″ 24″	**EPC06** **EPC08** **EPC12■** **EPC18** **EPC24■**

Telephone Cables

Breaker Type	Length	Cat No
SB STD	8″ 15″ 25″ 50″	**MTCSB08▲** **MTCSB15▲** **MTCSB25▲** **MTCSB50▲**
SJD, SLD SMD, SND, SPD, SBA, SBS, SBH	8″ 15″ 25″ 50″	**MTC08** **MTC15** **MTC25** **MTC50**

The Expansion Plug EP is a required isolating device to connect the breaker with the Multiplexor Translator. It is connected to the trip unit on the breaker with a "Ribbon Cable", EPC08 e.g., and the Multiplexor Translator with the "Telephone Cable" (an RJ-11 cable) MTCSB08 e.g.

Expansion Plug Selection Guide

Breaker Type	Frame Size	Mounting Type	Cat. No
SB ICCB and STD	1200A, 2000A	Fixed	**EPSBFMK①■`**
		Draw out	**EPSBDMK①■`**
SB ICCB and STD	3200A, 5000A	Fixed	**EPSB4FMK①■`**
		Drawout	**EPSB4DMK①■`**
Sensitrip	ALL	ALL	**EP**

Component Selection Guide ②

Trip Units and Application					
Component Type	**ZSI (only) with Sensitrip MCCB'S**	**Access and/or ZSI with Sensitrip MCCB's**	**ZSI (only) with all SB-EC Trip Units ACCESS**	**ACCESS and/or with SB-TL Trip Units**	**ACCESS with SB-EC Trip Units**
EP	✓	✓	—	—	—
EPSB	—	—	✓	✓	—
MTZ③	✓	—	✓	—	—
MTA③	—	✓	—	✓	—
EPC Cable	✓	✓	—	—	—
MTC Cable④	✓	✓	—	—	—
MTCSB Cable	—	—	✓	✓	—

■ Built to order. Allow 3–4 weeks for delivery.
▲ Built to order. Allow 7–9 weeks for delivery.
① Factory wired when ACCESS communications or ZSI is ordered for the SB breaker from the factory.
② When ordered with circuit breaker from the factory.
③ One MTA or MTZ per eight trip units when required.
④ Always required when multiple MT's are used. One additional cable per each additional MT.

Lug Information

Mechanical Lug

For Use With Type(s)	Circuit Breaker Ampere Rating	Cables Per Lug	Lug Wire Range	Catalog Number
BQ, BQH, BQHF, BQE, BQF, BL, BLH, HBL, HBQ Switching Neutrals BG BLG	**Line Side**			
	15–40	1 1	#14–#6 AWG Cu #12–#6 AWG Al	**TC1Q1**[1][2] (Pkg. of 6)
	50–100	1 1	#8–#1 AWG Cu #6–#1/0 AWG Al	**TA1Q1**[3] (Pkg. of 6)
	Load Side			
	15–20	1 1	#14–#10 AWG Cu #12–#10 AWG Al	Lugs are integral to Circuit Breaker
	25–35	1 1	#14–#6 AWG Cu #12–#6 AWG Al	
	40–50	1 1	#8–#6 AWG Cu #8–#4 AWG Al	
	55–70	1 1	#8–#4 AWG Cu #8–#2 AWG Al	
	80–100	1 1	#4–#1/0 AWG Cu #2–#1/0 AWG Al	
	110–125	1 1	#2–#1/0 AWG Cu #1/0–#2/0 AWG Al	
BQD, CQD BQD6, CQD6	**Line Side (CQD, CQD6) & Load Side**			
	15–40	1	#14–#6 AWG Cu #12–#6 AWG Al	Integral
	45–100	1	#8–#1 AWG Cu #6–#1/0 AWG Al	Integral
NGG	15–40	1 #12–#6 AWG Al	#14–#6 AWG Cu	TC1Q1 (pkg. of 6)
	50–100	1	#8–#1 AWG Cu #6–#1/0 AWG Al	TA1Q1 (pkg. of 6)
	110–125	1	#6–#1/0 AWG Cu #4–#2/0 AWG Al	3TA1GG20 (pkg. of 3)
	15–125	—	NUT KEEPER PLATE	TNKG3[4] (Pkg. of 3)

Note:

(A) Molded case circuit breakers having a rated ampacity of 125 amperes or less are to be connected with 60 or 75°C wire. Circuit breakers having a rated ampacity greater than 125 amperes shall only be cabled with 75°C cable unless otherwise indicated on the circuit breaker label. Exceptions to this rule are outlined in the 2002 National Electrical Code and Canadian Electrical Code.

[1] Lug is steel.
[2] Sold in package of six.
[3] Use on load side only.
[4] One nut keeper plate is required with each lug on the NGG breaker.

Lug Information

Aluminum Body Lugs for Copper or Aluminum Wire

For Use With Type(s)	Circuit Breaker Ampere Rating	Cables Per Lug	Lug Wire Range	Catalog Number
QJ2, QJH2 QJ2H, HQJ2H	60–225	1	#6 AWG–300 kcmil (Cu) #4 AWG–300 kcmil (Al)	**TA1Q300** (pkg of 3)
All 2, 3 pole ED2, ED4, ED6, ED6 ETI, HED4,	15–25	1	#14–#10 AWG (Cu) #12–#10 AWG (Al)	**SA1E025**
	30–100	1	#10–#1/0 (Cu or Al)	**LN1E100**
	110–125	1	#3-3/0 (Cu) #1-2/0 (Al)	**TA1E6125**
CED6 All 1 pole ED, HED	30–60	1	#10–4 (Cu or Al)	**LD1E060`** **(Load Side)**
	70–100	1	#4–#1/0 (Cu or Al)	**LD1E100** **(Load Side)**
FXD6-A, FD6-A, HFD6, CFD6 HHFD6	70–250	1	#6 AWG–350 kcmil (Cu) #4 AWG–350 kcmil (Al)	**TA1FD350A**
SJD6(A), SHJD6(A) SCJD6	65-200	1–2	#4 AWG–310 kcmil (Cu or Al)	**TA2J630**
JXD2(A), JXD6(A), JD6(A), SJD6(A), HJD6(A), HHJXD6, HHJD6, SHJD6(A), CJD6, SCJD6	200–400	1–2	3/0–500 kcmil (Cu) 4/0–500 kcmil (Al)	**TA2J6500**
LXD6(A), LD6(A), SLD6(A), HLD6(A), HHLXD6, HHLD6, SHLD6(A), CLD6, SCLD6	250–600	1–2	3/0–500 kcmil (Cu) 4/0–500 kcmil (Al)	**TA2J6500**
LMD6①, LMXD6①,` HLMD6①, HLMXD6①, MD6, MXD6, SMD6, HMD6, HMXD6, SHMD6, CMD6, SCMD6	500–600	1–2	250–500 kcmil (Cu or Al)	**TA2K500**
	700–800	1–3	1/0–500 kcmil (Cu or Al) 500–750 kcmil (Cu or Al)	**TA3K500** **TA2N750**②
ND6, NXD6, SND6, HND6, HNXD6, SHND6, CND6, SCND6	800–1200	1–4	250–500 kcmil (Cu or Al)	**2TA4P8500**②⑤ **3TA4P8500**④
			250–500 kcmil (Cu or Al)	**2TA4N8500**③ **3TA4N8500**④
PD6, HPD6, CPD6 PXD6, HPXD6, SPD6, SHPD6	1200–1600	1–5	300–600 kcmil (Cu or Al)	**TA5P600**
PD6, PXD6, HPD6, HPXD6, SPD6, SHPD6, RD6, RXD6, HRD6, HRXD6, STD	1200–2000	1–6	300–600 kcmil (Cu or Al)	**TA6R600**

①Use TA2K500 or TA3K500 only.
②Used for 100% rated MD/ND frame breakers.
③Contains 2 connectors plus 1 NDTS end barrier.
④Contains 3 connectors plus 1 NDTS end barrier.

Lug Information

Optional Mechanical Lugs

For Use With Type	Circuit Breaker Ampere Rating	Cables Per Lug	Lug Material	Lug Wire Range	Qty per Cat. #	Catalog Number
QJ2, QJH2, QJ2H, HQJ2H	60–225	1	Cu	#6 AWG–250 kcmil (Cu)	1	**TC1Q250**
ED, HED 2&3 pole	2–3 pole 30-125	1	Cu	#10–#1/0 (Cu)	1	**TC1ED6150**
HFD6, HHFD6, CFD6, F(X)D6-A	70–250	1	Cu	#6 AWG–350 kcmil (Cu)	1	**TC1FD350**
J(X)D2(A), J(X)D6(A), HJD6(A), HHJD6, SHJD6(A), L(X)D6(A), HHLD6, SCD6, HLD6(A), SHLD6(A), CJD6, CLD6, SCJD6, SCLD6	250–600	1 1–2	Cu	3/0–600 kcmil (Cu) 3/0–500 kcmil (Cu)	1 1	**TC1J6600**①, **TC2J6500**①,
		1 1	Al	500–750 kcmil (Al) 500–600 kcmil (Cu)	1	**TA1L6750**
SMD6, M(X)D6, HM(X)D6, HMD6, CMD6, SCMD6, SND6, N(X)D6, HN(X)D6, SHND6, CND6, SCND6	500–600	1–2	Cu	#1 AWG–500 kcmil (Cu)	1	**TC2K500**
	700–800	1–3	Cu	#1 AWG–350 kcmil (Cu)	1	**TC3K350**
		1–2	Al	500–750 kcmil (Cu) 500–750 kcmil (Al)	2 3	**2TA2N8750** **3TA2N8750**
	800–1200	1–3	Al	500–750 kcmil (Cu) 500–750 kcmil (Al)	2 3	**2TA3N8750** **3TA3N8750**
R(X)D6, HR(X)D6	1600–2000	1–5	Cu	300–600 kcmil (Cu)	1	**TC5R600**
P(X)D6, HP(X)D6, CPD6, SPD6, SHPD6	1200–1600	1–4	Al	600–750 kcmil (Cu/Al)	1	**TA4P750**

Compression Lugs

For Circuit Breaker Types	Ampere Rating	Poles	Lugs Per Kit	Lug Wire Size	Catalog Number
Lugs (contains indicated number of lugs and necessary hardware per kit)					
ED2, ED4, ED6, HED4, CED4	15–125	1, 2, 3	1	#2/0	**CCE125**
QJ2, QJH2, QJ2-H	125–225	2, 3	1	350 kcmil	**CCQ225**
F(X)D6-A, HF(X)D6, HHF(X)D6, CFD6	125–250	2, 3	1	350 kcmil	**CCF250**
JXD2-A, J(X)D6-A, HJ(X)D6-A, HHJ(X)D6-A, CJD6, SJD6-A, SHJD6-A, SCJD6, L(X)D6-A, HL(X)D6-A, CLD6, SLD6-A, SHLD6-A, SCLD6	200–600	2, 3	1	500 kcmil	**CCL600**
Kits (contain lugs and hardware for complete line or load end of 2 or 3 pole breaker)					
M(X)D6, HM(X)D6, CMD6, SMD6, SHMD6, SCMD6	500–800	2	6	500 kcmil	**CCM800K2**
		3	9		**CCM800K3**
N(X)D6, HN(X)D6, CND6, SND6, SHND6, SCND6	900–1200	2	8		**CCN1200K2**
		3	12		**CCN1200K3**

①Used for 100% rated JD/LD frame circuit breakers.

Modifications

A variety of internal and external accessories, as well as modifications, are available to adapt Siemens circuit breakers to special installation requirements. UL listed internal accessories for 100 through 2000A circuit breakers are field-addable.

Internal accessories fine tune an electrical distribution system, allowing control of the circuit breakers to meet special application requirements. For example, emergency situations may dictate tripping critically placed circuit breakers quickly. Shunt trips accomplish this conveniently and efficiently. Or, when voltage drops are a concern, undervoltage trips automatically open the circuit breaker at a predetermined voltage level.

A wide range of external operating and mounting accessories is also available. For example, face, shallow, and back mounting plates are ideal for tailoring BQ circuit breakers to OEM applications. A complete line of operating handles and handle-blocking devices meet switchboard, enclosure and safety needs. Plug-in mounting assemblies, which simplify switchboard mounting of circuit breakers and permit breaker removal without disconnecting bus or cable connections, are available.

Modifications

50°C Ambient Calibration — Not UL listed and not available for solid state, 100% rated breakers or 400HZ calibrated breakers.

For BL Type Circuit Breakers
— Add suffix 'M' to catalog number (Example: B120M)

For BQ, QJ2, and ED Frame Circuit Breakers
— Replace 'B' in catalog number with 'M' (Example: BQ3M060, QJ23M200, ED63M060)

For FD, JD, LD, LMD, MD, ND, PD, and RD Frame Circuit Breakers
Non-Interchangeable Trip (3–pole only)
— Replace 'B' in catalog number with 'M' (Example: FXD63M225, JXD63M400)
Interchangeable Trip (trip unit only, 3–pole only)
— Replace 'T' in catalog number with 'W' (Example: FD63W200, JD63W400)

400 HZ Calibration

UL Listed (5KA IR)
For BQ, BL, and QJ Type Circuit Breakers (200A max.)
— Add suffix 'Y' to catalog number

Not UL Listed
For all other Circuit Breakers — Add suffix 'Y' to catalog number

Fungus Proofing — In accordance with MIL-T-152.

All BQD, CQD, NGG, ED, FD, JD, LD, LMD, MD, ND, PD, and RD, Frame Circuit Breakers are inherently fungus resistant and do not require special treatment.

Fungus proofing in accordance with MIL-T-152
For BL, and BQ Type Circuit Breakers
— Order must be placed directly with the factory by the sales office.

For all other Circuit Breaker Types
— Order must be placed directly with the factory by the sales office.

Certificate of Compliance

Certificate of compliance testing must be performed on the actual device being shipped. The certificate cannot be provided after initial shipment. Order for devices with COC requirement must be placed directly with the factory by the sales office.

UL 489 Supplement SB Naval Use Breakers

Breakers tested to UL 489 Supplement SB are qualified for use on non combat and auxiliary naval vessels.

Siemens' molded case breakers from the ED frame through the 2000 Amp SB frame can be labeled "Naval" in compliance with Supplement SB.

Supplement SB testing comprises two sets of vibration tests. The first is to find mechanical resonances in the product and to subject the breaker to extreme testing at each resonant frequency. The second is a swept frequency test, in which the frequency of excitation is changed in intervals of 1Hz, and held at each frequency for five minutes. The excitation frequencies run from 4 to 33Hz, and the test is conducted in each of the three orthogonal axes of the breaker.

During these tests, the breaker must not trip from the closed position, nor may the contacts touch from the open position. Calibration and insulation resistance are also verified during the test.

For detailed information, refer to UL 489, Supplement SB.

Ordering Information

For "NAVAL" label, order must be placed directly with the factory by Siemens Sales Office.

Types	UL File
ED2, ED4, ED6, HED4	E10848, Vol 4, Sec 11
CED6	E10848, Vol 4, Sec 13
FD6, FXD6, HFD6, HFXD6	E10848, Vol 4, Sec 17
CFD6	E10848, Vol 4, Sec 18
JXD2, JD6, JXD6, LXD6, LD6, HJD6, HJXD6, HLD6, HLXD6	E10848, Vol 4, Sec 8
HHJD6, HHJXD6, HHLD6, HHLXD6	E10848, Vol 4, Sec 20
CJD6, CLD6	E10848, Vol 4, Sec 14
MD6, MXD6, HMD6, HMXD6, CMD6, ND6, NXD6, HND6, HNXD6, CND6	E10848, Vol 4, Sec 15
PD6, PXD6, HPD6, HPXD6, CPD6, RD6, RXD6, HRD6, HRXD6	E10848, Vol 4, Sec 19
SBA400, SBS400, SBA800, SBS800, SBA1200, SBS1200, SBA1600, SBS1600, SBA2000, SBS2000	E9896, Vol 15, Sec 1

Internal Accessories

Feature Combinations

The available feature combinations are shown in the chart below. For applications requiring combinations of features not listed in this chart, consult the sales office for availability.

Breakers	Modules/ Breaker	Avail. On Breaker Poles	ST	ST/ AUX	ST/ ALSW	ST/ AUX/ ALSW	UVT	UVT/ AUX	UVT/ ALSW	UVT/ ST/ ALSW	AUX	AUX/ ALSW	ALSW	Elect. Bell Alarm	Ground fault	Grd fault w/Bell
QP, BQ, BL①	1	1, 2, 3	1	—	—	—	—	—			1	—	—	—	—	—
BQD, CQD, NGG	1	2, 3	1	1/1	—	—	—	—			1	1/1	1	—	—	—
QJ①	1	3	1	1/1	—	—	—	—			2	—	—	—	—	—
All ED, EF	1	1, 2, 3	1	1/1	1/1	1/1/1	1	1/1, 1/2	1/1	1/1/1	1, 2	1/1, 2/1	1	—	1	1
All FD, FF	2	2, 3	1	—	—	—	1	1	—	—	1, 2	1/1	1	—	—	—
All JD, LD, LMD②	2	2,3	1	1	—	—	1	1/1, 1/2	—	—	1, 2	—	1, 2	—	—	—
SJD6, SHJD6, SCJD6, SLD6, SHLD6, SCLD6③	1	3	1	1	—	—	1	1/1, 1/2	—	—	1, 2	—	1, 2	—	—	—
All MD, ND, PD, RD Including Electronic trip④	2	2,3	1	1/1	—	—	1	1/1, 1/2	—	—	1, 2	1/1, 2/1	1, 2	—	—	—
STD⑤	6	3	1	—	—	—	1	—	—	—	1 NC / 1 NO, 2 NC / 2 NO, 3 NC / 3 NO, 4 NC / 4 NO, 5 NC / 5 NO	—	1	1	—	—

Shunt Trip (ST)

One or all critical circuit breakers may be tripped from a distant control point by use of a shunt trip device. A shunt trip operates through an auxiliary switch contact; when the breaker opens, current is not maintained on the shunt trip coil.

Undervoltage Trip (UVT)

When voltage drops to a value below 35% of the nominal coil rating, the undervoltage trip device automatically opens the breaker. The operation is instantaneous, and the circuit breaker cannot be reclosed until the voltage returns to 85% of line voltage. The undervoltage trip, which is continuously energized, must be energized before the circuit breaker can be closed.

Auxiliary Switch (AUX)

For applications requiring remote "on" or "off" indication (or electrical interlocking), auxiliary switches are available. Each switch comprises an "A" (open when circuit breaker is open) and a "B" (closed when circuit breaker is open) contact with a common connection. (Form C)

Alarm Switch (ALSW)

The alarm switch contact is closed when the circuit breaker is opened automatically by an overload, short circuit, shunt trip or undervoltage trip. The alarm switch contact is open when the circuit breaker is reset.

For ED Frames

For FD Frames

For JD and LD Frames

①Factory assembled only
②If mechanical interlock is installed, no accessory module can be installed in the right pocket.
③If mechanical interlock is installed, no accessory module can be installed.
④If mechanical interlock is installed, no accessory module can be installed in the left pocket.
⑤One module per column.

External Accessories

Handle Ties

Provide simultaneous switching of 2 adjacent handles. Do not provide common trip.

For Use With Breaker Frame(s)	Catalog Number	Standard Package	Wt Lb/ Std Pkg
BQ, BQH, HBQ, B6, BLH, HBL (2 Pole)	**QTH3**	50	¼

Padlocking Devices

For locking breaker in "OFF" position.

BQXD, BQ, BQH, HBQ, BL, BLH, HBL	**ECQLD3**	10	¼
One pole BL, BLF, BE, BAF	**ECPLD1**	3	¼
Two-pole BL, BLF and BE	**ECPLD2**	3	¼
All QJ	**HL9419**	10	¼
All BQD, CQD	**BQDPLD**	1	⅛
All ED	**ED2HPL**	1	¼
All FD	**FD6PL1**	1	¼
All JD, LD, LMD	**JD6HPL**	1	¼
All MD, ND, PD, RD	**MN6PLD**	1	¼
STD	**STDPLD■**	1	1

Filler Plates

BQ, BQH, HBQ, BL, BLH, HBL	**QF3-UL**	1	¼

Handle Blocking Devices

For holding breaker in "ON" or "OFF" position. Not a lockout/tagout device.

BL, BLH, HBL, BQXD, BQ, BQH, HBQ	EC**QL1**	25	¼
QJ2, QJH2, QJ2H, HQJ2H	**QJHS1**	25	1
All BQD, CQD, NGG	**BQDHBD**	1	¼
All ED	**E2HBL**	1	¼
All FD	**FD6HB1**	1	½
All JD, LD, LMD	**JD6HBL**	1	½
All MD, ND, PD, RD	**MN6BL**	1	½

Handle Extensions

For replacement. One extension shipped with breaker.

All MD, ND, PD, RD	**EX11**	1	2
STD	**EXSTD■**	—	—

Replacement Terminal Cover

NGG	**RTCG3**	10	¼

ECQTH3

FD Padlocking Device FD6PLI

Padlocking Device ECQLD3

Filler Plate QF3-UL

FD Handle Blocking Device FD6HB1

Handle Blocking Device ECQL1

Handle Extension EX11

■ Built to order. Allow 2–3 weeks for delivery.

①Sold only in standard package quantities.

External Accessories

Mounting Clips

For Use With Breaker Frame(s)	Number of Poles	Catalog Number	Standard Package	Wt Lb Std Pkg
BQ, BQH	1	**MB120**	20⑦	¼

Face Mounting Plates

BQ, BQH, BQXD	1 2 3	**FP9508** **FP9555** **FP9556**	10⑦ 10⑦ 10⑦	½ 1 1½
CQD, CQD6	1 2 3	**CQDFMB1** **CQDFMB2■** **CQDFMB3■**	1 1 1	¼ ¼ ¼
BQ-GFCI	1	**FP9558■**	10⑦	1
NGG	1 2 3	**FMPG1** **FMPG2** **FMPG3**	**1** **1** **1**	¼ ¼ ¼

Shallow Mounting Brackets

BQ, BQH	1–6	**SMB6**	30⑦⑧	1½

Back Mounting Plates

BQ, BQH, BQXD	2 3 4	**BR2** **BR3** **BR4**	10⑦ 10⑦ 10⑦	¼ ¼ ¼
ED2, ED4, ED6, HED4	1	**E2BMB**	1	¼

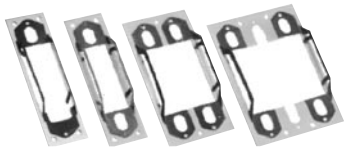
Mounting Screw Kits

CQD, CQD6	**CQDSMK**①	1	1¼
All ED (CED6 requires 2 kits)	**MSE6** ① **MSE6100** ③	1 100⑦	¼ 1
NNG	**MSKG2**	1	¼
All QJ	**MSQJ** ①	1	1
All FD (CFD6 requires 2 kits)	**MSF6** ① **MSF650** ③	1 50⑦	¼ 1
All JD, LD	**MSJ6** ①	1	¼
All LMD	**MSLMD**	1	¼
All MD, ND,	**MSMN**	1	¼
All PD, RD	**MSPR6**	1	2

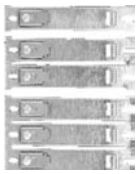
"MI" Mechanical Interlocks

For Use With Breaker Type(s)	Panel⑨ Mounted	Plug-in Mounted	Standard Package	Wt Lb Std Pkg
BQ	—	**ECQML12**	10⑦	¼
All QJ	**CSO**	—	1	1
All FD	**MI5444**	**MI5444**	Complete with two breakers	—
All JD, LD	**MI5413**⑤	—	1	1
All LMD	**MI5406**⑤	—	1	1
All MD	**MI5404**④■	—	1	3
All ND	**MI5404**④■	—	1	3
All PD, RD	**MI5405**④▲	**MI5405**⑤▲	—	—
STD	**STDMIF32▲**	—	—	—

MB120



Face Mounting Plates
FP9558 FP9508 FP9555 FP9556



SMB6 (6 shown)

QML12

Back Mounting
Plate BR2

Mounting Screw Kit
MSE6

Mechanical Interlock
MI5444

■ Built to order. Allow 2–3 weeks for delivery.
▲ Built to order. Allow 6–8 weeks for delivery.
Note: CSO = Consult Sales Office
①Kit consists of 4 screws and washers.
②Consists of 1 screw and washers (order 100).
③Consists of 1 screw and washers (order 50).
④With mechanical interlock in place, no accessory can be installed into circuit breaker right pole.
⑤Addition of the mechanical interlock will prevent accessory installation in the left pole.
⑥Sold only in standard package quantities. Multiply List
⑦Price Each times package quantity for full price.
⑧Each package contains 5 strips of 6 each. Each strip can be broken at perforations for 1, 2 or 3-pole use.
⑨Mechanical interlock is not designed for use within Siemens panelboards.

External Accessories

Rotary Door Mounted Operating Handles

Types 1, 3, 3R , 12, 4 4X

For Use With Breaker Frames	Complete Mechanism Catalog Number		Handle Only	Breaker Operator	Shaft Only	
	Standard Depth	Variable Depth	Catalog Number	Catalog Number	Length (inches)	Catalog Number
ED①	**CRHOESD**	**CRHOEVD**	**CRHOH**	**RHOEBO**	**2**	**RHOSSD**
FD	**CRHOFSD**	**CRHOFVD**		**RHOFBO**	**12**	**RHOSVD**
JD, LD	**CRHOJSD**	**CRHOJVD**		**RHOJBO**	**16**	**RHOSXD**
LMD	**CRHOLMSD**	**CRHOLMVD**		**RHOLMBO**		
MD, ND PD, RD	**RHONSD**	**RHONVD**	**RHOH**	**RHONBO**	**3** **12** **24**	**RHONSSD▲** **RHONSVD** **RHONSXD**

For 3 or 3R, order shaft and breaker operator as shown, and handle RHOH. For 4 & 4X, order handle RHOH4.

Rotary Door Mounted Operating Handles

Types 1 & 12

For Use With Breaker Frames	Standard Depth Catalog Number	Variable Depth Catalog Number
CQD, NGG	—	**RHOCQVD**
ED	**D11CEU1**	**D11CEU2**
FD	**D11CFU1▲**	**D11CFU2**
JD, LD, LMD	—	**D11CJU2**

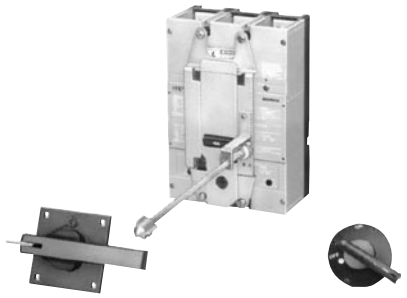
Through Door Mounted Operating Handles

Types 1 & 12

For Use With Breaker Frames	Standard Depth Catalog Number	Variable Depth Catalog Number
CQD, NGG	**FMHOS**	—
QJ	**OH9498■**	**VH9499**
ED	**E2RH1**	**E2RHV9**
FD	**F6RH1**	**F6RHV9**

Door Latch Kits

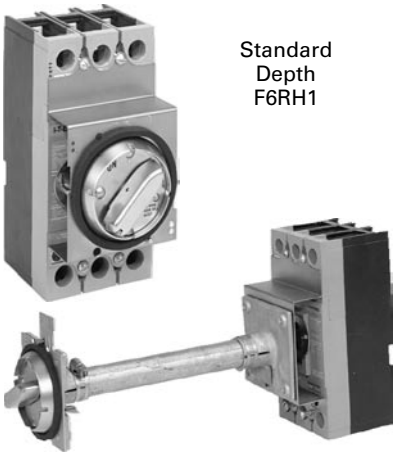
Type	Catalog Number Right Hand	Catalog Number Left Hand
2 point latch	**DKR2**	**DKL2■**
3 point latch	**DKR3**	**DKL3■**



RHOH CRHOH

D11CEU2

Rotary Door Mounted Operating Handles



Standard Depth F6RH1

Variable Depth F6RHV9

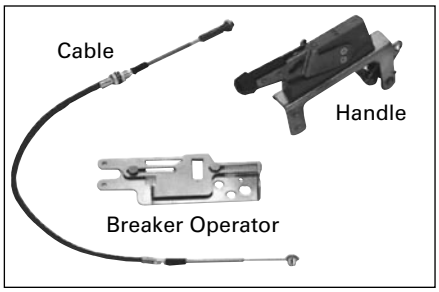
■ Built to order. Allow 3–4 weeks for delivery.
▲ Built to order. Allow 7–9 weeks for delivery.
①For use on 3-pole ED frame only.

External Accessories

Max-Flex™, Flange Mounted Variable Depth Operators

Frames	NEMA Type	Complete Kit Catalog Number	Handle Only Catalog Number	Breaker Operator Catalog Number	36″ Cable Catalog Number
ED	1, 3(R), 12	FHOE036①	FHOH	FHOEBO①	FHOEC036
	4(X)	—	FHOH4		
FD	1, 3(R), 12	FHOF036	FHOH	FHOFBO	FHOFC036
	4(X)	—	FHOH4		
JD, LD, SJD, SLD	1, 3(R), 12	FHOJ036	FHOH	FHOJBO	FHOJC036
	4(X)	—	FHOH4		
LMD	1, 3(R), 12	FHOLM036	FHOH	FHOLMBO	FHOJC036
	4(X)	—	FHOH4		
MD, ND, PD, RD, SMD, SND, SPD	1, 3(R), 12	FHON048	FHOHN	FHONBO	FHONC048②
	4(X)	—	FHOHN4		

Max-Flex™ handles are available with solid black handles instead of the customary "red for on" flange handle. These are preferred for use in IECmarkets, where red handles have specific meaning. Order componenets separately, apppending the letter "i" to the catalog number (e.g. FHOHI).



Max Flex™

Alternate Length Cable Only

Inches	ED Catalog Number	FD Catalog Number	JD/LD/LMD Catalog Number	MD/ND/PD/RD Catalog Number
48	FHOEC048	FHOFC048	FHOJC048	FHONC048
60	FHOEC060	FHOFC060	FHOJC060	FHONC060
72	FHOEC072	FHOFC072	FHOJC072	FHONC072
84	FHOEC084▲	FHOFC084▲	FHOJC084▲	FHONC084▲
96	FHOEC096	FHOFC096	FHOJC096	FHONC096
120	FHOEC120▲	FHOFC120	FHOJC120▲	FHONC120▲
144	FHOEC144▲	FHOFC144▲	FHOJC144▲	FHONC144▲

Handle Auxiliary Switch

For use with Max-Flex and Rotary Door operators (FHOH and RHOH). 1 NO and 1 NC contact.

For Use With	Catalog Number
ED, JD, LD, LMD, ND, PD, RD, SD, Max Flex	HAS1

Fixed Depth Flange Mounting

Frames	Minimum Enclosure Depth	NEMA Type	Left Hand Mount Catalog Number	Right Hand Mount Catalog Number
ED	6.44	1, 3R, 12	FDFBEL▲	FDFBER▲
		4, 4X	FDFBEL4▲	FDFBER4▲
FD	6.44	1, 3R, 12	FDFBFL▲	FDFBFR▲
		4, 4X	FDFBFL4▲	FDFBFR4▲

Max-Flex™ handles are available with solid black handles instead of the customary "Red for On" flange handle. These are preferred for use in IECmarkets, where red handles have specific meaning. Order componenets separately, apppending the letter "i" to the catalog number (e.g. FHOHI).


FDFBFR

▲ Built to order. Allow 7–9 weeks for delivery.

① For 1- or 2-pole breaker order FHOED036 complete kit or FHOEDBO breaker operator only.

② 48 inch cable is standard length for M through R frame Max-Flex operators.

External Accessories

Telemand® Motor Operator

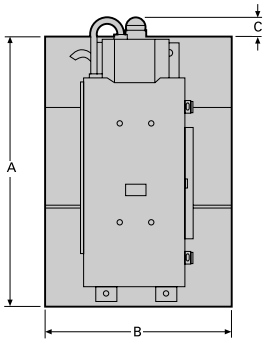
Breaker Frame	AC Voltage	Hinged to Open Down
ED except CED	120	**MOE6120**
	240	**MOE6240▲**

ED motor operator opens downward.

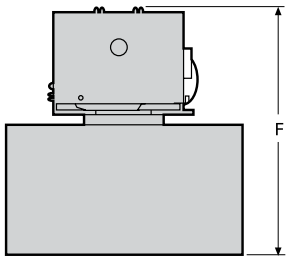
Breaker Frame	DC Voltage	Hinged to Open Right	AC Voltage	Hinged to Open Right
FD	24 48 125	**MOF6024DC▲** **MOF6048DC▲** **MOF6125DC▲**	120 240 —	**MOF6120** **MOF6240** —
JD, LD	24 48 125	**MOJ6024DC▲** **MOJ6048DC▲** **MOJ6125DC▲**	120 240 —	**MOJ6120** **MOJ6240** —
LMD	24 48 125	**MOLMD6024DC▲** **MOLMD6048DC▲** **MOLMD6125DC▲**	120 240 —	**MOLMD6120** **MOLMD6240** —
MD, ND, PD, RD	— —	— —	120 240	**MOMN6120** **MOMN6240**

To order FD through RD motor operators with Left side hinges, add "L" to catalog number (e.g. MOF6120L).
List prices are the same.▲

FD, JD, LD, LMD, MD, ND, PD, RD Frames



Front View



Bottom View

Dimensions

Frame	A	B	C	D	E	F
ED	7.04	4.31	—	4.31	13.84	8.84
FD	9.50	4.55	1.60	6.84	9.70	7.58
JD, LD, LMD	11.00	7.50	0.79	8.34	9.85	7.74
MD, ND, PD, RD	16.00	9.00	—	9.83	13.13	10.13

Operating Currents

Catalog Number	On			Off			Reset (Amps)
	In-Rush (Amps)	Running (Amps)	Time (msec)	In-Rush (Amps)	Running (Amps)	Time (msec)	
MOE6120 **MOE6240**	10.25 5.2	2.3 1.1	550 500	10.0 5.0	2.3 1.0	400 330	2.3 1.1
MOF6120/L **MOF6240/L**	10.0 4.7	5.5 2.5	200 200	10.0 4.7	5.5 2.5	175 185	5.5 2.5
MOLMD6120/L	15.2	6.0	210	15.2	6.0	185	6.0
MOJ6120/L **MOJ6240/L**	15.2 5.0	6.0 2.5	210 217	15.2 5.0	6.0 2.5	185 185	6.0 2.5
MOMN6120/L	22.7	13.9	240	22.7	13.9	210	13.9
MOMN6240/L	12.6	4.6	260	12.6	4.6	230	12.6

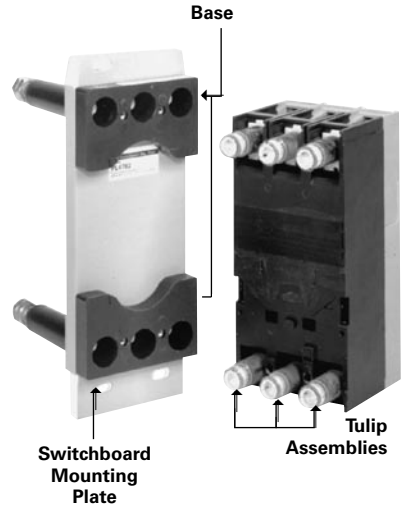
For inches / millimeters conversion, see Application Data section.

▲ Built to order. Allow 7–9 weeks for delivery.

External Accessories

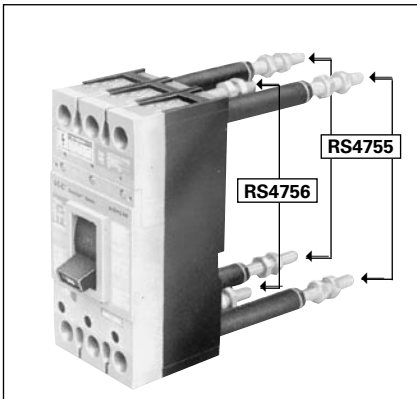
Plug-In Mounting Assemblies, Including Base and Tulip Assemblies

For Use With Breaker Frames	Poles	Line Side Catalog Number[2]	Load Side Catalog Number[2]	Steel Switchboard Mounting Plate[1] Catalog Number
All ED except CED	2	PC2637▲	PC2638▲	PL2616
	3	PC2657	PC2658	
CED	2	PC2637▲	PC2638▲	PL2617
	3	PC2657	PC2658	
All FD except CFD	2	PC4753▲	PC4753▲	PL4762
	3	PC4754	PC4754	
CFD	2	PC4753▲	PC4753▲	PL4763
	3	PC4754	PC4754	
All JD except CJD	2	PC5777▲	PC5777▲	PL5796
	3	PC5778	PC5778	
Kit CJD, SCJD	3	PCCJD	PCCJD	PL5797
All LD except CLD	2	PC5660▲	PC5660▲	PL5696
	3	PC5661	PC5661	
Kit CLD, SCLD	3	PCCLD	PCCLD	PL5797
All MD	2	PC5662▲	PC5662▲	PL9698
	3	PC5663	PC5663	
All ND	2	PC5664[3]▲	PC5664[3]▲	PL9699
	3	PC5666[3]	PC5666[3]	



Tulip Assemblies Separately

For Frame	2 Pole Catalog Number	3 Pole Catalog Number
ED	TCE2▲	TCE3▲
FD	TCF2▲	TCF3▲
JD	TCJ2▲	TCJ3▲
LD	TCL2▲	TCL3▲
MD	TCM2▲	TCM3▲
ND	TCN2▲	TCN3▲



Circuit Breaker
With Rear-Connecting Studs

Rear-Connecting Studs

For Use With Breaker Frames	Ampere Rating	Description	Extension Behind Breaker (inches)	Line Side Catalog Number	Load Side Catalog Number
All ED	100	Line Side (Short)	2.38	RS2643[5]▲	—
	100	Load Side (Short)	2.38	—	RS2644[5]▲
	100	Line Side (Long)	4.88	RS2641[5]▲	—
	100	Load Side (Long)	4.88	—	RS2642[5]▲
All FD	250	Short	3.12	RS4756[5]▲	RS4756[5]▲
	250	Long	7.06	RS4755[5]▲	RS4755[5]▲
All JD	400	Short	5.85	RS5774▲	RS5774▲
	400	Long	11.20	RS5773▲	RS5773▲
All LD	600	Short	5.85	RS5784▲	RS5784▲
	600	Long	11.20	RS5783▲	RS5783▲
CJD, SCJD CLD, SCLD	Add required shield kit.			—	CLRSJL3
LM(X)D6, HLM(X)D6	800	Short	5.85	RS5788▲	RS5788▲
		Long	11.20	RS5787▲	RS5787▲
All MD, ND	1200	Short	5.50	RS5786▲	RS5786▲
	1200	Long	8.00	RS5785▲	RS5785▲

▲ Built to order. Allow 7–9 weeks for delivery.

[1] Furnished at no extra charge when ordered with plug-in mounting assembly.

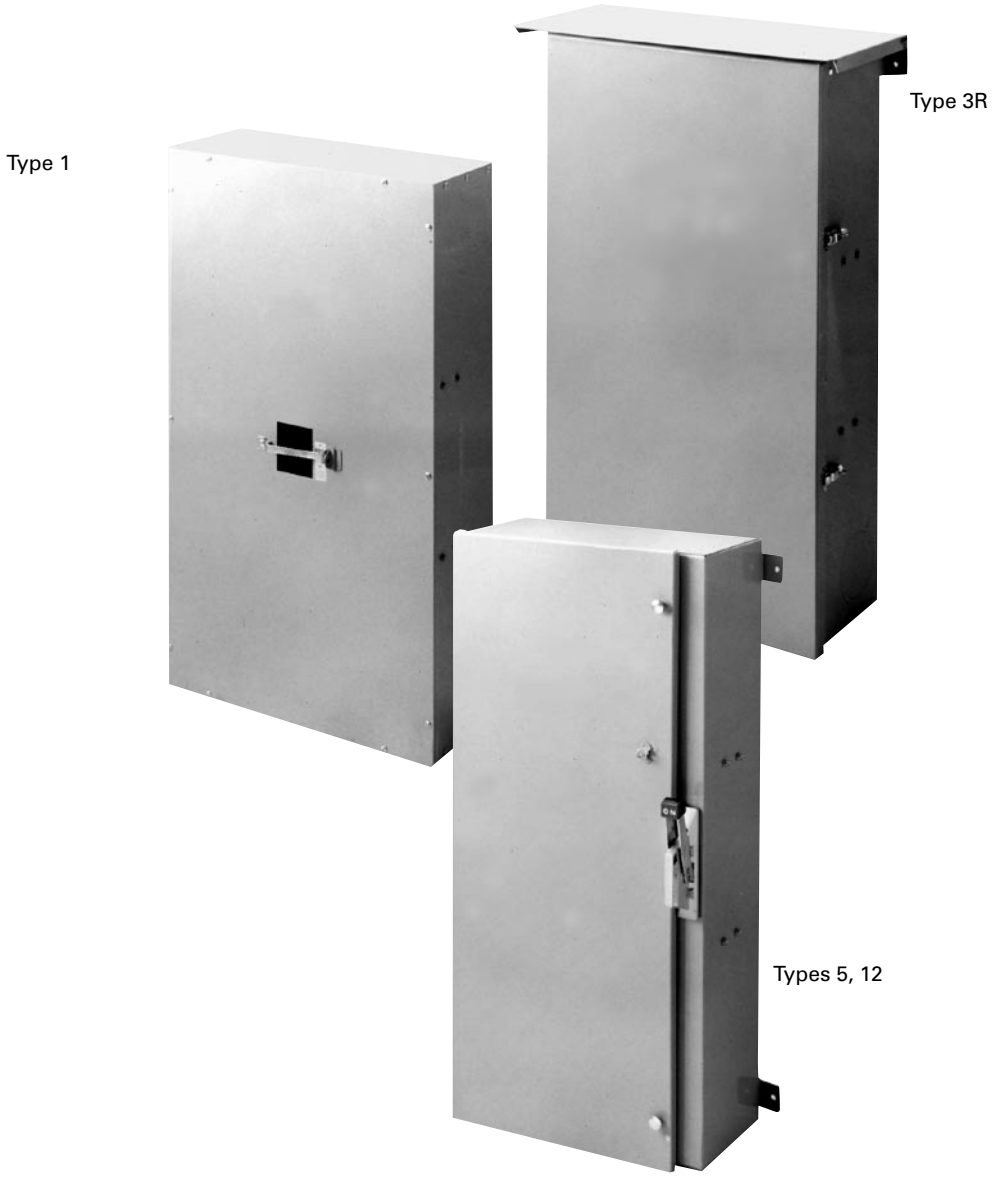
[2] Each piece catalog number consists of (1) mounting block assembly and required tulip assemblies (2) for 2-pole, (3) for 3-pole

[3] For vertical bus mounting — for horizontal, substitute PC5665 for PC5664 and PC5667 for PC5666.

[4] Price includes one current stud, insulating tube, stud nuts and terminal shields, when required.

[5] For proper electrical clearance, studs must alternate between short and long stud lengths on circuit breaker poles (e.g. SLSLSL or LSLSLS).

Enclosures



Type 1 — A general indoor, sheet-steel enclosure for use in normal atmospheres.

Type 3R — An outdoor, sheet-steel enclosure providing protection against driving rain, sleet or snow. Listed as service entrance equipment.

Types 5, 12 — A special-industry, sheet-steel enclosure for use in atmospheres containing particles of lint, dust, dirt, sawdust and other foreign matter.

Enclosures — Type 1

Dimensions

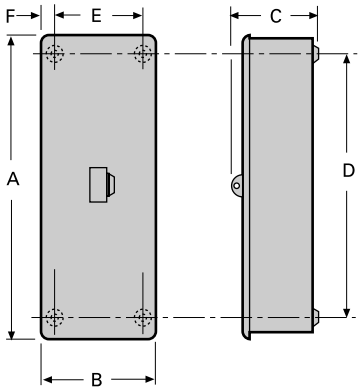


Figure 1

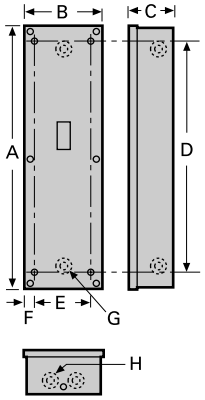


Figure 2

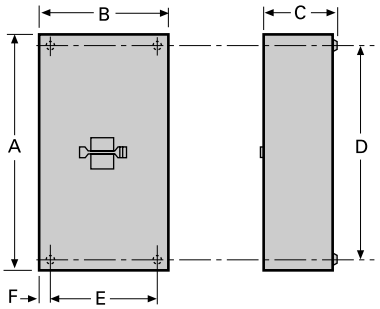


Figure 3

Type 1

Fig. No.	Breaker Type	Number of Poles	Maximum Current Rating	Catalog Number	Weight Lb./Ship. Package	Dimensions (inches)						K.O. Dimensions	
												6 Plcs.	2 Plcs.
						A	B	C	D	E	F	G	H
1	BQ, BQH, HBQ	3	100	**EB3100S**①④⑦	32	17⅛	7⅛	4¾	14⅛	4½	1 5/16	—	—
2	ED2, ED4, ED6, HED4, HED6	2–3	100	**E2N1S**④ **E2N1F**④	8 8	16 23/32 17½	7½ 8½	5 1/16 5 1/16	13 45/64 13 45/64	5¼ 5¼	1 1	⅞, 1⅛, 1⅜,	⅞, 1⅛, 1⅜,
2	ED4, ED6, HED4, HED6, CED6	2–3	125	**CED6N1S**④⑥ **CED6N1F**④⑥	14 14	21 15/32 22¼	7 19/32 8½	5 7/64 5 7/64	18¼ 18¼	5¼ 5¼	1 1	1¾, 2	1¾, 2
2	FXD6, FD6, FXD6-A, FD6-A, HFD6, HFXD6, HHFD6, CFD6	2–3	250	**F6N1S**⑤ **F6N1F**⑤	33	38 13/32	11 15/32	5 1/16	33	8	1 33/64	1⅛, 1⅜, 1¾, 2, 2½, 3	1⅛, 1⅜, 1¾, 20, 2½, 3
3	JXD2(A), JD6(A), JXD6(A), HJD6(A), HJXD6(A), HHJD6, HHJXD6, SJD6(A), SHJD6(A), SXD6H	2–3	400	**J6N1**⑤	120	40 13/64	22 27/64	10 45/64	36	18¼	2 5/64	—	—
3	LD6(A), LXD6(A), HLD6(A), HLXD6(A), HHLD6, HHLXD6, SLD6(A), SHLD6(A), SCJD6, SCLD6, LXD6H	2–3	600	**LD6N1**⑤ **(L6N1)**⑤	101	46	22 27/64	10 45/64	42	18¼	2 5/64	—	—
3	MD6, MXD6, SMD6, HMD6, HMXD6, SHMD6, ND6, NXD6, SND6, HND6, HNXD6, SHND6, CMD6, SCMD6, CND6, SCND6	2–3	1200	**MND61**⑤	132	60	22 27/64	10	55⅞	18¼	2 5/64	—	—
—	PD6, PXD6, HPD6, HPXD6, CPD6, RD6, SPD6, SHPD6, RXD6, HRD6, HRXD6	3	2000	**PRD6N1**	—	90	32	28	—	—	—	—	—

For inches / millimeters conversion, see page 15/6.

①Surface mounted, indoor. If flush mounting is required, replace suffix "S" in catalog number with suffix "F." Also, if outdoor model required, use prefix "W" instead of "E."

②Does not include circuit breaker. Order circuit breaker separately.

③Neutral not included. Order as separate item from table on next page.

④Neutral included in enclosure.

⑤Surface mounted, indoor. If outdoor model is required, use prefix "W" instead of "E." Not available in flush ("F") model.

⑥Use for 110-125 ampere ED4, ED6, HED4 or HED6 circuit breakers.

⑦Will not accept breaker with shunt trip.

⑧Will not accept 2-pole GFCI or breaker with shunt trip.

Built to order. Consult sales office for factory lead time and prices.

Enclosures — Type 1

Dimensions

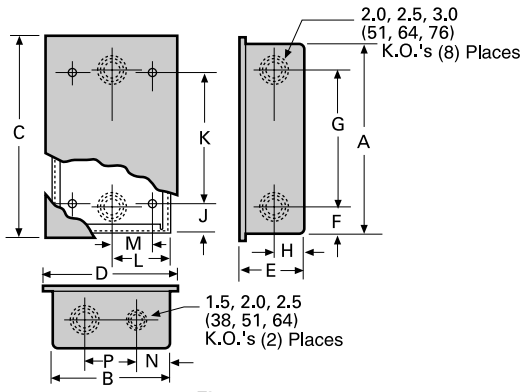


Figure 4

Figure Number	Breaker Type	Number of Poles	Maximum Current Rating	Catalog Number	Weight Lb./Ship. Package	Dimensions (inches)												
						A	B	C	D	E	F	G	H	J	K	L	M	N	P
4	QJ2, QJH2, QH2-H, QJ, QJH	2–3	225	**EB3225S**	15	27	10⅛	27	10⅛	5¼	2¹³⁄₁₆	21⅜	2⅜	3	20	5¹⁄₁₆	2¾	2¾	4½
				EB3225F		27	10⅛	28⅛	11¼	5¼	2¹³⁄₁₆	21⅜	2⅜	3	20	5¹⁄₁₆	2¾	2¾	4½

Neutrals

Enclosure Catalog Number	Neutral Catalog Number	Neutral Cable Capacity and Wire Range
E2N1(S)(F) **CED6N1**(S)(F)	**W53045**②	(1 pc.) #14–2 Cu/Al Grd. Lug (1 pc.) #14–8 Cu/Al
F6N1(S)(F)	**N250 (NFD)**	(1 pc.) #6–350 kcmil Grd. Lug (1 pc.) #14–2/0 Cu/Al
J6N1	**W60992 (NJD)**	(1 pc.) #1/0–750 kcmil Cu/Al or (2 pcs.) #1/0–300 kcmil Cu/Al Grd. Lug (1 pc.) #6–250 kcmil Cu/Al
LD6N1	**W60993 (NLD)**	(2 pcs.) #1/0–600 kcmil Grd. Lug (1 pc.) #6–250 kcmil Cu/Al
MND61	**W63623 (NMND)**	(8 pcs.) 250 kcmil–500 kcmil Cu/Al Grd. Lug (1 pc.) #6–300 kcmil Cu/Al
PRD6N1	**N2000**	(6 pcs.) #3/0–750 kcmil Cu/Al Grd. Lug (2 pcs.) #3/0–750 Cu/Al

For inches / millimeters conversion, see page 15/6.

①Does not include circuit breaker. Order circuit breaker separately.
②Neutral included in enclosure.

Built to order. Consult sales office for factory lead time and prices.

Enclosures — Type 3R

Dimensions

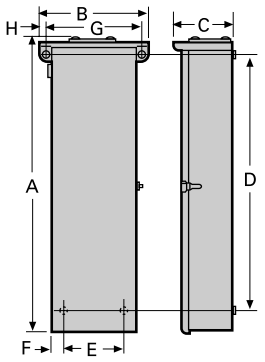


Figure 1

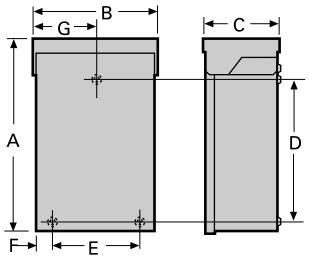


Figure 2

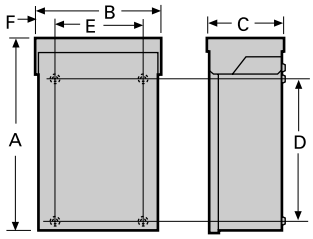


Figure 3

Type 3R

Figure Number	Breaker Type	Number of Poles	Maximum Current Rating	Catalog Number	Weight Lb./Ship. Package	Dimensions (inches)							
						A	B	C	D	E	F	G	H
2	BQ, BQH, HBQ	3 3	50 100	**WB3100**④	9	17 1/8	7 3/8	4 5/16	14 1/8	4 1/2	1 1/8	3 11/16	—
5	ED2, ED4, ED6, HED4, HED6	2–3	100	**E2N3R**③	12	17 9/16	7 1/4	5 1/4	12 39/64	5 1/4	1	3	—
5	CED6	2–3	125	**CED6N3R**③	16	22 21/64	7 1/4	5 1/4	17 3/8	5 1/4	1	3	—
1	FXD6, FD6, FXD6-A, FD6-A, HFD6, HFXD6, HHFD6, CFD6	2–3	250	**F6N3R**②	45	38 1/8	14 1/16	7 3/4	33 3/32	8	13/16	13 1/2	13/16
1	JXD2(A), JD6(A), JXD6(A), HJD6(A), HJXD6(A), HHJD6, HHJXD6, SJD6(A), SHJD6(A), SXD6H	2–3	400	**J6N3R**②	126	40 63/64	26 3/4	11 23/32	35 3/4	18 1/4	2 1/8	24 1/2	1 1/8
1	LD6(A), LXD6(A), LXD6H, HLD6(A), HLXD6(A), HHLD6, HHLXD6, CJD6, CLD6, SCJD6(A), SLD6(A), SHLD6(A)	2–3	600	**LD6N3R**② **(L6N3R)**	137	45 63/64	26 3/4	11 23/32	40 3/4	18 1/4	2 1/8	24 1/2	1 1/8
1	MD6, MXD6, SMD6, HMD6, HMXD6, SHMD6, ND6, NXD6, SND6, HND6, HNXD6, SHND6, CMD6, SCMD6, CND6, SCND6	2–3	1200	**MND63**②	210	61 3/64	26 3/4	11 23/32	57 17/32	18 1/4	2 1/8	24 5/8	1 1/16

For inches / millimeters conversion, see page 15/6.

①Does not include circuit breaker. Order circuit breaker separately.

②Neutral not included. Order as separate item from table on next page.

③Neutral included in enclosure.

④Will not accept breaker with shunt trip.

Enclosures — Type 3R

Dimensions

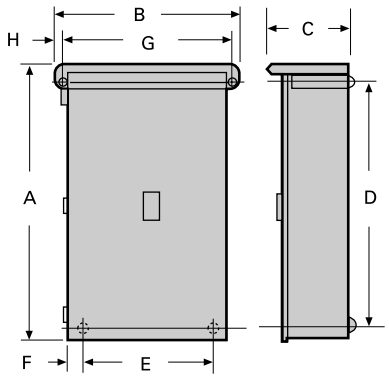


Figure 4

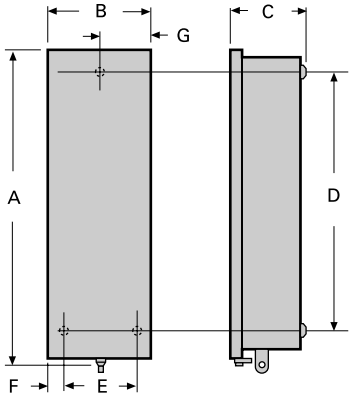


Figure 5

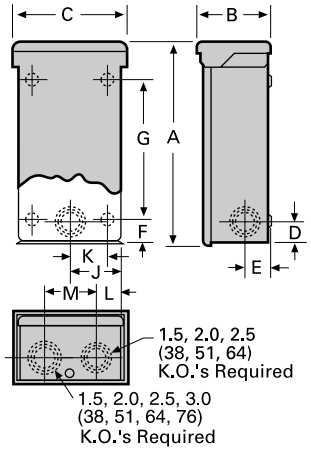


Figure 6

Figure Number	Breaker Type	Number of Poles	Maximum Current Rating	③ Catalog Number	Weight Lb./Ship. Package	Dimensions (inches)											
						A	B	C	D	E	F	G	H	J	K	L	M
6	QJ2, QJH2, QJ2-H, QJ, QJH	2 3	225 225	**WB2225** **WB3225**	17 17	27 27	5 5 5/8	7 11/16 10 3/8	2 1/4 2 1/4	2 2	2 7/8 2 7/8	20 20	4 1/8 4 1/8	3 5/8 5 1/8	2 3/4 2 3/4	2 3/4 2 3/4	— 4 1/2

Neutrals

Enclosure Catalog Number	Neutral Catalog Number	Neutral Cable Capacity and Wire Range
E2N3R③	**W53045**⑤	(1 pc.) #14–2 Cu/Al Grd. Lug (1 pc.) #14–8 Cu/Al
CED6N3R④		
F6N3R②	**N250 (NFD)**	(1 pc.) #6–350 kcmil Grd. Lug (1 pc.) #14–2/0 Cu/Al
JD6N3R②	**W60992 (NJD)**	(1 pc.) #1/0–750 kcmil Cu/Al or (2 pcs.) #1/0–300 kcmil Cu/Al Grd. Lug (1 pc.) #6–250 kcmil Cu/Al
LD6N3R②	**W60993 (NLD)**	(2 pcs.) #1/0–600 kcmil Grd. Lug (1 pc.) #6–250 kcmil Cu/Al
MND63②	**W63623 (NMND)**	(8 pcs.) 250 kcmil–500 kcmil Cu/Al Grd. Lug (1 pc.) #6–300 kcmil Cu/Al

Hubs — see page 6/87

For inches / millimeters conversion, see page 15/6.

①Does not include circuit breaker. Order circuit breaker separately.

②Neutral not included. Order as separate item from table on next page.

③Neutral included in enclosure.

④Use CED enclosure for all ED-frame 110-125 ampere units.

Enclosures — Type 12

Types 5, 12

Figure Number	Breaker Type	Number of Poles	Maximum Current Rating	Catalog Number	Weight Lb./Ship. Package	Dimensions (inches)					
						A	B	C	D	E	F
2	ED2, ED4, ED6, HED4, HED6	2–3	100	**E2N12**③	12	18 5/8	8 11/32	7 1/16	18	6 1/16	1/2
1	CED6	2–3	125	**CED6N12**③	16	22 5/8	8 11/32	7 1/16	22	6 1/16	5/8
2	FXD6, FD6, FXD6-A, FD6-A, HFD6, CFD.6	2–3	250	**F6N12**②	40	38 19/32	14 29/64	8 1/8	34	13	23/32
3	JXD2(A), JD6(A), JXD6(A), HJD6(A), HJXD6(A), HHJD6, HHJXD6, SJD6(A), SHJD6(A)	2–3	400	**J6N12**②	104	40	25 35/64	11 7/8	36	24 35/64	—
3	LD6(A), LXD6(A), HLD6(A), HLXD6(A), HHLD6, HHLXD6, SLD6(A), SHLD6(A), CJD6, CLD6, SCJD6(A), SCLD6(A)	2–3	600	**LD6N12**② **(L6N12)**	104	45	25 35/64	11 7/8	41	24 35/64	—
4	MD6, MXD6, SMD6, HMD6, HMXD6, SHMD6, ND6, NXD6, SND6, HND6, HNXD6, SHND6, CMD6, SCMD6, CND6, SCND6	2–3	1200	**MND612**②	220	60	37 3/8	10	5/8	3	2

Dimensions

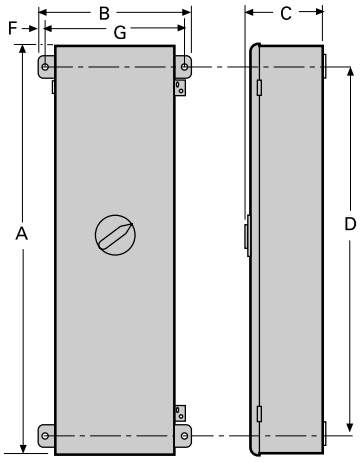


Figure 1

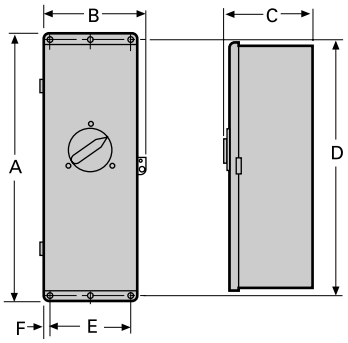


Figure 2

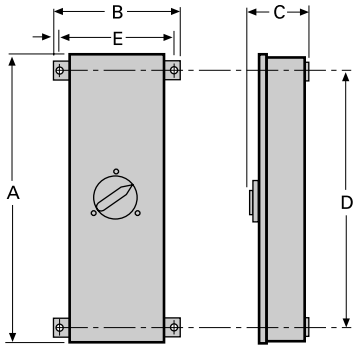


Figure 3

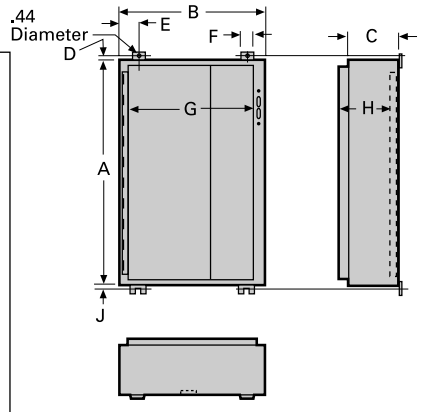


Figure 4

Neutrals

Enclosure Catalog Number	Neutral Catalog Number	Neutral Cable Capacity and Wire Range
E2N12③	**W53045**③	(1 pc.) #14–2 Cu/Al (1 pc.) #14–2 Cu/Al
CED6N12④		
F6N12②	**N250 (NFD)**②	(1 pc.) #6–350 kcmil Grd. Lug (1 pc.) #14–2/0 Cu/Al
J6N12②	**W60992 (NJD)**②	(1 pc.) #1/0–750 kcmil Cu/Al or (2 pc.) #1/0–300 kcmil Cu/Al Grd. Lug (1 pc.) #6–250 kcmil Cu/Al
L6N12②	**W60993 (NLD)**②	(2 pcs.) #1/0–600 kcmil Grd. Lug (1 pc.) #6–250 kcmil Cu/Al
MND612②	**W63623 (NMND)**②	(8 pcs.) 250 kcmil–500 kcmil Cu/Al Grd. Lug (1 pc.) #6–300 kcmil Cu/Al

For inches / millimeters conversion, see page 15/6.

①Does not include circuit breaker. Order circuit breaker separately.

②Neutral not included. Order as separate item.

③Neutral included in enclosure.

④Use CED enclosure for all ED-frame 110–125 ampere units.

Knockouts & Wire Bending Space

Breaker Type	Conduit Range Per Knockout Outside Dimensions (inches)	Types 1, 12 — Number of Knockouts Per Panel (type 12 have no KO's)				Type 3R				Maximum Cable Sizes Recommended (Cu/Al) for Type 1, 3R, 4, 4X, 12 & 12K Enclosures[3][2]
		Top	Bottom	Side	Back	Bottom	Side	Back	Maximum Hub Size (inches) Type 3R	
BQ, BQH, HBQ 70–100A	¾, 1, 1¼	1	1	2	2	8	1	3	2	[2]
QJ	1½, 2, 2½, 3	2	2	2	2	3	1	1	2½	[2]
ED2, ED4, ED6, HED4	⅞, 1⅛, 1⅜, 1¾, 2	2	2	2	2	2	1	1	2	[2]
CED6	⅞, 1⅛, 1⅜, 1¾, 2 ⅞, 1⅛, 1⅜, 1¾, 2, 2½	— 2	— 2	— 2	— 2	2 —	— 1	— 1	2	[2](CFD6 only 300 kcmil)
FXD6, FD6, FXD6-A, FD6-A HFD6, CFD6	1⅛, 1⅜, 1¾, 2, 2½, 3	1 1	1 1	2 —	2 —	1 1	1 —	— —	4	[2]
JXD2(A), JXD6(A), JD6(A), HJD6(A), HJXD6(A), HHJD6, HHJXD6, SJD6(A), SHJD6(A)	1½, 2, 2½, 3, 3½, 4	1	1	2	4	—	—	—	4	(2) 500 kcmil
LXD6(A), LD6(A), HLXD6(A), HLD6(A), HHLD6, HHLXD6, SLD6(A), SHLD6(A)	1½, 2, 2½, 3, 3½, 4	1	1	2	4	—	—	—	4	(2) 500 kcmil
MD6, SMD6, HMD6 ND6, SND6, HND6	—	—	—	—	—	—	—	—	4	(3) 600 kcmil or (4) 500 kcmil

Hubs (Type 3R)

Breaker Type	Conduit Size (inches)	Catalog Number
BQ, BQH, HBQ, ED2, ED4, ED6, HED4, HED6, CED6	¾ 1 1¼ 1½ 2	**HR075** **HR100** **HR125** **HR150** **HR200**
QJ2, QJH2, QJ2-H	1¼ 1½ 2 2½	**HS125** **HS150** **HS200** **HS250**
FXD6-A, FD6-A, HFD6, HFXD6, CFD6, JXD2(A), JD6(A), JXD6(A), HJD6(A), HJXD6(A), LD6(A), LXD6(A), HLD6(A), HLXD6(A)	2½ 3 3½ 4	**HV250** **HV300** **HV350** **HV400**

Note: Enclosures for 250A max breakers have a hub provision on the rainshed. Enclosures for larger breakers (J, L, M & N frame) have blank top rainsheds. Drill or punch hole in the field to accommodate hub size desired.

For inches / millimeters conversion, see page 15/6.

[1] 17⅛" high enclosure provides sufficient wire bending space for all available CB lugs.

[2] Sufficient wire bending space is provided for all available mechanical type CB lugs.

[3] The use of cables larger than those listed below may violate NEC & CSA wire bending space requirements.

[4] The use of compression type connectors will violate NEC and CSA wire bending space requirements.

Notes

Series Rated Combination Guide

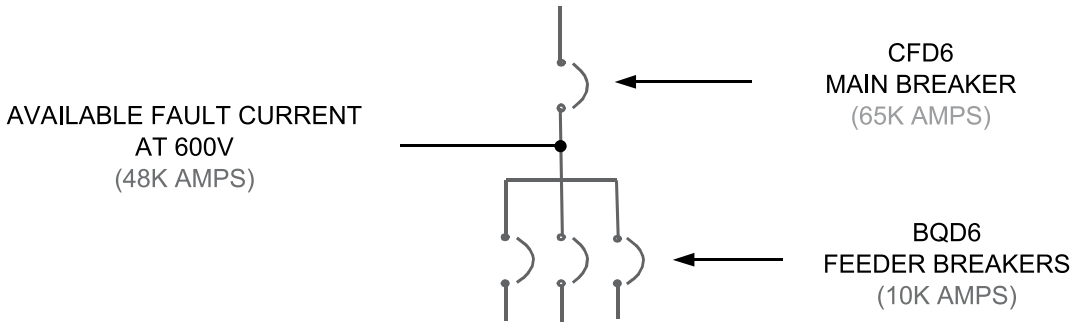
Introduction

The short circuit protection devices of most common electrical distribution systems have interrupting ratings higher than the respective available fault current. These are known as Fully Rated systems. Fully rated protection devices are essential for main or upstream but not essential for branch or downstream devices if the main and branch devices have been tested and approved as series rated. In instances of a short circuit in a series rated combination, on the load side of the downstream device, the fully rated upstream device will assist in clearing the fault.

Short circuit devices with higher interrupting ratings are generally more costly than lower rated devices. Installing Series Rated systems can be economical without compromising system reliability or safety.

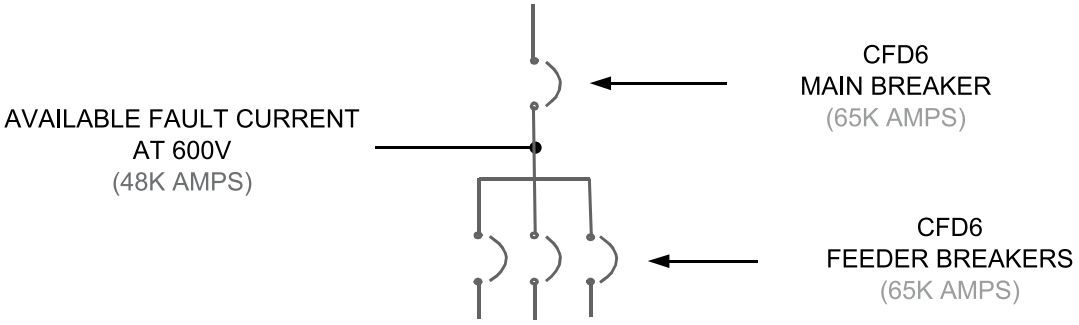
Definition of a Series Rated System

Series rated systems (fig,1) have at least two tested and certified series connection devices. In the event of a short circuit, on the load side of the lower interrupting rated downstream device, both devices will operate simultaneously to clear the fault.



Definition of a Fully Rated System

Fully rated systems (fig.2) have protection devices tested to withstand the fault current available at their respective applied location.



Standards Guiding Series Rated combinations

Canadian standards governing testing of SERIES RATED combinations are: CSA C22.2 No. 29-M1989, C22.2 No. 5-M1989, C22.2 No. 31-M89. The Canadian Electrical Code rules are covered under sections 14-012, *Ratings of Protective and Control Equipment* and 14-014, *Series rated combinations* .

Labeling of equipment containing Series Rated protective devices

A Series Rated system requires appropriate caution labeling indicating that approved series tested devices are the only acceptable replacement.

Series Rated Combination Guide

Reading the Series Rated combination tables

Identify the application voltage.

Identify the available short circuit current at the point where the breaker is to be applied.

Identify the ampere rating and number of poles for both the upstream and downstream breakers.

Example:

The application voltage is 208V, 3phase, the available short circuit current is 19,000 Amps. The Main breaker is 200A rated and the Branch breaker is 3 Pole, 100A rated.

From the tables select the voltage greater than and closest to the application voltage. (240)

From the IC column select the current rating greater than and closest to the application short circuit current. (22)

From the Main Breaker column select the type based on the required ampere rating and number of poles. (QJH2, 200A, 3P) The Maximum current tested for this type of breaker is 225A.

From the Branch Breaker column select the type based on the required ampere rating and number of poles. In some cases more than one option may be available. (QP, BQ, BL)

IC/CI KA	Main Breaker / Disjoncteur principal		Branch Breaker / Disjoncteur de branchement			Max Voltage (AC/CA)
	Type	Ams (Poles)	Type	# Poles	Amps	
22	QJH2	60 - 225 (2 & 3)	QP, BQ, BL	1	15 - 70	120/240
				2	15 - 125	240
				3	60 - 100	240
			QPF, BQF BLF, QE, BE, BLE	1	15 - 30	120
			QT	1, 2	15, 20, 40	120/240

Diagram for the above example:

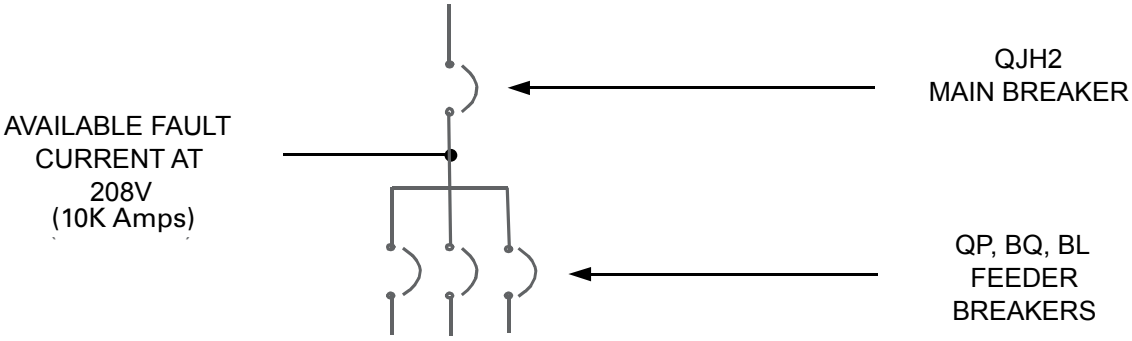


Figure 3

Series Rated Combination Guide

IC/CI KA	Main Breaker / Disjoncteur principal		Branch Breaker / Disjoncteur de branchement			Max Voltage (AC/CA)
	Type	Ams (Poles)	Type	# Poles	Amps	
22	QPH, BQH, BLH	15-70 (1), 15-125 (2), 15-100 (3)	QP, BQ, BL	1	15 -70	120/240
				2	15 -125	120/240
				3	15-100	240
			QE, BLE, QPF, BLF	1	15 - 60	120/240
			QE, BLE, QPF, BQF, BLF	2	15 - 30	120
			QT	1, 2	15, 20, 40	120/240
22	QPPH	125 - 225 (2)	QP, BQ, BL	1	15 -70	120/240
				2	15 -125	120/240
			QE, BLE, BE, QPF, BQF, BLF	1	15 - 30	120
			QE, BLE, BE, QPF, BLF	2	15 - 60	120/240
			QPP	2	125 - 200	120/240
			QT	1, 2	15, 20, 40	120/240
22	QJH2	60 - 225 (2 & 3)	QP, BQ, BL	1	15 - 70	120/240
				2	15 - 125	240
				3	60 - 100	240
			QPF, BQF BLF, QE, BE, BLE	1	15 - 30	120
			QT	1, 2	15, 20, 40	120/240
42	QJ2H	60 - 225 (2 & 3)	QP, BQ, BL	1	15 - 70	120/240
				2	15 - 125	120/240
				3	60 - 100	240
			QPH, BQH, BLH	1	15 - 70	120/240
				2	15 - 125	120/240
				3	15 - 100	240
			QE, BLE, BE, QPF, BLF	2	15 - 60	120/240
			QJH2	2, 3	60 - 225	240
65	HQP, HBQ, HBL	15-70 (1), 15-125 (2), 15-100 (3)	QP, BQ, BL, QPH, BQH, BLH	1	15 - 70	120/240
				2	15 - 100	120/240
				3	15 - 100	240
			QPF, BQF, BLF, BE, QFHF, BQHF, BLHF, QEH, BLEH, QE, BLE	1	15 - 30	120
			QEH, BLEH, QE, QPHF, BLHF, BLE, QPF, BLF	2	15 - 60	120/240
			QT	1, 2	15 - 40	120/240
65	HQPP	125 - 225 (2)	QP, BQ, BL, QPH, BQH, BLH	1	15 - 70	120/240
				2	15 - 125	120/240
			QPF, BQF, BLF, QPHF, BQHF, BLHF, QEH, BLEH, QE, BLE, BE	1	15 - 30	120
			QEH, BLEH, QE, QPHF, BLHF, BLE, QPF, BLF	2	15 - 60	120/240
			QT	1, 2	15 - 40	120
			QPPH, QPP	2	125 - 200	120/240
65	ED4, ED6	15 - 100 (1), 15 - 125 (2 & 3)	QP, BQ, BL, QPH, BQH, BLH	1	15 - 70	120
				2	15 - 125	120/240
				3	15 - 100	240
			QPHF, BQHF, BLHF, QPF, BQF, BLF, QE, QEH, BLEH, BE, BLE	1	15 - 30	120
			QEH, BLEH, QE, QPHF, BLHF, BLE, QPF, BLF	2	15 - 60	120/240
			ED2	1, 2, 3	15 - 100	120/240
			QT	1, 2	15 - 40	120/240
65	FD6-A, FXD6-A	70 - 250 (2 & 3)	QP, BQ, BL, QPH, BQH, BLH	1	15 - 70	120/240
				2	15 - 125	120/240
				3	15 - 100	240
			QJ2H, QJ2, QJH2	2, 3	60 - 225	240
			QPPH	2	125 - 225	120/240
65	JXD2-A, JD6-A, JXD6-A	200 - 400 (2 & 3)	QPH, BQH, BLH	1	15 - 70	120/240
				2	15 - 125	120/240
				3	15 - 100	240
			QJ2H, QJH2	2, 3	60 - 225	240
65	LD6-A	200 - 600 (2 & 3)	QPH, BQH, BLH	1	15 - 70	120/240
				2	15 - 125	120/240
				3	15 - 100	240
			QJ2H, QJH2	2, 3	60 - 225	240
65	LXD6-A	450 - 600 (2 & 3)	QPH, BQH, BLH	1	15 - 70	120/240
				2	15 - 125	120/240
				3	15 - 100	240
			QJ2H, QJH2	2, 3	60 - 225	240

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IC/CI KA	Main Breaker / Disjoncteur principal		Branch Breaker / Disjoncteur de branchement			Max Voltage (AC/CA)
	Type	Ams (Poles)	Type	# Poles	Amps	
65	HJD6-A, HJXD6-A, HLD6-A, HLXD6-A, HMD6, HMXD6, HND6, HNXD6, HPD6, HPXD6, HRD6, HRXD6	200 - 2000 (2 &3)	QPH	1	15 - 70	120/240
				2	15 - 125	120/240
				3	15 - 100	240
65	SJD6-A, SLD6-A, SMD6, SND6, SPD6	200 - 1600 (2 &3)	QPH, BQH, BLH	1	15 - 70	120/240
				2	15 - 125	120/240
				3	15 - 100	240
	MD6, MXD6, ND6, NXD6, PD6, PXD6, RD6, RXD6	500 - 2000 (2 & 3)	QPH, BQH, BLH	1	15 - 70	120/240
				2	15 - 125	120/240
				3	15 - 100	240
100	HED4	15 - 100 (1)	ED2, ED4	1	15 - 100	120
100	HED4, HED6	15 - 125 (2 & 3)	QP, BQ, BL, QPH, BQH, BLH, HQP, HBQ, HBL	1	15 - 70	120
				2	15 - 125	120/240
				3	15 - 100	240
			QEH, BLEH, QE, BE, QPHF, BQHF, BLHF, QPF, BLF, BQF, BLE	1	15 -30	120
			QEH, BLEH, QPHF, BLHF,QPF, BLF, QE, BLE	2	15 - 60	120/240
			ED2	1, 2, 3	15 - 100	120/240
			ED4	1	15 - 100	120
			ED4, ED6	2, 3	15 - 125	240
			QT	1, 2	15 - 40	120/240
100	HED4	15 - 100 (1)	ED2, ED4	1	15 - 100	120
100	HQPPH	125 - 225 (2)	QP, BQ, BL, QPH, BQH, BLH, HQP, HBQ, HBL	1	15 - 70	120/240
				2	15 - 125	120/240
			HQPP, QPPH, QPP	2	125 - 225	120/240
			QEH, BLEH, QE, BE, QPHF, BQHF, BLHF, QPF, BQF, BLF, BLE	1	15 - 30	120
			QT	1, 2	15 - 40	120/240
100	HQJ2H	60 - 225 (2 & 3)	QP, BQ, BL	1	15 - 25	120/240
					35 - 70	120/240
				2	15 - 25	120/240
					35 - 125	120/240
				3	15 - 100	240
			QPH, BQH, BLH, HQP, HBQ, HBL	1	15 - 70	120/240
				2	15 - 125	120/240
				3	15 - 100	240
			QEH, BLEH, QE, BE, QPHF, BQHF, BLHF, QPF, BQF, BLF, BLE	1	15 - 30	120
			QEH, BLEH, QPHF, BLHF,QE, BLE, QPF, BLF	2	15 - 60	120/240
			QT	1	15 - 50	120/240
100	HFD6, HFXD6	70 - 250 (2 & 3)	QP, BQ, BL, QPH, BQH, BLH, HQP, HBQ, HBL	1	15 - 70	120/240
				2	15 - 125	120/240
				3	15 - 100	240
			QE, BE, BLE, QPHF, BQHF, BLHF, QPF, BQF, BLF, QEH, BLEH	1	15 - 30	120
			QPF, BLF, QE, BLE, QPHF, BLHF, QEH, BLEH	2	15 - 60	120
			ED4	1	15 - 100	120
			ED4, ED6	2, 3	15 - 125	240
			FD6-A, FXD6-A	2, 3	70 -250	240
			QJ2, QJH2, QJ2H	2, 3	60 - 225	240
			HQPP, QPPH, QPP	2	125 - 225	120/240
			QT	1, 2	15 - 30	120/240
100	HJD6-A, HJXD6-A, SHJD6-A	200 - 400 (2 & 3)	ED4	1	15 - 100	120/240
			ED4, ED6	2, 3	15 - 125	120/240
			FD6-A, FXD6-A	2, 3	70 - 250	120/240
			JD6-A, JXD6-A, JXD2-A, SJD6-A	2, 3	200 - 400	120/240
100	HLD6-A	200 - 600 (2 & 3)	ED4	1	15 - 100	120
			ED4, ED6	2, 3	15 - 125	240
			FD6-A, FXD6-A	2, 3	70 - 250	240
			JD6-A, JXD6-A, JXD2-A, SJD6-A	2, 3	200 - 400	240

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	Type	Ams (Poles)	Type	# Poles	Amps	
100	HLD6-A	200 - 600 (2 & 3)	LD6-A	2, 3	200 - 600	240
			LXD6-A	2, 3	450 - 600	240
			SLD6-A	3	300 - 600	240
100	HLXD6-A	450 - 600 (2 & 3)	ED4	1	15 - 100	120
			ED4, ED6	2, 3	15 - 125	240
			FD6-A, FXD6-A	2, 3	70 - 250	240
			JD6-A, JXD6-A, JXD2-A, SJD6-A	2, 3	200 - 400	240
			LD6-A	2, 3	200 - 600	240
			LXD6-A	2, 3	450 - 600	240
			SLD6-A	3	300 - 600	240
100	SHLD6-A	300 - 600 (3)	ED4	1	15 - 100	120
			ED4, ED6	2, 3	15 - 125	240
			FD6-A, FXD6-A	2, 3	70 - 250	240
			JD6-A, JXD6-A, JXD2-A, SJD6-A	2, 3	200 - 400	240
			LD6-A	2, 3	200 - 600	240
			LXD6-A	2, 3	450 - 600	240
			SLD6-A	3	300 - 600	240
100	HMD6, HMXD6	500 - 800 (2 & 3)	ED4	1	15 - 100	120
			ED4, ED6	2, 3	15 - 125	240
			FD6-A, FXD6-A	2, 3	70 - 250	240
			JD6-A, JXD6-A, JXD2-A, SJD6-A	2, 3	200 -400	240
			LD6-A	2, 3	200 - 600	240
			LXD6-A	2, 3	450 - 600	240
			SLD6-A	3	300 - 600	240
			MD6, MXD6, SMD6	2, 3	500 -800	240
100	SHMD6	500 - 800 (3)	ED4	1	15 - 100	120
			ED4, ED6	2, 3	15 - 125	240
			FD6-A, FXD6-A	2, 3	70 - 250	240
			JD6-A, JXD6-A, JXD2-A, SJD6-A	2, 3	200 - 400	240
			LD6-A	2, 3	200 - 600	240
			LXD6-A	2, 3	450 - 600	240
			SLD6-A	3	300 - 600	240
			MD6, MXD6, SMD6	2, 3	500 - 800	240
100	HND6, HNXD6	500 - 1200 (2 & 3)	FD6-A, FXD6-A	2, 3	70 - 250	240
			JD6-A, JXD6-A, JXD2-A, SJD6-A	2, 3	200 - 400	240
			LD6-A	2, 3	200 - 600	240
			LXD6-A	2, 3	450 - 600	240
			SLD6-A	3	300 - 600	240
			MD6, MXD6, SMD6	2, 3	500 - 600	240
			ND6, NXD6, SND6	2, 3	500 - 1200	240
100	SHND6	500 - 1200 (2 & 3)	ED4	1	15 - 100	120
			ED4, ED6	2, 3	15 - 125	240
			FD6-A, FXD6-A	2, 3	70 - 250	240
			JD6-A, JXD6-A, JXD2-A, SJD6-A	2, 3	200 - 400	240
			LD6-A	2, 3	200 - 600	240
			LXD6-A	2, 3	450 - 600	240
			SLD6-A	3	300 - 600	240
			MD6, MXD6, SMD6	2, 3	500 - 600	240
			ND6, NXD6, SND6	2, 3	500 - 1200	240
100	HPD6, HPXD6, SHPD	1200 - 1600 (3)	ED4	1	15 -100	120
			ED4, ED6	2, 3	15 - 125	240
			FD6-A, FXD6-A	2, 3	70 - 250	240
			JD6-A, JXD6-A, JXD2-A, SJD6-A	2, 3	200 - 400	240
			LD6-A	2, 3	200 - 600	240
			LXD6-A	2, 3	450 - 600	240
			SLD6-A	3	300 - 600	240
			MD6, MXD6, SMD6	2, 3	500 - 800	240
100	HPD6, HPXD6, SHPD	1200 - 1600 (3)	ND6, NXD6, SND6	2, 3	500 - 1200	240
			PD6, PXD6, SPD6	2, 3	1200 - 1600	240

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	Type	Ams (Poles)	Type	# Poles	Amps	
100	HRD6, HRXD6	1600 - 2000 (3)	ED4	1	15 -100	120
			ED4, ED6	2, 3	15 - 125	240
			FD6-A, FXD6-A	2, 3	70 - 250	240
			JD6-A, JXD6-A, JXD2-A, SJD6-A	2, 3	200 - 400	240
			LD6-A	2, 3	200 - 600	240
			LXD6-A	2, 3	450 - 600	240
			SLD6-A	3	300 - 600	240
			MD6, MXD6, SMD6	2, 3	500 - 800	240
			ND6, NXD6, SND6	2, 3	500 - 1200	240
			PD6, PXD6, SPD6	2, 3	1200 - 1600	240
			RD6, RXD6	2, 3	1600 - 2000	240
200	CED6	15 - 125 (2 & 3)	QP, BQ, BL, QPH, BQH, BLH, HQP, HBQ, HBL	1	15 - 70	120/240
				2	15 - 125	120/240
				3	15 - 100	240
			QPHF, BQHF, BLHF, QPF, BQF, BLF, QEH, QE, BE, BLEH	1	15 - 30	120
			QEH, BLEH, QPHF, BLHF, QPF, BLF, QE, BLE	2	15 - 60	120/240
			ED4, HED4	1	15 - 100	120
			ED4, ED6, HED4, HED6	2, 3	15 - 125	240
			QT	1, 2	15 - 40	120/240
200	CFD6	70 - 250 (2 & 3)	QP, BQ, BL, QPH, BQH, BLH, HQP, HBQ, HBL	1	15 - 70	120/240
				2	15 - 125	120/240
				3	15 - 100	240
			QPHF, BQHF, BLHF, QE, BE, BLE, QPF, BQF, BLF, QEH, BLEH	1	15 - 30	120
			QPHF, BLHF, QE, BLE, QPF, BLF, QEH, BLEH	2	15 - 60	120/240
			ED2	1, 2, 3	15 - 100	120/240
			HED4, ED4	1	15 - 100	120
			ED4, ED6, HED4, HED6	2, 3	15 - 125	240
			FD6-A, FXD6-A, HFD6, HFXD6	2, 3	70 - 250	240
			QJ2H, QJH2, QJ2	2, 3	60 - 225	240
			QPPH, QPP	2	125 - 225	120/240
			QT	1, 2	15 - 40	120/240
200	HHJD6, HHJXD6, HHLD6, HHLXD6	200 - 600 (2 & 3)	FD6-A, FXD6-A, HFD6, HFXD6	2, 3	70 - 250	240
200	CJD6	200 - 400 (2 & 3)	QPH, BQH, BLH, HQP, HBQ, HBL	2	100 - 125	120/240
				3	100	240
			ED4, ED6	2, 3	15 - 125	240
			FD6-A, FXD6-A, HFD6, HFXD6	2, 3	70 - 250	240
			JXD2-A, JD6-A, JXD6-A, HJD6-A, HJXD6-A	2, 3	200 - 400	240
			QT	1, 2	15 - 30	120/240
200	CLD6	450 - 600 (2 & 3)	QPH, BQH, BLH, HQP, HBQ, HBL	2	100 - 125	120/240
				3	100	240
			ED4, ED6	2, 3	15 - 25	120/240
			FD6-A, FXD6-A, HFD6, HFXD6	2, 3	70 - 250	240
			JXD2-A, JD6-A, JXD6-A, HJD6-A, HJXD6-A	2, 3	200 - 400	240
			LD6-A, HLD6-A	2, 3	200 - 600	240
			LXD6-A, HJXD6-A	2, 3	450 - 600	240
			QT	1,2	15 - 30	120/240
200	CMD6	500 - 800 (2 & 3)	ED4, ED6, HED4, HED6	2, 3	15 - 125	240
			FD6-A, FXD6-A, HFD6, HFXD6	2, 3	70 - 250	240
			JXD2-A, JD6-A, JXD6-A, HJD6-A, HJXD6-A	2, 3	200 - 400	240
			LD6-A, HLD6-A	2, 3	200 - 600	240
			LXD6-A, HLXD6-A	2, 3	450 - 600	240
			MD6, MXD6, HMD6, HMXD6	2, 3	500 - 800	240
200	SCMD6	500 - 800 (3)	MD6, MXD6, HMD6, HMXD6	2, 3	500 - 800	240
200	CND6	900 - 1200 (2 & 3)	ED4, ED6, HED4, HED6	2, 3	15 - 125	240
			FD6-A, FXD6-A, HFD6, HFXD6	2, 3	70 - 250	240
			JXD2-A, JD6-A, JXD6-A, HJD6-A, HJXD6-A	2, 3	200 - 400	240
200	CND6	900 - 1200 (2 & 3)	LD6-A, HLD6-A	2, 3	200 - 600	240
			LXD6-A, HLXD6-A	2, 3	450 - 600	240
			MD6, MXD6, HMD6, HMXD6	2, 3	500 - 800	240
			ND6, NXD6, SND6, HND6, HNXD6	2, 3	500 - 1200	240

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	Type	Ams (Poles)	Type	# Poles	Amps	
200	SCND6	900 - 1200 (3)	MD6, HMD6, HMXD6, MXD6, SHMD6, SMD6	2, 3	500 - 800	240
			ND6, HND6, SHND6, NXD6, HNXD6, SND6	2, 3	500 - 1200	240
200	CPD6	1200 - 1600 (3)	FD6-A, FXD6-A, HFD6, HFXD6	2, 3	70 - 250	240
			JXD2-A, JD6-A, JXD6-A, HJD6-A, HJXD6-A	2, 3	200 - 400	240
			LD6-A, HLD6-A	2, 3	200 - 600	240
			LXD6-A, HLXD6-A	2, 3	450 - 600	240
			MD6, MXD6, HMD6, HMXD6	2, 3	500 - 800	240
			ND6, NXD6, SND6, HND6, HNXD6	2, 3	500 - 1200	240
65	J, R	15 - 600 (1, 2, 3)	QPH, BQH, BLH	1	15-70	120/240
				2	15-125	120/240
				3	15 - 100	240
65	T	15 - 1200 (1, 2, 3)	QPH, BQH, BLH	1	15-70	120/240
				2	15-125	120/240
				3	15 - 100	240
65	L	601 - 6000 (1, 2, 3)	QPH, BQH, BLH	1	15-70	120/240
				2	15-125	120/240
				3	15 - 100	240
100	T (300 V)	15-200 (1, 2, 3)	QP, BQ, BL	1, 2, 3	15 - 125	120/240
			HQP, HBQ, HBL, QPH, BQH, BLH	3	15 - 100	240
			QPF, BQF, BLF, QE, BE, BLE, QEH, BLEH, BLHF, QPHF, BQHF,	1	15 - 30	120
			QEH, BLEH, QE, QPHF, BLHF, BLE, QPF, BLF	2	15 - 60	120/240
			QT	1, 2	15 - 50	120/240
		15 - 600 (1, 2, 3)	QPH, BQH, BLH, HQP, HBQ, HBL	1, 2	15 - 125	120/240
100	J, R	15 - 600 (2, 3)	ED4, HED4	1	15 - 100	120
			ED4, ED6, HED4, HED6	2, 3	15 - 125	240
		70 - 600 (2, 3)	FD6-A, FXD6-A	2, 3	70 - 250	240
		200 - 600 (2, 3)	JD6-A, JXD6-A, JXD2-A, SJD6-A	2, 3	200 - 400	240
			LD6-A	2, 3	200 - 600	240
		300 - 600 (3)	SLD6-A	3	300 - 600	240
		450 - 600 (2, 3)	LXD6-A	2, 3	450 - 600	240
100	T	15 - 1200 (2, 3)	ED4, HED4	1	15 - 100	120/240
			ED4, ED6, HED4, HED6	2, 3	15 - 125	240
		70 - 1200 (2, 3)	FXD6-A, FD6-A	2, 3	70 - 250	240
		450 - 1200 (2, 3)	LXD6-A	2, 3	450 - 600	240
		200 - 1200 (2, 3)	JD6-A, JXD6-A, JXD2-A, SJD6-A	2, 3	200 - 400	240
			LD6-A	2, 3	200 - 600	240
		300 - 1200 (3)	SLD6-A	3	300 - 600	240
100	L	601 - 6000 (2, 3)	ED4, HED4	1	15 - 100	120/240
			ED4, ED6, HED4, HED6	2, 3	15 - 125	240
			FD6-A, FXD6-A	2, 3	70 - 250	240
			JD6-A, JXD6-A, JXD2-A, SJD6-A	2, 3	200 - 400	240
			LD6-A	2, 3	200 - 600	240
			LXD6-A	2, 3	450 - 600	240
			SLD6-A	3	300 - 600	240
			SMD6	3	500 - 800	240
			SND6	3	500 - 1200	240
			PD6, PXD6, SPD6	3	1200 - 1600	240
			RD6, RXD6	3	1600 - 2000	240
200	R	125 - 200 (2, 3)	QJH2, QJ2H, QJ2	2, 3	125 - 200	240
200	T, J	125 - 600 (2, 3)	QJH2, QJ2H	2, 3	125 - 225	240
		125 - 400 (2, 3)	QJ2	2, 3	125 - 225	240
200	J, R	70 - 600 (2, 3)	HFD6, HFXD6	2, 3	70 - 250	240
200	T	70 - 1200 (2, 3)	HFD6, HFXD6	2, 3	70 - 250	240

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	Type	Ams (Poles)	Type	# Poles	Amps	
200	L	601 - 6000 (2, 3)	HFD6, HFXD6	2, 3	70 - 250	240
			MD6, MXD6, HMD6, HMXD6	2, 3	500 - 800	240
			ND6, NXD6, HND6, HNXD6	2, 3	500 - 1200	240
30	HED6	15 - 125 (2 & 3)	BQD, CQD	1, 2, 3	15 - 100	277
			ED4	1	15 - 100	277
			ED4, ED6	2, 3	15 - 125	480
35	JD6, JXD6	200-400 (2 & 3)	ED4	2,3	15-100	277
	LD6	200-600 (2 & 3)				277
	LXD6	450-600 (2 & 3)				277
42	HED4	15 - 125 (2 & 3)	BQD, CQD	1, 2, 3	15,100	277
			ED4	1	15 - 100	480
			ED4, ED6	2, 3	15 - 125	480
50	HJD6-A, HJXD6-A	200-400 (2 & 3)	HED4	2, 3	15 - 50	480
50	HLD6-A, HLXD6-A	200-600 (2 & 3)				
50	MD6, MXD6	500-800 (2 & 3)	FD6-A, FXD6-A	2, 3	70 - 250	480
			JD6-A, JXD6-A, SJD6-A	2, 3	200 - 400	480
			LD6-A	2, 3	200 - 600	480
			LXD6-A	2, 3	450 - 600	480
			SLD6-A	3	400 - 600	480
50	ND6, NXD6	500-1200 (2 & 3)	FD6-A, FXD6-A	2, 3	70 - 250	480
			JD6-A, JXD6-A,	2, 3	200 - 400	480
			LD6-A	2, 3	200 - 600	480
			LXD6-A	2, 3	450 - 600	480
			SJD6-A	3	200 - 400	480
			SLD6-A	3	400 - 600	480
50	SMD6	500 - 800 (3)	JD6-A, JXD6-A	2, 3	200 - 400	480
			LD6-A	2, 3	200 - 600	480
			LXD6-A	2, 3	450 - 600	480
			SJD6-A	3	200 - 400	480
			SLD6-A	3	400 - 600	480
50	SND6	500 - 1200 (3)	JD6-A, JXD6-A	2, 3	200 - 400	480
			LD6-A	2, 3	200 - 600	480
			LXD6-A	2, 3	450 - 600	480
			SJD6-A	3	200 - 400	480
			SLD6-A	3	400 - 600	480
50	SPD6	1200 - 1600 (3)	JD6-A, JXD6-A	2, 3	200 - 400	480
			LD6-A	2, 3	200 - 600	480
			LXD6-A	2, 3	450 - 600	480
			SJD6-A	3	200 - 400	480
			SLD6-A	3	400 - 600	480
50	PD6, PXD6	1400 - 1600 (3)	FD6-A, FXD6-A	2, 3	70 - 250	480
		1200 - 1600 (3)	JD6-A, JXD6-A, SJD6-A	2, 3	200 - 400	480
			LD6-A	2, 3	200 - 600	480
			LXD6-A	2, 3	450 - 600	480
			SJD6-A	3	200 - 400	480
			SLD6-A	3	400 - 600	480
50	RD6, RXD6	1800 - 2000 (3)	FD6-A, FXD6-A	2, 3	70 - 250	480
			JD6-A, JXD6-A, SJD6-A	2, 3	200 - 400	480
			LD6-A	2, 3	200 - 600	480
			LXD6-A	2, 3	450 - 600	480
			SJD6-A	3	200 - 400	480
			SLD6-A	3	400 - 600	480
65	HFD6, HFXD6	70 - 250 (2 & 3)	BQD, CQD	1, 2, 3	15 - 100	480
			ED4, HED4	1	15 - 100	277
			ED4, ED6, HED4, HED6	2, 3	15 - 125	480
65	HJD6-A, HJXD6-A	200 - 400 (2 & 3)	HED4, ED4	1	15 - 100	480
			FD6-A, FXD6-A	2, 3	70 - 250	480
			JD6-A, JXD6-A	2, 3	200 - 400	480

Series Rated Combination Guide

IC/CI KA	Main Breaker / Disjoncteur principal		Branch Breaker / Disjoncteur de branchement			Max Voltage (AC/CA)
	Type	Ams (Poles)	Type	# Poles	Amps	
65	HLD6-A	200 - 600 (2 & 3)	ED4, HED4	1	15 - 100	277
			FD6-A, FXD6-A	2, 3	70 - 250	480
			JD6-A, JXD6-A	2, 3	200 - 400	480
			LD6-A	2, 3	200 - 600	480
			LXD6-A	2, 3	450 - 600	480
65	HLXD6-A	450 - 600 (2 & 3)	ED4, HED4	1	15 - 100	277
			FD6-A, FXD6-A	2, 3	70 - 250	480
			JD6-A, JXD6-A	2, 3	200 - 400	480
			LD6-A	2, 3	200 - 600	480
			LXD6-A	2, 3	450 - 600	480
65	HMD6, HMXD6	500 - 800 (2 & 3)	FD6-A, FXD6-A	2, 3	70 - 250	480
			JD6-A, JXD6-A	2, 3	200 - 400	480
			LD6-A	2, 3	200 - 600	480
			LXD6-A	2, 3	450 - 600	480
65	HND6, HNXD6	500 - 1200 (2 & 3)	FD6-A, FXD6-A	2, 3	70 - 250	480
			JD6-A, JXD6-A	2, 3	200 - 400	480
			LD6-A	2, 3	200 - 600	480
			LXD6-A	2, 3	450 - 600	480
			MD6, MXD6, SMD6	2, 3	500 - 800	480
65	HRD6, HRXD6	1800 - 2000 (3)	FD6-A, FXD6-A	2, 3	70 - 250	480
			JD6-A, JXD6-A	2, 3	200 - 400	480
			LD6-A	2, 3	200 - 600	480
			LXD6-A	2, 3	450-600	480
100	HHJXD6, HHJD6, HHLD6, HHLXD6	200 - 600 (2 & 3)	ED4, ED6, HED4, HED6	1	15 - 100	277
			FD6-A, FXD6-A, HFD6, HFXD6	2, 3	70 - 250	480
100	CMD6	500 - 800 (3)	FD6-A, FXD6-A, HFD6, HFXD6	2, 3	70 - 250	480
			JD6-A, HJD6-A, JXD6-A, HJXD6-A	2, 3	200 - 400	480
			LD6-A, HLD6-A	2, 3	200 - 600	480
			LXD6-A, HLXD6-A	2, 3	450 - 600	480
			MD6, MXD6, HMD6, HMXD6	2, 3	500 - 800	480
100	SCMD	500 - 800 (3)	HFXD6	2, 3	70 - 250	480
100	SCND6	900 - 1200 (3)	HFD6, HFXD6	2, 3	70 - 250	480
100	CND6	1200 (3)	FD6-A, FXD6-A, HFD6, HFXD6	2, 3	70 - 250	480
			JD6-A, JXD6-A, HJD6-A, HJXD6-A	2, 3	200 - 400	480
			LD6-A, HLD6-A	2, 3	200 - 600	480
			LXD6-A, HLXD6-A	2, 3	450 - 600	480
			MD6, MXD6, HMD6, HMXD6	2, 3	500 - 800	480
			ND6, NXD6, HND6, HNXD6	2, 3	500 - 1200	480
100	CPD6	1200 - 1600 (3)	FD6-A, FXD6-A, HFD6, HFXD6	2, 3	70 - 250	480
150	CJD6	200 - 400 (2 & 3)	ED4	1	15 - 100	277
			HFD6, HFXD6	2, 3	70 - 250	480
			JD6-A, JXD6-A, HJD6-A, HJXD6-A	2, 3	200 - 400	480
150	CLD6	450 - 600 (2 & 3)	ED4	1	15 - 100	277
			HFD6, HFXD6	2, 3	70 - 250	480
			JD6-A, HJD6-A, JXD6-A, HJXD6-A	2, 3	200 - 400	480
			LD6-A, HLD6-A	2, 3	200 - 600	480
			LXD6-A, HLXD6-A	2, 3	450 - 600	480
200	CED6	15 - 125 (2 & 3)	BQD, CQD	1	15 - 100	480
				2, 3	20 - 30	480
			ED4, HED4	1	15 - 100	277
			ED4, ED6, HED4, HED6	2, 3	15 - 125	480
200	CFD6	70 - 250 (2 & 3)	BQD, CQD	1	15 - 100	480
				2, 3	20 - 30	480
			ED4, ED6	2, 3	15 - 50	480
			ED4, HED4	1	15 - 100	277
			HED4, HED6	2, 3	15 - 125	480
			FD6-A, FXD6-A, HFD6, HFXD6	2, 3	70 - 250	480
50	J	60 - 400 (1, 2, 3)	ED4	1	60 - 100	277
		15 - 400 (2, 3)	ED4	2, 3	15 - 100	480
100	J	15 - 400 (1, 2, 3)	ED4	1	15 - 50	277
100	T, J	70 - 600 (2, 3)	FD6-A, FXD6-A	2, 3	70 - 250	480
100	J, R	70 - 600 (2, 3)	HFD6, HFXD6	2, 3	70 - 250	480

Series Rated Combination Guide

IC/CI KA	Main Breaker / Disjoncteur principal		Branch Breaker / Disjoncteur de branchement			Max Voltage (AC/CA)
	Type	Ams (Poles)	Type	# Poles	Amps	
100	T, J, R	200 - 600 (2, 3)	JD6-A, JXD6-A, HJD6-A, HJXD6-A	2, 3	200 - 400	480
			LD6-A, HLD6-A, HLXD6-A	2, 3	200 - 600	480
		450 - 600 (2, 3)	LXD6-A,	2, 3	450 - 600	480
100	T	70 - 1200 (2, 3)	HFD6, HFXD6	2, 3	70 - 250	480
100	T, L	601 - 1200 (2, 3)	JD6-A, JXD6-A, HJD6-A, HJXD6-A	2, 3	200 - 400	480
			LD6-A, HLD6-A	2, 3	200 - 600	480
			LXD6-A, HLXD6-A	2, 3	450 - 600	480
100	L	601 - 6000 (2, 3)	HFD6, HFXD6	2, 3	70 - 250	480
			MD6, MXD6, HMD6, HMXD6	2, 3	500 - 800	480
			ND6, NXD6, HND6, HNXD6	2, 3	500 - 1200	480
			PD6, HPD6, HPXD6	3	1200 - 1600	480
200	R	15 - 100 (1, 2, 3)	BQD, CQD	1	15 - 100	480
				2, 3	20 - 30	480
	T, J	15 - 200 (1, 2, 3)	BQD, CQD	1	15 - 100	480
				2,3	20 - 30	480
18	ED6, HED6	15 -125 (1, 2, 3)	BQD6,CQD6	1	15 - 70	347
	ED6, HED6	15 -125 (2, 3)	BQD6,CQD6	2, 3	15 - 70	347/600
25	HFD6	70 - 250 (2, 3)	BQD6, CQD6	1	15 - 70	347
			BQD6, CQD6, ED6, HED6	2, 3	15 - 70	347/600
			ED6, HED6	2, 3	15 - 125	347/600
35	HJD6, HJXD6	200 - 400 (2, 3)	HFD6	2, 3	70 - 250	347/600
	HLD6, HLXD6	450 - 600 (2, 3)				
50	HMD6, HMXD6 HND6 HNXD6	500 - 800 (2, 3) 500 - 1200 (2, 3) 900 - 1200 (2, 3)	HFD6	2, 3	70	600
			JD6, JXD6		200 - 400	600
			HJD6, HJXD6		200 - 400	600
			LD6, HLD6		200 - 600	600
			LXD6, HLXD6		450 - 600	600
65	CFD6	70 - 250 (2, 3)	BQD6,CQD6	2, 3	15 - 70	347/600
			ED6, HED6		15 - 125	600
65	CMD6 CND6 CPD6	500 - 800 (2, 3) 900 - 1200 (2,3) 1200 - 1600 (2,3)	HFD6	2, 3	70	600
			JD6, JXD6		200 - 400	600
			HJD6, HJXD6		200 - 400	600
			LD6, HLD6		200 - 600	600
			LXD6, HLXD6		450 - 600	600
65	HPD6, HPXD6	1200 - 1600 (2, 3)	HFD6	2, 3	70	600
			JD6, JXD6		200 - 400	600
			HJD6, HJXD6		200 - 400	600
			LD6, HLD6		200 - 600	600
			LXD6, HLXD6		450 - 600	600
100	CED6	15 - 125 (2, 3)	BQD6,CQD6	1	15 - 70	347
				2	15 - 70	347/600
				3	15 - 70	347/600
			ED6, HED6	2, 3	15 - 125	600
100	CFD6	70 -250 (2, 3)	BQD6,CQD6	1	15 - 70	347
			ED6, HED6	2, 3	15 - 125	600
			HFD6		70 - 250	600
100	J,R,T	200 - 600 (2, 3)	JD6, JXD6	2, 3	200 - 400	600
			HJD6, HJXD6		200 - 600	600
			LD6, HLD6			
			LXD6, HLXD6		450 - 600	600

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Unusual Operating Conditions

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 Sensitrip® III and Type SB Encased Systems Breakers are insensitive to temperature changes. However, they do include circuitry to protect the components from abnormally high temperatures.

Moisture — Corrosion

For atmospheres having high moisture content and / or where fungus growth is prevalent, a special preventive treatment may be required.

Where the air is heavily laden with corrosive elements, breakers made with special corrosion-resistant finishes may be required.

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: 25° C (77° F)	50° C (122° F)	60° C (140° F)	Siemens Breaker Frames
15	17	13	11	ED
20	22	18	16	
25	28	23	21	
30	33	28	26	
35	39	30	25	
40	44	37	34	
50	55	46	42	
60	66	56	52	QJ
70	77	65	60	
90	99	84	78	
100	110	94	87	
125	137	114	100	FD
150	165	136	120	
175	192	159	140	
200	220	182	160	
225	247	205	180	
250	275	235	220	JD
300	330	276	252	
350	385	325	301	LD
400	440	372	340	
500	550	468	435	
600	660	564	525	MD
700	770	658	613	
800	880	754	704	
900	990	828	749	ND
1000	1100	900	825	
1200	1320	1090	1000	
1400	1540	1304	1148	PD
1600	1760	1500	1320	
1800	1980	1690	1485	RD
2000	2200	1880	1650	

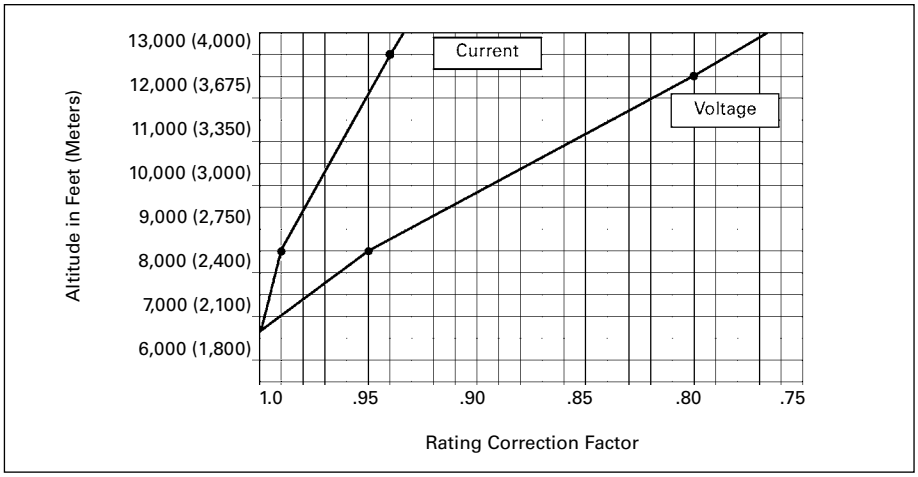

Figure 1 — Altitude Adjustment

Unusual Operating Conditions

400 Hz Systems①

Siemens molded case circuit breakers can be applied for overcurrent protection on 400Hz systems, commonly used to power computer installations, aircraft, military and other specialty equipment. Below are basic guidelines.

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. (6mm) 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.

Factory Configuration

When required, molded case circuit breakers may be factory calibrated for 400Hz application. These breakers are specially labeled for 400Hz usage and their nameplate current rating will include the necessary derating factory. The highest "Maximum Continuous Amperes" rating at 400Hz, found in the table below approximates the highest specially calibrated 400Hz nameplate ampere rating available for a given frame size. Contact Siemens for ordering information on other breakers applied in 400Hz systems.

400Hz Breakers

Siemens Breaker Type	Maximum Continuous Ampere Rating At 40°C (104°F)②			75°C (167°F) Copper Cable per Pole	
	60HZ	400HZ			
	Open Air	Open Air③	Enclosed After Derating	No of Pieces	Wire Size
ED2, ED4, ED6, HED4, CED6	15	15	12	1	#14
	20	20	16	1	#12
	25	25	20	1	#10
	30	30	24	1	#10
	35	35	28	1	#10
	40	40	32	1	#8
	45	43	34	1	#8
	50	48	38	1	#8
	60	57	46	1	#6
	70	67	54	1	#4
	80	76	61	1	#4
	90	86	69	1	#3
	100	95	76	1	#3
	110	105	84	1	#2
	125	119	95	1	#1
FD6, FXD6, HFD6, HFXD6, CFD6	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
	150	125	100	1	#1/0
	175	140	112	1	#2/0
	200	160	128	1	#3/0
	225	180	144	1	#4/0
	250	200	160	1	250 kcmil
JXD2, JD6, JXD6, HJD6, HJXD6, HHJD6, HHJXD6, CJD6	200	170	136	1	#3/0
	225	190	152	1	#4/0
	250	210	168	1	250 kcmil
	300	240	192	1	350 kcmil
	350	260	208	1	500 kcmil
	400	300	240	2	#3/0
JD6, JXD6, HJD6, HJXD6 100% Rated	200	170	170	2	#3/0
	225	190	190	2	#4/0
	250	210	210	1	250 kcmil
	300	240	240	1	350 kcmil
	350	260	260	1	500 kcmil
	400	300	300	2	#3/0

Siemens Breaker Type	Maximum Continuous Ampere Rating At 40°C (104°F)②			75°C (167°F) Copper Cable per Pole	
	60HZ	400/415HZ			
	Open Air	Open Air③	Enclosed After Derating	No of Pieces	Wire Size
LD6, LXD6, HLD6, HLXD6, HHLD6, HHLXD6, CLD6	250	210	168	1	250 kcmil
	300	240	192	1	350 kcmil
	350	260	208	1	500 kcmil
	400	300	240	2	#3/0
	450	340	272	2	#4/0
	500	375	300	2	250 kcmil
	600	420	336	2	350 kcmil
LD6, LXD6, HLD6, HLXD6, 100% Rated	250	210	210	1	250 kcmil
	300	240	240	1	350 kcmil
	350	260	260	1	500 kcmil
	400	300	300	2	#3/0
	450	340	340	2	#4/0
	500	375	375	2	250 kcmil
	600	420	420	2	350 kcmil
MD6, MXD6, HMD6, HMXD6, CMD6	500	400	320	2	250 kcmil
	600	430	360	2	350 kcmil
	700	500	400	3	250 kcmil
	800	560	448	3	300 kcmil
MD6, MXD6, HMD6, HMXD6, CMD6 100% Rated	500	400	400	2	250 kcmil
	600	430	430	2	350 kcmil
	700	500	500	3	250 kcmil
	800	560	560	3	300 kcmil
ND6, NXD6 HND6, HNXD6, CND6	800	560	448	3	300 kcmil
	900	600	480	3	350 kcmil
	1000	650	520	3	400 kcmil
	1200	780	624	4	350 kcmil
ND6, NXD6 HND6, HNXD6, CND6	900	600	600	3	350 kcmil
	1000	650	650	3	400 kcmil
	1200	780	780	4	350 kcmil
PD6, PXD6, HPD6, HPXD6, CPD6, 100% Rated	1200	780	624	4	400 kcmil
	1400	850	680	4	500 kcmil
	1600	960	768	5	500 kcmil
PD6, PXD6, HPD6, HPXD6, CPD6	1200	780	780	4	400 kcmil
	1400	850	850	4	500 kcmil
	1600	960	960	5	500 kcmil
RD6, RXD6, HRD6, HRXD6 80% Rated	1600	960	768	5	500 kcmil
	1800	1080	864	5	500 kcmil
	2000	1200	960	6	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.**

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

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

Typical Specifications

General Specifications

Molded case circuit breakers shall provide circuit overcurrent protection with inverse time and instantaneous tripping characteristics and shall be Siemens Sentron, Sensitrip or approved equal.

All circuit breakers shall be CSA Certified and conform to applicable requirements of NEMA Standard Publication No. AB1.

All circuit breakers shall have a quick-make, quick-break over center toggle type mechanism and the handle mechanism shall be trip free to prevent holding contacts closed against a short circuit or sustained overload. All circuit breaker handles shall assume a position between "ON" and "OFF" when tripped automatically. Multi-pole circuit breakers shall be common-trip such that an overload or short circuit on any one pole will result in all poles opening simultaneously. Arc extinction is to be accomplished by magnetic arc chutes. All ratings are to be clearly visible. When reverse feed is indicated on the drawings, in accordance with CSA, circuit breakers with sealed trip units shall be supplied.

Thermal Magnetic Specifications

Unless otherwise noted on the drawings, all Circuit breakers 2000 Ampere and below shall have thermal-magnetic trip units, with inverse time-current characteristics. Automatic operation of these circuit breakers shall be obtained by means of thermal-magnetic tripping devices located in each pole providing inverse time delay and instantaneous circuit protection. Circuit breakers shall be ambient compensating in that, as the ambient temperature increases over 40°C, the circuit breaker automatically derates itself so as to better protect its associated conductor. Thermal magnetic breakers from 250 to 2000A frames shall have thermal interchangeable trip units, with instantaneous magnetic trip settings that are adjustable and accessible from the front of all circuit breakers on frame sizes 250 Amperes and above. Where indicated, provide circuit breakers CSA Certified for application at 100% of their continuous ampere rating in their intended enclosure.

Motor Circuit Protectors

Where indicated on the drawings and in the combination motor starter/motor control center schedule, furnish instantaneous magnetic trip only circuit breakers for motor short circuit protection. The magnetic trips shall be adjustable and accessible from the front of all circuit breakers frames. The continuous current rating shall be between 1 and 800 Amperes as indicated on the drawing.

The interrupting rating of the circuit breakers shall be as indicated in the specifications, and shown on the drawing or single line diagram. The interrupting rating of the circuit breakers shall be at least equal to the available short circuit current at the line terminals of the circuit breaker and correspond to the CSA Certified integrated short circuit current rating specified.

Internal Accessories

Provide shunt trips, bell alarms, and auxiliary switches as shown on the contract drawings. Gold plated auxiliary switches shall be supplied for PLC connection. Internal accessories for all breakers shall be CSA Certified for field installation and modification.

Connection Accessories

Unless otherwise noted, Mechanical lugs shall be provided with all Molded Case Breakers. Where indicated on the drawings, compression lugs shall be provided on 1200 Ampere frame and below circuit breakers. All compression lugs shall be supplied by the Circuit Breaker Manufacturer. Where indicated on the drawings, CSA Certified plug-in or rear connectors shall be supplied.

Solid State Sensing Specifications

As indicated on the drawings, circuit breaker frames 400 Ampere through 3200-Ampere shall have microprocessor-based RMS sensing trip units, with the capability to measure through to the 21st harmonic. Automatic operation of all circuit breaker frames 400A and larger shall be obtained by means of solid state tripping elements providing inverse time delay and (instantaneous) and/or (short-time delay) circuit protection. Continuous current ratings shall be adjustable from 20% to 100% of the trip unit rating, without the need for a rating plug. Long-time delay and instantaneous trip shall be adjustable. The optional short-time trip function shall have adjustable pick-up settings, three fixed times, and I^2t ramp. Circuit breaker frames 400A and larger, and where indicated on the drawings, shall be 100% equipment rated.

Integral Ground Fault Option

Main and feeder circuit breakers, as indicated on the drawings, shall be provided with integral ground fault protection. Ground fault pick-up shall be adjustable from 20% to 70% of the circuit breakers maximum continuous current rating. Ground fault time delay shall be adjustable with three 1^2t ramps.

Metering Option

When indicated on the drawings, solid state trip breakers shall be furnished with a plug-in or panel mounted metering device. This device shall simultaneously display all three phase currents, as well as average current, ground current, and phase unbalance. In addition it shall display breaker status, a max log, and a trip log. The trip log will retain and display date, time and type of trip (overload, short circuit or ground fault) for the most recent 5 trip events.

Current Limiting Specifications

Where indicated on the drawings, Siemens current limiting circuit breakers are to be furnished. Current limiting circuit breakers shall limit the let-through I^2t to a value less than the I^2t of one-half cycle wave of the symmetrical prospective current without any fusible elements when operating within its current range.

Series Connected Combination Specifications

Where protective devices are applied in series combination, such that the prospective available fault current exceeds the interrupting rating (AIR) of the downstream protective devices, such combinations shall be CSA Certified combinations. All electrical equipment using these CSA Certified circuit breaker combinations shall be clearly marked.

Superseded Breakers

Sentron Series	Note	Superseded	Note	Superseded
CED62B015-CED62B125	①	CLE62B015-CLE62B100	⑤	CE2B015-CE2B100
CED62S100A	①,	CLE62S100	⑤	CE2S100
CED63A001-CED63A125	①	CLE63A001-CLE63A125		-
CED63B015-CED63B125	①	CLE63B015-CLE63B100	④	CE3B015-CEB100
CED63S100A	①	CLE63S100	④	CE3S100
-	①	HHED62B015-HHED62B125	①	HED62B015-HED62B125
-	②	HHED63B015-HHED63B125	①	HED63B015-HED63B125
CFD62A150, CFD62L150, CFD62A250	①	CLF62A150, CLF62A250		-
CFD62B070-CFD62B250	①	CLF62B070-CLF62B240	③	CJ2B125-CJ2B250
CFD62S250A	①	CLF62S250		-
CFD63A150, CFD63L150, CFD63A250	①	CLF63A150, CLF63A250		-
CFD63B070-CFD63B250	①	CLF63B070-CLF63B250	③	CJ3B125-CJ3B250
CFD63S250A	①	CLF63S250		
CJD62B200-CJD62B400	①	CLJ62B100-CLJ62B400	④	CJ2B300-CJ2B400
CJD62H400, CJD62L400	①	CLJ62L400, CLJ62H400		-
CJD62S400A	①	CLJ62S400,	④	CJ2S400
CJD63B200-CJD63B400	①	CLJ63B200-CLJ63B400	④	CJ3B300-CJ3B400
CJD63H400, CJD63L400	①	CLJ63L400, CLJ63H400		-
CJD63S400A	①	CLJ63S400	④	CJ3S400
CPD63B120-CPD63B160	①	CP3B120-CP3B160		-
ED21B015-ED21B100	①	E21B015-E21B100	②	EE1B015-EE1B100
ED22B015-ED22B100	①	E22B015-E22B100	②	EE2B015-EE2B100
ED22S100A	①	E22S100A	②	EE2S100
ED23B015-ED23B100	①	E23B015-E23B100	②	EE3B015-EE3B100
ED23S100A	①	E23S100A	②	EE3S100
ED41B015-ED41B100	①	E41B015-E41B100	②	EH1B015-EH1B100
ED42B015-ED42B125	①	E42B015-E42B100	②	EH2B015-ED2B125
ED42S100A	①	E42S100	②	EH2S100
ED43B015-ED43B125	①	E43B015-E43B100	②	EH3B015-EH3B100
ED43S100A	①	E43S100	②	EH3S100
ED61B015-ED61B100	①	E61B015-E61B100	②	EF1B015-EF1B020
ED62B015-ED62B125	①	E62B015-E62B100	②	EF2B015-EF2B100
ED62S100A	①	E62S100A	②	EF2S100
ED63A001-ED63A125	①	E63A001-E63A125	②	EF3A003, EF3J050, EF3L050-EF3A100, EF3H1
ED63B015-ED63B125	①	E63B015-E63B100	②	EF3B015-EF3B100
ED63S100A	①	E63S100A	②	EF3S100
CED62B015-CED62B125	①	HHED62B015-HHED62B125		HED62B015-HED62B125
CED62B015-CED62B125	①	HHED63B015-HHED63B125		HED63B015-HED63B125
FD62B070-FD62B250	①,⑥	F62B070, F62B250		-
FD63B070-FD63B250	①,⑥	F63B070-F63B250		-
FXD62A150, FXD62L150, FXD62A250	①	FJ62A150, FJ62L150-FJ62A250		-
FXD62B070-FXD62B250	①,⑥	FJ62B070-FJ62B250	②	FJ2B070-FJ2B225
FXD62S250A	①	FJ62S250	②	FJ2S225
FXD63A150, FXD63L150, FXD63A250	①	FJ63A150, FJ63L150-FJ63A250	②	FJ3A225
FXD63B070-FXD63B250	①,⑥	FJ63B070-FJ63B250	②,	FJ3B070-FJ3B225
FXD63S250A	①	FJ63S250	②	FJ3S225
HED41B015-HED41B100	①	HE41B015-HE41B100		-
HED42B015-HED42B125	①	HE42B015-HE42B100		-
HED43B015-HED43B125	①	HE43B015-HE43B100		-
-	②	HED61B015-HED61B100		HE61B015-HE61B100
CED62B015-CED62B125	②	HED62B015-HED62B125	②	HE62B015-HE62B110 or (HE2B015-HE2B100)
CED63B015-CED63B125	②	HED63B015-HED63B125	②	HE63B015-HE63B100 or (HE3B015-HE3B100)
HFD62B070-HFD62B250	①	HF62B070-HF62B250		-
HFD63B070-HFD63B250	①	HF63B070-HF63B250		-
CED62B015-CED62B125	①	HHED62B015-HHED62B125		HED62B015-HED62B125
CED63B015-CED63B125	①	HHED63B015-HHED63B125		HED63B015-HED63B125
HJD63B200-HJD63B400	①	HJ63B200-HJ63B400	②	HJ3B125-HJ3B400
HLD63B250-HLD63B600	①	HL63B450-HL63B600	②	HL3B450-HL3B600
HMD63B500-HMD63B800	②	HN3B500-HN3B800		-
HND63B100-HND63B120	②	HK3B100-HK3B120		-
HPD63B120-HPD63B160	②	HP3B120-HP3B160		-
HRD63B160-HRD63B200	②	HR3B160-HR3B200		-

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3 Electrically interchangeable only if the system interrupting capacity is less than or equal to:
200 kA at 240V AC
200 kA at 480V AC
100 kA at 600V AC
4 Electrically interchangeable only if the system interrupting capacity is less than or equal to:
200 kA at 240V AC
150 kA at 480V AC
100 kA at 600V AC
5 Refer to local sales office for replacement information.
6 Effective 1994 — The FD6 and FXD6 types have been replaced by FD6-A and FXD6-A type thermal / magnetic circuit breakers — mechanically and electrically interchangeable with the exception that FXD6-A and FD6-A have 22kA at 600V AC ratings versus 18kA at 600V AC for types FXD6 and FD6.

Superseded Breakers

Sentron Series	Note	Superseded	Note	Superseded
JD62B200-JD62B400	①	JLB200-JL62B400	②	JL2B070-JL2B400
JD63B200-JD63B400	①	JL63B200-JL63B400	②	JL3B0L0-JL3B400
JXD22B200-JXD22B400	①	JD22B200-JD22B400	②	JD2B250-JD2B400
JXD22S400A	①	JD22S400	②	JD2S400
JXD23B200-JXD23B400	①	JD23B200-JD23B400	②	JD3B250-JD3B400
JXD23S400A	①	JD23S400	②	JD3S400
JXD62B200-JXD62B400	①	JJ62B200-JJ62B400	②	JJ2B250-JJ2B400
JXD62H400, JXD62L400	①	JL62L400, JL62H400	②	JL2L400-JL2H400
JXD62S400A	①	JJ62S400A		-
JXD63B200-JXD63B400	①	JJ63B200-JJ63B400	②	JJ3B200-JJ3B400
JXD63H400, JXD63L400	①	JL63A400, JL63H400, JL63L400	②	JL3H400, JL3L400, JL3A225
JXD63S400A	①	JJ63S400A		-
LD62B250-LD62B500	①	LL63B250-LL62B600	②	LL2B450-LL2B600
LD62B250-LD63B600	①	LL63B250-LL63B600	②	LL3B450-LL3B600
LXD62B450-LXD62B600	①	LJ62B450-LJ62B600		-
LXD62J600, LXD62L600	①	LL2H600, LL2U600, LL2X600		-
LXD62S600A	①	LJ62S600		-
LXD63B450-LXD63B600	①	LJ63B450-LJ63B600		-
LXD64H600, LXD63L600	①	LL63H600, LL63L600`	②	LL3A450, LL3H600
LXD63S600A	①	LJ63S600A	②	LL3S600
MD62B500-MD62B800	②	KM2B500-KM2B800		-
MD63B500-MD63B800	②	KM3B500-KM3B800		-
MXD62A800, MXD62H800, MXD62L800	②	KM2A800, KM2H800, KM2L800		-
MXD62S800A	②	KM2S800		-
MXD63A800, MXD63H800, MXD63L800	②	KM3A600, KM3H800, KM3L800		-
MXD63S800A	②	KM3S800		-
ND63B100-ND63B900	②	KP3B100-KP3B900		-
NXD63A120A	②	KP3S120		-
PD63B120-PD63B160	②	HP3B120-HP3B160		-
PXD63S160A	②	HP3S160		-
RD63B160-RD63B200	②	HR3B160-HR3B200		-
QJ22B060-QJ22B225	①	QJ2B125-QJ2B225		-
QJ22B060H-QJ22B225H		-		-
QJ22S225	①	QJS225		-
QJ23B060-QJ23B225	①	QJ3B125-QJ3B225		-
QJ23B060H-QJ23B225H		-		-
QJH22B060-QJH22B225	①	QJ2H125-QJ2B225		-
QJH23B060-QJH23B225	①	QJ3H125-QJ3H225		-
QJH23S225	①	QJ3S225		-
RD63B160-RD63B200	②	HR3B160-HR3B200		-
RXD63S200A	②	HR3S200		-
SHJD69200-SHJD69400	①	SHJ63B200-SHJ63B400G		-
SHJD69200G-SHJD69400G	①	SHJ63B200G-SHJ63B400G		-
SHJD69200NGT-SHJD69400NGT	①	SHJ63N200G-SHJ63N400G		-
SHJD69200NT-SHJD69400NT	①	SHJ63N200-SHJ63N400		-
SHLD69300-SHLD69600	①	SHL63B300-SHL63B600		-
SHLD69300G-SHLD69600G	①	SHL63B300G-SHL63B600G		-
SHLD69300NGT-SHLD69600NG	①	SHL63N300G-SHL63N600G		-
SHLD69300NT-SHLD69600NT	①	SHL63N300-SHL63N600		-
SHND69100A-SHND69120A	①	SHND69100-SHND69800	②	SHKF3B100-SHKF3B800
SHND69100AG-SHND69120AG	①	SHND69100G-SHND69800G	②	SHKF3B100G-SHKF3B800G
SHPD69120-SHPD69160	②	SHPF3B120-SHPF3B160		-
SHPD69120G-SHPD69160G	②	SHPF3B120G-SHPF3B160G		-

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200 kA at 240V AC
200 kA at 480V AC
100 kA at 600V AC
4 Electrically interchangeable only if the system interrupting capacity is less than or equal to:
200 kA at 240V AC
150 kA at 480V AC
100 kA at 600V AC
5 Refer to local sales office for replacement information.

Superseded Breakers

New Sentron Series	Note	Superseded	Note	Superseded
SHND69100NGT-SHND69800NGT	①	SHKF3N100G-SHKF3N800G	②	SHK3N100G-SHK3N600G
SHND69100NT-SHND69800NT	②	SHKF3N100-SHKF3N800	②	SHK3N100-SHK3N600
SHPF3B120-SHPF3B160	②	SHP3B120-SHP3B800		—
SHPF3B120G-SHPF3B160G	②	SHP3B120G-SHP3B800G		—
SHPF3N120-SHPF3N160	②	SHP3N120-SHP3N800		—
SHPF3N120G-SHPF3N160G	②	SHP3N120G-SHP3N800G		—
SJD69200-SJ369400	①	SJL63B200-SJL63B400		—
SJD69200G-SJD69400G	①	SJL63B200G-SJL63B400G		—
SJD69200NGT-SJD69400NGT	①	SJL63N200G-SJL63N400G		—
SJD69200NT-SJD69400NT	①	SJL63N200-SJL63N400		—
SLD69300-SLD69600	①	SLL63B300-SLL63B600		—
SLD69300G-SLD69600G	①	SLL63B300G-SLL63B600G		—
SLD69300NGT-SLD69600NGT	①	SLL63N300G-SLL63N600G		—
SLD69300NT-SLD69600NT	①	SLL63N300-SLL63N600		—
SMD69600A-SMD69800A	①	SMD69600-SMD69800	②	SKMF3B600-SKMF3B800
SMD69600AG-SMD69800AG	①	SMD69600G-SMD69800G	②	SKMF3B600G-SKMF3B800G
SMD69600ANGT-SMD69800ANGT	①	SMD69600NGT-SMD69800NGT	②	SKMF3N600G-SKMF3N800G
SMD69600ANT-SMD69800ANT	①	SMD69600NT-SMD69800NT	②	SKMF3N600-SKMF3N800
SND69800A-SND69120A	①	SND69100-SND69800	②	SKPF3B100-SKPF3B600
SND69800AG-SND69120AG	①	SND69100G-SND69800G	②	SKPF3B100G-SKPF3B600G
SND69800ANGT-SND69120ANGT	①	SND69100NGT-SND69800NGT	②	SKPF3N100G-SKPF3N600G
SND69800ANT-SND69120ANT	①	SND69100NT-SND69800NT	②	SKPF3N100-SKPF3N600
SPD69120-SPD69160	②	SHPF3B120-SHPF3B160		—
SPD69120G-SPD69160G	②	SHPF3B120G-SHPF3B160G		—
SPD69120NGT-SPD69160NGT	②	SHPF3N120-SHPF3N160G		—
SPD69120NT-SPD69160NT	②	SHPF3N120G-SHPF3N160G		—
—	⑥	BQCC1B015-BQC1B030		—
—	⑥	CC1B015-CC1B030		—
—	⑥	CC2B015-CC2B030		—
—	⑥	CC3B015-CC3B030		—
—	⑥	EF2A003, EF2H050, EF2L050, EF2A100,		—
	⑥	EF2H150, EF2L150		—
—	⑤	EH1B015-EH1B100		—
—	⑥	EH2B015-EH2B100		—
—	⑥	EH3B015-EH3B100		—
—	⑤	HE2A003, HE2H050, HE2L050-HE2A100		—
—	⑤	HE3A003, HE3H050, HE3L050-HE3A100		—
—	⑤	HE3B015-HE3B100		—

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200 kA at 240V AC
200 kA at 480V AC
100 kA at 600V AC
4 Electrically interchangeable only if the system interrupting capacity is less than or equal to:
200 kA at 240V AC
150 kA at 480V AC
100 kA at 600V AC
5 These units are for replacement purposes only. Consult sales office for availability.
6 These units are no longer manufactured, and no replacement is available.

Page				6-106	6-108		6-112			6-116			6-120		
Breaker Frame Family				**GG**	**EG**		**DG**			**FG**			**JG**		
	Continuous Amps			15–125A	15–125A		30–150A			40–250A			70–400A		
	Poles			1, 2, 3	1, 2, 3, 4		2, 3, 4			2, 3, 4			2, 3, 4		
	Max. Volts AC			600Y/347V	600Y/347V		600V			600V			600V		
Breaker Type				**NGG**	**NEG**	**HEG**	**NDG**	**HDG**	**LDG**	**NFG**	**HFG**	**LFG**	**NJG**	**HJG**	**LJG**
Ratings	Interrupting Class			N	N	H	N	H	L	N	H	L	N	H	L
	Interrupting Rating RMS Symmetrical Amperes AC 50/60Hz	UL	240Vac	65	85	100	65	100	200	65	100	200	65	100	200
			480Vac	25	35	65	35	65	100	35	65	100	35	65	100
			600Vac	14 (600Y/347)	22	25	18	20	25	18	20	25	25	25	25
		I_{CS}/I_{CU}	220/240Vac	65/33	85/43	100/50	65/65	100/75	200/150	65/65	100/75	200/150	65/65	100/75	200/150
			380/415Vac	25/12.5	40/30	70/35	40/40	70/70	100/75	40/40	70/70	100/75	45/45	70/70	100/75
			690Vac	—	—	—	12/6	12/6	12/6	12/6	12/6	12/6	12/6	15/8	15/8
	DC Interrupting Ratings (UL)②		250Vdc (2-Pole)	14	35	42	30	30	30	30	30	30	30	30	30
			500Vdc (3-Pole)	—	—	—	18	18	18	18	18	30	25	35	35
			600Vdc (3-Pole)	—	—	—	#	#	#	#	#	#	#	#	#
			750Vdc (4-Pole)	—	—	—	#	#	#	#	#	#	#	#	#
Dimensions in Inches	1-Pole			5.1H x 1W x 2.8D	5.5H x 1W x 3D		—						—		
	2-Pole			5.1H x 2W x 2.8D	5.5H x 2W x 3D		6.9H x 4.1W x 3.4D						11H x 5.5W x 4.2D		
	3-Pole			5.1H x 3W x 2.8D	5.5H x 3W x 3D		6.9H x 4.1W x 3.4D						11H x 5.5W x 4.2D		
	4-Pole			—	5.5H x 4W x 3D		6.9H x 5.5W x 3.4D						11H x 7.2W x 4.2D		
Trip Unit Information	Thermal-Magnetic			◆	◆		◆			◆			◆		
	Electronic						◆			◆			◆		
	Electronic with LCD						◆			◆			◆		
	Interchangeable Trip Unit						◆			◆			◆		
	Reverse Feed (w/Non-Interchangeable Trip)			◆	◆		◆			◆			◆		
	Communications Capability*						◆			◆			◆		
Specific Application Breakers	Molded Case Switch				◆		◆			◆			◆		
	Motor Circuit Protector				◆		◆			◆			◆		
	100% Rated												◆		
	50°C Calibrated[A]				◆		◆			◆			◆		
Accessories & Modifications	Auxiliary Switch			◆	◆		◆			◆			◆		
	Alarm Switch			◆	◆		◆			◆			◆		
	Shunt Trip			◆	◆		◆			◆			◆		
	Undervoltage Release				◆		◆			◆			◆		
	Mechanical Interlocks				◆		◆			◆			◆		
	Electric Motor or Stored Energy Operator				◆		◆			◆			◆		
	Rear Connecting Studs				◆		◆			◆			◆		
	Plug-In Mounting Assy. w/Trip Interlock				◆		◆			◆			◆		
	Draw-Out Assembly						◆			◆			◆		
	Handle Mechanism Options			◆	◆		◆			◆			◆		
	Fungus Proofing				◆										
Enclosures[A]	NEMA 1 – Indoor, Surface Mount			◆						◆			◆		
	NEMA 1 – Indoor, Flush Mount			◆						◆					
	NEMA 3R – Outdoor, Rain Proof			◆						◆			◆		
	NEMA 4, 4X – Stainless Steel									◆			◆		
	NEMA 7, 9 – Hazardous Locations									◆			◆		
	NEMA 12 – Dust			◆						◆			◆		
	Terminal Shields			◆				◆			◆			◆	
	Distribution Lugs			◆	◆			◆			◆			◆	
	Ground Sensor (Neutral Transformer)							◆			◆			◆	

① 500Vdc nominal, 600Vdc max. for ungrounded DC UPS systems.
② DC Interrupting Ratings are not applicable to electronic circuit breakers.
* - Communications available via a COM 10 module using Profibus protocol.
# - Consult Siemens for these applications.
GG and EG are not VL family breakers and do not share common VL accessories.
A - Consult Siemens for availability.

Page				6-124			6-128			6-132			6-136		
Breaker Frame Family				**LG**			**MG**			**NG**			**PG**		
	Continuous Amps			150–600A			200–800A			300–1200A			400–1600A		
	Poles			2, 3			2, 3, 4			2, 3, 4			3, 4		
	Max. Volts AC			600V			600V			600V			600V		
Breaker Type				**NLG**	**HLG**	**LLG**	**NMG**	**HMG**	**LMG**	**NNG**	**HNG**	**LNG**	**NPG**	**HPG**	**LPG**
Ratings	Interrupting Class			N	H	L	N	H	L	N	H	L	N	H	L
	Interrupting Rating RMS Symmetrical Amperes AC 50/60Hz	UL	240Vac	65	100	200	65	100	200	65	100	200	65	100	200
			480Vac	35	65	100	35	65	100	35	65	100	35	65	100
			600Vac	25	25	25	25	35	50	25	35	65	25	35	65
		I_{cs}/I_{cu}	220/240Vac	65/65	100/75	200/150	65/65	100/75	200/150	65/65	100/75	200/150	65/65	100/75	200/150
			380/415Vac	45/45	70/70	100/75	50/50	70/70	100/75	50/25	70/35	100/50	50/25	70/35	100/50
			690Vac	12/6	15/8	15/8	20/10	30/15	35/17	20/10	30/15	35/15	20/10	30/15	35/15
	DC Interrupting Ratings (UL)③		250Vdc (2-Pole)	30	30	30	22	25	42	22	25	42	22	25	42
			500Vdc (3-Pole)	25	35	35	35	50	65	35	50	65	35	50	65
			600Vdc (3-Pole)	#	#	#	#	#	#	#	#	#	#	#	#
			750Vdc (4-Pole)	#	#	#	#	#	#	#	#	#	#	#	#
Dimensions in Inches	1-Pole			—			—			—					
	2-Pole			11H x 5.5W x 4.2D			16H x 7.5W x 4.7D			16H x 9W x 6.2D			—		
	3-Pole			11H x 5.5W x 4.2D			16H x 7.5W x 4.7D			16H x 9W x 6.2D					
	4-Pole			—			16H x 10W x 4.7D			16H x 12W x 6.2D					
Trip Unit Information	Thermal-Magnetic			◆			◆			◆			◆		
	Electronic			◆			◆			◆			◆		
	Electronic with LCD			◆			◆			◆			◆		
	Interchangeable Trip Unit			◆			◆			◆			◆		
	Reverse Feed (w/Non-Interchangeable Trip)			◆			◆			◆			◆		
	Communications Capability①			◆			◆			◆			◆		
Specific Application Breakers	Molded Case Switch			◆			◆			◆			◆		
	Motor Circuit Protector			◆			◆			◆					
	100% Rated						◆			◆			◆		
	50°C Calibrated[A]			◆			◆			◆			◆		
Accessories & Modifications	Auxiliary Switch			◆			◆			◆			◆		
	Alarm Switch			◆			◆			◆			◆		
	Shunt Trip			◆			◆			◆			◆		
	Undervoltage Release			◆			◆			◆			◆		
	Mechanical Interlocks			◆			◆			◆			◆		
	Electric Motor or Stored Energy Operator			◆			◆			◆			◆		
	Rear Connecting Studs			◆			◆			◆			◆		
	Plug-In Mounting Assy. w/Trip Interlock			◆			◆			◆					
	Draw-Out Assembly			◆			◆			◆			◆		
	Handle Mechanism Options			◆			◆			◆			◆		
	Fungus Proofing														
Enclosures[A]	NEMA 1 – Indoor, Surface Mount			◆			◆			◆					
	NEMA 1 – Indoor, Flush Mount														
	NEMA 3R – Outdoor, Rain Proof			◆			◆			◆					
	NEMA 4, 4X – Stainless Steel			◆											
	NEMA 7, 9 – Hazardous Locations			◆											
	NEMA 12 – Lint, Fine Dust, Oils, Coolant			◆						◆					
	Terminal Shields			◆			◆			◆			◆		
	Distribution Lugs														
	Ground Sensor (Neutral Transformer)			◆			◆			◆			◆		

① Communications available via COMPRO or COMMOD modules using Profibus or Modbus protocol.
② 500Vdc nominal, 600Vdc max. for ungrounded DC UPS systems.
③ DC Interrupting Ratings are not applicable to electronic circuit breakers.
- Consult Siemens for these applications.
A - Consult Siemens for availability.

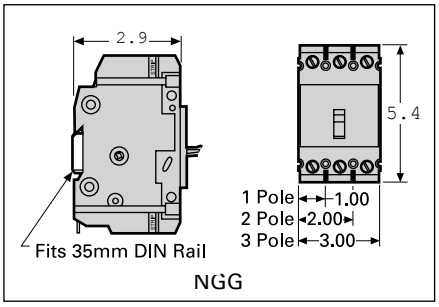
NGG 125A Frame

Type NGG (Cable In - Cable Out)

	1-Pole	2-Pole	3-Pole
Continuous Ampere Rating @ 40°C	**Catalog Number**	**Catalog Number**	**Catalog Number**
15	**NGG1B015L**①②	**NGG2B015L**	**NGG3B015L**
20	**NGG1B020L**①	**NGG2B020L**	**NGG3B020L**
25	**NGG1B025L**②	**NGG2B025L**	**NGG3B025L**
30	**NGG1B030L**②	**NGG2B030L**	**NGG3B030L**
35	**NGG1B035L**	**NGG2B035L**	**NGG3B035L**
40	**NGG1B040L**	**NGG2B040L**	**NGG3B040L**
50	**NGG1B050L**	**NGG2B050L**	**NGG3B050L**
60	**NGG1B060L**	**NGG2B060L**	**NGG3B060L**
70	**NGG1B070L**	**NGG2B070L**	**NGG3B070L**
80	**NGG1B080L**	**NGG2B080L**	**NGG3B080L**
90	**NGG1B090L**	**NGG2B090L**	**NGG3B090L**
100	**NGG1B100L**	**NGG2B100L**	**NGG3B100L**
110	—	**NGG2B110L**	**NGG3B110L**
125	—	**NGG2B125L**	**NGG3B125L**

Line and load lugs are included as standard. If only load side lugs are needed, change "L" suffix to "B".
HACR rated.
Suitable for screws or DIN rail mounting.

NGG



NGG

Shipping Weights

Number of Poles	Number per Carton	Shipping Weight lbs. (kg)
1	1	.75 (0.34)
2	1	1.3 (0.59)
3	1	2.0 (0.98)

Lugs For 60/75°C Wire

NGG		
Ampere Rating	**Wire Size**	**Catalog Number**
15–40A	#14–#6 AWG Cu	1TC1Q1 (qty. 1)
	#12–#6 AWG Al	3TC1Q1 (qty. 3)
50–100A	#8–#1 AWG Cu	1TA1Q1 (qty. 1)
	#6–#1/0 AWG Al	3TA1Q1 (qty. 3)
110–125A	#6–#1/0 AWG Cu #4–#2/0 AWG Al	3TA1GG20 (qty. 3)
15–125A	Nut Keeper plate w/screw (for crimp terminals)	THKG3 (qty. 3)

Interrupting Ratings

Breaker Type	Number of Poles	CSA / UL 489 AIR								IEC 947-2				
		RMS Symmetrical Amperes (KA)								Volts AC (50/60Hz)				
		Volts AC(50/60Hz)						Volts DC		220/240		380/415		Volts DC
		120	240	277	347	480	600/347	125	250	Icu	Ics	Icu	Ics	250
NGG	1	65	—	25	18	—	—	14	—	25	12.5	—	—	—
	2, 3	—	65	—	—	25	TBD	—	14	25	12.5	25	12.5	10

For inches / millimeters conversion, see Application Data section.

①SWD rated.

②HID rated at 277 VAC.

Internal Accessories for NGG and NGB 125A Frame

Shunt Trip

Control Voltage		CQD, CQD6, NGG Catalog Number
V AC	V DC	
120	—	**CQDST120**
240	—	**CQDST240▲**
277	—	**CQDST277▲**
480	—	**CQDST480▲**
600	—	**CQDST600**
—	012	**CQDST12**
—	024	**CQDST24**
—	048	**CQDST48**
—	125	**CQDST125**

Auxiliary Switch

Maximum Voltage		Number of Contacts	CQD, CQD6, NGG Catalog Number
AC	DC		
240	125	1A–1B	**CQDA1**
240	125	2A–2B	**CQDA2**

Alarm Switch

Maximum Voltage		CQD, CQD6, NGG Catalog Number
AC	DC	
240	125	**CQDBA**

Shunt Trip and Auxiliary Switch

Shunt Trip Voltage		CQD, CQD6, NGG Catalog Number
AC	DC	
120	—	**CQDST120AAS▲**
240	—	**CQDST240AAS▲**
277	—	**CQDST277AAS▲**
480	—	**CQDST480AAS▲**
600	—	**CQDST600AAS▲**
—	12	**CQDST12DAS▲**
—	24	**CQDST24DAS▲**
—	48	**CQDST48DAS▲**
—	125	**CQDST125DAS▲**

Alarm and Auxiliary Switch Combinations

For Breaker	Catalog Number
CQD, CQD6, NGG	**CQDA1BA▲**

Padlocking Devices for locking breaker in "off" position

NGG	HPLG

Terminal Shields Breaker type

NGG	TSSG3A

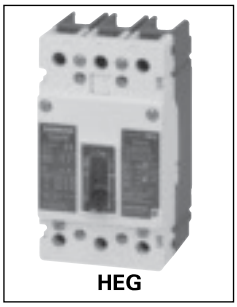
Handle Blocking Device

NGG	BQDHBD

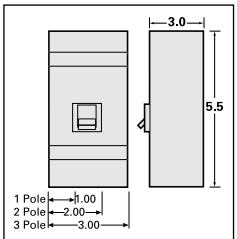
▲ Built to order. Allow 6–8 weeks for delivery.

Type NEG (Cable In - Cable Out)

Continuous Ampere Rating @ 40°C	1-Pole Catalog Number	2-Pole Catalog Number	3-Pole Catalog Number	4-Pole Catalog Number
15	NEG1B015L①②	NEG2B015L②	NEG3B015L②	NEG4B015L
20	NEG1B020L①②	NEG2B020L②	NEG3B020L②	NEG4B020L
25	NEG1B025L②	NEG2B025L②	NEG3B025L②	NEG4B025L
30	NEG1B030L②	NEG2B030L②	NEG3B030L②	NEG4B030L
35	NEG1B035L②	NEG2B035L②	NEG3B035L②	NEG4B035L
40	NEG1B040L②	NEG2B040L②	NEG3B040L②	NEG4B040L
45	NEG1B045L②	NEG2B045L	NEG3B045L	NEG4B045L
50	NEG1B050L②	NEG2B050L②	NEG3B050L②	NEG4B050L
60	NEG1B060L	NEG2B060L	NEG3B060L	NEG4B060L
70	NEG1B070L	NEG2B070L	NEG3B070L	NEG4B070L
80	NEG1B080L	NEG2B080L	NEG3B080L	NEG4B080L
90	NEG1B090L	NEG2B090L	NEG3B090L	NEG4B090L
100	NEG1B100L	NEG2B100L	NEG3B100L	NEG4B100L
110	NEG1B110L	NEG2B110L	NEG3B110L	NEG4B110L
125	NEG1B125L	NEG2B125L	NEG3B125L	NEG4B125L



HEG



NEG, HEG

Type HEG (Cable In - Cable Out)

Continuous Ampere Rating @ 40°C	1-Pole Catalog Number	2-Pole Catalog Number	3-Pole Catalog Number	4-Pole Catalog Number
15	HEG1B015L①②	HEG2B015L②	HEG3B015L②	HEG4B015L
20	HEG1B020L①②	HEG2B020L②	HEG3B020L②	HEG4B020L
25	HEG1B025L②	HEG2B025L②	HEG3B025L②	HEG4B025L
30	HEG1B030L②	HEG2B030L②	HEG3B030L②	HEG4B030L
35	HEG1B035L②	HEG2B035L②	HEG3B035L②	HEG4B035L
40	HEG1B040L②	HEG2B040L②	HEG3B040L②	HEG4B040L
45	HEG1B045L②	HEG2B045L	HEG3B045L	HEG4B045L
50	HEG1B050L②	HEG2B050L②	HEG3B050L②	HEG4B050L
60	HEG1B060L	HEG2B060L	HEG3B060L	HEG4B060L
70	HEG1B070L	HEG2B070L	HEG3B070L	HEG4B070L
80	HEG1B080L	HEG2B080L	HEG3B080L	HEG4B080L
90	HEG1B090L	HEG2B090L	HEG3B090L	HEG4B090L
100	HEG1B100L	HEG2B100L	HEG3B100L	HEG4B100L
110	HEG1B110L	HEG2B110L	HEG3B110L	HEG4B110L
125	HEG1B125L	HEG2B125L	HEG3B125L	HEG4B125L

Line and load lugs are included as standard.
HACR rated.
Suitable for screw mounting.

Shipping Weights

Number of Poles	Number per Carton	Shipping Weight lbs. (kg)
1	1	1.1 (0.5)
2	1	2.0 (0.9)
3	1	3.1 (1.4)
4	1	3.9 (1.8)

EG 125A Frame Molded Case Switch – (Magnetic Trip Only)

Continuous Ampere Rating	Catalog Number
3-Pole	
100	HES3S100L
125	HES3S125L
160	HES3S160L
4-Pole	
125	HES4S125L

EG 125A Frame 3-Pole Motor Circuit Protector

Continuous Ampere Rating	Catalog Number
3	HEM3M003L
7	HEM3M007L
15	HEM3M015L
30	HEM3M030L
50	HEM3M050L
70	HEM3M070L
100	HEM3M100L
125	HEM3M125L

Lugs For 60/75°C Wire

NEG/HEG		
Ampere Rating	**Wire Size**	**Catalog Number**
15–125A	#14 – 3/0 AWG Cu (steel lugs)	3TW1EG30 (qty. 3)
15–125A④	#14 – 1/0 AWG Cu #14 – 1/0 AWG Al	3TA1EG10 (qty. 3)
15–125A④	#6 - 3/0 AWG Cu #6 - 3/0 AWG Al	3TA1EG30 (qty. 3)
15–125A	Nut Keeper plate w/ screw (for crimp terminals)	TNKE3 (qty. 3)

Interrupting Ratings

Breaker Type	Number of Poles	UL 489 AIR RMS Symmetrical Amperes (KA) Volts AC(50/60Hz) 240	277	347	480	600/347	Volts DC 125	125/250	IEC 60947-2 Volts AC (50/60Hz) 220/240 Icu	Ics	380/415 Icu	Ics	Volts DC 125	125/250
NEG	1	85	35	22	—	—	35	—	85	43	—	—	35	—
	2, 3, 4	85	—	—	35	22③	—	35	85	43	40	20	—	35
HEG	1	100	65	25	—	—	42	—	100	50	—	—	42	—
	2, 3, 4	100	—	—	65	25③	—	42	100	50	70	35	—	42

For inches / millimeters conversion, see Application Data section.

① SWD rated.
② HID rated 277 VAC.
③ Applies to 3 & 4-pole breakers only.
④ Optional lugs for NEG and HEG breakers.

Shunt Trip

Control Voltage		NEG, HEG Catalog Number
V AC	V DC	
110-240	125	**STRER240**
380-600	—	**STREV600**
24-60	24-60	**STREM60D**

Auxiliary Switch

Maximum Voltage		Number of Contacts	NEG, HEG Catalog Number
AC	DC		
240	125	1A–1B	**ASKE2**
240	125	2A–2B	**ASKE3**

Alarm Switch

Maximum Voltage		Number of Contacts	NEG, HEG Catalog Number
AC	DC		
240	125	1A–1B	**ASKE1**
240	125	2A–2B	**ASKE5**

Undervoltage Trip

Control Voltage		NEG, HEG Catalog Number
AC	DC	
60		**UVREM60▲**
120		**UVREN120**
240		**UVRER240**
480		**UVREU480▲**
600		**UVREV600▲**
24	24	**UVREB24AD**
	48	**UVREC48D▲**
	125	**UVRED125D▲**
	250	**UVREE250D▲**

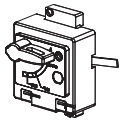
Alarm and Auxiliary Switch Combinations

For Breaker	Catalog Number
NEG, HEG	**ASKE6**

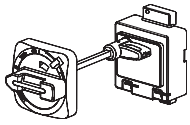
Handle Operators

Description	NEMA Type	Catalog Number
Rotary Handle Operator (black handle, breaker mounted)	1	RHFESD
Rotary Handle Operator with Door Interlock (black handle, breaker mounted)	1	RHFESDL
Rotary Handle Operator (red handle, breaker mounted)	1	RHFESDEM
Variable Depth Rotary Operator Kit (black handle, 6 inch shaft)	1, 12, 3R, 4X	RHVE64X
Variable Depth Rotary Operator Kit (black handle, 12 inch shaft)	1, 12, 3R, 4X	RHVE124X
Variable Depth Rotary Operator Kit (black handle, 24 inch shaft)	1, 12, 3R, 4X	RHVE244X
Variable Depth Rotary Operator Kit (red handle, 6 inch shaft)	1, 12, 3R, 4X	RHVEEM64X
Variable Depth Rotary Operator Kit (red handle, 12 inch shaft)	1, 12, 3R, 4X	RHVEEM124X
Variable Depth Rotary Operator Kit (red handle, 24 inch shaft)	1, 12, 3R, 4X	RHVEEM244X
Flex Operator Kit (Flange Mounted Variable Depth, 24 in. cable)	1, 12	MFKE2
Flex Operator Kit (Flange Mounted Variable Depth, 36 in. cable)	1, 12	MFKE3
Flex Operator Kit (Flange Mounted Variable Depth, 48 in. cable)	1, 12	MFKE4
Flex Operator Kit (Flange Mounted Variable Depth, 60 in. cable)	1, 12	MFKE5
Flex Operator Kit (Flange Mounted Variable Depth, 72 in. cable)	1, 12	MFKE6
Flex Operator Kit (Flange Mounted Variable Depth, 84 in. cable)	1, 12	MFKE7
Flex Operator Kit (Flange Mounted Variable Depth, 96 in. cable)	1, 12	MFKE8
Flex Operator Kit (Flange Mounted Variable Depth, 108 in. cable)	1, 12	MFKE9
Flex Operator Kit (Flange Mounted Variable Depth, 120 in. cable)	1, 12	MFKE10
Flex Operator Kit (Flange Mounted Variable Depth, 24 in. cable)	4X	MFKE4X2
Flex Operator Kit (Flange Mounted Variable Depth, 36 in. cable)	4X	MFKE4X3
Flex Operator Kit (Flange Mounted Variable Depth, 48 in. cable)	4X	MFKE4X4
Flex Operator Kit (Flange Mounted Variable Depth, 60 in. cable)	4X	MFKE4X5
Flex Operator Kit (Flange Mounted Variable Depth, 72 in. cable)	4X	MFKE4X6
Flex Operator Kit (Flange Mounted Variable Depth, 84 in. cable)	4X	MFKE4X7
Flex Operator Kit (Flange Mounted Variable Depth, 96 in. cable)	4X	MFKE4X8
Flex Operator Kit (Flange Mounted Variable Depth, 108 in. cable)	4X	MFKE4X9
Flex Operator Kit (Flange Mounted Variable Depth, 120 in. cable)	4X	MFKE4X10

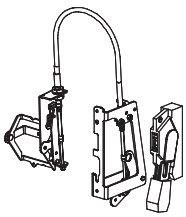
All operators are for use on 3-pole and 4-pole breakers.



RHFESDEM



RHVE64X



Flex Operator Kit

Locks and Interlocks

Description	Quantity per Kit	Accessory Kit Catalog Number
Handle Blocking Device	1	HBDE
Handle Padlocking Device, 3-pole only (allows padlocking the handle in the OFF or ON position)	1	HPLE

Miscellaneous Accessories

Breaker Amp Rating (A)	Description	Catalog Number
	Mounting Screw Kit, 1-pole	MSKE1
	Mounting Screw Kit, 2-pole	MSKE2
	Mounting Screw Kit, 3 or 4-pole	MSKE4
	DIN Rail Adapter, 3 or 4-pole	DRAE3

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 display. 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 information menus. With precise control over the circuit beaker 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 545 trip units. The pick-up and time delay settings are fixed 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 the high level of adjustability available on the Model 576 trip units.

Trip Unit Functions	VL Trip Units						
	Model 525	Model 545				Model 576	
	Thermal-Magnetic	Electronic LI	Electronic LIG	Electronic LSI	Electronic LSIG	Electronic with LCD LSI	Electronic with LCD LSIG
Continuous Current Setting (I_r)	Fixed	◆	◆	◆	◆	◆	◆
Long Time Delay (t_r)	□	◆	◆	Fixed	Fixed	◆	◆
Instantaneous Overcurrent Setting (I_i)	◆	◆	◆	Fixed	Fixed	◆	◆
Short Time Pick-up (I_{sd})	□	□	□	◆	◆	(ON/OFF)	(ON/OFF)
Short Time Delay (t_{sd})	□	□	□	◆	◆	◆	◆
Short Time I^2t Pick-up	□	□	□	◆	◆	◆	◆
Ground Fault Pick-up (I_g)	□	□	Fixed	□	Fixed	□	◆
Ground Fault Delay (t_g)	□	□	Fixed	□	Fixed	□	◆
Alarm & Status LEDs	□	●	●	●	●	□	□
Built-in Display (LCD)	□	□	□	□	□	●	●
Pre-Trip Alarm①	□	□	□	□	□	●	●
Last trip information①	□	□	□	□	□	●	●
Zone Selective①	□	□	□	□	□	●	●
Communications①	□	□	□	□	□	●	●

◆ – Adjustable setting.
● – This feature is included.
"fixed" – Non-Adjustable setting.
□ – Feature is not included.
① – Requires the trip unit to be connected to a PC (via a COMPRO or COMMOD communications module) for access or programming.

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 x I_r.

Instantaneous Pick-up (I_i)

This function sets the breaker to trip instantaneously during high fault conditions. On Model 545 trip units this setting is fixed on LSI and LSIG trip units and adjustable on LI and LIG trip units. These features are fully adjustable on Model 576 trip units.

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 576 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.

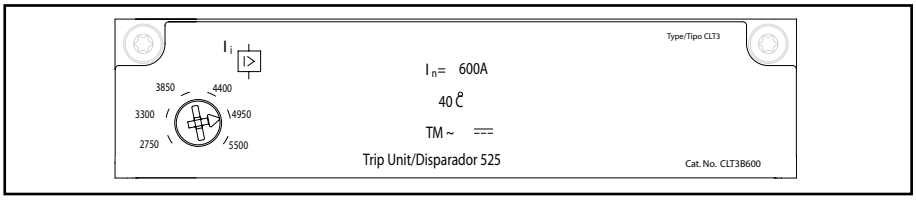
Ground Fault Pick-Up (I_g)

This setting controls the level of ground fault current that will cause the breaker to trip. Model 545 Electronic Trip Units act on the residual current to sense ground current. The Model 576 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.

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 15 to 1600A.



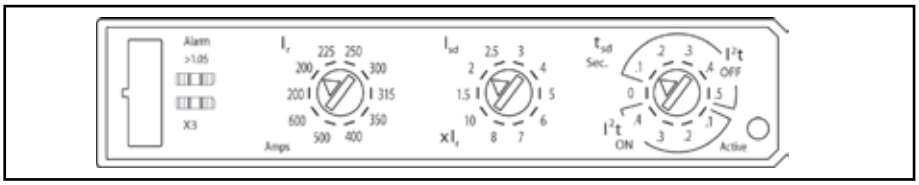
Electronic Trip Units

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.

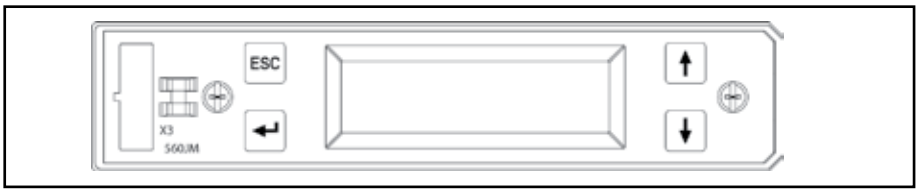
On the Model 545 Electronic Trip Unit a flashing LED confirms that the microprocessor in operating and another indicates an overload condition. For ease-of-use and to insure proper coordination, the set points for the continuous current are shown on the face of these trip units in amps.

On the Model 576, 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.

Typical Trip Unit Labeling and Adjustment Positions



Model 545 Electronic Trip Unit with LSIG trip functions



Model 576 Electronic Trip Unit has an LCD display

Ordering Information

Complete Assembled Breaker

Prices for a complete factory assembled DG breaker include 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 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 50˚C and special applications, refer to page 6-144.A

Mounting hardware is included with each frame or complete breaker.

Interrupting Ratings

Breaker Type	RMS Symmetrical Amperes (KA)											
	UL 489					IEC 60947-2						
	Volts AC (50/60 Hz)			Volts DC		Volts AC (50/60 Hz)						
						220/240		380/415		690	
	240	480	600	250	500	I_{CU}	I_{CS}	I_{CU}	I_{CS}	I_{CU}	I_{CS}
NDG	65	35	18	30	18	65	65	40	40	12	6
HDG	100	65	20	30	18	100	75	70	70	12	6
LDG	200	100	25	30	18	200	150	100	75	12	6

Connectors for 75°C Wire

Construction	Ampere Rating	Wire Range	No. of cables per connector	Catalog Number
Steel	50-150	#8–1/0 Cu	1	**3TW1DG20**②
Aluminum①	50-150	#6–3/0 Al/Cu	1	**3TA1DG30**②
Copper②	50-150	#6–3/0 Cu	1	**3TC1DG30**②
Distribution Lugs				
	50-150	#14–#2 Cu (3pcs. Max)	3	**3TA3DG02**②
	50-150	#14–#4 Cu	6	**3TA6DG04**②
Compression Lugs				
	50-150	#14–2/0 kcmil Al/Cu	–	**2CLD20**③
	50-150	#14–2/0 kcmil Al/Cu	–	**3CLD20**④

① Standard connector supplied with complete breakers.
② Kit consists of 3 terminal connectors.
③ 2 Lugs for 2-pole breakers.
④ 3 Lugs for 3-pole breakers.

DG Thermal-Magnetic, Instantaneous Trip Adjustment Range

Trip Unit Continuous Amp Rating (I_n)	Instantaneous Overcurrent Setting (I_i)	
	Min.	Max.
50	450	700
60	450	700
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.

Dimensions, inches (mm)

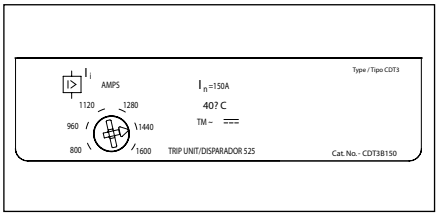
Number of Poles	Width	Length	Depth	To Handle D1
2, 3	4.1 (105)	6.9 (175)	3.4 (81)	4.2(107)
4	5.5 (139)			

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)
4	4.9 (2.2)	2.6 (1.2)	3.3 (1.5)	7.5 (3.4)

A - Consult with Siemens for availability.

External Accessories pages 6-142 through 6-155



Model 525 Trip Unit

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

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NDG2F150		HDG2F150		LDG2F150			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
50	NDG2B050L		HDG2B050L		LDG2B050L		CDT2B050	
60	NDG2B060L		HDG2B060L		LDG2B060L		CDT2B060	
70	NDG2B070L		HDG2B070L		LDG2B070L		CDT2B070	
80	NDG2B080L		HDG2B080L		LDG2B080L		CDT2B080	
90	NDG2B090L		HDG2B090L		LDG2B090L		CDT2B090	
100	NDG2B100L		HDG2B100L		LDG2B100L		CDT2B100	
110	NDG2B110L		HDG2B110L		LDG2B110L		CDT2B110	
125	NDG2B125L		HDG2B125L		LDG2B125L		CDT2B125	
150	NDG2B150L		HDG2B150L		LDG2B150L		CDT2B150	

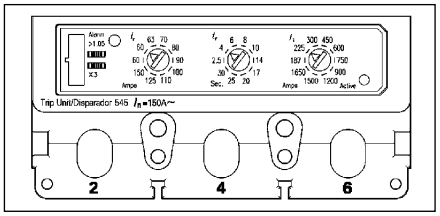
DG 150A Frame 3-Pole with Thermal-Magnetic Trip Unit

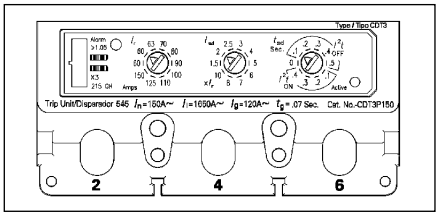
Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NDG3F150		HDG3F150		LDG3F150			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
50	NDG3B050L		HDG3B050L		LDG3B050L		CDT3B050	
60	NDG3B060L		HDG3B060L		LDG3B060L		CDT3B060	
70	NDG3B070L		HDG3B070L		LDG3B070L		CDT3B070	
80	NDG3B080L		HDG3B080L		LDG3B080L		CDT3B080	
90	NDG3B090L		HDG3B090L		LDG3B090L		CDT3B090	
100	NDG3B100L		HDG3B100L		LDG3B100L		CDT3B100	
110	NDG3B110L		HDG3B110L		LDG3B110L		CDT3B110	
125	NDG3B125L		HDG3B125L		LDG3B125L		CDT3B125	
150	NDG3B150L		HDG3B150L		LDG3B150L		CDT3B150	

DG 150A Frame 4-Pole with Thermal-Magnetic Trip Unit[A]

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NDG4F150		HDG4F150		LDG4F150			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
50	NDG4B050L		HDG4B050L		LDG4B050L		CDT4B050	
60	NDG4B060L		HDG4B060L		LDG4B060L		CDT4B060	
70	NDG4B070L		HDG4B070L		LDG4B070L		CDT4B070	
80	NDG4B080L		HDG4B080L		LDG4B080L		CDT4B080	
90	NDG4B090L		HDG4B090L		LDG4B090L		CDT4B090	
100	NDG4B100L		HDG4B100L		LDG4B100L		CDT4B100	
110	NDG4B110L		HDG4B110L		LDG4B110L		CDT4B110	
125	NDG4B125L		HDG4B125L		LDG4B125L		CDT4B125	
150	NDG4B150L		HDG4B150L		LDG4B150L		CDT4B150	

A - Consult with Siemens for availability.

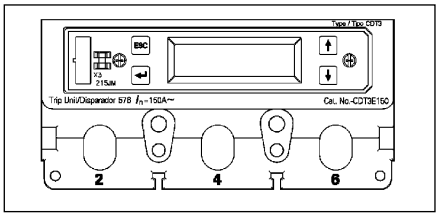




Model 545 Trip Units

DG 150A Frame 3-Pole Electronic Trip Unit

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NDG3F150		HDG3F150		LDG3F150			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
ELECTRONIC LI TRIP								
60	NDG3N060L		HDG3N060L		LDG3N060L		CDT3N060	
100	NDG3N100L		HDG3N100L		LDG3N100L		CDT3N100	
150	NDG3N150L		HDG3N150L		LDG3N150L		CDT3N150	
ELECTRONIC LSI TRIP								
60	NDG3P060L		HDG3P060L		LDG3P060L		CDT3P060	
100	NDG3P100L		HDG3P100L		LDG3P100L		CDT3P100	
150	NDG3P150L		HDG3P150L		LDG3P150L		CDT3P150	
ELECTRONIC LSIG TRIP								
60	NDG3U060L		HDG3U060L		LDG3U060L		CDT3U060	
100	NDG3U100L		HDG3U100L		LDG3U100L		CDT3U100	
150	NDG3U150L		HDG3U150L		LDG3U150L		CDT3U150	
ELECTRONIC LIG TRIP								
60	NDG3X060L		HDG3X060L		LDG3X060L		CDT3X060	
100	NDG3X100L		HDG3X100L		LDG3X100L		CDT3X100	
150	NDG3X150L		HDG3X150L		LDG3X150L		CDT3X150	



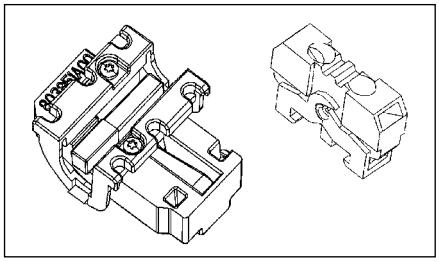
Model 576 Trip Unit

DG 150A Frame 3-Pole Electronic LCD Trip Unit

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NDG3F150		HDG3F150		LDG3F150			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
LCD ELECTRONIC LSI TRIP								
60	NDG3D060L		HDG3D060L		LDG3D060L		CDT3D060	
100	NDG3D100L		HDG3D100L		LDG3D100L		CDT3D100	
150	NDG3D150L		HDG3D150L		LDG3D150L		CDT3D150	
LCD ELECTRONIC LSIG TRIP								
60	NDG3E060L		HDG3E060L		LDG3E060L		CDT3E060	
100	NDG3E100L		HDG3E100L		LDG3E100L		CDT3E100	
150	NDG3E150L		HDG3E150L		LDG3E150L		CDT3E150	

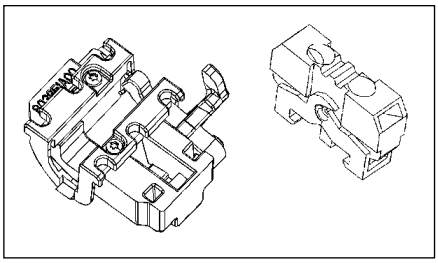
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket①	Catalog Number	List Price $
1 Alarm Switch 1A/B③ Bases AMBL2 & AMBL3	Left, Right②	**ASKL1**	
2 Aux. Switches 1A + 1B Bases AMBL1	Left, Right, Neutral	**ASKL2**	
2 Aux. + 1 Alarm Switch 1A + 1B, 1A/B③ Bases AMBL2 & AMBL3	Left, Right②	**ASKL3**	



Auxiliary/Alarm Switch Mounting Base Only

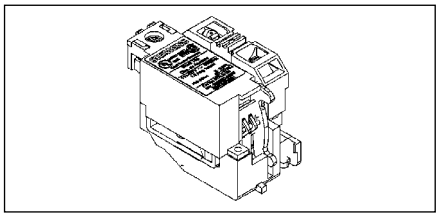
Description	Mounting Pocket	Catalog Number	List Price $
Up to 3 Auxiliary Switches	Left, Right, Neutral	**AMBL1**	
2 Aux. + 1 Alarm Switch	Left Pocket Only	**AMBL2**	
2 Aux. + 1 Alarm Switch	Right Pocket Only	**AMBL3**	



Auxiliary/Alarm Switch Only

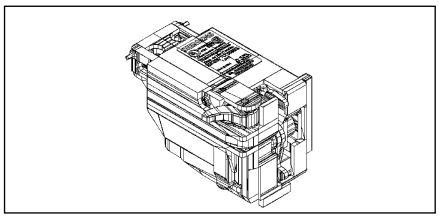
Common to DG - PG Frames

Description	Catalog Number	List Price $
1 Normally Open Contact (1A)	**ASWPA**	
1 Normally Closed Contact (1B)	**ASWPB**	



Shunt Trips

Description	Mounting Pocket	Catalog Number	List Price $
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	List Price $
12 VDC	Right Pocket Only	**UVRLA12DC**	
24 VDC		**UVRLB24DC**	
48 VDC		**UVRLC48DC**	
60 VDC		**UVRLG60DC**	
110-127 VDC		**UVRLD125DC**	
220-250 VDC		**UVRLE250DC**	
110-127 VAC		**UVRLN120**	
220-240 VAC		**UVRLR240**	
208 VAC		**UVRLP208**	
277 VAC		**UVRLS277**	
380-415 VAC		**UVRLT415**	
440-480 VAC		**UVRLU480**	
600 VAC		**UVRLV600**	

'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).
① Refer to the "Accessory Locations" chart 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.

External Accessories pages 6-142 through 6-155

Ordering Information

Complete Assembled Breaker

Prices for a complete factory assembled FG breaker include 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 50˚C and special applications, refer to page 6-160.A

Mounting hardware is included with each frame or complete breaker.

Interrupting Ratings

Breaker Type	RMS Symmetrical Amperes (KA)											
	UL 489					IEC 60947-2						
	Volts AC (50/60 Hz)			Volts DC		Volts AC (50/60 Hz)						
						220/240		380/415		690	
	240	480	600	250	500	I_{CU}	I_{CS}	I_{CU}	I_{CS}	I_{CU}	I_{CS}
NFG	65	35	18	30	18	65	65	40	40	12	6
HFG	100	65	20	30	25	100	75	70	70	12	6
LFG	200	100	25	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	List Price $
Steel	50-250	#4–350 kcmil Cu	1	**3TW1FG350**②	
Aluminum①	50-250	#4–350 kcmil Al/Cu	1	**3TAW1FG350**②	
Copper	50-250	#4–350 kcmil Cu	1	**3TCW1FG350**②	
Distribution Lugs					
	50-250	#12–2/0 Cu	3	**3TA3FG20**②	
	50-250	#14–#4 Cu	6	**3TA6FG04**②	
Compression Lugs					
	50-250	#6–350 kcmil Al/Cu	–	**2CLF350**③	
	50-250	#6–350 kcmil Al/Cu	–	**3CLF350**④	

① Standard connector supplied with complete breakers.
② Kit consists of 3 terminal connectors.
③ 2 Lugs for 2-pole breakers.
④ 3 Lugs for 3-pole breakers.

FG Thermal-Magnetic, Instantaneous Trip Adjustment Range

Trip Unit Continuous Amp Rating (I_n)	Instantaneous Overcurrent Setting (I_i)	
	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.

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)
4	5.5 (139)			

Shipping Weight, lbs. (kg)

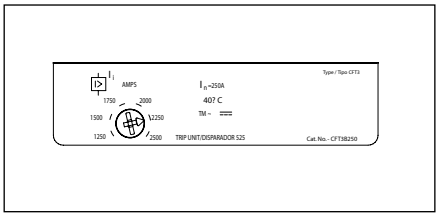
Poles	Frame	Trip Unit		Complete Breaker
		Thermal-Mag.	Electronic	
2, 3	4.0 (1.8)	2.2 (1.0)	2.6 (1.2)	6.2 (2.8)
4	5.3 (2.4)	2.6 (1.2)	3.3 (1.5)	7.9 (3.6)

EnclosuresA

NEMA Class	Catalog Number	List Price $
1 (Flush)	**FG0251F**	**CSO**
1 (Surface)	**FG0221S** (225A max)	**CSO**
1 (Surface)	**FG0251S** (250A)	**CSO**
3R	**FG0253R**	**CSO**
4 – 4X	**FG0254S**	**CSO**
7-9	**FG02579**	**CSO**
12	**FG02512**	**CSO**
Neutral	(future)	—

A - Consult with Siemens for availability.

External Accessories pages 6-142 through 6-155



Model 525 Trip Unit

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

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NFG2F250		HFG2F250		LFG2F250			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
100	NFG2B100L		HFG2B100L		LFG2B100L		CFT2B100	
110	NFG2B110L		HFG2B110L		LFG2B110L		CFT2B110	
125	NFG2B125L		HFG2B125L		LFG2B125L		CFT2B125	
150	NFG2B150L		HFG2B150L		LFG2B150L		CFT2B150	
175	NFG2B175L		HFG2B175L		LFG2B175L		CFT2B175	
200	NFG2B200L		HFG2B200L		LFG2B200L		CFT2B200	
225	NFG2B225L		HFG2B225L		LFG2B225L		CFT2B225	
250	NFG2B250L		HFG2B250L		LFG2B250L		CFT2B250	

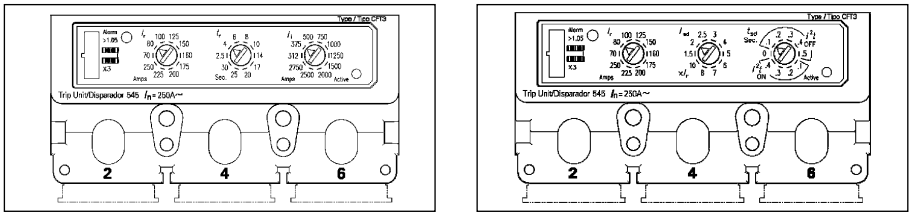
FG 250A Frame 3-Pole with Thermal-Magnetic Trip Unit

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NFG3F250		HFG3F250		LFG3F250			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
100	NFG3B100L		HFG3B100L		LFG3B100L		CFT3B100	
110	NFG3B110L		HFG3B110L		LFG3B110L		CFT3B110	
125	NFG3B125L		HFG3B125L		LFG3B125L		CFT3B125	
150	NFG3B150L		HFG3B150L		LFG3B150L		CFT3B150	
175	NFG3B175L		HFG3B175L		LFG3B175L		CFT3B175	
200	NFG3B200L		HFG3B200L		LFG3B200L		CFT3B200	
225	NFG3B225L		HFG3B225L		LFG3B225L		CFT3B225	
250	NFG3B250L		HFG3B250L		LFG3B250L		CFT3B250	

FG 250A Frame 4-Pole with Thermal-Magnetic Trip Unit[A]

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NFG4F250		HFG4F250		LFG4F250			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
100	NFG4B100L		HFG4B100L		LFG4B100L		CFT4B100	
110	NFG4B110L		HFG4B110L		LFG4B110L		CFT4B110	
125	NFG4B125L		HFG4B125L		LFG4B125L		CFT4B125	
150	NFG4B150L		HFG4B150L		LFG4B150L		CFT4B150	
175	NFG4B175L		HFG4B175L		LFG4B175L		CFT4B175	
200	NFG4B200L		HFG4B200L		LFG4B200L		CFT4B200	
225	NFG4B225L		HFG4B225L		LFG4B225L		CFT4B225	
250	NFG4B250L		HFG4B250L		LFG4B250L		CFT4B250	

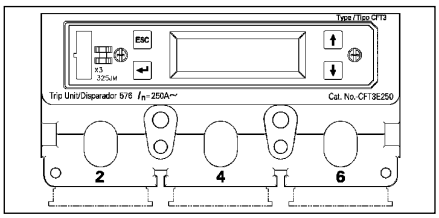
A - Consult with Siemens for availability.



Model 545 Trip Units

FG 250A Frame 3-Pole Electronic Trip Unit

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NFG3F250		HFG3F250		LFG3F250			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
ELECTRONIC LI TRIP								
100	NFG3N100L		HFG3N100L		LFG3N100L		CFT3N100	
150	NFG3N150L		HFG3N150L		LFG3N150L		CFT3N150	
250	NFG3N250L		HFG3N250L		LFG3N250L		CFT3N250	
ELECTRONIC LSI TRIP								
100	NFG3P100L		HFG3P100L		LFG3P100L		CFT3P100	
150	NFG3P150L		HFG3P150L		LFG3P150L		CFT3P150	
250	NFG3P250L		HFG3P250L		LFG3P250L		CFT3P250	
ELECTRONIC LSIG TRIP								
100	NFG3U100L		HFG3U100L		LFG3U100L		CFT3U100	
150	NFG3U150L		HFG3U150L		LFG3U150L		CFT3U150	
250	NFG3U250L		HFG3U250L		LFG3U250L		CFT3U250	
ELECTRONIC LIG TRIP								
100	NFG3X100L		HFG3X100L		LFG3X100L		CFT3X100	
150	NFG3X150L		HFG3X150L		LFG3X150L		CFT3X150	
250	NFG3X250L		HFG3X250L		LFG3X250L		CFT3X250	



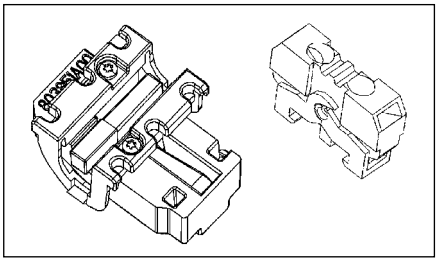
Model 576 Trip Unit

FG 250A Frame 3-Pole Electronic LCD Trip Unit

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NFG3F250		HFG3F250		LFG3F250			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
LCD ELECTRONIC LSI TRIP								
100	NFG3D100L		HFG3D100L		LFG3D100L		CFT3D100	
150	NFG3D150L		HFG3D150L		LFG3D150L		CFT3D150	
250	NFG3D250L		HFG3D250L		LFG3D250L		CFT3D250	
LCD ELECTRONIC LSIG TRIP								
100	NFG3E100L		HFG3E100L		LFG3E100L		CFT3E100	
150	NFG3E150L		HFG3E150L		LFG3E150L		CFT3E150	
250	NFG3E250L		HFG3E250L		LFG3E250L		CFT3E250	

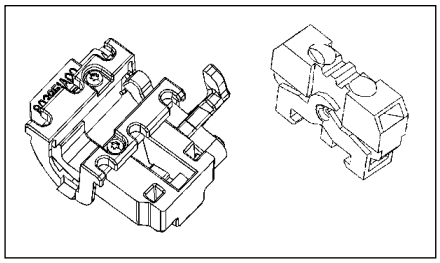
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket①	Catalog Number	List Price $
1 Alarm Switch 1A/B③ Bases AMBL2 & AMBL3	Left, Right②	**ASKL1**	
2 Aux. Switches 1A + 1B Bases AMBL1	Left, Right, Neutral	**ASKL2**	
2 Aux. + 1 Alarm Switches 1A + 1B, 1A/B③ Bases AMBL2 & AMBL3	Left, Right②	**ASKL3**	



Auxiliary/Alarm Switch Mounting Base Only

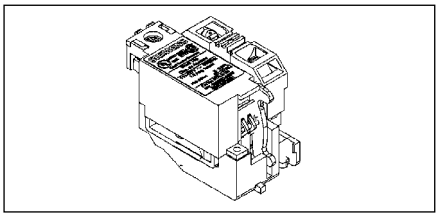
Description	Mounting Pocket	Catalog Number	List Price $
Up to 3 Auxiliary Switches	Left, Right, Neutral	**AMBL1**	
2 Aux. + 1 Alarm Switch	Left Pocket Only	**AMBL2**	
2 Aux. + 1 Alarm Switch	Right Pocket Only	**AMBL3**	



Auxiliary/Alarm Switch Only

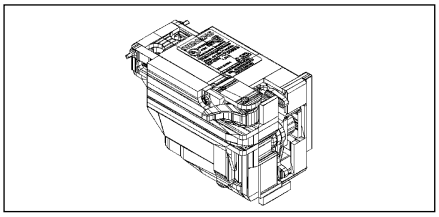
Common to DG - PG Frames

Description	Catalog Number	List Price $
1 Normally Open Contact (1A)	**ASWPA**	
1 Normally Closed Contact (1B)	**ASWPB**	



Shunt Trips

Description	Mounting Pocket	Catalog Number	List Price $
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	List Price $
12 VDC	Right Pocket Only	**UVRLA12DC**	
24 VDC		**UVRLB24DC**	
48 VDC		**UVRLC48DC**	
60 VDC		**UVRLG60DC**	
110-127 VDC		**UVRLD125DC**	
220-250 VDC		**UVRLE250**	
110-127 VAC		**UVRLN120**	
220-240 VAC		**UVRLR240**	
208 VAC		**UVRLP208**	
277 VAC		**UVRLS277**	
380-415 VAC		**UVRLT415**	
440-480 VAC		**UVRLU480**	
600 VAC		**UVRLV600**	

'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).
① Refer to the "Accessory Locations" chart 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.

External Accessories pages 6-142 through 6-155

Ordering Information

Complete Assembled Breaker

Prices for a complete factory assembled JG breaker include 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.

100% Rated: For 100% rated breakers (or frames) with an interchangeable trip unit, change the 3rd character of the catalog name to "H".
For 100% rated breakers with a non-interchangeable trip unit, change the 3rd character of the catalog number to "Y".

For 50˚C and special applications, refer to page 6-160.A

Mounting hardware is included with each frame or complete breaker.

Interrupting Ratings

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)						
						220/240		380/415		690		
	240	480	600	250	500	I_{CU}	I_{CS}	I_{CU}	I_{CS}	I_{CU}	I_{CS}
NJG	65	35	25	30	25	65	65	45	45	12	6
HJG	100	65	25	30	35	100	75	70	70	15	8

Connectors for 75°C Wire

Construction	Ampere Rating	Wire Range	No. of cables per connector	Catalog Number	List Price $
Steel	70-400	1/0–600 kcmil Cu	1	**3TW1JG600**②	
Aluminum①	70-400	3/0–250 kcmil Al/Cu	2	**3TA2JG250**②	
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**④	
Copper	70-400	3/0–250 kcmil Cu	2	**TC2JG250**	
Distribution Lugs					
	70-400	#14–4 Cu	12	**3TA12JG04**②	
	70-400	#14–2/0 Cu	6	**3TA6JG20**②	
Compression Lugs					
	70-400	250–600 kcmil Al/Cu	–	**3CLJ600**③	
	70-400	#6–350 kcmil	–	**3CLJ350**	
	70-400	250–750 kcmil	–	**3CLJ750**	

① Standard construction supplied for each breaker.
② Kit consists of 3 terminal connectors.
③ 3 Lugs for 3-pole breakers.
④ For 100% rate applications, 90°C.

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.

A - Consult with Siemens for availability.

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)
4	7.2 (183)			

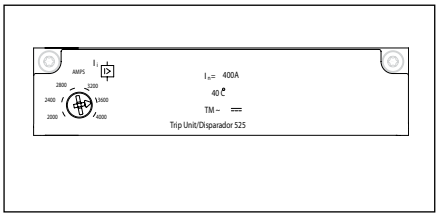
Shipping Weight, lbs. (kg)

Poles	Frame	Trip Unit		Complete Breaker
		Thermal-Mag.	Electronic	
2, 3	31.3 (14.2)	4.0 (1.8)	4.0 (1.8)	35.3 (16.0)
4	40.2 (18.2)	5.0 (2.3)	5.0 (2.3)	45.2 (20.5)

EnclosuresA

NEMA Class	Catalog Number	List Price $
1	**JG0401S**	**CSO**
1 (Compact)	**JG0401SC**	**CSO**
3R	**JG0403R**	**CSO**
3R (Compact)	**JG0403RC**	**CSO**
7-9	**JG03579** (350A max)	**CSO**
12	**JG04012**	**CSO**
Neutral	(future)	—

External Accessories pages 6-142 through 6-155



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	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	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	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	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	

JG 400A Frame 4-Pole with Thermal-Magnetic Trip Unit[A]

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NJG4F400		HJG4F400		LJG4F400			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
250	NJG4B250L		HJG4B250L		LJG4B250L		CJT4B250	
300	NJG4B300L		HJG4B300L		LJG4B300L		CJT4B300	
350	NJG4B350L		HJG4B350L		LJG4B350L		CJT4B350	
400	NJG4B400L		HJG4B400L		LJG4B400L		CJT4B400	

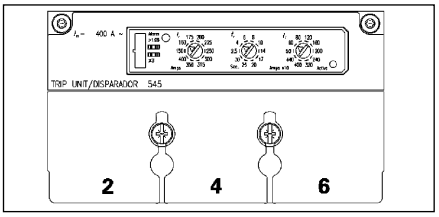
JJ 400A Frame 240V max., 2-pole with Thermal-Magnetic Non-Interchangeable Trip Unit

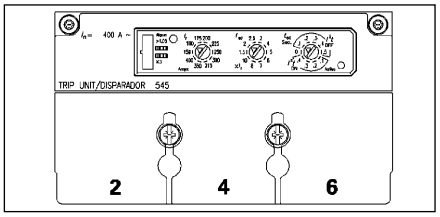
Continuous Ampere Rating	N-Interrupting Class	
	Catalog Number	List Price $
	COMPLETE BREAKER	
250	NJJ2B250L	
300	NJJ2B300L	
350	NJJ2B350L	
400	NJJ2B400L	

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

Continuous Ampere Rating	N-Interrupting Class	
	Catalog Number	List Price $
	COMPLETE BREAKER	
250	NJJ3B250L	
300	NJJ3B300L	
350	NJJ3B350L	
400	NJJ3B400L	

A - Consult with Siemens for availability.

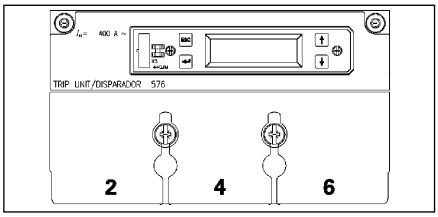




Model 545 Trip Units

JG 400A Frame 3-Pole Electronic Trip Unit

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NJG3F400		HJG3F400		LJG3F400			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
ELECTRONIC LI TRIP								
250 400	NJG3N250L NJG3N400L		HJG3N250L HJG3N400L		LJG3N250L LJG3N400L		CJT3N250 CJT3N400	
ELECTRONIC LSI TRIP								
250 400	NJG3P250L NJG3P400L		HJG3P250L HJG3P400L		LJG3P250L LJG3P400L		CJT3P250 CJT3P400	
ELECTRONIC LSIG TRIP								
250 400	NJG3U250L NJG3U400L		HJG3U250L HJG3U400L		LJG3U250L LJG3U400L		CJT3U250 CJT3U400	
ELECTRONIC LIG TRIP								
250 400	NJG3X250L NJG3X400L		HJG3X250L HJG3X400L		LJG3X250L LJG3X400L		CJT3X250 CJT3X400	



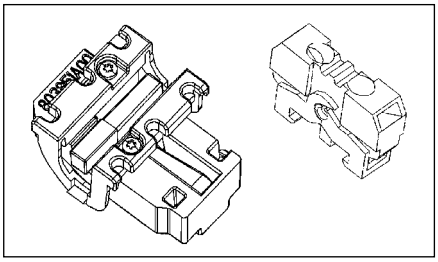
Model 576 Trip Unit

JG 400A Frame 3-Pole Electronic LCD Trip Unit

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NJG3F400		HJG3F400		LJG3F400			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
LCD ELECTRONIC LSI TRIP								
250 400	NJG3D250L NJG3D400L		HJG3D250L HJG3D400L		LJG3D250L LJG3D400L		CJT3D250 CJT3D400	
LCD ELECTRONIC LSIG TRIP								
250 400	NJG3E250L NJG3E400L		HJG3E250L HJG3E400L		LJG3E250L LJG3E400L		CJT3E250 CJT3E400	

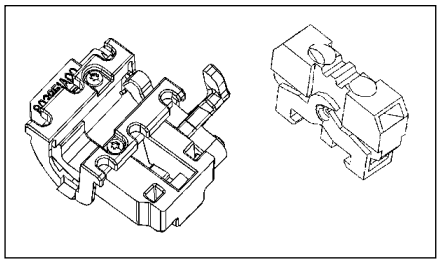
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket①	Catalog Number	List Price $
1 Alarm Switch 1A/B③ Bases AMBL2 & AMBL3	Left, Right②	**ASKL1**	
2 Aux. Switches 1A + 1B Bases AMBL1	Left, Right, Neutral	**ASKL2**	
2 Aux. + 1 Alarm Switches 1A + 1B, 1A/B③ Bases AMBL2 & AMBL3	Left, Right②	**ASKL3**	



Auxiliary/Alarm Switch Mounting Base Only

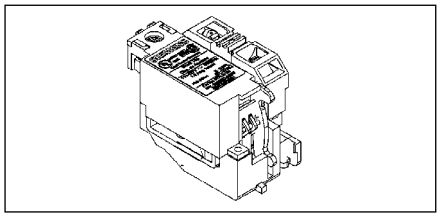
Description	Mounting Pocket	Catalog Number	List Price $
Up to 3 Auxiliary Switches	Left, Right, Neutral	**AMBL1**	
2 Aux. + 1 Alarm Switch	Left Pocket Only	**AMBL2**	
2 Aux. + 1 Alarm Switch	Right Pocket Only	**AMBL3**	



Auxiliary/Alarm Switch Only

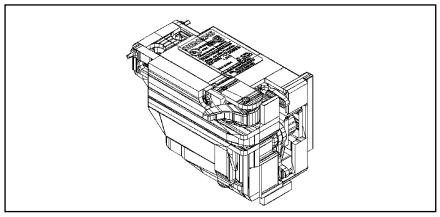
Common to DG - PG Frames

Description	Catalog Number	List Price $
1 Normally Open Contact (1A)	**ASWPA**	
1 Normally Closed Contact (1B)	**ASWPB**	**108.00**



Shunt Trips

Description	Mounting Pocket	Catalog Number	List Price $
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	List Price $
12 VDC	Right Pocket Only	**UVRLA12DC**	
24 VDC		**UVRLB24DC**	
48 VDC		**UVRLC48DC**	
60 VDC		**UVRLG60DC**	
110-127 VDC		**UVRLD125DC**	
220-250 VDC		**UVRLE250DC**	
110-127 VAC		**UVRLN120**	
220-240 VAC		**UVRLR240**	
208 VAC		**UVRLP208**	
277 VAC		**UVRLS277**	
380-415 VAC		**UVRLT415**	
440-480 VAC		**UVRLU480**	
600 VAC		**UVRLV600**	

'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).
① Refer to the "Accessory Locations" chart 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.

External Accessories pages 6-142 through 6-155

Ordering Information

Complete Assembled Breaker

Prices for a complete factory assembled LG breaker include 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. Change the third digit of the catalog number to "X" for non-interchangeable trip unit.

For 50˚C and special applications, refer to page 6-160.A

Mounting hardware is included with each frame or complete breaker.

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

Interrupting Ratings

Breaker Type	RMS Symmetrical Amperes (KA)											
	UL 489					IEC 60947-2						
	Volts AC (50/60 Hz			Volts DC		Volts AC (50/60 Hz)						
						220/240		380/415		690	
	240	480	600	250	500	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}
NLG	65	35	25	30	25	65	65	45	45	12	6
HLG	100	65	25	30	35	100	75	70	70	15	8
LLG	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 Number②	List Price $
Aluminum①	150-600	#2/0–600 kcmil Al/Cu	2 (load side)	**3TA2LG600LD**	
Aluminum①	150-600	#2/0–600 kcmil Al/Cu	2 (line side)	**3TA2LG600LN**	
Copper	150-600	#2/0–600 kcmil Cu	2 (load side)	**3TC2LG600LD**	
Copper	150-600	#2/0–600 kcmil Cu	2 (line side)	**3TC2LG600LN**	
Compression Lugs					
	150-600	#6–350 kcmil Al/Cu	–	**6CLL350**③	
	150-600	250-750 kcmil Al/Cu	–	**3CLL750**④	
	150-600	250-600 kcmil Al/Cu	–	**6CLL600**③	

① Standard construction supplied for each breaker.
② Kit consists of 3 terminal connectors.
③ Kit consists of 6 lugs for Line or Load end.
④ Kit consists of 3 lugs for Line or Load end.

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 4	5.5 (139) 7.2 (183)	11 (279)	4.2 (102)	5.4 (138)
Ext. Shield		13.6 (345.5)		

Shipping Weight, lbs. (kg)

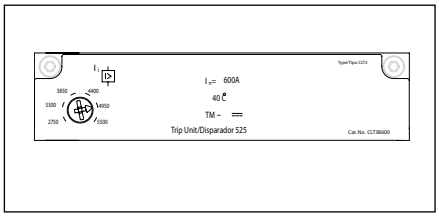
Poles	Frame	Trip Unit		Complete Breaker
		Thermal-Mag.	Electronic	
2, 3	17.4 (7.9)	3.5 (1.6)	4.2 (1.9)	20.9 (9.5)
4	23.2 (10.5)	4.6 (2.1)	5.5 (2.5)	27.8 (12.6)

EnclosuresA

NEMA Class	Catalog Number	List Price $
1	**LG0601S**	**CSO**
3R	**LG0603R**	**CSO**
4 – 4X	**LG0604S**	**CSO**
7-9	**LG06079**	**CSO**
12	**LG06012**	**CSO**
Neutral	(future)	—

A - Consult with Siemens for availability.

External Accessories pages 6-142 through 6-155



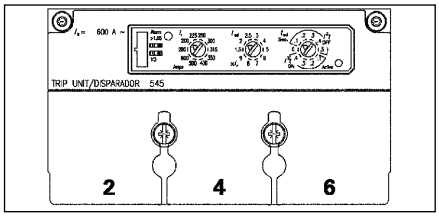
Model 525 Trip Unit

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

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NLG2F600		HLG2F600		LLG2F600			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
400	NLG2B400L		HLG2B400L		LLG2B400L		CLT2B400	
500	NLG2B500L		HLG2B500L		LLG2B500L		CLT2B500	
600	NLG2B600L		HLG2B600L		LLG2B600L		CLT2B600	

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

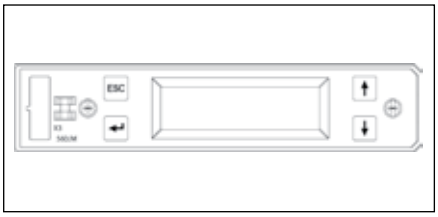
Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NLG3F600		HLG3F600		LLG3F600			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
400	NLG3B400L		HLG3B400L		LLG3B400L		CLT3B400	
500	NLG3B500L		HLG3B500L		LLG3B500L		CLT3B500	
600	NLG3B600L		HLG3B600L		LLG3B600L		CLT3B600	



Model 545 Trip Unit

LG 600A Frame 3-Pole Electronic Trip Unit

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NLG3F600		HLG3F600		LLG3F600			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
ELECTRONIC LI TRIP								
400 600	NLG3N400L NLG3N600L		HLG3N400L HLG3N600L		LLG3N400L LLG3N600L		CLT3N400 CLT3N600	
ELECTRONIC LSI TRIP								
400 600	NLG3P400L NLG3P600L		HLG3P400L HLG3P600L		LLG3P400L LLG3P600L		CLT3P400 CLT3P600	
ELECTRONIC LSIG TRIP								
400 600	NLG3U400L NLG3U600L		HLG3U400L HLG3U600L		LLG3U400L LLG3U600L		CLT3U400 CLT3U600	
ELECTRONIC LIG TRIP								
400 600	NLG3X400L NLG3X600L		HLG3X400L HLG3X600L		LLG3X400L LLG3X600L		CLT3X400 CLT3X600	



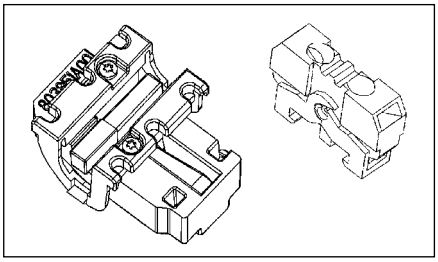
Model 576 Trip Unit

LG 600A Frame 3-Pole Electronic LCD Trip Unit

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NLG3F600		HLG3F600		LLG3F600			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
LCD ELECTRONIC LSI TRIP								
400 600	NLG3D400L NLG3D600L		HLG3D400L HLG3D600L		LLG3D400L LLG3D600L		CLT3D400 CLT3D600	
LCD ELECTRONIC LSIG TRIP								
400 600	NLG3E400L NLG3E600L		HLG3E400L HLG3E600L		LLG3E400L LLG3E600L		CLT3E400 CLT3E600	

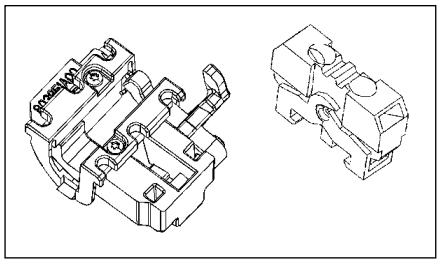
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket①	Catalog Number	List Price $
1 Alarm Switch 1A/B③ Bases AMBL2 & AMBL3	Left, Right②	**ASKL1**	
2 Aux. Switches 1A + 1B Bases AMBL1	Left, Right, Neutral	**ASKL2**	
2 Aux. + 1 Alarm Switches 1A + 1B, 1A/B③ Bases AMBL2 & AMBL3	Left, Right②	**ASKL3**	



Auxiliary/Alarm Switch Mounting Base Only

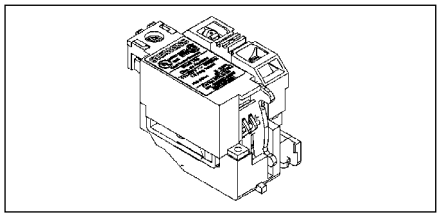
Description	Mounting Pocket	Catalog Number	List Price $
Up to 3 Auxiliary Switches	Left, Right, Neutral	**AMBL1**	
2 Aux. + 1 Alarm Switch	Left Pocket Only	**AMBL2**	
2 Aux. + 1 Alarm Switch	Right Pocket Only	**AMBL3**	



Auxiliary/Alarm Switch Only

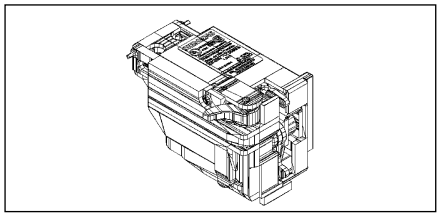
Common to DG - PG Frames

Description	Catalog Number	List Price $
1 Normally Open Contact (1A)	**ASWPA**	
1 Normally Closed Contact (1B)	**ASWPB**	



Shunt Trips

Description	Mounting Pocket	Catalog Number	List Price $
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	List Price $
12 VDC	Right Pocket Only	**UVRLA12DC**	
24 VDC		**UVRLB24DC**	
48 VDC		**UVRLC48DC**	
60 VDC		**UVRLG60DC**	
110-127 VDC		**UVRLD125DC**	
220-250 VDC		**UVRLE250DC**	
110-127 VAC		**UVRLN120**	
220-240 VAC		**UVRLR240**	
208 VAC		**UVRLP208**	
277 VAC		**UVRLS277**	
380-415 VAC		**UVRLT415**	
440-480 VAC		**UVRLU480**	
600 VAC		**UVRLV600**	

'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).
① Refer to the "Accessory Locations" chart 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.

External Accessories pages 6-142 through 6-155

Ordering Information

Complete Assembled Breaker

Prices for a complete factory assembled MG breaker include 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.

100% Rated: For 100% rated breakers (or frames) with an interchangeable trip unit, change the 3rd character of the catalog name to "H".
For 100% rated breakers with a non-interchangeable trip unit, change the 3rd character of the catalog number to "Y".

For 50˚C and special applications, refer to page 6-160.A

Mounting hardware is included with each frame or complete breaker.

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

Interrupting Ratings

Breaker Type	RMS Symmetrical Amperes (KA)											
	UL 489					IEC 60947-2						
	Volts AC (50/60 Hz)			Volts DC		Volts AC (50/60 Hz)						
						220/240		380/415		690		
	240	480	600	250	500	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}
NMG	65	35	25	22	35	65	65	50	50	20	10
HMG	100	65	35	25	50	100	75	70	70	30	15
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	List Price $
Aluminum③	200-800A	1/0–500 kcmil Al/Cu	3	**3TA3MG500**②	
Aluminum	200-800A	500-750 kcmil Al/Cu	2	**3TA2MG750**②	
Copper	200-800A	1/0–500 kcmil Cu	3	**TC3MG500**⑤⑥	
Aluminum	200-800A	#2–600 kcmil Al/Cu	3	**3TA3MG600**②④	
Compression Lug Kit①					
	200-800A	1/0–500 kcmil Cu	–	**9CLM500**①	

① Total of 9 connectors (3 per phase Line or Load).
② Kit consists of 3 terminal connectors.
③ Standard connector supplied with complete breakers.
④ Includes extended terminal cover.
⑤ Consists of one terminal.
⑥ For 100% rated applications.

MG Thermal-Magnetic, Instantaneous Trip Adjustment Range

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

Note: Each breaker has 6 trip settings.

Dimensions, inches (mm)

Number of Poles	Width	Length	Depth	To Handle D1
2, 3	7.5 (190)	16 (406)	4.5 (114)	5.9 (151)
4	10 (253)			

Shipping Weight, lbs. (kg)

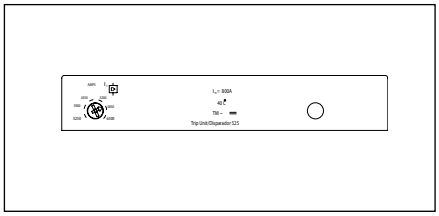
Poles	Frame	Trip Unit	Complete Breaker
2, 3	31.3 (14.2)	4.0 (1.8)	35.3 (16.0)
4	40.2 (18.2)	5.0 (2.3)	45.2 (20.5)

EnclosuresA

NEMA Class	Catalog Number	List Price $
1	**MG0801S**	**CSO**
3R	**MG0803R**	**CSO**
Neutral	(future)	—

A - Consult with Siemens for availability.

External Accessories pages 6-142 through 6-155



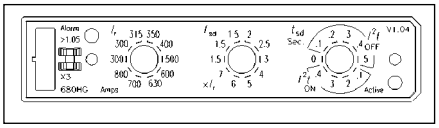
Model 525 Trip Unit

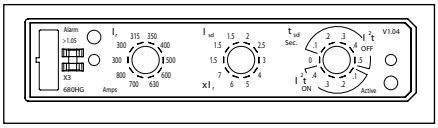
MG 800A Frame 2-Pole with Thermal-Magnetic Trip Unit

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NMG2F800		HMG2F800		LMG2F800			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
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	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NMG3F800		HMG3F800		LMG3F800			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
600	NMG3B600L		HMG3B600L		LMG3B600L		CMT3B600	
700	NMG3B700L		HMG3B700L		LMG3B700L		CMT3B700	
800	NMG3B800L		HMG3B800L		LMG3B800L		CMT3B800	





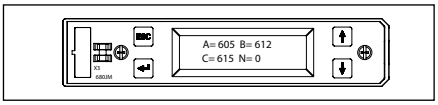
Model 545 Trip Units

MG 800A Frame 3-Pole Electronic Trip Unit

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NMG3F800		HMG3F800		LMG3F800			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
ELECTRONIC LI TRIP								
600 800	NMG3N600L NMG3N800L		HMG3N600L HMG3N800L		LMG3N600L LMG3N800L		CMT3N600 CMT3N800	
ELECTRONIC LSI TRIP								
600 800	NMG3P600L NMG3P800L		HMG3P600L HMG3P800L		LMG3P600L LMG3P800L		CMT3P600 CMT3P800	
ELECTRONIC LSIG TRIP								
600 800	NMG3U600L NMG3U800L		HMG3U600L HMG3U800L		LMG3U600L LMG3U800L		CMT3U600 CMT3U800	
ELECTRONIC LIG TRIP								
600 800	NMG3X600L NMG3X800L		HMG3X600L HMG3X800L		LMG3X600L LMG3X800L		CMT3X600 CMT3X800	

MG 800A Frame 4-Pole Electronic Trip Unit[A]

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NMG4F800		HMG4F800		LMG4F800			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
ELECTRONIC LI TRIP								
600 800	NMG4N600L NMG4N800L		HMG4N600L HMG4N800L		LMG4N600L LMG4N800L		CMT4N600 CMT4N800	
ELECTRONIC LSI TRIP								
600 800	NMG4P600L NMG4P800L		HMG4P600L HMG4P800L		LMG4P600L LMG4P800L		CMT4P600 CMT4P800	
ELECTRONIC LSIG TRIP								
600 800	NMG4U600L NMG4U800L		HMG4U600L HMG4U800L		LMG4U600L LMG4U800L		CMT4U600 CMT4U800	
ELECTRONIC LIG TRIP								
600 800	NMG4X600L NMG4X800L		HMG4X600L HMG4X800L		LMG4X600L LMG4X800L		CMT4X600 CMT4X800	



Model 576 Trip Unit

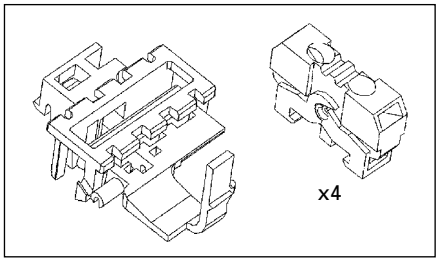
MG 800A Frame 3-Pole Electronic LCD Trip Unit

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NMG3F800		HMG3F800		LMG3F800			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
LCD ELECTRONIC LSI TRIP								
600 800	NMG3D600L NMG3D800L		HMG3D600L HMG3D800L		LMG3D600L LMG3D800L		CMT3D600 CMT3D800	
LCD ELECTRONIC LSIG TRIP								
600 800	NMG3E600L NMG3E800L		HMG3E600L HMG3E800L		LMG3E600L LMG3E800L		CMT3E600 CMT3E800	

A - Consult with Siemens for availability.

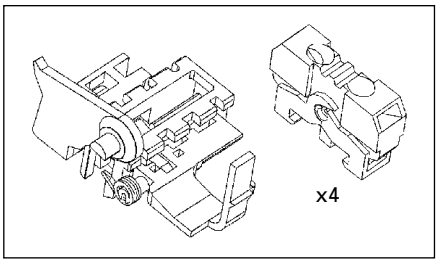
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket①	Catalog Number	List Price $
2 Aux. + 2 Alarm Switches 2A + 2B Bases AMBP2	Left Pocket Only	**ASKP3**	
4 Aux. Switches 2A + 2B Bases AMBP1	Left, Right, Neutral	**ASKP4**	



Auxiliary/Alarm Switch Mounting Base Only

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



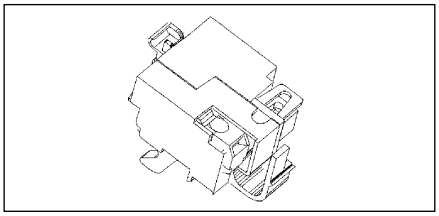
Auxiliary/Alarm Switch Only

Common to DG - PG Frames

Description	Catalog Number	List Price $
1 Normally Open Contact (1A)	**ASWPA**	
1 Normally Closed Contact (1B)	**ASWPB**	

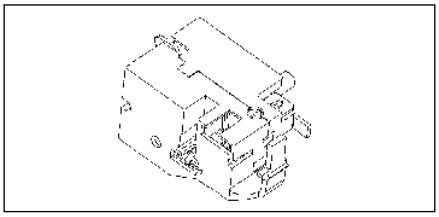
Shunt Trips

Description	Mounting Pocket	Catalog Number	List Price $
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	List Price $
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**	
600 VAC		**UVRPV600**	



'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).
① Refer to the "Accessory Locations" chart for guidelines and limitations about which pockets may be used for accessory combinations.

External Accessories pages 6-125 through 6-139

Ordering Information

Complete Assembled Breaker with Lugs

Prices for a complete factory assembled NG breaker include 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.

100% Rated: For 100% rated breakers (or frames) with an interchangeable trip unit, change the 3rd character of the catalog name to "H".
For 100% rated breakers with a non-interchangeable trip unit, change the 3rd character of the catalog number to "Y".

For 50˚C and special applications, refer to page 6-160.A

Mounting hardware is included with each frame or complete breaker.

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

Interrupting Ratings

Breaker Type	RMS Symmetrical Amperes (KA)											
	UL 489					IEC 60947-2						
	Volts AC (50/60 Hz)			Volts DC		Volts AC (50/60 Hz)						
						220/240		380/415		690	
	240	480	600	250	500	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}
NNG	65	35	25	22	35	65	35	50	25	20	10
HNG	100	65	35	25	50	100	50	70	35	30	15
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	List Price $
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 Cu②	4	**3TC4NG500**④	
Aluminum	300-1200A	1/0–500 kcmil Al/Cu	4	**3TA4NG500H**④	
Compression Lug Kit①					
	300-1200A	1/0–500 kcmil Al/Cu	–	**12CLN500**	

① Total of 12 connectors (4 per phase Line or Load).
② 90 °C for 100% rated breakers.
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_i)	
	Min.	Max.
800	4000	8000
900	5000	10000
1000	5000	10000
1200	7000	12000

Note: Each breaker has 6 trip settings.

Dimensions, inches (mm)

Number of Poles	W	L	D	To Handle D1
2, 3 4	9 (229) 12 (305)	16 (406)	6 (152)	8.1 (207)

Shipping Weight, lbs. (kg)

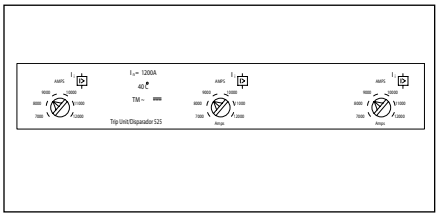
Poles	Frame	Trip Unit	Complete Breaker
2, 3	46.3 (21.0)	8.8 (4.0)	55.1 (25.0)
4	60.6 (27.5)	13.2 (6.0)	73.8 (33.5)

EnclosuresA

Type	Catalog Number	List Price $
1	**NG1201S**	**CSO**
3R	**NG1203R**	**CSO**
12	**NG12012**	**CSO**
Neutral	(future)	—

A - Consult with Siemens for availability.

External Accessories pages 6-142 through 6-155



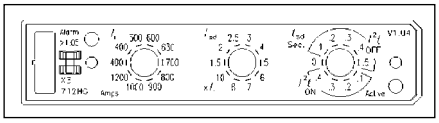
Model 525 Trip Unit

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

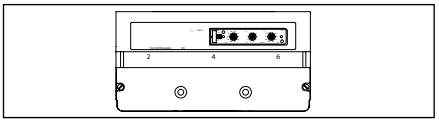
Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NNG2F120		HNG2F120		LNG2F120			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER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

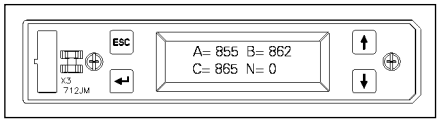
NG 1200A Frame 3-Pole with Thermal-Magnetic Trip Unit

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



Model 545 Trip Units





Model 576 Trip Unit

NG 1200A Frame 3-Pole Electronic Trip Unit

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NNG3F120		HNG3F120		LNG3F120			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
ELECTRONIC LI TRIP								
800	NNG3N800L		HNG3N800L		LNG3N800L		CNT3N800	
1000	NNG3N100L		HNG3N100L		LNG3N100L		CNT3N100	
1200	NNG3N120L		HNG3N120L		LNG3N120L		CNT3N120	
ELECTRONIC LSI TRIP								
800	NNG3P800L		HNG3P800L		LNG3P800L		CNT3P800	
1000	NNG3P100L		HNG3P100L		LNG3P100L		CNT3P100	
1200	NNG3P120L		HNG3P120L		LNG3P120L		CNT3P120	
ELECTRONIC LSIG TRIP								
800	NNG3U800L		HNG3U800L		LNG3U800L		CNT3U800	
1000	NNG3U100L		HNG3U100L		LNG3U100L		CNT3U100	
1200	NNG3U120L		HNG3U120L		LNG3U120L		CNT3U120	
ELECTRONIC LIG TRIP								
800	NNG3X800L		HNG3X800L		LNG3X800L		CNT3X800	
1000	NNG3X100L		HNG3X100L		LNG3X100L		CNT3X100	
1200	NNG3X120L		HNG3X120L		LNG3X120L		CNT3X120	

NG 1200A Frame 4-Pole Electronic Trip Unit[A]

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NNG4F120		HNG4F120		LNG4F120			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
ELECTRONIC LI TRIP								
800	NNG4N800L		HNG4N800L		LNG4N800L		CNT4N800	
1000	NNG4N100L		HNG4N100L		LNG4N100L		CNT4N100	
1200	NNG4N120L		HNG4N120L		LNG4N120L		CNT4N120	
ELECTRONIC LSI TRIP								
800	NNG4P800L		HNG4P800L		LNG4P800L		CNT4P800	
1000	NNG4P100L		HNG4P100L		LNG4P100L		CNT4P100	
1200	NNG4P120L		HNG4P120L		LNG4P120L		CNT4P120	
ELECTRONIC LSIG TRIP								
800	NNG4U800L		HNG4U800L		LNG4U800L		CNT4U800	
1000	NNG4U100L		HNG4U100L		LNG4U100L		CNT4U100	
1200	NNG4U120L		HNG4U120L		LNG4U120L		CNT4U120	
ELECTRONIC LIG TRIP								
800	NNG4X800L		HNG4X800L		LNG4X800L		CNT4X800	
1000	NNG4X100L		HNG4X100L		LNG4X100L		CNT4X100	
1200	NNG4X120L		HNG4X120L		LNG4X120L		CNT4X120	

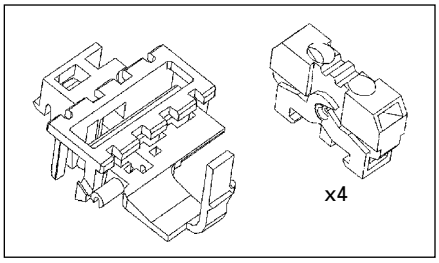
NG 1200A Frame 3-Pole Electronic LCD Trip Unit

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NNG3F120		HNG3F120		LNG3F120			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
LCD ELECTRONIC LSI TRIP								
800	NNG3D800L		HNG3D800L		LNG3D800L		CNT3D800	
1000	NNG3D100L		HNG3D100L		LNG3D100L		CNT3D100	
1200	NNG3D120L		HNG3D120L		LNG3D120L		CNT3D120	
LCD ELECTRONIC LSIG 4-W TRIP								
800	NNG3E800L		HNG3E800L		LNG3E800L		CNT3E800	
1000	NNG3E100L		HNG3E100L		LNG3E100L		CNT3E100	
1200	NNG3E120L		HNG3E120L		LNG3E120L		CNT3E120	

A - Consult with Siemens for availability.

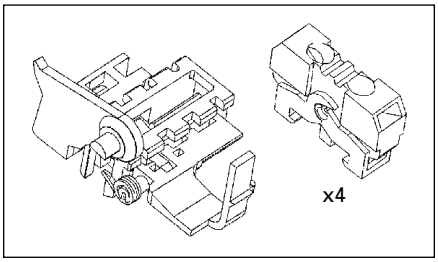
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket①	Catalog Number	List Price $
2 Aux. + 2 Alarm Switches 2A + 2B Base AMBP2	Left Pocket Only	**ASKP3**	
4 Aux. Switches 2A + 2B Base AMBP1	Left, Right, Neutral	**ASKP4**	



Auxiliary/Alarm Switch Mounting Base Only

Description	Mounting Pocket①	Catalog Number	List Price $
Up to 4 Auxiliary Switches 2 Aux. + 2 Alarm Switches	Left, Right, Neutral Left Pocket Only	**AMBP1** **AMBP2**	



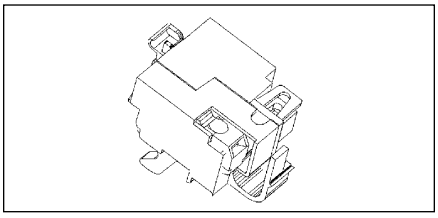
Auxiliary/Alarm Switch Only

Common to DG-PG Frames

Description	Catalog Number	List Price $
1 Normally Open Contact (1A)	**ASWPA**	
1 Normally Closed Contact (1B)	**ASWPB**	

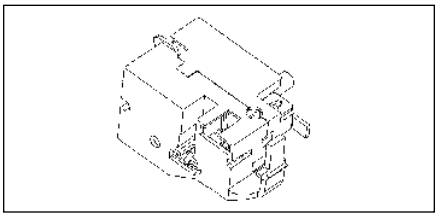
Shunt Trips

Description	Mounting Pocket	Catalog Number	List Price $
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	List Price $
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**	
600 VAC		**UVRPV600**	



'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).
① Refer to the "Accessory Locations" chart for guidelines and limitations about which pockets may be used for accessory combinations.

External Accessories pages 6-142 through 6-155

Ordering Information

Prices for a complete factory assembled PG breaker include the frame and trip unit only. The connectors must be ordered as separate items.

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 seperate 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.

100% Rated: For 100% rated breakers (or frames) with an interchangeable trip unit, change the 3rd character of the catalog name to "H".
For 100% rated breakers with a non-interchangeable trip unit, change the 3rd character of the catalog number to "Y".

For 50˚C and special applications, refer to page 6-160.A

Mounting hardware is included with each frame or complete breaker.

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

Interrupting Ratings

Breaker Type	RMS Symmetrical Amperes (KA)											
	UL 489					IEC 60947-2						
	Volts AC (50/60 Hz)			Volts DC		Volts AC (50/60 Hz)						
						220/240		380/415		690	
	240	480	600	250	500	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}
NPG	65	35	25	22	35	65	35	50	25	20	10
HPG	100	65	35	25	50	100	50	70	35	30	15
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	List Price $
Aluminum	1200-1600A	1/0–750 kcmil Al/Cu	6	**3TA6PG750**①③⑥	
Copper	1200-1600A	1/0–750 kcmil Cu	6	**3TC6PG750** (future)①③	
Aluminum	1200-1600A	300–600 kcmil	5	**TA5P600**②④	
Aluminum	1200-1600A	600–750 kcmil	4	**TA4P750**②④	
Aluminum	1200-1600A	300–600 kcmil	6	**TA6R600**②④	
Copper	1200-1600A	300–600 kcmil	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 For 100% rated applications, 90°C.
⑥ Standard connector provided with complete breaker.

Mounting Arrangement

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

Dimensions, inches (mm)

Number of Poles	W	L	D	To Handle D1
2, 3 4	9 (229) 12 (305)	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)
4	76.7 (34.8)	13.2 (6.0)	89.9 (40.8)

PG Thermal-Magnetic, Instantaneous Trip Adjustment Range

Trip Unit Continuous Amp Rating (I_n)	Instantaneous Overcurrent Setting (I_i)	
	Min.	Max.
1200	7000	12000
1400	7000	12000
1600	7000	12000

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

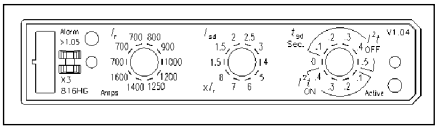
Model 525 Trip Unit

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

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NPG3F160		**HPG3F160**		**LPG3F160**			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
1200	**NPG3B120**		**HPG3B120**		**LPG3B120**		**CPT3B120**	
1400	**NPG3B140**		**HPG3B140**		**LPG3B140**		**CPT3B140**	
1600	**NPG3B160**		**HPG3B160**		**LPG3B160**		**CPT3B160**	

A - Consult with Siemens for availability.

External Accessories pages 6-142 through 6-155



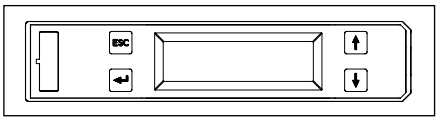
Model 545 Trip Unit

PG 1600A Frame 3-Pole Electronic Trip Unit

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NPG3F160		HPG3F160		LPG3F160			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
ELECTRONIC LI TRIP								
1200	NPG3N120		HPG3N120		LPG3N120		CPT3N120	
1600	NPG3N160		HPG3N160		LPG3N160		CPT3N160	
ELECTRONIC LSI TRIP								
1200	NPG3P120		HPG3P120		LPG3P120		CPT3P120	
1600	NPG3P160		HPG3P160		LPG3P160		CPT3P160	
ELECTRONIC LSIG TRIP								
1200	NPG3U120		HPG3U120		LPG3U120		CPT3U120	
1600	NPG3U160		HPG3U160		LPG3U160		CPT3U160	
ELECTRONIC LIG TRIP								
1200	NPG3X120		HPG3X120		LPG3X120		CPT3X120	
1600	NPG3X160		HPG3X160		LPG3X160		CPT3X160	

PG 1600A Frame 4-Pole Electronic Trip Unit[A]

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NPG4F160		HPG4F160		LPG4F160			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
ELECTRONIC LI TRIP								
1200	NPG4N120		HPG4N120		LPG4N120		CPT4N120	
1600	NPG4N160		HPG4N160		LPG4N160		CPT4N160	
ELECTRONIC LSI TRIP								
1200	NPG4P120		HPG4P120		LPG4P120		CPT4P120	
1600	NPG4P160		HPG4P160		LPG4P160		CPT4P160	
ELECTRONIC LSIG TRIP								
1200	NPG4U120		HPG4U120		LPG4U120		CPT4U120	
1600	NPG4U160		HPG4U160		LPG4U160		CPT4U160	
ELECTRONIC LIG TRIP								
1200	NPG4X120		HPG4X120		LPG4X120		CPT4X120	
1600	NPG4X160		HPG4X160		LPG4X160		CPT4X160	



Model 576 Trip Unit

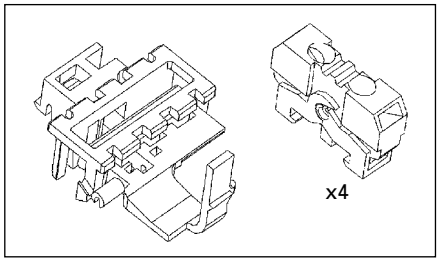
PG 1600A Frame 3-Pole Electronic LCD Trip Unit

Continuous Ampere Rating	N-Interrupting Class		H-Interrupting Class		L-Interrupting Class			
	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
	FRAME ONLY							
	NPG3F160		HPG3F160		LPG3F160			
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER						TRIP UNIT ONLY	
LCD ELECTRONIC LSI TRIP								
1200	NPG3D120		HPG3D120		LPG3D120		CPT3D120	
1600	NPG3D160		HPG3D160		LPG3D160		CPT3D160	
LCD ELECTRONIC LSIG TRIP								
1200	NPG3E120		HPG3E120		LPG3E120		CPT3E120	
1600	NPG3E160		HPG3E160		LPG3E160		CPT3E160	

A - Consult with Siemens for availability.

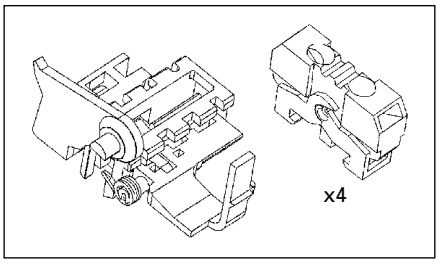
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket①	Catalog Number	List Price $
2 Aux. + 2 Alarm Switches 2A + 2B Base AMBP2	Left Pocket Only	**ASKP3**	
4 Aux. Switches 2A + 2B Base AMBP1	Left, Right, Neutral	**ASKP4**	



Auxiliary/Alarm Switch Mounting Base Only

Description	Mounting Pocket①	Catalog Number	List Price $
Up to 4 Auxiliary Switches 2 Aux. + 2 Alarm Switches	Left, Right, Neutral Left Pocket Only	**AMBP1** **AMBP2**	



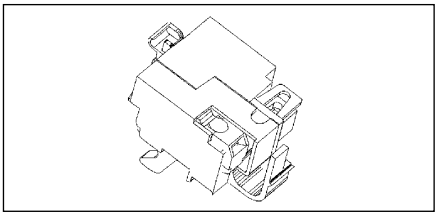
Auxiliary/Alarm Switch Only

Common to DG-PG Frames

Description	Catalog Number	List Price $
1 Normally Open Contact (1A)	**ASWPA**	
1 Normally Closed Contact (1B)	**ASWPB**	

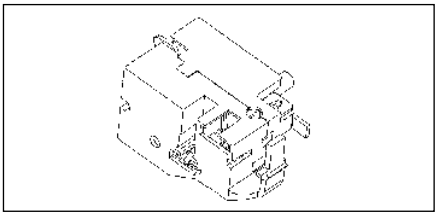
Shunt Trips

Description	Mounting Pocket	Catalog Number	List Price $
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	List Price $
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**	
600 VAC		**UVRPV600**	



'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).
① Refer to the "Accessory Locations" chart for guidelines and limitations about which pockets may be used for accessory combinations.

External Accessories pages 6-142 through 6-155

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	Catalog Number	List Price $	Catalog Number	List Price $	Short-Circuit Current Rating*			Self Protective Instantaneous Override
	2-Pole		3-Pole		240V	480V	600V	
150A / DG	**HDS2S150L**		**HDS3S150L**		100k	65k	20k	2,500A
250A / FG	**HFS2S250L**		**HFS3S250L**		100k	65k	35k	3,500A
400A / JG	**HJS2S400**		**HJS3S400**		100k	65k	35k	4,400A
600A / LG	**HLS2S600**		**HLS3S600**		100k	65k	35k	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	12,000A

Maximum Ampere Rating / Frame	Catalog Number	List Price $	Short-Circuit Current Rating*			Self Protective Instantaneous Override
	3-Pole		240V	480V	600V	
250A /FG	**LFS3S250L**		200k	100k	25k	3,500A
400A / JG	**LJS3S400**		200k	100k	42k	4,400A
600A / LG	**LLS3S600**		200k	100k	42k	5,500A
800A / MG	**LMS3S800**		200k	100k	50k	6,500A
1200A / NG	**LNS3S120**		200k	100k	65k	12,000A
1600A / PG	**LPS3S160**		200k	100k	65k	12,000A

* The 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. Above 250A, terminals are not included and must be ordered separately. For terminal information and the variety of lugs available for VL breakers.

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)

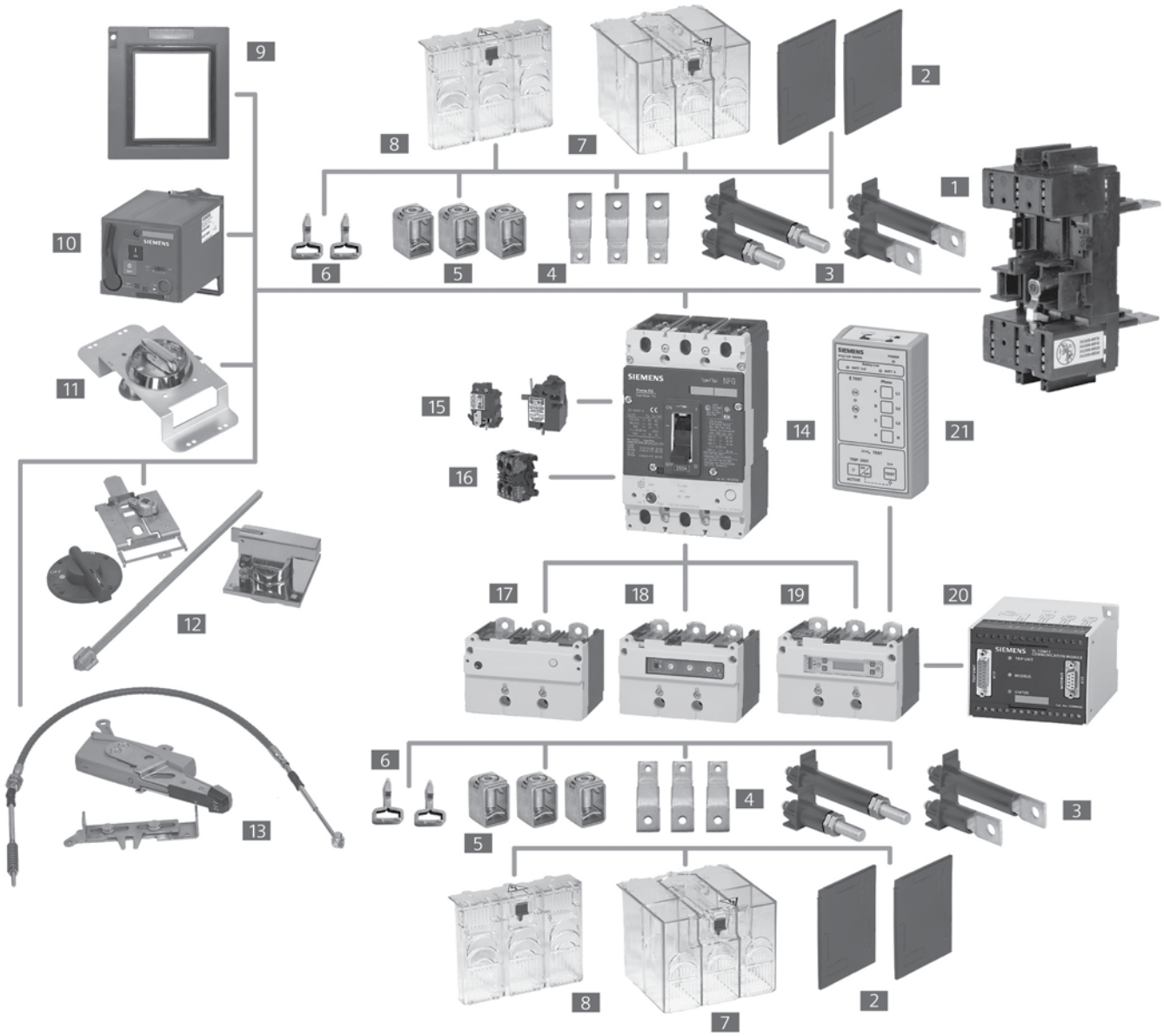
Motor Full Load Amperes	Trip Setting (A)	Catalog Number①	List Price $
34.62-50.00	450	HDM3L150L	
41.53-56.91	540		
48.46-70.00	630		
55.38-70.75	720		
62.30-90.00	810		
69.23-76.91	900		
57.69-83.00	750	HDM3M150L	
69.23-76.91	900		
80.77-116.66	1050		
92.30-133.00	1200		
103.85-150.00	1350		
115.00-136.00	1500		
96.15-113.60	1250	HDM3H150L	
115.00-136.00	1500		
134.52-194.00	1750		
154.00-176.00	2000		
173.00-250.00	2250		
192.00-227.00	2500		
46.15-54.50	600	HFM3L250L	
55.38-70.75	720		
64.62-93.00	840		
74.00-107.00	960		
83.00-120.00	1080		
92.00-133.00	1200		
76.92-90.90	1000	HFM3M250L	
92.00-133.00	1200		
108.00-115.00	1400		
123.00-178.00	1600		
138.50-200.00	1800		
154.00-176.00	2000		
134.62-144.00	1750	HFM3H250L	
162.00-177.00	2100		
188.46-272.00	2450		
215.00-238.00	2800		
242.00-350.00	3150		
269.00-284.00	3500		

Motor Full Load Amperes	Trip Setting (A)	Catalog Number①	List Price $
96.15-114.00	1250	HJM3L400	
115.00-136.00	1500		
134.62-166.00	1750		
154.00-176.00	2000		
173.00-250.00	2250		
192.00-227.00	2500		
154.00-176.00	2000	HJM3M400	
184.62-267.00	2400		
215.00-238.00	2800		
246.00-269.00	3200		
277.00-400.00	3600		
308.00-352.00	4000		
154.00-176.00	2000	HLM3L600	
184.62-267.00	2400		
215.00-238.00	2800		
246.00-269.00	3200		
277.00-400.00	3600		
308.00-326.00	4000		
211.54-306.00	2750	HLM3M600	
253.85-367.00	3300		
296.15-428.00	3850		
338.46-489.00	4400		
380.77-550.00	4950		
423.00-462.00	5500		
250.00-361.00	3250	HMM3M800	
292.00-330.00	3800		
334.62-483.00	4350		
385.00-440.00	5000		
442.00-447.00	5740		
500.00-722.00	6500		
385.00-440.00	5000	HNM3M120	
462.00-490.00	6000		
538.46-778.00	7000		
616.00-660.00	8000		
692.30-1000.00	9000		
769.23-1111.00	10,000		

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.

Modularity To Support All Your Application Needs

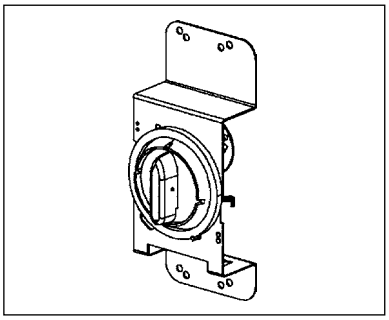
Modules and More: VL Circuit Breakers with Optional Accessories

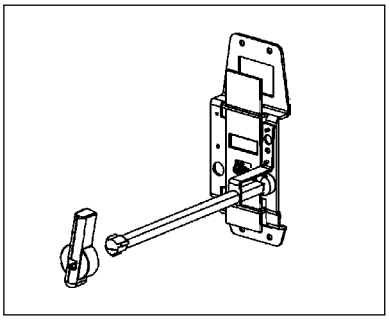


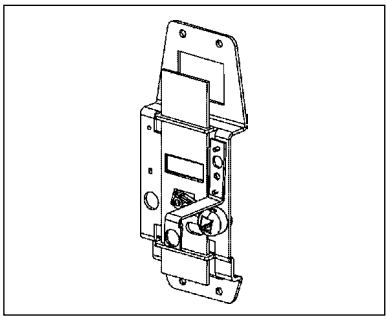
1 Base for Plug-In or Draw-Out
2 Interphase Barriers
3 Rear Terminals – Flat and Round
4 Bus Extensions
5 Terminal Connectors
6 Plug-In Terminal Blades
7 Extended Terminal Shield
8 Standard Terminal Shield
9 Cover Frame for Door Cutout
10 Stored Energy Operator
11 Rotary Handle Operator
12 Variable Depth 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 (545)
19 Elec. Trip Unit with LCD (576)
20 Communication Module with ZSI
21 Electronic Trip Unit Test Kit

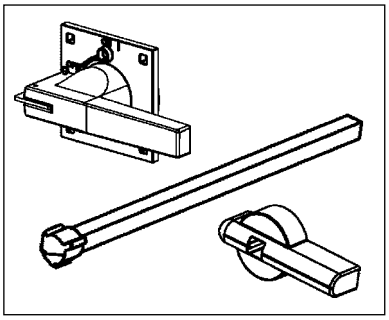
VL External Accessories

Operating Mechanisms









Description	For DG to FG Frame 150 to 250 A Catalog Number	List Price $	For JG to LG Frame 400 A to 600 A Catalog Number	List Price $
Through Door Mounted Rotary Handle Operator Kit[A]				
Fixed depth and the handle is mounted directly on the circuit breaker.				
Lockable knob (for up to 3 padlocks).				
NEMA 1, 12	**RHFF**		**RHFL**	
Red Handle Version with red knob, yellow indicator plate				
NEMA 1, 12	**RHFFEM**		**RHFLEM**	
Door Mounted Rotary Handle Operator Kit[A]				
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	**RHVF12**		**RHVL12**	
Auxiliary Switch Kits[A]				
For Direct or Extended Rotary Handle Operators (RHF and RHV).				
Form C, Early Break type2 Aux. Switch Kit①				
Includes 1 switch with 5' wire				
For Variable Depth	**RHSFA1**		**RHSLA1**	
For Fixed Depth	**RHSFA1F**		**RHSLA1F**	
Includes 2 switches with 5' wire				
For Variable Depth	**RHSFA2**		**RHSLA2**	
For Fixed Depth	**RHSFA2F**		**RHSLA2F**	
Door Mounted Rotary Operator Mechanism Only[A]				
Breaker mechanism only	**RHVFBM**		**RHVLBM**	
Door Mounted Rotary Handle Only[A]				
Standard version NEMA 1, 12	**RHVM12H**		**RHVM12H**	
NEMA 3R	**RHVM3RH**		**RHVM3RH**	
NEMA 4X	**RHVM4XH**		**RHVM4XH**	
Red Handle version	**RHVMEMH**		**RHVMEMH**	
Extension Shaft Only, for Door Mounted Operator[A]				
2 inches (50.8mm)	**RHVMS02**		**RHVMS02**	
3 inches (76.2mm)	—		—	
12 inches (304.8 mm)	**RHVMS12**		**RHVMS12**	
16 inches (406.4 mm)	**RHVMS16**		**RHVMS16**	
24 inches (609.6mm) w/ support bracket	—		—	

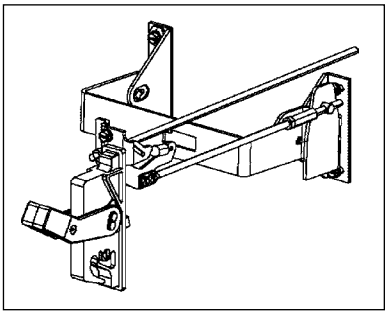
① During manual operation, Early Break auxiliary switch contacts open before the breaker opens.
A - Consult with Siemens for availability.

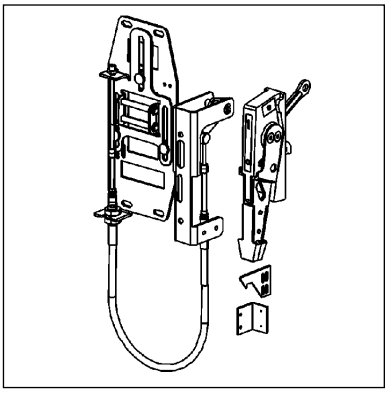
Description	For MG Frame 800 A Catalog Number	List Price $	For NG to PG Frame 1200 to 1600 A Catalog Number	List Price $
Through Door Mounted Rotary Handle Operator Kit[A]				
Fixed depth, breaker mounted. For direct fitting to the circuit breaker. Lockable with up to 3 padlocks. NEMA 1, 12	**RHFM**		**—**	
Red Handle version with red knob, yellow indicator plate NEMA 1, 12	**RHFMEM**		**—**	
Door Mounted Rotary Handle Operator Kit[A]				
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[A]				
For Direct or Extended Rotary Handle Operators (RHF and RHV). Early Break type2 Aux. Switch Kit Includes 1 switch with 5' wire For Variable Depth	**RHSMA1**		**RHSPA1**	
For Fixed Depth	**RHSMA1F**		**RHSPA1F**	
Includes 2 switches with 5' wire For Variable Depth	**RHSMA2**		**RHSPA2**	
For Fixed Depth	**RHSMA2F**		**RHSPA2F**	
Door Mounted Rotary Operator Mechanism Only[A]				
Breaker mechanism only	**RHVMBM**		**RHVPBM**	
Door Mounted Rotary Handle Only[A]				
Standard version NEMA 1, 12	**RHVM12H**		**RHVP3RH**	
NEMA 3R	**RHVM3RH**		**RHVP3RH**	
NEMA 4X	**RHVM4XH**		**RHVP4XH**	
Red Handle version	**RHVMEMH**		**RHVPEMH**	
Extension Shaft Only, for Door Mounted Operator[A]				
2 inches (50.8mm)	**RHVMS02**		**—**	
3 inches (76.2mm)	**—**		**RHVPS03**	
12 inches (304.8 mm)	**RHVMS12**		**RHVPS12**	
16 inches (406.4 mm)	**RHVMS16**		**—**	
24 inches (609.6mm) w/ support bracket	**RHVPS24**		**RHVPS24**	

A - Consult with Siemens for availability.

VL External Accessories

Operating Mechanisms





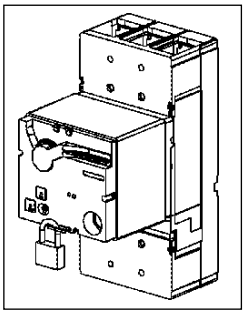
Description		For DG and FG Frame 150 to 250 A Catalog Number	List Price $	For JG and LG Frame 400 to 600 A Catalog Number	List Price $
Variable Depth Flange Mounted Operator Kit[A]					
Adjustable from 8" to 16"					
Complete kit, includes handle and					
variable depth operator.	NEMA 1, 3R, 12	**FHVF3R**		**FHVL3R**	
	NEMA 4X	**FHVF4X**		**FHVL4X**	
IEC Black Handle	NEMA 1, 3R, 12	**FHVF3RB**		**FHVL3RB**	
Max-Flex™, Variable Depth Flange Mounted Operator Kit[A]					
Complete kit, includes handle, breaker operator, and cable.	NEMA 1, 3R, 12	**MFKF3R**		**MFKL3R**	
For DG and FG operators, the cable is 36", all others are 48"					
Handle Only, for Max-Flex™ Variable Depth[A]					
NEMA 1, 3R, 12	Plastic	**MFHM3R**		**MFHM3R**	
NEMA 1, 3R, 12	Steel - epoxy coated	**MFHM3RS**		**MFHM3RS**	
NEMA 4, 4X	Steel - chrome plated	**MFHM4X**		**MFHM4X**	
Solid color (all gray) Plastic①					
NEMA 1, 3R, 12		**MFHM3RB**		**MFHM3RB**	
Solid color (black handle) Steel epoxy coated①					
NEMA 1, 3R, 12		**MFHM3RSB**		**MFHM3RSB**	
Breaker Operator Mechanism Only, for Max-Flex™ [A]		**MFMF**		**MFML**	
Cable Only, for Max-Flex™ Variable Depth[A]					
36"		**MFCF036**		**MFCM036**	
48"		**MFCF048**		**MFCM048**	
60"		**MFCF060**		**MFCM060**	
72"		**MFCF072**		**MFCM072**	
84"		**MFCF084**		**MFCM084**	
96"		**MFCF096**		**MFCM096**	
120"		**MFCF120**		**MFCM120**	
144"		**MFCF144**		**MFCM144**	
Handle Auxiliary Switch[A]					
Form C (1NO - 1NC), early break②					
1 Aux. switch		**MFSFA1**		**MFSLA1**	
2 Aux. switch		**MFSFA2**		**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.
A - Consult with Siemens for availability.

Description	For MG Frame 800 A Catalog Number	List Price $	For NG Frame 1200 A Catalog Number	List Price $	For PG Frame 1600 A Catalog Number	List Price $
Variable Depth Flange Mounted Operator Kit[A]						
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	—		—		—	
Max-Flex™, Variable Depth Flange Mounted Operator Kit[A]						
Complete kit, includes handle, breaker						
operator, and cable. NEMA 1, 3R, 12	**MFKM3R**		**MFKP3RS**		**MFKP3RS**	
For DG and FG operators, the cable is 36",						
all others are 48"						
Handle Only, for Max-Flex™ Variable Depth[A]						
NEMA 1, 3R, 12 Plastic	**MFHM3R**		—		—	
NEMA 1, 3R, 12 Steel - epoxy coated	**MFHP3RS**		**MFHP3RS**		**MFHP3RS**	
NEMA 4, 4X Steel - chrome plated	**MFHM4X**		**MFHP4X**		**MFHP4X**	
Solid color (all gray) Plastic[①]						
NEMA 1, 3R, 12	**MFHM3RB**		—		—	
Solid color (black handle) Steel epoxy coated[①]						
NEMA 1, 3R, 12	**MFHM3RSB**		**MFHP3RSB**		**MFHP3RSB**	
Breaker Operator Mechanism Only, for Max-Flex™ [A]	**MFMM**		**MFMP**		**MFMP**	
Cable Only, for Max-Flex™ Variable Depth[A]						
36"	**MFCM036**		—		—	
48"	**MFCM048**		**MFCP048**		**MFCP048**	
60"	**MFCM060**		**MFCP060**		**MFCP060**	
72"	**MFCM072**		**MFCP072**		**MF**	

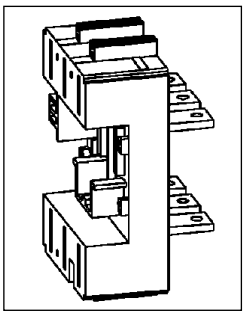
VL External Accessories

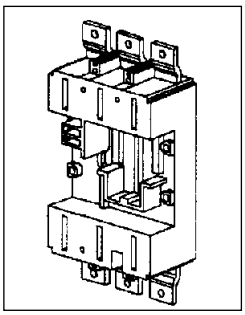
Operating Mechanisms

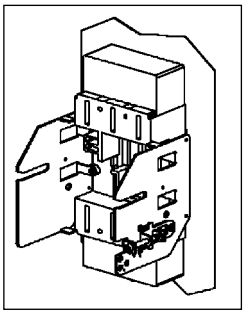


Description	For DG to FG Frame 150 to 250 A Catalog Number	List Price $
Stored Energy and Motor Operators		
Lockable with up to 3 padlocks.		
AC Voltage / DC Voltage	Stored Energy Type	
— / 24	**SEAFB**	
42-48 / 42-48	**SEAFM**	
60 / 60	**SEAFY**	
110–127 / 110–127	**SEAFN**	
220–250 / 220–250	**SEAFR**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

Plug-In and Draw-Out Bases





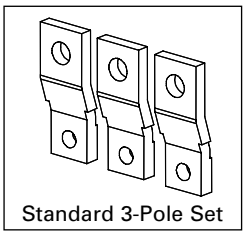


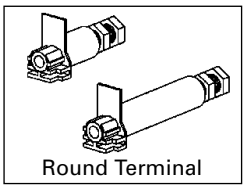
Description	For DG Frame 150 A Catalog Number	List Price $	For FG Frame 250 A Catalog Number
Plug-in Mounting Base Assembly			
Includes base, terminal blade kit, sec. terminal block assembly, base trip interlock, and mounting hardware.			
Rear Connected			
3-pole	**PCBDRC3**		**PCBFRC3**
Front Connected			
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	**DCADFC3**		**DCAFFC3**
(Draw-out assembly includes side plates and all hardware)			
Hex Wrench for racking draw-out assembly and position indicator	**DCHP**		**DCHP**
Position Indicator Switch	**DCIP**		**DCIP**
Form "C" switch to indicate breaker engaged/de-engaged position.①			
Secondary Terminal Block Assy.	**PCTF83**		**PCTF83**
Accessory connections for plug-in or draw-out breakers. Pre-wired plug and block with 8 terminal points.②			
90° Connection Adapter Kit	**PCAF390**		**PCAF390**
For rear connected 3-pole plug-in base			
Plug-In Spare Breaker Kit	**PCXD3**		**PCXF3**
Set of 6 terminal blades, 2 terminal shield, & 1 trip interlock			
Draw-out Spare Breaker Kit	**DCXD3**		**DCXF3**
Set of 6 terminal blades, & 1 trip interlock			
Spare Breaker Trip Interlock	**PCXFT**		**PCXFT**

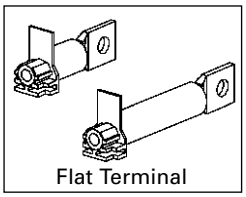
① Up to 2 position indicator switches may be mounted per plug-in or draw-out base.
② Up to 2 plugs per breaker (16 terminal points) may be mounted on DG, and FG breakers. Up to 3 plugs per breaker (24 terminal points) may be mounted on JG, LG, MG, NG, and PG breakers.
A - Consult Siemens for availability.

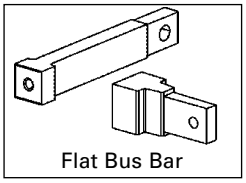
For JG to LG Frame 400 to 600 A		For MG Frame 800 A		For NG to PG Frame 1200 to 1600 A	
Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
Stored Energy Type		Stored Energy Type		Motor Operator Type	
SEALB		SEAMB		MTRPB	
SEALM		SEAMM		MTRPM	
SEALY		SEAMY		MTRPY	
SEALN		SEAMN		MTRPN	
SEALR		SEAMR		MTRPR	
CLKP		CLKP		CLKP	

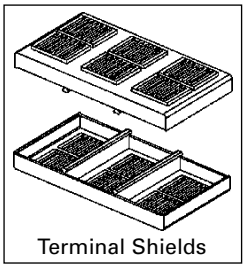
For JG Frame 400 A		For LG Frame 600 A		For MG Frame 800 A		For NG Frame 1200 A		For PG Frame 1600 A	
Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
PCBJRC3		PCBLRC3		PCBMRC3		PCBNRC3		—	
PCBJFC3		PCBLFC3		—		—		—	
DCAJRC3		DCALRC3		DCAMRC3		DCAPRC3		DCAPRC3	
DCAJFC3		DCALFC3		DCAMFC3		DCAPFC3[A]		DCAPFC3[A]	
DCHP		DCHP		DCHP		DCHP		DCHP	
DCIP		DCIP		DCIP		DCIP		DCIP	
PCTL83		PCTL83		PCTM83		PCTP83		PCTP83	
—		—		—		—		—	
PCXJ3		PCXL3		PCXM3		PCXN3		—	
DCXJ3		DCXL3		DCXM3		DCXN3		DCXP3	
PCXLT		PCXLT		PCXMT		PCXPT		PCXPT	

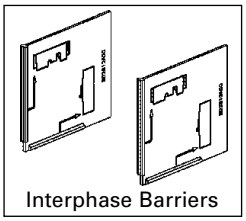

Standard 3-Pole Set


Round Terminal


Flat Terminal


Flat Bus Bar


Terminal Shields


Interphase Barriers

Description	For DG Frame 150 A Catalog Number	List Price $	For FG Frame 250 A Catalog Number	List Price $
Front Bus Bar Connections[1]				
Includes nut keeper plates and shield.				
Standard (straight)				
3-Pole Set	**FBCD3**	**CSO**	**FBCF3**	**CSO**
Bus Bar Connection Strap Kit	—		—	
Includes 6 - Bus Bars, 6 Nut Keepers & Shields				
Rear-Connecting Studs				
Short length round term. (1piece)	**RTLDSR**		**RTLFSR**	
Long length round term. (1piece)	**RTLDLR**		**RTLFLR**	
3-Pole round term. kit, 2 short + 1 long	**SRTDR3**		**SRTFR3**	
Short length flat term. (1piece)	**RTLDSF**		**RTLFSF**	
Long length flat term. (1piece)	**RTLDLF**		**RTLFLF**	
3-Pole flat term. kit, 2 short + 1 long	**SRTDF3**		**SRTFF3**	
Flat bus bar type (1 piece)	—		—	
3-Pole set of flat bus bar	—		—	
Terminal Shields[1]				
Includes 1 terminal shield, for line or load.				
3-Pole Standard Shield	**TSSF3**		**TSSF3**	
3-Pole Extended Shield	**TSLF3**		**TSLF3**	
Interphase Barriers[1]				
Set of 2 barriers	**IPBF**		**IPBF**	
Also fits plug-in and draw-out bases.				
Lug Mounting Assy.	—		—	
Breaker Mounting Base				
Front connected	—		—	
Rear connected	—		—	

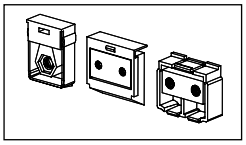
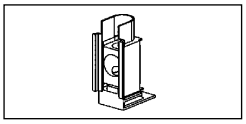
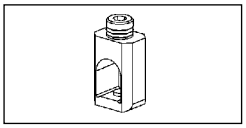
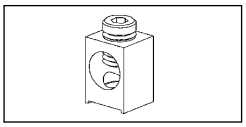
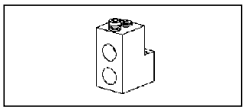
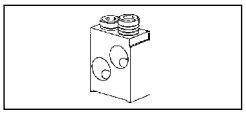
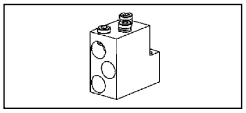
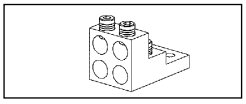
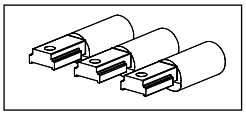
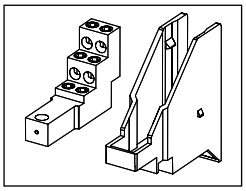
[1] Not UL listed.
A - Consult Siemens for availability.

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	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
FBCJ3[A]	CSO	FBCL3[A]	CSO	FBCM3[A]	CSO	FBCP3[A]	CSO	FBCP3[A]	CSO
—		—		—		—		SSBP	
								SSBPH	
								100% rated applications	
RTLJSR		—		—		—		—	
RTLJLR		—		—		—		—	
SRTJR3		—		—		—		—	
RTLJSF		—		—		—		—	
RTLJLF		—		—		—		—	
SRTJF3		—		—		—		—	
—		RTLLSF		RTLMSF		RTLNSF		—	
—		SRTLF3		SRTMF3		SRTNF3		—	
TSSL3		TSSL3		TSSM3		TSSP3		TSSP3	
TSLL3		TSLL3		TSLM3		TSLP3		TSLP3	
IPBM		IPBM		IPBM		IPBP		IPBP	
—		—		—		—		LMAP1600	
—		—		—		—		MBPG1600	
—		—		—		—		MBPG1601	

A - Consult with Siemens for availability.

VL External Accessories

Connections

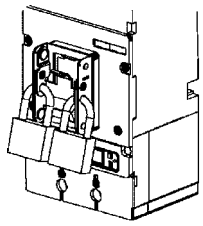
Discription	For DG Frame 150 A Catalog Number	List Price $	For FG Frame 250 A Catalog Number	List Price $
Nut Keeper Plates				
For ring/tongue terminal or bus bar connections. (For metric threads on other than the JG or LG frame, change "TNK" to "TMK")				
1 Nut Keeper Plate	**TNKD**		**TNKF**	
Kit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

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	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
TMKJ **TMKJ3**		**TNKL** **TNKL3**		**TNKM** **TNKM3**		**TNKP** **TNKP3**		**TNKP** **TNKP3**	
1/0-500 kcmil; 1-hole **TW1JG600** **3TW1JG600**		— — —		— — —		— — —		— — —	
3/0-250 kcmil; 2-hole **TA2JG250** — **3TA2JG250**		#2-600 kcmil; 2-hole — **2TA2LG600LD**① **2TA2LG600LN**② **3TA2LG600LD**① **3TA2LG600LN**②		1/0-500 kcmil, 3-hole **TA3MG500** **3TA3MG500**		1/0-500 kcmil; 4-hole — **2TA4NG500** **3TA4NG500** **3TA4NG500H**③		1/0-750 kcmil; 6-hole — — **3TA6PG750**⑤	
AL: 250-750 kcmil CU: 3/0-600 kcmil; 1-hole **TA1JG750** — **3TA1JG750**		AL: 250-750 kcmil CU: 3/0-600 kcmil; 1-hole **TA1JG750** (400A max) — **3TA1JG750** (400A max)		500 -750 kcmil; 2-hole **TA2MG750** — **3TA2MG750**		500 -750 kcmil; 3-hole **TA3NG750** **2TA3NG750** **3TA3NG750**		600-750 kcmil; 4-hole **TA4P750**⑥ — 300-600 kcmil; 5; 6-hole **TA5P600**⑥ **TA6R600**⑥	
— —		— —		#2-600 kcmil; 3-hole — **3TA3MG600**④					
—		—				—		—	
3/0-250 kcmil; 2-hole **TC2JG250** — —		#2-600 kcmil; 2-hole — **2TC2LG600LD**① **2TC2LG600LN**② **3TC2LG600LD**① **3TC2LG600LN**②		1/0-500 kcmil; 3-hole **TC3MG500** — —		1/0-500 kcmil; 4-hole — — **3TC4NG500**		1/0-750 kcmil; 6-hole — — **3TC6PG750** (future)	
3/0-750 kcmil; 1-hole **TC1JG750**		— —		— —		1/0-500 kcmil; 3-hole **TC3NG500** **CSO**		300-600 kcmil; 5-hole **TC5R600**⑥	
#6-350 kcmil; 1-cable — **3CLJ350**		#6-350 kcmil; 2-cable — **6CLL350**		1/0-500 kcmil; 3-cable — **9CLM500** (future)		1/0-500 kcmil; 4-cable — **12CLN500**		#2-600 kcmil; 8-cable — **24CLP600** (future)	
250-750 kcmil; 1-cable — **3CLJ750**		250 kcmil-750 kcmil; 1-cable — **3CLL750**		— —		— — —		— — —	
250-600 kcmil; 1-cable **3CLJ600**		250 kcmil-600 kcmil; 2-cable **6CLL600**		— —		— —		— —	
#14-#4; 12-hole **TA12JG04** **3TA12JG04** #14-2/0; 6-hole **TA6JG20** **3TA6JG20**		— — — — — —		— — — — — —		— — — — — —		— — — — — —	

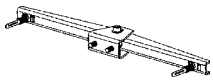
All lug kits include the nut keepers.
① Mounted on Load Side Only.
② Mounted on Line Side Only.
③ Rated 90° for 100% Applications.
④ Requires extended modified shield.
⑤ Used only with LMAP 1600 mounting base.
⑥ Used with MBPG 1600 or 1601 mounting base.

VL External Accessories

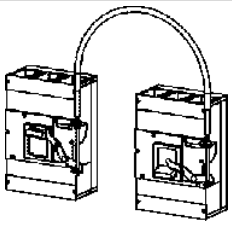
General



Handle Padlocking Device



Walking-Beam Interlock Mechanism



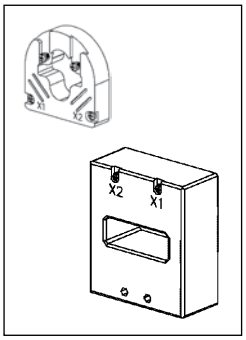
Cable Interlock System

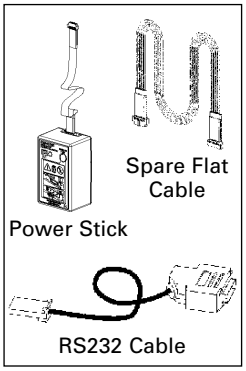
Description	For DG Frame 150 A Catalog Number	List Price $	For FG Frame 250 A Catalog Number	List Price $
Handle Padlocking Device To padlock breaker toggle in the "OFF" position. Accepts up to 3 padlocks with 5–8 mm shackles.	**HPLF**		**HPLF**	
Handle Blocking Device For holding the handle in the "ON" or "OFF" 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**	
Plug-in or draw-out mounted breakers (Future)	**WBMFDP**		**WBMFDP**	
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)	**CBCF18**		**CBCF18**	
Cable length 36 in. .91m (recommended from 600–800A)	**CBCM36**		**CBCM36**	
Cable length 54 in. 1.37m (recommended from 1200–1600A)	**CBCP54**		**CBCP54**	
Mounting Screw Kit Includes the necessary hardware to mount a circuit breaker to the user's prepared surface (SAE thread)				
Kit with 2 screws	**MSKF2**		**MSKF2**	
Kit with 4 screws	**MSKF4**		**MSKF4**	
Trip Adjustment Sealing Cover Includes a trip unit cover to prevent tampering or adjustment of trip settings. Seal not included.				
Electronic Trip Units	**TSCPET**		**TSCPET**	
Thermal-Magnetic Trip Units	**TSCFTM**		**TSCFTM**	

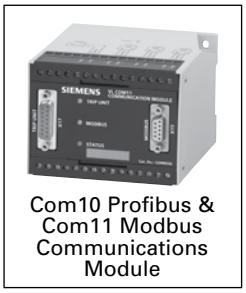
For JG Frame 400 A		For LG Frame 600 A		For MG Frame 800 A		For NG Frame 1200 A		For PG Frame 1600 A	
Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
HPLL		HPLL		HPLM		HPLP		HPLP	
HBDL		HBDL		HBDM		HBDP		HBDP	
WBMLFM WBMLDP		WBMLFM WBMLDP		WBMMFM WBMMDP		WBMPFM WBMPDP		WBMPFM WBMPDP	
CBTL		CBTL		CBTM		CBTP		CBTP	
— CBCM36 CBCP54		— CBCM36 CBCP54		— CBCM36 CBCP54		— — CBCP54		— — CBCP54	
— MSKL4		— MSKL4		— MSKM4		— MSKP4		— MSKP4	
TSCPET TSCLTM		TSCPET TSCLTM		TSCPET TSCMTM		TSCPET —		TSCPET —	

VL External Accessories

Ground Sensors & Electronic Accessories

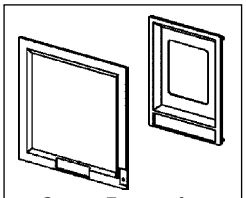


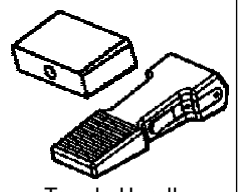




Description	For DG Frame 150 A Catalog Number	List Price $	For FG Frame 250 A Catalog Number	List Price $
Neutral Current Transformer (Ground Sensor, N-pole)				
Neutral = 35/60A	**NGSD060**		**—**	
Neutral = 100A	**NGSF100**		**NGSF100**	
Neutral = 150A	**NGSF150**		**NGSF150**	
Neutral = 250A	**—**		**NGSJ250**	
Neutral = 400A	**—**		**—**	
Neutral = 600A	**—**		**—**	
Neutral = 800A	**—**		**—**	
Neutral = 1000/1200A	**—**		**—**	
Neutral = 1600A	**—**		**—**	
Communications & Electronics				
Power Stick - Hand held, battery operated power supply for LCD trip units. (Requires two -9V batteries) For programming and trip testing only.	**EPSP18V**		**EPSP18V**	
Test Kit - Portable power supply for programming, trip test, and checking CT's plus a port for local communications of currents flow and trip settings. (Requires two 9V batteries)	**ELTPHB**		**ELTPHB**	
Universal Power Supply - 120/240Vac adapter used in lieu of 9V batteries for Test Kit ELTPHB (includes necessary cables)	**UPAPELTK**		**UPAPELTK**	
Power Supply with ZSI (for Model 576 trip units only. Includes necessary cables)	**COMPS**		**COMPS**	
Com10 Profibus Communications Module with ZSI for LCD trip Model 576 only	**COMPRO**		**COMPRO**	
Com11 Modbus Communications Module with ZSI for LCD Trip Model 576 only	**COMMOD**		**COMMOD**	
Communications Adapter - Interface with a laptop or PC to test or program Model 545 & 576 trip units	**CSAPELTU**		**CSAPELTU**	
Cable for COM10/11 and Model 576 external power supply……5ft. (1.5m)	**COMKIT1**		**COMKIT1**	
Extension cable for COMKIT1 & COMKIT2, adds 5 ft.	**COMEXT**		**COMEXT**	
Spare flat cable for Test Kits or Communications Adapters	**COMPCA**		**COMPCA**	
RS232 type cable for Test Kits or Communications Adapters	**COMP232**		**COMP232**	

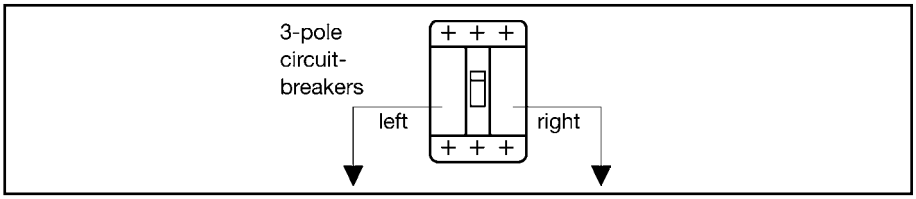
Door Cutouts & Extensions





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 LG - 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	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $	Catalog Number	List Price $
—		—		—		—		—	
—		—		—		—		—	
—		—		—		—		—	
NGSJ250		—		—		—		—	
NGSL400		NGSL400		—		—		—	
—		NGSM600		NGSM600		—		—	
—		—		NGSN800		NGSN800		—	
—		—		—		NGSP120		NGSP120	
—		—		—		—		NGSP160	
EPSP18V		EPSP18V		EPSP18V		EPSP18V		EPSP18V	
ELTPHB		ELTPHB		ELTPHB		ELTPHB		ELTPHB	
UPAPELTK		UPAPELTK		UPAPELTK		UPAPELTK		UPAPELTK	
COMPS		COMPS		COMPS		COMPS		COMPS	
COMPRO		COMPRO		COMPRO		COMPRO		COMPRO	
COMMOD		COMMOD		COMMOD		COMMOD		COMMOD	
CSAPELTU		CSAPELTU		CSAPELTU		CSAPELTU		CSAPELTU	
COMKIT2		COMKIT2		COMKIT2		COMKIT1		COMKIT1	
COMEXT		COMEXT		COMEXT		COMEXT		COMEXT	
COMPCA		COMPCA		COMPCA		COMPCA		COMPCA	
COMP232		COMP232		COMP232		COMP232		COMP232	
BZLL3		BZLL3		BZLM3		BZLP3		BZLP3	
BZLLRHSE		BZLLRHSE		BZLMRHSE		BZLPRHSE		BZLPRHSE	
BZLLBDC		BZLLBDC		BZLMBDC		BZLPBDC		BZLPBDC	
THEL		THEL		THEM		THEP		THEP	



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 Swich	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 Swiches	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
- For 4-pole breakers, the 4th pole (located on the far left) can hold up to 3 Auxiliary Switches on DG, FG, JG, and up to 4 Auxiliary Switches on MG, NG, and PG breakers

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
- Maximum of three (3) switches combined in 4th Pole and Left Pockets

MG, NG, PG Maximum Accessories:

- Maximum of eight (8) switches total
- Maximum of two (2) Alarm Switches, Left Pocket only
- Maximum of four (4) switches combined in 4th Pole and Left Pockets

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 1NO Alarm 1NO + 1NC Aux. and 1NC Alarm 2NO Aux. and 1NC Alarm 2NC Aux. and 1NO 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	RB	**STRLB24DC**
	48-60V DC	RC	**STRLC60DC**
	110-127V DC	RD	**STRLD125DC**
	220-250V DC	RE	**STRLE250DC**
	48-60V AC	RM	**STRLM60**
	110-127V AC	RN	**STRLN120**
	208-277V AC	RS	**STRLS277**
	380-600V AC	RV	**STRLV600**
MG, NG or PG	24V DC	RB	**STRPB24DC**
	48-60V DC	RC	**STRPC60DC**
	110-127V DC	RD	**STRPD125DC**
	220-250V DC	RE	**STRPE250DC**
	48-60V AC	RM	**STRPM60**
	110-127V AC	RN	**STRPN120**
	208-277V AC	RS	**STRPS277**
	380-600V AC	RV	**STRPV600**

Suffix for factory mounted Under Voltage Releases

If the frame is:	And you need these functions:	Then add this suffix:	Device Catalog Number
DG, FG, JG or LG	12V DC	UA	**UVRLA12DC**
	24V DC	UB	**UVRLB24DC**
	48V DC	UC	**UVRLC48DC**
	60V DC	UG	**UVRLG60DC**
	110-127V DC	UD	**UVRLD125DC**
	220-250V DC	UE	**UVRLE250DC**
	110-127V AC	UN	**UVRLN120**
	220-240V AC	UR	**UVRLR240**
	208V AC	UP	**UVRLP208**
	277V AC	US	**UVRLS277**
	380-415V AC	UT	**UVRLT415**
	440-480V AC	UU	**UVRLU480**
	600V AC	UV	**UVRLV600**
MG, NG or PG	12V DC	UA	**UVRPA12DC**
	24V DC	UB	**UVRPB24DC**
	48V DC	UC	**UVRPC48DC**
	60V DC	UG	**UVRPG60DC**
	110-127V DC	UD	**UVRPD125DC**
	220-250V DC	UE	**UVRPE250DC**
	110-127V AC	UN	**UVRPN120**
	220-240V AC	UR	**UVRPR240**
	208V AC	UP	**UVRPP208**
	277V AC	US	**UVRPS277**
	380-415V AC	UT	**UVRPT415**
	440-480V AC	UU	**UVRPU480**
	600V AC	UV	**UVRPV600**

		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	600	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 250V DC Max. ②		30	30	30	30	42	42	42
3 poles switching 2 current paths in series 500V DC Max. ②		18	25	35	35	65	65	65
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	401 – 501	401 – 501	401 – 501	401 – 501	401 – 501	401 – 501	401 – 501
110 – 127 V AC	VA	424 – 489	424 – 489	424 – 489	424 – 489	424 – 489	424 – 489	424 – 489
208 – 277 V AC	VA	533 – 736	533 – 736	533 – 736	533 – 736	533 – 736	533 – 736	533 – 736
380 – 600 V AC	VA	408 – 645	408 – 645	408 – 645	408 – 645	408 – 645	408 – 645	408 – 645
24 V DC	W	594	594	594	594	594	594	594
48 – 60 V DC	W	740 – 925	740 – 925	740 – 925	740 – 925	740 – 925	740 – 925	740 – 925
110 –127 V DC	W	559 – 648	559 – 648	559 – 648	559 – 648	559 – 648	559 – 648	559 – 648
220 – 250 V DC	W	722 – 820	722 – 820	722 – 820	722 – 820	722 – 820	722 – 820	722 – 820
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.

		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	1	1	1	1.1	1.1	1.1	
220 – 250 V AC	VA	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
208 V AC	VA	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
277 V AC	VA	1.4	1.4	1.4	1.4	1.4	1.4	1.4	
380 – 415 V AC	VA	1.9	1.9	1.9	1.9	1.9	1.9	1.9	
440 – 480 V AC	VA	2.2	2.2	2.2	2.2	2.2	2.2	2.2	
500 – 525 V AC	VA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
600 V AC	VA	2.8	2.8	2.8	2.8	2.8	2.8	2.8	
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	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	—	—
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	<500						
Inrush (A)									
Control Voltages	110 – 127 V AC								
	220 – 250 V AC								
	24 V DC								
	48 V DC								
	60 V DC								
Operating Range	85 – 110% of rated control voltage								

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.

Moisture — Corrosion

For atmospheres having high moisture content and / or where fungus growth is prevalent, a special preventive treatment may be required.

Where the air is heavily laden with corrosive elements, breakers made with special corrosion-resistant finishes may be required.

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: 25° C (77° F)	50° C (122° F)	60° C (140° F)	Siemens Breaker Frames
15	17	13	11	BQ, BL, BQD, CQD, NGG, NGB, ED
20	22	18	16	
25	28	23	21	
30	33	28	26	
35	39	30	25	
40	44	37	34	
50	55	46	42	DG
60	66	56	52	
70	77	65	60	
90	99	84	78	FG
100	110	94	87	
125	137	114	100	
150	165	136	120	
175	192	159	140	
200	220	182	160	
225	247	205	180	JG
250	275	235	220	
300	330	276	252	
350	385	325	301	
400	440	372	340	LG
500	550	468	435	
600	660	564	525	MG
700	770	658	613	
800	880	754	704	
900	990	828	749	NG
1000	1100	900	825	
1200	1320	1090	1000	
1400	1540	1304	1148	PG
1600	1760	1500	1320	
1800	1980	1690	1485	
2000	2200	1880	1650	

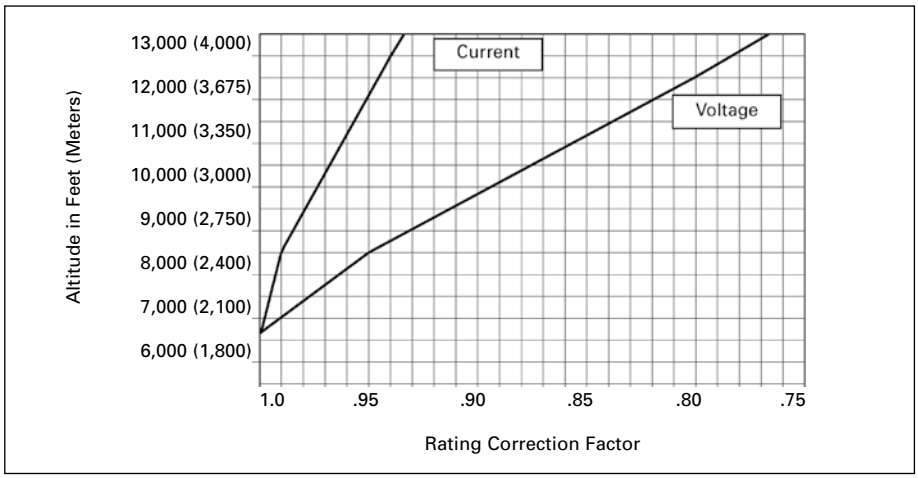


Figure 1 — Altitude Adjustment

400 Hz Systems①

Siemens molded case circuit breakers can be applied for overcurrent protection on 400Hz systems, commonly used to power computer installations, aircraft, military and other specialty equipment. Below are basic guidelines.

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.

Factory Configuration

When required, molded case circuit breakers may be factory calibrated for 400Hz application. These breakers are specially labeled for 400Hz usage and their nameplate current rating will include the necessary derating factory. The highest "Maximum Continuous Amperes" rating at 400Hz, found in the table below approximates the highest specially calibrated 400Hz nameplate ampere rating available for a given frame size. Contact Siemens for ordering information on other breakers applied in 400Hz systems.

400Hz Breakers

Siemens Breaker Type	Maximum Continuous Ampere Rating At 40° C (104° F)②			75° C (167° F) Copper Cable per Pole	
	60HZ	400HZ			
	Open Air	Open Air③	Enclosed After Derating	No of Pieces	Wire Size
NGG, EG	15	15	12	1	#14
	20	20	16	1	#12
	15	15	12	1	#14
	20	20	16	1	#12
	25	25	20	1	#10
	30	30	24	1	#10
	35	35	28	1	#10
	40	40	32	1	#8
	45	43	34	1	#8
	50	48	38	1	#8
	60	57	46	1	#6
	70	67	54	1	#4
	80	76	61	1	#4
	90	86	69	1	#3
	100	95	76	1	#3
	110	105	84	1	#2
	125	119	95	1	#1
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
	150	125	100	1	#1/0
FG	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
	250	200	160	1	250 kcmil
JG	250	210	168	1	250 kcmil
	300	240	192	1	350 kcmil
	350	260	208	1	500 kcmil
	400	300	240	2	#2/0
JG 100% Rated	250	210	210	1	250 kcmil
	300	240	240	1	350 kcmil
	350	260	260	1	500 kcmil
	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
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
PG	1200	780	624	4	400 kcmil
	1400	850	680	4	500 kcmil
	1600	960	768	5	500 kcmil
PG 100% Rated	1200	780	780	4	400 kcmil
	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.