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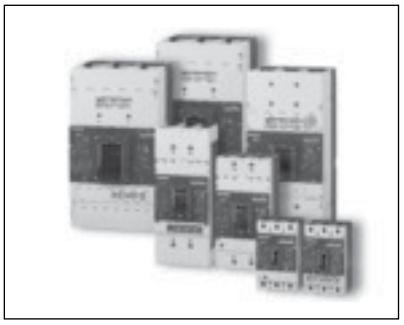
OEM Circuit Breakers
Siemens introduces the modular and flexible design of Siemens VL molded case circuit breakers (MCCB) for OEM applications. This family of MCCB's allow the OEM customer the flexibility of last minute changes, with a minimum level of stock due to product modularity. The VL family of MCCB's also offer the widest range of field installable accessories in the industry, including 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:

1. As separately ordered frames, trip units and lugs
2. As frame, trip unit and lugs ordered as one catalogue number and shipped unassembled or assembled
3. 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 catalogue 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).

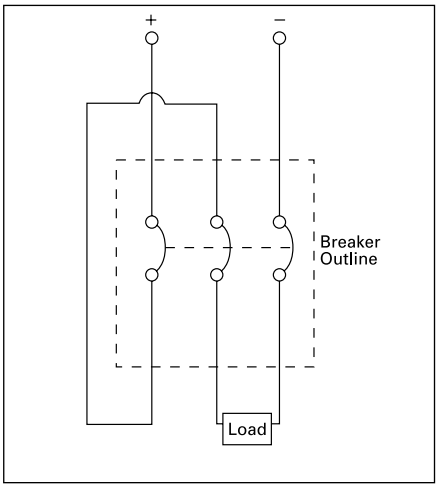
Non-Interchangeable Trip Breakers

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 catalogue number (e.g. JXD63B400L), you will receive 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 catalogue 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.



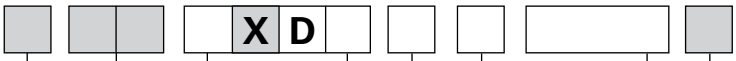
500V DC Wiring Configuration

Molded Case Circuit Breakers

Catalogue Numbering System

Reference

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

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

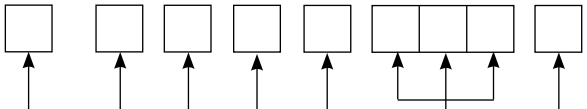
UL869 — Service Equipment

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
- 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 interchangeable (UL, IEC,CE, CSA, NOM①, CCC①)
- T — Trip Unit Only
- X — Global Non-interchangeable
- K — Global, Non-interchangeable (LG-frame)
- M — Motor Circuit Protector
- S — Molded Case Switch
- R — Molded Case Switch (LG-frame)
- J — 240V rated JG frame, Non-interchangeable only
- Y — 100% rated, Non-interchangeable
- W — 100% rated, Non-interchangeable (LG-frame)
- V — Thermal Magnetic, standard 40°C ambient, 600VAC 25kA, UL/CSA (LG frame)

Number of Poles
- 1, 2, 3

Trip Unit
- F — Frame only, without trip unit
- B — Thermal Magnetic, standard 40° C ambient
- L — Magnetic Only, Motor Circuit Protector - Low instantaneous range
- J — Magnetic Only, Motor Circuit Protector - Low instantaneous range (LG-frame)
- M — Magnetic Only, Motor Circuit Protector - Standard instantaneous range
- Y — Magnetic Only, Motor Circuit Protector - Standard instantaneous range (LG-frame)
- H — Magnetic Only, Motor Circuit Protector - High instantaneous range
- S — Molded Case Switch
- A — Electronic w/ LCD, LSI or 3P (neutral protected)
- G — Electronic w/ LCD, LSIG, 3P/4W (selectable residual or return type ground fault protection)
- K — Electronic with LCD, LSI and GF alarm only, 3P/4W (selectable residual or return type ground fault alarm)
- R — Electronic LI or 3P (neutral protected)
- T — Electronic LSI or 3P (neutral protected)
- V — Electronic, LSIG or 3P/4W, residual ground fault protection
- W — Electronic, LIG or 3P/4W, residual ground fault protection

Continuous Current Rating
- 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 (cu/al) Lugs
- X — No Lugs (use only if accessory suffixes are to follow)

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

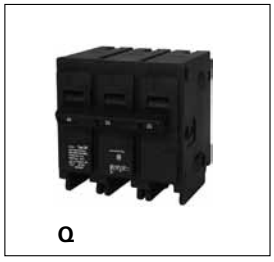
① Selected Frames

Molded Case Circuit Breakers

Reference Guide

Thermal-Magnetic Trip Breakers

				Loadcentre Breakers		Panelboard Breakers						
				QT	Q	BL	BLH	HBL	BQD, BQD6①	NGB	NEB	HEB
Page				**4-11**	**4-11**	**5-13**	**5-13**	**5-13**	**5-16**	**5-101**	**5-103**	**5-103**
Ratings	**AC**	Poles		1, 2	1, 2, 3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3
		Amperes, Continuous		15-40	10-200②③	15-125②	15-125②	15-125②	15-100④	15-125	15-125	15-125
		Volts (60 Hertz)	1 Pole	120/240	120/240	120/240	120/240	120/240	277	347	347	347
			2 Pole						480/277	600/347	600/347	600/347
			3 Pole	—	240	240	240	240				
		CSA/UL Interrupting Rating - Symmetrical RMS Amperes	120V	10,000	10,000	10,000	22,000	65,000	65,000	—	—	—
			240V	10,000	10,000	10,000	22,000	65,000	65,000	100,000	85,000	100,000
			277V	—	—	—	—	—	14,000	—	—	—
			347V	—	—	—	—	—	10,000①	—	—	—
			480/277V	—	—	—	—	—	14,000	25,000	—	—
			480V	—	—	—	—	—	—	—	35,000	65,000
			600/347V	—	—	—	—	—	10,000①	14,000	—	—
			600V	—	—	—	—	—	—	—	22,000	25,000
	DC	125/250 V DC Interrupting Rating	2-Pole	—	—	—	—	—	14,000	14,000	35,000	42,000
			3-Pole	—	—	—	—	—	—	—	35,000	42,000
Dimensions in Inches	Height		15-50A	—	2.90	3.56	3.56	3.75	4.50	5.00	5.50	5.50
			15-40A	3.12	—	—	—	—	—	—	—	—
			50-125A	—	2.90	3.75	3.75	3.75	4.50	5.00	5.50	5.50
	Width		1-Pole	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
			2-Pole	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
			3-Pole	—	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	Depth			2.38	2.38	2.37	2.37	2.37	2.69	2.71	3.00	3.00
Overcurrent Devices	Thermal and Fixed magnetic Trip			√	√	√	√	√	√	√	√	√
	Molded Case Switch			—	—	—	—	—	—	—	√	√
Accessories & Modifications	Undervoltage Trip			—	—	—	—	—	—	—	√	√
	Shunt Trip			—	—	√	√	√	√	√	√	√
	Auxilary Switch			—	—	√	√	√	√	√	√	√
	Alarm Switch			—	—	—	—	—	√	√	√	√
Individual Enclosures	Type 1 - Indoor			√	√	—	—	—	—	—	—	—
	Type 3R - Outdoor			√	√	—	—	—	—	—	—	—



Q

BL, BLH, HBL

BQD, BQD6

NGB

NEB/HEB

For inches / millimeters conversion, multiply inches by 25.4.

① BQD6 CSA certified 10,000A @ 600Y/347V 15–70A only.
② Single pole breakers available in ratings 15–70A only, 125A available as a 2-pole only.
③ 80A, 125A, 150A and 200A available as a 2-pole only, 90A and 100A available as a 2 and 3 pole only.
④ BQD6 breaker available in ratings 15-70A only, BQD available up to 100A

Thermal-Magnetic Trip Breakers

				General Purpose Breakers							
				BQ	**BQH**	**HBQ**	**QJ2**	**QJH2**	**QJ2-H**	**HQJ2**	**CQD**
Page				**5-16**	**5-16**	**5-16**	**5-19**	**5-19**	**5-19**	**5-19**	**5-20**
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	15–70	—	—	—	—	15–100
			2-Pole	15–125	15–125	15–125	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	65,000	65,000
			480/277V	—	—	—	—	—	—	—	14,000
			600/347V	—	—	—	—	—	—	—	10,000②
	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		√	√	√	√①	√①	√①	√①	√
		Auxiliary Switch		√	√	√	√①	√①	√①	√①	√
		Alarm Switch		—	—	—	√	√	—	—	√
		Mechanical Interlock		—	—	—	√	√	√	√	—
		Fungus Proofing (ref. page 5-67)		√	√	√	√	√	√	√	√
Individual Enclosures③		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.

① 3-pole breakers only (factory installed only).
② Type CQD6—CSA only.
③ Enclosed breakers are factory assembled.

Thermal-Magnetic Trip Breakers

					General Purpose Breakers								
					ED2	ED4	ED6	HED4	CED6	FD6A, FXD6A	HFD6, HFXD6	HHFD6, HHFXD6	CFD6
Page					5-21	5-21	5-21	5-22	5-22	5-24	5-25	5-25	5-25
Ratings	**AC**	Poles			1, 2, 3	1, 2, 3	1④, 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									
		Interrupting 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	—	22,000①	—	65,000②	—	—	—	—	—
				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	22,000	25,000	25,000	100,000
			IEC 947-2 50/60HZ 220/240V	Icu	—		65,000	—	200,000②	65,000	100,000	200,000	—
				Ics	—	—	17,000	—	—	33,000	50,000	100,000	—
			IEC 947-2 50/60HZ 380/415V	Icu	—		35,000	—	200,000②	35,000	65,000	100,000	—
				Ics	—	—	9,000	—	—	18,000	33,000	50,000	—
			IEC 947-2 50/60HZ 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 Ratings③			—	—	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 5-67)			√	√	√	√	√	√	√	√	√
Individual Enclosures⑤		Type 1 — Indoor Surface			√	√	√	√	√	√	√	√	√
		Type 1 — Indoor, Flush			√	√	√	√	√	—	√	—	√
		Type 3R — Outdoor-Rainproof			√	√	√	√	√	√	√	√	√
		Type 5, 12 — Lint, Fine Dust, Oils, Coolants			√	√	√	√	√	√	√	√	√
		Type 12K — Semi-Dusttight			√	√	√	√	√	√	√	√	√

For inches / millimeters conversion, see Application Data section.

① 1-pole only.
② 40–100A: 25,000 AIR at 277V AC.
③ For DC UPS system application.
④ Single pole ED6 (15–30A) 30kA, (35–100A) 18 kA. CSA Only.
⑤ Enclosed breakers are factory assembled.

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						5-27	5-27	5-28	5-28	5-28	5-31	5-32	5-32	5-32
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									
		Interrupting 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 Ratings①				—	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 5-67)				√	√	√	√	√	√	√	√	√
Individual Enclosures②		Type 1 — Indoor Surface				√	√	√	√	√	√	√	√	√
		Type 1 — Indoor, Flush				—	—	—	—	—	√	—	—	—
		Type 3R — Outdoor-Rainproof				√	√	√	√	—	√	√	√	—
		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 Enclosed breakers are factory assembled.

Thermal-Magnetic Trip Breakers

						General Purpose Breakers							
						LMD6, LMXD6	HLMD6, HLMXD6	MD6, MXD6	HMD6, HMXD6	CMD6	ND6, NXD6	HND6, HNXD6	CND6
Page						5-35	5-36	5-38	5-39	5-39	5-42	5-43	5-43
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								
		Interrupting 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 Ratings①				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 5-67)				√	√	√	√	√	√	√	√
Individual Enclosures②		Type 1 — Indoor Surface				—	—	√	√	√	√	√	√
		Type 1 — Indoor, Flush				—	—	—	—	—	—	—	—
		Type 3R — Outdoor-Rainproof				—	—	√	√	√	√	—	√
		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 Enclosed breakers are factory assembled.

Thermal-Magnetic Trip Breakers

						General Purpose Breakers				
						PD6②, PXD6②	HPD6②, HPXD6②	CPD6②	RD6②, RXD6②	HRD6②, HRXD6②
Page						**5-46**	**5-46**	**5-46**	**5-49**	**5-49**
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
		Interrupting 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 Ratings①				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 5-67)				√	√	√	√	√
		Mounting Block (required)				√	√	√	√	√
Individual Enclosures		Type 1 — Indoor Surface				—	—	—	—	—
		Type 1 — Indoor, Flush				—	—	—	—	—
		Type 3R — Outdoor-Rainproof				—	—	—	—	—
		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.

Electronic Trip Breakers

					Solid State Trip Cicuit Breakers								
					SJD6	SHJD6	SCJD6	SLD6	SHLD6	SCLD6	SMD6	SHMD6	SCMD6
Page					5-29	5-29	5-29	5-33	5-33	5-33	5-40	5-40	5-40
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
		Interrupting 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 5-67)			√	√	√	√	√	√	√	√	√
Individual Enclosures①		Type 1 — Indoor Surface			√	√	—	√	√	—	√	√	√
		Type 1 — Indoor, Flush			—	—	—	—	—	—	—	—	—
		Type 3R — Outdoor-Rainproof			√	√	—	√	√	—	√	√	√
		Type 5, 12 — Lint, Fine Dust, Oils, Coolants			√	√	√	√	√	√	√	√	√
		Type 12K — Semi-Dusttight			√	√	—	√	√	—	√	√	—

For inches / millimeters conversion, see Application Data section.

① Enclosed breakers are factory assembled.

Electronic Trip Breakers

						Solid State Trip Circuit Breakers				
						SND6	SHND6	SCND6	SPD6①	SHPD6①
Page						5-44	5-44	5-44	5-47	5-47
Ratings	**AC**	Poles				3	3	3	3	3
		Amperes, Continuous				800-1200	800-1200	800-1200	1200-1600	1200-1600
		Volts 50/60HZ			3-Pole	600	600	600	600	600
		Interrupting 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
			EC 947-2 50/60HZ	380/415V	Icu	—	—	—	—	—
					Ics	—	—	—	—	—
				690V	Icu	—	—	—	—	—
					Ics	—	—	—	—	—
Dimensions - Inches	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	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 5-67)					√	√	√	√	√
Individual Enclosures②	Type 1 — Indoor Surface					√	√	√	—	—
	Type 1 — Indoor, Flush					—	—	—	—	—
	Type 3R — Outdoor-Rainproof					√	—	√	—	—
	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 Enclosed breakers are factory assembled.

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

Non-Interchangeable Trip

Continuous Current Rating @ 40°C	1-Pole② 120/240V AC Catalogue Number	2-Pole⑤ 120/240V AC Common Trip Catalogue Number	2-Pole③⑤ 240V AC Common Trip Catalogue Number	3-Pole⑥ 240V AC Common Trip Catalogue Number
15	**B115**	**B215**	**B215R**	**B315**
20	**B120**	**B220**	**B220R**	**B320**
25	**B125**	**B225**	**B225R**	**B325**
30	**B130**	**B230**	**B230R**	**B330**
35	**B135**	**B235**	**B235R■**	**B335**
40	**B140**	**B240**	**B240R■**	**B340**
45	**B145■**	**B245**	**B245R■**	**B345**
50	**B150**	**B250**	**B250R**	**B350**
55	**B155**	**B255**	—	**B355**
60	**B160**	**B260**	**B260R**	**B360**
70	**B170**	**B270**	**B270R■**	**B370**
80	—	**B280**	**B280R■**	**B380**
90	—	**B290**	**B290R■**	**B390**
100	—	**B2100**	**B2100R■**	**B3100**
110	—	**B2110■**	—	—
125	—	**B2125**	—	—

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

Continuous Current Rating @ 40°C	1-Pole 120/240V AC Catalogue Number	2-Pole 120/240V AC Common Trip Catalogue Number	3-Pole 240V AC Common Trip Catalogue Number
15	**B115H**①	**B215H**	**B315H**
20	**B120H**①	**B220H**	**B320H**
25	**B125H**	**B225H■**	**B325H**
30	**B130H**	**B230H**	**B330H**
35	**B135H■**	**B235H■**	**B335H■**
40	**B140H**	**B240H**	**B340H**
45	**B145H■**	**B245H■**	**B345H■**
50	**B150H**	**B250H**	**B350H**
55	**B155H**	**B255H■**	**B355H**
60	**B160H■**	**B260H**	**B360H**
70	**B170H■**	**B270H■**	**B370H**
80	—	**B280H■**	**B380H■**
90	—	**B290H■**	**B390H■**
100	—	**B2100H**	**B3100H**
110	—	**B2110H■**	—
125	—	**B2125H**	—

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

15	**B115HH**①	**B215HH**	**B315HH**
20	**B120HH**①	**B220HH**	**B320HH**
25	**B125HH■**	**B225HH■**	**B325HH■**
30	**B130HH**	**B230HH**	**B330HH**
35	**B135HH■**	**B235HH■**	**B335HH■**
40	**B140HH**	**B240HH**	**B340HH**
45	**B145HH■**	**B245HH■**	**B345HH■**
50	**B150HH■**	**B250HH**	**B350HH**
55	**B155HH■**	**B255HH**	**B355HH**
60	**B160HH■**	**B260HH**	**B360HH**
70	**B170HH■**	**B270HH■**	**B370HH**
80	—	**B280HH■**	**B380HH**
90	—	**B290HH■**	**B390HH**
100	—	**B2100HH**	**B3100HH**
110	—	**B2100HH■**	—
125	—	**B2125HH■**	—

Types BL/BLH/HBL

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

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

■ Built to order. Allow 3–4 weeks for delivery.
① CSA Certified / UL Listed for frequent switching applications (SWD). 120V AC fluorescent lighting.
② Shipped 12 per sleeve.
③ CSA Certified / UL Listed for 3 phase 240V grounded B at 10,000 KA IR.
④ HACR rated.
⑤ Shipped 6 per sleeve.
⑥ Shipped 5 per sleeve.

Modifications - page 5-67
External Accessories - page 5-69

Ordering Instructions

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

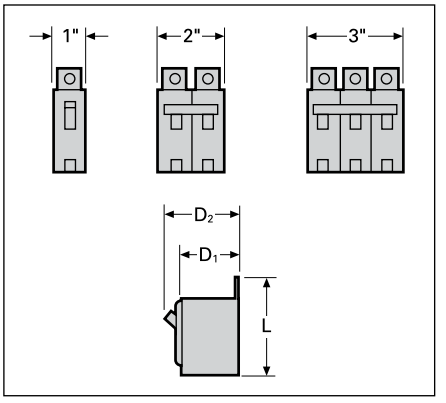
Shipping Weights - BL, BLH, HBL

Number of Poles	Number Per Carton / Master	Shipping Weight (lbs.) Master
1 (15-70A)	12/48	15.3
2 (15–50A)	6/24	15.3
2 (55–70A)	6/24	19.4
2 (80–125A)	6/24	24.9
3 (15–100A)	4/16	20.1

Pressure Wire Connectors (Load side terminal factory installed only)

Type	Circuit Breaker Ampere Rating	Cables Per Lug	Wire Range
BL, BLH, HBL	15–20	1	#14 - #10 AWG Cu
		1	#12 - #10 AWG Al
	25–35	1	#14 - #6 AWG Cu
		1	#12 - #6 AWG Al
	40–50	1	#8 - #6 AWG Cu
		1	#8 - #4 AWG Al
	55–70	1	#8 - #4 AWG Cu
		1	#8 - #2 AWG Al
	80–100	1	#4 - #1/0 AWG Cu
		1	#2 - #1/0 AWG Al
	110–125	1	#2 - #1/0 AWG Cu
		1	#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	60–125	3 3/4	2 3/8	3
HBL	15–125	3 3/4	2 3/8	3

Accessories page 5-69

For inches / millimeters conversion, multiply inches by 25.4.

Ground-Fault Circuit Interrupters (GFCI)①

Provides Class A (5mA) ground fault protection. Intended for personal protection.
De-energizes the circuit for all ungrounded conductors of the circuit.

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

Ground-Fault Equipment Protection (30mA)①

Provides protection of equipment from damaging line-to-ground faults currents.
De-energizes the circuit for all ungrounded conductors of the circuit.

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

Branch-Feeder Arc-Fault Circuit Interrupters (AFCI)

AFCI's detect arcing faults (an unintentional arcing condition in a circuit) that standard circuit breakers are unable to detect. The device is intended to mitigate the effects of arcing faults by functioning to de-energize the circuit when an arc-fault is detected. Branch-feeder AFCI detects line-to-ground and line-to-neutral arcs.

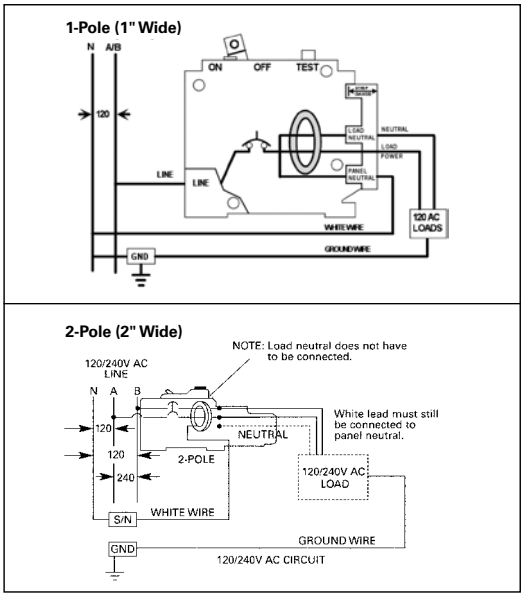
BAF 1-Pole	15	**B115AF**	10	—
	20	**B120AF**	10	—
BAFH 1-Pole	15	**B115AFH**	22	—
	20	**B120AFH**	22	—

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.

Wiring Diagrams



1-Pole Equipment Protection

2-Pole Equipment Protection

B115AF

BG215

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 Catalogue Number	2-Pole 120/240V AC Common Trip Catalogue Number	2-Pole 240V AC Common Trip⑤ Catalogue Number	3-Pole 240V AC Common Trip Catalogue Number
15	BQ1B015①②	BQ2B015	BQ2H015	BQ3B015
20	BQ1B020①②	BQ2B020	BQ2H020■	BQ3B020
25	BQ1B025②	BQ2B025	—	BQ3B025■
30	BQ1B030②	BQ2B030	BQ2H030■	BQ3B030
35	BQ1B035②■	BQ2B035	—	BQ3B035
40	BQ1B040②	BQ2B040	BQ2H040■	BQ3B040
45	BQ1B045②■	BQ2B045■	—	BQ3B045■
50	BQ1B050②	BQ2B050	BQ2H050■	BQ3B050
55	BQ1B055②■	—	—	—
60	BQ1B060②■	BQ2B060	BQ2H060■	BQ3B060
70	BQ1B070■	BQ2B070	BQ2H070■	BQ3B070
80	—	BQ2B080	—	BQ3B080
90	—	BQ2B090	BQ2H090■	BQ3B090
100	—	BQ2B100	BQ2H100	BQ3H100
110	—	BQ2B110	—	—
125	—	BQ2B125	—	—

BQH (22,000A IR)②

Continuous Current Rating @ 40°C	1-Pole 120/240V AC Catalogue Number	2-Pole 120/240V AC Common Trip Catalogue Number	3-Pole 240V AC Common Trip Catalogue Number
15	BQ1B015H①	BQ2B015H	BQ3B015H
20	BQ1B020H	BQ2B020H	BQ3B020H
25	BQ1B025H■	BQ2B025H■	BQ3B025H■
30	BQ1B030H	BQ2B030H	BQ3B030H
35	BQ1B035H■	BQ2B035H■	BQ3B035H
40	BQ1B040H	BQ2B040H	BQ3B040H
45	BQ1B045H■	BQ2B045H■	BQ3B045H
50	BQ1B050H■	BQ2B050H	BQ3B050H
55	BQ1B055H■	—	—
60	BQ1B060H■	BQ2B060H	BQ3B060H
70	BQ1B070H■	BQ2B070H■	BQ3B070H
80	—	BQ2B080H■	BQ3B080H■
90	—	BQ2B090H■	BQ3B090H■
100	—	BQ2B100H	BQ3B100H
110	—	BQ2B110H	—
125	—	BQ2B125H	—

HBQ (65,000A IR)②

15	HB1B015①	HB2B015■	HB3B015■
20	HB1B020①	HB2B020	HB3B020
25	HB1B025	HB2B025	HB3B025
30	HB1B030	HB2B030	HB3B030
35	HB1B035	HB2B035	HB3B035
40	HB1B040	HB2B040	HB3B040
45	HB1B045	HB2B045	HB3B045
50	HB1B050■	HB2B050■	HB3B050
60	HB1B060	HB2B060■	HB3B060
70	HB1B070	HB2B070■	HB3B070■
80	—	HB2B080	HB3B080■
90	—	HB2B090■	HB3B090■
100	—	HB2B100	HB3B100
110	—	HB2B110■	—
125	—	HB2B125	—

BQ/BQH/HBQ **Internal Accessories (Factory installed only)**

Control Voltage		Shunt Trip	Auxiliary Switches
			1A and 1B
AC	DC	Suffix	Suffix
120V	—	...00S01	...A01■
24V	—	...00S07	

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

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

②HCAR rated.

⑤UL Listed for use on 3 phase grounded "B" systems - 10,000 for this application.

Accessories pages 5-69
Modifications page 5-67

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

Continuous Current Rating	1-Pole Catalogue Number	2-Pole Catalogue 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

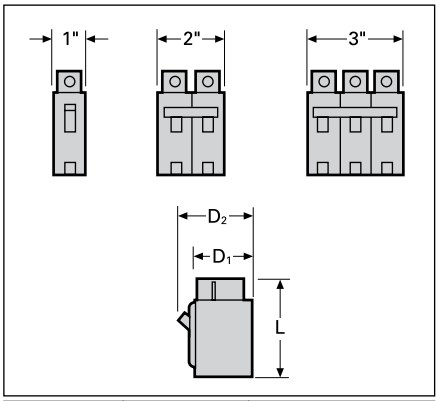
Protects against accidental contact with lugs–1 per lug. Fits line and load end.

Catalogue Number	Qty
BQFS2	2
BQFS1K	1000

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	**Catalogue Number** ⑤
1	**EB3100S** ③⑦
3R	**WB3100**



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

Lugs-For Use with BQ, BQH, HBQ⑨

Circuit Breaker Amp. Rtg.	Cables Per Lug	Lug Wire Range AWG	Catalogue Number
Line Side			
15–40	1 1	#14–#6 Cu #12–#6 Al	**TC1Q1** ①②⑧
50–100	1 1	#8–#1 Cu #6–#1/0 Al	**TA1Q1** ⑧
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, multiply inches by 25.4.

■ 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 catalogue 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 5-68

BQD④

Continuous Current Rating @ 40°C	1-Pole 277V AC–125V DC Catalogue Number	2-Pole③ 480Y/277V AC–125/250V DC Catalogue Number	3-Pole③ 480Y/277V AC Catalogue Number
15	BQD115①②	BQD215⑤	BQD315⑤
20	BQD120①②	BQD220⑤	BQD320⑤
25	BQD125②	BQD225⑤	BQD325⑤
30	BQD130②	BQD230⑤	BQD330⑤
35	BQD135	BQD235⑤	BQD335⑤
40	BQD140	BQD240⑤	BQD340⑤
45	BQD145■	BQD245⑤	BQD345⑤
50	BQD150	BQD250⑤	BQD350⑤
60	BQD160	BQD260	BQD360
70	BQD170■	BQD270	BQD370
80	BQD180■	BQD280	BQD380
90	BQD190	BQD290	BQD390
100	BQD1100■	BQD2100	BQD3100

BQD6

Continuous Current Rating @ 40°C	1-Pole 347V AC Catalogue Number	2-Pole③ 600/347V AC Catalogue Number	3-Pole③ 600/347V AC Catalogue 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

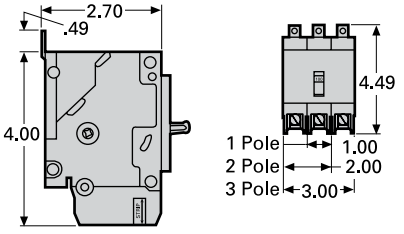
Breaker Type	Number of Poles	RMS Symmetrical Amperes (kA)							
		Volts AC						Volts DC	
		120	240	277	480/277	347	600/347	125	250
BQD (CSA & UL)	1	65	—	14	—	—	—	14	—
	2	—	65	—	14	—	—	—	14
	3	—	65	—	14	—	—	—	—
BQD6 (CSA)	1	65	—	—	—	10	—	14	—
	2	—	65	—	—	—	10	—	14
	3	—	65	—	—	—	10	—	—

BQD Internal Accessories

Control Voltage		Shunt Trip	Shunt Trip and Auxiliary Switch Combinations
V AC	V DC	Catalogue Number	Catalogue 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		Auxiliary Switch	Alarm Switch
AC	DC	Catalogue Number	Catalogue 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 or #12 - #6 AWG Al
45–100	#8 - #1 AWG Cu or #6 - #1/0 AWG Al

Alarm and Auxiliary Switch Combination
Catalogue Number
BQDA1BA

Accessories pages 5-69

For inches / millimeters conversion, multiply inches by 25.4.

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

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

① SWD rated for switching 277V AC fluorescent lighting.

② HID rated at 277V AC.

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

④ HACR rated.

⑤ HID rated at 480Y/277V AC.

Type QJ2②

Continuous Current Rating @ 40°C	2-Pole 240V AC Catalogue Number	3-Pole 240V AC Catalogue 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 QJH2②

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 QJ2H②

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 HQJ2④

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

QJ2

Internal Accessories **(Factory installed only)** 3-pole only③.
Add suffix to catalogue number.

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

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 catalogue number.

50°C Calibration - See page 5-67.
400HZ. - See page 5-67.

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 Wire①

Catalogue 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

UL 489 Interrupting Ratings

Breaker Type	AIR @ 240V AC
QJ2	10,000
QJH2	22,000
QJ2H	42,000
HQJ2H	65,000

①See **Note: A** page 5-64.
Note: QJ Breakers are UL Listed for reverse feed applications.
②HACR rated.

③Internal accessories are **not available** on 2-pole QJ breakers.
④HQJ2 is 65kAIC @ 240VAC and 100kAIC @ 208VAC.

Accessories page 5-68

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

Continuous Current Rating @ 40°C	1-Pole 277V AC 125V DC Catalogue Number	2-Pole 480Y/277V AC 125/250V DC Catalogue Number	3-Pole 480Y/277V AC Catalogue Number
15 20 25 30	CQD115②③ CQD120②③ CQD125③ CQD130③	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 Catalogue Number	2-Pole 600Y/347V AC 125/250V DC Catalogue Number	3-Pole 600Y/347V AC Catalogue Number
15	—	CQD6215	CQD6315
20	CQD6120③	CQD6220	CQD6320
25	CQD6125③	CQD6225	CQD6325
30	CQD6130③	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 2 3	65 — —	— 65 65	14 14 14	— — —	14 — —	— 14 —
CQD6 (CSA)	1 2 3	65 — —	— 65 65	— — —	14 14 14	14 — —	— 14 —

Shunt Trip

Control Voltage		CQD, CQD6, NGG Catalogue 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 Catalogue Number
AC	DC		
240	125	1A–1B	CQDA1
240	125	2A–2B	CQDA2

Alarm Switch

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

For inches / millimeters conversion, see Application Data section.

②SWD rated.
③HID rated.
④HACR rated.

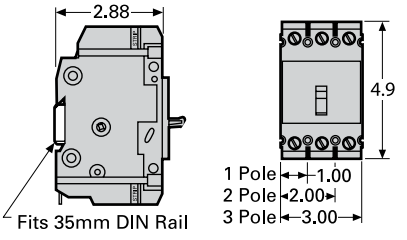
Shipping Weights

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 Combinations

Shunt Trip Voltage		CQD, CQD6, NGG Catalogue 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	Catalogue Number
CQD, CQD6, NGG	CQDA1BA▲

Accessories page 5-68

Ordering Instructions

- All ED Frame Sentron circuit breakers are supplied with load side lugs. If line side lugs are required, add "L" suffix to catalogue number. Consult Siemens sales office for any additional charge.
- 50°C Calibration, 400HZ - see page 5-67. All ED frame circuit breakers may be reverse connected.

Type ED2⑤

Blue Label

Continuous Current Rating @ 40°C	1-Pole 120V AC 125V DC	2-Pole 240V AC 125V DC 250V DC	3-Pole 240V AC
	Catalogue Number	Catalogue Number	Catalogue Number
15	ED21B015④	—	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	2-Pole 480V AC 250V DC	3-Pole 480V AC
	Catalogue Number	Catalogue Number	Catalogue Number
15	ED41B015④	—	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	2-Pole 600V AC 250V DC	3-Pole 600V AC 500V DC
	Catalogue Number	Catalogue Number	Catalogue Number
15	ED61B015	—	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	—	ED63B060
70	ED61B070	—	ED63B070
80	ED61B080	—	ED63B080
90	ED61B090	—	ED63B090
100	ED61B100	—	ED63B100
110	—	—	ED63B110
125	—	—	ED63B125

Note: ED frame circuit breakers qualified to UL 489 Supplement SB "Naval" — See page 5-67 for additional information

①CSA Certified only (Not UL)
②For CED types and all 110–125 ampere ED frames.
③See **Note: A,** page 5-64.
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	Catalogue 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 only	1, 2, 3	Line/Load **TC1ED6150**③	#10–1/0 Cu
Compression Lugs			
All ED, CED		**CCE125**	2/0

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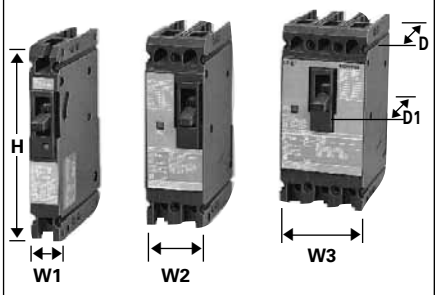
Accessories page 5-68

Type HED4[6]

Black Label

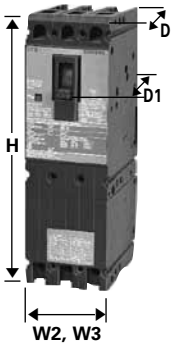
Continuous Current Rating @ 40°C	1-Pole 277V AC 125V DC	2-Pole 480V AC 250V DC	3-Pole 480V AC
	Catalogue Number	Catalogue Number	Catalogue Number
15	HED41B015[1]	HED42B015	HED43B015
20	HED41B020[1]	HED42B020	HED43B020
25	HED41B025	HED42B025	HED43B025
30	HED41B030	HED42B030	HED43B030
35	HED41B035	HED42B035	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

FIGURE1 - ED, HED, HHED



1-POLE 2-POLE 3-POLE

FIGURE 2 - CED (3-Pole shown)



Fuseless Current Limiting Type CED6

Red Label

Continuous Current Rating @ 40°C	2-Pole 600V AC, 250V DC	3-Pole 600V AC, 500V DC[2]
	Catalogue Number	Catalogue Number
15	—	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

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 No.5-02 / UL 489 AIR (File #E10848) RMS Symmetrical Amperes (KA) Volts AC						Volts DC			IEC 947-2 Volts AC (50/60Hz) 220/240		380/415		500	
	120	240	277	347	480	600	125	250	500[2]	Icu	Ics	Icu	Ics	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)	—	—	—	30[5]	—	—	—	—	—	—	—	—	—	—	—
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)	—	—	—	—	—	—

[1] SWD rated.

[2] When wired as shown on page 5-2, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems.

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

[4] ED6-ETI, CED6-ETI, see page 5-50 for ordering information.

[5] Single Pole 15-30A 30KA @ 347V non-ul.
35-100A 18KA @ 347V non-ul.

[6] HACR rated.

Accessories for:

ED 125A Frame

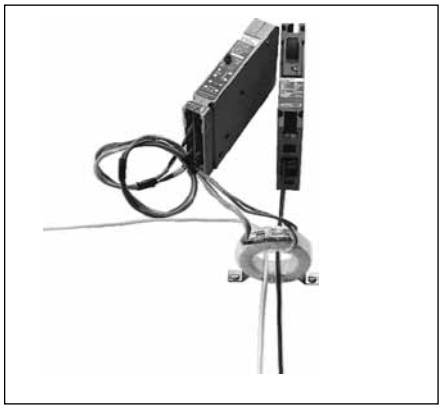
Combinations

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. Adds 1 inch pole space.

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	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue 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	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue 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	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number
240	250	A01ED62	B00ED62	A01ED62B	A02ED62	A02ED62B
480	—	A01ED64	B00ED64	A01ED64B	—	—
—	12	A01EDLV*	Gold Plated Contacts — for PLC use			

Alarm Switch Only

Maximum Voltage		1 Alarm Switch
AC	DC	Catalogue Number
240	250	B00ED62
480		B00ED64

Ground Fault Sensing Relay Kit — Equipment Protection Only

For Use With Breaker Frame	Number of Poles	Description	Catalogue Number	
			30mA	5mA
ED2, ED4, ED6, HED4, CED6	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

Type FXD6-A①⑦

Blue Label

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

Continuous Current Rating @ 40°C	2-Pole② Catalogue Number	3-Pole Catalogue 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 Catalogue Number	Frame Only Catalogue Number	Trip Unit Only Catalogue 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
HFXD6④, HFD6④	100	65	25	30 (2-P)	25 (3-P)	100	50	65	33	42	21
HHFD6④, HHFXD6④	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							
	Low⑦	2	3	4	5	6	7	High⑦
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 5-67 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 (TA1FD350A). When ordered by these catalogue 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 catalogue number (add 2 times list price of lugs for each pole).

50°C Applications see page 5-67.

400 Hz Applications see page 5-67.

Lugs For 75°C Wire⑤

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

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 5-2, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems only.

④See **Note: A**, page 5-64.

⑤HFD6 and HHFD6 type circuit breakers meet the UL criteria for "current limiting" at 240 and 480V AC.

⑥HACR rated.

⑦+/- 20% Tolerance.

Modifications page 5-67
Accessories page 5-68

Type HFD6[5], Type HFXD6[3][4][5][6]

Black Label

Interchangeable Trip			
Continuous Current Rating @ 40°C	Complete Breaker Unassembled with Lugs Catalogue Number	Frame Only Catalogue Number	Trip Unit Only Catalogue 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 DC[1]			
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 HHFD[4], HHFXD6[2][3][4][6]

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 CFD6[3][6]

Fuseless Current Limiting

Red Label

Non-Interchangeable Trip (Assembled Circuit Breaker Without Lugs)	
Continuous Current Rating @ 40°C	3-Pole 600V AC/500V DC Catalogue Number
70	CFD63B070
80	CFD63B080
90	CFD63B090
100	CFD63B100
110	CFD63B110
125	CFD63B125
150	CFD63B150
175	CFD63B175
200	CFD63B200
225	CFD63B225
250	CFD63B250

[1] When wired as shown on page 5-2, 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 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 5-50 for ordering information.

[6] HACR rated.

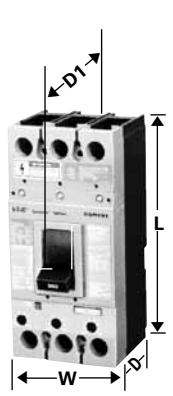


Figure 1

Figure 2

Dimensions (in inches)

Breaker Type	W	L	D	D1 (to handle)
Figure 1 FXD6-A, FD6-A, HFD6, HFXD6, HHFD6, FD6-ETI[5]	4.50	9.50	4	5.25
Figure 2 CFD6, CFD6-ETI[5]	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

Accessories:
FD 250A Frame

Shunt Trip Combinations

Control Voltage		1 Shunt Trip
AC	DC	Catalogue 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
AC	DC	Catalogue Number	Catalogue 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	Catalogue Number	Catalogue Number
240	—	**A01FD62**	**A02FD62**
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	Catalogue Number	Catalogue Number
480	250	**B00FD64**	**C01FD64**

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.

Type JXD2-A⑤

240V AC, 2-pole 250V DC only

Blue Label

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

Type JXD6-A①⑤

600V AC, 2-pole 250V DC, 3-pole 500V DC

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 Catalogue Number	Frame Only Catalogue Number	Trip Unit Only Catalogue 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 22.2 No.5-02 / UL 489 AIR (File E10848)					IEC 947-2					
	Volts AC (50/60Hz)			Volts DC		Volts AC (50/60Hz)					
						220/240		380/415		500	
	240	480	600	250	500②	Icu	Ics	Icu	Ics	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							
	Low⑥	2	3	4	5	6	7	High⑥
200-300	1250	1430	1610	1790	1960	2140	2320	2500
350-400	2000	2290	2570	2860	3140	3430	3710	4000

① Type JXD2 and JXD6 circuit breakers are UL Listed for reverse feed applications.

② When wired as shown on page 5-2, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems only.

③ See **Note: A**, page 5-64.

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

⑤ HACR rated.

⑥ +/- 20% Tolerance.

Note: JD frame qualified to UL489 supplement B "NAVAL." See page 5-67 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 catalogue 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 catalogue 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 catalogue 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 5-67.

400Hz Applications see page 5-67.

Lugs For 75°C Wire③

Catalogue Number	Cables per Lug	Wire Range
TA2J6500	1, 2 2	#3/0-500 kcmil Cu #4/0-500 kcmil Al
TA1L6750	1 1	500-750 kcmil Al 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 5-67
Accessories page 5-68

JD 400A Frame Sentron Series

Type HJD6-A, HJXD6-A②④⑥

Black Label

Interchangeable Trip			
Continuous Current Rating @ 40°C	Complete Breaker Unassembled with Lugs Catalogue Number	Frame Only Catalogue Number	Trip Unit Only Catalogue 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-A②④⑥

Black Label

2-Pole 600V AC (3 Pole Width)			
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 CJD6⑥

Red Label

Fuseless Current Limiting

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 Catalogue 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

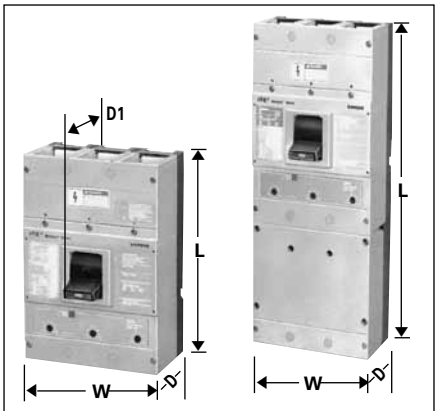


Figure 1 Figure 2

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

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.

2-pole units available in 3-pole construction.

① When wired as shown on page 5-2, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems only.

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

③ JXD6-ETI, CJD6-ETI see page 5-50 for ordering information.

④ Type HJXD6, HHJXD6 Circuit Breakers are CSA Certified / UL listed for reverse fed applications.

⑤ CE applies to non-interchangeable type HJXD only.

⑥ HACR rated.

Type SJD6-A

Blue Label

3-Pole, 600V AC	
Catalogue 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	
Catalogue 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-A

Red Label

3-Pole, 600V AC	
Catalogue 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 SJD6-A

Blue Label

3-Pole, 600V AC	
Catalogue 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 SHJD6-A

Black Label

3-Pole, 600V AC	
Catalogue 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 UL 489 (File E10848)		
	240V AC	**480V AC**	**600V AC**
SJD6-A	65	35	25
SHJD6-A	100	65	35
SCJD6-A	200	150	100

Ordering Information

Pricing information for all Digital Sentron Series SJD frames is for complete breaker only – price required lugs as separate items – lugs are suitable for 75° C wire.

SJD6 and SCJD6 are acceptable for reverse connection application.

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

Shipping Weights

Breaker Type	Number per Carton	Shipping Weight (lbs)
SJD6-A	1	20
SHJD6-A	1	20
SCJD6-A	1	33

Lugs for 75° C Wire①

Catalogue Number	No of Cables per Connector	Wire Range
TA2J6500	2 2	#3/0-500 kcmil Cu #4/0-500 kcmil Al
TA1L6750	1 1	500–750 kcmil 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

Ampere Rating	Catalogue Number
200	**N02SJD**
300	**N03SJD**
400	**N04SJD**

Note: "G" suffix in catalogue 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.

①For additional information, see **Note: A,** page 5-64.
②Refer to the NEC for proper application of 100% rated devices.

Accessories page 5-68

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	Catalogue Number	Catalogue 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	Catalogue Number	Catalogue Number	Catalogue Number
120	—	U01JLD6	U01JLD62A	U01JLD62AA
208	—	U02JLD6	U02JLD62A	U02JLD62AA
240	—	U03JLD6	U03JLD62A	U03JLD62AA
480	—	U06JLD6	U06JLD64A	U06JLD64AA
—	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	Catalogue Number	Catalogue Number
480	250	A01JLD64	A02JLD64
—	12	A01JLDLV	A02JIDLV

Alarm Switch Combinations

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

Plug-in Ammeter Display Units

Breaker Type	Description	Catalogue 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.

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 Catalogue Number	3-Pole 600V AC 500V DC Catalogue Number
450	LXD62B450	LXD63B450
500	LXD62B500	LXD63B500
600	LXD62B600	LXD63B600

Type LD6-A④

Blue Label

Interchangeable Trip

Continuous Current Rating @ 40°C	Complete Breaker Unassembled w/Lugs Catalogue Number	Frame Only Catalogue Number	Trip Unit Only Catalogue 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	500③	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 Low⑤	2	3	4	5	6	7	High⑤
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

① Type LXD6A circuit breakers are CSA Certified / UL Listed for reverse fed applications.
② When wired as shown on page 5-2, this circuit breaker is UL listed and rated for use on 500V DC ungrounded UPS systems only.
③ See **Note: A**, page 5-64.
④ HACR rated.
⑤ +/- 20% Tolerance

Note: LD frame qualified to UL489 supplement SB "NAVAL" See page 5-67 for additional information.

Modifications page 5-67
Accessories page 5-68

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 catalogue 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 catalogue number (add 2 times list price of lugs for each pole).

100% Rated (3-pole only)
Types, LXD6 and HLXD6 breakers are available with 100% ratings. To order add suffix "H" to catalogue 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 5-67.

400Hz Applications see page 5-67.

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 Wire③

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

Type HLD6-A, HLXD6②⑤⑥

Black Label

Interchangeable Trip			
Continuous Current Rating @ 40°C	Complete Breaker Unassembled w/Lugs Catalogue Number	Frame Only Catalogue Number	Trip Unit Only Catalogue 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 DC①⑤			
250	**HLD63B250**	**HLD63F600**	**JD63T250**
300	**HLD63B300**		**JD63T300**
350	**HLD63B350**		**JD63T350**
400	**HLD63B400**		**JD63T400**
450	**HLD63B450**		**LD63T450**
500	**HLD63B500**		**LD63T500**
600	**HLD63B600**		**LD63T600**

Type HHLD6, HHLXD6②⑤⑥

Black Label

2-Pole 600V AC (3 Pole Width)			
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 CLD6⑥

Red Label

Fuseless Current Limiting

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

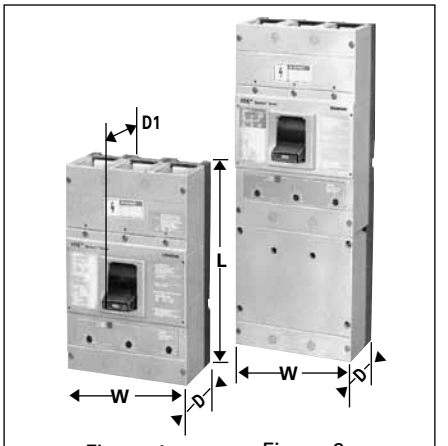


Figure 1 Figure 2

Dimensions (in inches)

Breaker Type	W	L	D	To Handle D1
Figure 1 LXD6-A, LD6-A HLD6-A HHLD6, HHLXD6, LXD6–ETI④	7.5	11	4	5.44
Figure 2 CLD6, CLD6-ETI④	7.5	17.86	4	5.44

For inches / millimeters conversion, see Application Data section

① When wired as shown on page 5-2, 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 5-50 for ordering information.

⑤ CE Applies to non-interchangable type HLXD only.

⑥ HACR rated.

Type SLD6-A

Blue Label

3-Pole, 600V AC	
Catalogue 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	
Catalogue 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-A

Red Label

3-Pole, 600V AC	
Catalogue 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	√	√	√	√	√	√	√	√

Interrupting Ratings

Breaker Type	RMS Symmetrical kA UL 489 (File E10848)		
	240V AC	480V AC	600V AC
SLD6-A	65	35	25
SHLD6-A	100	65	35
SCLD6-A	200	150	100

Ordering Information

Pricing information for all Digital Sentron Series SLD frames is for complete breaker only – price required lugs as separate items – lugs are suitable for 75° C wire.

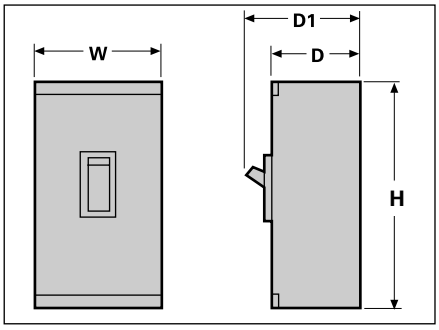
SLD6 and SCLD6 are suitable for reverse connection application.

SHLD6 are <u>not</u> suitable for reverse connection application.

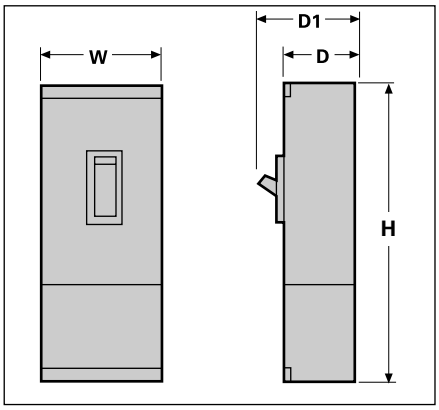
Neutral Transformers

Ampere Rating	Catalogue Number
300	**N03SJD**
400	**N04SJD**
500	**N05SLD**
600	**N06SLD**

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

Note: "G" suffix in catalogue 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, see page 5-33.

100% Rated – Not available in SLD6 Frame.

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	Catalogue Number	Catalogue 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	Catalogue Number	Catalogue Number	Catalogue 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	Catalogue Number	Catalogue Number
480	250	A01JLD64	A02JLD64
—	12	A01JLDLV	A02JLDLV

Alarm Switch Combinations

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

Plug-in Ammeter Display Units

Breaker Type	Descripton	Catalogue 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.

Type LMXD6[1][5]

Blue Label

Non-Interchangeable Trip (Assembled Circuit Breaker without Lugs)		
Continuous Current Rating @ 40°C	2-Pole (3 Pole Width) Catalogue Number	3-Pole Catalogue 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 Catalogue Number	Frame Only Catalogue Number	Trip Unit Only Catalogue 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[6]	2	3	4	5	6	7	High[6]
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 catalogue 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 catalogue number (add 2 times list price of lugs for each pole).

50°C Applications see page 5-67.

400Hz Applications see page 5-67.

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

Catalogue 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

[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 5-2, this circuit breaker is CSA Certified / UL listed and rated for use on 500UDC ungrounded UPS systems only.
[4] See **Note: A**, page 5-64.
[5] HACR rated.
[6] +/- 20% Tolerance

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Type HLMXD6①④

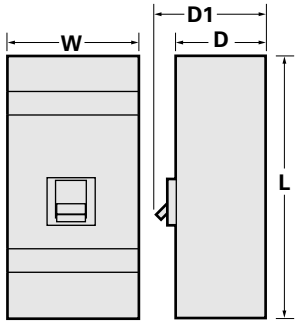
Black Label

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
		Catalogue Number
500 600 700 800	For 2-Pole application use outside poles of 3-Pole circuit breaker.	**HLMXD63B500** **HLMXD63B600** **HLMXD63B700** **HLMXD63B800**

Type HLMD6 ④

Black Label

Interchangeable Trip			
Continuous Current Rating @ 40°C	Complete Breaker Unassembled	Frame Only	Trip Unit Only
	Catalogue Number	Catalogue Number	Catalogue Number
2-Pole 600V AC, 250V DC (3 Pole Width)			
500 600 700 800	**HLMD62B500** **HLMD62B600** **HLMD62B700** **HLMD62B800**	**HLMD62F800**	**LMD62T500** **LMD62T600** **LMD62T700** **LMD62T800**
3-Pole 600V AC, 500V DC⑤			
500 600 700 800	**HLMD63B500** **HLMD63B600** **HLMD63B700** **HLMD63B800**	**HLMD63F800**	**LMD63T500** **LMD63T600** **LMD63T700** **LMD63T800**



Dimensions (in inches)

Breaker Type	W	L	D	D1
LMD6, LMXD6, HLMD6, HLMXD6 LMXD6-ETI②	7.5	16	4.5	5.93

Interrupting Ratings

Breaker Type	UL 489A IR RMS Symmetrical Amperes (KA) Volts AC 240	480	600	Volts DC 250	500④	IEC 947-2 Volts AC (50/60HZ) 220/240 (Icu)	(Ics)	380/415 (Icu)	(Ics)	500 (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

For inches / millimeters conversion, see Application Data section.

① HLMXD6 circuit breakers are UL Listed for reverse connection applications.
② LMXD6-ETI, see page 5-50 for catalogue information.
③ When wired as shown on page 5-2, this circuit breaker is UL listed and rated for use on 500VDC ungrounded UPS systems only.
④ HACR rated.

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	Catalogue Number	Catalogue 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	Catalogue Number	Catalogue Number	Catalogue 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	Catalogue Number	Catalogue Number
480	250	A01JLD64	A02JLD64
—	12	A01JLDLV	A02JLDLV

Alarm Switch Combinations

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

Plug-in Ammeter Display Units

Breaker Type	Description	Catalogue 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.

Type MXD6[1][7]

Blue Label

Non-Interchangeable Trip (Assembled Circuit Breaker Without Lugs)		
Continuous Current Rating @ 40°C	2-Pole[2] Catalogue Number	3-Pole Catalogue Number
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 Catalogue Number	Frame Only Catalogue Number	Trip Unit Only Catalogue Number
2-Pole 600V AC, 250V DC[2]			
500	MD62B500	MD62F800	MD62T500
600	MD62B600		MD62T600
700	MD62B700		MD62T700
800	MD62B800		MD62T800
3-Pole 600V AC, 500V DC[4]			
500	MD63B500	MD63F800	MD63T500
600	MD63B600		MD63T600
700	MD63B700		MD63T700
800	MD63B800		MD63T800

Lugs[5]

Catalogue 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[8]	2	3	4	5	6	7	High[8]
500–600	3000	3430	3860	4280	4710	5140	5570	6000
700–800	4000	4570	5140	5710	6280	6850	7420	8000

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 catalogue 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 catalogue number (add 2 times list price of lugs for each pole).

100% Rated[6]
Types MXD6, HMXD6 and CMD6 breakers are available with 100% ratings. To order add suffix "H" to catalogue 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 5-67.

400Hz Applications see page 5-67.

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

[1] MXD6 circuit breakers are CSA Certified / UL Listed for reverse connection applications.
[2] 2-pole units available in 3-pole width only.
[3] Use 6 connectors for 3-pole, use 4 connectors for 2-pole.
[4] When wired as shown on page 5-2, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems.
[5] See **Note: A**, page 5-64.
[6] 80% rated breakers with the CE mark will also be marked in the 100% rated version.
[7] HACR rated.
[8] +/- 20% Tolerance.
Note: MD frame qualified to UL489 supplement B "NAVAL" See page 5-67 for additional information.

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MD 800A Frame Sentron Series

Type HMXD6[1][5]

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
		Catalogue Number
600 700 800	For 2-pole application use outside poles of 3-pole circuit breaker	HMXD63B600 HMXD63B700 HMXD63B800

Type HMD6[5]

Black Label

Interchangeable Trip			
Continuous Current Rating @ 40°C	Complete Breaker Unassembled with Lugs	Frame Only	Trip Unit Only
	Catalogue Number	Catalogue Number	Catalogue Number
2-Pole 600V AC, 250V DC[2]			
500 600 700 800	HMD62B500 HMD62B600 HMD62B700 HMD62B800	HMD62F800	MD62T500 MD62T600 MD62T700 MD62T800
3-Pole 600V AC, 500V DC[4]			
500 600 700 800	HMD63B500 HMD63B600 HMD63B700 HMD63B800	HMD63F800	MD63T500 MD63T600 MD63T700 MD63T800

Type CMD6[5]

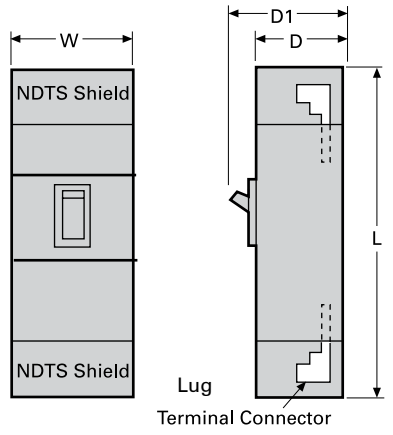
Fuseless Current Limiting

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
		Catalogue Number
500 600 700 800	For 2-pole application use outside poles of 3-pole circuit breaker	CMD63B500 CMD63B600 CMD63B700 CMD63B800

Interrupting Ratings

Breaker Type	UL 489 AIR—File E10848 RMS Symmetrical Amperes (KA) Volts AC 240	480	600	Volts DC 250	500[4]	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.

[1] HMXD6 circuit breakers are CSA Certified / UL listed for reverse connection applications.
[2] 2-pole units available in 3-pole width only.
[3] MXD6-ETI, CMD6-ETI see page 5-50 for catalogue information.
[4] When wired as shown on page 5-2, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems only.
[5] HACR rated.

SMD 800A Frame – 100% Rated①

Current Limiting

Type SMD6

Blue Label

3-Pole, 600V AC	
Catalogue 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	
Catalogue 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

Type SCMD6-A

Red Label

3-Pole, 600V AC	
Catalogue 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

SMD 800A Frame – 100% Rated①

Current Limiting

Type SMD6

Blue Label

3-Pole, 600V AC	
Catalogue 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

Black Label

3-Pole, 600V AC	
Catalogue 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

Type SCMD6-A

Red Label

3-Pole, 600V AC	
Catalogue 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	65	50	25
SHMD6	100	65	50
SCMD6	200	100	65

Note: "G" suffix in catalogue 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.

① Use 2-3TA4P8500 for 3-pole. These kits are rated for 90°C wire. 90°C Cu cable must be used, and sized per 75°C ampacity.
② For additional information, see **Note: A**, page 5-64.
③ SMD6, SHMD6 and SCMD6 circuit breakers are UL Listed for reverse connection applications.

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 6.1.4.2.1 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

Catalogue 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	500–750 kcmil Cu/Al
3TA3N8750	3	500–750 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	Catalogue Number
600	**N06SMDA**
700	**N07SMDA**
800	**N08SMDA**

Accessories page 5-68

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	Catalogue Number	Catalogue 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	Catalogue Number	Catalogue Number	Catalogue 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	Catalogue Number	Catalogue Number
480	250	A01MN64	A02MN64
—	12	A01MNDLV	A02MNDLV

Alarm Switch Combinations

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

Plug-in Ammeter Display Units

Breaker Type	Description	Catalogue Number
SMD, SND, SPD	Display Unit	SADU
	Remote Mounting Kit	SADURMK18

Type NXD6[1][9]

Blue 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
	Catalogue Number	Catalogue 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	Frame Only	Trip Unit Only
	Catalogue Number	Catalogue Number	Catalogue Number
2-Pole 600V AC, 250V DC[2]			
800	ND62B800	ND62F120	MD62T800
900	ND62B900		ND62T900
1000	ND62B100		ND62T100
1200	ND62B120		ND62T120
3-Pole 600V AC, 500V DC[5]			
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	500[3]	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	—	—
HND6, HNXD6	100	65	50	30 (2-P)	50 (3-P)	100	50	65	33	—	—
CND6	200	100	65	—	50 (3-P)	—	—	—	—	—	—

Instantaneous Adjustment Trip Range

Breaker Ampere Rating	Nominal Instantaneous Values							
	Low[10]	2	3	4	5	6	7	High[8]
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 catalogue 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 catalogue number (add 2 times list price of lug kit).

100% Rated[8]
Types NXD6, HNXD6 and CND6 breakers are available with 100% ratings. To order, suffix "H" to catalogue 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 5-67.

400Hz Applications see page 5-67.

Lugs[7]

Catalogue 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)		
2TA4P8500[4] **3TA4P8500**[4]	4	250-500 kcmil Cu/Al
2TA4N8500[6] **3TA4N8500**[6]	4	250-500 kcmil Cu/Al
2TA2N8750 **3TA2N8750**	2	500-750 kcmil Cu/Al
2TA3N8750 **3TA3N8750**	3	500-750 kcmil Cu/Al

[1] NXD6 circuit breakers are UL listed for reverse connection applications.
[2] 2-pole units available in 3-pole width only.
[3] When wired as shown on page 5-2, this circuit breaker is CSA Certified / UL listed and rated for use on 500VDC ungrounded UPS systems only.
[4] Use 6 connectors for 3-pole, use 4 connectors for 2-pole.
[5] Use 2 – 3TA4P8500 kits for 3-pole, or 2 – 2TA4P8500 kits for 2-pole. Rated for 90°C cable. Use for 100% rated breakers.
[6] Use 2 – 3TA4N8500 for 3-pole or 2 – 2TA4N8500 for 2-pole. Rated for 75°C cable.
[7] See **Note: A**, page 5-64.
[8] 80% rated breakers with the CE mark will also be marked in the 100% rated version.
[9] HACR rated.
[10] +/- 20% Tolerance.
Note: ND frame qualified to UL489 supplement B "NAVAL" See page 5-67 for additional information.

Modifications page 5-67
Accessories page 5-68

Type HNXD6①④

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
		Catalogue Number
900 1000 1200	For 2-pole application use outside poles of 3-pole circuit breaker	HNXD63B900 HNXD63B100 HNXD63B120

Type HND6④

Black Label

Interchangeable Trip			
Continuous Current Rating @ 40°C	Complete Breaker Unassembled with Lugs	Frame Only	Trip Unit Only
	Catalogue Number	Catalogue Number	Catalogue 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			
800 900 1000 1200	HND63B800 HND63B900 HND63B100 HND63B120	HND63F120	MD63T800 ND63T900 ND63T100 ND63T120

Type CND6①④

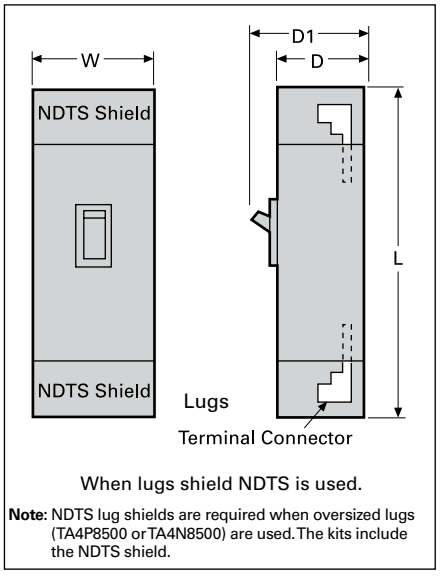
Fuseless Current Limiting

Red Label

Non-Interchangeable Trip (Assembled Circuit Breaker)		
Continuous Current Rating @ 40°C	2-Pole	3-Pole
		Catalogue 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 3	1 1	53 61.5
ND6, HND6 Frame Only		
2 3	1 1	42.25 46
ND6, HND6 Trip Unit Only		
2 3	1 1	4.5 6.5



When lugs shield NDTS is used.

Note: NDTS lug shields are required when oversized lugs (TA4P8500 or TA4N8500) 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.

① HNXD6 and CND6 circuit breakers are CSA Certified / UL Listed for reverse connection applications.
② 2-pole units available in 3-pole width only.
③ When wired as shown on page 5-2, this circuit breaker is UL listed and rated for use on 500V DC ungrounded UPS systems only.
④ HACR rated.

SND 1200A Frame – 100% Rated①

Current Limiting

Type SND6

Blue Label

3-Pole, 600V AC	
Catalogue 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	
Catalogue 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

Type SCND6-A

Red Label

3-Pole, 600V AC	
Catalogue 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

SND 1200A Frame – 100% Rated①

Current Limiting

Type SND6

Blue Label

3-Pole, 600V AC	
Catalogue 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 SHND6

Black Label

3-Pole, 600V AC	
Catalogue 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

Type SCND6-A

Red Label

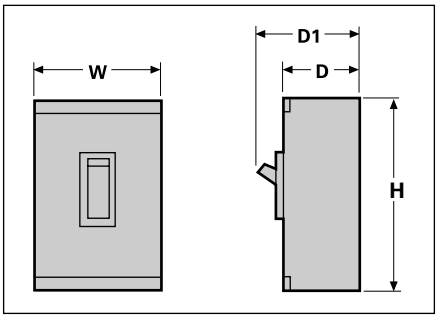
3-Pole, 600V AC	
Catalogue Number	**Max Current Rating**
SCND69800AH	800
SCND69100AH	1000
SCND69120AH	1200
SCND69800AGH	800
SCND69100AGH	1000
SCND69120AGH	1200
SCND69800ANTH	800
SCND69100ANTH	1000
SCND69120ANTH	1200
SCND69800ANGTH	800
SCND69100ANGTH	1000
SCND69120ANGTH	1200

Trip Unit Adjustable Functions

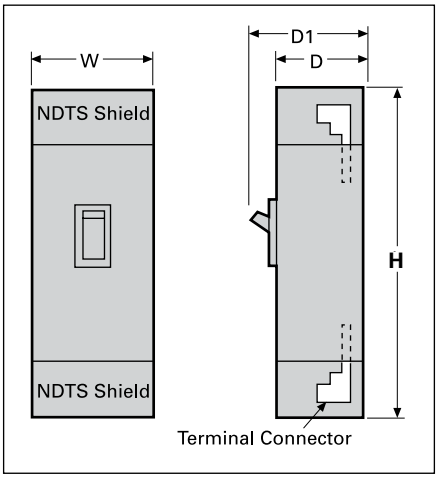
Suffix Letter Code	Trip Type	Cont Current Setting	Long Time Delay	Instan-taneous Setting	Short Time Pick Up	Short Time Delay	Short Time I^2t Pick Up	Ground Fault Pick Up	Ground Fault Delay
A	LI	√	√	√	—	—	—	—	—
AG	LIG	√	√	√	—	—	—	√	√
ANT	LSI	√	√	√	√	√	√	—	—
ANGT	LSIG	√	√	√	√	√	√	√	√

Neutral Transformers

Ampere Rating	Catalogue Number
800	**N08SMDA**
1000	**N10SNDA**
1200	**N12SNDA**



SMD6, SHMD6, SCMD6, SND6, SHND6, SCND6



When wire connector shield NDTS is used.

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, see page 5-64.

Note: "G" suffix in catalogue 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.

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 ampacity.

② SND6, SHND6 and SCND6 circuit breakers are UL Listed for reverse connection applications.

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 phase current flowing in the 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	Catalogue Number	Catalogue 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	Catalogue Number	Catalogue Number	Catalogue 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	Catalogue Number	Catalogue Number
480	250	A01MN64	A02MN64
—	12	A01MNDLV	A02MNDLV

Alarm Switch Combinations

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

Plug-in Ammeter Display Units

Breaker Type	Description	Catalogue Number
SMD, SND, SPD	Display Unit	SADU
	Remote Mounting Kit	SADURMK18

Type PXD6② Non-Interchangeable Trip⑤

3-Pole 600V AC, 250-500V DC①

Blue Label

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

Type PD6 Interchangeable Trip⑤

3-Pole 600V AC, 250-500V DC①

Blue Label

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

Type HPXD6② Non-Interchangeable Trip⑤

3-Pole 600V AC, 250-500V DC①

Blue Label

Continuous Current Rating @ 40°C	Complete Breaker Assembled (Frame/Trip Unit Only) Catalogue Number
1200	HPXD63B120
1400	HPXD63B140
1600	HPXD63B160

Type HPD6 Interchangeable Trip⑤

3-Pole 600V AC, 250-500V DC①

Black Label

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

Type CPD6 Non-Interchangeable Trip⑤

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

Red Label

Continuous Current Rating @ 40°C	Complete Breaker Assembled (Frame/Trip Unit Only) Catalogue Number
1200	CPD63B120
1400	CPD63B140
1600	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 catalogue 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 (3-Pole only)

Types PXD6, HPXD6 breakers are available with 100% ratings. To order add suffix "H" to catalogue number, and 10% to list price. 100% PD breakers require 90˚ C cable sized at 75˚ C ampacity and TC5R600 lugs. RD 2000A Frames not available with 100% ratings.

50°C Applications see page 5-67.

400HZ Applications see page 5-67.

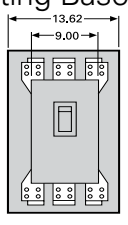
Lugs (6 required per breaker)④

Catalogue Number	No of Cables per Connector	Wire Range
TA5P600	1-5	300-600 kcmil Cu/Al
TC5R600	1-5	300-600 kcmil Cu only
TA4P750	1-4	500-750 kcmil Cu/Al
TA6R600	1-6	300-600 kcmil Cu/Al

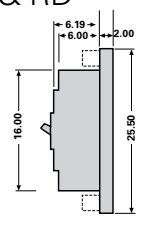
Interrupting Ratings

Breaker Type	UL 489 A IR RMS Symmetrical KA Volts AC 240	480	600	Volts DC① 250	500
PD6, PXD6	65	50	25	30 (2P)	25 (3P)
HPD6, HPXD6	100	65	50	30 (2P)	50 (3P)
CPD6	200	100	65	30 (2P)	50 (3P)

Mounting Bases for PD & RD



MB9301



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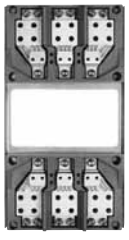
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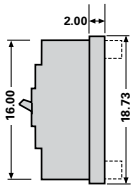
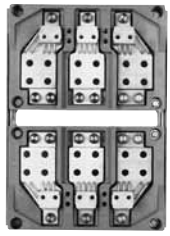


MBR9302


MBR9302

① Use two outside poles of a 3-pole circuit breaker for 250V
② When wired as shown on page 5-2, this circuit breaker is CSA Certified / UL listed and rated for use on 500V DC ungrounded UPS systems only.
③ PXD6, HPXD6 and CPD6 type circuit breakers are UL Listed for reverse feed applications.
④ For additional information See **Note: A**, page 5-64.
⑤ HACR rated.

Note: PD frame qualified to UL489 supplement B "NAVAL". See page 5-67 for additional information.

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	
Catalogue 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	
Catalogue 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

Catalogue 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

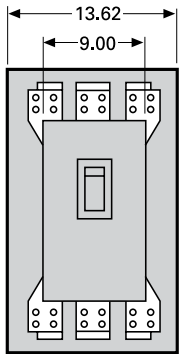
Neutral Transformers

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

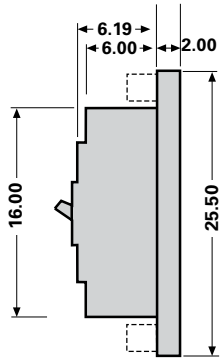
Mounting Block (Required)②

Catalogue Number
MB9301
MBR9302

All PD, RD Frames:

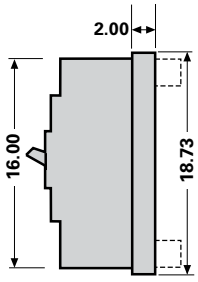


MB9301 (shown)
MBR9302



MBR9301

MB9301



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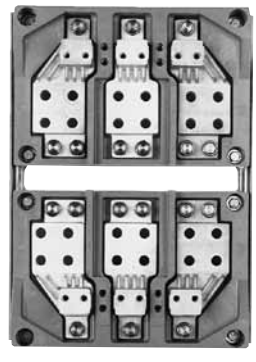


MBR9302

For inches / millimeters conversion, see Application Data section.

① For additional information, see **Note: A,** page 5-64.

② The PD frame circuit breaker requires the use of a connect-all mounting assembly to allow for placing into service.

Note: "G" suffix in catalogue 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.

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 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	Catalogue Number	Catalogue 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	Catalogue Number	Catalogue Number	Catalogue 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	Catalogue Number	Catalogue Number
480	250	A01MN64	A02MN64
—	12	A01MNDLV	A02MNDLV

Alarm Switch Combinations

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

Plug-in Ammeter Display Units

Breaker Type	Description	Catalogue Number
SMD, SND, SPD	Display Unit	SADU
	Remote Mounting Kit	SADURMK18

Type RXD6④

3-Pole 600V AC, 250-500V DC① — Blue Label

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

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

Type RD6④

3-Pole 600V AC, 250-500V DC① — Blue Label

Interchangeable Trip (Unassembled Circuit Breaker with Lugs)

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

Type HRXD6④

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

Type HRD6④

Black Label

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

Interrupting Ratings

Breaker Type	UL 489 A IR RMS Symmetrical KA Volts AC 240	480	600	Volts DC① 250	500
RD6, RXD6	65	50	25	30 (2P)	25 (3P)
HRD6, HRXD6	100	65	50	30 (2P)	50 (3P)

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

Mounting Block⑥

Catalogue Number	Connection Points
MB9301	Front
MBR9302	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

Lugs (6 required per breaker)⑤

Catalogue Number	No of Cables per Connector	Wire Range
TA5P600	1-5	300-600 kcmil Cu/Al
TC5R600	1-5	300-600 kcmil Cu only
TA6R600	1-6	300-600 kcmil Cu/Al

①Use two outside poles of a 3-pole circuit breaker for 250V DC applications.
②When wired as shown on page 5-2, 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.
⑤For additional information See **Note: A**, page 5-64.
Note: RD frame qualified to UL489 supplement B "NAVAL". See page 5-67 for additional information.
⑥For required mounting base (MB9301 or MBR9302) see page 5-49.

Breaker Type	Ampere Rating	Instantaneous Trip Range② Minimum③	Instantaneous Trip Range② Maximum③	Complete Circuit Breaker Without Lugs Catalogue Number 2-Pole	Complete Circuit Breaker Without Lugs Catalogue 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 catalogue 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 page 5-64
Accessories page 5-68
Application data page 5-51

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% for lowest setting. All other settings are -20%/+20%.

④ For 2-pole application use outside poles of 3-pole circuit breaker.

Motor Circuits

Application

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

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

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

Note: Lowest instantaneous settings have a -20%/+30% tolerance and all other settings have a -20%/+20% tolerance.

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	Catalogue Number	Ampere Rating	Breaker Type	Catalogue Number	Ampere Rating	Breaker Type	Catalogue Number	Ampere Rating	Breaker Type	Catalogue 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 JD6③	**FD63B250** **JD63B250**	250 250	FXD6, FD6	**FD63B175**	175
125	LD6③ or LMD6	**LD63B600** **LMD63B600**	600	LD6③ or LMD6	**LD63B500** or **LMD63B500**	500	JD6③	**JD63B300**	300	FXD6, FD6 OR JD6③	**FXD63B200** **JD63B200**	200 200
150	LD6③ or 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	—	—	—	—	—	—	LD6③ or LMD6	**LD63B600** or **LMD63B600**	600	JD6③	**JD63B400**	400
350	—	—	—	—	—	—	LMD6	**LMD63B700**	700	LD6③ or LMD6	**LD63B500** or **LMD63B500**	500
400	—	—	—	—	—	—	LMD6	**LMD63B800**	800	LD6③ or 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.

Molded Case Circuit Breakers

Adjustable Instantaneous Magnetic Trip Settings

Application

Breaker Type	Maximum Continuous Amperes	Nominal AC Adjustable Trip Range								ETI Motor Circuit Protector Catalogue Number	Thermal Magnetic Catalogue 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 (7.3). 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.

Molded Case Circuit Breakers

Adjustable Instantaneous Magnetic Trip Settings

Application

Breaker Type	Maximum Continuous Amperes	Nominal AC Adjustable Trip Range								ETI Motor Circuit Protector Catalogue Number	Thermal Magnetic Catalogue 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**

Molded Case Circuit Breakers

Adjustable Instantaneous Magnetic Trip Settings

Application

Breaker Type	Maximum Continuous Amperes	Nominal AC Adjustable Trip Range								ETI Motor Circuit Protector Catalogue Number	Thermal Magnetic Catalogue 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 Circuit Breakers

Molded Case Switch — Circuit Disconnect

Selection

Maximum Frame Amp Rating	2-Pole Catalogue Number	3-Pole Catalogue Number	Self-Protective Instantaneous Override±20%③
100	**BQ2S060** **BQ2S100**	**BQ3S060** **BQ3S100**	1000 1000
125	**ED22S100A** **ED42S100A** **ED42S125A** **ED62S100A** **—** **CED62S100A** **CED62S125A**	**ED23S100A** **ED43S100A** **ED43S125A** **ED63S100A** **ED63S125A** **CED63S100A** **CED63S125A**	1000 1000 1000 1000 1000 1000 1000
225	**QJ22S225A**	**QJ23S225A**	2000
250	**FXD62S250A** **HFXD62S250A** ①	**FXD63S250A** **HFXD63S250A** **CFD63S250A**	3200 3200 3200
400	**JXD22S400A** **—** **—** ①	**JXD23S400A** **JXD63S400A** **HJXD63S400A** **CJD63S400A**	6000 6000 6000 6000
600	**—** **—** ①	**LXD63S600A** **HLXD63S600A** **CLD63S600A**	6000 6000 6000
800	**—** **—** ①	**LMXD63S800A** **MXD63S800A** **CMD63S800A**	8000 8000 8000
1200	**—** ①	**NXD63S120A** **CND63S120A**	10000 10000
1600	①	**PXD63S160A**⑤	10000
2000	①	**RXD63S200A**⑤	10000

Ordering Information

Order by catalogue number. Switches include frame and self protective trip unit only. Order lugs separately from page 5-64.

① For 2-pole application use outside poles of 3-pole circuit breaker.
② For additional lugs see page 5-64.
③ Molded case switches up to R frame contain a self protecting instantaneous element, which may open circuit above their override set point.
⑤ Requires mounting block MB9301 or MBR9302.

Lugs pages 5-64
Accessories page 5-68

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.

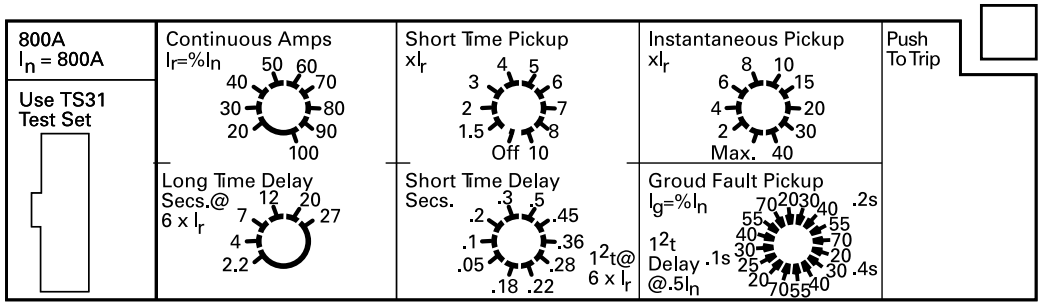
Functions available in Sentron Sensitrip circuit breakers.

Catalogue 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	√	√	√	√	√	√	√	√

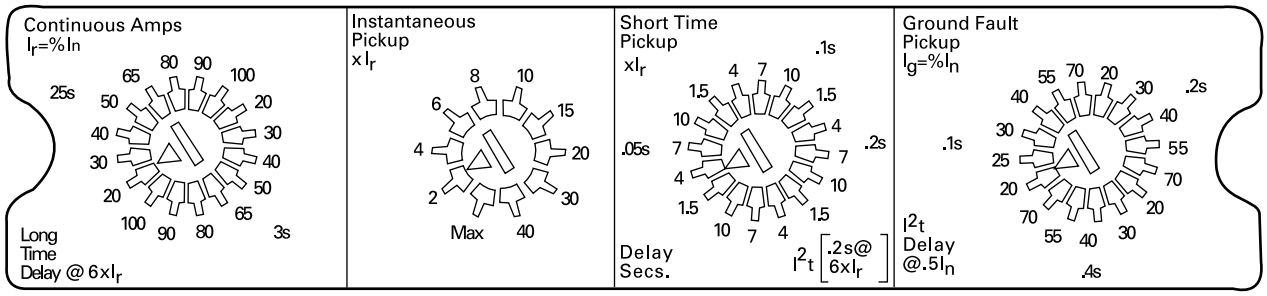
Letter "A" is used for MD and ND Solid State frame types only.

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

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



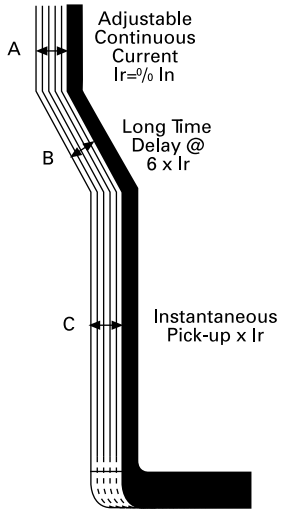
SJD6, SHJD6, SCJD6, SCD6, SHLD6, SCLD6



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.



A. Adjustable "Continuous Amps" Rating Switch

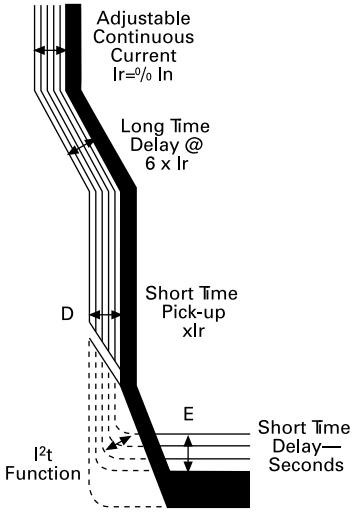
All Sensitrip III solid state molded case circuit breakers have an adjustable ampere rating switch. Adjustments made to this switch change the continuous current rating of the breaker from 20% to 100% of its maximum trip unit rating depending on the circuit breaker frame.

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).

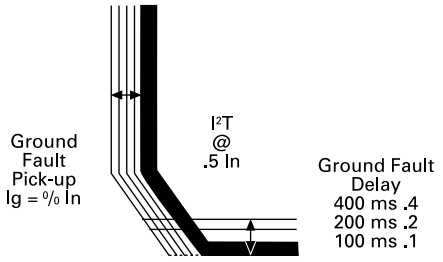


D. Adjustable "Short Time Pick-Up" Switch (Optional)

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 1^2t 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

Catalogue 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

Catalogue 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.

WL Power Circuit Breakers

3-pole, up to 5000A

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 are delivered 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
- 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 and the UL489 Frame Size I which measures only 15" in height to allow six-high stacking in switchboards.

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

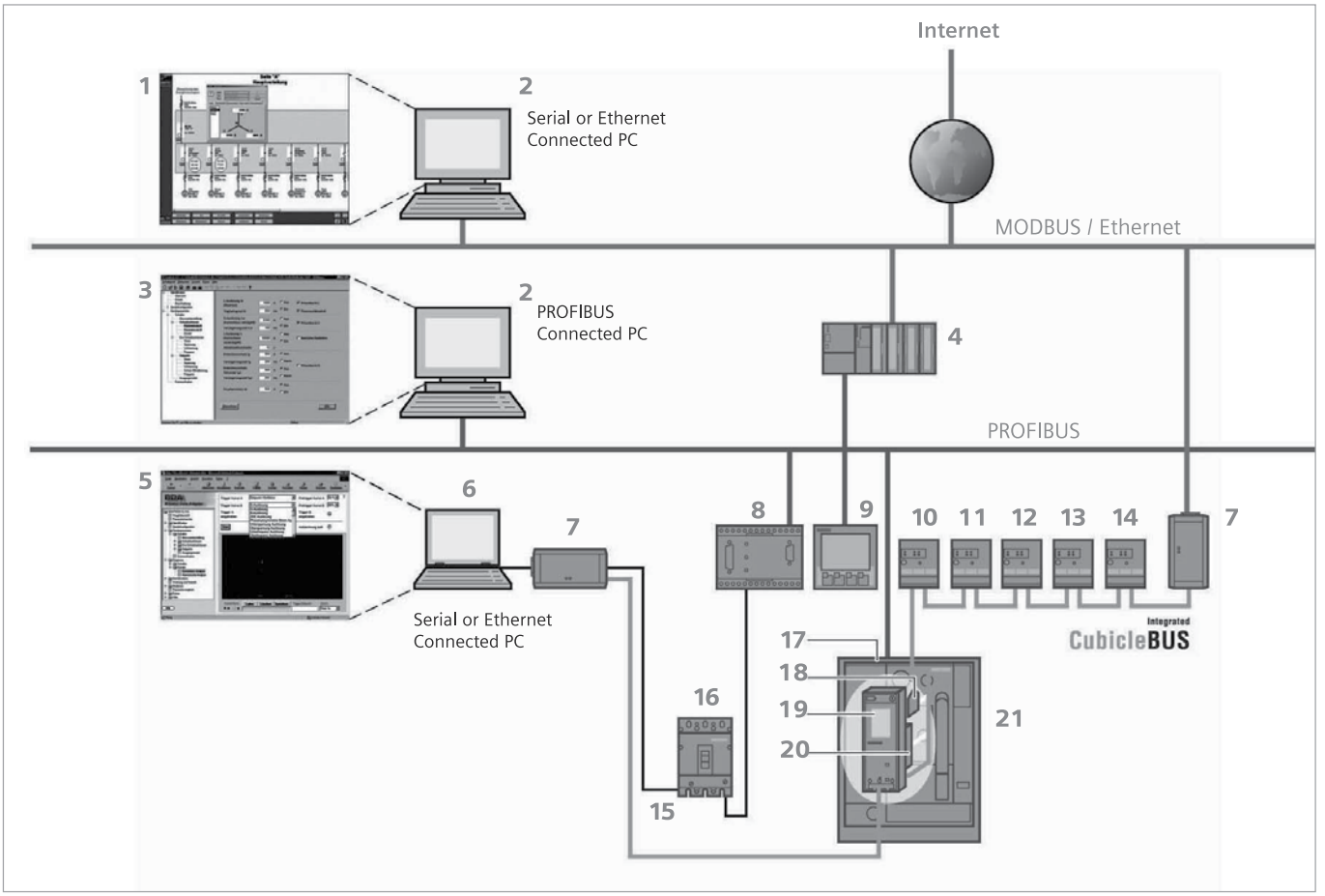
Common guide frames for the draw-out version make them completely interchangeable between the UL 489 and ANSI / UL 1066 rated circuit breakers. Components, such as auxiliary releases, motorized operating mechanisms, trip units, current sensors, auxiliary signal switches, automatic reset devices or interlocks 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.



A spectrum of power distribution communication

1 WinPM.Net software
2 Server or desktop PC
3 Switch ES power software
4 PLC
5 BDA web server
6 Portable PC
7 Breaker data adapter (BDA)
8 COM10 PROFIBUS module or COM11 MODBUS module
9 Power metering device
10 Zone selective interlock
11 Digital input module
12 Analog output module
13 Digital output module
14 Relay output module
15 VL CubicleBus network
16 VL feeder breaker
17 Input power and communication terminals
18 Breaker status sensor (BSS)
19 Trip unit display
20 Metering function
21 WL power breaker

Trip Unit Functions

Basic Protective Functions		ETU745	ETU748	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 776 trip unit allows 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

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 776 trip unit, 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

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 & Display Devices

Trip Unit Test Set

Type	Catalogue 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

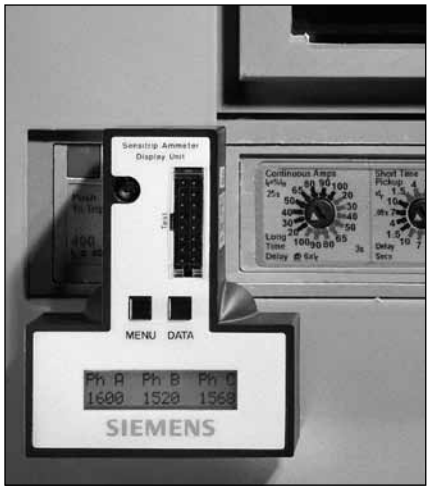
Breaker Type	Catalogue Number
SJD, SLD, SMD,	**SADU**
SND, SPD	**SADURMK18**

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

Lug information

Mechanical Lug

Selection

For Use With Type(s)	Circuit Breaker Ampere Rating	Cables Per Lug	Lug Wire Range	Catalogue 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**①② (Pkg. of 6)
	50–100	1 1	#8–#1 AWG Cu #6–#1/0 AWG Al	**TA1Q1**② (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	#14–#6 AWG Cu #12–#6 AWG Al	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	TNKG3④ (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 table 6.1.4.2.1 per CSA C22.2 No5.02 standard.

(B) Connector wire ranges and cavities are established in conjunction with Table 6.1.4.2.1 of UL 489 standards.

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

Selection

For Use With Type(s)	Circuit Breaker Ampere Rating	Cables Per Lug	Lug Wire Range	Catalogue 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	#1–500 kcmil (Cu or Al)	**TA2K500**
		1–3	1/0–500 kcmil (Cu or Al)	**TA3K500**
ND6, NXD6, SND6, HND6, HNXD6, SHND6, CND6, SCND6	800–1200	1–4	250–500 kcmil (Cu or Al)	**2TA4P8500**②③ **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	1200–2000	1–6	300–600 kcmil (Cu or Al)	**TA6R600**

① Use TA2K500 or TA3K500 only.
② Contains 2 connectors plus 1 NDTS end barrier.
③ Contains 3 connectors plus 1 NDTS end barrier.

Lug information

Optional Mechanical Lugs

Selection

For Use With Type	Circuit Breaker Ampere Rating	Cables Per Lug	Lug Material	Lug Wire Range	Qty per Cat. #	Catalogue 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	200–600	1 1–2	Cu	3/0–600 kcmil (Cu) 3/0–500 kcmil (Cu)	1 1	**TC1J6600**① **TC2J6500**①
	250–600	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	Catalogue 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 AWG Cu/AL	**CCE125**
QJ2, QJH2, QJ2-H	125–225	2, 3	1	350 kcmil Cu/AL	**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**

Distribution Lugs②

For Circuit Breaker Types	Ampere Rating	Poles	Lugs Per kit	Wires Per Lug	Lug Wire Size	Catalogue Number
NGG	15-125	1,2,3	1	6	#6-#4 AL #14-#4 Cu	**TA6GG04**
NEG, HEG	15-125	1,2,3	3	3	#14-#2 AWG Cu	**3TA3EG02**
NEG, HEG	15-125	1,2,3	3	6	#14-#6 AWG Cu	**3TA6EG06**
ED2, ED4, ED6, HED4, HHED6, CED6	15-125	1,2,3	1	6	#14-#4 AWG Cu #6-#4 AWG Al	**TA6ED06**
F(X)D6-A, HF(X)D6, HHF(X)D6, CFD6	70-250	2,3	1	6	#14-#4 AWG Cu #6-#4 AWG Al	**TA6FD04**
JXD2-A, J(X)D6-A, HJ(X)D6-A, HHJ(X)D6-A, CJD6-A, SJD6, SHJD6-A, SCJD6, L(X)D6-A, HL(X)D6-A, CLD6-A, SLD6-A, SHLD6-A, SCLD6	200-600	2,3	1	6	#14-2/0 AWG Cu #6-2/0 AWG Al	**TA6JD20**

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

② Special purpose wire connectors, not for general use.

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.

Modifications①

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 catalogue number (Example: B120M)

For BQ, QJ2, and ED Frame Circuit Breakers
— Replace 'B' in catalogue 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 catalogue number with 'M' (Example: FXD63M225, JXD63M400)
Interchangeable Trip (trip unit only, 3–pole only)
— Replace 'T' in catalogue 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 catalogue number

Not UL Listed
For all other Circuit Breakers — Add suffix 'Y' to catalogue 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 Information①

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

① Consult sales office for pricing.

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, 2	—	—	—	—	—
BQD, CQD, NGG	1	2, 3	1	1/1	—	—	—	—			1, 2	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	—	—	—

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

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

External Accessories

Handle Ties

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

For Use With Breaker Frame(s)	Catalogue Number	Standard Package	Wt Lb/ Std Pkg
BQ, BQH, HBQ, B6, BLH, HBL (2 Pole)	**QTH3**	50	1/4

Padlocking Devices

For locking breaker in "OFF" position.

BQXD, BQ, BQH, HBQ, BL, BLH, HBL	**ECQLD3**	10	1/4
One pole BL, BLF, BE, BAF	**ECPLD1**	3	1/4
Two-pole BL, BLF and BE	**ECPLD2**	3	1/4
All QJ	**HL9419**	10	1/4
All BQD, CQD	**BQDPLD**	1	1/8
All ED	**ED2HPL**	1	1/4
All FD	**FD6PL1**	1	1/4
All JD, LD, LMD	**JD6HPL**	1	1/4
All MD, ND, PD, RD	**MN6PLD**	1	1/4

Filler Plates

BQ, BQH, HBQ, BL, BLH, HBL	**QF3-UL**	1	1/4

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	1/4
QJ2, QJH2, QJ2H, HQJ2H	**QJHS1**	25	1
All BQD, CQD, NGG	**BQDHBD**	1	1/4
All ED	**E2HBL**	1	1/4
All FD	**FD6HB1**	1	1/2
All JD, LD, LMD	**JD6HBL**	1	1/2
All MD, ND, PD, RD	**MN6BL**	1	1/2

Handle Extensions

For replacement. One extension shipped with breaker.

All MD, ND, PD, RD	**EX11**	1	2

Replacement Terminal Cover

NGG	**RTCG3**	10	1/4

ECQTH3

FD Padlocking Device FD6PLI

Padlocking Device ECQLD3

Filler Plate QF3-UL

FD Handle Blocking Device FD6HB1

Handle Blocking Device ECQL1

Handle Extension EX11

① Sold only in standard package quantities.

Mounting Clips

For Use With Breaker Frame(s)	Number of Poles	Catalogue Number	Standard Package	Wt Lb Std Pkg
BQ, BQH	1	**MB120**	20⑦	1/4

Face Mounting Plates

BQ, BQH, BQXD	1 2 3	**FP9508** **FP9555** **FP9556**	10⑦ 10⑦ 10⑦	1/2 1 1 1/2
CQD, CQD6	1 2 3	**CQDFMB1** **CQDFMB2** **CQDFMB3**	1 1 1	1/4 1/4 1/4
BQ-GFCI	1	**FP9558**	10⑦	1
NGG	1 2 3	**FMPG1** **FMPG2** **FMPG3**	**1** **1** **1**	1/4 1/4 1/4

Shallow Mounting Brackets

BQ, BQH	1–6	**SMB6**	30⑦⑧	1 1/4

Back Mounting Plates

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

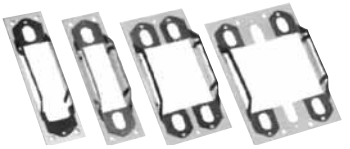
Mounting Screw Kits

CQD, CQD6	**CQDSMK**①	1	1 1/4
All ED (CED6 requires 2 kits)	**MSE6**① **MSE6100**②	1 100⑦	1/4 1
NNG	**MSKG2**	1	1/4
All QJ	**MSQJ**①	1	1
All FD (CFD6 requires 2 kits)	**MSF6**① **MSF650**③	1 50⑦	1/4 1
All JD, LD	**MSJ6**①	1	1/4
All LMD	**MSLMD**	1	1/4
All MD, ND,	**MSMN**	1	1/4
All PD, RD	**MSPR6**	1	2

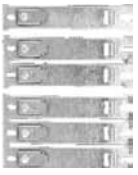
"MI" Mechanical Interlocks

For Use With Breaker Type(s)	Panel⑨ Mounted	Plug-in Mounted	Standard Package	Wt Lb Std Pkg
BQ	—	**ECQML12**	10⑦	1/4
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**④	—	—
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

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

Rotary Door Mounted Operating Handles⑤

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

For Use With Breaker Frames	Complete Mechanism Catalogue Number		Handle Only	Breaker Operator	Shaft Only	
	Standard Depth	Variable Depth	Catalogue Number	Catalogue Number	Length (inches)	Catalogue Number
EG	**RHVE64X**	**RHVE124X**	—	—	—	—
ED①	**CRHOESD**	**CRHOEVD**	**CRHOH③**	**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**	**RHONBO④**	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	Variable Depth	Handle and Shaft	Breaker Operator
	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number
CQD, NGG	—	**RHOCQVD**	**RHOH62**	**CQDOP**
ED	**D11CEU1**	**D11CEU2**	—	—
FD	**D11CFU1**	**D11CFU2**	—	—
JD, LD, LMD	—	**D11CJU2**	—	—

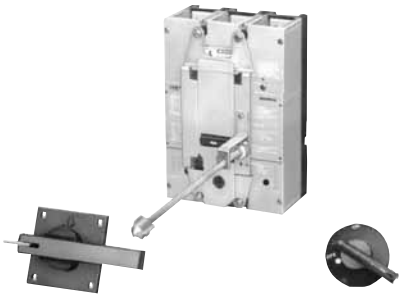
Through Door Mounted Operating Handles

Types 1 & 12

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

Door Latch Kits

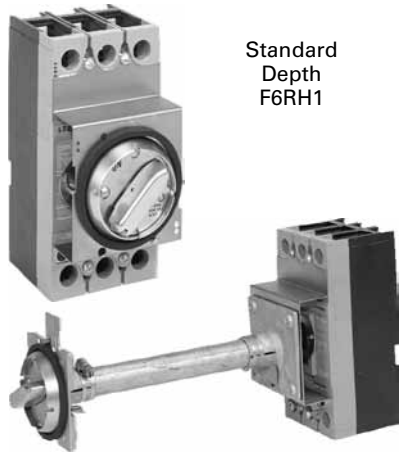
Type	Catalogue Number Right Hand	Catalogue Number Left Hand
2 point latch	**DKR2**	**DKL2**
3 point latch	**DKR3**	**DKL3**



RHOH CRHOH

D11CEU2

Rotary Door Mounted Operating Handles



Standard Depth F6RH1

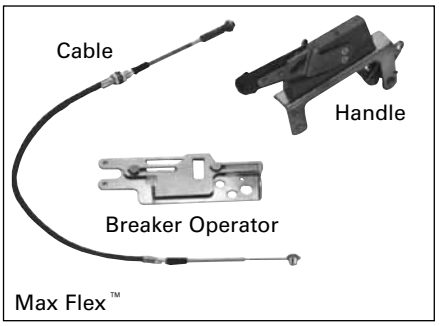
Variable Depth F6RHV9

① For use on 3-pole ED frame only.
② Meets the requirements of NFPA 79, section 5.3.3.1 for locking external operator disconnecting devices.
③ For 3 or 3R, order shaft and breaker operator as shown, and handle RHOH. For 4 & 4X, order handle **RHOH4**.
④ For extended shaft support order catalogue number **RHONSB2**.
⑤ Consult Siemens Sales Office for NFPA-79 Compliance.

Max-Flex™, Flange Mounted Variable Depth Operators[3]

Frames	NEMA Type	Complete Kit Catalogue Number	Handle Only Catalogue Number	Breaker Operator Catalogue Number	36" Cable Catalogue Number
NGG	1, 3 (R), 12	**MFKG3R3**	**MFHM3R**	**MFMG**	**MFCF036**
	4 (x)	**MFKG4X3**	**MFHM4X**		
ED	1, 3 (R), 12	**FHOE036**[1]	**FHOH**	**FHOEBO**[1]	**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**	**FHONC048**[2]
	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 components separately, appending the letter "i" to the catalogue number (e.g. FHOHI).



Max Flex™

Alternate Length Cable Only

Inches	ED Catalogue Number	FD Catalogue Number	JD/LD/LMD Catalogue Number	MD/ND/PD/RD Catalogue 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 (Form C).

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


FDFBFR

Fixed Depth Flange Mounting

Frames	Minimum Enclosure Depth	NEMA Type	Left Hand Mount Catalogue Number	Right Hand Mount Catalogue 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 components separately, appending the letter "i" to the catalogue number (e.g. FHOHI).

[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.

[3] Meets requirements of NFPA 79, section 5.3.3.1 for locking external operator disconnecting devices

Telemand® Motor Operator

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

ED motor operator opens downward.

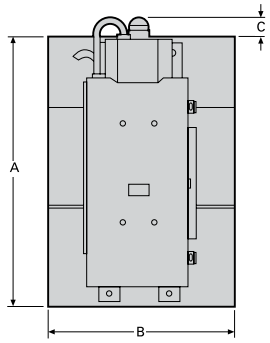
Breaker Frame	DC Voltage	Hinged to Open Right	AC Voltage	Hinged to Open Right
FD	24 48 125	**MOF6024DC** **MOF6048DC** **MOF6125DC**	120 240 —	**MOF6120** **MOF6240** —
JD, LD	24 48 125	**MOJ6024DC** **MOJ6048DC** **MOJ6125DC**	120 240 —	**MOJ6120** **MOJ6240** —
LMD	24 48 125	**MOLMD6024DC** **MOLMD6048DC** **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 catalogue number (e.g. MOF6120L).

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

Dimensions

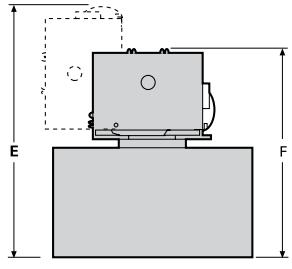
Frame	A	B	C	D	E	F
ED	7.04	4.31	—	4.31	13.84	8.84
FD	9.50	4.55	1.60	6.84	9.70	7.58
JD, LD, LMD	11.00	7.50	0.79	8.34	9.85	7.74
MD, ND, PD, RD	16.00	9.00	—	9.83	13.13	10.13



Front View

Operating Currents

Catalogue 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

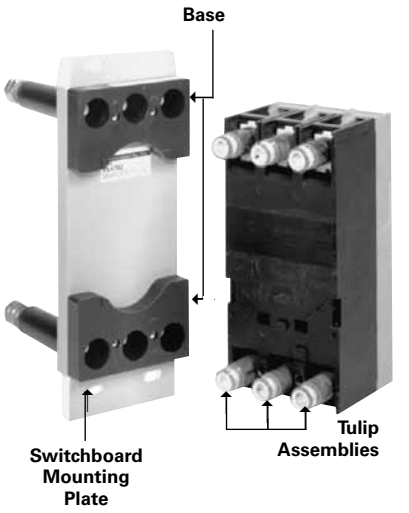


Bottom View

For inches / millimeters conversion, see Application Data section.

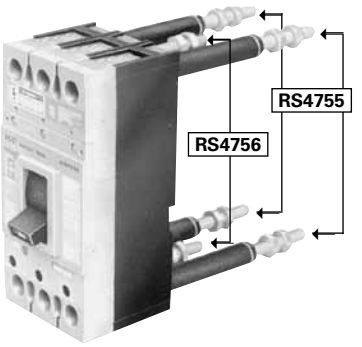
Plug-In Mounting Assemblies, Including Base and Tulip Assemblies

For Use With Breaker Frames	Poles	Line Side Catalogue Number[2]	Load Side Catalogue Number[2]	Steel Switchboard Mounting Plate[1] Catalogue 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 Catalogue Number	3 Pole Catalogue Number
ED	TCE2▲	TCE3▲
FD	TCF2▲	TCF3▲
JD	TCJ2▲	TCJ3▲
LD	TCL2▲	TCL3▲
MD	TCM2▲	TCM3▲
ND	TCN2▲	TCN3▲

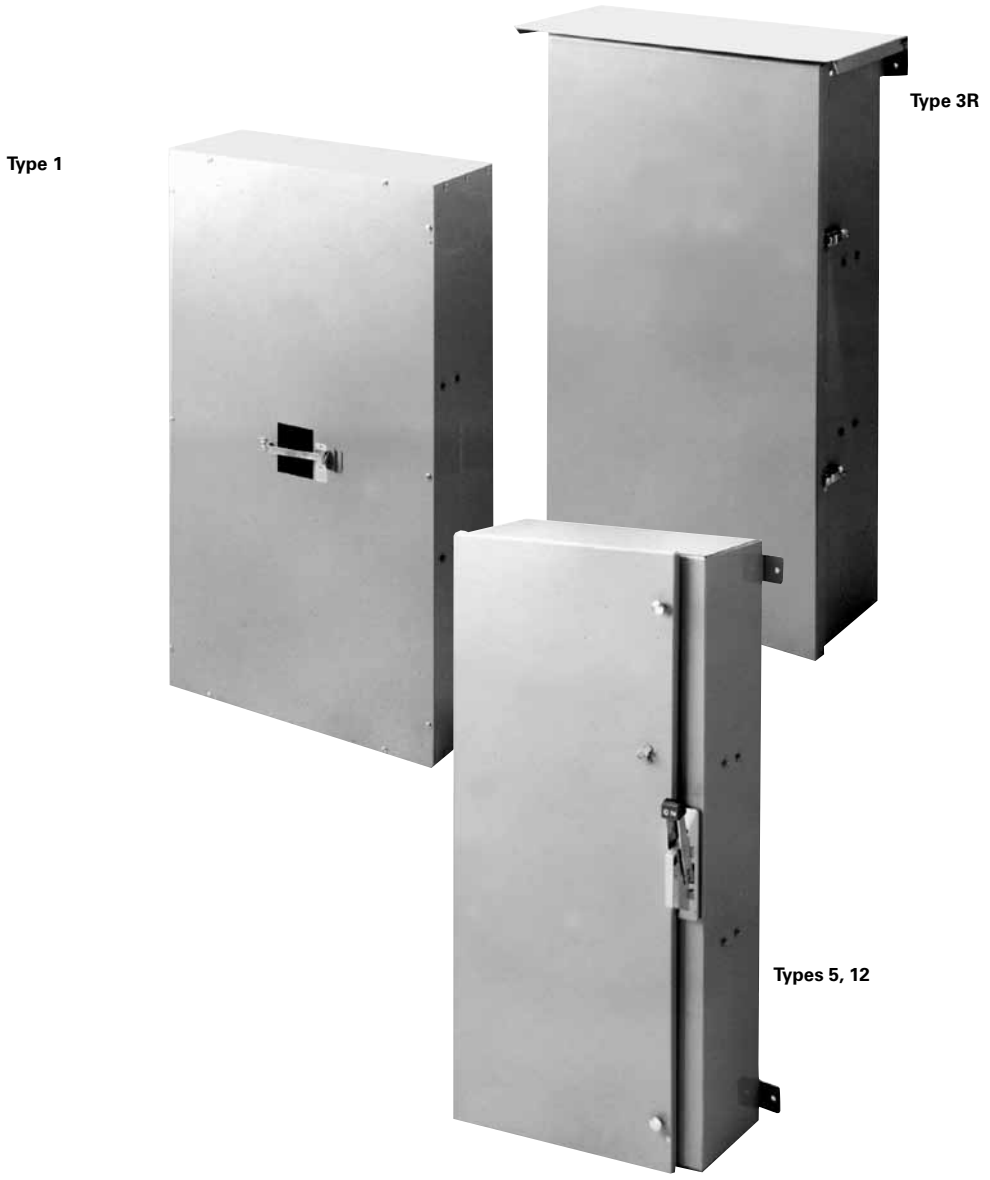


Circuit Breaker
With Rear-Connecting Studs

Rear-Connecting Studs

For Use With Breaker Frames	Ampere Rating	Description	Extension Behind Breaker (inches)	Line Side Catalogue Number	Load Side Catalogue 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[3]▲	—
	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 catalogue 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).



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

Enclosed Circuit Breakers

Enclosed Breaker Nomenclature

General

Sample Part Numbers:	E	3R	QJ	2	2	B	60	H	A	—
	I	II	III	IV	V	VI+	VII	VIII+	IX+	X+
	E	12	JXD	6	3	B*	200	H	—	—
	I	II	III	IV	V	VI+	VII	VIII+	IX+	X+
	E	1S	SHJD	6	9	—	400	NGTH	A	N
	I	II	III	IV	V	VI+	VII	VIII+	IX+	X+

I	**Basemodel Start with E**		
Placeholder Position Options			
II	May be replaced by 1S, 1F, 12, 3R or 4X		
III	May be replaced by BQ, BQH, HBQ		
	May be replaced by QJ, QJH, QH		
	May be replaced by ED, HED, HHED, CED		
	May be replaced by FD, FXD HFXD, HFD, HHFD, HHFXD, CFD		
	May be replaced by JD, JXD, HJD, HJXD, HHJD, HHJXD. CJD		
	May be replaced by FD, FXD JD, JXD, SJD, SHJD, SCJD		
	May be replaced by LD, LXD, HLD, HLXD. HHLD, HHLCD, CLD, SLD, SHLD, SCLD		
	May be replaced by MD, MXD, HMD, HMXD, CMD, SMD, SHMD, SCMD		
	May be replaced by ND, NXD, HND, HNXD, CND, SND, SHND, SCND		
IV	May be replaced by 2, 4, 6		
V	May be replaced by 2, 3, 9		
VI+	May be replaced by B, M, S, L, A, H, * If option not present omitted		
VII	May be replaced by :		
	QJ	Frame	060,070,080, 090,100, 110, 125, 150, 175, 200, 225
	ED		015, 020, 025, 030, 040, 045, 050, 060, 070, 080, 090, 100, 110, 125
	FD		070, 080, 090, 100, 110, 125, 150, 175, 200, 225, 250
	JD		200, 225, 250, 300, 350, 400
	LD		300, 400, 450, 500, 600
	MD		600, 700, 800
	ND		900, 1000, 1200
VIII+	May be replaced by A, AG, ANT, ANGT, AH, AGH, ANTH, G, GH, NT, NTH, NGT, NGTH, if option+ not present position omitted		
IX+	A: Consist of breaker internal accessories and Neutral Sensor, + If option not present position omitted		
X+	N: Suitable for service entrance,+ If option not present position omitted		

The enclosed breakers are factory assembled. Each enclosed breakers assembly includes the selected type of enclosures, circuit breakers, standard lugs, and optional Neutral* assembly and accessories.

*except BQ, QJ and ED enclosures.

Dimensions

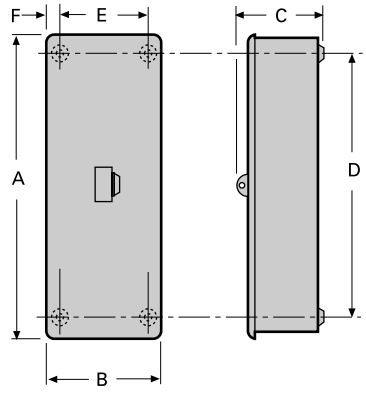


Figure 1

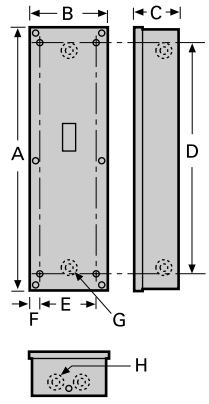


Figure 2

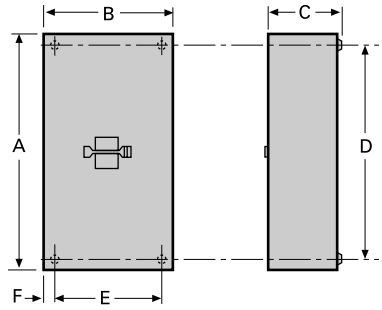


Figure 3

Type 1

Fig. No.	Breaker Type	Number of Poles	Maximun Current Rating	Catalogue⑨ 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	17 1/8	7 1/8	4 3/4	14 1/6	1 5/16	1 5/16	—	—
2	ED2, ED4, ED6, HED4, HED6	2–3	100	**E2N1S**④ **E2N1F**④	8 8	162 3/32 17 1/2	7 1/2 8 1/2	5 1/16	13 45/64	5 1/4	1	7/8, 11/8, 13/8, 13/4,2	
	ED4, ED6, HED4, HED6, CED6		125	**CED6N1S**④⑥ **CED6N1F**④⑥	14 14	21 15/32 22 1/4	7 19/32 8 1/2	5 7/64	18 1/4				
	FXD6, FD6, FXD6-A, FD6-A, HFD6, HFXD6, HHFD6, CFD6		250	**F6N1S**③ **F6N1F**③	33	381 3/32	11 15/32	5 1/16	33	8	13 3/64	11/8, 13/8, 13/4, 2, 21/2, 3	
3	JXD2(A), JD6(A), JXD6(A), HJD6(A), HJXD6(A), HHJD6, HHJXD6, SJD6(A), SHJD6(A), SXD6H		400	**J6N1**③	120	40 13/64	22 27/64	10 45/64	36	18 1/4	2 5/64	—	—
	LD6(A), LXD6(A), HLD6(A), HLXD6(A), HHLD6, HHLXD6, SLD6(A), SHLD6(A), SCJD6, SCLD6, LXD6H		600	**LD6N1**③ **(L6N1)**③	101	46			42			—	—
	MD6, MXD6, SMD6, HMD6, HMXD6, SHMD6, ND6, NXD6, SND6, HND6, HNXD6, SHND6, CMD6, SCMD6, CND6, SCND6		1200	**MND61**③	132	60		10	55 7/8			—	—

For inches / millimeters conversion, see Application Data section.

①Surface mounted, indoor. If flush mounting is required, replace suffix "S" in catalogue number with suffix "F". Also, if outdoor model required, use prefix "W" instead of "E".
② Does not include circuit breaker. Order circuit breaker separately.
③ Neutral not included. Order as separate item from table on next page.
④ Neutral included in enclosure.
⑤ Surface mounted, indoor. If outdoor model is required, use prefix "W" instead of "E". Not available in flush ("F") model.
⑥ Use for 110-125 ampere ED4, ED6, HED4 or HED6 circuit breakers.
⑦ Will not accept breaker with shunt trip.
⑧ Will not accept 2-pole GFCI or breaker with shunt trip.
⑨ Items cannot be ordered seperately. See configuration.

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

Dimensions

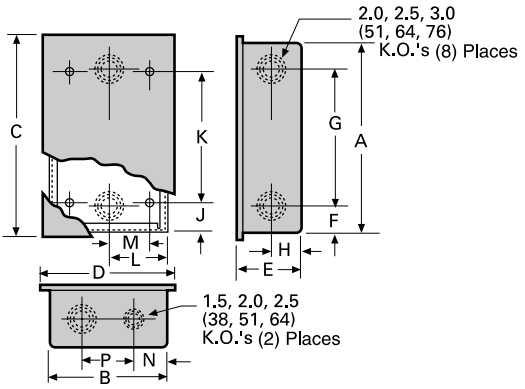


Figure 4

Fig. No.	Breaker Type	Number of Poles	Maximun Current Rating	Catalogue③ 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** **EB3225F**	15	27	$10^{1/8}$	27 $28^{1/8}$	$10^{1/8}$ $11^{1/4}$	$5^{1/4}$	$21^{3/16}$	$21^{3/8}$	$2^{3/8}$	3	20	$5^{1/16}$	$2^{3/4}$	$4^{1/2}$

Neutrals

Enclosure Catalogue Number	Neutral Catalogue 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

For inches / millimeters conversion, see Application Data section.

① Does not include circuit breaker. Order circuit breaker separately.
② Neutral included in enclosure.
③ Items cannot be ordered seperately. See configuration.

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

Dimensions

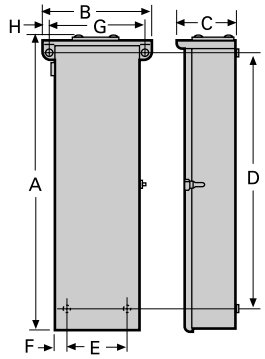


Figure 1

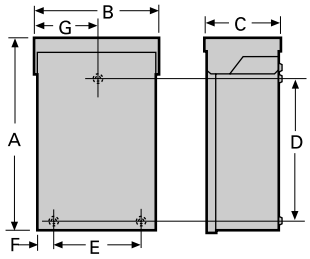


Figure 2

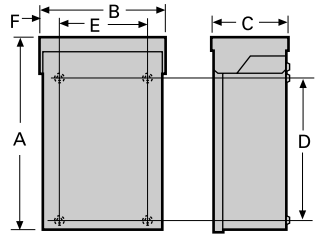


Figure 3

Type 3R

Fig. No.	Breaker Type	Number of Poles	Maximun Current Rating	Catalogue⑤ Number	Weight Lb./Ship. Package	Dimensions (inches)							
						A	B	C	D	E	F	G	H
2	BQ, BQH, HBQ	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 CED6	2–3	100 125	**E2N3R**③ **CED6N3R**③	12 16	17 9/16 22 21/64	7 1/4	5 1/4	12 39/64 17 3/8	5 1/4	1	3	—
1	FXD6, FD6, FXD6-A, FD6-A, HFD6, HFXD6, HHFD6, CFD6		250	**F6N3R**②	45	38 1/8	14 1/16	7 3/4	33 9/32	8	13⁄16	13 1/2	13⁄16
	JXD2(A), JD6(A), JXD6(A), HJD6(A), HJXD6(A), HHJD6, HHJXD6, SJD6(A), SHJD6(A), SXD6H		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
	LD6(A), LXD6(A), LXD6H, HLD6(A), HLXD6(A), HHLD6, CLD6, SCJD6(A), SLD6(A), SHLD6(A)		600	**LD6N3R**②	127	45 63/64			40 3/4				
	MD6, MXD6, SMD6, HMD6, HMXD6, SHMD6, ND6, NXD6, SND6, HND6, HNXD6, SHND6, CMD6, SCMD6, CND6, SCND6		1200	**MND63**②	210	61 9/64			57 17/32			24 5/8	1 1/16

For inches / millimeters conversion, see Application Data section.

① Does not include circuit breaker. Order circuit breaker separately.
② Neutral not included. Order as separate item from table on next page.
③ Neutral included in enclosure.
④ Will not accept breaker with shunt trip.
⑤ Items cannot be ordered seperately. See configuration.

Dimensions

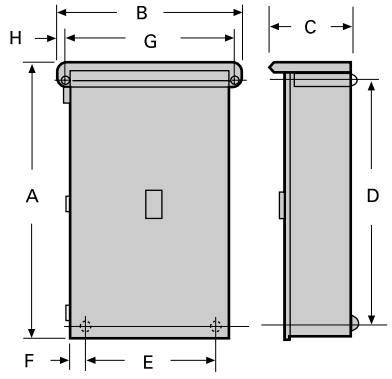


Figure 4

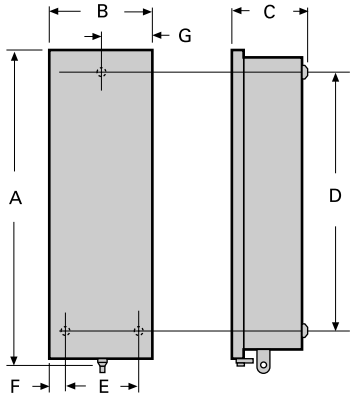


Figure 5

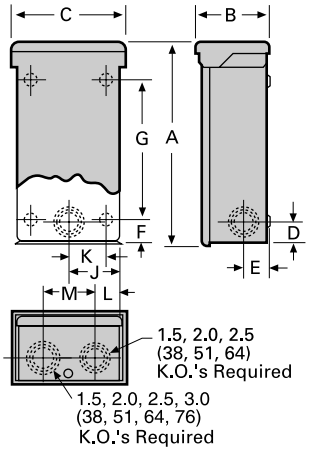


Figure 6

Fig. No.	Breaker Type	Number of Poles	Maximun Current Rating	Catalogue⑤ 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	**WB2225** **WB3225**	17	27	5 $5^{5/8}$	$7^{11/16}$ $10^{3/8}$	$2^{1/4}$	2	$2^{7/8}$	20	$4^{1/8}$	$3^{5/8}$ $5^{1/8}$	$2^{3/4}$		— $4^{1/2}$

Neutrals

Enclosure Catalogue Number	Neutral Catalogue Number	Neutral Cable Capacity and Wire Range
E2N3R③	**W53045**③	(1 pc.) #14–2 Cu/Al Grd. Lug (1 pc.) #14–8 Cu/Al
CED6N3R④		
F6N3R②	**N250**	(1 pc.) #6–350 kcmil Grd. Lug (1 pc.) #14–2/0 Cu/Al
JD6N3R②	**W60992**	(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**	(2 pcs.) #1/0–600 kcmil Grd. Lug (1 pc.) #6–250 kcmil Cu/Al
MND63②	**W63623**	(8 pcs.) 250 kcmil–500 kcmil Cu/Al Grd. Lug (1 pc.) #6–300 kcmil Cu/Al

Hubs — see page 5-82

For inches / millimeters conversion, see Application Data section.

① Does not include circuit breaker. Order circuit breaker separately.
② Neutral not included. Order as separate item from table on next page.
③ Neutral included in enclosure.
④ Use CED enclosure for all ED-frame 110-125 ampere units.
⑤ Items cannot be ordered seperately. See configuration.

Fig. No.	Breaker Type	Number of Poles	Maximun Current Rating	Catalogue⑤ 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
5	CED6		125	**CED6N12**③	16	22 5/8			22		5/8
1	FXD6, FD6, FXD6-A, FD6-A, HFD6, CFD6		250	**F6N12**②	40	38 19/32	14 29/64	8 1/8	34	13	22/32
	JXD2(A), JD6(A), JXD6(A), HJD6(A), HJXD6(A), HHJD6, HHJXD6, SJD6(A), SHJD6(A)		400	**J6N12**②	104	40	25 35/64	11 7/8	36	25 35/64	—
	LD6(A), LXD6(A), HLD6(A), HLXD6(A), HHLD6, HHLXD6, SLD6(A), SHLD6(A), CJD6, CLD6, SCJD6(A), SCLD6(A)		600	**LD6N12**② **(L6N12)**		45			41		—
	MD6, MXD6, SMD6, HMD6, HMXD6, SHMD6, ND6, NXD6, SND6, HND6, HNXD6, SHND6, CMD6, SCMD6, CND6, SCND6		1200	**MND612**②	220	60	37 3/8	10	5/8	3	2

Dimensions

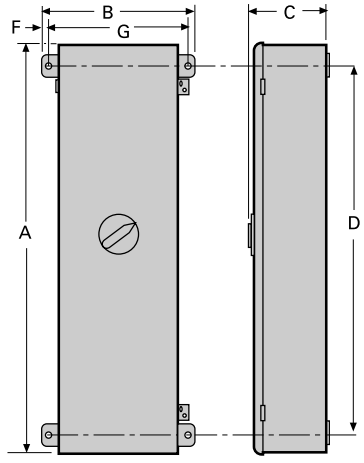


Figure 1

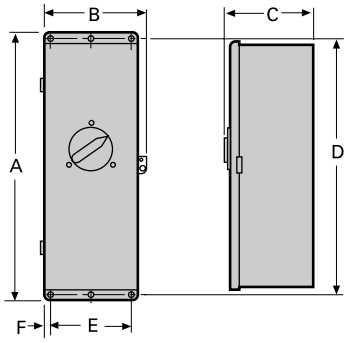


Figure 2

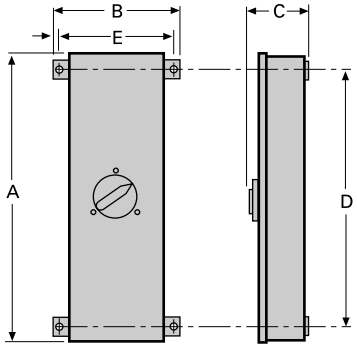


Figure 3

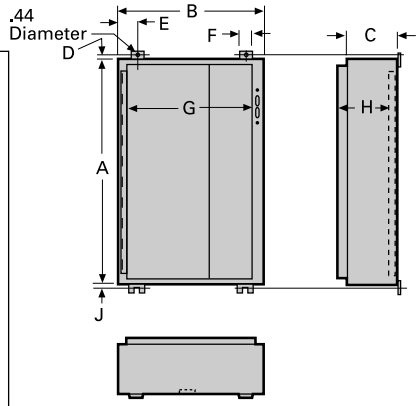


Figure 4

Neutrals

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

For inches / millimeters conversion, see Application Data section.

① Does not include circuit breaker. Order circuit breaker separately.
② Neutral not included. Order as separate item.
③ Neutral included in enclosure.
④ Use CED enclosure for all ED-frame 110–125 ampere units.
⑤ Items cannot be ordered seperately. See configuration.

Knockouts & Wire Bending Space

Breaker Type	Conduit Range Per Knockout Outside Dimensions (inches)	Types 1, 12				Type 3R				Maximum Cable Sizes Recommended (Cu/Al) for Type 1, 3R, 4, 4X, 12 & 12K Enclosures③②
		Number of Knockouts Per Panel (type 12 have no KO's)								
		Top	Bottom	Side	Back	Bottom	Side	Back	Maximum Hub Size (inches) Type 3R	
BQ, BQH, HBQ 70–100A	3/4, 1, 1 1/4	1	1	2	2	8	1	3	2	②
QJ	1 1/2, 2, 2 1/2, 3	2	2	2	2	2	1	1	2 1/2	②
ED2, ED4, ED6, HED4	7/8, 1 1/8, 1 3/8, 1 3/4, 2	2	2	2	2	2	1	1	2	②
CED6	7/8, 1 1/8, 1 3/8, 1 3/4, 2 7/8, 1 1/8, 1 3/8, 1 3/4, 2, 2 1/2	— 2	— 2	— 2	— 2	2 —	— 1	— 1	2	(CFD6 only 300 kcmil)②
FXD6, FD6, FXD6-A, FD6-A, HFD6, CFD6	1 1/8, 1 3/8, 1 3/4, 2, 2 1/2, 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)	1 1/2, 2, 2 1/2, 3, 3 1/2, 4	1	1	2	④	—	—	—	④	(2) 500 kcmil
LXD6(A), LD6(A), HLXD6(A), HLD6(A), HHLD6, HHLXD6, SLD6(A), SHLD6(A)	1 1/2, 2, 2 1/2, 3, 3 1/2, 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)	Catalogue Number
BQ, BQH, HBQ, ED2, ED4, ED6, HED4, HED6, CED6	3/4 1 1/4 1 1/2 2	**ECHR075** **ECHR100** **ECHR125** **ECHR150** **ECHR200**
QJ2, QJH2, QJ2-H	1 1/4 1 1/2 2 2 1/2	**ECHS125** **ECHS150** **ECHS200** **ECHS250**
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)	2 1/2 3 3 1/2 4	**ECHV250** **ECHV300** **ECHV350** **ECHV400**

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 Application Data section.

① 17 1/8" 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.

Introduction

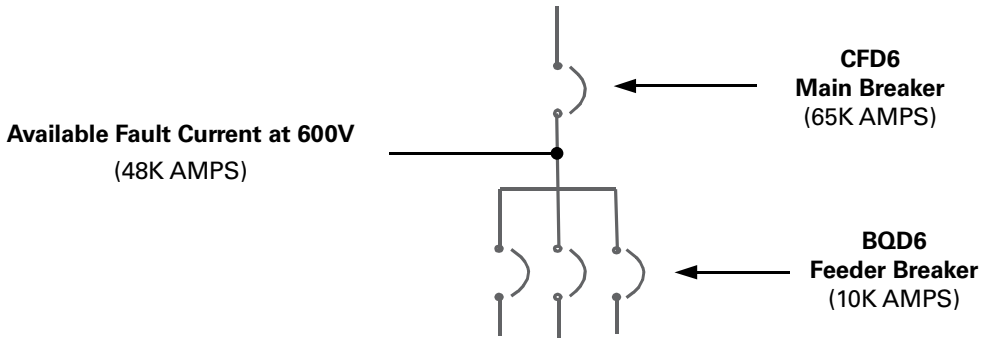
The short circuit protection devices of most common electrical distribution systems have interrupting ratings higher than the respective available fault current. These are known as **Fully Rated Systems**. Fully rated protection devices are essential for main or upstream but not essential for branch 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

Seriers rated systems (Fig.1) have at least two tested and certified seriers 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.

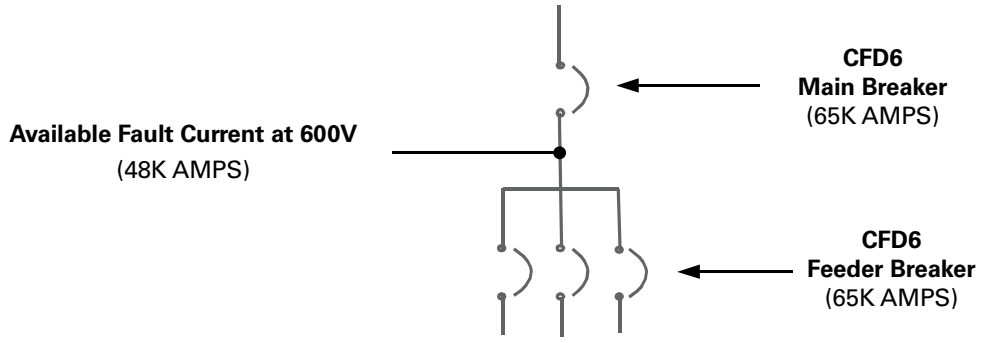
Figure 1



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.

Figure 2



Standards Guiding Series Rated Combinations

Canadaian 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 section 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.

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.

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.

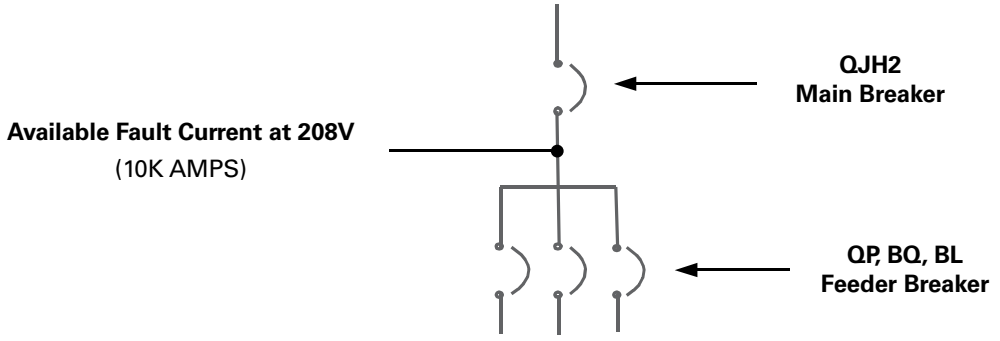
From the Branch Breaker column select the type based on the required ampere rating and number of poles. In some cases more than one option may be available. (QP, BQ, BL)

IC/CI KA	Main Breaker / Disjoncteur principal		Branch Breaker / Disjoncteur de branchement			Max Voltage (AC/CA)
	Type	Ams (Poles)	Type	# PolesA	mps	
22	QJH2	60 - 225 (2 & 3)	QP, BQ, BL	11	5 - 70	120/240
				21	5 - 125	240
				36	0 - 100	240
			QPF,BQF BLF, QE, BE, BLE		15 - 30	20
			QT	1, 2	15, 20, 40	20/240

This information is of a general nature and is intended for reference purposes only. Although every effort to ensure correctness of the material, Siemens Canada Limited cannot assume any responsibility for actions taken on the basis of the content herein.

Diagram for the above example:

Figure 3



IC/CI KA	Main Breaker		Branch Breaker			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

IC/CI KA	Main Breaker		Branch Breaker			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

IC/CI KA	Main Breaker		Branch Breaker			Max Voltage (AC/CA)
	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

IC/CI KA	Main Breaker		Branch Breaker			Max Voltage (AC/CA)
	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

IC/CI KA	Main Breaker		Branch Breaker			Max Voltage (AC/CA)
	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

IC/CI KA	Main Breaker		Branch Breaker			Max Voltage (AC/CA)
	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
			HED4, ED4	1	15 - 100	480
65	HJD6-A, HJXD6-A	200 - 400 (2 & 3)	FD6-A, FXD6-A	2, 3	70 - 250	480
			JD6-A, JXD6-A	2, 3	200 - 400	480

IC/CI KA	Main Breaker		Branch Breaker			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

Molded Case Circuit Breakers

Series Rated Combination Guide

IC/CI KA	Main Breaker		Branch Breaker			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

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	JD
225	247	205	180	
250	275	235	220	
300	330	276	252	LD
350	385	325	301	
400	440	372	340	
500	550	468	435	MD
600	660	564	525	
700	770	658	613	
800	880	754	704	ND
900	990	828	749	
1000	1100	900	825	
1200	1320	1090	1000	PD
1400	1540	1304	1148	
1600	1760	1500	1320	RD
1800	1980	1690	1485	
2000	2200	1880	1650	

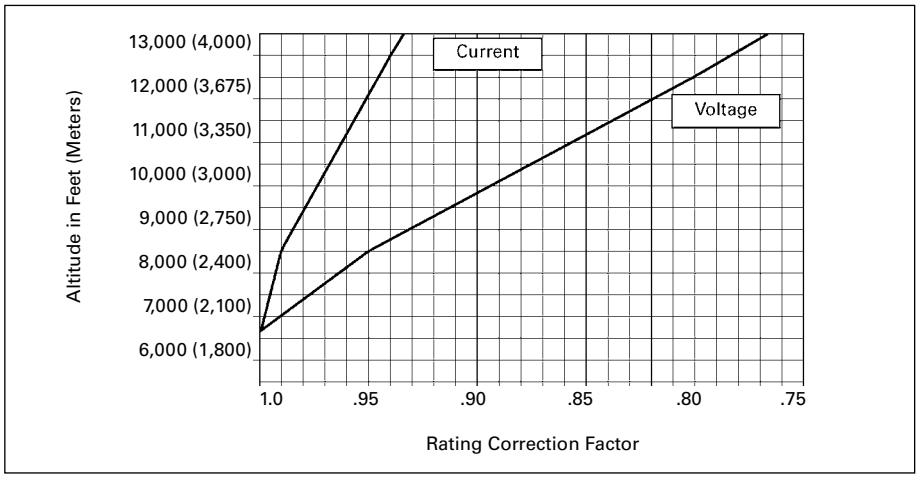


Figure 1 — Altitude Adjustment

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. (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

①The 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.

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.

Molded Case Circuit Breakers

Superseded Breakers

Reference

Sentron Series	Note	Superseded	Note	Superseded
CED62B015-CED62B125	①	CLE62B015-CLE62B100	③	CE2B015-CE2B100
CED62S100A	①	CLE62S100	③	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		-

① Mechanically and electrically interchangeable.

② Electrically interchangeable only, refer to sales office for further details.

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.

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		-

① Mechanically and electrically interchangeable.
② Electrically interchangeable only, refer to sales office for further details.
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.

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		—

① Mechanically and electrically interchangeable.
② Electrically interchangeable only, refer to sales office for further details.
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 These units are for replacement purposes only. Consult sales office for availability.
⑥ These units are no longer manufactured, and no replacement is available.

Siemens VL Circuit Breakers

Reference Guide

Selection/Application

Page				5-101	5-103		5-107			5-111			5-115		
Breaker Frame Family				**GB/GG**	**EB/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 (480Y/277)	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 CalibratedA				◆		◆			◆			◆		
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				◆										
Enclosures①	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				5-119			5-123			5-128			5-131		
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 CalibratedA			◆			◆			◆			◆		
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														
Enclosures①	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)			◆			◆			◆			◆		

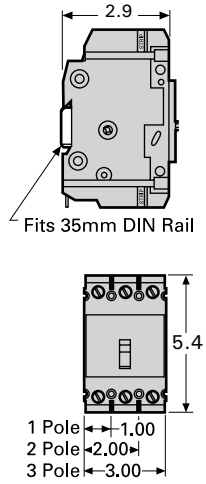
① Communications available via COMPRO or COMMOD modules using Profibus or Modbus protocol.
② 500Vdc nominal, 600Vdc max. for ungrounded DC UPS systems.
③ DC Interrupting Ratings are not applicable to electronic circuit breakers.
- Consult Siemens for these applications.
A - Consult Siemens for availability.

NGB (Panelboard Mount) NGG (Cable In - Cable Out)

Continuous Ampere Rating @ 40C	1-Pole		2-Pole		3-Pole	
	Catalogue Number		Catalogue Number		Catalogue Number	
	Panelboard Mount	General Purpose Breakers④	Panelboard Mount	General Purpose Breakers④	Panelboard Mount	General Purpose Breakers④
15 20 25 30	NGB1B015B①② NGB1B020B①② NGB1B025B② NGB1B030B②	NGG1B015L①② NGG1B020L①② NGG1B015L② NGG1B030L②	NGB2B015B② NGB2B020B② NGB2B025B② NGB2B030B②	NGG2B015L② NGG2B020L② NGG2B015L② NGG2B030L②	NGB3B015B② NGB3B020B② NGB3B025B② NGB3B030B②	NGG3B015L② NGG3B020L② NGG3B015L② NGG3B030L②
35 40 45 50 60	NGB1B035B② NGB1B040B② NGB1B045B② NGB1B050B② NGB1B060B	NGG1B035L② NGG1B040L② NGG1B045L② NGG1B050L② NGG1B060L	NGB2B035B② NGB2B040B② NGB2B045B② NGB2B050B② NGB2B060B	NGG2B035L② NGG2B040L② NGG2B045L② NGG2B050L② NGG2B060L	NGB3B035B② NGB3B040B② NGB3B045B② NGB3B050B② NGB3B060B	NGG3B035L② NGG3B040L② NGG3B045L② NGG3B050L② NGG3B060L
70 80 90 100	NGB1B070B NGB1B080B NGB1B090B NGB1B100B	NGG1B070L NGG1B080L NGG1B090L NGG1B100L	NGB2B070B NGB2B080B NGB2B090B NGB2B100B	NGG2B070L NGG2B080L NGG2B090L NGG2B100L	NGB3B070B NGB3B080B NGB3B090B NGB3B100B	NGG3B070L NGG3B080L NGG3B090L NGG3B100L
110 125	NGB1B110B NGB1B125B	NGG1B110L NGG1B125L	NGB2B110B NGB2B125B	NGG2B110L NGG2B125L	NGB3B110B NGB3B125B	NGG3B110L NGG3B125L

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

NGG



NGG

Shipping Weights

Number of Poles	Number per Carton	Shipping Weight lbs. (kg)	
		NGB	NGG
1 2 3	1 1 1	0.9 (0.4) 1.9 (0.9) 2.9 (1.2)	.75 (0.34) 1.3 (0.59) 2.0 (0.98)

Lugs For 60/75°C Wire

Ampere Rating	Wire Size	Catalogue Number	
		NGG	NGG
15-30A	#14-#6 AWG Cu #12-#6 AWG Al	Integral with breaker	TC1Q1 (qty.1) 3TC1Q1 (qty.3)
35-125A	#8-1/0 AWG Cu #8-2/0 AWG Cu	Integral with breaker	3TC1GG20 (qty.3)
15-125A	Nut Keeper plate w/screw (for crimp\ terminals)	N/A	TNKG3 (qty.3)

Interrupting Ratings

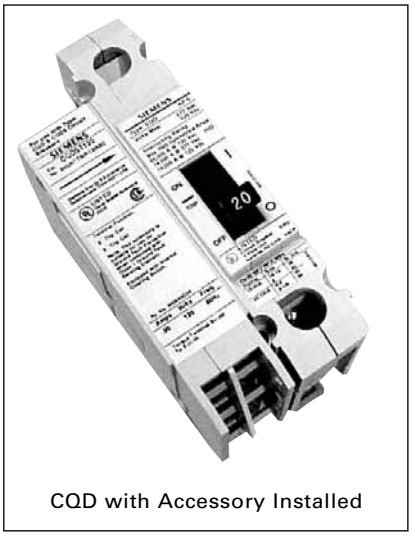
Breaker Type	Number of Poles	CSA / UL 489 AIR								IEC 947-2				
		RMS Symmetrical Amperes (KA)								Volts AC (50/60Hz)				
		Volts AC(50/60Hz)						Volts DC		220/240		380/415		Volts DC
		120	240	277	347	480	600/347	125	250	Icu	Ics	Icu	Ics	125/250V DC
NGB/NGG	1	65	—	25	14	—	—	14	—	25	12.5	—	—	—
	2, 3	—	65	—	—	25	14	—	14③	65	12.5	25	12.5	—

For inches / millimeters conversion, see Application Data section.

① SWD rated.
② HID Rated at 15-50A 1 Pole @ 347V; 2&3 pole @ 347V.
③ 125/250V DC rating applies to 2-Pole NGG only.
④ General Purpose Breakers also carry CE marks.

Shunt Trip

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



CQD with Accessory Installed

Auxiliary Switch

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

Alarm Switch

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

Shunt Trip and Auxiliary Switch Combinations

Shunt Trip Voltage		CQD, CQD6, NGG, NGB Catalogue Number
AC	DC	
24		**CQDST24AAS▲**
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	Catalogue Number
CQD, CQD6, NGG, NGB	**CQDA1BA▲**

Padlocking Devices

For locking breaker in "OFF" position.

NGG	HPLG

Handle Blocking Devices

NGG, NGB	BQDHBD

Terminal Shields

NGG	TSSG3A

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

Molded Case Circuit Breakers

EG 125A Frame

Selection/Dimensions

Type NEB (Panelboard Mount), NEG (Cable In - Cable Out)

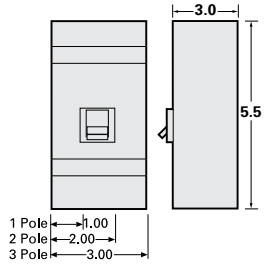
Continuous Ampere Rating @ 40C	1-Pole		2-Pole		3-Pole		4-Pole
	Catalogue Number		Catalogue Number		Catalogue Number		Catalogue Number
	Panelboard Mount	General Purpose Breakers⑤	Panelboard Mount	General Purpose Breakers⑤	Panelboard Mount	General Purpose Breakers⑤	General Purpose Breakers⑤
15 20 25 30	NEB1B015B① NEB1B020B① NEB1B025B NEB1B030B	NEG1B015L①② NEG1B020L①② NEG1B015L② NEG1B030L②	NEB2B015B NEB2B020B NEB2B025B NEB2B030B	NEG2B015L② NEG2B020L② NEG2B015L② NEG2B030L②	NEB3B015B NEB3B020B NEB3B025B NEB3B030B	NEG3B015L② NEG3B020L② NEG3B015L② NEG3B030L②	NEG4B015L NEG4B020L NEG4B015L NEG4B030L
35 40 45 50 60	NEB1B035B NEB1B040B NEB1B045B NEB1B050B NEB1B060B	NEG1B035L② NEG1B040L② NEG1B045L NEG1B050L② NEG1B060L	NEB2B035B NEB2B040B NEB2B045B NEB2B050B NEB2B060B	NEG2B035L② NEG2B040L② NEG2B045L NEG2B050L② NEG2B060L	NEB3B035B NEB3B040B NEB3B045B NEB3B050B NEB3B060B	NEG3B035L② NEG3B040L② NEG3B045L NEG3B050L② NEG3B060L	NEG4B035L NEG4B040L NEG4B045L NEG4B050L NEG4B060L
70 80 90 100	NEB1B070B NEB1B080B NEB1B090B NEB1B100B	NEG1B070L NEG1B080L NEG1B090L NEG1B100L	NEB2B070B NEB2B080B NEB2B090B NEB2B100B	NEG2B070L NEG2B080L NEG2B090L NEG2B100L	NEB3B070B NEB3B080B NEB3B090B NEB3B100B	NEG3B070L NEG3B080L NEG3B090L NEG3B100L	NEG4B070L NEG4B080L NEG4B090L NEG4B100L
110 125	NEB1B110B NEB1B125B	NEG1B110L NEG1B125L	NEB2B110B NEB2B125B	NEG2B110L NEG2B125L	NEB3B110B NEB3B125B	NEG3B110L NEG3B125L	NEG4B110L NEG4B125L

Type HEB (Panelboard Mount), HEG (Cable In - Cable Out)

15 20 25 30	HEB1B015B① HEB1B020B① HEB1B025B HEB1B030B	HEG1B015L①② HEG1B020L①② HEG1B015L② HEG1B030L②	HEB2B015B HEB2B020B HEB2B025B HEB2B030B	HEG2B015L② HEG2B020L② HEG2B015L② HEG2B030L②	HEB3B015B HEB3B020B HEB3B025B HEB3B030B	HEG3B015L② HEG3B020L② HEG3B015L② HEG3B030L②	HEG4B015L② HEG4B020L② HEG4B015L② HEG4B030L②
35 40 45 50 60	HEB1B035B HEB1B040B HEB1B045B HEB1B050B HEB1B060B	HEG1B035L② HEG1B040L② HEG1B045L② HEG1B050L② HEG1B060L	HEB2B035B HEB2B040B HEB2B045B HEB2B050B HEB2B060B	HEG2B035L② HEG2B040L② HEG2B045L② HEG2B050L② HEG2B060L	HEB3B035B HEB3B040B HEB3B045B HEB3B050B HEB3B060B	HEG3B035L② HEG3B040L② HEG3B045L② HEG3B050L② HEG3B060L	HEG4B035L② HEG4B040L② HEG4B045L② HEG4B050L② HEG4B060L
70 80 90 100	HEB1B070B HEB1B080B HEB1B090B HEB1B100B	HEG1B070L HEG1B080L HEG1B090L HEG1B100L	HEB2B070B HEB2B080B HEB2B090B HEB2B100B	HEG2B070L HEG2B080L HEG2B090L HEG2B100L	HEB3B070B HEB3B080B HEB3B090B HEB3B100B	HEG3B070L HEG3B080L HEG3B090L HEG3B100L	HEG4B070L HEG4B080L HEG4B090L HEG4B100L
110 125	HEB1B110B HEB1B125B	HEG1B110L HEG1B125L	HEB2B110B HEB2B125B	HEG2B110L HEG2B125L	HEB3B110B HEB3B125B	HEG3B110L HEG3B125L	HEG4B110L HEG4B125L

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

HEG



NEG, HEG

No. of Poles	No. per Carton	Shipping Weight lbs. (kg)	
		NEB/ HEB	NEG/ HEG
1	1	1.4 (0.7)	1.1 (0.5)
2	1	2.4 (1.1)	2.0 (0.9)
3	1	3.7 (1.7)	3.1 (1.4)
4	1	N/A	3.9 (1.8)

EG 125A Frame Molded Case Switch - (Magnetic Trip Only)

Continuous Ampere Rating	Catalogue Number
3-Pole	
100	HES3S100L
125	HES3S125L
160	HES3S160L
4-Pole	
125	HES4S125L

EG 125A Frame 3-Pole Motor Circuit Protector

Continuous Ampere Rating	Catalogue Number
3	HEM3M003L
7	HEM3M007L
15	HEM3M015L
30	HEM3M030L
50	HEM3M050L
70	HEM3M070L
100	HEM3M100L
125	HEM3M125L

Lugs For 60/75°C Wire

Ampere Rating	Wire Size	Catalogue Number	
		NEB-HEB	NEG-HEG
15-100A	#14-1/0	3TA1EG10 (qty.3)	N/A
60-125A	#6-2/0	3TA1EG30 (qty.3)	N/A
15-125A	#14-3/0 AWG Cu (steel lugs)	N/A	3TW1EG30 (qty.3)
15-125A4	#14-1/0 AWG Cu #14-1/0 AWG Al	N/A	3TA1EG10 (qty.3)
15-125A4	#6-3/0 AWG Cu #6-3/0 AWG Al	N/A	3TA1EG30 (qty.3)
15-125A	Nut Keeper plate w/screw (for crimp\ terminals)	N/A	TNKE3(3-Pole) TNKE4 (4-Pole)

Interrupting Ratings

Breaker Type	Number of Poles	UL 489 AIR							IEC 60947-2					
		RMS Symmetrical Amperes (KA)							Volts AC (50/60Hz)					
		Volts AC(50/60Hz)					Volts DC		220/240		380/415		Volts DC	
		240	277	347	480	600/347	125	125/250	Icu	Ics	Icu	Ics	125	125/250
NEB/NEG	1	85	35	22	—	—	35	—	85	43	—	—	35	—
	2, 3, 4	85	—	—	35	22③	—	35	85	43	40	20	—	35
HEB/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 347V.
③ Applies to 3 & 4-pole breakers only.
④ Optional lugs for NEG and HEG breakers.
⑤ General Purpose Breakers also carry CE marks

Shunt Trip

Control Voltage		NEG, HEG, NEB, HEB Catalogue 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, NEB, HEB Catalogue Number
AC	DC		
240	125	1A–1B	**ASKE2**
240	125	2A–2B	**ASKE3**

Alarm Switch

Maximum Voltage		Number of Contacts	NEG, HEG, NEB, HEB Catalogue Number
AC	DC		
240	125	1A–1B	**ASKE1**
240	125	2A–2B	**ASKE5**

Undervoltage Trip

Control Voltage		NEG, HEG, NEB, HEB Catalogue Number
AC	DC	
24		**UVREB24A**
60		**UVREM60▲**
120		**UVREN120**
240		**UVRER240**
480		**UVREU480▲**
600		**UVREV600▲**
	24	**UVREB24D**
	48	**UVREC48D▲**
	125	**UVRED125D▲**
	250	**UVREE250D▲**

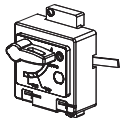
Alarm and Auxiliary Switch Combinations

For Breaker	Catalogue Number
NEG, HEG	**ASKE6**

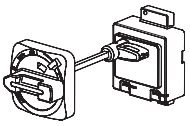
Handle Operators

Description	NEMA Type	Catalogue 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

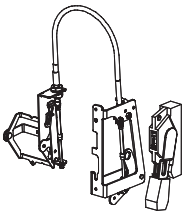
All operators are for use on 3-pole and 4-pole breakers.



RHFESDEM



RHVE64X



Flex Operator Kit

Locks and Interlocks

Description	Quantity per Kit	Accessory Kit Catalogue 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	Catalogue 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

VL Circuit Breakers

Trip Unit Overview

Selection

The interchangeability of the VL circuit breaker trip units allow for easy conversion from any of 3 types of protection. They are thermal-magnetic, electronic, or electronic with a built-in LCD 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 555 trip units. The pick-up and time delay settings are set at the factory for each frame and do not overlap with the settings on the other frames. Therefore, when VL breakers are used together in a system the GF protection is automatically coordinated. The user also has the ability to program a custom coordination scheme with adjustable settings on both the 555 and 586 trip units.

Trip Unit Functions	VL Trip Units							
	Model 525	Model 555				Model 586		
	Thermal-magnetic	Electronic LI	Electronic LIG	Electronic LSI	Electronic LSIG	Electronic with LCD LSI	Electronic with LCD LSIG	Electronic with LCD LSI + G alarm only
Continuous Current Setting (I_r)	Fixed	◆	◆	◆	◆	◆	◆	◆
Long Time Delay (t_r)	□	◆	◆	◆	◆	◆	◆	◆
Instantaneous Function	●	●	●	●	●	(ON/OFF)	(ON/OFF)	(ON/OFF)
Instantaneous Pickup (I_i)	◆	◆	◆	◆	◆	◆	◆	◆
Short Time Function	□	□	□	●	●	(ON/OFF)	(ON/OFF)	(ON/OFF)
Short Time Pick-up (I_{sd})	□	□	□	◆	◆	◆	◆	◆
Short Time Delay (t_{sd})	□	□	□	◆	◆	◆	◆	◆
Ground Fault Pick-up (I_g)	□	□	◆	□	◆	□	◆	□
Ground Fault Delay (t_g)	□	□	◆	□	◆	□	◆	□
Ground Fault Alarm Pick-up	□	□	□	□	□	□	◆	◆
Ground Fault Alarm Delay	□	□	□	□	□	□	◆	◆
Alarm & Status Indicator	□	●	●	●	●	●	●	●
Built-in Display (LCD)	□	□	□	□	□	●	●	●
Pre-Trip Alarm①	□	●	●	●	●	●	●	●
Last Trip Information①	□	●	●	●	●	●	●	●
Zone Selective①	□	●	●	●	●	●	●	●
Communications①	□	●	●	●	●	●	●	●

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

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

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

Instantaneous Pick-up (I_i)
This function sets the breaker to trip instantaneously during high fault conditions. This function may be turned off on Model 586 trip units.

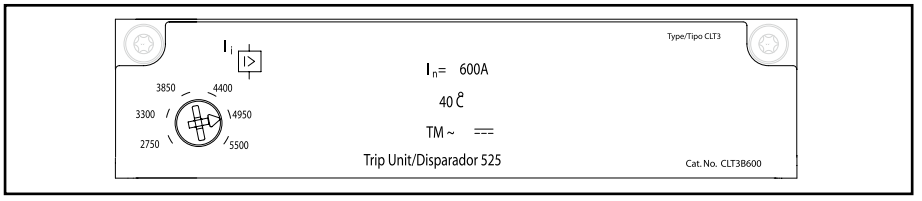
Short Time Pick-Up (I_{sd})
This function controls the level of fault current the breaker will carry for a short time without tripping, thus allowing downstream devices to clear short circuits ahead of up-stream protection. It may be defeated (turned-off) on Model 586 trip units.

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

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

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

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 30 to 1600A.



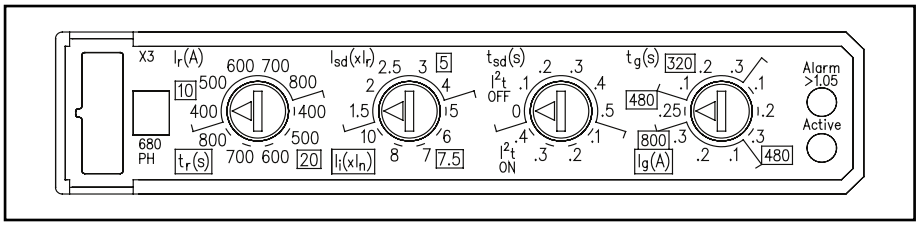
Electronic Trip Units

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.

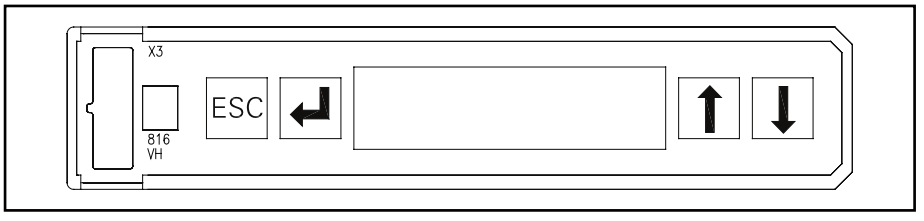
On the Model 555 Electronic Trip Unit a flashing LED confirms that the microprocessor is in operating and another indicates an overload condition. For ease-of-use and to insure proper coordination, the set points for the continuous current are shown on the face of these trip units in amps.

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

Typical Trip Unit Labeling and Adjustment Positions



Model 555 Electronic Trip Unit with LSIG trip functions



Model 586 Electronic Trip Unit has an LCD display

Ordering Information

Complete Assembled Breaker

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

For 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 catalogue number to "X" for standard breakers.

For special applications, refer to page 5-155.

Mounting hardware is included with each frame or complete breaker.

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

HACR rated.

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}
NDGA	65	35	18	30	18	65	65	40	40	12	6
HDGA	100	65	20	30	18	100	75	70	70	12	6
LDGA	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	Catalogue Number
Steel	30-150	#8–1/0 Cu	1	**3TW1DG20**②
Aluminum	30-150	#6–3/0 Al/Cu	1	**3TA1DG30**①②
Copper	30-150	#6–3/0 Cu	1	**3TC1DG30**②④
Distribution Lugs				
	30-150	#14–#2 Cu (3pcs. Max)	3	**3TA3DG02**②
	30-150	#14–#4 Cu	6	**3TA6DG04**②
Compression Lugs				
	30-150	#14–2/0 kcmil Al/Cu	–	**2CLD20**③
	30-150	#14–2/0 kcmil Al/Cu	–	**3CLD20**②

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

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.

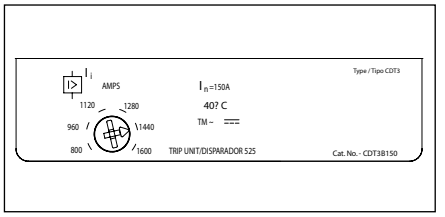
Dimensions - Inches (mm)

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

Approx. Shipping Weight, lbs. (kg)

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

External Accessories page 5-137



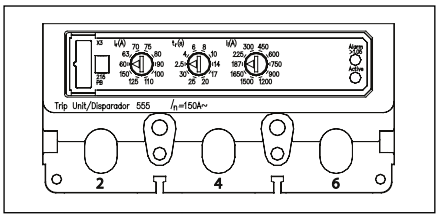
Model 525 Trip Unit

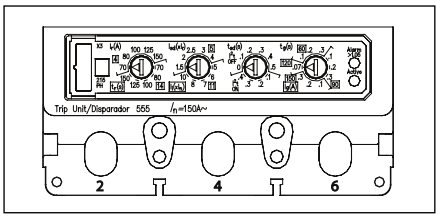
DG 150A Frame 2-Pole with Thermal-Magnetic Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	
	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number
	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	
	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number
	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

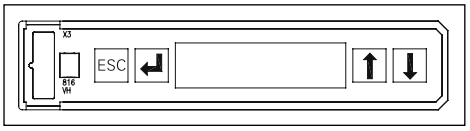




Model 555 Trip Units

DG 150A Frame 3-Pole Electronic Trip Unit①

Continuous Ampere Rating	N-Interrupting Class Catalogue Number	H-Interrupting Class Catalogue Number	L-Interrupting Class Catalogue Number	Catalogue Number
	FRAME ONLY			
	NDG3F150	HDG3F150	LDG3F150	
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER			TRIP UNIT ONLY
ELECTRONIC LI TRIP				
60	NDG3R060L	HDG3R060L	LDG3R060L	CDT3R060
100	NDG3R100L	HDG3R100L	LDG3R100L	CDT3R100
150	NDG3R150L	HDG3R150L	LDG3R150L	CDT3R150
ELECTRONIC LSI TRIP				
60	NDG3T060L	HDG3T060L	LDG3T060L	CDT3T060
100	NDG3T100L	HDG3T100L	LDG3T100L	CDT3T100
150	NDG3T150L	HDG3T150L	LDG3T150L	CDT3T150
ELECTRONIC LSIG TRIP				
60	NDG3V060L	HDG3V060L	LDG3V060L	CDT3V060
100	NDG3V100L	HDG3V100L	LDG3V100L	CDT3V100
150	NDG3V150L	HDG3V150L	LDG3V150L	CDT3V150
ELECTRONIC LIG TRIP				
60	NDG3W060L	HDG3W060L	LDG3W060L	CDT3W060
100	NDG3W100L	HDG3W100L	LDG3W100L	CDT3W100
150	NDG3W150L	HDG3W150L	LDG3W150L	CDT3W150



Model 586 Trip Unit

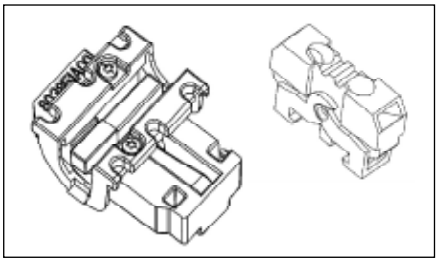
DG 150A Frame 3-Pole Electronic LCD Trip Unit①

Continuous Ampere Rating	N-Interrupting Class Catalogue Number	H-Interrupting Class Catalogue Number	L-Interrupting Class Catalogue Number	Catalogue Number
	FRAME ONLY			
	NDG3F150	HDG3F150	LDG3F150	
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER			TRIP UNIT ONLY
LCD ELECTRONIC LSI TRIP				
60	NDG3A060L	HDG3A060L	LDG3A060L	CDT3A060
100	NDG3A100L	HDG3A100L	LDG3A100L	CDT3A100
150	NDG3A150L	HDG3A150L	LDG3A150L	CDT3A150
LCD ELECTRONIC LSIG TRIP				
60	NDG3G060L	HDG3G060L	LDG3G060L	CDT3G060
100	NDG3G100L	HDG3G100L	LDG3G100L	CDT3G100
150	NDG3G150L	HDG3G150L	LDG3G150L	CDT3G150
LCD ELECTRONIC LSI + GF ALARM ONLY				
60	NDG3K060L	HDG3K060L	LDG3K060L	CDT3K060
100	NDG3K100L	HDG3K100L	LDG3K100L	CDT3K100
150	NDG3K150L	HDG3K150L	LDG3K150L	CDT3K150

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

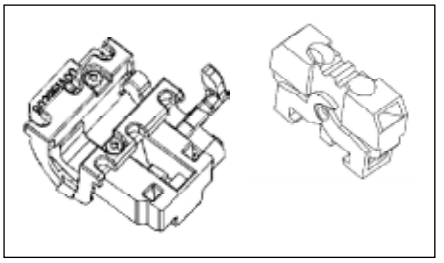
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket①	Catalogue Number
1 Alarm Switch 1A/B③ Bases AMBL2 & AMBL3	Left, Right②	**ASKL1**
2 Aux. Switches 1A + 1B Bases AMBL1	Left, Right	**ASKL2**
2 Aux. + 1 Alarm Switch 1A + 1B, 1A/B③ Bases AMBL2 & AMBL3	Left, Right②	**ASKL3**



Auxiliary/Alarm Switch Mounting Base Only

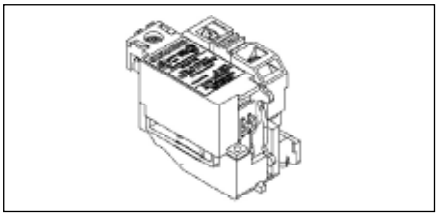
Description	Mounting Pocket	Catalogue Number
Up to 3 Auxiliary Switches	Left, Right	**AMBL1**
2 Aux. + 1 Alarm Switch	Left Pocket Only	**AMBL2**
2 Aux. + 1 Alarm Switch	Right Pocket Only	**AMBL3**



Auxiliary/Alarm Switch Only

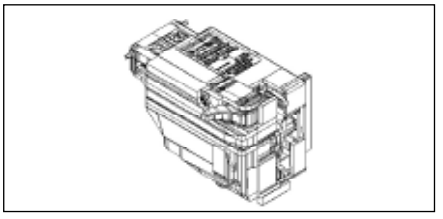
Common to DG - PG Frames

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



Shunt Trips

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



Undervoltage Release

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

'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 page 5-137

Ordering Information

Complete Assembled Breaker

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

For 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 catalogue number to "X" for standard breakers.

For special applications, refer to page 5-155.

Mounting hardware is included with each frame or complete breaker.

HACR rated.

Interrupting Ratings

Interrupting Class	Breaker Type	RMS Symmetrical Amperes (KA)											
		UL 489					IEC 60947-2						
		Volts AC (50/60 Hz)			Volts DC		Volts AC (50/60 Hz)						
							220/240		380/415		690	
		240	480	600	250	500	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}
N	NFGA	65	35	18	30	18	65	65	40	40	12	6
H	HFGA	100	65	20	30	25	100	75	70	70	12	6
L	LFGA	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	Catalogue Number
Steel	50-250	#4–350 kcmil Cu	1	**3TW1FG350**②
Aluminum	50-250	#4–350 kcmil Al/Cu	1	**3TAW1FG350**①②
Copper	50-250	#4–350 kcmil Cu	1	**3TCW1FG350**②
Distribution Lugs				
	50-250	#14–2/0 Cu	3	**3TA3FG20**②
	50-250	#14–#4 Cu	6	**3TA6FG04**②
Compression Lugs				
	50-250	#4-350 Al/Cu	1	**3CLF350**②

① Standard connector supplied with complete breakers.
② Kit consists of 3 terminal connectors.

FG Thermal-Magnetic, Instantaneous Trip Adjustment Range

Trip Unit Continuous Amp Rating (I_n)	Instantaneous Overcurrent Setting (I_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)

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)

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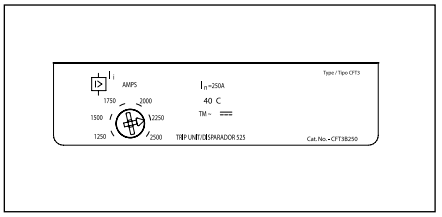


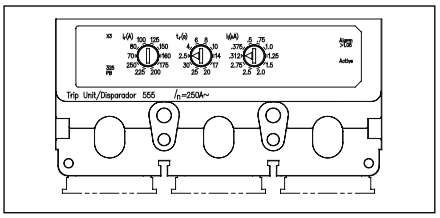
Model 525 Trip Unit

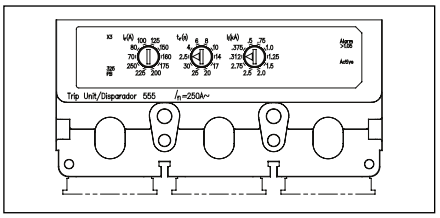
FG 250A Frame 2-Pole with Thermal-Magnetic Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	
	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number
	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	
	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number
	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

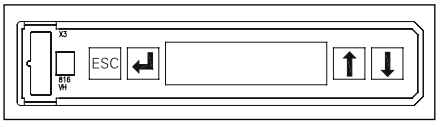




Model 555 Trip Units

FG 250A Frame 3-Pole Electronic Trip Unit①

Continuous Ampere Rating	N-Interrupting Class Catalogue Number	H-Interrupting Class Catalogue Number	L-Interrupting Class Catalogue Number	Catalogue Number
	FRAME ONLY			
	NFG3F250	HFG3F250	LFG3F250	
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER			TRIP UNIT ONLY
ELECTRONIC LI TRIP				
100	NFG3R100L	HFG3R100L	LFG3R100L	CFT3R100
150	NFG3R150L	HFG3R150L	LFG3R150L	CFT3R150
250	NFG3R250L	HFG3R250L	LFG3R250L	CFT3R250
ELECTRONIC LSI TRIP				
100	NFG3T100L	HFG3T100L	LFG3T100L	CFT3T100
150	NFG3T150L	HFG3T150L	LFG3T150L	CFT3T150
250	NFG3T250L	HFG3T250L	LFG3T250L	CFT3T250
ELECTRONIC LSIG TRIP				
100	NFG3V100L	HFG3V100L	LFG3V100L	CFT3V100
150	NFG3V150L	HFG3V150L	LFG3V150L	CFT3V150
250	NFG3V250L	HFG3V250L	LFG3V250L	CFT3V250
ELECTRONIC LIG TRIP				
100	NFG3W100L	HFG3W100L	LFG3W100L	CFT3W100
150	NFG3W150L	HFG3W150L	LFG3W150L	CFT3W150
250	NFG3W250L	HFG3W250L	LFG3W250L	CFT3W250



Model 586 Trip Unit

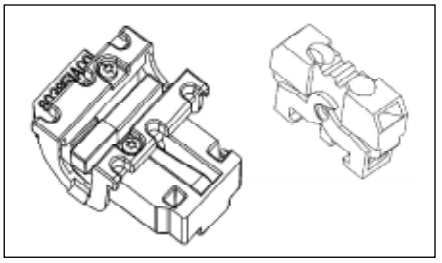
FG 250A Frame 3-Pole Electronic LCD Trip Unit①

Continuous Ampere Rating	N-Interrupting Class Catalogue Number	H-Interrupting Class Catalogue Number	L-Interrupting Class Catalogue Number	Catalogue Number
	FRAME ONLY			
	NFG3F250	HFG3F250	LFG3F250	
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER			TRIP UNIT ONLY
LCD ELECTRONIC LSI TRIP				
100	NFG3A100L	HFG3A100L	LFG3A100L	CFT3A100
150	NFG3A150L	HFG3A150L	LFG3A150L	CFT3A150
250	NFG3A250L	HFG3A250L	LFG3A250L	CFT3A250
LCD ELECTRONIC LSIG TRIP				
100	NFG3G100L	HFG3G100L	LFG3G100L	CFT3G100
150	NFG3G150L	HFG3G150L	LFG3G150L	CFT3G150
250	NFG3G250L	HFG3G250L	LFG3G250L	CFT3G250
LCD ELECTRONIC LSI TRIP + GF ALARM ONLY				
100	NFG3K100L	HFG3K100L	LFG3K100L	CFT3K100
150	NFG3K150L	HFG3K150L	LFG3K150L	CFT3K150
250	NFG3K250L	HFG3K250L	LFG3K250L	CFT3K250

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

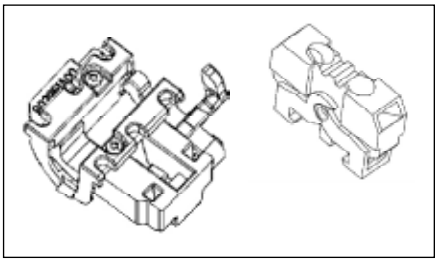
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket①	Catalogue Number
1 Alarm Switch 1A/B③ Bases AMBL2 & AMBL3	Left, Right②	**ASKL1**
2 Aux. Switches 1A + 1B Bases AMBL1	Left, Right	**ASKL2**
2 Aux. + 1 Alarm Switches 1A + 1B, 1A/B③ Bases AMBL2 & AMBL3	Left, Right②	**ASKL3**



Auxiliary/Alarm Switch Mounting Base Only

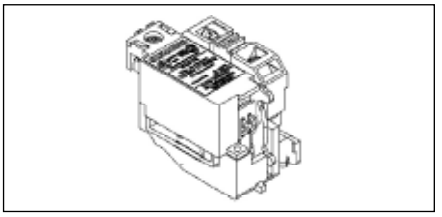
Description	Mounting Pocket	Catalogue Number
Up to 3 Auxiliary Switches	Left, Right	**AMBL1**
2 Aux. + 1 Alarm Switch	Left Pocket Only	**AMBL2**
2 Aux. + 1 Alarm Switch	Right Pocket Only	**AMBL3**



Auxiliary/Alarm Switch Only

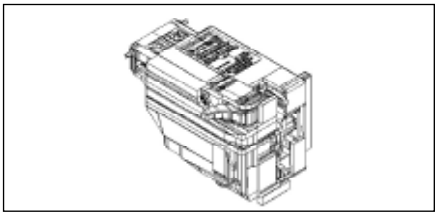
Common to DG - PG Frames

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



Shunt Trips

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



Undervoltage Release

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

① Refer to the "Accessory Locations" chart for guidelines and limitations about which pockets may be used for accessory combinations.
② These kits include two bases, one for mounting switches in the left pocket and another for mounting in the right.
③ Includes 1A and 1B contact for alarm purposes, only one of which may be installed at any time.
'A' refers to a normally open contact (open when the breaker contacts are open).
'B' refers to a normally closed contact (closed when the breaker contacts are open).

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Ordering Information

Complete Assembled Breaker

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

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

For DC applications, use thermal magnetic trip unit only.

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

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

For special applications, refer to page 5-155.

Mounting hardware is included with each frame or complete breaker.

HACR rated.

Interrupting Ratings

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

Connectors for 75°C Wire

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

① Standard construction supplied for each breaker.
② Kit consists of 3 terminal connectors.
③ Required for 100% rated JG breakers. Requires 90°C cable sized at 75°C ampacity.

JG Thermal-Magnetic, Instantaneous Trip Adjustment Range

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

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

Dimensions - Inches (mm)

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

Shipping Weight, lbs. (kg)

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

5 MOLDED CASE CIRCUIT BREAKERS

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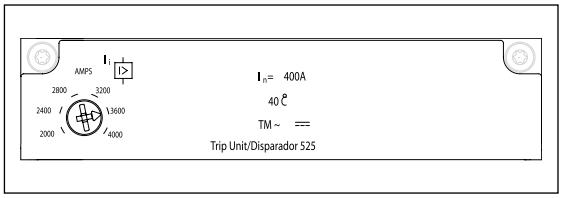


Model 525 Trip Unit

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

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

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

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

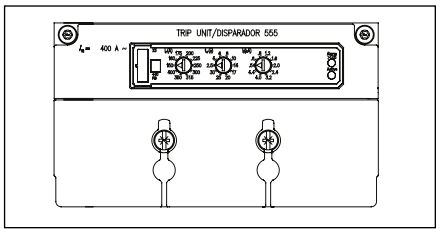
JJ 400A Frame 240V max., 2-pole with Thermal-Magnetic Non-Interchangeable Trip Unit①

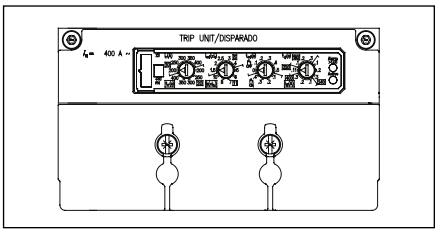
Continuous Ampere Rating	N-Interrupting Class
	Catalogue Number
	COMPLETE BREAKER
250	NJJ2B250
300	NJJ2B300
350	NJJ2B350
400	NJJ2B400

JJ 400A Frame 240V max., 3-pole with Thermal-Magnetic Non-Interchangeable Trip Unit①

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

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

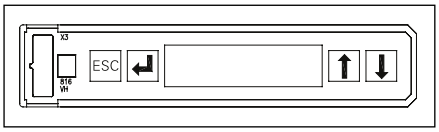




Model 555 Trip Units

JG 400A Frame 3-Pole Electronic Trip Unit

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



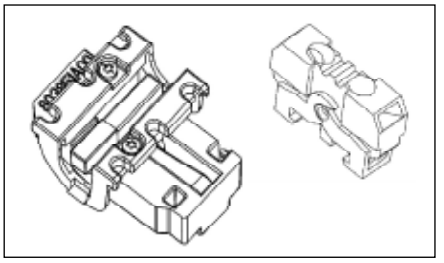
Model 586 Trip Unit

JG 400A Frame 3-Pole Electronic LCD Trip Unit

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

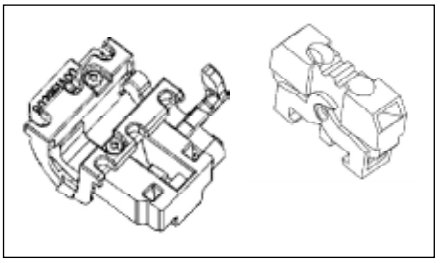
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket①	Catalogue Number
1 Alarm Switch 1A/B③ Bases AMBL2 & AMBL3	Left, Right②	**ASKL1**
2 Aux. Switches 1A + 1B Bases AMBL1	Left, Right	**ASKL2**
2 Aux. + 1 Alarm Switches 1A + 1B, 1A/B③ Bases AMBL2 & AMBL3	Left, Right②	**ASKL3**



Auxiliary/Alarm Switch Mounting Base Only

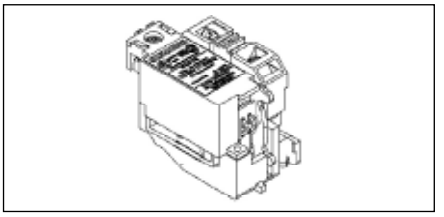
Description	Mounting Pocket	Catalogue Number
Up to 3 Auxiliary Switches	Left, Right	**AMBL1**
2 Aux. + 1 Alarm Switch	Left Pocket Only	**AMBL2**
2 Aux. + 1 Alarm Switch	Right Pocket Only	**AMBL3**



Auxiliary/Alarm Switch Only

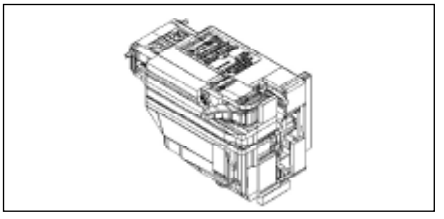
Common to DG - PG Frames

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



Shunt Trips

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



Undervoltage Release

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

① Refer to the "Accessory Locations" chart for guidelines and limitations about which pockets may be used for accessory combinations.
② Includes 1A and 1B contact for alarm purposes, only one of which may be installed at any time.
'A' refers to a normally open contact (open when the breaker contacts are open).
'B' refers to a normally closed contact (closed when the breaker contacts are open).

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Ordering Information

Complete Assembled Breaker

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

For DC applications, use thermal magnetic trip unit only.

Breakers are suitable for reverse feed applications.

For special applications, refer to page 5-155.

Mounting hardware is included with each breaker.

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

HACR rated.

Interrupting Ratings

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

Connectors for 75°C Wire

Construction	Ampere Rating	Wire Range	No. of cables per connector	Catalogue Number②
Aluminum	150-600	#2/0–600 kcmil Al/Cu	2 (load side)	**3TA2LG600LD**①
Aluminum	150-600	#2/0–600 kcmil Al/Cu	2 (line side)	**3TA2LG600LN**①
Copper	150-600	#2/0–600 kcmil Cu	2 (load side)	**3TC2LG600LD**④
Copper	150-600	#2/0–600 kcmil Cu	2 (line side)	**3TC2LG600LN**④
Compression Lugs				
	150-600	#6–350 kcmil Al/Cu	—	**6CLL350**③
	150-600	250-750 kcmil Al/Cu	—	**3CLL750**②
	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 Required for 100% rated LG breakers. Requires 90°C cable sized at 75°C ampacity.

LG Thermal-Magnetic, Instantaneous Trip Adjustment Range

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

Note: Each breaker has 6 trip settings.

Dimensions - Inches (mm)

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

Shipping Weight, lbs. (kg)

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

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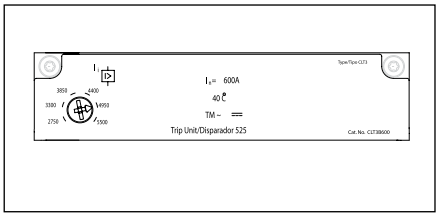


Model 525 Trip Unit

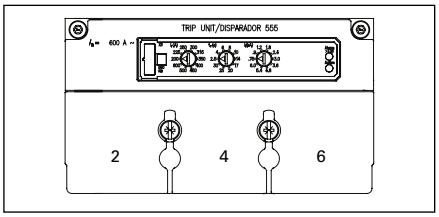
LG 600A Frame 2-Pole with Thermal-Magnetic Trip Unit

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

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

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

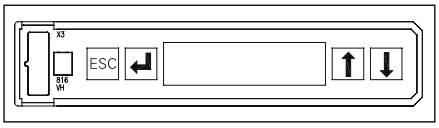
① For 100% rated 400A or 500A versions, change the third character of the catalogue number to "Z".
① Please consult Siemens sales office for availability.



Model 555 Trip Unit

LG 600A Frame 3-Pole Electronic Trip Unit

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



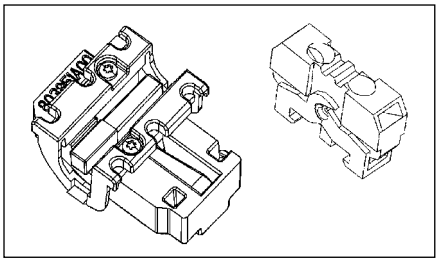
Model 586 Trip Unit

LG 600A Frame 3-Pole Electronic LCD Trip Unit

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

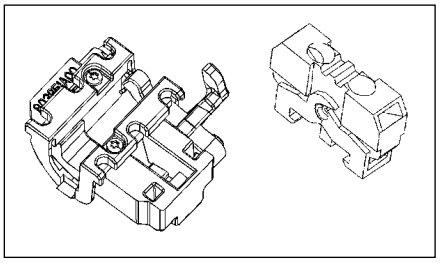
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket①	Catalogue Number
1 Alarm Switch 1A/B③ Bases AMBL2 & AMBL3	Left, Right②	**ASKL1**
2 Aux. Switches 1A + 1B Bases AMBL1	Left, Right	**ASKL2**
2 Aux. + 1 Alarm Switches 1A + 1B, 1A/B③ Bases AMBL2 & AMBL3	Left, Right②	**ASKL3**



Auxiliary/Alarm Switch Mounting Base Only

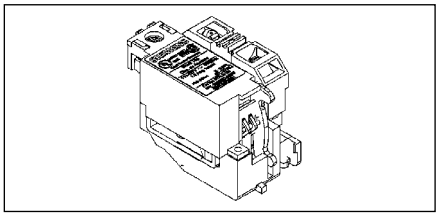
Description	Mounting Pocket	Catalogue Number
Up to 3 Auxiliary Switches	Left, Right	**AMBL1**
2 Aux. + 1 Alarm Switch	Left Pocket Only	**AMBL2**
2 Aux. + 1 Alarm Switch	Right Pocket Only	**AMBL3**



Auxiliary/Alarm Switch Only

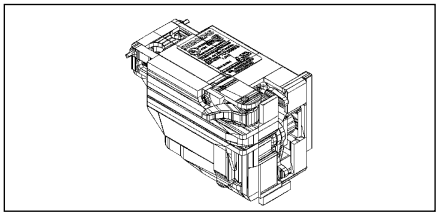
Common to DG - PG Frames

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



Shunt Trips

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



Undervoltage Release

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

① Refer to the "Accessory Locations" chart for guidelines and limitations about which pockets may be used for accessory combinations.
② Includes 1A and 1B contact for alarm purposes, only one of which may be installed at any time.
'A' refers to a normally open contact (open when the breaker contacts are open).
'B' refers to a normally closed contact (closed when the breaker contacts are open).

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Ordering Information

Complete Assembled Breaker

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

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

For DC applications, use thermal magnetic trip unit only.

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

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

For special applications, refer to page 5-155.

Mounting hardware is included with each frame or complete breaker.

HACR rated.

Interrupting Ratings

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

Connectors for 75°C Wire

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

① Standard connector supplied with complete breakers.
② Kit consists of 3 terminal connectors.
③ Consists of one terminal.
④ Includes extended terminal cover.
⑤ Required for 100% rated MG breakers. Requires 90°C cable sized at 75°C ampacity.

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)	4.7 (119)	5.9 (151)

Shipping Weight, lbs. (kg)

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

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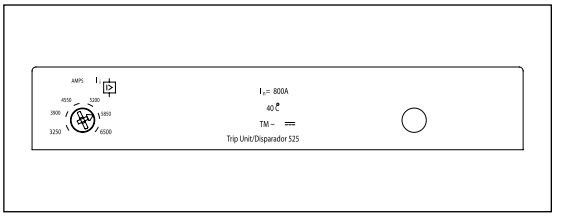


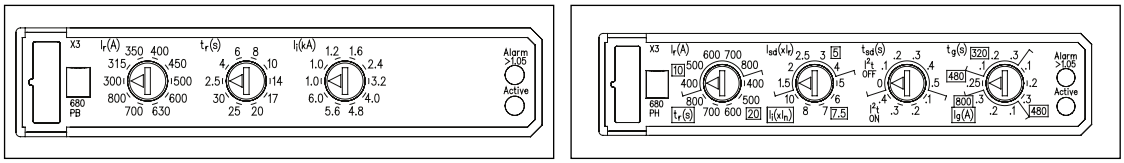
Model 525 Trip Unit

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

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	
	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number
	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

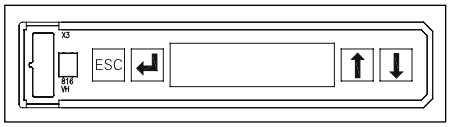
Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	
	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number
	FRAME ONLY			
	NMG3F800	HMG3F800	LMG3F800	
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER			TRIP UNIT ONLY
600	NMG3B600L	HMG3B600L	LMG3B600L	CMT3B600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



Model 555 Trip Units

MG 800A Frame 3-Pole Electronic Trip Unit

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



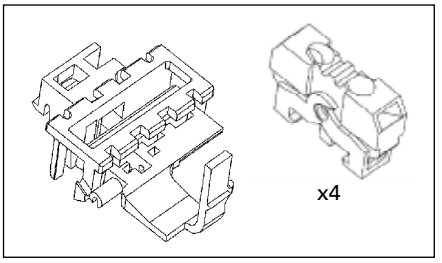
Model 586 Trip Unit

MG 800A Frame 3-Pole Electronic LCD Trip Unit

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

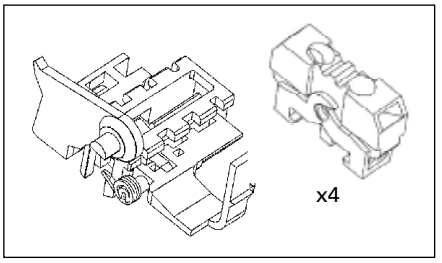
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket①	Catalogue Number
2 Aux. + 2 Alarm Switches 2A + 2B Bases AMBP2	Left Pocket Only	**ASKP3**
4 Aux. Switches 2A + 2B Bases AMBP1	Left, Right	**ASKP4**



Auxiliary/Alarm Switch Mounting Base Only

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



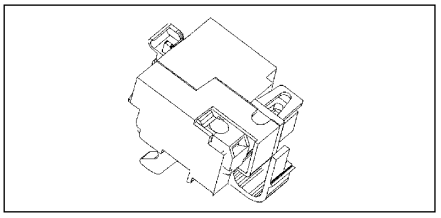
Auxiliary/Alarm Switch Only

Common to DG - PG Frames

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

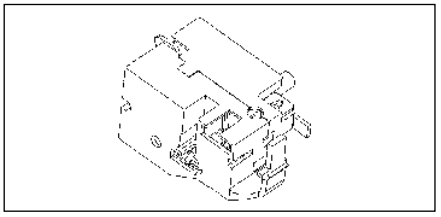
Shunt Trips

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



Undervoltage Release

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



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

5 MOLDED CASE CIRCUIT BREAKERS

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Ordering Information

Complete Assembled Breaker with Lugs

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

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

For DC applications, use thermal magnetic trip unit only.

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

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

For special applications, refer to page 5-155.

Mounting hardware is included with each frame or complete breaker.

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

HACR rated.

Interrupting Ratings

Interrupting Class	Breaker Type	RMS Symmetrical Amperes (KA)											
		CSA/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}
N	NNG	65	35	25	22	35	65	35	50	25	20	10
H	HNG	100	65	35	25	50	100	50	70	35	30	15
L	LNG	200	100	65	42	65	200	100	100	50	35	17

Connectors for 75°C Wire

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

① Total of 12 connectors (4 per phase Line or Load).
② For 100% rated NG breakers. Requires 90°C cable sized at 75°C ampacity.
③ Standard connector provided with complete breakers.
④ Kit consists of 3 terminal connectors.

NG Thermal-Magnetic, Instantaneous Trip Adjustment Range

Trip Unit Continuous Amp Rating (I_n)	Instantaneous Overcurrent Setting (I_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	9 (229)	16 (406)	6 (152)	8.1 (207)

Shipping Weight, lbs. (kg)

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

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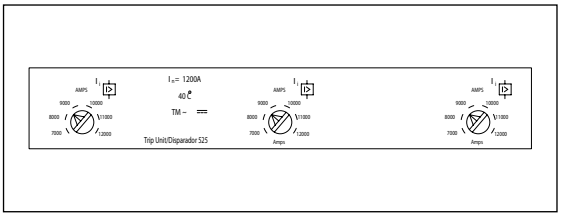


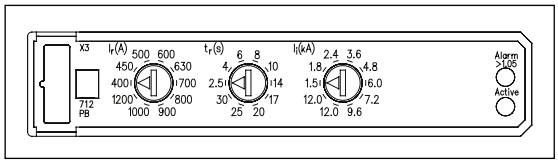
Model 525 Trip Unit

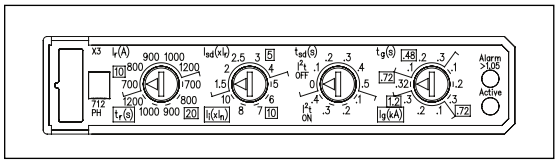
NG 1200A Frame 2-Pole with Thermal-Magnetic Trip Unit

Continuous Ampere Rating	N-Interrupting Class	H-Interrupting Class	L-Interrupting Class	
	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number
	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	
	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number
	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

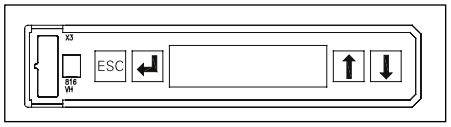




Model 555 Trip Units

NG 1200A Frame 3-Pole Electronic Trip Unit

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



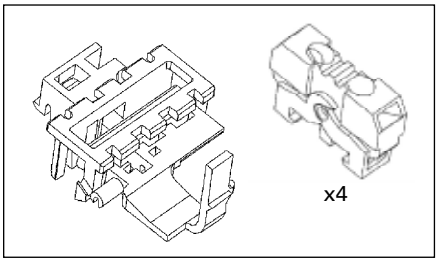
Model 586 Trip Unit

NG 1200A Frame 3-Pole Electronic LCD Trip Unit

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

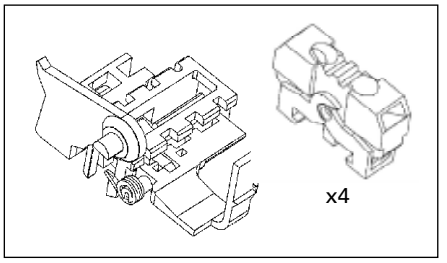
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket①	Catalogue Number
2 Aux. + 2 Alarm Switches 2A + 2B Base AMBP2	Left Pocket Only	**ASKP3**
4 Aux. Switches 2A + 2B Base AMBP1	Left, Right	**ASKP4**



Auxiliary/Alarm Switch Mounting Base Only

Description	Mounting Pocket①	Catalogue Number
Up to 4 Auxiliary Switches 2 Aux. + 2 Alarm Switches	Left, Right Left Pocket Only	**AMBP1** **AMBP2**



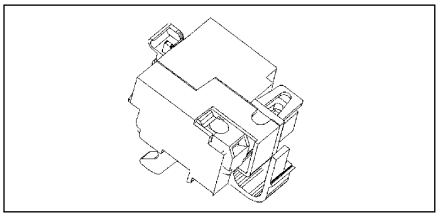
Auxiliary/Alarm Switch Only

Common to DG-PG Frames

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

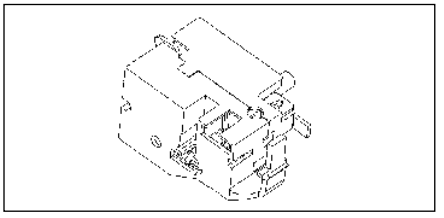
Shunt Trips

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



Undervoltage Release

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



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

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Ordering Information

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

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

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

Connectors require a Breaker Lug Mounting Assembly or Breaker Mounting Base and must be ordered as a 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 catalogue number to "X" for non-interchangeable trip breakers.

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

For special applications, refer to page 5-155.

Mounting hardware is included with each frame or complete breaker.

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

Interrupting Ratings

Interrupting Class	Breaker Type	RMS Symmetrical Amperes (KA)											
		CSA/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}
N	NPG	65	35	25	22	35	65	35	50	25	20	10
H	HPG	100	65	35	25	50	100	50	70	35	30	15
L	LPG	200	100	65	42	65	200	100	100	50	35	17

Connectors for 75°C Wire

Construction	Ampere Rating	Wire Range	No. of cables per phase	Catalogue Number
Aluminum	1200-1600A	1/0–750 kcmil Al/Cu	6	**3TA6PG750**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 PG breakers. Requires 90°C cable sized at 75°C ampacity.

Mounting Arrangement

Description	Catalogue Number
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	9 (229)	16 (406)	6 (152)	8.1 (207)

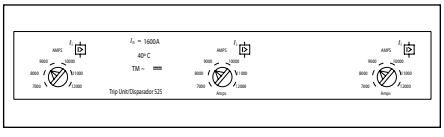
Shipping Weight, lbs. (kg)

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

PG Thermal-Magnetic, Instantaneous Trip Adjustment Range

Trip Unit Continuous Amp Rating (I_n)	Instantaneous Overcurrent Setting (I_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
	Catalogue Number	Catalogue Number	Catalogue Number
	COMPLETE FACTORY ASSEMBLED CIRCUIT BREAKER		
1200	**NPX3B120**	**HPX3B120**	**LPX3B120**
1400	**NPX3B140**	**HPX3B140**	**LPX3B140**
1600	**NPX3B160**	**HPX3B160**	**LPX3B160**

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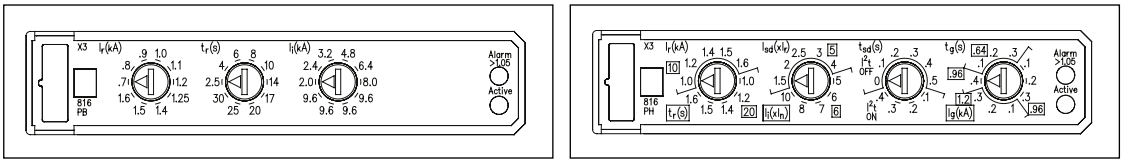
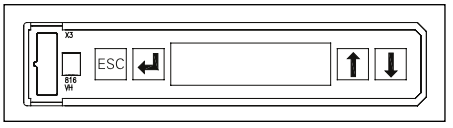


Model 555 Trip Unit

PG 1600A Frame 3-Pole Electronic Trip Unit

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



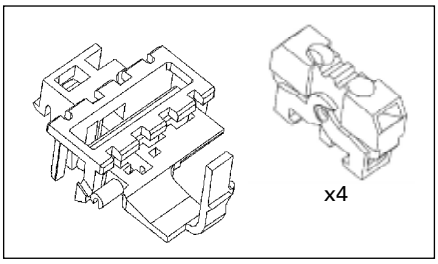
Model 586 Trip Unit

PG 1600A Frame 3-Pole Electronic LCD Trip Unit

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

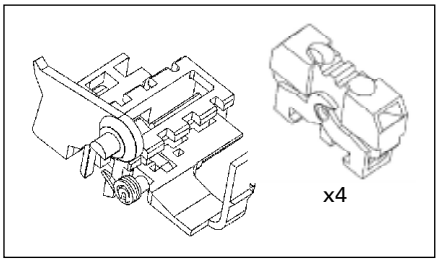
Auxiliary Switch and Alarm Switch Combination Kits

Description	Mounting Pocket①	Catalogue Number
2 Aux. + 2 Alarm Switches 2A + 2B Base AMBP2	Left Pocket Only	**ASKP3**
4 Aux. Switches 2A + 2B Base AMBP1	Left, Right	**ASKP4**



Auxiliary/Alarm Switch Mounting Base Only

Description	Mounting Pocket①	Catalogue Number
Up to 4 Auxiliary Switches 2 Aux. + 2 Alarm Switches	Left, Right Left Pocket Only	**AMBP1** **AMBP2**



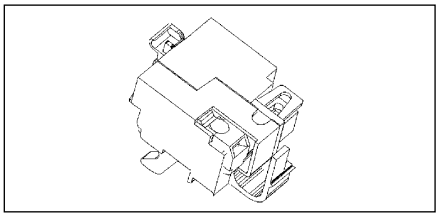
Auxiliary/Alarm Switch Only

Common to DG-PG Frames

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

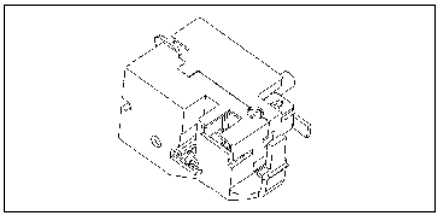
Shunt Trips

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



Undervoltage Release

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



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

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General

Typically a molded case switch is used when a compact load-break switch is needed for disconnect purposes. The VL line of molded case switches from Siemens is made of the same materials and components as the VL circuit breakers but do not provide overcurrent protection. Each molded case switch has a fixed instantaneous self-protecting trip element which may open the switch under high fault conditions.

Application Note

Overcurrent protection must be provided by an appropriate overcurrent protective device located upstream from the molded case switch. Also, the short-circuit current rating of the switch is limited to the interrupting rating of the upstream protective device or the ratings in the table below, **whichever is less.**

Ordering Information

Each type VL molded case switch accepts the same terminals and accessories as the equivalent VL circuit breakers.

All type VL molded case switches are suitable for reverse feed applications.

Mounting hardware and standard line and load terminals are included on ratings through 250A. For 400 – 1600A ratings, order the lugs separately.

All ratings are UL listed and CSA certified.

Molded Case Switch

Maximum Ampere Rating / Frame	2-Pole	3-Pole	Short-Circuit Current Rating①			Self Protective Instantaneous Override
	Catalogue Number	Catalogue Number	240V	480V	600V	
150A / DG	**HDS2S150L**	**HDS3S150L**	100k	65k	20k	2,500A
250A / FG	**HFS2S250L**	**HFS3S250L**	100k	65k	20k	3,500A
400A / JG	**HJS2S400**	**HJS3S400**	100k	65k	25k	4,400A
600A / LG	**HLR2S600**	**HLR3S600**	100k	65k	18k	5,500A
800A / MG	**HMS2S800**	**HMS3S800**	100k	65k	35k	6,500A
1200A / NG	**HNS2S120**	**HNS3S120**	100k	65k	35k	12,000A
1600A / PG	_	**HPS3S160**	100k	65k	35k	14,000A

Maximum Ampere Rating / Frame	3-Pole	Short-Circuit Current Rating①			Self Protective Instantaneous Override
	Catalogue Number	240V	480V	600V	
250A / FG	**LFS3S250L**	200k	100k	25k	3,500A
400A / JG	**LJS3S400**	200k	100k	25k	4,400A
600A / LG	**LLR3S600**	200k	100k	18k	5,500A
800A / MG	**LMS3S800**	200k	100k	65k	6,500A
1200A / NG	**LNS3S120**	200k	100k	65k	12,000A
1600A / PG	**LPS3S160**	200k	100k	65k	14,000A

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

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)	Catalogue Number①
35-50	450	HDM3L150L
42-60	540	
48-70	630	
55-80	720	
62-90	810	
69-100	900	
58-83	750	HDM3M150L
69-100	900	
81-117	1050	
92-133	1200	
104-150	1350	
115-150②	1500	
96-139	1250	HDM3H150L
115-150②	1500	
135-150②	1750	
135-150②	2000	
135-150②	2250	
135-150②	2500	
46-67	600	HFM3L250L
55-80	720	
65-93	840	
74-107	960	
83-120	1080	
92-133	1200	
77-111	1000	HFM3M250L
92-133	1200	
108-156	1400	
123-178	1600	
138-200	1800	
154-222	2000	
135-194	1750	HFM3H250L
162-210	2100	
188-220	2450	
215-241	2800	
242-250②	3150	
242-250②	3500	

Motor Full Load Amperes	Trip Setting (A)	Catalogue Number①
96-139	1250	HJM3L400
115-167	1500	
135-194	1750	
154-222	2000	
173-250	2250	
192-278	2500	
154-222	2000	HJM3M400
185-267	2400	
215-311	2800	
246-356	3200	
277-400	3600	
308-400②	4000	
154-222	2000	HLM3J600
185-267	2400	
215-311	2800	
246-356	3200	
277-400	3600	
308-444	4000	
212-306	2750	HLM3Y600
254-367	3300	
296-428	3850	
338-489	4400	
381-550	4950	
423-600	5500	
250-361	3250	HMM3M800
292-422	3800	
335-483	4350	
385-556	5000	
442-638	5740	
500-722	6500	
385-556	5000	HNM3M120
462-667	6000	
538-778	7000	
615-889	8000	
692-1000	9000	
769-1111	10,000	

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.

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

General

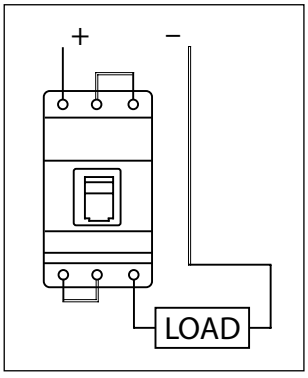
Siemens cUL Listed non-interchangeable trip DC Thermal/magnetic Molded Case Circuit Breakers shown below are for use in grounded & ungrounded general DC circuits and ungrounded battery supply circuits of UPS systems. These breakers are rated at 600Vdc closed circuit and feature rated interruption levels from 42,000 to 65,000 amperes as indicated in the table. This family of circuit breakers is rated from 50 to 1600 Amperes.

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

To properly use these cUL Listed circuit breakers at 600Vdc and the indicated interruption level, it is necessary to connect the terminals of the 3 pole circuit breaker in a series configuration as shown in the diagram below.

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

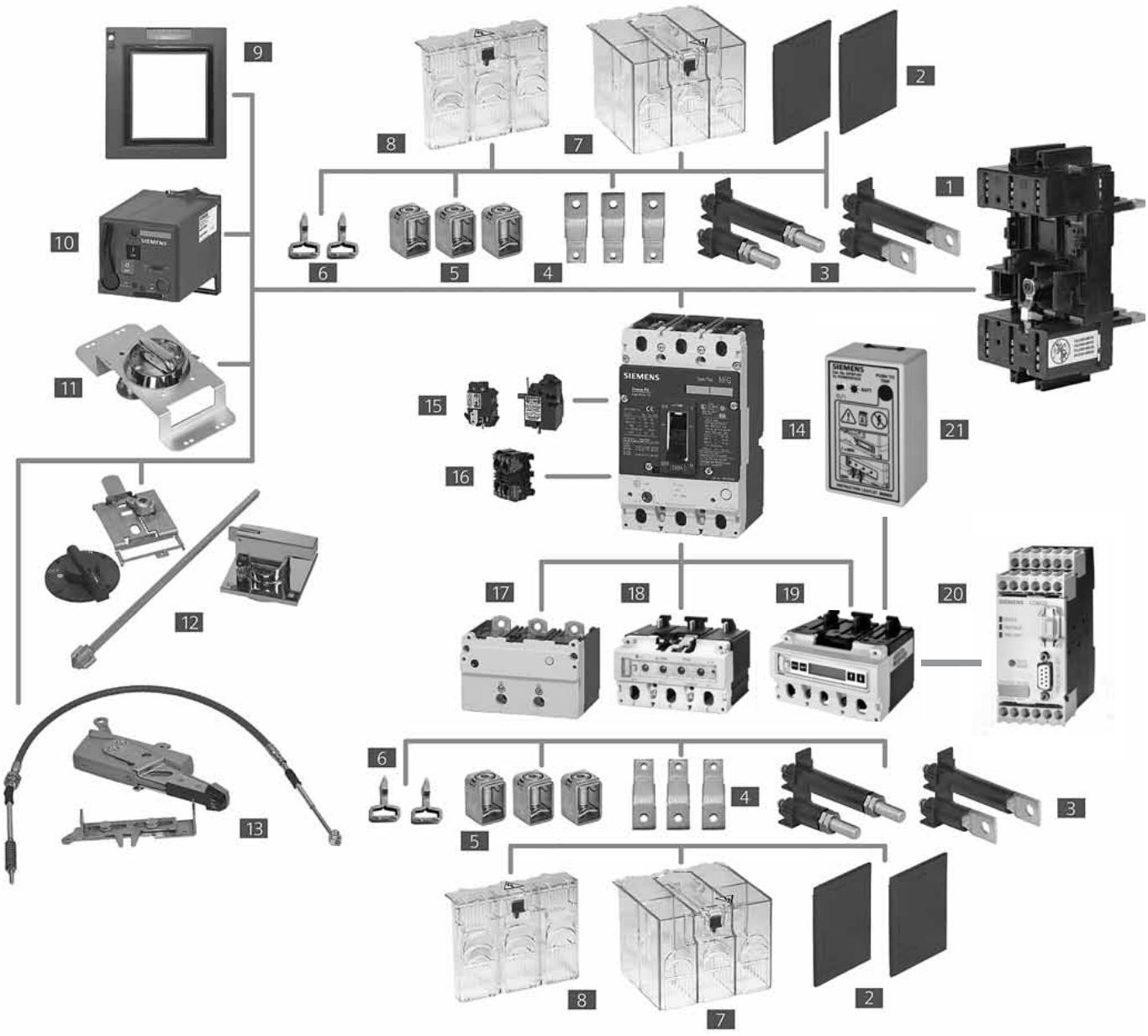
Frame	Type	Continuous Ampere Rating	Catalogue Number (3-pole)①	Short-Circuit Current Rating 600VDC②
DG	HDGD	50	HDC3B050	42K
		60	HDC3B060	42K
		70	HDC3B070	42K
		80	HDC3B080	42K
		90	HDC3B090	42K
		100	HDC3B100	42K
		110	HDC3B110	42K
		125	HDC3B125	42K
		150	HDC3B150	42K
FG	HFGD	100	HFC3B100	42K
		150	HFC3B150	42K
		250	HFC3B250	42K
JG	HJGD	250	HJC3B250	65K
		300	HJC3B300	65K
		350	HJC3B350	65K
		400	HJC3B400	65K
LG	HLGD	400	HLC3B400	65K
		600	HLC3B600	65K
MG	HMGD	600	HMC3B600	65K
		700	HMC3B700	65K
		800	HMC3B800	65K
NG	HNGD	800	HNC3B800	65K
		900	HNC3B900	65K
		1000	HNC3B100	65K
		1200	HNC3B120	65K
PG③	HPGD	1200	HPC3B120	65K
		1400	HPC3B140	65K
		1600	HPC3B160	65K



① Terminal connectors must be ordered separately; see page 5-146
② Standard VL breakers DG - PG feature DC ratings up to 500V for ungrounded UPS applications. Consult the individual frame section for more information.
③ UL only.

Modularity To Support All Your Application Needs

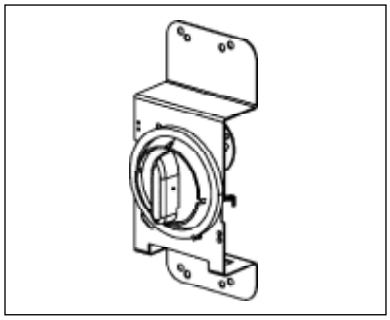
Modules and More: VL Circuit Breakers with Optional Accessories

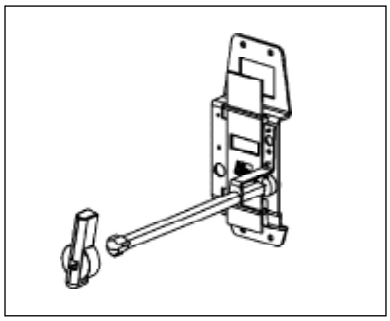


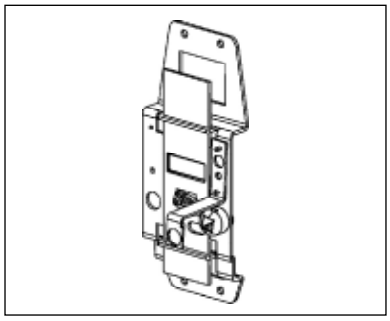
1 Base for Plug-In or Draw-Out
2 Interphase Barriers
3 Rear Terminals – Flat and Round
4 Bus Extensions
5 Terminal Connectors
6 Plug-In Terminal Blades
7 Extended Terminal Shield
8 Standard Terminal Shield
9 Cover Frame for Door Cutout
10 Stored Energy Operator
11 Rotary Handle Operator
12 Variable Depth 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 (555)
19 Elec. Trip Unit with LCD (586)
20 Communication Module with ZSI
21 Electronic Trip Unit Tester and LCB Power Supply

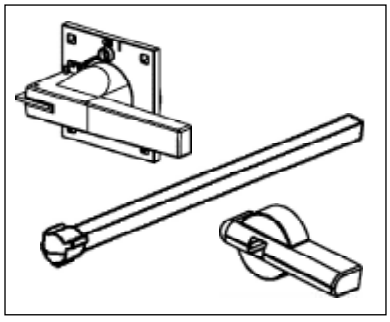
VL External Accessories

Operating Mechanisms









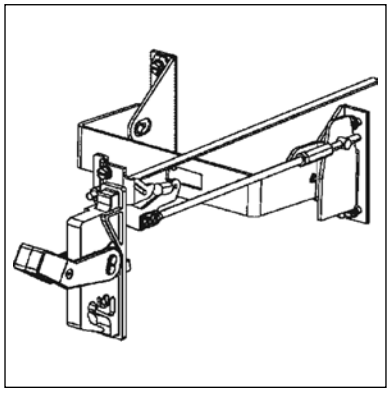
Description	For DG to FG Frame 150 to 250 A Catalogue Number	For JG to LG Frame 400 A to 600 A Catalogue Number
Through-Door Rotary Handle Operator Kit		
Fixed depth and the handle is mounted directly on the circuit breaker.		
Lockable knob (for up to 3 padlocks).		
NEMA 1, 12	**RHFF**	**RHFL**
Red Handle Version with red knob, yeloow indicator plate		
NEMA 1, 12	**RHFFEM**	**RHFLEM**
Door-Mounted Rotary Handle Operator Kit		
Variable depth, door mounted handle. Includes knob with masking frame, indicator plate, detachable door coupling, 12″ shaft, and breaker mounted rotary operator. Lockable knob (for up to 3 padlocks).		
NEMA 1, 12	**RHVF12**	**RHVL12**
Auxiliary Switch Kits		
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 Door-Mounted Operator	**—**	**RHSLA1**
For Through-Door Operator	**RHSFA1F**	**RHSLA1F**
Includes 2 switches with 5′ wire		
For Door-Mounted Operator	**—**	**RHSLA2**
For Through-Door Operator	**RHSFA2F**	**RHSLA2F**
Door-Mounted Rotary Operator Mechanism		
Breaker mechanism only	**RHVFBM**	**RHVLBM**
Door-Mounted Rotary Handle Only		
Standard version NEMA 1, 12	**RHVM12H**	**RHVM12H**
NEMA 3R	**RHVM3RH**	**RHVM3RH**
NEMA 4X	**RHVM4XH**	**RHVM4XH**
Red Handle version	**RHVMEMH**	**RHVMEMH**
NFPA-79 Handle Kit		
Intermediate handle for NFPA-79 compliance with door-mounted rotary operator	**RHVF79H**	**RHVM79H**
Extension Shaft Only, for Door Mounted Operator		
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	**RHVMS24**	**RHVMS24**

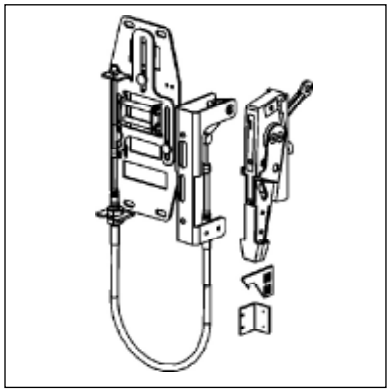
① During manual operation, Early Break auxiliary switch contacts open before the breaker opens.

Description	For MG Frame 800 A Catalogue Number	For NG to PG Frame 1200 to 1600 A Catalogue Number
Through-Door Rotary Handle Operator Kit		
Fixed depth, breaker mounted. For direct fitting to the circuit breaker. Lockable with up to 3 padlocks. NEMA 1, 12	**RHFM**	—
Red Handle Version with red knob, yeloow indicator plate NEMA 1, 12	—	—
Door-Mounted Rotary Handle Operator Kit		
Variable depth, door mounted handle. Includes knob with masking frame, indicator plate, detachable door coupling, 12″ shaft, and breaker mounted rotary operator. Lockable knob (for up to 3 padlocks). NEMA 1, 12	**RHVM12**	—
Auxiliary Switch Kits		
For Direct or Extended Rotary Handle Operators (RHF and RHV). Early Break type2 Aux. Switch Kit Includes 1 switch with 5′ wire For Door-Mounted Operator	**RHSMA1**	**RHSPA1**
For Through-Door Operator	—	—
Includes 2 switches with 5′ wire For Door-Mounted Operator	**RHSMA2**	**RHSPA2**
For Through-Door Operator	—	—
Door-Mounted Rotary Operator Mechanism		
Breaker mechanism only	**RHVMBM**	**RHVPBM**
Door-Mounted Rotary Handle Only		
Standard version NEMA 1, 12	**RHVM12H**	**RHVP12H**
NEMA 3R	**RHVM3RH**	**RHVP3RH**
NEMA 4X	**RHVM4XH**	**RHVP4XH**
Red Handle version	**RHVMEMH**	**RHVPEMH**
NFPA-79 Handle Kit		
Intermediate handle for NFPA-79 compliance with door-mounted rotary operator	**RHVM79H**	**RHVP79H**
Extension Shaft Only, for Door Mounted Operator		
2 inches (50.8mm)	**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	**RHVMS24**	**RHVPS24**

VL External Accessories

Operating Mechanisms





Description		For DG and FG Frame 150 to 250 A Catalogue Number	For JG and LG Frame 400 to 600 A Catalogue Number
Variable Depth Flange Mounted Operator Kit			
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**
	NEMA 4X	**FHVF4XB**	**FHVL4XB**
Max-Flex™, Variable Depth Flange Mounted Operator Kit			
Complete kit, includes plastic handle, breaker operator, and cable.	NEMA 1, 3R, 12	**MFKF3R**	**MFKL3R**
For DG and FG operators, the cable is 36″, all others are 48″			
May be right- or left-hand mounted			
Handle Only, for Max-Flex™ Variable Depth			
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™		**MFMF**	**MFML**
Cable Only, for Max-Flex™ Variable Depth			
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			
Form C (1NO - 1NC), early break②			
1 Aux. switch		**MFSFA1**	**MFSLA1**
2 Aux. switch		**MFSFA2**	**MFSLA2**

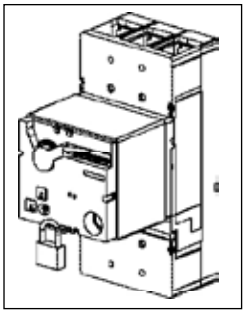
① Max-Flex™ handles are available with solid gray or black handles instead of the customary "Red for On" flange handle. The black handle is preferred for IEC markets, where red handles have a specific meaning.
② During manual operation, Early Break aux. contacts open before the breaker opens.

Description	For MG Frame 800 A Catalogue Number	For NG Frame 1200 A Catalogue Number	For PG Frame 1600 A Catalogue Number
Variable Depth Flange Mounted Operator Kit			
Adjustable from 8″ to 16″			
Complete kit, includes handle and variable depth operator.			
NEMA 1, 3R, 12	—	—	
NEMA 4X	—	—	
IEC Black Handle NEMA 1, 3R, 12	—	—	
NEMA 4X			
Max-Flex™, Variable Depth Flange Mounted Operator Kit			
Complete kit, includes plastic handle, breaker operator, and cable. NEMA 1, 3R, 12	**MFKM3R**	**MFKP3RS**	**MFKP3RS**
For DG and FG operators, the cable is 36″, all others are 48″			
May be right- or left-hand mounted			
Handle Only, for Max-Flex™ Variable Depth			
NEMA 1, 3R, 12 Plastic	**MFHM3R**	—	—
NEMA 1, 3R, 12 Steel - epoxy coated	**MFHM3RS**	**MFHP3RS**	**MFHP3RS**
NEMA 4, 4X Steel - chrome plated	**MFHM4X**	**MFHP4X**	**MFHP4X**
Solid color (all gray) Plastic①			
NEMA 1, 3R, 12	**MFHM3RB**	—	—
Solid color (black handle) Steel epoxy coated①			
NEMA 1, 3R, 12	**MFHM3RSB**	**MFHP3RSB**	**MFHP3RSB**
Breaker Operator Mechanism Only, for Max-Flex™	**MFMM**	**MFMP**	**MFMP**
Cable Only, for Max-Flex™ Variable Depth			
36″	**MFCM036**	—	—
48″	**MFCM048**	**MFCP048**	**MFCP048**
60″	**MFCM060**	**MFCP060**	**MFCP060**
72″	**MFCM072**	**MFCP072**	**MFCP072**
84″	**MFCM084**	**MFCP084**	**MFCP084**
96″	**MFCM096**	**MFCP096**	**MFCP096**
120″	**MFCM120**	**MFCP120**	**MFCP120**
144″	**MFCM144**	**MFCP144**	**MFCP144**
Handle Auxiliary Switch			
Form C (1NO - 1NC), early break②			
1 Aux. switch	**MFSPA1**	**MFSPA1**	**MFSPA1**
2 Aux. switch	**MFSPA2**	**MFSPA2**	**MFSPA2**

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.

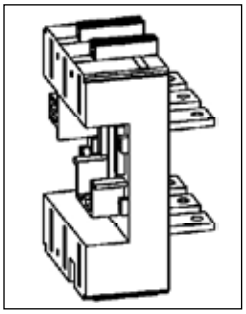
VL External Accessories

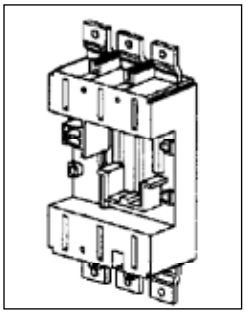
Operating Mechanisms

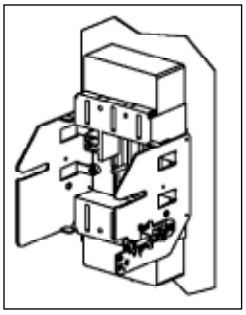


Description	For DG to FG Frame 150 to 250 A Catalogue Number
Stored Energy and Motor Operators	
Lockable with up to 3 padlocks.	
AC Voltage / DC Voltage	Stored Energy Type
— / 24	**SEAFB**
42-48 / 42-48	**SEAFM**
60 / 60	**SEAFY**
110–127 / 110–127	**SEAFN**
220–250 / 220–250	**SEAFR**
Cylinder Locks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

Plug-In and Draw-Out Bases







Description	For DG Frame 150 A Catalogue Number	For FG Frame 250 A Catalogue 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		
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**

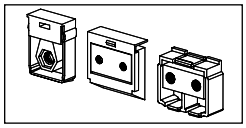
① Up to 2 position indicator switches may be mounted per plug-in or draw-out base.
② Up to 2 plugs per breaker (16 terminal points) may be mounted on DG, and FG breakers. Up to 3 plugs per breaker (24 terminal points) may be mounted on JG, LG, MG, NG, and PG breakers.

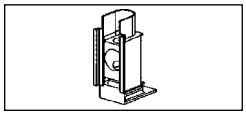
For JG to LG Frame 400 to 600 A	For MG Frame 800 A	For NG to PG Frame 1200 to 1600 A
Catalogue Number	**Catalogue Number**	**Catalogue Number**
Stored Energy Type	Stored Energy Type	Motor Operator Type
SEALB	**SEAMB**	**MTRPB**
SEALM	**SEAMM**	**MTRPM**
SEALY	**SEAMY**	**MTRPY**
SEALN	**SEAMN**	**MTRPN**
SEALR	**SEAMR**	**MTRPR**
CLKP	**CLKP**	**CLKP**

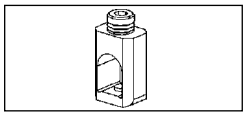
For JG Frame 400 A	For LG Frame 600 A	For MG Frame 800 A	For NG Frame 1200 A	For PG Frame 1600 A
Catalogue Number	**Catalogue Number**	**Catalogue Number**	**Catalogue Number**	**Catalogue Number**
PCBJRC3	**PCBLRC3**	**PCBMRC3**	**PCBNRC3**	—
PCBJFC3	**PCBLFC3**	—	—	—
DCAJRC3	**DCALRC3**	**DCAMRC3**	**DCANRC3**	—
DCAJFC3	**DCALFC3**	**DCAMFC3**	**DCANFC3**	—
DCHP	**DCHP**	**DCHP**	**DCHP**	—
DCIP	**DCIP**	**DCIP**	**DCIP**	—
PCTL83	**PCTL83**	**PCTM83**	**PCTN83**	—
PCXJ3	**PCXL3**	**PCXM3**	**PCXN3**	—
DCXJ3	**DCXL3**	**DCXM3**	**DCXN3**	—
PCXLT	**PCXLT**	**PCXMT**	**PCXPT**	—

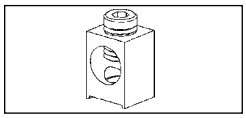
External Accessories

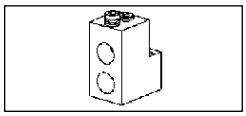
Connections

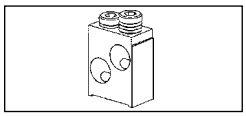


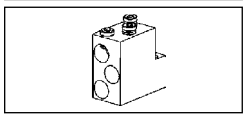


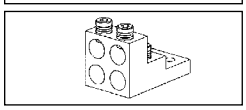


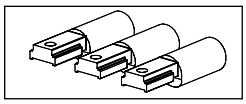


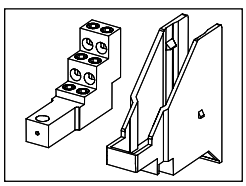












Note: pictures provide graphical representaions only.

Discription	For DG Frame 150 A Catalog Number	For FG Frame 250 A Catalog Number
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**①	**TCW1FG350**①
Kit of 2	—	—
Kit of 3	**3TC1DG30**①	**3TCW1FG350**①
Cable Size; (cables per phase)	—	—
Single Lug	—	—
Compression Lugs		
Cable Size; (cables per phase)	#14-2/0; 1-cable	#4-350 kcmil; 1-cable
Kit of 2	**2CLD20**	—
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 *(Cu Wire Only)*		#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**
Control Wire Terminals		
Control Wire Terminal (Single)	—	—
Control Wire Terminal (Kit of 3)	—	—

① Required for 100% rated breakers. Requires 90°C cable sized at 75°C ampacity.

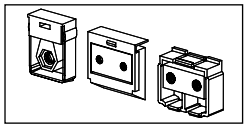
For JG Frame 400 A	For LG Frame 600 A	For MG Frame 800 A	For NG Frame 1200 A	For PG Frame 1600 A
Catalog Number	**Catalog Number**	**Catalog Number**	**Catalog Number**	**Catalog Number**
FBCJ3[1] —	FBCL3[1] —	FBCM3[1] —	SSBP SSBPH	SSBP SSBPH
RTLJSR RTLJLR SRTJR3 RTLJSF RTLJLF SRTJF3 — —	— — — — — — RTLLSF SRTLF3	— — — — — — RTLMSF SRTMF3	— — — — — — RTLNSF SRTNF3	— — — — — — — —
TSSL3 TSLL3	TSSL3[2] TSLL3[2]	TSSM3 TSLM3	TSSP3 TSLP3	TSSP3 TSLP3
IPBM	IPBM	IPBM	IPBP	IPBP
—	—	—	—	LMAP1600[3]
— —	— —	— —	— —	MBPG1600 MBPG1601

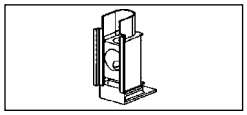
[1] Consult Siemens for availability.

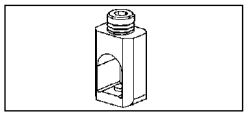
[2] Not for use with standard Al terminals. Use Standard Shield for rear connection and Extended Shield for bus-bar connection.

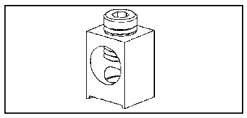
[3] Kit includes connection for one side of breaker only. Order quantity 2 if connecting line and load side.

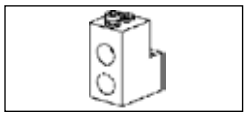
Connections

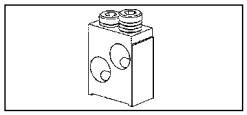


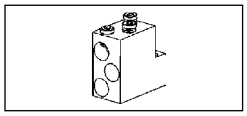


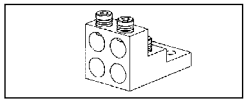


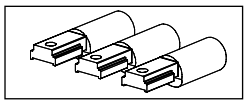


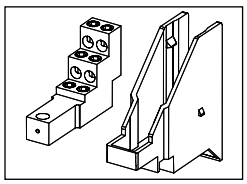












Note: pictures provide graphical representaions only.

Discription	For DG Frame 150 A Catalogue Number	For FG Frame 250 A Catalogue Number
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**①	**TCW1FG350**①
Kit of 2	—	—
Kit of 3	**3TC1DG30**①	**3TCW1FG350**①
Cable Size; (cables per phase)	—	—
Single Lug	—	—
Compression Lugs		
Cable Size; (cables per phase)	#14-2/0; 1-cable	#4-350 kcmil; 1-cable
Kit of 2	**2CLD20**	—
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 *(Cu Wire Only)*		#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**
Control Wire Terminals		
Control Wire Terminal (Single)	—	—
Control Wire Terminal (Kit of 3)	—	—

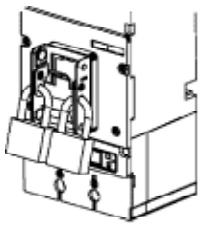
① Required for 100% rated breakers. Requires 90°C cable sized at 75°C ampacity.

For JG Frame 400 A	For LG Frame 600 A	For MG Frame 800 A	For NG Frame 1200 A	For PG Frame 1600 A
Catalogue Number	**Catalogue Number**	**Catalogue Number**	**Catalogue Number**	**Catalogue Number**
TMKJ **TMKJ3** *metric only*	**TNKL** **TNKL3**	**TNKM** **TNKM3**	**TNKP** **TNKP3**	**TNKP** **TNKP3**
1/0-600 kcmil; 1-hole **TW1JG600** **3TW1JG600**	— — —	— — —	— — —	— — —
3/0-250 kcmil; 2-hole **TA2JG250** — **3TA2JG250**	#2-600 kcmil; 2-hole — — — **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** #2-600 kcmil; 3-hole — **3TA3MG600**④	500 -750 kcmil; 3-hole — **2TA3NG750** **3TA3NG750** —	600-750 kcmil; 4-hole **TA4P750**⑥ — 300-600 kcmil; 5; 6-hole **TA5P600**⑥ **TA6R600**⑥ —
3/0-250 kcmil; 2-hole **TC2JG250**③ — — 3/0-750 kcmil; 1-hole **TC1JG750**③	#2-600 kcmil; 2-hole — — — **3TC2LG600LD**①③ **3TC2LG600LN**②③ — —	1/0-500 kcmil; 3-hole **TC3MG500**③ — — — —	1/0-500 kcmil; 4-hole — — **3TC4NG500**③ — —	— — — — 300-600 kcmil; 5-hole **TC5R600**③⑥
#6-350 kcmil; 1-cable — **3CLJ350** 250-600 kcmil; 1-cable **3CLJ600** — 250-750 kcmil; 1-cable **3CLJG750** —	#6-350 kcmil; 2-cable — **6CLL350** (kit of 6) 250-750 kcmil; 1-cable **3CLL750** — 250-600 kcmil; 2-cable **6CLL600** (kit of 6) —	— — — — — — —	1/0-500 kcmil; 4-cable — **12CLN500** (kit of 12) — — — — —	— — — — — — — —
#14-#4; 12-hole **TA12JG04** **3TA12JG04** #14-2/0; 6-hole **TA6JG20** **3TA6JG20**	— — — — — —	— — — — — —	— — — — — —	— — — — — —
TA2JG250PT —	— **3TA2LG600LNPT**	**TA3MG500PT** —	— **3TA4NG500PT**	— —

All lug kits include the nut keepers.
① Mounted on Load Side Only.
② Mounted on Line Side Only.
③ Required for 100% rated breakers. Requires 90°C cable sized at 75°C ampacity.
④ Requires extended modified shield.
⑤ Used only with LMAP1600 mounting base.
⑥ Used only with MBPG1600 or MBPG1601 mounting base.

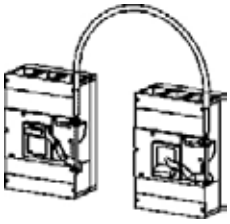
VL External Accessories

General



Handle Padlocking Device

Walking-Beam Interlock Mechanism



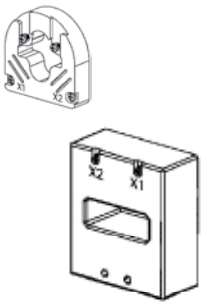
Cable Interlock System

Description	For DG Frame 150 A Catalogue Number	For FG Frame 250 A Catalogue Number
Handle Padlocking Device To padlock breaker toggle in the "OFF" position. Accepts up to 3 padlocks with 5–8 mm shackles.	**HPLF**	**HPLF**
Handle Blocking Device For holding the handle in the "ON" position. Not a lockout/tagout device.	**HBDF**	**HBDF**
Walking-Beam Interlock Mechanism Provides mechanical interlocking between two adjacent circuit breakers. Fixed mounted breakers Note: Both breakers must be of the same frame size.	**WBMFFM**	**WBMFFM**
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 400–800A)	**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		
Kit with 2 screws (SAE thread)	**MSKF2**	**MSKF2**
Kit with 4 screws (SAE thread)	**MSKF4**	**MSKF4**
Trip Adjustment Sealing Cover Includes a trip unit cover to prevent tampering or adjustment of trip settings. Seal not included. Thermal-Magnetic Trip Units	**TSCFTM**	**TSCFTM**

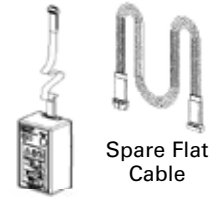
For JG Frame 400 A	For LG Frame 600 A	For MG Frame 800 A	For NG Frame 1200 A	For PG Frame 1600 A
Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number
HPLL	HPLL	HPLM	HPLP	HPLP
HBDL	HBDL	HBDM	HBDP	HBDP
WBMLFM	WBMLFM	WBMMFM	WBMPFM	WBMPFM
CBTL	CBTL	CBTM	CBTP	CBTP
—	—	—	—	—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

VL External Accessories

Ground Sensors & Electronic Accessories



Description	For DG Frame 150 A Catalogue Number	For FG Frame 250 A Catalogue Number
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	—	—



Spare Flat Cable

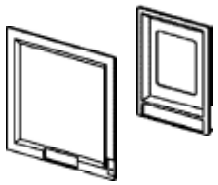
Power Stick

RS232 Cable

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**
Com20 Profibus Communications Module with ZSI for electronic trip units (order cable separately)	**COMPRO2O**	**COMPRO020**
Com21 Modbus Communications Module with ZSI for electronic trip units (order cable separately)	**COMMOD21**	**COMMOD21**
Cable for COM20/21 and power supply……5ft. (1.5m)	**COMKIT13**	**COMKIT13**
Cable for COM20/21, 3.0m (9.8ft).	**COMKIT6**	**COMKIT6**
Spare flat cable for Test Kits	**COMPCA**	**COMPCA**
Adressing Plug - Assigns a field bus address without a PC by pluging into Com20/21	**3UF79100AA00**	**3UF79100AA000**

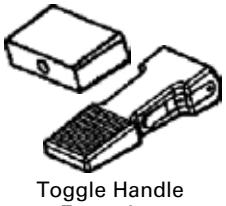
Com20 Profibus & Com21 Modbus Communications Module

Door Cutouts & Extensions



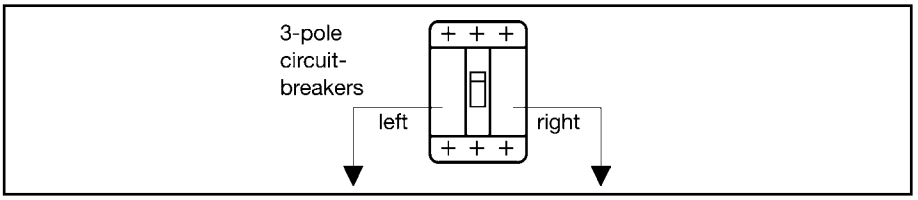
Cover Frame for Door Cutout

Cover Frame for Door Cutout For fixed or plug-in mounted circuit breakers. (IP30) 2-Pole & 3-Pole	**BZLF3**	**BZLF3**
For breakers with stored energy operator. (IP40)	**BZLFRHSE**	**BZLFRHSE**
Circuit-breaker draw-out mounted and toggle handle operated. Kit includes cover frame (bezel) and escutcheon as needed. (IP40) (not for use with rotary handle or stored energy operator)	**BZLFBDC**	**BZLFBDC**
Toggle Handle Extension For spare or replacement. (One is included with each NG - PG frame.)	—	—



Toggle Handle Extension

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
Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number	Catalogue Number
—	—	—	—	—
—	—	—	—	—
—	—	—	—	—
NGSJ250	—	—	—	—
NGSL400	NGSL400	—	—	—
—	NGSM600	NGSM600	—	—
—	—	NGSN800	NGSN800	—
—	—	—	NGSP120	NGSP120
—	—	—	—	NGSP160
EPSP18V	EPSP18V	EPSP18V	EPSP18V	EPSP18V
COMPRO20	COMPRO20	COMPRO20	COMPRO20	COMPRO20
COMMOD21	COMMOD21	COMMOD21	COMMOD21	COMMOD21
COMKIT4	COMKIT4	COMKIT5	COMKIT5	COMKIT5
COMKIT7	COMKIT7	COMKIT8	COMKIT8	COMKIT8
COMPCA	COMPCA	COMPCA	COMPCA	COMPCA
3UF79100AA000	3UF79100AA000	3UF79100AA000	3UF79100AA000	3UF79100AA000
BZLL3	BZLL3	BZLM3	BZLP3	BZLP3
BZLLRHSE	BZLLRHSE	BZLMRHSE	BZLPRHSE	BZLPRHSE
BZLLBDC	BZLLBDC	BZLMBDC	BZLPBDC	BZLPBDC
THEL	THEL	THEM	THEP	THEP



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

Accessory Maximums

DG, FG, JG, LG Maximum Accessories:

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

MG, NG, PG Maximum Accessories:

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

VL Technical Data

		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	158 – 200	158 – 200	158 – 200	158 – 200	380 – 480	380 – 480	380 – 480
110 – 127 V AC	VA	136 – 158	136 – 158	136 – 158	136 – 158	302 – 353	302 – 353	302 – 353
208 – 277 V AC	VA	274 – 350	274 – 350	274 – 350	274 – 350	330 – 439	330 – 439	330 – 439
380 – 600 V AC	VA	158 – 237	158 – 237	158 – 237	158 – 237	243 – 384	243 – 384	243 – 384
24 V DC	W	110	110	110	110	360	360	360
48 – 60 V DC	W	110 – 172	110 – 172	110 – 172	110 – 172	512 – 820	512 – 820	512 – 820
110 –127 V DC	W	220 – 254	220 – 254	220 – 254	220 – 254	302 – 353	302 – 353	302 – 353
220 – 250 V DC	W	97 – 110	97 – 110	97 – 110	97 – 110	348 – 397	348 – 397	348 – 397
Max. operating time	ms	50	50	50	50	50	50	50

① Consult Siemens for short circuit values.
② Review individual frame and type values.

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

Operating range: 85 – 110% of rated control voltage

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

High Ambient Temperatures

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

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

Altitude

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

Table 1 – Temperature derating date 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
50	55	46	42	DG
60	66	56	52	
70	77	65	60	
90	99	84	78	
100	110	94	87	
125	137	114	100	
150	165	136	120	
175	192	159	140	FG
200	220	182	160	
225	247	205	180	
250	275	235	220	JG
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	

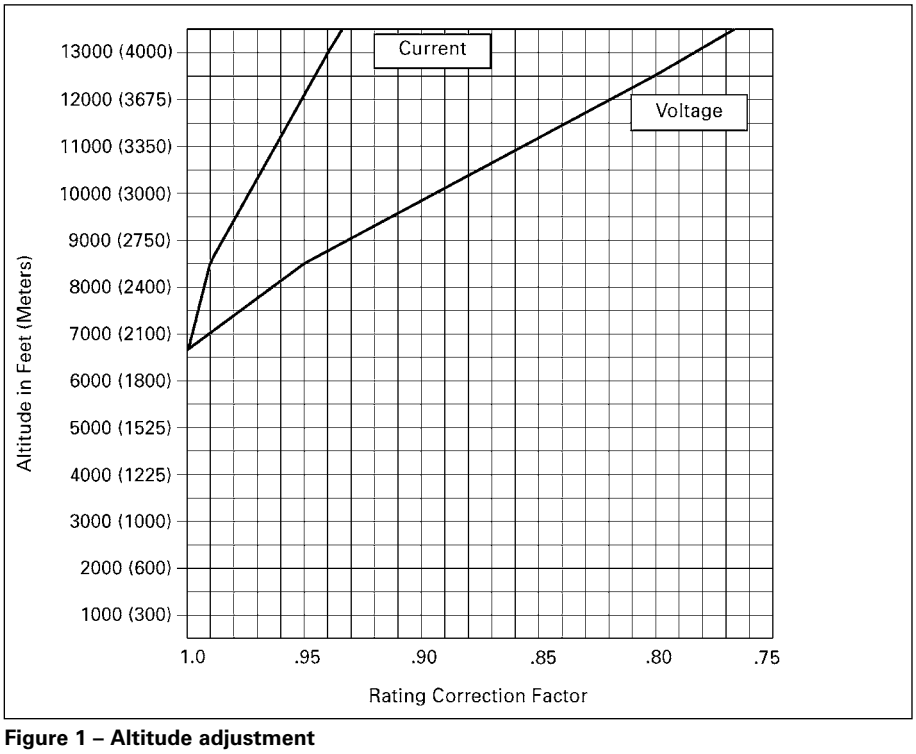


Figure 1 – Altitude adjustment

Unusual Operating Conditions 400 Hz Systems

Circuit Breaker Derating Required

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

Cable and Bus Sizing

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

Application Recommendations

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

Interrupting Rating

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

Breaker type	Maximum continuous ampere rating at 40°C (104°F)②			75°C (167F) Copper cable per pole	
	60HZ	400HZ			
	Open air	Open air③	Enclosed after derating	No of pieces	Wire size
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

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

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

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

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