Section 7

Miniature and Molded Case Circuit Breakers

H-Frame

J-Frame

D-Frame

M-Frame

P-Frame

R-Frame

SQUARE D
by Schneider Electric

Schneider Electric

		HOM Circuit Breakers								QO® Circuit Breakers																			
																													
Circuit Breaker Type	**Plug-on**	HOM		HOM-AFI	HOM-GFI		HOM-EPD		HOMT	QO			QO-H	QO-VH				QH		QOT	QO-CAFI	QO-VHAFI	QO-GFI		QO-VHGFI	QO-EPD	
	Bolt-on	—	—	—	—	—	—	—	—	QOB			QOB-H	—	—	—	QOB-VH		QHB		—	QOB-CAFI	QOB-VHAFI	QOB-GFI		QOB-VHGFI	QOB-EPD	
	Unit Mount	—	—	—	—	—	—	—	—	—			—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Number of Poles		1	2	1	1	2	1	2	1	1	2	3	2	1	2	3	1	2,3 ▲	1,2	3	1	1	1	1	2	1	1	2
Current Range		15–50	15–200♦	15–20	15–20	15–50	15–20	15–50	15–50■	10–70	10–200♦	10–100	15–100	15–30	15–125	15–100	15–30	15–150	15–30	15–30	15–30	15–20	15–30	15–30	15–60	15–30	15–30	15–60
Interrupting Ratings																												
UL/CSA Rating (kA) (50/60 Hz)	120 Vac	10	10	10	10	10	10	10	10	10	10	10	10	22	22	22	22	22	65	65	10	10	22	10	10	22	10	10
	120/240 Vac	10	10	—	—	10	—	10	10	10	10	10	10	22	22	22	22	22	65	65	10	—	—	—	10	—	—	10
	240 Vac ★	—	—	—	—	—	—	—	—	—	—	10	10	—	—	22	—	22▼	—	65	—	—	—	—	—	—	—	—
	277 Vac	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	480Y/277 Vac	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
DC Ratings	48 Vdc	—	—	—	—	—	—	—	—	5△	5 △	5 △	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60 Vdc	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	65 Vdc	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	125 Vdc	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	250 Vdc	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
IEC 60947-2 (50/60 Hz)□	IEC (Icu)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Special Ratings																												
Fed. Specs W-C-375B/GEN		X	X	X	X	X	X	X	X	X	—	—	—	X	—	—	—	—	X	—	X	X	—	X	—	—	X	—
Other Standard		HACR ◊ NOM		HACR ◊						HACR☆ NOM			HACR ☆						—	—	—	HACR ☆	—	NOM		—	NOM	
Accessories and Modifications																												
Shunt Trip ▽		—	—	—	—	—	—	—	—	X	X	X	X	X	X	X	X	X ◒	X	X	X	—	—	—	—	—	—	—
Undervoltage Trip		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Auxiliary Switches ▽		—	—	—	—	—	—	—	—	X	X	X	X	X	X	X	X	X ◒	X	X	X	—	X	X	X	X	X	X
Alarm Switch ▽		—	—	—	—	—	—	—	—	X	X	X	X	X	X	X	X	X ◒	X	X	X	—	X	X	X	X	X	X
Handle Operators		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Handle Padlock Attachment		X	X	X	—	—	—	—	X ✱	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Trip System Type																												
Thermal-magnetic		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Molded Case Switch		—	—	—	—	—	—	—	—	X	X	X	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dimensions (1P Unit Mount)																												
Dimensions (1P Unit Mount) in. (mm)	Height	3.13 (79)								3.5 (89) ▲												4.75 (121)		4.12 (103)				
	Width	1.00 (25)								0.75 (19) ▲																		
	Depth	2.98 (76)								2.92 (74) ▲																		
Pages		Page 1-13								Pages 7-10, 7-11																		

▲ See page 7-54 for dimensions for: QOB2150VH, QOB3110VH, QOB3125VH and QOB3150VH.
■ HOMT tandem is 30 A maximum. HOMT quad tandem has 20 A maximum on outside poles, and 50 A maximum on the inside poles.
♦ AFI, EPD and GFI products are rated 60 Hz only.
★ See the Supplemental Digest for 3Ø corner grounded systems.
▼ 22 kA @ 240 Vac for 3P only.
△ 1P and 2P, 10–70 A and 3P 10–60 A only.
□ See the Supplemental Digest for circuit breakers with IEC ratings.
◊ HACR on HOM 1P 15–50 A and 2P 15–100 A
☆ HACR on QO, QOB 1P 10–70 A, 2P 15–100 A, 3P 10–100 A; QOB-VH 1P 15–70 A, 2P 15–125 A, 3P 15–100 A
▽ Factory-installed option only
◒ Factory-installed accessories are not available on QOB-VH 2P150 A and 3P 110–150 A
✱ Handle padlock attachment available for HOMT quad tandem only.
♦ 2P 150–200 A requires 4P width.

		QOU Circuit Breakers				QOM1 and QOM2 Main Circuit Breakers		Multi 9™ Circuit Breakers and Supplementary Protectors								EDB Circuit Breakers					
																					
Circuit Breaker Type	**Plug-on**	—			—	—	—	—			—					—		—		—	
	Bolt-on	—			—	QOM1-VH	QOM2-VH	—			—			*New!*		EDB		EGB		EJB	
	Unit Mount	QOU			QYU▲	—	—	UL 489 C60N			UL1077 C60N■			C60H-DC		—		—		—	
Number of Poles		1	2	3	1	2	2	1	2	3	1	2	3,4	1	2	1	2,3	1	2,3	1	2,3
Current Range		10–100	10–125	10–100	10–30	50–125	100–225	0.5–35	0.5–35	0.5–35	0.5–63	1–63	1–63	0.5–40	0.5–40	15–70	15–125	15–70	15–125	15–70	15–125
Interrupting Ratings																					
UL/CSA Rating (kA RMS) (50/60 Hz)	120 Vac	10	10	10	—	22	22	10	—	—	10	10	10	—	—	25	25	65	65	100	100
	120/240 Vac	10	10	10	—	22	22	5	10	10	10	10	10	—	—	18	25	35	65	65	100
	240 Vac♦	—	—	10	—	—	—	5	10	10	10	10	10	—	—	18	25	35	65	65	100
	277 Vac	—	—	—	5	—	—	—	—	—	5	5	5	—	—	18	18	35	35	65	65
	480Y/277 Vac	—	—	—	—	—	—	10	10	10	—	5	5	—	—	—	18	—	35	—	65
DC Ratings	48 Vdc	5★	5★	5★	—	—	—	—	—	—	10	10	—	5	5	—	—	—	—	—	—
	60 Vdc	5▼	5▼	5▼	—	—	—	10	10	—	—	—	—	5	5	—	—	—	—	—	—
	65 Vdc	—	—	—	—	—	—	—	—	—	10	10	—	5	5	—	—	—	—	—	—
	125 Vdc	—	—	—	—	—	—	—	10	—	—	10	—	5	5	—	—	—	—	—	—
	250 Vdc	—	—	—	—	—	—	—	—	—	—	—	—	5	5	—	—	—	—	—	—
	500 Vdc	—	—	—	—	—	—	—	—	—	—	—	—	—	5◒	—	—	—	—	—	—
IEC 60947-2 (50/60 Hz) Icu	240 Vac	—	—	—	—	—	—	20	20	20	10	10	10	20	10	20	—	—	—	—	—
	415 Vac	—	—	—	—	—	—	—	10	10	—	5	5	—	—	10	—	—	—	—	—
Special Ratings																					
Fed. Specs W-C-375B/GEN		X	X	X	X	X	X	X	X	X	—	—	—	—	—	X	X	X	X	X	X
Other Standard		HACR △			—	—	—	—	—	—	□	—	—	—	—	HACR					
Accessories and Modifications																					
Shunt Trip		X◊	X◊	X◊	X◊	—	X ◊	X	X	X	X	X	X	X	X	X ◊	X ◊	X ◊	X ◊	X ◊	X ◊
Undervoltage Trip		—	—	—	—	—	—	X	X	X	X	X	X	X	X	—	—	—	—	—	—
Auxiliary Switches		X◊	X◊	X◊	X◊	—	—	X	X	X	X	X	X	X	X	X◊	X◊	X◊	X◊	X◊	X◊
Alarm Switch		X◊	X◊	X◊	X◊	—	—	X	X	X	X	X	X	X	X	X◊	X◊	X◊	X◊	X◊	X◊
Handle Operators		—	—	—	—	—	—	X	X	X	X	X	X	X	X	—	—	—	—	—	—
Handle Padlock Attachment		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Trip System Type																					
Thermal-magnetic		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Molded Case Switch		—	X	X	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dimensions (1P Unit Mount)																					
Dimensions (1P Unit Mount) in. (mm)	Height	4.05 (103)				5.09 (129)☆	5.60 (142)☆	4.21 (107)▽			3.19 (81)			3.19 (81)		5.66 (144)					
	Width	0.75 (19)				5.00 (127)☆	5.07 (129)☆	0.71 (18)			0.71 (18)			0.71 (18)	1.42 (36)	0.98 (25)					
	Depth	2.92 (74)				3.47 (88)☆	3.60 (91)☆	2.76 (70)			2.76 (70)			2.56 (65)		4.05 (103)					
Pages		Pages 7-14				Pages 1-2		Pages 7-16 through 7-19								Page 9-17					

Note: All circuit breakers on this chart are UL Listed and CSA Certified unless otherwise noted.

- ▲ QYU is a UL 1077 supplementary protector.
- ■ C60N are recognized components per UL 1077.
- ♦ For information regarding 3Ø corner grounded systems see the Supplemental Digest.
- ★ 1P and 2P, 10–70 A and 3P 10–60 A only.
- ▼ QOU is UL Listed for 60 Vdc per pole 80–100 A, 1P; 80–125 A, 2P; and 70–100 A, 3P.
- △ HACR on QOU 1P and 3P 15–100 A, 2P 15–125 A;
- □ UL 489A for DC Telecom applications (1-pole only).
- ◊ Factory-installed option only
- ☆ QOM1 and QOM2 dimensions are for 2-pole unit.
- ▽ 480 V C60 height is 5.56 in. (141 mm).
- ◒ 2 poles must be wired in series for 500 Vdc.

		PowerPact 100 A Frame	PowerPact 150 A H-Frame				100 A Frame					
												
Circuit Breaker Type		GJL	HD	HG	HJ	HL	FA (240 V)	FA		FH	FH■	FH
Number of Poles		3	2,3	2,3	2,3☆	2,3☆	1, 2, 3	1	2, 3	1	1	2, 3
Current Range		15–100	15–150 A	15–150 A	15–150 A	15–150 A	15–100	15–100	15–100	15–30	35–100	15–100
Interrupting Ratings												
UL/CSA/NOM Rating (kA RMS) (50/60 Hz)	240 Vac	100	25	65	100	125	10◒	25◒	25	65	25	65
	480Y/277 Vac	65	18	35	65	100	—	18	18	65	25	25
	480 Vac	65	18	35	65	100	—	—	18	—	—	25
	600Y/347 Vac	18	14	18	25	50	—	—	14	—	—	18
	600 Vac	—	14	18	25	50	—	—	14	—	—	18
DC Ratings	250 Vdc	—	20	20	20	20	5♦	10♦	10	10♦	10♦	50
	500 Vdc▲	—	—	—	—	—	—	—	—	—	—	20
IEC Rating (kA RMS) Icu/Ics★	240 Vac	65/65	25/25	65/65	100/100	125/125	—	18/9	—	18/9	—	—
	415 Vac	65/65	18/18	35/35	65/65	100/100	10/2.5	10/2.5	10/2.5	10/2.5	10/2.5	10/2.5
IEC 50/60 Hz							For additional IEC ratings, see the Supplemental Digest.					
Special Ratings												
Fed. Specs W-C-375B/GEN		—	X	X	X	X	X	X	X	X	X	X
HACR (2P, 3P)		X	—	—	—	—	X	—	X	—	—	—
Connections/Terminations												
Unit Mount		X					X	X	X	X	X	—
I-Line®		—	X	X	X	X	X	X	X	X	X	—
Rear Connection		—	X◊	X◊	X	X	X	X	X	—	—	—
Drawout		—	X◊	X◊	X	X	—	—	—	—	—	—
Optional Lugs		—	X◊	X◊	X	X	X	X	X	X	X	—
Accessories and Modifications												
Shunt Trip		X	X	X	X	X	X△▼	—	X△	—	—	X△
Undervoltage Trip		X	X	X	X	X	X△▼	—	X△	—	—	X△
Auxiliary Switches		X	X	X	X	X	X△▼	—	X△	—	—	X△
Alarm Switch		X	X	X	X	X	X△▼	X △	X△	X△	X△	X△
Motor Operator		—	X◊	X◊	X	X	—	—	X	—	—	X
Handle Operators		X	X◊	X◊	X	X	X	—	X	X	X	X
Mechanical Interlocks (3P)		—	X	X	X	X	—	—	X	—	—	X
Handle Padlock Attachment		X	X◊	X◊	X	X	X	X	X	X	X	X
Cylinder Lock (3P△)		—	X◊	X◊	X	X	—	—	X	—	—	X
Handle Mechanical Interlocks		—	X◊	X◊	X	X	—	—	—	—	—	—
Optional GF Protection□		—	—	—	—	—	—	—	X	—	—	X
Trip System Type												
Thermal-magnetic		X	X	X	X	X	X	X	X	X	X	X
Instantaneous-only (MCP)		X	—	—	X▽	X▽	—	—	X	—	—	X
Molded Case Switch		—	X	X	X	X	—	—	—	—	—	X
Electronic		—	—	—	—	—	—	—	—	—	—	—
Enclosures (Pages 7-56–7-58)												
General Purpose (NEMA 1)		—	X	X	X	X	X	X	X	X	X	X
Raintight (NEMA 3R)		—	X	X	X	X	X	X	X	X	X	X
Dust-tight (NEMA 12)		—	X	X	X	X	X	X	X	X	X	X
Watertight (NEMA 4, 4X, 5)		—	X	X	X	X	X	X	X	X	X	X
Explosion Proof (NEMA 7, 9)		—	—	—	—	—	X	X	X	X	X	X
Dimensions (3P Unit Mount) in. (mm)	Height	4.72 (120)	6.4 (163)				6 (152)	6 (152)				
	Width	3.54 (90)	4.1 (104)				4.5 (114)	4.5 (114)				
	Depth	3.94 (100)	3.4 (86)				4.13 (105)	4.13 (105)				
Pages (Unit Mount)/(I-Line)		Page 7-24	Pages 7-22, 7-23, 7-28, 7-33/9-25				Pages 7-49,/9-23	Pages 7-49/9-24				

Note: All circuit breakers on this chart are UL Listed and CSA Certified unless otherwise noted.

▲ Ungrounded UPS systems only. See page 7-34.
■ 65 kA @120 Vac
♦ 1Ø 125 Vdc rating only.
★ Dual UL and IEC ratings and CE markings on circuit breakers. For additional IEC ratings, see the Supplemental Digest.
▼ Not available on 1P FA (240 V).
△ Factory-installed option only.
□ Requires factory-installed "G" Shunt trip and 3P module.
◊ Not available in HD and HG 2P rating (2P module).
☆ 2P in a 3P module.
▽ 3P only.
◒ 1P FA is 120 Vac.

		100 A F-Frame		PowerPact 250 A J-Frame				PowerPact 250 A Q-Frame			
											
Circuit Breaker Type		FI	FY	JD	JG	JJ	JL	QB	QD	QG	QJ
Number of Poles		2, 3	1	2,3▲	2,3▲	2,3▲	2,3▲	2, 3	2, 3	2, 3	2, 3
Current Range		20–100	15–30	150–250 A	150–250 A	150–250 A	150–250 A	70–250■	70–250■	70–250■	70–250■
Interrupting Ratings											
UL/CSA/NOM Rating (kA RMS) (50/60 Hz)	240 Vac	200	14	25	65	100	125	10	25	65	100
	480Y/277 Vac	200	14	18	35	65	100	—	—	—	—
	480 Vac	200	—	18	35	65	100	—	—	—	—
	600Y/347 Vac	100	—	14	18	25	50	—	—	—	—
	600 Vac	100	—	14	18	25	50	—	—	—	—
DC Ratings	250 Vdc	—	—	20	20	20	20	—	—	—	—
	500 Vdc♦	—	—	—	20	—	—	—	—	—	—
IEC Rating (kA RMS) Icu/Ics★	240 Vac	—	—	25/25	65/65	100/100	125/125	10/5	10/5	10/5	10/5
	415 Vac	6/1.5	—	18/18	35/35	65/65	100/100	10/5	10/5	10/5	10/5
IEC 50/60 Hz		For additional IEC ratings, see the Supplemental Digest.									
Special Ratings											
Fed. Specs W-C-375B/GEN		X	—	X	X	X	X	X	X	X	X
HACR (2P, 3P)		—	—	X	X	X	X	X	X	X	—
Connections/Terminations											
Unit Mount		X	—	X	X	X	X	X	X	X	X
I-Line®		X	X	X	X	X	X	X	X	X	X
Rear Connection		—	—	X	X	X	X	—	—	—	—
Drawout		—	—	X	X	X	X	—	—	—	—
Optional Lugs		X	—	X	X	X	X	—	—	—	—
Accessories and Modifications											
Shunt Trip		X△	—	X	X	X	X	—	—	—	—
Undervoltage Trip		X△	—	X	X	X	X	—	—	—	—
Auxiliary Switches		X△	—	X	X	X	X	—	—	—	—
Alarm Switch		X△	—	X	X	X	X	—	—	—	—
Motor Operator		X	—	X	X	X	X	—	—	—	—
Handle Operators		—	—	X	X	X	X	—	—	—	—
Mechanical Interlocks (3P)		—	—	X	X	X	X	X	X	X	X
Handle Padlock Attachment		X	X	X	X	X	X	X	X	X	X
Cylinder Lock (3P△)		—	—	—	—	—	—	—	—	—	—
Optional GF Protection▼		X	—	—	—	—	—	—	—	—	—
Trip System Type											
Thermal-magnetic		X	X	X	X	X	X	X	X	X	X
Instantaneous-only (MCP)		—	—	—	X□	X□	—	—	—	—	—
Molded Case Switch (Automatic)		—	—	X	X	X	X	X	—	—	—
Electronic		—	—	—	—	—	—	—	—	—	—
Enclosures (Pages 7-56–7-58)											
General Purpose (NEMA 1)		X	—	X	X	X	—	X	X	X	X
Raintight (NEMA 3R)		X	—	X	X	X	—	X	X	X	X
Dust-tight (NEMA 12)		X	—	X	X	X	—	—	—	—	—
Watertight (NEMA 4, 4X, 5)		X	—	X	X	X	—	—	—	—	—
Explosion Proof (NEMA 7, 9)		—	—	—	—	—	—	—	—	—	—
Dimensions (3P Unit Mount) in. (mm)	Height	8 (203)		7.5 (191)				6.47 (164)			
	Width	4.5 (114)		4.1 (104)				4.5 (114)			
	Depth	4.75 (121)		3.4 (86)				3.93 (100)			
Pages (Unit Mount)/(I-Line)		Pages 7-49/9-24		Pages 7-22, 7-23, 7-28, 7-33, 7-34/9-25				Pages 7-24/9-24			

Note: All circuit breakers on this chart are UL Listed and CSA Certified unless otherwise noted.

▲ 2P in a 3P module
■ I-Line Q-frame circuit breakers are available 70–225 A only. 250 A Q-frame unit-mount circuit breakers are limited to Cu conductors only.
♦ Ungrounded UPS systems only. See page 7-34. Special DC J-Frame only.
★ Dual UL and IEC ratings and CE markings on circuit breakers. For additional IEC ratings, see the Supplemental Digest.
▼ Requires factory-installed "G" shunt trip and 3P module.
△ Factory-installed option only.
□ 3P only.

		250 A K-Frame	PowerPact 400/600 A D-Frame			400 A L-Frame			600 A L-Frame	
										
Circuit Breaker Type		KI	DG	DJ	DL	Q4	LA	LH	LC	LI
Number of Poles		2, 3	3, 4	3, 4	3, 4	2,3	2,3	2, 3	2, 3	2, 3
Current Range		110–250	150–600	150–600	150–600	250–400	125–400	125–400	300–600	300–600
Interrupting Ratings										
UL/CSA/NOM Rating (kA RMS) (50/60 Hz)	240 Vac	200	65	100	150	25	42	65	100	200
	480Y/277 Vac	200	35	65	100	—	30	35	65	200
	480 Vac	200	35	65	100	—	30	35	65	200
	600Y/347 Vac	100	18	25	25	—	22	25	35	100
	600 Vac	100	18	25	25	—	22	25	35	100
DC Ratings	250 Vdc	—	—	—	—	—	10	50	—	—
	500 Vdc▲	—	—	—	—	—	—	20	—	—
IEC 60947-2 (kA RMS) Icu/Ics■	240 Vac	—	85/85	100/100	150/150	—	—	—	—	—
	415 Vac	130/65	45/45	70/70	150/150	—	20/5	20/5	65/65△	—
IEC 50/60 Hz		For additional IEC ratings, see the Supplemental Digest.				For additional IEC ratings, see the Supplemental Digest.				
Special Ratings										
	Fed. Specs W-C-375B/GEN	X	—	—	—	X	X	X	X	X
	HACR (2P, 3P)	—	X	X	X	—	X	X	—	—
Connections/Terminations										
	Unit Mount	X	X	X	X	X	X	X	X	X
	I-Line®	X	—	—	—	X	X	X	X	X
	Rear Connection	—	X	X	X	X	X	X	—	—
	Drawout	—	X	X	X	—	—	—	—	—
	Optional Lugs	X	X	X	X	X	X	X	X	X
Accessories and Modifications										
	Shunt Trip	X♦	X	X	X	X	X	X	X	X
	Undervoltage Trip	X♦	X	X	X	X	X	X	X	X
	Auxiliary Switches	X♦	X	X	X	X	X	X	X	X
	Alarm Switch	X♦	X	X	X	X	X	X	X	X
	Motor Operator	X	X	X	X	X	X	X	—	—
	Handle Operators	—	X	X	X	X	X	X	—	—
	Mechanical Interlocks (3P)	—	X	X	X	—	X★	X★	—	—
	Handle Padlock Attachment	X	X	X	X	X	X	X	X	X
	Cylinder Lock (3P)	—	—	—	—	X	X	X	—	—
	Optional GF Protection	X▼	X	X	X	—	—	—	—	—
Trip System Type										
	Thermal-magnetic	X	—	—	—	X	X	X	X	X
	Instantaneous-only (MCP)	—	X	X	X	—	X	X	—	—
	Molded Case Switch (Automatic)	—	X	X	X	—	—	X	—	—
	Electronic	—	X	X	X	—	—	—	—	—
Enclosures (Pages 7-56–7-58)										
	General Purpose (NEMA 1)	—	—	—	—	X	X	X	—	—
	Raintight (NEMA 3R)	X	—	—	—	X	X	X	—	—
	Dust-tight (NEMA 12)	X	—	—	—	X	X	X	X	X
	Watertight (NEMA 4, 4X, 5)	X	—	—	—	X	X	X	—	—
	Explosion Proof (NEMA 7, 9)	—	—	—	—	—	—	—	—	—
Dimensions (3P Unit Mount) in. (mm)	Height	8 (203)	13.38 (340)			11 (279)			11.86 (301)	
	Width	4.5 (114)	5.51 (140)			6 (152)			7.5 (190)	
	Depth	4.75 (121)	4.33 (110)			5.84 (148)			6.74 (171)	
Pages (Unit Mount)/(I-Line)		Pages 7-49/9-26	Pages 7-25/7-33			Pages 7-51/9-27			Pages 7-51/9-27	

Note: All circuit breakers on this chart are UL Listed and CSA Certified unless otherwise noted.

▲ Ungrounded UPS systems only. See page 7-34.
■ Dual UL and IEC ratings and CE markings on circuit breakers. For additional IEC ratings, see the Supplemental Digest.
♦ Factory-installed option only.
★ Requires circuit breaker with WB suffix .
▼ Requires factory-installed “G” Shunt trip. Available only for 3P.
△ 65/50 kA Icu/Ics for 450 A–600 A ratings

		600 A L-Frame			PowerPact 800 A M-Frame		PowerPact 1200 A P-Frame				1000 A M-Frame			
														
Circuit Breaker Type		LX	LXI	LE	MG	MJ	PG	PJ	PK	PL	MA	MH	MX	ME
Number of Poles		3	3	3	2, 3	2, 3	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4	2, 3	2, 3	3	3
Current Range		100–600	100–600	100–600	300–800	300–800	100–1200	100–1200	100–1200	100–1200	300–1200	300–1200	450–800	450–800
Interrupting Ratings														
UL/CSA/NOM Rating (kA RMS) (50/60 Hz■)	240 Vac	100	200	100	65	100	65	100	65	125	42	65	65	65
	480Y/277 Vac	65	200	65	35	65	35	65	50	100	30	65	65	65
	480 Vac	65	200	65	35	65	35	65	50	100	30	65	65	65
	600Y/347 Vac	35	100	35	18	25	18	25	50	25	22	25	25	25
	600 Vac	35	100	35	18	25	18	25	50	25	22	25	25	25
DC Ratings	250 Vdc	—	—	—	—	—	—	—	—	—	14	50	—	—
	500 Vdc▲	—	—	—	—	—	—	—	—	—	—	20	—	—
IEC (kA RMS) Icu/Ics♦	240 Vac	—	—	—	50/25	65/35	50/25	65/35	50/25	125/65	—	—	—	—
	415 Vac	65/65△	—	65/65△	35/20	50/25	35/20	50/25	50/25	85/45	30/30	65/33	65/33	65/33
IEC 50/60 Hz		For additional IEC ratings, see the Supplemental Digest.									For additional IEC ratings, see the Supplemental Digest.			
Special Ratings														
Fed. Specs W-C-375B/GEN		X	X	X	X	X	X	X	X	X	X	X	X	X
HACR (2P, 3P)		—	—	—	X	X	X	X	X	X	X	X		
Connections/Terminations														
Unit Mount		X	X	X	X	X	X	X	X	X	X	X	X	X
I-Line®		X	X	X	X	X	X	X	X	X	X	X	X	X
Rear Connection		—	—	—	—	—	—	—	—	—	X	X	—	—
Drawout		—	—	—	—	—	X▼	X▼	X▼	X▼	—	—	—	—
Optional Lugs		X	X	X	X	X	X	X	X	X	X	X	X	X
Accessories and Modifications														
Shunt Trip		X	X	X	X	X	X	X	X	X	X	X	X▼	X▼
Undervoltage Trip		X	X	X	X	X	X	X	X	X	X	X	X▼	X▼
Auxiliary Switches		X	X	X	X	X	X	X	X	X	X	X	X▼	X▼
Alarm Switch		X	X	X	X	X	X	X	X	X	X	X	X▼	X▼
Motor Operator		—	—	—	—	—	X▼	X▼	X▼	X▼	X	X	—	—
Handle Operators		—	—	—	—	—	X▼	X▼	X▼	X▼	X	X	X	X
Mechanical Interlocks (3P)		—	—	—	—	—	X	X	X	X	X★	X★	—	—
Handle Padlock Attachment		X	X	X	X	X	X	X	X	X	X	X	X	X
Cylinder Lock (3P)		—	—	—	X	X	—	—	—	—	X	X	—	—
Optional GF Protection		X▼	X▼	X▼	—	—	X	X	X	X	—	—	X▼	X▼
Trip System Type														
Thermal-magnetic		—	—	—	—	—	—	—	—	—	X	X	—	—
Instantaneous-only (MCP)		—	—	—	—	—	—	X	X	—	X	X	—	—
Molded Case Switch (Automatic)		—	—	—	—	—	X	X	X	X	—	X	—	—
Electronic		X	X	X	X	X	X	X	X	X	—	—	X	X
Enclosures (Pages 7-56–7-58)														
General Purpose (NEMA 1)		—	—	—	X	X	X	X	X	X	X	X	X	X
Raintight (NEMA 3R)		—	—	—	X	X	X	X	X	X	X	X	X	X
Dust-tight (NEMA 12)		X	X	X	X	X	X	X	X	X	X	X	X	X
Watertight (NEMA 4, 4X, 5)		—	—	—	X	X	—	—	—	—	X	X	X	X
Explosion Proof (NEMA 7, 9)		—	—	—	—	—	—	—	—	—	—	—	—	—
Dimensions (3P Unit Mount)	Height–in. (mm)	11.86 (301)			12.80 (325)		16.20 (413)				14 (356)			
	Width—in. (mm)	7.5 (190)			8.30 (210)		8.30 (210)				9 (229)			
	Depth—in. (mm)	6.74 (171)			8.10 (205)		8.10 (205)				6.5 (165)			
Pages (Unit Mount)/(I-Line)		Page 7-52/9-28			Page 7-25/9-28		Page 7-26, 7-30, 7-33/9-29				Supplemental Digest Section 3			

Note: All circuit breakers on this chart are UL Listed and CSA Certified unless otherwise noted.

▲ Ungrounded UPS systems only. See page 7-34.
■ UL PowerPact MG/MJ and PG/PJ/PK/PL are 60 Hz only.
♦ Dual UL and IEC ratings and CE markings on circuit breakers. For additional IEC ratings, see the Supplemental Digest.
★ Requires breaker with WB suffix
▼ Factory-installed option only.
△ 65/50 kA Icu/Ics for 450–600 A ratings.

		1200 A N-Frame				2000 A P-Frame		2500 A P-Frame			PowerPact 3000 A R-Frame			
														
Circuit Breaker Type		NA	NC	NX	NE	PA	PH	PC	PX	PE	RG	RJ	RK	RL
Number of Poles		2, 3	2, 3	3	3	2, 3	2, 3	2, 3	3	3	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4
Current Range		600–1200	600–1200	600–1200	600–1200	600–2000	600–2000	1600–2500	600–2500	600–2500	240–3000	240–3000	240–3000	240–3000
Interrupting Ratings														
UL/CSA/NOM Rating (kA RMS) (50/60 Hz)	240 Vac	100	125	125	125	65	125	125	125	125	65	100	65	125
	480Y/277 Vac	50	100	100	100	50	100	100	100	100	35	65	65	100
	480 Vac	50	100	100	100	50	100	100	100	100	35	65	65	100
	600Y/347 Vac	25	65	65	65	42	65	65	65	65	18	25	65	50
	600 Vac	25	65	65	65	42	65	65	65	65	18	25	65	50
DC Ratings	250 Vdc	—	—	—	—	—	—	—	—	—	—	—	—	—
	500 Vdc▲	—	—	—	—	25	—	25	—	—	—	—	—	—
IEC (kA RMS) Icu/Ics ■	240 Vac	—	—	—	—	—	—	—	—	—	50/25	65/35	85/65	125/65
	415 Vac	50/25	70/35	70/35	70/35	50/38	70/53	70/53	70/53	70/53	35/20	50/25	70/55	85/45
IEC 50/60 Hz		For additional IEC ratings, see the Supplemental Digest.												
Special Ratings														
Fed. Specs W-C-375B/GEN		X	X	X	X	X	X	X	—	—	X	X	X	X
HACR (2P, 3P)						—	—	—	—	—	X	X	X	X
Connections/Terminations														
Unit Mount		X	X	X	X	X	X	X	X	X	X	X	X	X
I-Line®		X	X	X	X	—	—	—	—	—	X★	X★	X★	X★
Rear Connection		—	—	—	—	—	—	—	—	—	—	—	—	—
Drawout		—	—	—	—	—	—	—	—	—	—	—	—	—
Optional Lugs		X	X	X	X	X	X	X	X	X	X	X	X	X
Accessories and Modifications														
Shunt Trip		X	X	X	X	X	X	X	X	X	X	X	X	X
Undervoltage Trip		X	X	X	X	X	X	X	X	X	X	X	X	X
Auxiliary Switches		X	X	X	X	X	X	X	X	X	X	X	X	X
Alarm Switch		X	X	X	X	X	X	X	X	X	X	X	X	X
Motor Operator		—	—	—	—	X	X	X	X	X	—	—	—	—
Handle Operators		X	X	X	X	—	—	—	—	—	—	—	—	—
Mechanical Interlocks (3P)		—	—	—	—	—	—	—	—	—	—	—	—	—
Handle Padlock Attachment		X	X	X	X	X	X	X	X	X	X	X	X	X
Cylinder Lock (3P)		—	—	—	—	—	—	—	—	—	—	—	—	—
Optional GF Protection		—	—	X♦	X♦	—	—		X ♦	X ♦	X	X	X	X
Trip System Type														
Thermal-magnetic		X	X	—	—	X	X	X	—	—	—	—	—	—
Instantaneous-only (MCP)		X	X	—	—	—	—	—	—	—	—	—	—	—
Molded Case Switch (Automatic)		—	X	—	—	—	X	X	—	—	X	X	X	X
Electronic		—	—	X	X	—	—	—	X	X	X	X	X	X
Enclosures (Pages 7-56–7-58)														
General Purpose (NEMA 1)		—	—	—	—	X	X	X	X	X	—	—	—	—
Raintight (NEMA 3R)		X	X	X	—	X	X	X	X	X	—	—	—	—
Dust-tight (NEMA 12)		X	X	X	—	—	—	—	—	—	—	—	—	—
Watertight (NEMA 4, 4X, 5)		—	—	—	—	—	—	—	—	—	—	—	—	—
Explosion Proof (NEMA 7, 9)		—	—	—	—	—	—	—	—	—	—	—	—	—
Dimensions (3P Unit Mount)	Height–in. (mm)	12.12 (308)				20.06 (510)		26.1 (663)	20.06 (510)		15 (381)			
	Width–in. (mm)	15 (381)				13.7 (348)		23.3 (592)	13.7 (348)		16.50 (420)			
	Depth–in. (mm)	8.07 (205)				10.47 (266)		16.55 (420)	10.47 (266)		14.40 (366)			
Pages (Unit Mount)/(I-Line)		Supplemental Digest Section 3				Supplemental Digest Section 3					Page 7-27, 7-33/9-30			

Note: All circuit breakers on this chart are UL Listed and CSA Certified unless otherwise noted.

▲ Ungrounded UPS systems only. See page 7-34.
■ Dual UL and IEC ratings and CE markings on circuit breakers. For additional IEC ratings, see the Supplemental Digest.
♦ Factory-installed option only.
★ 1000 A and 1200 A only.

		Masterpact 1200 A					Masterpact 6000 A							
														
Circuit Breaker Type		NT-N	NT-H	NT-L1	NT-L	NT-LF ▲	NW-N	NW-H	NW-L	NW-LF ▲	NW-H	NW-L	NW-H	NW-L
Number of Poles		3, 4	3, 4	3	3	3	3, 4	3, 4	3	3	3, 4	3	3, 4	3
Current Range		100–1200	100–1200	100–1200	100–1200	100–1200	100–2000	100–2000	100–2000	100–2000	640–3000	640–3000	1200–6000	1200–6000
Interrupting Ratings														
UL/CSA/NOM Rating (kA RMS) (50/60 Hz)	240 Vac	50	65	100	200	200	65	100	200	200	100	200	100	200
	480Y/277 Vac	50	50	65	100	100	65	100	150	150	100	150	100	150
	480 Vac	50	50	65	100	100	65	100	150	150	100	150	100	150
	600Y/347 Vac	35	—	—	—	—	50	85	100	100	85	100	85	100
	600 Vac	35	—	—	—	—	50	85	100	100	85	100	85	100
DC Ratings	250 Vdc	—	—	—	—	—	—	—	—	—	—	—	—	—
	500 Vdc	—	—	—	—	—	—	—	—	—	—	—	—	—
IEC■ (kA RMS) Icu/Ics	240 Vac	—	—	—	—	—	—	—	—	—	—	—	—	—
	415 Vac	—	—	—	—	—	—	—	—	—	—	—	—	—
Special Ratings														
Fed. Specs W-C-375B/GEN		—	—	—	—	—	—	—	—	—	—	—	—	—
HACR (2P, 3P)		—	—	—	—	—	—	—	—	—	—	—	—	—
Connections/Terminations														
Unit Mount		X	X	X	X	X	X	X	X	X	X	X	X	X
I-Line®		—	—	—	—	—	—	—	—	—	—	—	—	—
Rear Connection		X	X	X	X	X	X	X	X	X	X	X	X	X
Drawout		X	X	X	X	X	X	X	X	X	X	X	X	X
Optional Lugs		—	—	—	—	—	—	—	—	—	—	—	—	—
Accessories and Modifications														
Shunt Trip		X	X	X	X	X	X	X	X	X	X	X	X	X
Undervoltage Trip		X	X	X	X	X	X	X	X	X	X	X	X	X
Auxiliary Switches		X	X	X	X	X	X	X	X	X	X	X	X	X
Alarm Switch		X	X	X	X	X	X	X	X	X	X	X	X	X
Motor Operator		X	X	X	X	X	X	X	X	X	X	X	X	X
Handle Operators		—	—	—	—	—	—	—	—	—	—	—	—	—
Mechanical Interlocks		X	X	X	X	X	X	X	X	X	X	X	X	X
Padlock Attachment		X	X	X	X	X	X	X	X	X	X	X	X	X
Cylinder Lock		—	—	—	—	—	—	—	—	—	—	—	—	—
Optional GF Protection		X	X	X	X	X	X	X	X	X	X	X	X	X
Trip System Type														
Thermal-magnetic		—	—	—	—	—	—	—	—	—	—	—	—	—
Instantaneous-only (MCP)		—	—	—	—	—	—	—	—	—	—	—	—	—
Molded Case Switch (Automatic)		X	X	X	X	X	X	X	X	X	X	X	X	X
Electronic		X	X	X	X	X	X	X	X	X	X	X	X	X
Enclosures														
General Purpose (NEMA 1)		—	—	—	—	—	—	—	—	—	—	—	—	—
Raintight (NEMA 3R)		—	—	—	—	—	—	—	—	—	—	—	—	—
Dust-tight (NEMA 12)		—	—	—	—	—	—	—	—	—	—	—	—	—
Watertight (NEMA 4, 4X, 5)		—	—	—	—	—	—	—	—	—	—	—	—	—
Explosion Proof (NEMA 7, 9)		—	—	—	—	—	—	—	—	—	—	—	—	—
Dimensions (3P Unit Mount) in. (mm)	Height	12.67 (322)					17.28 (439)				17.28 (439)		17.28 (439)	
	Width	11.25 (286)					17.74 (450)				17.74 (450)		30.94 (786)	
	Depth	13.00 (331)					18.38 (467)				18.38 (467)		18.38 (467)	
Pages		Page 7-45 and Catalog 0613CT0001					Page 7-45 and Catalog 0613CT0001							

Note: All circuit breakers on this chart are UL Listed and CSA Certified unless otherwise noted.

▲ Tested to show arc flash hazard risk category as reference by NFPA70E.

■ See Catalog 0613CT0001 for additional ratings and other information.

QO® miniature circuit breakers are plug-on products for use in QO load centers, NQOD panelboards, NQOD OEM interiors or Speed-D® switchboard distribution panels. Bolt-on QOB circuit breakers are for use in NQOD panelboards or interiors.▲
The QO exclusive Qwik-Open® mechanism, with a trip reaction within 1/60th of a second, is standard on all 1P 15A and 20 A QO circuit breakers.

QO 1P

1 Space Required

QOT 1P Tandem

1 Space Required

QO 2P

2 Spaces Required

QO2200 2P 200 A

4 Spaces Required

QO 3P

3 Spaces Required

Table 7.1: Plug-On Circuit Breakers

Amperes Rating ■	1P—120/240 Vac		2P—120/240 Vac Common Trip		2P—240 Vac ♦ Common Trip		3P—240 Vac Common Trip	
	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price
10 k AIR								
10 A	QO110	**29.10**	QO210	**67.00**	—	—	QO310	**248.00**
15 A	QO115★▼	**29.10**	QO215★	**67.00**	QO215H	**200.00**	QO315★	**248.00**
20 A	QO120★▼	**29.10**	QO220★	**67.00**	QO220H	**200.00**	QO320★	**248.00**
25 A	QO125★	**29.10**	QO225★	**67.00**	QO225H	**200.00**	QO325★	**248.00**
30 A	QO130★	**29.10**	QO230★	**67.00**	QO230H	**200.00**	QO330★	**248.00**
35 A	QO135★	**29.10**	QO235★	**67.00**	—	—	QO335★	**248.00**
40 A	QO140★	**29.10**	QO240★	**67.00**	QO240H	**200.00**	QO340★	**248.00**
45 A	QO145★	**29.10**	QO245★	**67.00**	—	—	QO345★	**248.00**
50 A	QO150★	**29.10**	QO250★	**67.00**	QO250H	**200.00**	QO350★	**248.00**
60 A	QO160★	**29.10**	QO260★	**67.00**	QO260H	**200.00**	QO360★	**248.00**
70 A	QO170★	**67.00**	QO270★	**134.00**	QO270H	**224.00**	QO370★	**315.00**
80 A	—	—	QO280★	**189.00**	QO280H	**315.00**	QO380★	**366.00**
90 A	—	—	QO290★	**189.00**	QO290H	**315.00**	QO390★	**366.00**
100 A	—	—	QO2100★	**189.00**	QO2100H	**315.00**	QO3100★	**366.00**
110 A	—	—	QO2110★	**428.00**	—	—	—	—
125 A	—	—	QO2125★	**428.00**	—	—	—	—
150 A	—	—	QO2150★△◒	**491.00**	—	—	—	—
175 A	—	—	QO2175★△◒	**491.00**	—	—	—	—
200 A	—	—	QO2200★△◒	**491.00**	—	—	—	—
Molded Case Switch 60 A max.–240 Vac			—	—	QO200	**70.00**	QO300	**248.00**
Molded Case Switch 100 A max.–240 Vac			—	—	QO2000☆	**200.00**	QO3000☆	**366.00**
22 k AIR★								
15 A	QO115VH▼	**63.00**	QO215VH□	**146.00**	—	—	QO315VH□	**371.00**
20 A	QO120VH▼	**63.00**	QO220VH□	**146.00**	—	—	QO320VH□	**371.00**
25 A	QO125VH	**73.00**	QO225VH□	**146.00**	—	—	QO325VH□	**371.00**
30 A	QO130VH	**73.00**	QO230VH□	**146.00**	—	—	QO330VH□	**371.00**
40 A	—	—	QO240VH□	**146.00**	—	—	QO340VH□	**371.00**
50 A	—	—	QO250VH□	**146.00**	—	—	QO350VH□	**371.00**
60 A	—	—	QO260VH□	**146.00**	—	—	QO360VH□	**371.00**
70 A	—	—	QO270VH□	**224.00**	—	—	QO370VH□	**477.00**
80 A	—	—	QO280VH□	**315.00**	—	—	QO380VH□	**530.00**
90 A	—	—	QO290VH□	**315.00**	—	—	QO390VH□	**530.00**
100 A	—	—	QO2100VH□◊	**315.00**	—	—	QO3100VH□	**530.00**
110 A	—	—	QO2110VH□◊	**1034.00**	—	—	—	—
125 A	—	—	QO2125VH□◊	**1034.00**	—	—	—	—
150 A	—	—	QO2150VH△□◒	**1061.00**	—	—	—	—
175 A	—	—	QO2175VH△□◒	**1061.00**	—	—	—	—
200 A	—	—	QO2200VH△□◒	**1061.00**	—	—	—	—
42 k AIR★								
40 A	—	—	QOH240☆	**317.00**	—	—	—	—
45 A	—	—	QOH245☆	**317.00**	—	—	—	—
50 A	—	—	QOH250☆	**317.00**	—	—	—	—
60 A	—	—	QOH260☆	**317.00**	—	—	—	—
70 A	—	—	QOH270	**528.00**	—	—	—	—
80 A	—	—	QOH280	**651.00**	—	—	—	—
90 A	—	—	QOH290	**651.00**	—	—	—	—
100 A	—	—	QOH2100	**651.00**	—	—	—	—
110 A	—	—	QOH2110☆	**1389.00**	—	—	—	—
125 A	—	—	QOH2125	**1389.00**	—	—	—	—
65 k AIR★								
15 A	QH115▼	**117.00**	QH215	**293.00**	—	—	QH315★	**507.00**
20 A	QH120▼	**117.00**	QH220	**293.00**	—	—	QH320	**507.00**
25 A	QH125☆	**117.00**	QH225☆	**293.00**	—	—	QH325☆	**507.00**
30 A	QH130	**117.00**	QH230	**293.00**	—	—	QH330	**507.00**

▲ See Digest Section 1 for load centers, and Section 9 for panelboards and interiors.
■ 10–30 A circuit breakers are suitable for use with 60°C or 75°C conductors. 35–125 A circuit breakers are suitable for use with 75°C conductors.
♦ UL Listed 5 k AIR on corner grounded Delta systems.
★ UL Listed as HACR type for use with air conditioning, heating and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers.
▼ UL Listed as SWD (switching duty) rated. Suitable for switching 120 Vac fluorescent lighting loads.
△ Requires four spaces (1 AWG–300 kcmil Al/Cu.) Suitable for switching 120 Vac fluorescent lighting loads.
□ UL Listed for use ahead of QO, QO-GFI, QO-EPD, QO-AFI, QOT,QOCAFI, and QO-PL 10 k AIR circuit breakers to permit their application at 22 kA fault level.
◊ 100 A maximum branch mounted opposite.
☆ Order only. Contact your local Field Office.
▽ Includes two circuit breakers (one QO2030 and one QO3020) and handle tie QOTHT.
◒ Not suitable for use in 3Ø panels. Use only in 1Ø panel rated 150 A or greater.

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Table 7.2: QO-QOB Ring Terminal

(20% $ Price Adder)—Factory Installed Only

Ampere Rating	Poles	Suffix
10–30 A	1, 2, 3	5237
35–60 A	1,2	5238
35–50 A	3	
70–110 A	2	5273
60–100 A	3	

Table 7.3: Wire Sizes■

Circuit Breaker Type	Ampere Rating	Wire Size (AWG/kcmil)
QO 1P	10–30 A	14–8 Al/Cu
	10–30 A	(2) 14–10 Cu
	35–70 A	8–2 Al/Cu
QO 2P	10–30 A	14–8 Al/Cu
	10–30 A	(2) 14–10 Cu
	35–70 A	8–2 Al/Cu
	80–125 A	4–2/0 Al/Cu
	150–200 A	4–300 Al/Cu
QO 3P	10–30 A	14–8 Al/Cu, (2) 14-10 Cu
	35–70 A	8–2 Al/Cu
	80–125 A	4–2/0 Al/Cu
QOB-VH	110–150 A	4–300 Al/Cu
QOT	15–20 A	12–8 Al 14–8 Cu
QO-AFI, QO-GFI & QO-EPD	15–30 A	12–8 Al 14–8 Cu
	40, 50, 60 A	12–4 Al 14–6 Cu
QO-PL	10–60 A	12–2 Al 14–2 Cu

Table 7.4: QOT Tandem Circuit Breakers

Ampere Rating■	Cat. No.★	$ Price
1P—120/240 Vac		
15 A & 15 A	QOT1515	**58.00**
15 A & 20 A	QOT1520	**58.00**
20 A & 20 A	QOT2020	**58.00**
2P—120/240 Vac		

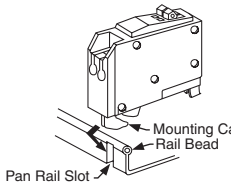
Order two QOT1515 or QOT2020 circuit breakers and handle tie QOTHT for common switching of center two poles.

Table 7.5: Replacement Tandem Circuit Breakers

For Use in Old Style Non-Class CTL QO Load Centers—10 k AIR

Ampere Rating■	Cat. No.★	$ Price
1P—120/240 Vac—1 Space Required		
15 &A 15 A	QO1515	**73.00**
15 A & 20 A	QO1520	**73.00**
20 A & 20 A	QO2020	**73.00**
20 A & 30 A	QO2030	**73.00**
30 A & 20 A	QO3020	**73.00**
Two 1P Individual Trip—120/240 Vac—2 Spaces Required		
15 A & 15 A	Order Two QO1515 or QO2020 circuit breakers and handle tie QOTHT for common switching of center two poles.	
15 A & 20 A		
20 A & 20 A	—	—
20 A & 30 A	QO20303020▽	**134.00**
30 A & 20 A	—	—

QOT Tandem



Circuit limiting QOT tandem circuit breakers have a mounting cam as shown. Installation into a QO load center can only be made in those positions having a mounting pan rail slot. Meets Paragraph 408.15 of the NEC®. UL Listed as Class CTL

7 MINIATURE AND MOLDED CASE CIRCUIT BREAKERS


1P
QO-AFI

QO® Arc-Fault Circuit Breaker

QO arc-fault circuit breakers provide branch feeder protection for series and parallel-type arcing as required by the NEC and local code adoption, and comply with UL1699.

Table 7.6: QO Arc Fault Circuit Breakers▲

Circuit Breaker Type	Ampere Rating	1P 120 Vac 10 k AIR 1 Space Required		1P 120 Vac 22 k AIR 1 Space Required	
		Cat. No.	$ Price	Cat. No.	$ Price
Combination Arc-fault Interrupter	15	QO115CAFI	282.00	QO115VHCAFI	534.00
	20	QO120CAFI	282.00	QO120VHCAFI	534.00


1P
QO-GFI


2P
QO-GFI

QO-GFI

Qwik-Gard® circuit breakers provide overload and short circuit protection, combined with Class A ground fault protection. Class A denotes a ground fault circuit interrupter that will trip when a fault current to ground is 6 mA or more, for people protection. Do not connect to more than 250 feet of load conductor for the total one-way run to prevent nuisance tripping.

Table 7.7: QO-GFI Circuit Breakers

Ampere Rating♦	Qwik-Gard Circuit Breakers With Ground Fault Circuit Interrupter: 1P 120 Vac 10 k AIR 1 Space Required		1P 120 Vac 22 k AIR 1 Space Required		2P Common Trip 120/240 Vac 10 k AIR 2 Spaces Required	
	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price
15	QO115GFI	233.00	QO115VHGFI	482.00	QO215GFI	413.00
20	QO120GFI	233.00	QO120VHGFI	482.00	QO220GFI	413.00
25	QO125GFI	233.00	QO125VHGFI	482.00	QO225GFI	413.00
30	QO130GFI	233.00	QO130VHGFI	482.00	QO230GFI	413.00
40	—	—	—	—	QO240GFI	413.00
50	—	—	—	—	QO250GFI	413.00
60	—	—	—	—	QO260GFI★	413.00


Two-wire
QO-SWN

QO-EPD

QO-EPD circuit breakers provide overload and short circuit protection combined with Class B ground fault protection. They are designed to provide ground fault protection of equipment at a 30 milliampere level. They are not designed to protect people from electrical shock.


Three-wire
QO-SWN

Table 7.8: QO-EPD Circuit Breakers

Ampere Rating♦	1P 120 Vac 10 k AIR 1 Space Required		2P Common Trip 120/240 Vac 10 k AIR 2 Spaces Required	
	Cat. No.	$ Price	Cat. No.	$ Price
15	QO115EPD	410.00	QO215EPD	660.00
20	QO120EPD	410.00	QO220EPD	660.00
25	QO125EPD	410.00	QO225EPD	660.00
30	QO130EPD	410.00	QO230EPD	660.00
40	—	—	QO240EPD	660.00
50	—	—	QO250EPD	660.00
60	—	—	QO260EPD★	660.00


QO
1P
With Shunt Trip

QO-SWN

Switch Neutral Common Trip 2008 NEC® 514.11

Table 7.9: QO-SWN Circuit Breakers

Ampere Rating♦	2 Wire 120 Vac 10 k AIR 2 Spaces Required		3 Wire 120/240 Vac 10 k AIR 3 Spaces Required	
	Cat. No.	$ Price	Cat. No.	$ Price
10	QO210SWN	95.00	—	—
15	QO215SWN	95.00	QO315SWN	143.00
20	QO220SWN	95.00	QO320SWN	143.00
25	QO225SWN	95.00	—	—
30	QO230SWN	95.00	QO330SWN	143.00
40	QO240SWN	95.00	QO340SWN	143.00
50	QO250SWN	95.00	QO350SWN	143.00


QO-K Key
Operated

QO-HID

HID circuit breakers are for use on circuits feeding fluorescent and high intensity discharge (HID) lighting systems such as mercury vapor, metal halide, or high pressure sodium. These circuit breakers are physically interchangeable with QO circuit breakers.

Table 7.10: QO-HID Circuit Breakers

Ampere Rating♦	1P 120/240 Vac 10 k AIR 1 Space Required		2P Common Trip 120/240 Vac 10 k AIR 2 Spaces Required		3P Common Trip 240 Vac 10 k AIR 3 Spaces Required	
	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price
15	QO115HID■	38.10	QO215HID	87.00	QO315HID	300.00
20	QO120HID■	38.10	QO220HID	87.00	QO320HID	300.00
25	QO125HID	38.10	QO225HID	87.00	QO325HID	300.00
30	QO130HID	38.10	QO230HID	87.00	QO330HID	300.00
40	QO140HID	38.10	QO240HID	87.00	—	—
50	QO150HID	38.10	QO250HID	87.00	—	—

QO-K

Key operated QO circuit breakers are available in single-pole construction and can be mounted in any single-pole space which will accept a standard QO. These circuit breakers can be turned ON or OFF or to RESET with a special key (catalog number QOK10) included with the circuit breaker. These circuit breakers are UL Listed and available as shown in the table.

Table 7.11: QO-K Circuit Breakers

120 Vac—10 k AIR (1 Space Required)		
Ampere Rating♦	Cat. No.	$ Price
10	QO110K	164.00
15	QO115K	164.00
20	QO120K	164.00
30	QO130K	164.00

QO-HM

High magnetic trip circuit breakers are recommended for applications where high initial inrush may occur and for individual dimmer applications.

Table 7.12: QO-HM Circuit Breakers

Ampere Rating♦	1P	
	Cat. No	$ Price
120 Vac—10 k AIR		
15 A	QO115HM▲■	30.60
20 A	QO120HM▲■	30.60

Non-automatic (Standard) Miniature Switches

Miniature non-automatic switches have the same physical packaging as miniature circuit breakers, but open only when the handle is switched to the OFF position.

Non-automatic switches provide no overcurrent protection or short circuit protection. They must not be used on systems that have an available fault current greater than the values listed in the table.

Non-automatic switches are UL Listed per UL 1087 and are CSA certified.

Table 7.13: QO Non-Automatic Miniature Switches, 240 Vac 10 kA

Ampere Rating	2P		3P	
	Cat. No.	$ Price	Cat. No.	$ Price
60	QO200	70.00	QO300	248.00
100	QO2000	200.00	QO3000	366.00

▲ UL Listed as HACR type for use with air conditioning, heating and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers.

■ UL Listed as SWD (switching duty) rated. Suitable for switching 120 Vac fluorescent lighting loads.

♦ 10–30 A circuit breakers are suitable for use with 60° C or 75° C conductors. 35–60 A circuit breakers are suitable for use with 75° C conductors.

★ Suitable only for feeding 240 Vac and 208 Vac loads. Does not contain load neutral connection.

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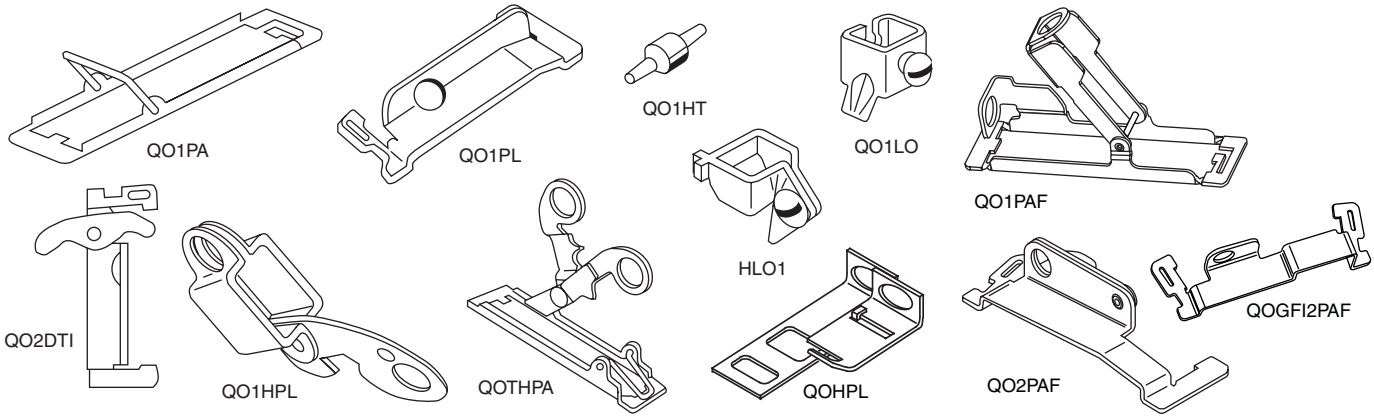
Table 7.14: Accessories for Use with QO® and QOB Miniature Circuit Breakers

	Description	Cat. No.	$ Price	Schedule
Handle Attachments				
Handle Tie:	Converts any two adjacent 120/240 Vac 1P QO circuit breakers to independent trip 2P	QO1HT	**3.80**	DE2E
	Converts any two adjacent 120/240 Vac 1P side-by-side QOT circuit breakers to independent trip 2P	QOTHT	**3.80**	DE2E
	Handle tie and lock-off for three 1P QO, QOB circuit breakers	QO3HT	**13.40**	DE2E
Handle Clamp:	Clamp for holding QO 1P handle in ON or OFF position	QO1LO	**3.80**	DE2E
	Clamp for holding QO or Q1 1P, 2P or 3P circuit breaker handles in ON or OFF position	HLO1	**9.90**	DE2E
Handle Padlock Attachment: for Padlocking in ON or OFF position	For padlocking 1P QO circuit breaker in ON or OFF position			
	Loose attachment	QOHPL	**9.50**	DE2E
	Fixed attachment	QO1PA	**10.70**	DE2E
	For padlocking 1P side-by-side QOT circuit breaker in ON or OFF position	QOTHPA	**11.10**	DE2E
	For padlocking 2P QO-GFI circuit breakers in either ON or OFF position, fixed attachment.	GFI2PA	**9.20**	DE2A
	For 2P and 3P QO and Q1 standard circuit breakers which require padlocking in either ON or OFF position.			
	Loose attachment	QO1HPL	**10.70**	DE2E
	Fixed attachment	QO1PL	**10.70**	DE2E
Handle Padlock Attachment: for Padlocking in OFF position	For padlocking 1P QO circuit breaker in OFF position only, fixed attachment.	QO1PAF	**43.50**	DE2E
	For padlocking 2P and 3P QO circuit breakers in OFF position only, fixed attachment.	QO2PAF	**25.80**	DE2E
	For padlocking 1P QO-GFI, QO-AFI, QO-CAFI, and QO-EPD circuit breakers in OFF position only, fixed attachment.	QOGFI1PAF	**51.00**	DE2E
	For padlocking 2P QO-GFI and QO-EPD circuit breakers in OFF position only, fixed attachment.	QOGFI2PAF	**38.40**	DE2E
Ring Terminal	Ring terminals are available as a factory-installed option.	See Page 7-10	**+20% Price Adder**	DE2A
Sub-Feed Lugs	60 A 2P plug-on – 2 spaces required (6–2 Al/Cu)	QO60SL	**47.10**	DE2A
	125 A 2P plug-on – 2 spaces required (12–2/0 Al/Cu)	QO2125SL	**137.00**	DE2A
	225 A 2P plug-on – 4 spaces required (4–300 Al/Cu)	QO2225SL▲	**308.00**	DE2A
	125 A 3P plug-on – 3 spaces required (12–2/0 Al/Cu)	QO3125SL	**137.00**	DE3
Mechanical Interlock Attachment	For interlocking the handles of two 2P or one 2P and one 1P QO and Q1 circuit breakers mounted side-by-side so that only one circuit breaker can be ON at a time (Not QOU)	QO2DTI	**24.90**	DE2E
With Retaining Kit:	QO2DTI mechanical interlock attachment with retaining kits for securing two adjacent back-fed circuit breakers in dual power supply applications. Can be used with (2) 2Ps or (1) 2P and (1) 1P QO circuit breakers in QO816L100 load centers.	QO2DTIM	**63.00**	DE2E

▲ Not suitable for use in 3Ø panels. Use only in 1Ø panel rated 150 A or greater.



Factory-Installed Accessories for Use with QO and QOB Miniature Circuit Breakers

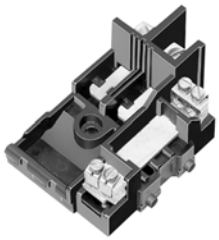
Factory-installed electrical accessories take up an additional pole space on QO®, QO-GFI, QO-EPD, QO-SWN and QOU circuit breakers. All AC electrical accessories shown below are rated for 50/60 Hz. Accessories are not available for QOB-VH (2P 150 A and 3P 110–150 A) circuit breakers or QO, QOU molded case switches. QO circuit breakers will accept only one accessory per circuit breaker. Undervoltage trip is not available on miniature circuit breakers. Factory-installed accessories are not available for QO-AFI or QO-CAFI Arc Fault Circuit Breakers or on QO2150, QO2175, or QO2200 circuit breakers.

Table 7.15: Factory-Installed Accessories

Accessory	Description	Rated Voltage		Coil Burden	Cat. No. Suffix	$ Price Adder
Shunt Trip	Trips the circuit breaker from a remote location by means of a trip coil energized from a separate circuit. A 120 Vac shunt trip will operate at 55% or more of rated voltage. All other shunt trips will operate at 75% or more of rated voltage. **Application** • For use with momentary or maintained push button. • Not available on QO-GFI, QO-EPD, QO-AFI, QOCAFI. • Shunt trip terminals accept (2) 14–12 AWG Cu.	AC/DC	12 24	60 VA 168 VA	-1042	**189.00**
		AC	120 208 240	72 VA 228 VA 288 VA	-1021	**189.00**

Accessory	Description	Contact Comb.	Max. Voltage	Max. Load	Cat. No. Suffix	$ Price Adder
Auxiliary Switches	Monitors circuit breaker contact status and provides a remote signal indicating the circuit breaker contacts are OPEN or CLOSED. **Application** • Auxiliary switch terminals accept (2) 14–12 AWG Cu leads.	1A 1B	AC 120 AC 120	5 A 5 A	-1200 -1201	**132.00** **132.00**
Alarm Switches	Used with control circuits and is actuated only when the circuit breaker has tripped. Standard construction includes a normally-open contact. **Application** • Alarm switch terminals accept (2) 14–12 AWG Cu leads.	1A	AC 120	5 A	-2100	**132.00**


SN12125


QON2L40

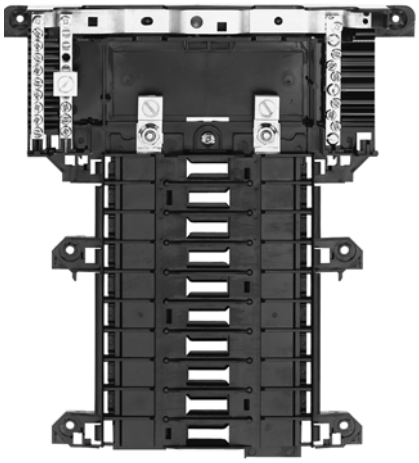

QON120L125I

Table 7.16: QO OEM Mounting Bases—UL Recognized Components

Voltage System	Main Lug Rating	1P Spaces	Max. No. 1P	Mounting Bases Cat. No.	Mounting Bases $ Price	Main Wire Size AWG/kcmil
QO Plug-On Mounting Bases—For unit mounting QO, QO-GFI, QO-AFI and QO-EPD circuit breakers						
1Ø2W 240 Vac Max. 10 k AIC (Without Neutral Assembly)	70 A	2	2	QON2L70	**27.30**	14–4 Cu, 12–3 Al
	125 A	4	4	SK9948BW	**75.00**	12–1/0 Cu/Al
	125 A	4	4	SK9842	**78.00**	12–1/0 Cu/Al
	125 A	6	6	SK9795	**84.00**	12–1/0 Cu/Al
	125 A	6	6	SK9801	**108.00**	12–1/0 Cu/Al
	150 A	6	6	SK9796BW	**131.00**	8–3/0 Cu/Al
	150 A	8	8	SK9797	**140.00**	8–3/0 Cu/Al
1Ø3W 240 Vac Max. 10 k AAIC	40 A	2	2	QON2L40	**35.00**	14–6 Cu, 12–6 Al
	70 A	2	4	QON24L70	**50.00**	14–4 Cu, 12–3 Al
	100 A	6	12	QON612L100	**70.00**	8–1/0 Cu/Al
	100 A	8	16	QON816L100	**92.00**	8–1/0 Cu/Al
	100 A	12	12	QON12L100	**113.00**	12–2/0 Cu/Al
	100 A	12	12	QON12L100SF■	**161.00**	6–2/0 Cu/Al
	125 A	12	12	QON112L125I	**120.00**	4–2/0 Cu/Al
	125 A	12	24	QON11224L125I	**168.00**	4–2/0 Cu/Al
	125 A	16	16	QON116L125I	**131.00**	4–2/0 Cu/Al
	125 A	16	24	QON11624L125I	**191.00**	4–2/0 Cu/Al
	125 A	20	20	QON120L125I	**225.00**	4–2/0 Cu/Al
	125 A	24	24	QON124L125I	**263.00**	6–2/0 Cu/Al
	125 A	32	32	QON132L125I	**360.00**	4–2/0 Cu/Al
	125 A	20	24	QON12024L125I	**263.00**	4–2/0 Cu/Al
	150 A	24	24	QON124L150I	**263.00**	4–250 Cu/Al
	200 A	12	12	QON124L200I	**339.00**	4–250 Cu/Al
	200 A	12	12	QON12L200FTL♦	**500.00**	4–250 Cu/Al
	200 A	24	24	QON124L200I	**339.00**	4–250 Cu/Al
	200 A	24	24	QON124L200DL★	**500.00**	(2) 4–300 Cu/Al
	200 A	30	30	QON130L200I	**417.00**	4–250 Cu/Al
	225 A	42	42	QON142L225I	**599.00**	4–300 Cu/Al
3Ø3W 240 Vac Max. 10 k AIC (Without Neutral Assy.)	125 A	12	12	QON312L125	**251.00**	4–2/0 Cu/Al
	125 A	20	20	QON320L125	**380.00**	4–2/0 Cu/Al
	125 A	24	24	QON324L125	**395.00**	4–2/0 Cu/Al
	200 A	18	18	QON318L200	**327.00**	4–300 Cu/Al
	200 A	24	24	QON324L200	**402.00**	4–300 Cu/Al
	200 A	30	30	QON330L200	**477.00**	4–300 Cu/Al
	225 A	42	42	QON342L225	**674.00**	4–300 Cu/Al
3Ø4W 240 Vac Max. 10 k AIC	60 A	3	3	QON403L60N	**49.80**	12–6 Cu/Al
	125 A	12	12	QON312L125I	**281.00**	4–2/0 Cu/Al
	125 A	20	20	QON320L125I ▲	**441.00**	4–2/0 Cu/Al
	125 A	24	24	QON324L125I	**461.00**	4–2/0 Cu/Al
	200 A	18	18	QON318L200I	**426.00**	4–300 Cu/Al
	200 A	24	24	QON324L200I	**468.00**	4–300 Cu/Al
	200 A	30	30	QON330L200I ▲	**528.00**	4–300 Cu/Al
	225 A	42	42	QON342L225I	**716.00**	4–300 Cu/Al
QO Plug-On Mounting Bases—For unit mounting QO, QO-GFI and QO-EPD circuit breakers						
1Ø2W 240 Vac Max. 10 k AIC (Without Neutral Assembly)	70 A	1	1	QOMB1	**29.60**	14–4 Cu 12–2 Al
	70 A	2	2	QOMB2	**59.00**	14–4 Cu 12–2 Al
	70 A	3	3	QOMB3	**87.00**	14–4 Cu 12–2 Al
QOB Bolt-On Mounting Bases—For unit mounting QOB, QOB-GFI, QOB-EPD circuit breakers						
3Ø3W 240 Vac Max.10 k AIC (Without Neutral Assembly)	100 A	3	3	QON3B	**56.00**	12–1 Cu/Al

▲ Also IEC rated and CE marked for IEC 60439-1. Use only Square D brand Type QOXC, QOXD, QOHX and QOE circuit breakers for 415Y/240 Vac max. systems.
■ Device comes with factory-installed sub-feed lugs.
♦ Device comes with factory-installed feed-thru lugs.
★ Device comes with factory-installed dual-line lugs.

Table 7.17: Solid Neutral Assemblies

Main Lug Rating	Number of Branch Neutral Terminals	Cat. No.	$ Price	Main Neutral Lug Wire Size Cu/Al	Branch Neutral Terminal Wire Size Cu	Branch Neutral Terminal Wire Size Al
125 A	12	SN12125	**36.30**	4–2/0 AWG	14–4 AWG	12–4 AWG
125 A	20	SN20	**39.50**	4–2/0 AWG	14–4 AWG	12–4 AWG
200 A	12	SN12200	**40.70**	4 AWG–300 kcmil	14–4 AWG	12–4 AWG
200 A	30	SN30	**54.00**	4 AWG–300 kcmil	14–4 AWG	12–4 AWG
225 A	42	SN42	**63.00**	4 AWG–300 kcmil	14–4 AWG	12–4 AWG

Table 7.18: Multi-9 Mounting Bases for UL489 C60, 240 Vac max.

Description	Poles	Amperes	Length in.	Length mm	Cat. No.▼	$ Price
One-conductor Mounting Base	12	200 A	10.4	264	US11220018	**330.00**
	24		14.4	366	US12420018	**476.00**
	36		19	483	US13620018	**632.00**
	48		23	584	US14820018	**810.00**
	60		27.5	699	US16020018	**972.00**
Two-conductor Mounting Base	12	150 A	10.4	264	US21215018	**429.00**
	24	200 A	14.4	366	US22420018	**645.00**
	36		19	483	US23620018	**887.00**
	48		23	584	US24820018	**1140.00**
	60		27.5	699	US26020018	**1359.00**
Three-conductor Mounting Base	12	100 A	10.4	264	US31210018	**467.00**
	24	200 A	14.4	366	US32420018	**701.00**
	36		19	483	US33620018	**960.00**
	48		23	584	US34820018	**1245.00**
	60		27.5	699	US36020018	**1547.00**

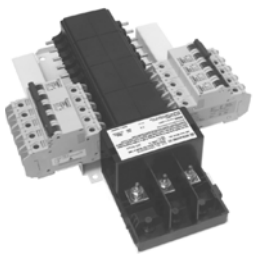
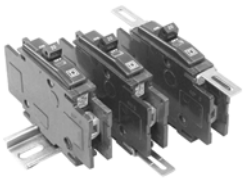

US Mounting Base for UL489 C60 (3 conductor shown)

Table 7.19: Accessories for US Mounting Base for UL489 C60

Description	Cat. No.▼	$ Price
Main lug kit for US mounting bases, 1 lug per kit, for 6 AWG to 300 kcmil cable	USMBLK	**24.00**
Terminal cover for US mounting base; provides IP20 ingress protection per IEC 60529; suitable for jumper bars or cable	USMBTC	**49.50**

▼ DE2 Discount Schedule



Low Ampere QOU

Low Ampere QOU Miniature Circuit Breakers

QOU unit mount miniature circuit breakers (cable-in/cable-out) are ideal for OEM applications. They have Square D's unique Visi-Trip® feature and can be DIN rail-mounted or surface- or flush-mounted using mounting feet.

General Specifications Common to All Low Ampere QOU Circuit Breakers

- For convenient flush mount, surface mount or DIN mount (symmetrical rail 35 x 7.5 DIN/EN 50 022)
- Single handle with internal common trip
- Terminal lug wire size (1) 14–2 AWG Cu or Al
- Reversible line and load lugs
- Field-installable quick connectors
- UL Listed 48 Vdc (5 k AIR)
- UL Listed as HACR Type—10–70 A
- High magnetic trip circuit breakers (QOU-HM) are recommended for applications where high initial inrush may occur and for individual dimmer applications.
- For DIN mounting rails, see IEC Starters and Relays, Section 18

Table 7.20: QOU Low Ampere Miniature Circuit Breakers

Ampere Rating	1P 120/240 Vac		2P 120/240 Vac		2P 240 Vac		3P 240 Vac	
	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.▲	$ Price	Cat. No.	$ Price
10 k AIR								
10 A	QOU110		QOU210		—		QOU310	
15 A	QOU115		QOU215		QOU215H		QOU315	
20 A	QOU120		QOU220		QOU220H	168.00	QOU320	
25 A	QOU125		QOU225		QOU225H		QOU325	
30 A	QOU130	40.20	QOU230	87.00	QOU230H		QOU330	285.00
35 A	QOU135		QOU235		—	—	QOU335	
40 A	QOU140		QOU240		—	—	QOU340	
45 A	QOU145		QOU245		—	—	QOU345	
50 A	QOU150		QOU250		—	—	QOU350	
60 A	QOU160		QOU260		—	—	QOU360	
70 A	QOU170	78.00	QOU270	171.00	—	—	QOU370	363.00
22 k AIR								
15 A	QOU115VH		QOU215VH		—	—	QOU315VH	
20 A	QOU120VH		QOU220VH		—	—	QOU320VH	
25 A	QOU125VH		QOU225VH		—	—	QOU325VH	426.00
30 A	QOU130VH		QOU230VH		—	—	QOU330VH	
35 A	QOU135VH	101.00	QOU235VH	189.00	—	—	—	—
40 A	QOU140VH		QOU240VH		—	—	—	—
45 A	QOU145VH		QOU245VH		—	—	—	—
50 A	QOU150VH		QOU250VH		—	—	—	—
60 A	QOU160VH		QOU260VH		—	—	—	—

▲ QOU-H interrupting rating is 10 kA at 240 Vac.

Table 7.21: QOU-HM Miniature Circuit Breakers (10 k AIR)

Ampere Rating	1P 120/240 Vac		2P 120/240 Vac		2P 240 Vac		3P 240 Vac	
	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price
15 A	QOU115HM	40.20	—	—	—	—	—	—
20 A	QOU120HM		—	—	—	—	—	—

Table 7.22: QYU UL1077 Recognized Supplementary Protectors (5 k AIR)

Ampere Rating	1P 277 Vac		2P 120/240 Vac		2P 240 Vac		3P 240 Vac	
	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price
10 A	QYU110		—	—	—	—	—	—
15 A	QYU115		—	—	—	—	—	—
20 A	QYU120	122.00	—	—	—	—	—	—
25 A	QYU125		—	—	—	—	—	—
30 A	QYU130		—	—	—	—	—	—

High Ampere QOU

High Ampere QOU Circuit Breakers

General Specifications Common to All High Ampere QOU Circuit Breakers

- Flush mount, surface mount, and DIN rail mount.
- Internal common trip.
- Non-reversible line and load lugs.
- Terminal lug wire size (1) 12– 2/0 AWG Cu or Al.
- UL Listed 60 Vdc per pole (5 k AIR). (**Note:** except switches)
- UL Listed as HACR type, 80–125 A.
- Non-automatic switches have the same physical packaging as miniature circuit breakers, but provide no overcurrent or short circuit protection. They are UL Listed per UL1087 and are CSA certified.

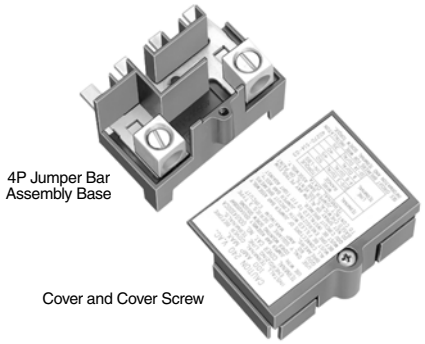
Table 7.23: QOU High Ampere Miniature Circuit Breakers (10 k AIR)

Ampere Rating	1P 120/240 Vac		2P 120/240 Vac		2P 240 Vac		3P 240 Vac	
	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price
80 A	QOU180		QOU280		—	—	QOU380	
90 A	QOU190	176.00	QOU290	246.00	—	—	QOU390	416.00
100 A	QOU1100		QOU2100		—	—	QOU3100	
125 A	—	—	QOU2125	452.00	—	—	—	—

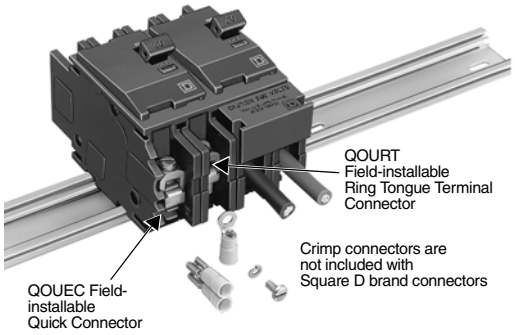
Table 7.24: QOU Non-Automatic Switches

Ampere Rating	1P 120 Vac	$ Price	2P 120/240 Vac	$ Price	2P 240 Vac	$ Price	3P 240 Vac	$ Price
	Cat. No.		Cat. No.		Cat. No.		Cat. No.	
60 A	—	—	—	—	QOU200	87.00	QOU300	285.00
100 A	—	—	—	—	QOU2000	246.00	QOU3000	416.00
125 A	—	—	—	—	QOU20001	452.00	QOU30001	716.00

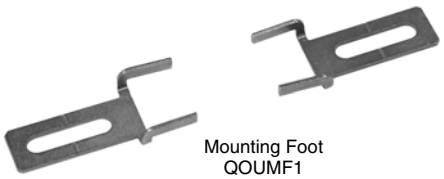
Interrupting Ratings . . . . . Page 7-3
Accessories . . . . . Page 7-12, 7-15
Dimensions. . . . . Page 7-54



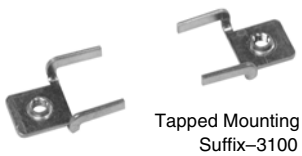
QOU14100JBAF



2P DIN Mounted QOU Circuit Breakers



Mounting Foot
QOUMF1



Tapped Mounting Foot
Suffix–3100

Table 7.25: Accessories for QOU Low Ampere Circuit Breakers (Except as Noted)

Description	Order Qty.	Cat. No.	Unit $ Price
Factory-installed ring tongue terminal, 10–32 screw, for 1P, 2P, 3P QOU, 10–60 A		Suffix -5283	**Add 20% to price**
Hex drive 5/32 in. wire binding screw for QOU		Suffix -5280	**Add 20% to price**
For padlocking 1P low ampere QOU circuit breaker in OFF or ON position		QOU1PA	**10.10**
For padlocking 2P and 3P low ampere QOU circuit breaker in OFF or ON position		QOU1PL	**10.10**
For padlocking 1P low ampere QOU circuit breaker in OFF position only		QOU1PAFLA♦	**43.50**
For padlocking 2P and 3P low ampere QOU circuit breaker in OFF position only		QOU2PAFLA♦	**25.80**
For padlocking 2P and 3P high ampere QOU circuit breaker in OFF position only		Suffix -7100	**Add 20% to price**
Handle lock-out, ON or OFF position		HLO1♦	**9.90**
4P 100 A Jumper bar assy. w/front wiring with base, cover and screw	1	QOU14100JBAF	**73.00**
4P 100 A Jumper bar assy. w/right side wiring with base, cover and screw	1	QOU14100JBAR	**73.00**
4P 100 A Jumper bar assy. w/left side wiring with base, cover and screw	1	QOU14100JBAL	**73.00**
1Ø, 4P, 100 A Jumper bar base with front wiring	40	QOU14100BAFB	**53.00**
1Ø, 4P, 100 A Jumper bar base with left side wiring	40	QOU14100BALB	**53.00**
1Ø, 4P, 100 A Jumper bar base with right side wiring	40	QOU14100BARB	**53.00**
4P Jumper bar cover	40	QOU14100CAB	**13.20**
Mounting screw for jumper bar cover	40	QOU1CMSB	**0.35**
6P 150 A Jumper bar assy. w/front wiring with base, cover and screw	1	QOU16150JBAF	**99.00**
1Ø, 6P, 150 A Jumper bar base with front wiring	40	QOU16150BAFB	**69.00**
1Ø, 6P, 150 A Jumper bar base with left side wiring	40	QOU16150BALB	**69.00**
1Ø, 6P, 150 A Jumper bar base with right side wiring	40	QOU16150BARB	**69.00**
6P jumper bar cover	40	QOU16150CAB	**17.10**
Vertical rainproof cover 2P and 3P QO, QOU, FA and KA	1 10	BCV▲♦ BCVB▲♦	**30.80** **30.80**
Horizontal rainproof cover 2P QO, QOU, and 3P Q2, EH	1 10	BCH▲♦ BCHB▲♦	**30.80** **30.80**
1P Fingersafe® cover for high ampere QOU circuit breaker	1 40	QOUHFSC1 QOUHFSC1B	**2.60** **2.10**
1P Fingersafe cover for low ampere QOU circuit breaker	1 40	QOULFSC1 QOULFSC1B	**2.60** **2.10**
Cover plate for one 2P QOU circuit breaker	1 40	QOUCP2 QOUCP2B	**8.30** **6.60**
Cover plate for one 3P QOU circuit breaker	1 40	QOUCP3 QOUCP3B	**15.80** **12.80**
Cover plate for two 2P QOU circuit breakers	1 40	QOUCP4 QOUCP4B	**9.90** **7.90**
Cover plate for three 2P QOU circuit breakers	1 40	QOUCP6 QOUCP6B	**15.60** **12.20**
Field-installable ring tongue terminal adaptor	1 80	QOURT QOURTB	**5.70** **4.40**
Quick connector end connection wiring	1 40	QOUEC QOUECB	**5.70** **4.40**
Quick connector forward or reverse wiring	1 40	QOUFR QOUFRB	**5.70** **4.40**
1P QOU mounting foot	1 80	QOUMF1▲ QOUMF1B▲	**0.71** **0.54**
2P QOU mounting foot	1 40	QOUMF2▲ QOUMF2B▲	**1.40** **1.10**
3P QOU mounting foot	1 24	QOUMF3▲ QOUMF3B▲	**2.30** **1.70**
Tapped mounting foot for QOU, 1P and 2P 10–70 A, 3P 10–60 A			
Packaged with circuit breaker		Suffix -3100	**Add 20% to price**
Individually packaged	1	QOUMFS1	**2.40**
Bulk packed	80	QOUMFS1B	**2.30**
Mechanical interlock attachment: Used to interlock two circuit breakers mounted side-by-side so that only one circuit breaker can be ON at a time. A 1P or 2P circuit breaker can be mounted on the left and interlocked with a 2P or 3P circuit breaker on the right.	1	QOU2DTILA ■	**24.90**

▲ For use on low and high ampere QOU.
■ 10–70 A 1P and 2P, 10–60 A 3P.
♦ DE2E Discount Schedule

For QOUQ Low Ampere Circuit Breakers with Four-Point Quick-Connect Terminals

QOUQ low ampere circuit breakers with four-point quick-connect terminals are provided with permanent factory-installed terminals which are affixed to the Load or OFF end of the circuit breaker. This special terminal will accommodate up to four 1/4-inch insulated female quick connect wire terminations. Total ampacity of these connections must not exceed the rating of the circuit breaker.

Table 7.26: QOUQ Four-Point Quick-Connect Terminals

Poles	Order Qty.	Cat. No.	Unit $ Price Adder
1	1	Change QOU to QOUQ	**8.90**
2	1		**17.70**
3	1		**26.40**

Electrical Accessories for QOU . . . . . .Page 7-12

1P C60N

2P C60N

Multi 9 C60N UL 489 Listed 240 V Miniature Circuit Breakers

- UL 489 Listed and CSA 22.2 No.5.1 for branch circuit protection
- Eliminates concerns and uncertainty of using a UL 1077 device where a UL 489 device is required
- Replaces fuses in low-ampere range; 17 ratings up to 35 A

Trip Curve	Use	Magnetic Release
C	For typical loads	7–10 x ampere rating (7–14 for DC)
D	For high inrush	10–14 x ampere rating

- 10 k AIR (1P @ 120 Vac; 2P and 3P @ 240 Vac)
- 60 Vdc for 1P and 125 Vdc for 2P (on C-curve circuit breakers only, see table below)
- Increased installation flexibility with standard box lugs or optional ring terminals
- Allows easy front-mounting and rear wiring when using ring terminals
- A wide range of electrical and mechanical accessories
- Suitable for reverse feeding
- Trip-free mechanism
- Positive indication of contact disconnect

3P C60N

Box Lug C60N

Ring Tongue C60N

Box/Ring C60N

Table 7.27: UL 489 Circuit Breakers (120/240 V)

Rating (A)	C Curve—7–10 Times Ampere Rating (7–14 DC)						D Curve—10–14 Times Ampere Rating					
	1P▲		2P■		3P		1P		2P		3P	
	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price
Box Lug/Box Lug												
0.5	60100	125.00	60134	269.00	—	—	60117	125.00	60151	269.00	—	—
1	60101	125.00	60135	269.00	60168	387.00	60118	125.00	60152	269.00	60184	387.00
1.5	60102	125.00	60136	269.00	60169	387.00	60119	125.00	60153	269.00	60185	387.00
2	60103	125.00	60137	269.00	60170	387.00	60120	125.00	60154	269.00	60186	387.00
3	60104	125.00	60138	269.00	60171	387.00	60121	125.00	60155	269.00	60187	387.00
4	60105	125.00	60139	269.00	60172	387.00	60122	125.00	60156	269.00	60188	387.00
5	60106	125.00	60140	269.00	60173	387.00	60123	125.00	60157	269.00	60189	387.00
6	60107	114.00	60141	246.00	60174	356.00	60124	114.00	60158	246.00	60190	356.00
7	60108	114.00	60142	246.00	60175	356.00	60125	114.00	60159	246.00	60191	356.00
8	60109	114.00	60143	246.00	60176	356.00	60126	114.00	60160	246.00	60192	356.00
10	60110	114.00	60144	246.00	60177	356.00	60127	114.00	60161	246.00	60193	356.00
13	60111	114.00	60145	246.00	60178	356.00	60128	114.00	60162	246.00	60194	356.00
15	60112	114.00	60146	246.00	60179	356.00	60129	114.00	60163	246.00	60195	356.00
20	60113	114.00	60147	246.00	60180	356.00	60130	114.00	60164	246.00	60196	356.00
25	60114	114.00	60148	246.00	60181	356.00	60131	114.00	60165	246.00	60197	356.00
30	60115	120.00	60149	257.00	60182	372.00	60132	120.00	60166	257.00	60198	372.00
35	60116	120.00	60150	257.00	60183	372.00	60133	120.00	60167	257.00	60199	372.00
Ring Tongue/Ring Tongue												
0.5	60200	131.00	60234	282.00	—	—	60217	131.00	60251	282.00	—	—
1	60201	131.00	60235	282.00	60268	410.00	60218	131.00	60252	282.00	60284	410.00
1.5	60202	131.00	60236	282.00	60269	410.00	60219	131.00	60253	282.00	60285	410.00
2	60203	131.00	60237	282.00	60270	410.00	60220	131.00	60254	282.00	60286	410.00
3	60204	131.00	60238	282.00	60271	410.00	60221	131.00	60255	282.00	60287	410.00
4	60205	131.00	60239	282.00	60272	410.00	60222	131.00	60256	282.00	60288	410.00
5	60206	131.00	60240	282.00	60273	410.00	60223	131.00	60257	282.00	60289	410.00
6	60207	122.00	60241	261.00	60274	378.00	60224	122.00	60258	261.00	60290	378.00
7	60208	122.00	60242	261.00	60275	378.00	60225	122.00	60259	261.00	60291	378.00
8	60209	122.00	60243	261.00	60276	378.00	60226	122.00	60260	261.00	60292	378.00
10	60210	122.00	60244	261.00	60277	378.00	60227	122.00	60261	261.00	60293	378.00
13	60211	122.00	60245	261.00	60278	378.00	60228	122.00	60262	261.00	60294	378.00
15	60212	122.00	60246	261.00	60279	378.00	60229	122.00	60263	261.00	60295	378.00
20	60213	122.00	60247	261.00	60280	378.00	60230	122.00	60264	261.00	60296	378.00
25	60214	122.00	60248	261.00	60281	378.00	60231	122.00	60265	261.00	60297	378.00
30	60215	126.00	60249	273.00	60282	395.00	60232	126.00	60266	273.00	60298	395.00
35	60216	126.00	60250	273.00	60283	395.00	60233	126.00	60267	273.00	60299	395.00
Box Lug/Ring Tongue												
0.5	60300	129.00	60334	279.00	—	—	60317	129.00	60351	279.00	—	—
1	60301	129.00	60335	279.00	60368	404.00	60318	129.00	60352	279.00	60384	404.00
1.5	60302	129.00	60336	279.00	60369	404.00	60319	129.00	60353	279.00	60385	404.00
2	60303	129.00	60337	279.00	60370	404.00	60320	129.00	60354	279.00	60386	404.00
3	60304	129.00	60338	279.00	60371	404.00	60321	129.00	60355	279.00	60387	404.00
4	60305	129.00	60339	279.00	60372	404.00	60322	129.00	60356	279.00	60388	404.00
5	60306	129.00	60340	279.00	60373	404.00	60323	129.00	60357	279.00	60389	404.00
6	60307	120.00	60341	257.00	60374	372.00	60324	120.00	60358	257.00	60390	372.00
7	60308	120.00	60342	257.00	60375	372.00	60325	120.00	60359	257.00	60391	372.00
8	60309	120.00	60343	257.00	60376	372.00	60326	120.00	60360	257.00	60392	372.00
10	60310	120.00	60344	257.00	60377	372.00	60327	120.00	60361	257.00	60393	372.00
13	60311	120.00	60345	257.00	60378	372.00	60328	120.00	60362	257.00	60394	372.00
15	60312	120.00	60346	257.00	60379	372.00	60329	120.00	60363	257.00	60395	372.00
20	60313	120.00	60347	257.00	60380	372.00	60330	120.00	60364	257.00	60396	372.00
25	60314	120.00	60348	257.00	60381	372.00	60331	120.00	60365	257.00	60397	372.00
30	60315	125.00	60349	269.00	60382	387.00	60332	125.00	60366	269.00	60398	387.00
35	60316	125.00	60350	269.00	60383	387.00	60333	125.00	60367	269.00	60399	387.00

▲ 1P dual rated 120 Vac/60 Vdc.
■ 2P dual rated 240 Vac/125 Vdc.

Interrupting ratings . . . . . Page 7-3
Accessories . . . . . Page 7-20
Dimensions. . . . . Page 7-54
Mounting Bases . . . . . Page 7-13
DIN Mounting Rail . . . . . Section 18

Multi 9 C60 UL 489 Listed 480V Miniature Circuit Breakers

- UL 489 Listed, CSA C22.2 No. 5.1; Also IEC 60947-2; CE marked
- 480Y/277 Vac @ 10 kA (2P and 3P), 277 Vac @ 10 kA (1P)
- 0.5 A through 20 A
- 1P, 2P, 3P, 18 mm wide per pole
- UL 486B Listed single-barrel lug: (2) 18–10 AWG (1-25 mm^2) cables, Cu only
- Optional ring tongue terminals
- A wide range of electrical and mechanical accessories
- Suitable for reverse feeding
- Trip-free mechanism
- Positive indication of contact disconnect

1P
UL489 C60

Trip Curve	Use	Magnetic Release
C	For typical loads	7–10 x ampere rating (7–14 for DC)
D	For high inrush	10–14 x ampere rating

Table 7.28: UL 489 Circuit Breakers (480Y/277 Vac)

Rating (A)	C Curve—7–10 Times Ampere Rating (7–14 DC)						D Curve—10–14 Times Ampere Rating					
	1P		2P		3P		1P		2P		3P	
	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price
Single-Barrel Wire Lug												
0.5	MGN61300	**168.00**	—	—	—	—	MGN61333	**168.00**	—	—	—	—
1	MGN61301	**168.00**	MGN61312	**357.00**	MGN61323	**519.00**	MGN61334	**168.00**	MGN61345	**357.00**	MGN61356	**519.00**
2	MGN61302	**168.00**	MGN61313	**357.00**	MGN61324	**519.00**	MGN61335	**168.00**	MGN61346	**357.00**	MGN61357	**519.00**
3	MGN61303	**168.00**	MGN61314	**357.00**	MGN61325	**519.00**	MGN61336	**168.00**	MGN61347	**357.00**	MGN61358	**519.00**
4	MGN61304	**168.00**	MGN61315	**357.00**	MGN61326	**519.00**	MGN61337	**168.00**	MGN61348	**357.00**	MGN61359	**519.00**
5	MGN61305	**168.00**	MGN61316	**357.00**	MGN61327	**519.00**	MGN61338	**168.00**	MGN61349	**357.00**	MGN61360	**519.00**
6	MGN61306	**168.00**	MGN61317	**357.00**	MGN61328	**519.00**	MGN61339	**168.00**	MGN61350	**357.00**	MGN61361	**519.00**
8	MGN61307	**168.00**	MGN61318	**357.00**	MGN61329	**519.00**	MGN61340	**168.00**	MGN61351	**357.00**	MGN61362	**519.00**
10	MGN61308	**168.00**	MGN61319	**357.00**	MGN61330	**519.00**	MGN61341	**168.00**	MGN61352	**357.00**	MGN61363	**519.00**
15	MGN61309	**168.00**	MGN61320	**357.00**	MGN61331	**519.00**	MGN61342	**168.00**	MGN61353	**357.00**	MGN61364	**519.00**
20	MGN61310	**168.00**	MGN61321	**357.00**	MGN61332	**519.00**	MGN61343	**168.00**	MGN61354	**357.00**	MGN61365	**519.00**
Ring Tongue Terminal												
0.5	MGN61366	**168.00**	—	—	—	—	MGN61399	**168.00**	—	—	—	—
1	MGN61367	**168.00**	MGN61378	**357.00**	MGN61389	**519.00**	MGN61400	**168.00**	MGN61411	**357.00**	MGN61422	**519.00**
2	MGN61368	**168.00**	MGN61379	**357.00**	MGN61390	**519.00**	MGN61401	**168.00**	MGN61412	**357.00**	MGN61423	**519.00**
3	MGN61369	**168.00**	MGN61380	**357.00**	MGN61391	**519.00**	MGN61402	**168.00**	MGN61413	**357.00**	MGN61424	**519.00**
4	MGN61370	**168.00**	MGN61381	**357.00**	MGN61392	**519.00**	MGN61403	**168.00**	MGN61414	**357.00**	MGN61425	**519.00**
5	MGN61371	**168.00**	MGN61382	**357.00**	MGN61393	**519.00**	MGN61404	**168.00**	MGN61415	**357.00**	MGN61426	**519.00**
6	MGN61372	**168.00**	MGN61383	**357.00**	MGN61394	**519.00**	MGN61405	**168.00**	MGN61416	**357.00**	MGN61427	**519.00**
8	MGN61373	**168.00**	MGN61384	**357.00**	MGN61395	**519.00**	MGN61406	**168.00**	MGN61417	**357.00**	MGN61428	**519.00**
10	MGN61374	**168.00**	MGN61385	**357.00**	MGN61396	**519.00**	MGN61407	**168.00**	MGN61418	**357.00**	MGN61429	**519.00**
15	MGN61375	**168.00**	MGN61386	**357.00**	MGN61397	**519.00**	MGN61408	**168.00**	MGN61419	**357.00**	MGN61430	**519.00**
20	MGN61376	**168.00**	MGN61387	**357.00**	MGN61398	**519.00**	MGN61409	**168.00**	MGN61420	**357.00**	MGN61431	**519.00**

2P
UL489 C60

3P
UL489 C60

Multi 9 C60N UL 489A Listed Miniature Circuit Breakers for DC Telecommunication Applications

A limited range of C60N products are UL Listed as UL 489A circuit breakers for protection of DC telecommunications circuits

.

Table 7.29: UL 489A Circuit Breakers for DC Telecommunications Applications (1P, 2 Modules, C curve)

Rating (A)	Cat. No.	$Price	Rating (A)	Cat. No.	$Price
0.5	60406	**120.00**	10	60414	**101.00**
1	60407	**101.00**	13	60415	**101.00**
2	60408	**101.00**	15	60416	**101.00**
3	60409	**101.00**	20	60417	**101.00**
4	60410	**101.00**	30	60418	**101.00**
5	60411	**101.00**	40	60419	**111.00**
6	60412	**101.00**	50	60420	**117.00**
8	60413	**101.00**	60	60421	**123.00**

New!

1P C60H-DC

2P C60H-DC

Multi 9 C60H-DC UL 1077 Recognized Supplementary Protectors (250 and 500 Vdc)

The C60H-DC supplementary protectors are used in direct current circuits (industrial control and automation, transport, renewable energy, etc.). They provide overcurrent protection within appliances or electrical equipment.

- Range from 0.5–40 A
- 5 k AIR at 250 Vdc (1-pole) and 5 k AIR at 500 Vdc (2-pole, wired in series)
- Trip-free mechanism
- Positive indication of contact disconnect
- C-Curve—7 to14 times ampere rating
- UL 1077, IEC 60947-2, EN 60947-2, GB 14048.2, CCC and CE mark

Table 7.30: Multi 9 C60H-DC UL 1077 Recognized Supplementary Protectors New!

	1-Pole 24–250 Vdc		2-Pole 24–500 Vdc	
Current (A)▲	Cat. No.	$ Price	Cat. No.	$ Price
0.5	MGN61500	182.00	MGN61520	392.00
1	MGN61501	182.00	MGN61521	392.00
2	MGN61502	182.00	MGN61522	392.00
3	MGN61503	182.00	MGN61523	392.00
4	MGN61504	182.00	MGN61524	392.00
5	MGN61505	182.00	MGN61525	392.00
6	MGN61506	182.00	MGN61526	392.00
10	MGN61508	182.00	MGN61528	392.00
13	MGN61509	182.00	MGN61529	392.00
15	MGN61510	182.00	MGN61530	392.00
16	MGN61511	182.00	MGN61531	392.00
20	MGN61512	182.00	MGN61532	392.00
25	MGN61513	182.00	MGN61533	392.00
30	MGN61514	182.00	MGN61534	392.00
32	MGN61515	182.00	MGN61535	392.00
40	MGN61517	200.00	MGN61537	412.00

▲ At 25°C/77°F, for other temperatures see temperature derating table in Multi 9 Catalog 0860CT0201R1/08

Multi 9 UL1053 Listed GFP Ground Fault Protectors

- Provides ground fault protection for electrical circuits.
- Available in 2P (2-wire) and 4P (3- or 4-wire) versions
- Provides no thermal or magnetic protection. The circuit must be protected by an upstream device.
- Contains Si Technology to increase immunity to noise and to minimize the potential for nuisance tripping in noisy electrical environments.
- Tripped condition due to a ground fault is displayed on the front face by a red mechanical indicator.
- DIN rail mounting for easy installation.

2P GFP

4P GFP (3- or 4-wire)

Table 7.31: Multi 9 UL 1053 Listed GFP Ground Fault Protectors

				2P				4P	
				UL1053 120/240 Vac, 240 Vac, 60 Hz IEC 61008 230 Vac, 240 Vac, 50 Hz		UL1053 277 Vac, 480Y/277 Vac, 60 Hz IEC 61008 230/400 Vac, 240/415 Vac, 50 Hz		UL1053 240 Vac, 480Y/277 Vac, 60 Hz IEC 61008 230/400 Vac, 240/415 Vac, 50 Hz	
Current (A)	Maximum Sensitivity (mA)	Tripping Range	Family	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price
25	30	22.1 to 29.9 mA	GFP 30	60949	633.00	60969	696.00	60989	720.00
	100	73.1 to 98.9 mA	GFP 100	60950	570.00	60970	627.00	60990	648.00
	300	221 to 299 mA	GFP 300	60951	444.00	60971	488.00	60991	504.00
40	30	22.1 to 29.9 mA	GFP 30	60952	666.00	60972	734.00	60992	758.00
	100	73.1 to 98.9 mA	GFP 100	60953	600.00	60973	660.00	60993	683.00
	300	221 to 299 mA	GFP 300	60954	467.00	60974	513.00	60994	531.00
63	30	22.1 to 29.9 mA	GFP 30	60955	1001.00	60975	1100.00	60995	1136.00
	100	73.1 to 98.9 mA	GFP 100	60956	900.00	60976	990.00	60996	1023.00
	300	221 to 299 mA	GFP 300	60957	701.00	60977	770.00	60997	795.00
80	300	221 to 299 mA	GFP 300	60958	933.00	60978	1026.00	60998	1272.00
100	300	221 to 299 mA	GFP 300	60959	1097.00	60979	1206.00	60999	1496.00

Interrupting Ratings . . . . . Page 7-3
Accessories . . . . . Page 7-20
Dimensions. . . . . Page 7-54

1P
UL 1077 C60N

2P
UL 1077 C60N

3P
UL 1077 C60N

4P
UL 1077 C60N

Intended for use within equipment where branch circuit protection is already provided or not needed

- Range from 0.5 to 63 A
- 10 k AIR @ 120/240 Vac; 5 k AIR at 480Y/277; 10 k AIR @ 60 Vdc (1P) and 125 Vdc (2P)
- Suitable for reverse feeding
- DIN mounting for easy installation
- Suitable for reverse feeding
- A wide range of electrical and mechanical accessories
- Trip-free mechanism
- Positive indication of contact disconnect

Trip Curve	Use	Magnetic Release
B	For sensitive equipment	3.2–4.8 x ampere rating
C	For typical loads	7–10 x ampere rating (7–14 for DC)
D	For high inrush	10–14 x ampere rating

Table 7.32: UL 1077 Supplementary Protectors

Rating (A)	1P	$ Price	2P	$ Price	3P	$ Price	4P	$ Price
B Curve—Magnetic Setting Between 3.2 and 4.8 Times Ampere Rating								
1	MG24110	101.00	MG24125	218.00	MG24140	315.00	MG24155	416.00
1.2	MG17402	101.00	MG17432	218.00	—	—	—	—
1.5	MG17403	101.00	MG17433	218.00	—	—	—	—
2	MG24111	101.00	MG24126	218.00	MG24141	315.00	MG24156	416.00
3	MG24112	101.00	MG24127	218.00	MG24142	315.00	MG24157	416.00
4	MG24113	101.00	MG24128	218.00	MG24143	315.00	MG24158	416.00
5	MG17404	101.00	MG17434	218.00	—	—	—	—
6	MG24114	101.00	MG24129	218.00	MG24144	315.00	MG24159	416.00
7	MG17405	101.00	MG17435	218.00	—	—	—	—
8	MG24115	101.00	MG24130	218.00	MG24145	315.00	MG24160	416.00
10	MG24116	101.00	MG24131	218.00	MG24146	315.00	MG24161	416.00
13	MG24117	101.00	MG24132	218.00	MG24147	315.00	MG24162	416.00
15	MG17406	101.00	MG17436	218.00	MG17461	315.00	—	—
16	MG24118	101.00	MG24133	218.00	MG24148	315.00	MG24163	416.00
20	MG24119	101.00	MG24134	218.00	MG24149	315.00	MG24164	416.00
25	MG24120	101.00	MG24135	218.00	MG24150	315.00	MG24165	416.00
30	MG17407	101.00	MG17437	218.00	MG17462	315.00	—	—
32	MG24121	101.00	MG24136	218.00	MG24151	315.00	MG24166	416.00
35	MG17408	101.00	MG17438	218.00	MG17463	315.00	—	—
40	MG24122	111.00	MG24137	224.00	MG24152	324.00	MG24167	420.00
50	MG24123	117.00	MG24138	240.00	MG24153	338.00	MG24168	438.00
60	MG17409	123.00	MG17439	252.00	MG17464	353.00	—	—
63	MG24124	123.00	MG24139	252.00	MG24154	353.00	MG24169	450.00
C Curve—Magnetic Setting Between 7 and 10 Times Ampere Rating								
0.5	MG17411	120.00	—	—	—	—	—	—
1	MG24425	101.00	MG24442	218.00	MG24459	315.00	MG24476	416.00
1.2	MG17412	101.00	MG17442	218.00	—	—	—	—
1.5	MG17413	101.00	MG17443	218.00	—	—	—	—
2	MG24426	101.00	MG24443	218.00	MG24460	315.00	MG24477	416.00
3	MG24427	101.00	MG24444	218.00	MG24461	315.00	MG24478	416.00
4	MG24428	101.00	MG24445	218.00	MG24462	315.00	MG24479	416.00
5	MG17414	101.00	MG17444	218.00	—	—	—	—
6	MG24430	101.00	MG24447	218.00	MG24464	315.00	MG24481	416.00
7	MG17415	101.00	MG17445	218.00	—	—	—	—
8	MG24431	101.00	MG24448	218.00	MG24465	315.00	MG24482	416.00
10	MG24432	101.00	MG24449	218.00	MG24466	315.00	MG24483	416.00
13	MG24433	101.00	MG24450	218.00	MG24467	315.00	MG24484	416.00
15	MG17416	101.00	MG17446	218.00	MG17466	315.00	—	—
16	MG24434	101.00	MG24451	218.00	MG24468	315.00	MG24485	416.00
20	MG24435	101.00	MG24452	218.00	MG24469	315.00	MG24486	416.00
25	MG24436	101.00	MG24453	218.00	MG24470	315.00	MG24487	416.00
30	MG17417	101.00	MG17447	218.00	MG17467	315.00	—	—
32	MG24437	101.00	MG24454	218.00	MG24471	315.00	MG24488	416.00
35	MG17418	101.00	MG17448	218.00	MG17468	315.00	—	—
40	MG24438	111.00	MG24455	224.00	MG24472	324.00	MG24489	420.00
50	MG24439	117.00	MG24456	240.00	MG24473	338.00	MG24490	438.00
60	MG17419	123.00	MG17449	252.00	MG17469	353.00	—	—
63	MG24440	123.00	MG24457	252.00	MG24474	353.00	MG24491	450.00
D Curve—Magnetic Setting Between 10 and 14 Times Ampere Rating								
0.5	MG17421	120.00	—	—	—	—	—	—
1	MG24500	101.00	MG24516	218.00	MG24532	315.00	MG24548	416.00
1.2	MG17422	101.00	MG17452	218.00	—	—	—	—
1.5	MG17423	101.00	MG17453	218.00	—	—	—	—
2	MG24501	101.00	MG24517	218.00	MG24533	315.00	MG24549	416.00
3	MG24502	101.00	MG24518	218.00	MG24534	315.00	MG24550	416.00
4	MG24503	101.00	MG24519	218.00	MG24535	315.00	MG24551	416.00
5	MG17424	101.00	MG17454	218.00	—	—	—	—
6	MG24504	101.00	MG24520	218.00	MG24536	315.00	MG24552	416.00
7	MG17425	101.00	MG17455	218.00	—	—	—	—
8	MG24505	101.00	MG24521	218.00	MG24537	315.00	MG24553	416.00
10	MG24506	101.00	MG24522	218.00	MG24538	315.00	MG24554	416.00
13	MG24507	101.00	MG24523	218.00	MG24539	315.00	MG24555	416.00
15	MG17426	101.00	MG17456	218.00	MG17471	315.00	—	—
16	MG24508	101.00	MG24524	218.00	MG24540	315.00	MG24556	416.00
20	MG24509	101.00	MG24525	218.00	MG24541	315.00	MG24557	416.00
25	MG24510	101.00	MG24526	218.00	MG24542	315.00	MG24558	416.00
30	MG17427	101.00	MG17457	218.00	MG17472	315.00	—	—
32	MG24511	101.00	MG24527	218.00	MG24543	315.00	MG24559	416.00
35	MG17428	101.00	MG17458	218.00	MG17473	315.00	—	—
40	MG24512	111.00	MG24528	224.00	MG24544	324.00	MG24560	420.00
50	MG24513	117.00	MG24529	240.00	MG24545	338.00	MG24561	438.00
60	MG17429	123.00	MG17459	252.00	MG17474	353.00	—	—
63	MG24514	123.00	MG24530	252.00	MG24546	353.00	MG24562	450.00

Interrupting Ratings . . . . . Page 7-3
Accessories . . . . . Page 7-20
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Electrical Accessories for C60 Circuit Breakers and Supplementary Protectors

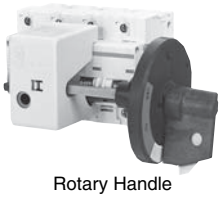
Ring Tongue Terminal Kit

Spacer

Terminal Screw Shield

C60N Padlock Attachment

Heavy-duty Padlock Attachment



Rotary Handle

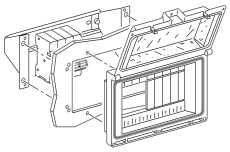
Label Holders for 2, 3 or 4P C60N

Front Mounting Kit for C60 1P, 2P, 3P, 4P (1 per circuit breaker)

MGN26380 Locking Device Left Side Mount

New!

MGN26381 Locking Device Right Side Mount



Multi-pole Front Mounting Kit

Comb Bus Bar

Possible Combinations

Mounted to the left of the circuit breaker with a maximum width of 54 mm.

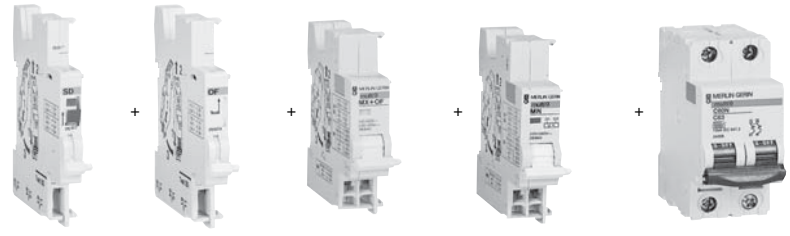


Table 7.33: Multi 9 C60 Electrical Accessories

Descriptions	Control Voltage		Width in 9 mm modules	C60 UL/IEC	
	Vac	Vdc		Cat. No.	$ Price
OF Auxiliary Switch (1a1b)	12–277	12–125	1	MG26925	**60.00**
SD Alarm Switch (1a1b)	12–277	12–125	1	MG26928	**60.00**
MX Shunt Trip + OF Auxiliary Switch (1a1b)	24	24	2	27118	**140.00**
	48	48	2	27110	
	110–240–277	125	2	27109	
MN Undervoltage Release	24	24	2	27108	**201.00**
	48	48	2	27106	
	120	—	2	27107	
	240	—	2	27105	
Multi-9 GFP UL 1053 Listed Ground Fault Protectors	120 to 480Y/277 Vac; 30, 100, and 300 mA; 2P and 4Ps. See page 7-18 Handout, **0860HO0602** or Catalog **0860CT0201**				

Table 7.34: Multi 9 C60 Mechanical Accessories

Descriptions		C60	
		Cat. No.	$ Price
Ring tongue terminal kit for UL1077 C60N	For one pole	17400	**15.80**
Spacer for DIN rail, Not UL Recognized	9 mm wide	MG27062	**9.30**
Padlock Attachment (1 per for 1P, 2P, 3P or 4P)	2 per pack	MG26970	**33.20**
Heavy-duty Padlock Attachment for C60N, Locks OFF only	2 per pack	M9PAF	**60.00**
Padlocking Device Left Side Mount, Locks OFF only▲	1 per pack	MGN26380	**37.50**
Padlocking Device Right Side Mount, Locks OFF only■		MGN26381	**37.50**
Front Mounting Kit	1P	MG26983	**16.80**
	2P	MG26984	**16.80**
	3P	MG26985	**16.80**
	4P	MG26989	**16.80**
Label holders for 2, 3 or 4P C60 (Not UL Recognized)	Bag of 10	MG27150	**51.00**
Terminal Screw Shield (Not UL Recognized)	Bag of two 4P shields	MG26981	**51.00**
Terminal cover (Not UL Recognized)	1P	MG26975	**26.10**
	2P	MG26976	**51.00**
	3P	MG26975+MG26976	
	4P	MG26978	**102.00**
Comb Bus Bar Kit for UL1077 C60, 12 poles, Fixed Length	1Ø	MG10285	**63.00**
	2Ø	MG10286	**69.00**
	3 Ø	MG10287	**80.00**
Tooth Caps for UL Comb Bus Bar, Bag of 20		60488	**37.80**
Rotary Handle for C60 (Non UL Recognized)			
Operating Subassembly	2P/3P/4P	MG27046	**129.00**
Door Interlock Handle		MG27047	**107.00**
Fixed Handle (Front or Lateral)		MG27048	**117.00**
Multi-pole Front Mounting Kit			
Rail Support (20 of 9 mm modules)		14211	**54.00**
Hinged Transparent Cover		14210	**158.00**

▲ Left-side mounted padlocking device cannot be used in conjunction with accessories SD, OF, MX or MN. Use right-side mounted padlocking device when accessories are required.

■ Right-side mounted padlocking device cannot be used in conjunction with VIGI module. Use left-side mounted padlocking device when VIGI Module is required..

Multi 9 SPD (Surge Protective Device) see Page 6-6

The PowerPact Advantage

- **Proven Performance:** Industry-leading circuit breaker innovation and protection for heavy-duty commercial and industrial applications.
- **Flexible:** Full range of molded case circuit breakers from 15 A to 3000 A, delivering the ratings, configurations, and operators for your unique applications.
- **Simple:** Common catalog numbers, standardized ratings, and a full range of field-installable accessories make product selection, installation and maintenance easier than ever.
- **Common Design Features:** Mounting holes, door trim, and handle accessories

Table 7.35: PowerPact Interrupting Ratings

Voltage	Interrupting Rating					
	B	D	G	J	K	L
240 Vac	10 kA	25 kA	65 kA	100 kA	65 kA	125 kA
480 Vac		18 kA	35 kA	65 kA	65 kA ▲	100 kA
600 Vac		14 kA	18 kA	25 kA	65 kA ▲	50 kA

▲ P-frame K interrupting is 50 kA at 480 and 600 Vac.

Table 7.36: Common Catalog Numbering System

Frame	Rating	Termination	Poles	Voltage	Amperage ■			Suffix Code		Suffix Code	
H	G	L	3	6	1	5	0	A	B	S	A

110 Vac Shunt Trip
2A/2B Auxiliary Switch

Frame Designation
G 100A Frame
H 150 A Frame
J 250 A Frame
Q 250 A Frame
D 600 A Frame
M 800 A Frame
P 1200 A Frame
R 3000 A Frame

Interrupting Rating			
	240 Vac	480 Vac	600 Vac
B	10 kA		
D	25 kA	18 kA	14 kA
G	65 kA	35 kA	18 kA
J	100 kA	65 kA	25 kA
K	65 kA	65 kA	65 kA
L	125 kA	100 kA	50 kA

Terminations
A I-Line
L Lugs on Both Ends
F Bus Bar (No Lugs)
M Lugs Line Side Only
P Lugs Load End Only
N Plug-in
D Drawout
S Rear Connected Studs

■ For amperage of M-, P- or R-frame circuit breakers, add a zero to the three amperage digits; for example, 120 = 1200 A.

HD and HG 2P

H-Frame

J-Frame

Table 7.37: H-Frame 150 A and J-Frame 250 A Thermal-Magnetic Current-Limiting Circuit Breakers (600 Vac, 250 Vdc) With Factory Sealed Trip Unit Suitable for Reverse Connection▲

Current Rating @ 40°C	Fixed AC Magnetic Trip		Cat. No.■♦	Interrupting Rating (2nd Letter of Catalog Number)								Terminal Wire Range
				D		G		J		L		
				$ Price								
	Hold	Trip		80% Rated	100% Rated	80% Rated	100% Rated	80% Rated	100% Rated	80% Rated	100% Rated	
H-Frame, 150A 2P, 600 Vac 50/60 Hz, 250 Vdc												
15 A	350 A	750 A	H( )L26015(C)	**870.00**	**1044.00**	**1269.00**	**1523.00**	**1559.00**	**1871.00**	**2364.00**	**2837.00**	AL150HD 14–3/0 AWG Al or Cu
20 A	350 A	750 A	H( )L26020(C)	**870.00**	**1044.00**	**1269.00**	**1523.00**	**1559.00**	**1871.00**	**2364.00**	**2837.00**	
25 A	350 A	750 A	H( )L26025(C)	**870.00**	**1044.00**	**1269.00**	**1523.00**	**1559.00**	**1871.00**	**2364.00**	**2837.00**	
30 A	350 A	750 A	H( )L26030(C)	**870.00**	**1044.00**	**1269.00**	**1523.00**	**1559.00**	**1871.00**	**2364.00**	**2837.00**	
35 A	400 A	850 A	H( )L26035(C)	**870.00**	**1044.00**	**1269.00**	**1523.00**	**1559.00**	**1871.00**	**2364.00**	**2837.00**	
40 A	400 A	850 A	H( )L26040(C)	**870.00**	**1044.00**	**1269.00**	**1523.00**	**1559.00**	**1871.00**	**2364.00**	**2837.00**	
45 A	400 A	850 A	H( )L26045(C)	**870.00**	**1044.00**	**1269.00**	**1523.00**	**1559.00**	**1871.00**	**2364.00**	**2837.00**	
50 A	400 A	850 A	H( )L26050(C)	**870.00**	**1044.00**	**1269.00**	**1523.00**	**1559.00**	**1871.00**	**2364.00**	**2837.00**	
60 A	800 A	1450 A	H( )L26060(C)	**870.00**	**1044.00**	**1269.00**	**1523.00**	**1559.00**	**1871.00**	**2364.00**	**2837.00**	
70 A	800 A	1450 A	H( )L26070(C)	**1062.00**	**1274.00**	**1497.00**	**1797.00**	**1721.00**	**2066.00**	**2613.00**	**3137.00**	
80 A	800 A	1450 A	H( )L26080(C)	**1062.00**	**1274.00**	**1497.00**	**1797.00**	**1721.00**	**2066.00**	**2613.00**	**3137.00**	
90 A	800 A	1450 A	H( )L26090(C)	**1062.00**	**1274.00**	**1497.00**	**1797.00**	**1721.00**	**2066.00**	**2613.00**	**3137.00**	
100 A	900 A	1700 A	H( )L26100(C)	**1062.00**	**1274.00**	**1497.00**	**1797.00**	**1721.00**	**2066.00**	**2613.00**	**3137.00**	
110 A	900 A	1700 A	H( )L26110(C)	**2072.00**	**2486.00**	**3059.00**	**3671.00**	**4449.00**	**5339.00**	**5534.00**	**6641.00**	
125 A	900 A	1700 A	H( )L26125(C)	**2072.00**	**2486.00**	**3059.00**	**3671.00**	**4449.00**	**5339.00**	**5534.00**	**6641.00**	
150 A	900 A	1700 A	H( )L26150(C)	**2072.00**	**2486.00**	**3059.00**	**3671.00**	**4449.00**	**5339.00**	**5534.00**	**6641.00**	
H-Frame 150A 3P, 600 Vac 50/60 Hz, 250 Vdc												
15 A	350 A	750 A	H( )L36015(C)	**1088.00**	**1305.00**	**1493.00**	**1791.00**	**1949.00**	**2339.00**	**2849.00**	**3419.00**	AL150HD 14–3/0 AWG Al or Cu
20 A	350 A	750 A	H( )L36020(C)	**1088.00**	**1305.00**	**1493.00**	**1791.00**	**1949.00**	**2339.00**	**2849.00**	**3419.00**	
25 A	350 A	750 A	H( )L36025(C)	**1088.00**	**1305.00**	**1493.00**	**1791.00**	**1949.00**	**2339.00**	**2849.00**	**3419.00**	
30 A	350 A	750 A	H( )L36030(C)	**1088.00**	**1305.00**	**1493.00**	**1791.00**	**1949.00**	**2339.00**	**2849.00**	**3419.00**	
35 A	400 A	850 A	H( )L36035(C)	**1088.00**	**1305.00**	**1493.00**	**1791.00**	**1949.00**	**2339.00**	**2849.00**	**3419.00**	
40 A	400 A	850 A	H( )L36040(C)	**1088.00**	**1305.00**	**1493.00**	**1791.00**	**1949.00**	**2339.00**	**2849.00**	**3419.00**	
45 A	400 A	850 A	H( )L36045(C)	**1088.00**	**1305.00**	**1493.00**	**1791.00**	**1949.00**	**2339.00**	**2849.00**	**3419.00**	
50 A	400 A	850 A	H( )L36050(C)	**1088.00**	**1305.00**	**1493.00**	**1791.00**	**1949.00**	**2339.00**	**2849.00**	**3419.00**	
60 A	800 A	1450 A	H( )L36060(C)	**1088.00**	**1305.00**	**1493.00**	**1791.00**	**1949.00**	**2339.00**	**2849.00**	**3419.00**	
70 A	800 A	1450 A	H( )L36070(C)	**1328.00**	**1592.00**	**1701.00**	**2042.00**	**2099.00**	**2519.00**	**3149.00**	**3779.00**	
80 A	800 A	1450 A	H( )L36080(C)	**1328.00**	**1592.00**	**1701.00**	**2042.00**	**2099.00**	**2519.00**	**3149.00**	**3779.00**	
90 A	800 A	1450 A	H( )L36090(C)	**1328.00**	**1592.00**	**1701.00**	**2042.00**	**2099.00**	**2519.00**	**3149.00**	**3779.00**	
100 A	900 A	1700 A	H( )L36100(C)	**1328.00**	**1592.00**	**1701.00**	**2042.00**	**2099.00**	**2519.00**	**3149.00**	**3779.00**	
110 A	900 A	1700 A	H( )L36110(C)	**2600.00**	**3120.00**	**3599.00**	**4319.00**	**5174.00**	**6209.00**	**6749.00**	**8099.00**	
125 A	900 A	1700 A	H( )L36125(C)	**2600.00**	**3120.00**	**3599.00**	**4319.00**	**5174.00**	**6209.00**	**6749.00**	**8099.00**	
150 A	900 A	1700 A	H( )L36150(C)	**2600.00**	**3120.00**	**3599.00**	**4319.00**	**5174.00**	**6209.00**	**6749.00**	**8099.00**	
Current Rating @ 40°C	Adjustable AC Magnetic Trip		Cat. No.■♦	Interrupting Rating (2nd Letter of Catalog Number)								Terminal Wire Range
				D		G		J		L		
				$ Price								
	Low	High		80% Rated	100% Rated	80% Rated	100% Rated	80% Rated	100% Rated	80% Rated	100% Rated	
J-Frame 250A 2P, 600 Vac 50/60 Hz, 250 Vdc												
150 A	750 A	1500 A	J( )L26150(C)	**2175.00**	**2610.00**	**3212.00**	**3854.00**	**4671.00**	**5606.00**	**5811.00**	**6972.00**	AL175JD 4–4/0 AWG Al or Cu
175 A	875 A	1750 A	J( )L26175(C)	**2175.00**	**2610.00**	**3212.00**	**3854.00**	**4671.00**	**5606.00**	**5811.00**	**6972.00**	
200 A	1000 A	2000 A	J( )L26200(C)	**2175.00**	**2610.00**	**3212.00**	**3854.00**	**4671.00**	**5606.00**	**5811.00**	**6972.00**	AL250JD 3/0 AWG–350 kcmil Al or Cu
225 A	1125 A	2250 A	J( )L26225(C)	**2175.00**	**2610.00**	**3212.00**	**3854.00**	**4671.00**	**5606.00**	**5811.00**	**6972.00**	
250 A	1250 A	2500 A	J( )L26250(C)	**2988.00**	**3585.00**	**4251.00**	**5102.00**	**6225.00**	**7469.00**	**7194.00**	**8633.00**	
J-Frame 250A 3P, 600 Vac 50/60 Hz, 250 Vdc												
150 A	750 A	1500 A	J( )L36150(C)	**2730.00**	**3276.00**	**3779.00**	**4535.00**	**5432.00**	**6519.00**	**7086.00**	**8504.00**	AL175JD 4–4/0 AWG Al or Cu
175 A	875 A	1750 A	J( )L36175(C)	**2730.00**	**3276.00**	**3779.00**	**4535.00**	**5432.00**	**6519.00**	**7086.00**	**8504.00**	
200 A	1000 A	2000 A	J( )L36200(C)	**2730.00**	**3276.00**	**3779.00**	**4535.00**	**5432.00**	**6519.00**	**7086.00**	**8504.00**	AL250JD 3/0 AWG–350 kcmil Al or Cu
225 A	1125 A	2250 A	J( )L36225(C)	**2730.00**	**3276.00**	**3779.00**	**4535.00**	**5432.00**	**6519.00**	**7086.00**	**8504.00**	
250 A	1250 A	2500 A	J( )L36250(C)	**3749.00**	**4499.00**	**5001.00**	**6002.00**	**7238.00**	**8685.00**	**8993.00**	**10791.00**	

▲ See page 7-23 for circuit breakers with field interchangeable trip units.
■ To complete catalog number, replace the blank with the appropriate rating (D, G, J, L).
♦ For 100% rated circuit breakers add a "C" in the 9th character place (for example, HDL26015**C** or JDL26150**C**).

Table 7.38: H- and J-Frame Termination Options

Termination Letter
A - I-Line (See Section 9)
F = No Lugs (includes terminal nut kit on both ends)★
L = Lugs both ends
M = Lugs ON end Terminal Nut Kit OFF end
P = Lugs OFF end Terminal Nut Kit ON end
N = Plug-in ▼
D = Drawout ▼
S = Rear Connected ▼

For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

H G L 3 6 1 0 0
└ Termination Letter

Plug-in

Drawout

Rear Connected

★ Add TS suffix for circuit breaker without terminal nut kit.
▼ For N and D pricing, add termination pricing on page 7-42 to price. For S pricing, add termination pricing on page 7-38 to price.

Table 7.39: H- and J-Frame Interrupting Ratings

Voltage	Interrupting Rating			
	D	G	J	L
240 Vac	25 kA	65 kA	100 kA	125 kA
480 Vac	18 kA	35 kA	65 kA	100 kA
600 Vac	14 kA	18 kA	25 kA	50 kA

Accessories . . . . . Page 7-36
Optional Lugs . . . . . Page 7-39
Dimensions . . . . . Page 7-55
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Table 7.40: H-Frame 150 A Current-Limiting Circuit Breaker Frame with Field-Interchangeable Thermal-Magnetic Trip Units▲ (600 Vac, 250 Vdc)

Ampere Rating	Fixed AC Magnetic Trip		D Interrupting		G Interrupting		J Interrupting		L Interrupting		Terminal Wire Range
	Hold	Trip	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	
3P, 600 Vac 50/60 Hz											
15 A	350 A	750 A	HDL36015T	**1088.00**	HGL36015T	**1493.00**	HJL36015T	**1949.00**	HLL36015T	**2849.00**	AL150HD 14–3/0 AWG Al or Cu
20 A	350 A	750 A	HDL36020T	**1088.00**	HGL36020T	**1493.00**	HJL36020T	**1949.00**	HLL36020T	**2849.00**	
25 A	350 A	750 A	HDL36025T	**1088.00**	HGL36025T	**1493.00**	HJL36025T	**1949.00**	HLL36025T	**2849.00**	
30 A	350 A	750 A	HDL36030T	**1088.00**	HGL36030T	**1493.00**	HJL36030T	**1949.00**	HLL36030T	**2849.00**	
35 A	400 A	850 A	HDL36035T	**1088.00**	HGL36035T	**1493.00**	HJL36035T	**1949.00**	HLL36035T	**2849.00**	
40 A	400 A	850 A	HDL36040T	**1088.00**	HGL36040T	**1493.00**	HJL36040T	**1949.00**	HLL36040T	**2849.00**	
45 A	400 A	850 A	HDL36045T	**1088.00**	HGL36045T	**1493.00**	HJL36045T	**1949.00**	HLL36045T	**2849.00**	
50 A	400 A	850 A	HDL36050T	**1088.00**	HGL36050T	**1493.00**	HJL36050T	**1949.00**	HLL36050T	**2849.00**	
60 A	800 A	1450 A	HDL36060T	**1088.00**	HGL36060T	**1493.00**	HJL36060T	**1949.00**	HLL36060T	**2849.00**	
70 A	800 A	1450 A	HDL36070T	**1328.00**	HGL36070T	**1701.00**	HJL36070T	**2099.00**	HLL36070T	**3149.00**	
80 A	800 A	1450 A	HDL36080T	**1328.00**	HGL36080T	**1701.00**	HJL36080T	**2099.00**	HLL36080T	**3149.00**	
90 A	800 A	1450 A	HDL36090T	**1328.00**	HGL36090T	**1701.00**	HJL36090T	**2099.00**	HLL36090T	**3149.00**	
100 A	900 A	1700 A	HDL36100T	**1328.00**	HGL36100T	**1701.00**	HJL36100T	**2099.00**	HLL36100T	**3149.00**	
110 A	900 A	1700 A	HDL36110T	**2600.00**	HGL36110T	**3599.00**	HJL36110T	**5174.00**	HLL36110T	**6749.00**	
125 A	900 A	1700 A	HDL36125T	**2600.00**	HGL36125T	**3599.00**	HJL36125T	**5174.00**	HLL36125T	**6749.00**	
150 A	900 A	1700 A	HDL36150T	**2600.00**	HGL36150T	**3599.00**	HJL36150T	**5174.00**	HLL36150T	**6749.00**	

Table 7.41: J-Frame 250 A Current-Limiting Circuit Breaker Frame with Field-Interchangeable Thermal-Magnetic Trip Units▲ (600 Vac, 250 Vdc)

Ampere Rating	Adjustable AC Magnetic Trip		D Interrupting		G Interrupting		J Interrupting		L Interrupting		Terminal Wire Range
	Low	High	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	
3P, 600 Vac 50/60 Hz											
150 A	750 A	1500 A	JDL36150T	**2730.00**	JGL36150T	**3779.00**	JJL36150T	**5432.00**	JLL36150T	**7086.00**	AL175JD 4--4/0 AWG Al or Cu
175 A	875 A	1750 A	JDL36175T	**2730.00**	JGL36175T	**3779.00**	JJL36175T	**5432.00**	JLL36175T	**7086.00**	
200 A	1000 A	2000 A	JDL36200T	**2730.00**	JGL36200T	**3779.00**	JJL36200T	**5432.00**	JLL36200T	**7086.00**	AL250JD 3/0 AWG–350 kcmil Al or Cu
225 A	1125 A	2250 A	JDL36225T	**2730.00**	JGL36225T	**3779.00**	JJL36225T	**5432.00**	JLL36225T	**7086.00**	
250 A	1250 A	2500 A	JDL36250T	**3749.00**	JGL36250T	**5001.00**	JJL36250T	**7238.00**	JLL36250T	**8993.00**	

▲ Circuit breakers will be labeled with Line and Load markings and are not suitable for reverse connections. Only available on standard (80%) rated 3P unit-mount circuit breakers; not available with I-Line® or Plug-In constructions.

Table 7.42: H-Frame 150A and J-Frame 250 A 3P Basic Current-Limiting Circuit Breaker Frame Without Terminations■ or Trip Unit (600 Vac, 250 Vdc)

Circuit Breaker Frame	Ampere Rating	D Interrupting		G Interrupting		J Interrupting		L Interrupting	
		Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price
H-Frame	15–60 A	HDF36000F06	**525.00**	HGF36000F06	**930.00**	HJF36000F06	**1386.00**	HLF36000F06	**2286.00**
	70–150 A	HDF36000F15	**585.00**	HGF36000F15	**1574.00**	HJF36000F15	**3149.00**	HLF36000F15	**4724.00**
J-Frame	150–250 A	JDF36000F25	**1538.00**	JGF36000F25	**2790.00**	JJF36000F25	**5027.00**	JLF36000F25	**6782.00**

■ See page 7-39 for lug and termination kits.

H-Frame

Trip Unit

Table 7.43: H-Frame and J-Frame 3P Field-Installable Thermal-Magnetic Trip Unit

15–60 A H-Frame			70–150 A H-Frame			150–250 A J-Frame		
Amperage	Cat. No.	$ Price	Amperage	Cat. No.	$ Price	Amperage	Cat. No.	$ Price
15 A	HT3015	**563.00**	70 A	HT3070	**743.00**	150 A	JT3150	**1193.00**
20 A	HT3020	**563.00**	80 A	HT3080	**743.00**	175 A	JT3175	**1193.00**
25 A	HT3025	**563.00**	90 A	HT3090	**743.00**	200 A	JT3200	**1193.00**
30 A	HT3030	**563.00**	100 A	HT3100	**743.00**	225 A	JT3225	**1193.00**
35 A	HT3035	**563.00**	110 A	HT3110	**2025.00**	250 A	JT3250	**2213.00**
40 A	HT3040	**563.00**	125 A	HT3125	**2025.00**	—	—	—
45 A	HT3045	**563.00**	150 A	HT3150	**2025.00**	—	—	—
50 A	HT3050	**563.00**	—	—	—	—	—	—
60 A	HT3060	**563.00**	—	—	—	—	—	—

Table 7.44: H- and J-Frame Interrupting Ratings

Voltage	Interrupting Rating			
	D	G	J	L
240 Vac	25 KA	65 kA	100 kA	125 kA
480 Vac	18 kA	35 kA	65 kA	100 kA
600 Vac	14 kA	18 kA	25 kA	50 kA

Table 7.45: H- and J-Frame Termination Options

Termination Letter
A - I-Line (See Section 9)
F = No Lugs (includes terminal nut kit on both ends)♦
L = Lugs both ends
M = Lugs ON end Terminal Nut Kit OFF end
P = Lugs OFF end Terminal Nut Kit ON end
N = Plug-in ★
D = Drawout ★
S = Rear Connected ★

For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

H J L 3 6 0 1 5 T
└ Termination Letter

♦ Add TS suffix for circuit breaker without terminal nut kit.
★ For N and D pricing, add termination pricing on page 7-42 to price. For S pricing, add termination pricing on page 7-38 to price.

GJL 3P
Circuit Breaker

Table 7.46: PowerPact G-Frame 3P 100 A Thermal-Magnetic Circuit Breaker (600Y/347 Vac)

Ampere Rating	Adjustable AC Magnetic Trip		J Interrupting		Terminal Wire Range
	Low	High	Cat. No.	$ Price	
15 A	600 A	1200 A	GJL36015	**1991.00**	14–1/0 AWG Cu or 8–1/0 AWG Al
20 A	600 A	1200 A	GJL36020	**1991.00**	
30 A	600 A	1200 A	GJL36030	**1991.00**	
40 A	600 A	1200 A	GJL36040	**1991.00**	
50 A	800 A	1400 A	GJL36050	**1991.00**	
60 A	800 A	1400 A	GJL36060	**1991.00**	
70 A	800 A	1400 A	GJL36070	**2448.00**	
80 A	800 A	1400 A	GJL36080	**2448.00**	
90 A	800 A	1400 A	GJL36090	**2448.00**	
100 A	800 A	1400 A	GJL36100	**2448.00**	

Table 7.47: G-Frame Interrupting Ratings

Voltage	J interrupting
240 Vac	100 kA
480 Vac	65 kA
600Y/347 Vac	18 kA

QBL 2P
70–250 A

Table 7.48: PowerPact Q-Frame▲250 A Thermal-Magnetic Circuit Breaker (240 Vac)

Ampere Rating	Fixed AC Magnetic Trip		B Interrupting		D Interrupting		G Interrupting		J Interrupting		Terminal Wire Range
	Hold	Trip	Cat. No.♦	$ Price	Cat. No.♦	$ Price	Cat. No.♦	$ Price	Cat. No.♦	$ Price	
2P, 240 Vac											
70 A	1000 A	1800 A	QBL22070	**474.00**	QDL22070	**1143.00**	QGL22070	**1521.00**	QJL22070	**1890.00**	#4 AWG - 300 kcmil Al/Cu
80 A	1000 A	1800 A	QBL22080	**474.00**	QDL22080	**1143.00**	QGL22080	**1521.00**	QJL22080	**1890.00**	
90 A	1000 A	1800 A	QBL22090	**474.00**	QDL22090	**1143.00**	QGL22090	**1521.00**	QJL22090	**1890.00**	
100 A	1200 A	2400 A	QBL22100	**474.00**	QDL22100	**1143.00**	QGL22100	**1521.00**	QJL22100	**1890.00**	
110 A	1200 A	2400 A	QBL22110	**474.00**	QDL22110	**1143.00**	QGL22110	**1521.00**	QJL22110	**1890.00**	
125 A	1200 A	2400 A	QBL22125	**474.00**	QDL22125	**1143.00**	QGL22125	**1521.00**	QJL22125	**1890.00**	
150 A	1200 A	2400 A	QBL22150	**474.00**	QDL22150	**1143.00**	QGL22150	**1521.00**	QJL22150	**1890.00**	
175 A	1200 A	2400 A	QBL22175	**474.00**	QDL22175	**1143.00**	QGL22175	**1521.00**	QJL22175	**1890.00**	
200 A	1200 A	2400 A	QBL22200	**474.00**	QDL22200	**1143.00**	QGL22200	**1521.00**	QJL22200	**1890.00**	
225 A	1200 A	2400 A	QBL22225	**474.00**	QDL22225	**1143.00**	QGL22225	**1521.00**	QJL22225	**1890.00**	
250 A	1200 A	2400 A	QBL22250■	**693.00**	QDL22250■	**1544.00**	QGL22250■	**1970.00**	QJL22250■	**2348.00**	
3P, 240 Vac											
70 A	1000 A	1800 A	QBL32070	**1248.00**	QDL32070	**1784.00**	QGL32070	**2442.00**	QJL32070	**2796.00**	#4 AWG - 300 kcmil Al/Cu
80 A	1000 A	1800 A	QBL32080	**1248.00**	QDL32080	**1784.00**	QGL32080	**2442.00**	QJL32080	**2796.00**	
90 A	1000 A	1800 A	QBL32090	**1248.00**	QDL32090	**1784.00**	QGL32090	**2442.00**	QJL32090	**2796.00**	
100 A	1200 A	2400 A	QBL32100	**1248.00**	QDL32100	**1784.00**	QGL32100	**2442.00**	QJL32100	**2796.00**	
110 A	1200 A	2400 A	QBL32110	**1248.00**	QDL32110	**1784.00**	QGL32110	**2442.00**	QJL32110	**2796.00**	
125 A	1200 A	2400 A	QBL32125	**1248.00**	QDL32125	**1784.00**	QGL32125	**2442.00**	QJL32125	**2796.00**	
150 A	1200 A	2400 A	QBL32150	**1248.00**	QDL32150	**1784.00**	QGL32150	**2442.00**	QJL32150	**2796.00**	
175 A	1200 A	2400 A	QBL32175	**1248.00**	QDL32175	**1784.00**	QGL32175	**2442.00**	QJL32175	**2796.00**	
200 A	1200 A	2400 A	QBL32200	**1248.00**	QDL32200	**1784.00**	QGL32200	**2442.00**	QJL32200	**2796.00**	
225 A	1200 A	2400 A	QBL32225	**1248.00**	QDL32225	**1784.00**	QGL32225	**2442.00**	QJL32225	**2796.00**	
250 A	1200 A	2400 A	QBL32250■	**1812.00**	QDL32250■	**2442.00**	QGL32250■	**3150.00**	QJL32250■	**3465.00**	

▲ Replacement lugs and electrical accessories are not available for PowerPact Q-frame circuit breakers.
■ 250 A lugs are suitable for copper conductors only
♦ DE2A Discount Schedule

QBL 3P
70–250 A

Table 7.49: Q-Frame Termination Options

Termination Letter
A = I-Line (See Section 9)
E = Bolt-on I-Line (See Section 9)
F = No Lugs (includes terminal nut kit on both ends)★
L = Lugs both ends
M = Lugs ON end, Studs on OFF end
P = Lugs OFF end, Studs on ON end

For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

QGL3220 0
└Termination Letter

★ Add TS suffix for circuit breakers without terminal nut kit. See Catalog **0734CT0201** for additional information.

Table 7.50: Q-Frame Interrupting Ratings

Voltage	Interrupting Rating			
	B	D	G	J
240 Vac▼	10 kA	25 kA	65 kA	100 kA△

▼ Q-frame circuit breakers are 240 Vac only.
△ 3P QJ circuit breakers are rated at 208Y/120 Vac only.

Table 7.51: D-Frame (600 A 600 Vac) 3P 50/60 Hz Circuit Breaker with Lugs and Electronic Trip Units♦

Electronic Trip Unit Type	Trip Function	Trip Unit	Continuous Current▲	G Interrupting		J Interrupting		L Interrupting		Terminal Wire Range (AWG/kcmil)
				Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	
Standard	LS	STR23SP	150 A	DGL36150E20	**5081.00**	DJL36150E20	**8478.00**	DLL36150E20	**9918.00**	(1) 2–600 Cu or (1) 2–500 Al
			250 A	DGL36250E20	**5081.00**	DJL36250E20	**8478.00**	DLL36250E20	**9918.00**	
			400 A	DGL36400E20	**5081.00**	DJL36400E20	**8478.00**	DLL36400E20	**9918.00**	
			600 A	DGL36600E20	**8315.00**	DJL36600E20	**8865.00**	DLL36600E20	**13586.00**	(2) 2/0–350 Cu or (2) 2/0–500 Al
	LSI	SR53UP-F■	150 A	DGL36150E53	**6200.00**	DJL36150E53	**9597.00**	DLL36150E53	**11037.00**	(1) 2–600 Cu or (1) 2–500 Al
			250 A	DGL36250E53	**6200.00**	DJL36250E53	**9597.00**	DLL36250E53	**11037.00**	
			400 A	DGL36400E53	**6200.00**	DJL36400E53	**9597.00**	DLL36400E53	**11037.00**	
			600 A	DGL36600E53	**9429.00**	DJL36600E53	**9984.00**	DLL36600E53	**14705.00**	(2) 2/0–350 Cu or (2) 2/0–500 Al
	LSIG	STR53UP-FT■	150 A	DGL36150E54	**7527.00**	DJL36150E54	**10925.00**	DLL36150E54	**12365.00**	(1) 2–600 Cu or (1) 2–500 Al
			250 A	DGL36250E54	**7527.00**	DJL36250E54	**10925.00**	DLL36250E54	**12365.00**	
			400 A	DGL36400E54	**7527.00**	DJL36400E54	**10925.00**	DLL36400E54	**12365.00**	
			600 A	DGL36600E54	**10761.00**	DJL36600E54	**11312.00**	DLL36600E54	**16032.00**	(2) 2/0–350 Cu or (2) 2/0–500 Al
Ammeter	LSI	STR53UP-FI■	150 A	DGL36150E58	**7661.00**	DJL36150E58	**11058.00**	DLL36150E58	**12498.00**	(1) 2–600 Cu or (1) 2–500 Al
			250 A	DGL36250E58	**7661.00**	DJL36250E58	**11058.00**	DLL36250E58	**12498.00**	
			400 A	DGL36400E58	**7661.00**	DJL36400E58	**11058.00**	DLL36400E58	**12498.00**	
			600 A	DGL36600E58	**10895.00**	DJL36600E58	**11445.00**	DLL36600E58	**16166.00**	(2) 2/0–350 Cu or (2) 2/0–500 Al
	LSIG	STR53UP-FTI■	150 A	DGL36150E59	**8990.00**	DJL36150E59	**12387.00**	DLL36150E59	**13827.00**	(1) 2–600 Cu or (1) 2–500 Al
			250 A	DGL36250E59	**8990.00**	DJL36250E59	**12387.00**	DLL36250E59	**13827.00**	
			400 A	DGL36400E59	**8990.00**	DJL36400E59	**12387.00**	DLL36400E59	**13827.00**	
			600 A	DGL36600E59	**9434.00**	DJL36600E59	**12774.00**	DLL36600E59	**17495.00**	(2) 2/0–350 Cu or (2) 2/0 – 500 Al

▲ D-frame circuit breakers 400 A and below are 100% rated. 600 A is standard (80%) rated only.
■ F = Fault indicator; T = Residual-type ground-fault protection; I = Ammeter
♦ Available with lugs (L) or bus (F) connections only.

Table 7.52: D-Frame 3P 600 A Circuit Breaker, Frame Only, and Field-Installable Trip Units

Basic Frame Only (600 Vac)★

Ampere Rating	G Interrupting		J Interrupting		L Interrupting	
	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price
150 A	DGL36150F40	**2766.00**	DJL36150F40	**6164.00**	DLL36150F40	**7602.00**
250 A	DGL36250F40	**2766.00**	DJL36250F40	**6164.00**	DLL36250F60	**7602.00**
400 A	DGL36400F40	**2766.00**	DJL36400F40	**6164.00**	DLL36400F40	**7602.00**
600 A	DGL36600F60	**5904.00**	DJL36600F60	**6456.00**	DLL36600F60	**11177.00**

★ Available with lugs (L) or bus (F) connections only.

Field Installable D-Frame Electronic Trip Unit
Long-time, Short-time and Instantaneous Protection

Description	Factory Code	Trip Function	Cat. No.	$ Price
STR23SP	E20	LS	36940	**2033.00**
STR53UP-F	E53	LSI	36942	**3152.00**
STR53UP-FT	E54	LSIG	36943	**4479.00**
STR53UP-FI	E58	LSI	36944	**4613.00**
STR53UP-FTI	E59	LSIG	36945	**5942.00**

D-Frame Circuit Breaker

M-Frame Circuit Breaker

Table 7.53: M-Frame 800 A, Basic Electronic Trip System Type ET 1.0▾ Factory-Sealed Trip Unit

Electronic Trip Unit Type	Trip Function	Sensor Rating	G Interrupting		J Interrupting		Terminal Wire Range (AWG/kcmil)
			Cat. No.	$ Price	Cat. No.	$ Price	
2P, 600 Vac 50/60 Hz							
Basic	Fixed Long-time, Adjustable Instantaneous Trip	300 A	MGL26300	**5960.00**	MJL26300	**7829.00**	(3) 3/0–500 Al/Cu
		350 A	MGL26350	**5960.00**	MJL26350	**7829.00**	
		400 A	MGL26400	**5960.00**	MJL26400	**7829.00**	
		450 A	MGL26450	**5960.00**	MJL26450	**7829.00**	
		500 A	MGL26500	**5960.00**	MJL26500	**7829.00**	
		600 A	MGL26600	**5960.00**	MJL26600	**7829.00**	
		700 A	MGL26700	**7719.00**	MJL26700	**9657.00**	
		800 A	MGL26800	**7719.00**	MJL26800	**9657.00**	
3P, 600 Vac 50/60 Hz							
Basic	Fixed Long-time, Adjustable Instantaneous Trip	300 A	MGL36300	**7560.00**	MJL36300	**9456.00**	(3) 3/0–500 Al/Cu
		350 A	MGL36350	**7560.00**	MJL36350	**9456.00**	
		400 A	MGL36400	**7560.00**	MJL36400	**9456.00**	
		450 A	MGL36450	**7560.00**	MJL36450	**9456.00**	
		500 A	MGL36500	**7560.00**	MJL36500	**9456.00**	
		600 A	MGL36600	**7560.00**	MJL36600	**9456.00**	
		700 A	MGL36700	**9927.00**	MJL36700	**11882.00**	
		800 A	MGL36800	**9927.00**	MJL36800	**11882.00**	

▾ The ET 1.0 trip unit cannot be field replaced or have the long-time trip point setting adjusted. It is considered an electronic equivalent of a thermal-magnetic circuit breaker.

Table 7.54: Termination Options

Frame	Termination Letter	Termination Option
D-Frame	F	No Lugs (Includes terminal nut kit on both ends)
	L	Lugs both ends
	M	Lugs ON end Terminal Nut Kit Off end
	P	Lugs OFF end Terminal Nut Kit On end
	N △	Plug-in
	D △	Drawout
	S △	Rear Connected
M-Frame	F	No Lugs
	L	Lugs both ends
	M	Lugs ON end Terminal Nut Kit Off end
	P	Lugs OFF end Terminal Nut Kit On end

For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

MGL36400 or **DGL36400E20**
Termination Letter

△ For N, D, and S pricing, add termination pricing to price. See page 7-42.

Table 7.55: D- and M-Frame Interrupting Ratings

Voltage	Interrupting Rating		
	G	J	L□
240 Vac	65 kA	100 kA	150 kA
480 Vac	35 kA	65 kA	100 kA
600 Vac	18 kA	25 kA	25 kA

□ L interrupting rating is not available in M-frame.

Table 7.56: P-Frame 1200 A (600 Vac, 50/60 Hz) 3P▲ Circuit Breaker with Electronic Trip Unit

Electronic Trip Unit			Sensor Rating	Cat. No.■♦	$ Price								Terminal Wire Range
					G Interrupting■		J Interrupting■		K Interrupting■		L Interrupting■★		
Type	Function	Code			80% Rated	100% Rated♦	80% Rated	100% Rated♦	80% Rated	100% Rated ♦	80% Rated	100% Rated♦	
Basic Electronic Trip Unit (Not Interchangeable)	Fixed long-time, Adjustable Instantaneous	ET1.0I	600 A	P( )L36060	13905.00	—	14783.00	—	14783.00	—	15660.00	—	(3) 3/0 AWG–500 kcmil Al or Cu
			800 A	P( )L36080		—		—		—		—	
			1000 A	P( )L36100	19049.00	—	20250.00	—	20250.00	—	21452.00	—	(4) 3/0 AWG–500 kcmil Al or Cu
			1200 A	P( )L36120		—		—		—		—	
Micrologic Interchangeable Standard Trip Unit	LI	3.0	250 A	P( )L36025(C)U31A	14693.00	21510.00	15570.00	22868.00	15570.00	22868.00	16448.00	24224.00	(3) 3/0 AWG–500 kcmil Al or Cu
			400 A	P( )L36040(C)U31A									
			600 A	P( )L36060(C)U31A									
			800 A	P( )L36080(C)U31A									
			1000 A	P( )L36100(C)U31A	19836.00	30239.00	21038.00	32147.00	21038.00	32147.00	22239.00	34052.00	(4) 3/0 AWG–500 kcmil Al or Cu
			1200 A	P( )L36120(C)U31A									
	LSI	5.0	250 A	P( )L36025(C)U33A	15032.00	21812.00	15909.00	23187.00	15909.00	23187.00	16787.00	24564.00	(3) 3/0 AWG–500 kcmil Al or Cu
			400 A	P( )L36040(C)U33A									
			600 A	P( )L36060(C)U33A									
			800 A	P( )L36080(C)U33A									
			1000 A	P( )L36100(C)U33A	20177.00	30540.00	21378.00	32466.00	21378.00	32466.00	22580.00	34392.00	(4) 3/0 AWG–500 kcmil Al or Cu
			1200 A	P( )L36120(C)U33A									
Micrologic Interchangeable Ammeter Trip Unit	LI	3.0A	250 A	P( )L36025(C)U41A	15543.00	22266.00	16421.00	23670.00	16421.00	23670.00	17298.00	25076.00	(3) 3/0 AWG–500 kcmil Al/Cu
			400 A	P( )L36040(C)U41A									
			600 A	P( )L36060(C)U41A									
			800 A	P( )L36080(C)U41A									
			1000 A	P( )L36100(C)U41A	20688.00	30995.00	21890.00	32949.00	21890.00	32949.00	23091.00	34904.00	(4) 3/0 AWG–500 kcmil Al or Cu
			1200 A	P( )L36120(C)U41A									
	LSI	5.0A	250 A	P( )L36025(C)U43A	17043.00	23597.00	17921.00	25085.00	17921.00	25085.00	18798.00	26574.00	(3) 3/0 AWG–500 kcmil Al or Cu
			400 A	P( )L36040(C)U43A									
			600 A	P( )L36060(C)U43A									
			800 A	P( )L36080(C)U43A									
			1000 A	P( )L36100(C)U43A	22185.00	32324.00	23387.00	34364.00	23387.00	34364.00	24590.00	36402.00	(4) 3/0 AWG–500 kcmil Al or Cu
			1200 A	P( )L36120(C)U43A									
	LSIG	6.0A	250 A	P( )L36025(C)U44A	18909.00	25256.00	19787.00	26849.00	19787.00	26849.00	20664.00	28442.00	(3) 3/0 AWG–500 kcmil A or Cu
			400 A	P( )L36040(C)U44A									
			600 A	P( )L36060(C)U44A									
			800 A	P( )L36080(C)U44A									
			1000 A	P( )L36100(C)U44A	24054.00	33983.00	25256.00	36128.00	25256.00	36128.00	26457.00	38270.00	(4) 3/0 AWG–500 kcmil Al or Cu
			1200 A	P( )L36120(C)U44A									
Micrologic Interchangeable Power Trip Unit	LSI	5.0P	250 A	P( )L36025(C)U63AE1	21455.00	27516.00	22332.00	29252.00	22332.00	29252.00	23210.00	30986.00	(3) 3/0 AWG–500 kcmil A or Cu
			400 A	P( )L36040(C)U63AE1									
			600 A	P( )L36060(C)U63AE1									
			800 A	P( )L36080(C)U63AE1									
			1000 A	P( )L36100(C)U63AE1	26597.00	36243.00	27800.00	38529.00	27800.00	38529.00	29001.00	40814.00	(4) 3/0 AWG–500 kcmil A or Cu
			1200 A	P( )L36120(C)U63AE1									
	LSIG	6.0P	250 A	P( )L36025(C)U64AE1	22536.00	28476.00	23414.00	30272.00	23414.00	30272.00	24291.00	32067.00	(3) 3/0 AWG–500 kcmil A or Cu
			400 A	P( )L36040(C)U64AE1									
			600 A	P( )L36060(C)U64AE1									
			800 A	P( )L36080(C)U64AE1									
			1000 A	P( )L36100(C)U64AE1	27680.00	37203.00	28881.00	39551.00	28881.00	39551.00	30083.00	41895.00	(4) 3/0 AWG–500 kcmil Al or Cu
			1200 A	P( )L36120(C)U64AE1									
Micrologic Interchangeable Harmonic Trip Unit	LSI	5.0H	250 A	P( )L36025(C)U73AE1	25538.00	31140.00	26415.00	33104.00	26415.00	33104.00	27291.00	35067.00	(3) 3/0 AWG–500 kcmil Al or Cu
			400 A	P( )L36040(C)U73AE1									
			600 A	P( )L36060(C)U73AE1									
			800 A	P( )L36080(C)U73AE1									
			1000 A	P( )L36100(C)U73AE1	30680.00	39867.00	31881.00	42381.00	31881.00	42381.00	33083.00	44895.00	(4) 3/0 AWG–500 kcmil Al or Cu
			1200 A	P( )L36120(C)U73AE1									
	LSIG	6.0H	250 A	P( )L36025(C)U74AE1	26619.00	32100.00	27497.00	34125.00	27497.00	34125.00	28374.00	36150.00	(3) 3/0 AWG–500 kcmil Al or Cu
			400 A	P( )L36040(C)U74AE1									
			600 A	P( )L36060(C)U74AE1									
			800 A	P( )L36080(C)U74AE1									
			1000 A	P( )L36100(C)U74AE1	31761.00	40829.00	32963.00	43404.00	32963.00	43404.00	34166.00	45978.00	(4) 3/0 AWG–500 kcmil A or Cu
			1200 A	P( )L36120(C)U74AE1									

▲ For 2P and 4P information see Catalog 0612CT0101.
■ To complete the catalog number, replace the ( ) with the appropriate interrupting rating (G, J, K or L).
♦ For 100% rated circuit breakers add a "C" in the 9th character place. For example, the catalog number for a 100% trip unit with LI trip functions at 250A would be PGL36025**C**U31A.
★ For all L interrupting rating, change the 5th character (voltage rating) from a 6 (600V) to a 4 (480V); for example, PLL3**4**025U31A. The 480V AIR is standard 100 kA, but the 600V AIR is only 25 kA.

Table 7.57: P-Frame Termination Options

F = No Lugs (Includes terminal nut kit on both ends)
L = Lugs both ends
M = Lugs ON end, terminal nut kit OFF end
P = Lugs OFF end, terminal nut kit ON end
D = Drawout
A = I-Line (See Section 9)

For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

P G L 3 6 0 4 0 U 4 1 A
└Termination Letter

Table 7.58: P-Frame and R-Frame Interrupting Ratings

Voltage	P-Frame Interrupting Rating				R-Frame Interrupting Rating			
	G	J	K	L	G	J	K	L
240 Vac	65 kA	100 kA	65 kA	125 kA	65 kA	100 kA	65 kA	125 kA
480 Vac	35 kA	65 kA	50 kA	100 kA	35 kA	65 kA	65 kA	100 kA
600 Vac	18 kA	25 kA	50 kA	25 kA	18 kA	25 kA	65 kA	50 kA

R-frame catalog numbers and pricing . . . . . Page 7-27
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Table 7.59: R-Frame 3000 A (600 Vac, 50/60 Hz) 3P▲ Circuit Breaker with Electronic Trip Unit

Electronic Trip Unit			Sensor Rating	Cat. No.■♦	$ Price							
					G Interrupting■★		J Interrupting■★		K Interrupting■★		L Interrupting■★	
Type	Function	Code			80% Rated	100% Rated	80% Rated	100% Rated	80% Rated	100% Rated	80% Rated	100% Rated
Basic Electronic Trip Unit (Not Interchangeable)	Fixed long-time, Adjustable Instantaneous	ET1.0I	1200 A	R( )F36120								
			1600 A	R( )F36160	**22373.00**	—	**23549.00**	—	**23549.00**	—	**24723.00**	—
			2000 A	R( )F36200		—		—		—		—
			2500 A	R( )F36250	**35639.00**	—	**37512.00**	—	**37512.00**	—	**39383.00**	—
Micrologic Interchangeable Standard Trip Unit	LI	3.0	600 A	R( )F36060(C)U31A								
			800 A	R( )F36080(C)U31A								
			1000 A	R( )F36100(C)U31A	**23160.00**	**27759.00**	**24336.00**	**29301.00**	**24336.00**	**29301.00**	**25511.00**	**30843.00**
			1200 A	R( )F36120(C)U31A								
			1600 A	R( )F36160(C)U31A		**29775.00**		**31430.00**		**31430.00**		**33083.00**
			2000 A	R( )F36200(C)U31A		**35042.00**		**36989.00**		**36989.00**		**38936.00**
			2500 A	R( )F36250(C)U31A	**36426.00**	**57075.00**	**38300.00**	**60248.00**	**38300.00**	**60248.00**	**40170.00**	**63417.00**
			3000 A	R( )F36300(C)U31A	**54027.00**	**62451.00**	**57236.00**	**65738.00**	**57236.00**	**65738.00**	**60246.00**	**69024.00**
	LSI	5.0	600 A	R( )F36060(C)U33A								
			800 A	R( )F36080(C)U33A								
			1000 A	R( )F36100(C)U33A	**23501.00**	**28065.00**	**24675.00**	**29624.00**	**24675.00**	**29624.00**	**25851.00**	**31184.00**
			1200 A	R( )F36120(C)U33A								
			1600 A	R( )F36160(C)U33A		**30081.00**		**31752.00**		**31752.00**		**33423.00**
			2000 A	R( )F36200(C)U33A		**35348.00**		**37313.00**		**37313.00**		**39276.00**
			2500 A	R( )F36250(C)U33A	**36767.00**	**57383.00**	**38640.00**	**60570.00**	**38640.00**	**60570.00**	**40511.00**	**63758.00**
			3000 A	R( )F36300(C)U33A	**54513.00**	**62757.00**	**57542.00**	**66060.00**	**57542.00**	**66060.00**	**60570.00**	**69363.00**
Micrologic Interchangeable Ammeter Trip Unit	LI	3.0A	600 A	R( )F36060(C)U41A								
			800 A	R( )F36080(C)U41A								
			1000 A	R( )F36100(C)U41A	**24012.00**	**28493.00**	**25188.00**	**30075.00**	**25188.00**	**30075.00**	**26363.00**	**31658.00**
			1200 A	R( )F36120(C)U41A								
			1600 A	R( )F36160(C)U41A		**30509.00**		**32202.00**		**32202.00**		**33897.00**
			2000 A	R( )F36200(C)U41A		**35775.00**		**37763.00**		**37763.00**		**39750.00**
			2500 A	R( )F36250(C)U41A	**37278.00**	**57809.00**	**39152.00**	**61020.00**	**39152.00**	**61020.00**	**41022.00**	**64232.00**
			3000 A	R( )F36300(C)U41A	**54918.00**	**63185.00**	**57969.00**	**66510.00**	**57969.00**	**66510.00**	**61020.00**	**69836.00**
	LSI	5.0A	600 A	R( )F36060(C)U43A								
			800 A	R( )F36080(C)U43A								
			1000 A	R( )F36100(C)U43A	**25511.00**	**29874.00**	**26685.00**	**31533.00**	**26685.00**	**31533.00**	**27860.00**	**33194.00**
			1200 A	R( )F36120(C)U43A								
			1600 A	R( )F36080(C)U43A		**31889.00**		**33662.00**		**33662.00**		**35433.00**
			2000 A	R( )F36200(C)U43A		**37158.00**		**39221.00**		**39221.00**		**41286.00**
			2500 A	R( )F36250(C)U43A	**38777.00**	**59190.00**	**40649.00**	**62478.00**	**40649.00**	**62478.00**	**42521.00**	**65768.00**
			3000 A	R( )F36300(C)U43A	**56231.00**	**64569.00**	**59354.00**	**67968.00**	**59354.00**	**67968.00**	**62480.00**	**71367.00**
	LSIG	6.0A	600 A	R( )F36060(C)U44A								
			800 A	R( )F36080(C)U44A								
			1000 A	R( )F36100(C)U44A	**27378.00**	**31556.00**	**28553.00**	**33308.00**	**28553.00**	**33308.00**	**29729.00**	**35061.00**
			1200 A	R( )F36120(C)U44A								
			1600 A	R( )F36160(C)U44A		**33570.00**		**35436.00**		**35436.00**		**37301.00**
			2000 A	R( )F36200(C)U44A		**38838.00**		**40995.00**		**40995.00**		**43154.00**
			2500 A	R( )F36250(C)U44A	**40644.00**	**60870.00**	**43368.00**	**64253.00**	**43368.00**	**64253.00**	**44388.00**	**67635.00**
			3000 A	R( )F36300(C)U44A	**57827.00**	**66255.00**	**60965.00**	**69743.00**	**60965.00**	**69743.00**	**64254.00**	**73230.00**
Micrologic Interchangeable Power Trip Unit	LSI	5.0P	600 A	R( )F36060(C)U63AE1								
			800 A	R( )F36080(C)U63AE1								
			1000 A	R( )F36100(C)U63AE1	**29922.00**	**33845.00**	**31097.00**	**35724.00**	**31097.00**	**35724.00**	**32273.00**	**37605.00**
			1200 A	R( )F36120(C)U63AE1								
			1600 A	R( )F36160(C)U63AE1		**35859.00**		**37853.00**		**37853.00**		**39845.00**
			2000 A	R( )F36200(C)U63AE1		**41129.00**		**43413.00**		**43413.00**		**45698.00**
			2500 A	R( )F36250(C)U63AE1	**43188.00**	**63161.00**	**45062.00**	**66671.00**	**45062.00**	**66671.00**	**46932.00**	**70179.00**
			3000 A	R( )F36300(C)U63AE1	**60003.00**	**68553.00**	**63338.00**	**72161.00**	**63338.00**	**72161.00**	**66671.00**	**75858.00**
	LSIG	6.0P	600 A	R( )F36060(C)U64AE1								
			800 A	R( )F36080(C)U64AE1								
			1000 A	R( )F36100(C)U64AE1	**31004.00**	**34818.00**	**32180.00**	**36753.00**	**32180.00**	**36753.00**	**33354.00**	**38687.00**
			1200 A	R( )F36120(C)U64AE1								
			1600 A	R( )F36160(C)U64AE1		**36834.00**		**38880.00**		**38880.00**		**40926.00**
			2000 A	R( )F36200(C)U64AE1		**42102.00**		**44441.00**		**44441.00**		**46779.00**
			2500 A	R( )F36250(C)U64AE1	**44270.00**	**64136.00**	**46143.00**	**67698.00**	**46143.00**	**67698.00**	**48014.00**	**71261.00**
			3000 A	R( )F36300(C)U64AE1	**60929.00**	**69528.00**	**64313.00**	**73188.00**	**64313.00**	**73188.00**	**67698.00**	**76848.00**
Micrologic Interchangeable Harmonic Trip Unit	LSI	5.0H	600 A	R( )F36060(C)U73AE1								
			800 A	R( )F36080(C)U73AE1								
			1000 A	R( )F36100(C)U73AE1	**34005.00**	**37518.00**	**35180.00**	**39603.00**	**35180.00**	**39603.00**	**36354.00**	**41687.00**
			1200 A	R( )F36120(C)U73AE1								
			1600 A	R( )F36160(C)U73AE1		**39534.00**		**41730.00**		**41730.00**		**43928.00**
			2000 A	R( )F36200(C)U73AE1		**44801.00**		**47291.00**		**47291.00**		**49779.00**
			2500 A	R( )F36250(C)U73AE1	**47271.00**	**66836.00**	**49143.00**	**70548.00**	**49143.00**	**70548.00**	**51015.00**	**74262.00**
			3000 A	R( )F36300(C)U73AE1	**63494.00**	**72236.00**	**67020.00**	**76038.00**	**67020.00**	**76038.00**	**70550.00**	**79841.00**
	LSIG	6.0H	600 A	R( )F36060(C)U74AE1								
			800 A	R( )F36080(C)U74AE1								
			1000 A	R( )F36100(C)U74AE1	**35087.00**	**38493.00**	**36261.00**	**40631.00**	**36261.00**	**40631.00**	**37436.00**	**42770.00**
			1200 A	R( )F36120(C)U74AE1								
			1600 A	R( )F36160(C)U74AE1		**40509.00**		**42758.00**		**42758.00**		**45009.00**
			2000 A	R( )F36200(C)U74AE1		**45776.00**		**48320.00**		**48320.00**		**50862.00**
			2500 A	R( )F36250(C)U74AE1	**48353.00**	**67809.00**	**50225.00**	**71576.00**	**50225.00**	**71576.00**	**52097.00**	**75344.00**
			3000 A	R( )F36300(C)U74AE1	**64419.00**	**73212.00**	**67997.00**	**77066.00**	**67997.00**	**77066.00**	**71577.00**	**80919.00**

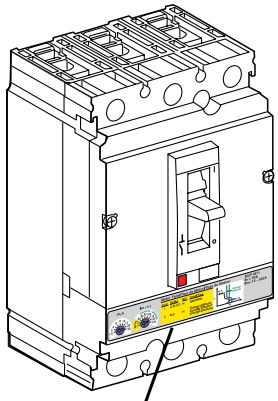
Note: R-frame circuit breakers can be bus- or cable-connected. For cable connections, optional terminal pad kit RLTB or equivalent bus structure is required. Each RLTB kit contains terminal pads for one end of the circuit breaker only and has provisions for mounting a maximum of 8 lugs per phase (9 lugs for 3000 A). RLTB kits are included with 2500 A 100% rated circuit breakers. The RL3TB kits are included with the 3000 A, 80% and 100% rated circuit breakers. For other circuit breakers, order terminal pad kit (RLTB) and optional lugs separately. See pages 7-39–7-41.

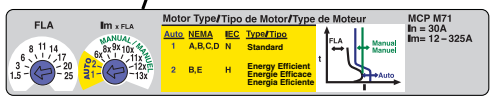
▲ For 2P and 4P information see Catalog **0612CT0101**.

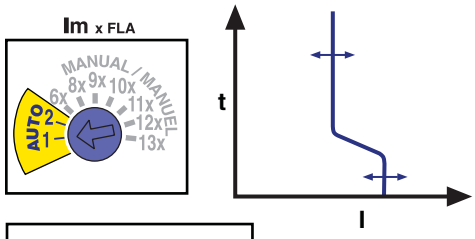
■ To complete the catalog number, replace the blank ( ) with the appropriate interrupting rating (G, J, K or L).

♦ Listed catalog numbers are for 80% rated circuit breakers. For 100% rated circuit breakers add a "C" in the 9th character place. For example, the catalog number for a 100% standard trip unit with LI trip functions at 2500A would be RGF36250**C**U31A.

★ See page 7-26 for interrupting ratings table.







Motor Type / Tipo de Motor / Type de Moteur			
Auto	NEMA	IEC	Type/Tipo
1	A,B,C,D	N	Standard
2	B,E	H	Energy Efficient Energie Efficace Energia Eficiente

PowerPact H- and J-frame electronic Motor Circuit Protectors (MCP) are magnetic-only instantaneous-trip circuit breakers. They are designed to offer short circuit protection and are National Electrical Code (NEC) compliant when installed as part of a combination controller having motor overload protection. MCP circuit breakers accept the same accessories and terminals as the equivalent thermal-magnetic circuit breakers.

Determine the hp rating from the nameplate of the motor. Select a MCP with an ampere rating recommended for the hp and voltage involved. When using the automatic settings the MCP microprocessor automatically adjusts the trip settings for both current and time to align with the start-up characteristic for the motor type, whether it is a standard or energy-efficient motor. This includes a dampening means to accommodate a transient motor in-rush current without nuisance tripping of the circuit breaker.

Table 7.60: H- and J-Frame Electronic Motor Circuit Protectors (MCP)

Frame	Current	Full Load Amperes Range	Adjustable Instantaneous Trip Range	Suffix	J Interrupting (See SCCR Table Below)		L Interrupting (See SCCR Table Below)	
					Cat. No.	$ Price	Cat. No.	$ Price
H-Frame	30 A	1.5–25 A	9–325 A	M71	HJL36030M71	**1089.00**	HLL36030M71	**1223.00**
	50 A	14–42 A	84–546 A	M72	HJL36050M72	**1385.00**	HLL36050M72	**1553.00**
	100 A	30–80 A	180–1040 A	M73	HJL36100M73	**1646.00**	HLL36100M73	**1827.00**
	150 A	58–130 A	348–1690 A	M74	HJL36150M74	**2069.00**	HLL36150M74	**2306.00**
J-Frame	250 A	114–217 A	684–2500 A	M75	JJL36250M75	**2393.00**	JLL36250M75	**2673.00**

Table 7.61: Maximum Rating or Setting of Motor Protective Devices▲

Type of Motor		Percentage of Full-load Current	
		Setting	Not to Exceed■
A, B, C, D	Standard	800%	1300%
B, E	Energy Efficient	1100%	1700%

▲ Based on 2005 NEC Table 430.52.
■ See NEC Exception No. 1 to Table 430.52. The NEC 1300% maximum setting may be inadequate for instantaneous trip circuit breakers to withstand current surges typical of the magnetization current of autotransformer type reduced voltage starters, or open transition wye-delta starters during transfer from "start" to "run," constant hp multi-speed motors, and motors labeled "high efficiency."

Table 7.62: MCP Selection by HP Ratings♦ of Induction-type Squirrel-Cage and Wound-rotor Motors★

3Ø 60 Hz Voltages▼				Full-Load Amperes	Suffix
200 Vac	230 Vac	460 Vac	575 Vac		
.5–5	.5–7.5	.75–15	1–20	1.5–25	M71
5–10	5–15	10–30	15–40	14–42	M72
10–25	15–30	25–60	30–75	30–80	M73
20–40	25–50	50–100	60–125	58–130	M74
40–60	50–75	100–150	125–200	114–217	M75

♦ Based on 2005 NEC Table 430.250.
★ Per NEC 430.3, part-winding motors should select two circuit breakers, each at not more than one-half the allowable trip setting for the horsepower rating. The two circuit breakers should operate simultaneously as a disconnecting means per NEC 430.103.
▼ Listed voltages are rated motor voltages. Corresponding system voltages are 200 Vac, 220–240 Vac, 440–480 Vac and 550–600 Vac. Select wire and circuit breakers based on horsepower rather than nameplate full-load current per NEC 430.6 (A) for general motor applications.

Short Circuit Current Rating (SCCR)

Tested to meet NEC and UL508A requirements for short circuit current ratings as part of an approved combination controller.

Table 7.63: Short Circuit Current Ratings (SCCR)

Contactor/Starter	J Interrupting			L Interrupting		
	200–240 Vac	480 Vac	600 Vac	200–240 Vac	480 Vac	600 Vac
Tesys D-line and F-line	100 kA	65 kA	25 kA	125 kA	100 kA	50 kA
NEMA Type S	100 kA	65 kA	25 kA	125 kA	100 kA	50 kA

See www.us.schneider-electric.us for specific ratings and combination ID numbers.

Table 7.64: Application of PowerPact® H-Frame and J-Frame Electronic Motor Circuit Protectors (MCP)

Horsepower Rating of Induction-type Squirrel-cage and Wound-rotor Motors 3Ø 60 Hz					NEC Full Load Amperes	PowerPact H-Frame and J-Frame Electronic MCP	
Starter Size	200 Vac	230 Vac	480 Vac	575 Vac			
				1/2	0.9 A		
			1/2		1.1 A		
				3/4	1.3 A		
			3/4	1	1.7 A		
			1		2.1 A		
		1/2			2.2 A		
				1-1/2	2.4 A		
	1/2				2.5 A		
				2	2.7 A		
			1-1/2		3 A		
00		3/4			3.2 A		
			2		3.4 A		
	3/4				3.7 A		
				3	3.9 A		
		1			4.2 A		
	1				4.8 A	HJL36030M71 and HLL36030M71 1/2–10 hp	
			3		4.8 A		
		1-1/2			6 A		
				5	6.1 A		
		2			6.8 A		
	1-1/2				6.9 A		
			5		7.6 A		
	2				7.8 A		
0				7-1/2	9 A		
		3			9.6 A		
	3		7-1/2	10	11 A		
			10		14 A		
		5			15.2 A		
				15	17 A		
1	5		15		17.5 A		
					21 A		
		7-1/2		20	22 A		HJL36050M72 and HLL36050M72 10–25 hp
	7-1/2		20		25.3 A		
				25	27 A		
2		10			28 A		
				30	32 A	HJL36100M73 and HLL36100M73 15–50 hp	
	10				32.2 A		
			25		34 A		
			30		40 A		
				40	41 A		
		15			42 A		
	15				48.3 A		
3			40	50	52 A		
		20			54 A		
	20			60	62 A		
			50		65 A		
		25			68 A		
			60	75	77 A		
	25				78.2 A		
		30			80 A		HJL36150M74 and HLL36150M74 30–100 hp
	30				92 A		
			75		96 A		
4				100	99 A		
		40			104 A		
	40				120 A		
			100		124 A		
				125	125 A		
		50			130 A		
				150	144 A	JJL36250M75 and JLL36250M75 50–150 hp	
	50				150 A		
5		60			154 A		
			125		156 A		
	60				177.1 A		
			150		180 A		
		75		200	192 A		
	75				221 A		
			200		240 A		
		100			248 A		

Shaded area is not covered by J-frame electronic motor circuit protector.

Mag-Gard® Motor Circuit Protectors (MCP)

Class **580, 585, 680, 685**

Mag-Gard® Motor Circuit Protectors (MCP) are instantaneous-trip magnetic-only circuit breakers. They have a single adjustment which simultaneously sets the magnetic trip level of each individual pole. Mag-Gard® circuit breakers comply with NEC requirements for providing motor circuit protection when installed as part of a UL Listed combination controller having motor overload protection. Interrupting ratings are established for these UL Recognized Components only when they are used in combination with motor starters with properly sized overload relays and contactors.

All Mag-Gard circuit breakers will accept the same lugs and accessories as equivalent circuit breakers. Mag-Gard circuit breakers are available with I-Line construction.♦ High-interruption (H) construction Mag-Gard circuit breakers (LHL and MHL) are also available.

Table 7.65: Magnetic Only 3–1200 A 600 Vac, 50/60 Hz▲

Ampere Rating		Adjustable■ Trip Range (A)	Suffix	3P only		
				Cat. No.		$ Price
GJL♦	3	9–33 A		GJL36003M01		1089.00
	7	21–77 A		GJL36007M02		1089.00
	15	45–165 A		GJL36015M03		1089.00
	30	90–330 A		GJL36030M04		1089.00
	50	150–550 A		GJL36050M05		1380.00
	75	225–825 A		GJL36075M06		1643.00
LAL	400	500–1000 A		LAL3640022M		4619.00
		750–1600 A		LAL3640028M		4619.00
		1000–2000 A		LAL3640030M		4619.00
		1125–2250 A		LAL3640031M		4619.00
		1250–2500 A		LAL3640032M		4619.00
		1500–3000 A		LAL3640033M		4619.00
		1750–3500 A		LAL3640035M		4619.00
		2000–4000 A		LAL3640036M		4619.00
MAL★	600	625–1250 A	25M	MAL36600	Add Suffix	7560.00
		750–1500 A	26M			
		1000–2000 A	30M			
		1500–3000 A	33M			
	800	2000–4000 A	36M	MAL36800		9927.00
		2500–5000 A	40M			
	1000	3000–6000 A	42M	MAL361000		12705.00
		3500–7000 A	44M			
		4000–8000 A	45M			
		4500–9000 A	46M			
		5000–10000 A	47M			
PJL PLL		J-Interrupting—600 Vac				
	600	1200–10000 A		PJL36060M68		7560.00
	800	1200–10000 A		PJL36080M68		9927.00
	1000	1500–10000 A		PJL36100M69		12705.00
	1200	1800–10000 A		PJL36120M70		16517.00
		L-Interrupting—480 Vac				
	600	1200–10000 A		PLL34060M68		8006.00
	800	1200–10000 A		PLL34080M68		10514.00
	1000	1500–10000 A		PLL34100M69		13455.00
	1200	1800–10000 A		PLL34120M70		17492.00

▲ 250 Vdc ratings are available except on PJ and PL. No UL component recognition.

Circuit Breaker	250 Vdc Multiplier
LAL	High = 1.2 Low = 1.4
MAL	High = 1.1 Low = 1.2

■ UL magnetic trip tolerances are -20%/+30% from the nominal values shown.
♦ No GJL I-Line available.
★ Each ampere rating can be ordered with any designated trip range for the frame by adding the proper suffix to the catalog numbers.

Accessories . . . . . Page 7-36 and Supplemental Digest
Optional Lugs . . . . . Page 7-39 and Supplemental Digest
Dimensions. . . . . Pages 7-54 and 7-55
Enclosures . . . . . Page 7-56

Adjustable instantaneous-trip circuit breakers are intended for use in combination with motor starters with overload relays for the protection of motor circuits from short circuits. Other specific applications include rectifiers and resistance welders. These circuit breakers contain a magnetic trip element in each pole with the trip point adjustable from the front. Interrupting ratings are determined by testing the instantaneous-trip circuit breakers in combination with a contactor and overload relay.

Select instantaneous-trip circuit breakers as follows:

This selection table is suitable for motors, other than NEMA Design E, with locked-rotor indicating code letters per NEC® Table 430.7 (b) as follows:

Table 7.66: Locked-Rotor Indicating Codes

Horsepower	Motor Code letter
1/2 or less	A–L
3/4 to 1-1/2	A–K
2 to 3	A–J
5 to 25	A–H
30 to 125	A–G
150 or more	A–F

1. For other motors order a special thermal-magnetic circuit breaker with magnetic trip settings for the specific motor—specify motor horsepower, voltage, frequency, full-load current and code letter or locked rotor current.
2. Determine motor hp rating from the motor nameplate.
3. Refer to the tables and select an instantaneous-trip circuit breaker with an ampere rating recommended for the hp and voltage involved.
4. Select an adjustable trip setting of at least 800%, not to exceed 1300%, of the motor full-load amperes (FLA) for other than Design E motors. For Design E motors, select an adjustable trip setting of at least 1100% not to exceed 1700% of FLA.
5. The NEC 1300% maximum setting may be inadequate for instantaneous-trip circuit breakers to withstand current surges typical of the magnetization current of autotransformer type reduced voltage starters, or open transition wye-delta starters during transfer from “start” to “run,” constant hp multi-speed motors, and motors labeled “high efficiency.” Select thermal-magnetic circuit breakers from page 7-32 for those applications.
6. Part-winding motors, per NEC 430.3, should have two circuit breakers selected from the above at not more than one half the allowable trip setting for the horsepower rating. The two circuit breakers should operate simultaneously as a disconnecting means per NEC 430.103.
7. Based on NEC 430.52 and NEC Table 430.150. See page 7-30 for a available Adjustable Instantaneous-Trip Circuit Breakers.

Table 7.67: GJL Adjustable Instantaneous-Trip Circuit Breakers for Single Motor Circuit Protection

Hp Ratings of Induction Type Squirrel-Cage and Wound Rotor Motors 3Ø 60 Hz				Full Load Amperes▲	GJL Family Mag-Gard Circuit Breaker Cat. No.	Magnetic Trip Settings■	
200 Vac	230 Vac	460 Vac	575 Vac			MIN	MAX
			1/2	0.8	GJL36003M01♦	1100%	4100%
		1/2		1	GJL36003M01♦	900%	3300%
			3/4	1.1	GJL36003M01♦	800%	3000%
		3/4		1.4	GJL36003M01	600%	2400%
		1		1.8	GJL36003M01	500%	1800%
	1/2			2	GJL36003M01	500%	1700%
			1-1/2	2.1	GJL36003M01	400%	1600%
1/2				2.3	GJL36003M01	400%	1400%
		1-1/2		2.6	GJL36003M01	300%	1300%
			2	2.7	GJL36003M01★	300%	1200%
	3/4			2.8	GJL36003M01★	300%	1200%
3/4				3.2	GJL36007M02	700%	2400%
		2		3.4	GJL36007M02	600%	2300%
	1			3.6	GJL36007M02	600%	2100%
			3	3.9	GJL36007M02	500%	2000%
1				4.1	GJL36007M02	500%	1900%
		3		4.8	GJL36007M02	400%	1600%
	1-1/2			5.2	GJL36007M02	400%	1500%
1-1/2				6	GJL36007M02	400%	1300%
			5	6.1	GJL36015M03	700%	2700%
	2			6.8	GJL36015M03	700%	2400%
		5		7.6	GJL36015M03	600%	2200%
2				7.8	GJL36015M03	600%	2100%
			7-1/2	9	GJL36015M03	500%	1800%
	3			9.6	GJL36015M03	500%	1700%
3		7-1/2	10	11	GJL36015M03	400%	1500%
		10		14	GJL36030M04	600%	2400%
	5			15.2	GJL36030M04	600%	2200%
			15	17	GJL36030M04	500%	1900%
5				17.5	GJL36030M04	500%	1900%
		15		21	GJL36030M04	400%	1600%
	7-1/2		20	22	GJL36030M04	400%	1500%
7-1/2				25.3	GJL36030M04	400%	1300%
		20	25	27	GJL36050M05	600%	2000%
	10			28	GJL36050M05	500%	2000%
			30	32	GJL36050M05	500%	1700%
10				32.2	GJL36050M05	500%	1700%
		25		34	GJL36050M05	400%	1600%
		30		40	GJL36050M05	400%	1400%
			40	41	GJL36050M05	400%	1300%
	15			42	GJL36075M06	400%	1300%
15				48.3	GJL36075M06	500%	1700%
		40	50	52	GJL36075M06	400%	1600%
	20			54	GJL36075M06	400%	1500%
20			60	62	GJL36075M06	400%	1300%
		50		65	GJL36075M06	300%	1300%

Table 7.68: LAL and MAL Adjustable Instantaneous-Trip Circuit Breakers for Single Motor Circuit Protection

Hp Ratings of Induction Type Squirrel-Cage and Wound Rotor Motors 3Ø 60 Hz				Full Load Amperes▲	Mag-Gard Circuit Breaker Cat. No.	Magnetic Trip Settings■	
200 Vac	230 Vac	460 Vac	575 Vac			MIN	MAX
75				221	LAL3640033M	700%	1400%
		200		240	LAL3640035M	700%	1500%
			250	242	LAL3640035M	700%	1400%
	100			248	LAL3640035M	700%	1400%
100				285	LAL3640036M	700%	1400%
			300	289	LAL3640036M	700%	1400%
		250		302	LAL3640036M	700%	1300%
	125			312	LAL3640036M	600%	1300%
			350	336	MAL3660040M	700%	1500%
125				359	MAL3660040M	700%	1400%
	150			360	MAL3660040M	700%	1400%
		300		361	MAL3660040M	700%	1400%
			400	382	MAL3660040M	700%	1300%
150		350		414	MAL3660042M	700%	1400%
			500	472	MAL3660044M	700%	1500%
		400		477	MAL3660044M	700%	1500%
	200			480	MAL3660044M	700%	1500%
200				552	MAL3680045M	700%	1400%
		500		590	MAL3680045M	700%	1400%
	250			602	MAL3680045M	700%	1300%

▲ Motor full-load currents are taken from NEC Table 430.150. Select wire and circuit breakers on basis of horsepower rather than nameplate full-load current per NEC 430.6 (A) for general motor applications. Do not use these values to select overload relay thermal units. See Digest pages 14-129–14-152 for selection of thermal units when actual full load current is not known. The voltages listed are rated motor voltages. Corresponding nominal system voltages are 200–208, 220–240, 440–480 and 550–600 V.

■ Only MIN and MAX settings are shown, intermediate settings are available on all circuit breakers.

♦ See NEC 430.52(A) for circuit breaker settings above 800%.

★ If due to motor starting characteristics, trip settings at the 1300% maximum permitted level are needed, the next size Mag-Gard circuit breaker should be chosen.

Table 7.69: Selection Tables for Conductors, Safety Switches and Thermal-Magnetic Circuit Breakers Based on 2005 NEC® Tables 430.147, 430.148 & 430.150

Horsepower Ratings									△ Full Load Amperage	Amperage of Thermal-magnetic ◊ ▽ Inverse Time Circuit Breaker			QMB and Heavy Duty Switch with Time Delay Fuses□	Minimum Size Metallic Conduit 75˚C, C Wire Field-Installed Sized for 125% FLA▼		
Squirrel-Cage and Wound-Rotor Motors with Norm. Torque Characteristics Operating at Usual Speeds				1Ø 60 Hz ac			Average Direct Current Motors Operating at Base Speed			For Motor Code Letter B to E		For Motor Code Letter F to V☆				
3Ø 60 Hz										Ordinary Service♦	Heavy Service and Energy Efficient★				Conduit 3 W	
200 Vac■	230 Vac	460 Vac	575 Vac	115 Vac	200 Vac■	230 Vac	120 Vdc	240 Vdc						AWG kcmil	THHN THWN XHHW	THW
						3/4			6.9 A	15 A	15 A	20 A				
				1/3					7.2 A	15 A	15 A	20 A				
		5					3/4		7.6 A	15 A	20 A	20 A				
2									7.8 A	15 A	20 A	20 A				
					3/4				7.9 A	15 A	20 A	20 A				
						1			8.0 A	15 A	20 A	20 A				
								2	8.5 A	15 A	20 A	20 A				
			7-1/2						9.0 A	15 A	20 A	25 A				
					1				9.2 A	15 A	20 A	25 A				
							1		9.5 A	15 A	20 A	25 A				
	3								9.6 A	15 A	20 A	25 A		14	1/2 in.	N/A
				1/2					9.8 A	15 A	20 A	25 A				
						1-1/2			10.0 A	20 A	20 A	25 A				
3		7-1/2	10						11.0 A	20 A	25 A	30 A				
					1-1/2				11.5 A	20 A	25 A	30 A				
						2			12.0 A	20 A	20 A	30 A				
								3	12.2 A	25 A	25 A	35 A				
							1-1/2		13.2 A	25 A	25 A	35 A				
				3/4	2				13.8 A	25 A	30 A	35 A				
		10							14.0 A	25 A	30 A	35 A				
	5								15.2 A	30 A	35 A	40 A				
				1					16.0 A	30 A	35 A	40 A				
			15			3	2		17.0 A	30 A	35 A	45 A				
5									17.5 A	35 A	35 A	45 A		12	1/2 in.	N/A
					3				19.6 A	35 A	40 A	50 A				
				1-1/2				5	20.0 A	40 A	40 A	50 A				
		15							21.0 A	40 A	45 A	60 A				
	7-1/2								22.0 A	40 A	45 A	60 A				
				2					24.0 A	45 A	50 A	60 A				
							3		25.0 A	50 A	50 A	70 A				
7-1/2									25.3 A	50 A	60 A	70 A				
		20	25						27.0 A	50 A	60 A	70 A				
	10					5			28.0 A	50 A	60 A	70 A				
								7-1/2	29.0 A	60 A	60 A	80 A				
			30						32.0 A	60 A	70 A	80 A				
10									32.2 A	60 A	70 A	90 A	60 A	8	1/2 in.▲	3/4 in.
		25		3				10	34.0 A	60 A	70 A	90 A				
									38.0 A	80 A	80 A	100 A				
		30				7-1/2	5		40.0 A	80 A	80 A	100 A				
	15								41.0 A	80 A	90 A	110 A				
					7-1/2				42.0 A	80 A	90 A	110 A				
15									46.0 A	90 A	110 A	125 A		6	3/4 in.	1"
						10			48.3 A	90 A	110 A	125 A				
		40	50						50.0 A	90 A	110 A	125 A				
	20								52.0 A	90 A	110 A	150 A				
								15	54.0 A	90 A	110 A	150 A				
				5					55.0 A	90 A	110 A	150 A				
					10				56.0 A	90 A	125 A	150 A				
									57.5 A	90 A	125 A	150 A				
							7-1/2		58.0 A	90 A	125 A	150 A				
			60						62.0 A	100 A	125 A	175 A				
20									62.1 A	100 A	125 A	175 A	100 A	4	1 in.	1"
		50							65.0 A	100 A	150 A	175 A				
	25								68.0 A	100 A	150 A	175 A				
								20	72.0 A	110 A	150 A	200 A				
							10		76.0 A	125 A	175 A	200 A				
		60	75						77.0 A	110 A	175 A	200 A				
25									78.2 A	110 A	175 A	200 A		3	1 in.	1-1/4 in.
	30			7-1/2					80.0 A	110 A	175 A	200 A				
								25	89.0 A	125 A	175 A	225 A				
30									92.0 A	125 A	200 A	250 A		2	1 in.	1-1/4 in.
		75							96.0 A	125 A	200 A	250 A				
			100						99.0 A	150 A	200 A	250 A		1	1-1/4 in.	1-1/2 in.
				10					100.0 A	150 A	200 A	250 A				
	40								104.0 A	150 A	225 A	300 A				
								30	106.0 A	175 A	225 A	300 A		1/0	1-1/4 in.	1-1/2 in.
40									120.0 A	175 A	250 A	300 A	200 A			
		100							124.0 A	200 A	250 A	350 A		2/0	1-1/2 in.	1-1/2 in.
	50		125						125.0 A	200 A	250 A	350 A				
								40	130.0 A	200 A	300 A	350 A				
									140.0 A	200 A	300 A	350 A				
			150						144.0 A	200 A	300 A	400 A				
50									150.0 A	200 A	300 A	400 A		3/0	1-1/2 in.	2 in.
	60								154.0 A	225 A	350 A	400 A				
		125							156.0 A	225 A	350 A	400 A				
								50	173.0 A	250 A	350 A	400 A				
60									177.0 A	250 A	400 A	500 A		4/0	2 in.	2 in.
		150							180.0 A	250 A	400 A	500 A				
	75		200						192.0 A	250 A	400 A	500 A		250	2 in.	2 in.
75									221.0 A	300 A	450 A	600 A		300	2 in.	2-1/2 in.
		200							240.0 A	350 A	500 A	600 A				
	100		250						242.0 A	350 A	500 A	700 A	400 A	350	2-1/2 in.	2-1/2 in.
100									248.0 A	350 A	500 A	700 A				
									285.0 A	400 A	600 A	800 A				
		250	300						289.0 A	400 A	600 A	800 A		500	3 in.	3 in.
	125								302.0 A	400 A	700 A	800 A				
									312.0 A	450 A	700 A	800 A		(2) 3/0	(2) 1-1/2	(2) 2 in.
			350						336.0 A	500 A	700 A	900 A				
125									359.0 A	600 A	800 A	900 A				
	150								360.0 A	600 A	800 A	1000 A		(2) 4/0	(2) 2 in.	(2) 2 in.
		300							361.0 A	600 A	800 A	1000 A				
			400						382.0 A	600 A	800 A	1000 A	600 A	(2) 300	(2) 2 in.	(2) 2-1/2 in.
150		350							414.0 A	600 A	900 A	1200 A				
			500						472.0 A	800 A	1000 A	1200 A		(2) 350	(2) 2-1/2 in.	(2) 2-1/2 in.
		400							477.0 A	800 A	1000 A	1200 A				
	200								480.0 A	800 A	1000 A	1200 A				
200									552.0 A	800 A	1200 A	1600 A	—	(3) 300	(3) 2 in.	(3) 2-1/2 in.
		500							590.0 A	900 A	1200 A	1600 A	—			
	250								602.0 A	900 A	1200 A	1600 A	—			

▲ 8 XHHW requires 3/4 in. conduit for 3W.

■ 200 V motors are commonly used on 208 V services.

♦ Ordinary service for normal starting duty only, acceleration time of 10 sec. or less.

★ Heavy service is jogging or plugging duty or cycling load with over 25 starts per hour or over 5 starts per minute. Energy efficient motors are polyphase motors defined in NEMA Standard MG1 and exhibit high starting current.

▼ NEC 430.22 for Single Motor, Smaller conductors may be permitted for light duty-cycle service per 430.22 (B) Exception No. 1. DC motors operating from rectified 1Ø power supply will require larger conductors per 430.22 (A) Exception No. 1. For motor-generator arc welders, see 630.11.

△ Motor full load currents thru 200 hp are taken from NEC Tables 430.147, 148 and 150. Above 200 hp from UL 98. Select wire size, circuit breakers, or fuses on basis of hp rather than nameplate full load current per NEC 430.6. **Do not use these values to select overload relay thermal units.** See Digest pages 16-129—16-152 for selection of thermal units when actual full load current is not known. Voltages listed are rated motor voltages. Corresponding nominal system voltages are 110–120 V, 200–208 V, 220–240 V, 440–480 V and 550–600 V.

□ Switch size only is shown in table. Selected fuses should not exceed maximum percent of full-load current as given in NEC Table 430.52. Above 50 hp dc switches are not hp rated by UL as Motor Circuit Switches, but as General Use Switches only and are not necessarily capable of interrupting the max. operating overload current of a motor. See NEC 100 for definition of General Use Switch. When protecting a 3Ø, Design E energy efficient motor, the switch is required by NEC 430.109 to have a hp rating of not less than 1.4 times that of a motor rated 3–100 hp, or not less than 1.3 times that of a motor rated over 100 hp. Switches shown in this table do not necessarily comply with that requirement.

◊ Thermal-magnetic circuit breaker ampere ratings recommended are approximate for average conditions, based on trip characteristics of Square D circuit breakers and NEC Table 430.52. Under some conditions, the next size larger switch or circuit breaker rating may be necessary to accommodate the motor starting current and is permitted by NEC 430.52(C)(1) Exception 2. High starting currents are anticipated with Design E and other energy efficient motors. For explanation of Code letter markings, see NEC 430.7(B). For Busway Plug-in units, see page 9-7.

☆ Thermal-magnetic breaker ampere ratings recommended are approximate for average conditions and based on trip characteristics of Square D circuit breakers and NEC Tables 430.7(B) and 430.52.

▽ Type LC, LI, LX, LXI, and LE circuit breakers are NOT recommended for use on single motor branch circuits.

Contact your local Field Office for circuit breaker selection on constant horsepower multi-speed motors.

Automatic Switches

Automatic molded case switches open instantaneously at a factory preset magnetic trip point, calibrated to protect only the molded case switch itself, when it is subjected to high fault currents. The trip point is nonadjustable and provides no overload or low level fault protection.

Molded case switches open when the handle is switched to the OFF position or in response to an auxiliary tripping device such as a shunt trip.

All molded case switches will accept the same lugs and accessories as equivalent thermal-magnetic circuit breakers, with the exception of Q-frame switches which do not have electrical accessories available.

Automatic molded case switches are UL Listed per UL 489 and are CSA Certified.

J-Frame Switch

D-Frame Switch

Table 7.70: H-Frame and J-Frame PowerPact® Automatic Molded Case Switches, 600 Vac

Poles	Ampere Rating	G Interrupting			L Interrupting			Terminal	Wire Range
		Cat. No.	$ Price	Trip Point	Cat. No.	$ Price	Trip Point		
2	150 A	HGL26000S15▲	**1349.00**	2250 A	HLL26000S15	**1590.00**	2250A	AL150HD	14 AWG–3/0 AWG Al/Cu
	175 A	JGL26000S17	**1827.00**	3125 A	JLL26000S17	**1980.00**	3125 A	AL175JD	4–4/0 AWG Al/Cu
	250 A	JGL26000S25	**1827.00**	3125 A	JLL26000S25	**1980.00**	3125 A	AL250JD	3/0 AWG–350 kcmil Al/Cu
3	150 A	HGL36000S15	**1799.00**	2250 A	HLL36000S15	**1988.00**	2250 A	AL150HD	14 AWG–3/0 AWG Al/Cu
	175 A	JGL36000S17	**2286.00**	3125A	JLL36000S17	**2475.00**	3125 A	AL175JD	4–4/0 AWG Al/Cu
	250 A	JGL36000S25	**2286.00**	3125A	JLL36000S25	**2475.00**	3125 A	AL250JD	3/0 AWG–350 kcmil Al/Cu

▲ True 2P device. Others are a 2P in a 3P module.

Table 7.71: D-Frame (600 Vac) and Q-Frame (240 Vac) PowerPact® Automatic Molded Case Switches

Circuit Breaker	Poles	Ampere Rating	J Interrupting			Terminal	Wire Range
			Cat. No.	$ Price	Trip Point		
D-Frame	3	400 A	DJL36000S40	**4572.00**	6000 A	S32508	2 AWG–500 kcmil Al or 2 AWG–600 kcmil Cu
		600 A	DJL36000S60	**7484.00**	6000 A	S32510	(2) 2/0 AWG–500 kcmil Al or (2) 2/0 AWG–350 kcmil Cu
Q-Frame■	2	225 A	QBL22000S22♦	**440.00**	4500 A		4 AWG–300 kcmil
	3	225 A	QBL32000S22♦	**1193.00**	4500 A		

■ Withstand rating of 10 kA at 240 Vac.
♦ DE2A discount schedule.

Table 7.72: P-Frame and R-Frame PowerPact® Automatic Molded Case Switches▼, 600 Vac

Frame	Poles	Ampere Rating	J Interrupting			K Interrupting			L Interrupting			Terminal	Wire Range
			Cat. No.	$ Price	Trip Point	Cat. No.	$ Price	Trip Point	Cat. No.	$ Price	Trip Point		
P	2	600 A	PJL26000S60	**5340.00**	10 kA	PKL26000S60	**5340.00**	24 kA	PLL24000S60★	**5715.00**	10 kA	AL800M23K	(3) 3/0 AWG–500 kcmil Al or Cu
		800 A	PJL26000S80	**5991.00**	10 kA	PKL26000S80	**5991.00**	24 kA	PLL24000S80★	**6414.00**	10 kA		
		1000 A	PJL26000S10	**7469.00**	10 kA	PKL26000S10	**7469.00**	24 kA	PLL24000S10★	**7995.00**	10 kA	AL1200P25K	(4) 3/0 AWG–500 kcmil Al or Cu
		1200 A	PJL26000S12	**11744.00**	10 kA	PKL26000S12	**11744.00**	24 kA	PLL24000S12★	**10887.00**	10 kA		
	3	600 A	PJL36000S60	**6584.00**	10 kA	PKL36000S60	**6584.00**	24 kA	PLL34000S60★	**6974.00**	10 kA	AL800M23K	(3) 3/0 AWG–500 kcmil Al or Cu
		800 A	PJL36000S80	**7236.00**	10 kA	PKL36000S80	**7236.00**	24 kA	PLL34000S80★	**7667.00**	10 kA		
		1000 A	PJL36000S10	**9287.00**	10 kA	PKL36000S10	**9287.00**	24 kA	PLL34000S10★	**9837.00**	10 kA	AL1200P25K	(4) 3/0 AWG–500 kcmil Al or Cu
		1200 A	PJL36000S12	**11867.00**	10 kA	PKL36000S12	**11867.00**	24 kA	PLL34000S12★	**12570.00**	10 kA		
R	2	1200 A	—	—	—	RKF26000S12	**12213.00**	57 kA	RLF26000S12	**12855.00**	48 kA	R-frame circuit breakers can be bus-connected or cable-connected. For cable connections, RLTB kit or equivalent bus structure is required. Kit is included with 3000 A switches. For all others, see page 7-41.	
		1600 A	—	—	—	RKF26000S16	**14685.00**	57 kA	RLF26000S16	**14825.00**	48 kA		
		2000 A	—	—	—	RKF26000S20	**15687.00**	57 kA	RLF26000S20	**15837.00**	48 kA		
		2500 A	—	—	—	RFK26000S25	**24948.00**	57 kA	RLK26000S25	**25185.00**	48 kA		
	3	1200 A	—	—	—	RKF36000S12	**13602.00**	57 kA	RLF36000S12	**14318.00**	48 kA		
		1600 A	—	—	—	RKF36000S16	**15911.00**	57 kA	RLF36000S16	**16062.00**	48 kA		
		2000 A	—	—	—	RKF36000S20	**19374.00**	57 kA	RLF36000S20	**19559.00**	48 kA		
		2500 A	—	—	—	RKF36000S25	**30836.00**	57 kA	RLK36000S25	**31130.00**	48 kA		
		3000 A	—	—	—	RKF36000S30	**41104.00**	57 kA	RLK36000S30	**41496.00**	48 kA		

★ P-frame L-interrupting is available in 480 Vac only.
▼ UL magnetic trip tolerances are -20% / +30% from the nominal values shown.

Table 7.73: H-, J-, D,- P-, and R-Frame Withstand Ratings△

Voltage	Interrupting			
	G	J	K	L
240 Vac	65 kA	100 kA	65 kA	125 kA
480 Vac	35 kA	65 kA	50 kA	100 kA
600 Vac	18 kA	25 kA	50 kA	50 kA

△ The withstand rating is the fault current at rated voltage that the molded case switch will withstand without damage when protected by a circuit breaker with an equal continuous current rating.

MHL Switch

PHF/PCF Switch

Table 7.74: Automatic Molded Case Switches, 600 Vac

Ampere Rating	2P		3P		Withstand Rating☆				Trip Point (A)		Lug Kit Installed
	Cat. No.	$ Price	Cat. No.	$ Price	240 Vac	480 Vac	600 Vac	250 Vdc	AC□	DC□	
100	FHL26000M◊	**779.00**	FHL36000M◊	**1001.00**	65k	25k	18k	10k	1500	1725	AL100FA
150	—	—	FHL3600015M◊	**1500.00**	65k	25k	18k	—	2500	—	AL150FA
250	KHL26000M◊	**1827.00**	KHL36000M◊	**2286.00**	65k	35k	25k	10k	4500	5175	AL250KA
400	LHL26000M	**3596.00**	LHL36000M	**4329.00**	65k	35k	25k	10k	8000	9600	AL400LA
600	MHL260006M	**5340.00**	MHL360006M	**6584.00**	65k	65k	25k	10k	9000	9900	AL900MA
800	MHL260008M	**5991.00**	MHL360008M	**7236.00**	65k	65k	25k	10k	9000	9900	AL900MA
1000	MHL26000M	**7469.00**	MHL36000M	**9287.00**	65k	65k	25k	10k	9000	9900	AL900MA
2000	PHF260000M	**15837.00**	PHF360000M	**19559.00**	125k	100k	65k	—	16000	N/A	N/A
2500	PCF260000M	**25185.00**	PCF360000M	**31130.00**	125k	100k	65k	—	16000	N/A	N/A

□ UL magnetic trip tolerances are -20% / +30% from the nominal values shown.
◊ FHL and KHL automatic switches will not accept cylinder lock attachments.
☆ The withstand rating is the fault current at rated voltage that the molded case switch will withstand without damage when protected by a circuit breaker with an equal continuous current rating.

Accessories . . . . . Page 7-36 and Supplemental Digest
Optional Lugs . . . . . Page 7-39 and Supplemental Digest
Dimensions . . . . . Pages 7-54 and 7-55
Enclosures . . . . . Pages 7-56–7-58

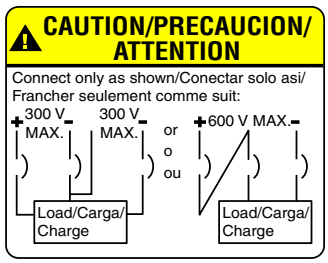
The UL Listed thermal-magnetic molded case circuit breakers shown below are specifically designed for use on ungrounded dc systems having a maximum short-circuit voltage of 500 Vdc or a maximum floating (unloaded) voltage of 600 Vdc. The circuit breakers are suitable for use only with UPS (uninterruptable power supplies) and ungrounded systems.

This two-level voltage rating allows these circuit breakers to be applied to battery sources having a short-circuit availability of 20,000 amperes for FH, KH, LH, and MH circuit breakers and 25,000 amperes for PAF circuit breakers at 500 Vdc.

FH, KH, LH and MH circuit breakers are provided with an adjustable magnetic trip that is readily accessible by means of a single adjustment on the face of the circuit breaker. PAF circuit breakers have a fixed magnetic trip range.

These circuit breakers are UL Listed for the interrupting ratings shown only if applied with three poles connected in series (series connection is external to circuit breaker). See diagram below.

NOTE: *Due to external series connection, I-Line® circuit breakers are not available for this application.*



Source = 600 Vdc max. (floating)
500 Vdc max. (loaded)

Table 7.75: DC Molded Case Circuit Breakers

Ampere Rating	Circuit Breaker Cat. No.	Adjustable Magnetic Trip Range—DC Amperes▲		Interrupting Rating @ 500 Vdc	$ Price
		Low	High		
100 A	JGL37100D81	400	600	20 k AIR	**3779.00**
125 A	JGL37125D81	400	600		**3779.00**
150 A	JGL37150D81	400	600		**3779.00**
175 A	JGL37175D81	400	600		**3779.00**
200 A	JGL37200D82	500	850	20 k AIR	**3779.00**
225 A	JGL37225D82	500	850		**3779.00**
250 A	JGL37250D82	500	850		**5001.00**
30 A	FHL3603013DC	50	180	20 k AIR	**1358.00**
50 A	FHL3605014DC	75	260		**1358.00**
100 A	FHL3610016DC	150	580		**1541.00**
125 A	KHL3612517DC	350	700	20 k AIR	**5849.00**
150 A	KHL3615017DC	350	700		**5849.00**
175 A	KHL3617521DC	400	800		**5849.00**
200 A	KHL3620022DC	500	1000		**5849.00**
225 A	KHL3622522DC	500	1000		**5849.00**
250 A	KHL3625025DC	625	1250		**7598.00**
250 A	LHL3625025DC	625	1250	20 k AIR	**7598.00**
300 A	LHL3630026DC	750	1500		**7598.00**
350 A	LHL3635029DC	875	1750		**7598.00**
400 A	LHL3640030DC	1000	2000		**7598.00**
450 A	MHL3645031DC	1125	2250	20 k AIR	**9456.00**
500 A	MHL3650032DC	1250	2500		**9456.00**
600 A	MHL3660033DC	1500	3000		**9456.00**
700 A	MHL3670035DC	1750	3500		**11882.00**
800 A	MHL3680036DC	2000	4000		**11882.00**
900 A	MHL3690039DC	2500	5000		**14078.00**
1000 A	MHL36100040DC	2500	5000		**14078.00**
1200 A	MHL36120040DC■	2500	5000	25 k AIR	**16758.00**

Ampere Rating	Circuit Breaker Cat. No.	Fixed Magnetic Trip Range—DC Amperes▲		Interrupting Rating @ 500 Vdc	$ Price
		Hold	Trip		
1200 A	PAF361200DC	1200	1620	25 k AIR	**24726.00**
1600 A	PAF361600DC	1600	2160		**24726.00**
2000 A	PAF362000DC	2000	2700		**24726.00**
2500 A	PCF362500DC	2500	3375	25 k AIR	**39365.00**

▲ Magnetic trip tolerances are -20%/+30% from the nominal values shown.

■ Suitable for use only in a ventilated enclosure. Minimum enclosure dimensions are 38" h x 20" w x 7" d with a minimum of 300 square inches of ventilation near the top and bottom of the enclosure.

Accessories . . . . . Page 7-36 and Supplemental Digest
Optional Lugs . . . . . Page 7-39 and Supplemental Digest
Dimensions. . . . . Pages 7-54 and 7-55
Enclosures . . . . . Pages 7-56–7-58

Continuity of service is important for most industrial and commercial customers. To ensure maximum continuity of service, electrical distribution systems are typically selectively coordinated in order to restrict outages to the circuit or equipment affected by an overload or short-circuit. In order to ensure maximum continuity of service, Square D has developed a line of "Mission Critical" circuit breakers to ensure selective coordination.

Compact® NSF250MC Mission Critical Circuit Breakers

The Compact® NSF250MC Mission Critical Circuit Breakers are specifically designed to provide coordination with QO® miniature circuit breakers during a short-circuit conditions.

When the NSF-MC circuit breaker is used as a main circuit breaker with QO branch circuit breakers, the NSF-MC circuit breaker will remain closed during any fault that occurs downstream of the QO circuit breaker up to 35 kA at 208Y/120 Vac.

Table 7.76: Compact NSF250MC Mission Critical Circuit Breakers (208y/120 Vac ratings at 65 kA)

Circuit Breaker Cat. No.	Magnetic Trip Level	Rating	Terminal Wire Range	$ Price
NFNL32225W	2250 A	225 A	250–350 kcmil Cu or Al	**5625.00**
NFNL32250W	2500 A	250 A	250–350 kcmil Cu or Al	**7313.00**
New! NFNL32225WLY	2250 A	225 A	4–3/0 AWG	**5625.00**
NFNL32250WLY	2500 A	250 A	4–3/0 AWG	**7313.00**
NFNF32225W	2250 A	225 A	1/4-20 bolt for bus bar	**5625.00**
NFNF32250W	2500 A	250 A	1/4-20 bolt for bus bar	**7313.00**

LA Mission Critical Circuit Breakers

The LA High Magnetic Withstand MC Circuit Breakers are designed to trip at a higher magnetic trip level (18–20 times handle rating) than typical molded case circuit breakers (MCCBs) (which trip at 5–10 times the handle rating).

The high magnetic withstand value of these LA circuit breakers allow the downstream branch circuit breaker to clear the fault.

Table 7.77: L-Frame—400 A, Thermal-Magnetic, High Magnetic Withstand Circuit Breakers For Mission Critical Loads

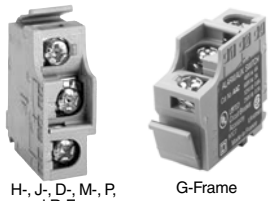
Ampere Rating	AC Magnetic Level Factory Set		Standard Interrupting		High Interrupting		Terminal	
	Hold	Trip	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	Wire Range
LA/LH MC Circuit Breaker, 3P, 480 Vac								
200 A	3400 A	4000 A	LAL34200MC	**4962.00**	LHL34200MC	**7941.00**	AL250LA	(1) 4 AWG–350 kcmil Al (1) 3/0 AWG–350 kcmil Cu
225 A	3825 A	4500 A	LAL34225MC	**4962.00**	LHL34225MC	**7941.00**		
250 A	4250 A	5000 A	LAL34250MC	**5355.00**	LHL34250MC	**8336.00**		
400 A	6000 A	7200 A	LAL34400MC	**6615.00**	LHL34400MC	**9596.00**	AL400LA	(1) 1 AWG–600 kcmil Al or (2) 1 AWG–250 kcmil Al

PowerPact® Circuit Breakers with Micrologic® Electronic Trip Units

The advantages of being able to adjust the trip curve of a circuit breaker equipped with an electronic trip system are obvious. There are other advantages, such as being able to adjust or turn off the instantaneous trip function on some circuit beakers and models of trip units.

Accessories . . . . . Supplemental Digest
Compression and Power Distribution Connector Lugs . Supplemental Digest
Dimensions . . . . . Page 7-54
Enclosures . . . . . Page 7-56

Table 7.78: Electrical Accessories

Accessory	Description		Rated Voltage		G-Frame Field-Installable Cat. No.	G-Frame $ Price	H-, J-, and D-Frame Factory-Installed Cat. Suffix	H- and J-Frame Field-Installable Cat. No.	H- and J-Frame $ Price	D-Frame Field-Installable Cat. No.	D-Frame $ Price	M-, P-, and R-Frame Factory Installed Cat. Suffix	M-, P-, and R-Frame Field-Installable Cat. No.	M-, P-, and R-Frame $ Price
Auxiliary and Alarm Switches (OF, SD, SDE)  H-, J-, D-, M-, P, and R-Frame; G-Frame	Provides circuit breaker contact status. Note: The location of the accessory in the circuit breaker determines its function.	Standard Min Load = 10mA with 24V	1 auxiliary switch (OF) 1a1b		AAC	297.00	AA	S29450	297.00	S29450	297.00	AA	S29450	297.00
			2 auxiliary switch (OF) 2a2b		—	—	AB	2x S29450	594.00	2x S29450	594.00	AB	2x S29450	594.00
			3 auxiliary switch (OF) 3a3b		—	—	AC			3x S29450	891.00	AC	3x S29450	891.00
			Alarm Switch (SD) 1a1b		AAC	297.00	BC	S29450	297.00	S29450	297.00	BC	S29450	297.00
			Overcurrent trip switch (SDE) 1a1b		—	—	BD	—	338.00	S29450	297.00	BD	S29450	297.00
			Consisting of:	OF Switch	—	—	—	S29450	297.00	—	—	—	—	—
				SDE Adapter	—	—	—	S29451	40.50	—	—	—	—	—
			Alarm switch and Overcurrent trip switch		—	—	BE	—	635.00	2x S29450	594.00	BE	2x S29450	594.00
			Consisting of:	OF Switch	—	—	—	2x S29450	594.00	—	—	—	—	—
				SDE Adapter	—	—	—	S29451	40.50	—	—	—	—	—
			Auxiliary Switch/Alarm Switch/Adapter (OF/SD/SDE) Kit		—	—	—	—	—	—	—	—	S33801♦	297.00
		Low Level Min Load = 1mA with 24V	One auxiliary switch (OF) 1a1b		—	—	AE	S29452	372.00	S29452	372.00	AE	S29452	372.00
			Two auxiliary switches (OF) 2a2b		—	—	AF	2x S29452	744.00	2x S29452	744.00	AF	2x S29452	744.00
			3 auxiliary switches (OF) 3a3b		—	—	AG	—	—	3x S29452	1116.00	AG	3x S29452	1116.00
			Alarm Switch (SD) 1a1b		—	—	BH	S29452	372.00	S29452	372.00	BH	S29452	372.00
			Overcurrent trip switch (SDE) 1a1b		—	—	BJ	—	413.00	S29450	372.00	BJ	S29452	372.00
			Consisting of:	OF Switch	—	—	—	S29452	372.00	—	—	—	—	—
				SDE Adapter	—	—	—	S29451	40.50	—	—	—	—	—
			Alarm switch and Overcurrent trip switch		—	—	BK	—	785.00	2x S29452	744.00	BK	2x S29452	744.00
			Consisting of:	OF Switch	—	—	—	2x S29452	744.00	—	—	—	—	—
				SDE Adapter★	—	—	—	S29451	40.50	—	—	—	—	—
Shunt Trip (MX)  H-, J-, and D-Frame; G-Frame	Trips the circuit breaker from a remote location by means of a trip coil energized from a separate supply voltage circuit.		AC	24	—	717.00	SK	S29384	717.00	S29384	717.00	SK	S33659	755.00
				48	—		SL	S29385		S29385		SL	S33660	
				120	GSA		—	—		—		—	—	
				110/130	—		SA	S29386		S29386		SA	S33661	
				208	GSB		—	—		—		—	—	
				240	GSC		—	—		—		—	—	
				200/250	—		—	—		—		SC	S33662	
				277	GSD		—	—		—		—	—	
				208/277	—		SD	S29387		S29387		SD	S33663	
				480	GSH		—	—		—		—	—	
				380/480	—		SH	S29388		S29388		SH	S33664	
				525/600	—		SJ	S29389		S29389		—	—	
			DC	12	—	717.00	SN	S29382	717.00	S29382	717.00	SN	S33658	755.00
				24	GSO		SO	S29390		S29390		SK	S33659	
				30	—		SU	S29391		S29391		SK	S33659	
				48	GSP		SP	S29392		S29392		SL	S33660	
				60	—		SV	S29383		S29383		SL	S33660	
				125	GSR		SR	S29393		S29393		SA	S33661	
				250	GSS		SS	S29394		S29394		SC	S33662	
Undervoltage Trip  H-, J-, and D-Frame; G-Frame	Instantaneously opens the circuit breaker when the under-voltage trip supply voltage drops to a value between 35% and 70% of its rated voltage. Closing is allowed when the supply voltage of the undervoltage trip reaches 85% of rated voltage.		AC	24	—	717.00	UK	S29404	717.00	S29404	717.00	UK	S33668	755.00
				48	—		UL	S29405		S29405		UL	S33669	
				120	GUA		—	—		—		—	—	
				110/130	—		UA	S29406		S29406		UA	S33670	
				208	GUB		—	—		—		—	—	
				240	GUC		—	—		—		—	—	
				200/250	—		—	—		—		UC	S33671	
				277	GUD		—	—		—		—	—	
				208/277	—		UD	S29407		S29407		—	—	
				480	GUH		—	—		—		—	—	
				380/480	—		UH	S29408		S29408		UH	S33673	
				525/600	—		UJ	S29409		S29409		—	—	
			DC	12	—	717.00	UN	S29402	717.00	S29402	717.00	—	—	755.00
				24	GUO		UO	S29410		S29410		UK	S33668	
				30	—		UU	S29411		S29411		UK	S33668	
				48	GUP		UP	S29412		S29412		UL	S33669	
				60	—		UV	S29403		S29403		UL	S33669	
				125	GUR		UR	S29413		S29413		UA	S33670	
				250	GUS		US	S29414		S29414		UC	S33671	
Time Delay Unit 	Undervoltage trip with externally mounted adjustable time delay unit for UVR of 0.5, 0.9, 1.5, 3.0 seconds before circuit breaker trips		AC/DC	48/60	—	1140.00	—	—	—	—	—	FL	S33680▲■	1140.00
				100/130	—		—	—	—	—	—	FA	S33681▲■	
				200/250	—		—	—	—	—	—	FC	S33682▲■	
				380/480	—		—	—	—	—	—	FH	S33683▲■	
	Undervoltage trip with externally mounted non-adjustable time delay unit of 0.25 sec before circuit breaker trips.		AC/DC	100/130	—	930.00	—	—	—	—	—	KA	S33684▲■	930.00
				200/250	—		—	—	—	—	—	KC	S33685▲■	

▲ Field-installable kit includes time delay module only. Order undervoltage trip separately.
■ Discount schedule DE2F.
♦ P-frame drawout circuit breaker only.
★ SDE Adapter used for H- and J-frame only.

Table 7.79: Motor Operators for H-, J-, and D-Frame Circuit Breakers

	Description	Rated Voltage		Factory Installed Cat. No. Suffix	Field--Installable Kit							
					H-Frame▲		J-Frame		D-Frame 400 A		D-Frame 600 A	
					Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price
 Motor Operator	Standard motor for electrically-operated circuit breakers	AC	48/60	ML	S29440		S31548		32642		32839	
			110/130	MA	S29433		S31540		32840		32840	
			208/277	MD	S29434		S31541		32841		32841	
			220/240	MC	—	1161.00	—	3123.00	—	3395.00	—	3395.00
			380/415	MF	—		—		32642		32842	
			380/485	MH	S29435		S31542		—		—	
			440/480	MH	—		—		32647		32847	
		DC	24/30	MO	S29436		S31543		32843		32843	
			48/60	MP	S29437		S31544		32844		32844	
			48/60	MV	—	1161.00	—	3123.00	—	3545.00	—	3545.00
			110/130	MR	S29438		S31545		32845		32845	
			250	MS	S29439		S31546		32846		32846	
	Locking Device	Mounting Hardware		—	—	—	—	—	32649	59.00	32649	58.00
		Ronis lock		—	—	—	—	—	41940	146.00	41940	146.00
		Profalux lock		—	—	—	—	—	42888	146.00	42888	146.00
	Operations Counter			—	—	—	—	—	32648	225.00	32648	225.00
	Adapter for I-Line			—	S37420	119.00	S37420	119.00	—	—	—	—

Table 7.80: Spring-Charging Motors for Electrically-Operated P-Frame Circuit Breakers

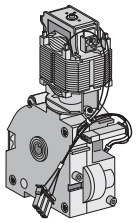
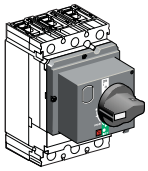
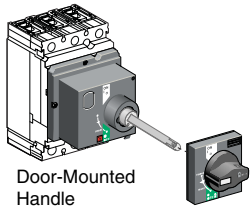
	Description	Rated Voltage		Factory Installed Cat. No. Suffix	P-Frame (For Field-replacement Only)		Replacement Coils	
					Spring Charging Motor Cat. No.	$ Price ♦	Opening/Closing Coil Cat. No.	$ Price
 Spring-charging Motor	Standard motor for electrically-operated circuit breakers. Factory-installed includes motor and opening/closing coils.	AC	48	ML	S47391	3580.00	S33660	755.00
			100/130	MA	S47395		S33661	
			220/240	MC	S47396		S33662	
			380/415	MF	S47398		S33664	
		DC	24/30	MO	S47390	3580.00	S33659	755.00
			48/60	MV	S47391		S33660	
			110/130	MR	S47392		S33661	
			200/250	MS	S47393		S33662	
	Communicating motor mechanism for electrically operated circuit breakers. Factory-installed includes motor and opening/closing coils.	AC	48	NL	S47391	3580.00	S33034	755.00
			100/130	NA	S47395		S33035	
			220/240	NC	S47396		S33036	
			380/415	NF	S47398		S33038	
		DC	24/30	NO	S47390	3580.00	S33033	755.00
			48/60	NV	S47391		S33034	
			110/130	NR	S47392		S33035	
			200/250	NS	S47393		S33036	

Table 7.81: Rotary Operated Handles

	Device	Description	H- and J-Frame▲			D-Frame			P-Frame	
			Factory Installed Cat. No. Suffix	Field Installable Cat. No.	$ Price	Factory Installed Cat. No. Suffix	Field Installable Cat. No.	$ Price	Factory Installed Cat. No. Suffix	$ Price
Direct Mounted	Standard Handle Black	Handle only	RD10	S29337	225.00	RD12	32597	366.00	RD10	539.00
	Standard Black Handle with	Two early-break and two early make switches	—	—	—	—	—	—	RD16	822.00
		One early-break switch	RD12	S29337 + S29345	345.00	—	—	—	—	—
		Two early-make switches	RD13	S29337 + S29346	404.00	—	—	—	—	—
	Red handle on yellow bezel		RD20	S29339	234.00	RD22	32599	407.00	—	—
		One early-break switch	RD22	S29339 + S29345	354.00	—	—	—	—	—
		Two early-make switches	RD23	S29339 + S29346	413.00	—	—	—	—	—
	MCC Conversion Accessory		—	—	—	—	32606	102.00	—	—
Door Mounted	Standard black handle	Handle Only	RE10	S29338	383.00	RE12	32598	557.00	RE10	971.00
	Standard Black Handle with:	Two early-break and two early make switches	—	—	—	—	—	—	RE16	1268.00
		Two early make switches	RE13	S29338 + S29345	503.00	—	—	—	—	—
	Red handle on yellow bezel	Handle Only	RE20	S29340	399.00	RE22	32600	597.00	—	—
Rotary Handle Replacement Kit			—	—	—	—	—	—	S33875	795.00
Telescoping			RT10	S29343	492.00	RT12	32603	617.00	—	—
Accessories	Key lock adapter		—	—	—	—	32604	58.00	—	—
	Key locks	Ronis 1351.500	—	—	—	—	41940	146.00	—	—
		Profalux KS5 B24 D4Z	—	—	—	—	42888	146.00	—	—
	Indication Auxiliary Switch	One early-break switch	—	—	—	—	32605	120.00	—	—
		Two early-make switches	—	—	—	—	29346	179.00	—	—


Direct-Mounted handle

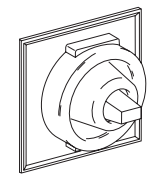

Door-Mounted Handle

▲ Not available in H-frame 2P modules.
■ CP1 discount schedule.
♦ DE2F discount schedule.

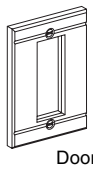
Table 7.82: Locks, Interlocking

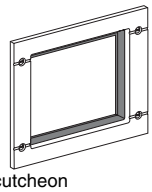
Device	Description		G-Frame		H- and J-Frame		Q-Frame		D-Frame		M- and P-Frame			R-Frame		
			Field-Installed Cat. No.	$ Price	Field-Installed Cat. No.	$ Price	Field-Installed Cat. No.	$ Price	Field-Installed Cat. No.	$ Price	Factory Installed Cat. No. Suffix	Field-Installed Cat. No.	$ Price	Factory Installed Cat. No. Suffix	Field-Installed Cat. No.	$ Price
Handle Padlocking Device	Removable (lock OFF only)		AHP	19.70	S29370	51.00			S29370	50.00	—	S44936	50.00	—	S33996	50.00
	Fixed (lock OFF or ON)▲		—	—	S29371	77.00	QBPA	77.00	S32631	122.00	YP	S32631	122.00	YP	S32631	122.00
	Fixed (lock OFF only)		—	—	S37422	122.00	QBPAF	77.00	NJPAF	122.00	YQ	MPRPAF	122.00	YP	MPRPAF	122.00
Interlocking (Not UL listed)	Mechanical for circuit breakers with rotary handles▲		—	—	S29369	494.00	—	—	32621	494.00	—	S33890	1220.00	—	—	—
	Mechanical for circuit breakers with toggles▲		—	—	S29354	494.00	QBMIK	90.00	32614	494.00	—	—	—	—	—	—
Key Locking	Provision only, vertical mount, 1 or 2 locks	Kirk or Federal Pioneer	—	—	—	—	—	—	—	—	JA	—	323.00		—	
	Provision only, horizontal mount 1 lock, M- and P-frame 1 or 2 locks, R-frame	Kirk	—	—	—	—	—	—	—	—	JK	—	323.00	JK	—	323.00
		Federal Pioneer	—	—	—	—	—	—	—	—	JR	—	323.00	JR	—	323.00
		Ronis	—	—	—	—	—	—	—	—	JB	—	323.00	JB	—	323.00
		Profalux	—	—	—	—	—	—	—	—	JD	—	323.00	JD	—	323.00
	Provision and 1 lock, vertical mount	Kirk	—	—	—	—	—	—	—	—	JG	—	1796.00	JG	—	1796.00
		Federal Pioneer	—	—	—	—	—	—	—	—	JH	—	1796.00	JH	—	1796.00
	Provision and 1 lock, horizontal mount	Kirk	—	—	—	—	—	—	—	—	JL	—	1796.00	JL	—	1796.00
		Federal Pioneer	—	—	—	—	—	—	—	—	JS	—	1796.00	JS	—	1796.00
		Ronis	—	—	—	—	—	—	—	—	JC	—	2285.00	JC	—	2285.00
		Profalux	—	—	—	—	—	—	—	—	JF	—	2285.00	JF	—	2285.00
	Provision and 2 locks keyed alike	Kirk	—	—	—	—	—	—	—	—	JN	—	2285.00	JN	—	2285.00
		Federal Pioneer	—	—	—	—	—	—	—	—	JV	—	2285.00	JV	—	2285.00
		Ronis	—	—	—	—	—	—	41950	183.00	—	—	—	—	—	—
		Profalux	—	—	—	—	—	—	42878	183.00	—	—	—	—	—	—
	Provision and 2 locks keyed differently	Kirk	—	—	—	—	—	—	—	—	JP	—	3269.00	JP	—	3269.00
		Federal Pioneer	—	—	—	—	—	—	—	—	JW	—	3269.00	JW	—	3269.00

▲ Not available in HD and HG 2P modules.

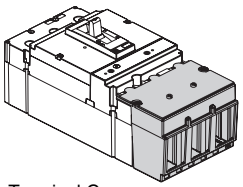


Handle Rubber Boot



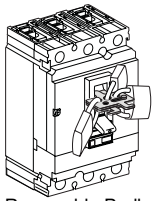


Door Escutcheon

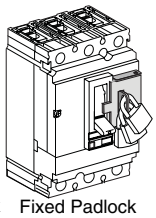


Terminal Covers

Rear Connection



Removable Padlock Attachment



Fixed Padlock Attachment

Table 7.83: Installation Accessories for G-, H-, J-, and D-Frame Circuit Breakers

Description	H- and J-Frame		G-Frame		D-Frame	
	Field-Installed Cat. No.	$ Price	Field-Installed Cat. No.	$ Price	Field-Installed Cat. No.	$ Price
Front Panel Escutcheon for Toggle Breakers	S29315	48.00	—	—	32556	55.00
Front Panel Escutcheon for Rotary Handle, Motor Operator, or extended escutcheon	S29317	63.00	—	—	32558	74.00
Phase Barriers (set of 6)	S29329	53.00	—	—	32570	72.00
Handle Rubber Boot■	S29319	135.00	—	—	32560	171.00
Sealing Accessories	29375	42.00	ACS	18.50	29375	42.00
DIN rail mounting kit (requires 15 mm depth on a 35 mm DIN rail)■	S29305	188.00	—	—	—	—
DIN rail adapter	—	—	GYR	93.00	—	—
Toggle Extensions (set of 10)	S29313	140.00	—	—	32553	33.20

■ Not available in HD and HG 2P modules.

Table 7.84: Installation Accessories for M-, P-, and R-Frame Circuit Breakers

Description		Frame	Field-Installed Cat. No.	$ Price
Door Escutcheon	Accessory Cover	M-, P-Frame	S33718♦	176.00
		R-Frame	S33929	176.00
	Toggle Handle	M-, P-Frame	S33717	47.30
	Drawout	P-Frame	S33857♦	308.00
Terminal Covers	Short lug cover 3P	P-Frame	S33932	165.00
	Short lug cover 4P		S33933	216.00
	Long lug cover 3P		S33934	216.00
	Long lug cover 4P		S33935	281.00
Replacement Handle	Standard	R-Frame	S33997	111.00
	Standard Short	M-, P-Frame	S46998	44.10
	Long	M-, P-Frame	S46996	44.10

♦ DE2F discount schedule.

Table 7.85: Rear Connections

Device	Description	H-Frame				J-Frame				D-Frame			
		Poles	Factory-Installed Termination No.	Field-Installable Cat. No.	$ Price	Poles	Factory-Installed Termination No.	Field-Installed Cat. No.	$ Price	Poles	Factory-Installed Termination No.	Field-Installed Cat. No.	$ Price
Mixed Rear Connection Kit		2	S	—	297.00	2	S	—	297.00	3	S	32477	848.00
		3	S	S37432	381.00	3	S	S37437	381.00	4	S	32478	1122.00
Consisting of:	Short rear connections (set of 2)	2 or 3	—	2x S37433▼	84.00	2 or 3	—	2x S37438▼	84.00	3	—	2x 32475▼	219.00
	Long rear connections (set of 2)		—	S37434	105.00		—	S37439★	105.00		—	32476	261.00
	Short terminal cover (3P)	3	—	S37436	119.00	3	—	S37440	119.00	3	—	32562	149.00

★ For use with 3P circuit breakers only.
▼ Price shown is for quantity one.

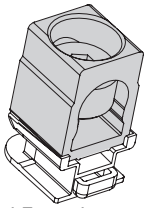

J-Frame Lug

Table 7.86: Mechanical Lug Kits for H-Frame and J-Frame Circuit Breakers▲

	Circuit Breaker Application			Ampere Rating	Number of Wires Per Lug and Wire Range	Kit Cat. No.	Qty Per Kit	$ Price Per Kit
	Standard	Ampere Rating	Optional					
Al Lugs for Use with Al or Cu Wire	HD, HG, HJ, HL	15–150 A			(1) 14–3/0 AWG Al or Cu	AL150HD	3	**75.00**
	JD, JG, JJ, JL	150–175 A			(1) 4-4/0 AWG Al or Cu	AL175JD	3	**113.00**
	JD, JG, JJ, JL	200–250 A	JD,JG,JJ,JL	150–175 A	(1) 3/0–350 kcmil Al or Cu	AL250JD	3	**113.00**
Cu Lugs for Use with Cu Wire Only			HD,HG,HJ,HL	15–150 A	(1) 14–2/0 AWG Cu	CU150HD	3	**156.00**
			JD,JG,JJ,JL	150–250 A	(1) 1/0–300 kcmil Cu	CU250JD	3	**314.00**
Control Wire Terminal for H-frame lug kit						S37423	2	**53.00**
Control Wire Terminal for J-frame lug kit						S37424	2	**53.00**

▲ See page 7-41 for terminal nuts/bus bar connections.

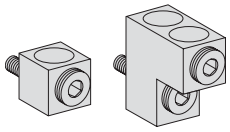
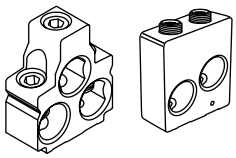

D-Frame Lugs

Table 7.87: Mechanical Lug Kits for D-Frame Circuit Breakers

Description	Poles	400 A Lugs		600 A Lugs	
		Cat. No.	$ Price	Cat. No.	$ Price
Field-Installable Lug Kit, Terminal Cover Included	3	32508	**191.00**	32510	**347.00**
Voltage Takeoffs (set of two)		29348	**28.40**	29348	**28.40**
Wire Range		(1) 2 AWG-600 kcmil stranded CU cable (1) 2 AWG-500 kcmil stranded AL cable		(2) 2/0 AWG-350 kcmil stranded CU cable (2) 2/0 AWG-500 kcmil stranded AL cable	


M- and P-Frame Lugs
(800 A and below)

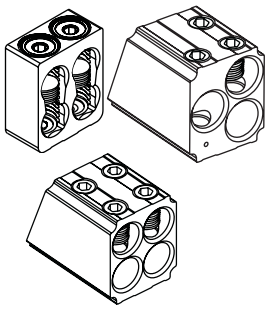
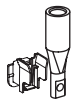
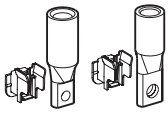

P-Frame Lugs
(Above 800 A)

Table 7.88: Mechanical Lug Kits for M-Frame, P-Frame and R-Frame Circuit Breakers▼

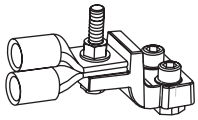
	Circuit Breaker Application				Wires per Lug and Wire Range	Cat. No.	Lugs Per Kit	$ Price Per Kit
	Standard	Rating	Optional	Ampere Rating				
Al Lugs for AL or Cu Wire	M-, P-Frame	800 A	—	800 A	(3) 3/0 AWG-500 kcmil	AL800M23K	3	**284.00**
						AL800M23K4	4	**378.00**
		1200 A	PG,PJ,PL,MG,MJ	800 A	(4) 3/0 AWG-500 kcmil	AL1200P24K■	1	**155.00**
		—	PG,PJ,PL,MG,MJ	800 A	(2) 3/0 AWG-600 kcmil	AL800P6K■	3	**416.00**
						AL800P6K4■	4	**554.00**
	New!	—	PG,PJ,PL,MG,MJ	800 A	(2) 3/0 AWG-750 kcmil 750 kcmil: compact AL only	AL800P7K■	3	**464.00**
						AL800P7K4■	4	**602.00**
	P-Frame	1200 A	PG,PJ,PL	800 A	(4) 3/0 AWG-500 kcmil	AL1200P25K♦	3	**378.00**
						AL1200P25K4♦	4	**504.00**
		—	PG,PJ,PL	800–1200 A	(3) 350-600 kcmil	AL1200P6KU♦	3	**786.00**
						AL1200P6KU4♦	4	**1038.00**
	New! PG,PJ,PL	1200 A	PG,PJ,PL,MG,MJ	800	(3) 3/0 AWG-750 kcmil 750 kcmil: compact AL only	AL1200P7KU♦	3	**1233.00**
						AL1200P7KU4♦	4	**1635.00**
	R-Frame	1200 A	I-Line	—	(4) 3/0 AWG-600 kcmil	AL1200R53K	1	**215.00**
		2500 A	Unit Mount	—	(1) 3/0 AWG-750 kcmil	AL2500RK★	2	**132.00**
Cu Lugs for Cu Wire Only	M-, P-Frame	—	PJ	100–150 A	(1) 1-1/0 AWG	CU250P1K	3	**990.00**
		800 A	MG, MJ, PG, PJ, PL	—	(3) 3/0 AWG-500 kcmil	CU800M23K	3	**1647.00**
						CU800M23K4	4	**2190.00**
		1200 A	MG, MJ, PG, PJ, PL	800–1200 A	(4) 3/0 AWG-500 kcmil	CU1200P24K■	1	**569.00**
	P-Frame	1200 A	PG,PJ,PL	800–1200 A	(4) 3/0 AWG-500 kcmil	CU1200P25K♦	3	**4886.00**
						CU1200P25K4	4	**6503.00**
	R-Frame	1200 A	I-Line	—	(4) 3/0 AWG-500 kcmil	CU1200R53K	1	**548.00**

■ Does not fit onto ON end of unit-mount P-frame circuit breakers.
♦ For unit-mount circuit breaker only.
★ All unit-mount R-frame circuit breakers require terminal pads for mounting lugs of any type. See page 7-41.
▼ For lug with a tapped hole for control wire, add a "T" before the "K" in the catalog number (for example, AL800P6TK).

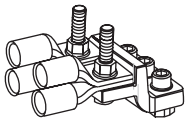




J-Frame Compression Lugs



P-Frame Compression Lug Kit



R-Frame Compression Lug Kit

Table 7.89: Compression Lug Kits for PowerPact® Circuit Breakers

	Circuit Breaker Type	System Range	Mounting Type	Dimension A (in)	Max. Lugs per Terminal	Cat. No.	Lugs Per Kit	$ Price Per Kit
Compression Lug Kits for H-Frame and J-Frame Circuit Breakers								
Aluminum Compression Lug Kits	H-frame	6–2 AWG Al or Cu	Unit	1.2	1	YA060HD	3	**194.00**
		1/0–4/0 AWG Al or Cu		2.5	1	YA150HD	3	**294.00**
	J-frame	1–3/0 AWG Al or Cu		1.2	1	YA150JD	3	**237.00**
		3/0–350 kcmil Al or Cu		2.5	1	YA250J35	3	**305.00**
Copper Compression Lug Kits	H-frame	6–1/0 AWG Cu		1.0	1	CYA060HD	3	**194.00**
		4–2/0 AWG Cu		1.2	1	CYA150HD	3	**194.00**
	J-frame	6–1/0 AWG Cu		0.7	1	CYA150JD	3	**194.00**
		2/0–300 kcmil Cu		1.1	1	CYA250J3	3	**194.00**
Compression Lug Kits for D-Frame Circuit Breakers								
Not Available								
Compression Lug Kits for M-Frame, P-Frame, and R-Frame Circuit Breakers								
Aluminum Compression Lug Kits	M-, P-frame♦	2/0-300 kcmil	Unit	3.7	2	YA250P3	1	**663.00**
		4/0-500 kcmil		3.9	2	YA300P5	1	**519.00**
		2/0-300 kcmil		4.3	2	YA400P3	2	**542.00**
		500-750 kcmil		3.7	2	YA400P7	1	**747.00**
		4/0-500 kcmil		3.9	2	YA600P5	2	**788.00**
		500-750 kcmil		4.3	2	YA800P7	2	**845.00**
	R-frame▲♦	2/0-300 kcmil	I-line	3.8	4	YA1200R3	4	**663.00**
		4/0-500 kcmil		4.0	4	YA1200R5	4	**707.00**
		500-750 kcmil		4.4	4	YA1200R7	4	**888.00**
		2/0-300 kcmil	Unit	▲	8	YA2000R3	2	**317.00**
		4/0-500 kcmil		▲	8	YA2000R5	2	**291.00**
		500-750 kcmil		▲	8■	YA2500R7	2	**350.00**
Copper Compression Lug Kits	M-, P-frame♦	4/0-500 kcmil		3.3	2	CYA400P5	1	**651.00**
		4/0-500 kcmil	Unit	3.3	2	CYA600P5	2	**753.00**
		500-750 kcmil		3.6	2	CYA800P7	2	**554.00**
	R-frame♦	4/0-500 kcmil	I-Line	3.5	4	CYA1200R5	4	**987.00**
		500-750 kcmil		3.8	4	CYA1200R7	4	**920.00**

▲ All unit-mount R-frame circuit breakers require terminal pads for mounting lugs of any type. See page 7-41.
■ 9 lugs for 3000 A circuit breakers
♦ Not for use on I-Line® circuit breakers

PDC6HD6

PDC6JD4

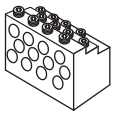
PDC3HD2

PDC3JD20

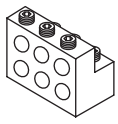
Table 7.90: Power Distribution Connectors for H-Frame, J-Frame and D-Frame Circuit Breakers

Use with Circuit Breaker Type	Circuit Breaker Ampere Rating	Wires Per Terminal & Wire Range	Dimension A (in.)	Cat. No.	Quantity Per Kit	$ Price Per Kit
HD, HG, HJ, HL★	15–150	(6) 14–6 AWG Cu	1.0	PDC6HD6	3	**443.00**
	15–150	(3) 14–2 AWG Cu	1.2	PDC3HD2	3	**434.00**
JD, JG, JJ, JL★	150–250	(6) 14–4 AWG Cu	1.0	PDC6JD4	3	**305.00**
	150–250	(2) 14–1 and (1) 12–2/0 AWG Cu	1.5	PDC3JD20	3	**594.00**
DG, DJ, DL	150–600	(3) 14–2 AWG and (2) 14–2/0 AWG	1.65△	PDC5DG20	3	**387.00**
	150–600	(12) 14–4 AWG	1.65△	PDC12DG4	3	**387.00**

★ OFF end only when OFF end is the load end.



PDC6P20

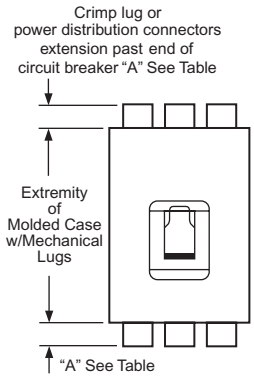


PDC12P4

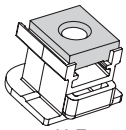
Table 7.91: Power Distribution Connectors for M-Frame and P-Frame Circuit Breakers▾

	Ampere Rating	(Wires Per Terminal) Wire Range	Cat. No.	Qty Per Kit	$ Price Per Kit
Use for multiple load connections on one circuit breaker in place of standard distribution block to save space and time. • Use on load end of circuit breaker only • Use in UL508 Industrial Control applications only. • Use in UL1995/CSA C22.2 No. 236 heating and cooling equipment. • For Cu wire only.	250–1200 A	(6) 3–2/0 AWG Cu (6) 6–4 AWG Cu	PDC6P20	3	**573.00**
		(6) 8 AWG Cu (6) 12–10 AWG Cu	PDC6P204	4	**756.00**
	250–1200 A	(12) 6–4 AWG Cu (12) 8 AWG Cu (12) 10 AWG Cu	PDC12P4	3	**866.00**
			PDC12P44	4	**929.00**

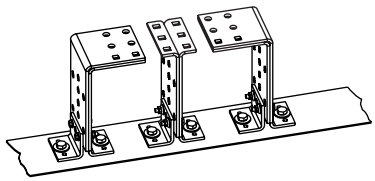
▼ Not for use with I-Line® circuit breakers.
△ Kit includes long terminal shield and cover, which adds 1.65 inches to standard lug with short terminal shield.



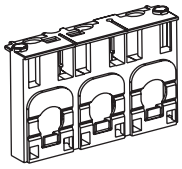
Terminal Nut Insert



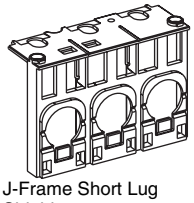
H-Frame Lug With Terminal Nut



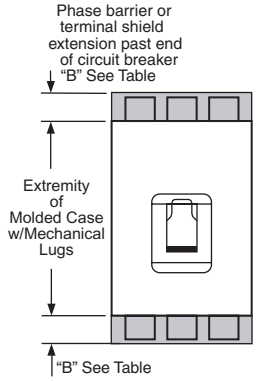
RLTB Terminal Pad Kit

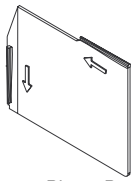


H-Frame Short Lug Shield



J-Frame Short Lug Shield





R-Frame Phase Barrier

Mini Test Kit

Portable Test Kit

Table 7.92: Terminal Nuts for Bus Bar Connection of H-Frame and J-Frame Circuit Breakers

Description	Frame	Tap	Cat. No.	Qty Per Kit	$ Price Per Kit
H-Frame Terminal Nut Insert–English	HD/HG/HJ/HL	1/4-20	S37425	2	**53.00**
H-Frame Terminal Nut Insert–English	HD/HG/HJ/HL	1/4-20	S37444	3	**75.00**
H-Frame Terminal Nut Insert–Metric	HD/HG/HJ/HL	M6	S37426	2	**53.00**
J-Frame Terminal Nut Insert–English	JD/JG/JJ/JL	1/4-20	S37427	2	**75.00**
J-Frame Terminal Nut Insert–English	JD/JG/JJ/JL	1/4-20	S37445	3	**113.00**
J-Frame Terminal Nut Insert–Metric	JD/JG/JJ/JL	M8	S37428	2	**75.00**
Control Wire Terminal for H-Frame Terminal Nut	HD/HG/HJ/HL		S37429	2	**53.00**
Control Wire Terminal for J-Frame Terminal Nut	JD/JG/JJ/JL		S37430	2	**53.00**

Table 7.93: Bus Bar Connections Hardware for D-Frame, M-Frame and P-Frame Circuit Breakers

Frame	Description	Term. No.	Poles	Cat. No.	$ Price
D-Frame	Set of 3 terminal screws and washers for one side	F	3	36966	**23.70**
	Set of 4 terminal screws and washers for one side		4	36967	**31.50**
M- and P-Frame	Bus Connector Kit for one pole, one end		1	S33928	**28.50**

Table 7.94: Terminal Pad Kits for R-Frame Circuit Breakers

R-Frame Circuit Breaker	Terminal Pad Kit		Field-Installable Kits			
	Usage	Lugs per Phase	3P Kit (One End Only)		4P Kit (One End Only)	
			Cat. No.	$ Price.	Cat. No.	$ Price
3000 A, 100% Rated	Required for cable or bus	9	RL3TB	**1440.00**	RL3TB4	**2016.00**
3000 A, Standard (80% Rated)	Required for cable or bus	8	RLTB	**914.00**	RLTB4	**1280.00**
2500 A, 100% Rated	Required for cable or bus					
2500 A, Standard (80% Rated)	Required for cable, optional for bus					
All Other R-Frame CIrcuit Breakers	Required for cable, optional for bus					

For cable connection to RLTB, use AL2500RK lug. See page 7-40.

Table 7.95: Terminal Shields and Phase Barriers

Used With	Description				Dimension B (in.)	Cat. No.	Qty Per Kit	$ Price
H- and J-Frame Mechanical Lugs	Short Lug Shield▲	Frame	Max. Wire Size					
		H-Frame 60 A	3 AWG		0.50	S37446	1	**149.00**
		H-Frame 150 A	3/0 AWG		0.50	S37447	1	**149.00**
		J-Frame	350 kcmil		0.24	S37448	1	**149.00**
H- and J-Frame Power Distribution Connectors and Compression Lugs		Compatible with:						
		PDC	Compression Lugs					
			Aluminum	Copper				
	H-Frame Long Lug Shield	PDC6HD6	YA060HD	CYA060HD	2.24	S37449	1	**209.00**
		PDC3HD2	YA150HD	CYA150HD				
	J-Frame Long Lug Shield	PDC6JD4	YA150JD	CYA150JD	1.68	S37450	1	**209.00**
		PDC3JD2	■	CYA250J3				
G-Frame	Terminal Shield (3P)	—	—	—		GYT	1	**75.00**
D-Frame	Terminal Shield (3P)	PDC5DG2 PDC12DG2	—	—		36965	1	**108.00**
M-, P-Frame	Phase Barriers					S33646	3	**47.30**
R-Frame						S33998		**47.30**

▲ Short lug shields provide IP20 protection for mechanical lugs and are compatible with control wire terminals.
■ J-frame terminal shield is not compatible with the YA250J35 compression terminal.

Table 7.96: Miscellaneous D-Frame Circuit Breaker Accessories

Accessory	Description	Field-Installed Cat. No,	$ Price
External Neutral Sensor	150 A Neutral Sensor	36950	**806.00**
	250 A Neutral Sensor	36951	**806.00**
	400 A Neutral Sensor	36952	**806.00**
	600 A Neutral Sensor	36953	**806.00**
Spare Parts	100 Identification Labels	29314	**119.00**
Test Kits	Mini test kit (battery not included)	43362	**884.00**
	Portable test kit	55391♦	**16365.00**

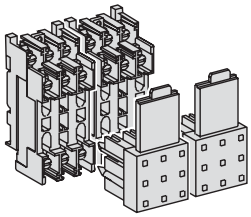
♦ DE5A Discount Schedule

H-Frame and J-Frame Plug-in Mounting

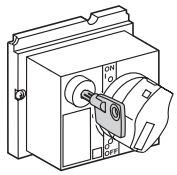
H-Frame and J-Frame Drawout Mounting

D-Frame Plug-In Mounting

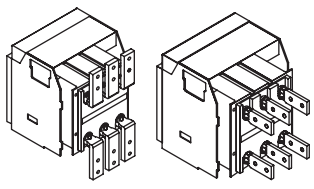
D-Frame Drawout Mounting



D-Frame Disconnecting Blocks



D-Frame Locking Device



P-Frame Drawout Cradle Connections

Table 7.97: Plug-In and Drawout Mountings for H- and J-Frame Circuit Breakers (3P only)

Description			Factory Installed Cat. No.	Field-Installed Cat. No.	$ Price
Complete Factory-Assembled Circuit Breakers	Plug-in base shipped with circuit breaker		N		638.00
	Drawout cradle shipped with circuit breaker		D		1419.00
Special Order Options for Plug-In and Drawout Circuit Breakers	Plug-In Base	Circuit breaker Only	HJ00		290.00
		Plug-in base kit		S29278	348.00
	Drawout Cradle	Circuit breaker only	HJ00		485.00
		Plug-in base kit		S29278	348.00
		Cradle side plates (fixed part of chassis)		S29282	587.00
		Circuit breaker side plates (moving part of chassis)		S29283	195.00
Accessories for Plug-In and Drawout	H-Frame Shutter Kit (set of two)			S37442	48.00
	J-Frame Shutter Kit (set of two)			S37443	48.00
	Secondary Disconnect Blocks	Fixed part 9-wire connector (mounted on base)		S29273	95.00
		Moving part 9-wire connector (mounted on circuit breaker)		S29274	60.00
		Support for 2-moving connectors		S29275	33.00
	Extended escutcheon with extended toggle handle			S29284	77.00
	Two position indicating switches (connected/disconnected)			S29287	207.00

Table 7.98: Plug-In and Drawout Mountings for D-Frame Circuit Breakers

Description		Poles	Plug-in Mounting			Drawout Mounting		
			Factory Installed Cat. No.	Field-Installed Cat. No.	$ Price	Factory Installed Cat. No.	Field-Installed Cat. No.	$ Price
Kit (stationary and moving parts)		3	N	32546	1542.00	D	32548	2466.00
		4	N	M32547	2082.00	D	M32549	3281.00
Stationary Part	Plug-in base	3		32514	1065.00		32514	1065.00
		4		M32515	1439.00		M32515	1439.00
	Fixed part of chassis						32532	693.00
Moving Part	Moving part of chassis		HJ00		710.00	HJ00		710.00
							32533	231.00
	Short terminal covers	3		32562	149.00		32562	149.00
		4		32563	161.00		32563	161.00
	Power connections	3		3x 32518▲	95.00		3x 32518▲	95.00
		4		4x 32518▲	95.00		4x 32518▲	95.00

▲ Price shown is for quantity of 1.

Table 7.99: Plug-In and Drawout Accessories for D-Frame Circuit Breakers

Description			Field-Installed Cat. No.	$ Price
Secondary Disconnecting Blocks	Fixed Part	9-wire connector	29273	95.00
	Moving Part	9-wire connector	32523	60.00
		Support for 3 moving connectors	32525	42.60
Shutters	Two shutters for plug-in base		32521	81.00
Chassis Accessories	Extended escutcheon for toggle		32534	104.00
	Locking device (key lock is not included)		29286	164.00
	Two position indicating switches (connected/disconnected)		29287	207.00

Table 7.100: Termination Options

Termination Letter
N = Plug-in
D = Drawout

For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

D G L 3 6 4 0 0 E 2 0
└ Termination No.

HJ00 Options Code Suffix
H = Plug-in or Drawout
J = No Stationary Part
0 = No Switches
0 = No Shutters

Table 7.101: Drawout Cradle and Accessories for P-Frame Circuit Breakers

Description		Cat. No.	$ Price
Drawout Cradle		Product Selector	6400.00
Cradle Connectors	Front Connected Flat (FCF)	SFCF12■♦	716.00
	Rear Connected T Horizontal/Vertical (RCTH/RCTV)	SRCTV12■♦	408.00
Cradle Accessories	Modbus® cradle communication module	S33852	2237.00
	Safety shutters	S48933♦	342.00
	Secondary disconnects terminal shield	S33763♦	220.00
	Cradle position switch 1a/1b Form C— Connected/test/disconnected	S33170♦	148.00
	Low level cradle position switch 1a/1b Form C— Connected/test/disconnected	S33171♦	216.00
	Cell keying kit	S33767♦	97.00
	Disconnected position key locking—provision for Kirk or Federal Pioneer Lock	S33772♦	908.00
	Door interlock kit	S33786♦	330.00
	Racking interior kit	S33788♦	358.00
	Door escutcheon (for replacement only, included with circuit breaker)	S33857♦	308.00
	Transparent cover	S33859♦	1290.00
	Push-in terminal kit (3 wires)	S33098♦	120.00
	Push-in terminal kit (6 wires)	S33099♦	240.00
	Finger cluster	S33166♦	164.00
	Cluster grease (12 oz. tube)	S48899♦	132.00

■ Needs 2 kits per cradle.
♦ Discount Schedule DE2F

Micrologic Trip Units

Standard Trip Unit | Ammeter Trip Unit | Power Trip Unit | Harmonic Trip Unit

PowerPact® P- and R-frame molded case circuit breakers may be specified with any of the following Micrologic Electronic Trip Units.

Micrologic (Standard) 3.0 and 5.0 Trip Units

- True RMS sensing
- LI, LSI trip configurations
- Field-interchangeable long-time rating plugs
- LED long-time pickup indication
- Test kits available
- Thermal imaging

Micrologic (Ammeter) 3.0A, 5.0A and 6.0A Trip Units

Includes all features listed for Micrologic standard trip unit, as well as:

- LSIG trip configurations
- Digital ammeter—phase and neutral (4-pole only)
- Phase loading bar graph
- LED trip indication
- Zone-selective interlocking (ZSI) (short-time & ground-fault)
- Optional Modbus® communications—PowerLogic® compatible

Micrologic (Power) 5.0P and 6.0P Trip Units

Power measurement and advanced protection features includes all features listed for Micrologic ammeter trip unit, as well as:

- LSI trip configuration with programmable ground fault alarm
- LSIG (Ground-fault trip) with programmable ground fault alarm
- Incremental “fine tuning” of L, S, I, and G pickup and delay settings
- LCD dot matrix display and LED trip indication
- Advanced user interface
- Advanced protection IDMTL—selectable long-time delay bands
- Neutral protection
- Power measurement
- Contact wear indication
- Modbus communications—PowerLogic compatible
- Local and remote settings

Micrologic (Harmonic) 5.0H and 6.0H Trip Units

Power quality measurement and advanced protection features. Includes all features listed for the Micrologic power trip unit, as well as:

- Enhanced power measurements functions
- Power quality measurements

Table 7.102: Micrologic Trip Units

x– Standard Feature o – Available Option

Features	Standard		Ammeter			Power		Harmonic	
	3.0	5.0	3.0A	5.0A	6.0A	5.0P	6.0P	5.0H	6.0H
LI	x		x						
LSI (Instantaneous can be turned off)		x		x	x	x	x	x	x
LSIG / Ground-Fault Trip▲					x		x		x
Ground-Fault Alarm (No Trip) ▲■						x		x	
Ground-Fault Alarm and Trip ▲							x		x
Adjustable Rating Plugs	x	x	x	x	x	x	x	x	x
True RMS Sensing	x	x	x	x	x	x	x	x	x
UL Listed	x	x	x	x	x	x	x	x	x
Thermal Imaging	x	x	x	x	x	x	x	x	x
Phase Loading Bar Graph			x	x	x	x	x	x	x
LED for Long-time Pickup	x	x	x	x	x	x	x	x	x
LED for Trip Indication			x	x	x	x	x	x	x
Digital Ammeter			x	x	x	x	x	x	x
Zone-selective Interlocking			x	x	x	x	x	x	x
Communications			o	o	o	x	x	x	x
LCD Dot Matrix Display						x	x	x	x
Advanced User Interface						x	x	x	x
Protective Relay Functions						x	x	x	x
Neutral Protection						x	x	x	x
Contact Wear Indication						x	x	x	x
Incremental Fine Tuning of Settings						x	x	x	x
Selectable Long-time Delay Bands						x	x	x	x
Power Measurement						x	x	x	x
Power Quality Measurements								x	x
Waveform Capture								x	x

▲ Requires neutral current transformer in 3Ø4W systems.
■ Requires M2C or M6C Programmable Contact Module.

Table 7.103: Micrologic Trip Unit and Options

Model	Protection	Additional Features	Field-Installable Cat. No.♦	Kit $ Price / Circuit Breaker $ Price Adder
2.0 (IEC only)	LSO	None	S132R	**2920.00**
3.0 (UL/ANSI only)	LI		S131A	**2920.00**
5.0	LSI		S133A	**4176.00**
2.0A (IEC only)	LSO	Ammeter	S142R★	**4554.00**
3.0A (UL/ANSI only)	LI		S141A★	**4554.00**
5.0A	LSI		S143A★	**5812.00**
6.0A	LSIG		S144A★	**7418.00**
5.0P	LSI	Metering, Adv. Protection	S163A★▼	**8720.00**
6.0P	LSIG		S164A★▼	**10324.00**
5.0H	LSI	Metering, Adv. Protection & Harmonic Analysis	S173A★▼	**14770.00**
6.0H	LSIG		S174A★▼	**16374.00**

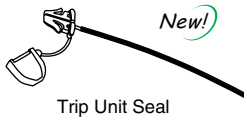
♦ The standard rating plug supplied with a trip unit will be the “A” rating plug. To specify an alternative adjustable rating plug, please add the letter designation to the end of the catalog number. Please refer to page 7-44 for a complete listing of adjustable settings available with each plug. (Example: S143B would specify a “B” rating plug instead of the standard "A" plug.) Use suffix “N” if no rating plug is required, deduct **$200.00** from the complete trip unit kit price.

★ When replacing a standard trip unit with Type A (Ammeter), P (Power metering) or H (Harmonic analysis) trip unit, order the 12-pin connector kit S33101 for the Masterpact NW and NT and the PowerPact P-frame drawout circuit breakers or kit S33100 for PowerPact P-frame and R-frame unit-mount and I-Line circuit breakers. See page 7-44.

▼ Requires Circuit Breaker Communications Module.

Adjustable Rating Plug

Full Function Test Kit



Trip Unit Seal

Sensor Plug

Adjustable Rating Plugs—Selection

To provide maximum design flexibility, system protection, and field upgradeability, each Micrologic® trip unit is equipped with an interchangeable long-time rating plug. Each trip unit requires an adjustable rating plug to determine the long-time pickup range of the circuit breaker. These plugs are factory installed on new trip units, or can be ordered separately for field-installable upgrades.

Adjustable rating plugs are offered in eight different ranges of long-time pickup adjustments. The following chart show the ranges of adjustments. Each adjustment times the sensor rating (Ir X In) of the circuit breaker sets the long-time pickup value of the circuit breaker.

Table 7.104: Long-time Pickup Settings

Rating Plug	Long-time Pickup Settings								
A	.40	.45	.50	.60	.63	.70	.80	.90	1.0
B	.40	.44	.50	.56	.63	.75	.88	.95	1.0
C	.42	.50	.53	.58	.67	.75	.83	.95	1.0
D	.40	.48	.64	.70	.80	.90	.93	.95	1.0
E	.60	.70	.75	.80	.85	.90	.93	.95	1.0
F	.84	.86	.88	.90	.92	.94	.96	.98	1.0
G	.66	.68	.70	.72	.74	.76	.78	.80	.82
H	.48	.50	.52	.54	.56	.58	.60	.62	.64

Adjustable rating plug "A" is installed as standard on all Micrologic trip unit orders. However, an alternative selection may be specified from the "Assembled" table below, and factory installed with your trip unit order at no additional charge. To order, please attach the appropriate catalog suffix to the end of the trip unit Cat. No. (after specifying trip unit options). Adjustable rating plugs may also be purchased as field-installable components from the table below.

Table 7.105: Rating Plugs

Rating Plug▲	Factory-Installed		Field-Installable	
	Cat. Suffix	$ Price Adder	Cat. No.■	$ Price
A	A (standard)	N/C	S48818	200.00
B	B	N/C	S48819	200.00
C	C	N/C	S48820	200.00
D	D	N/C	S48836	200.00
E	E	N/C	S48837	200.00
F	F	N/C	S48838	200.00
G	G	N/C	S48839	200.00
H	H	N/C	S48840	200.00

▲ Long-time pickup amperes (Ir) = Sensor Rating (In) X Setting of rating plug. "Fine adjustment tuning" is included on Micrologic Power and Harmonic trip units, allowing for incremental settings of 1 A between the plug setting and.40 X Sensor Rating.

■ DE2F Discount Schedule

Table 7.106: Neutral Current Transformers

For Use with Circuit Breaker	Cat. No.♦	Sensor	$ Price
P-Frame	S33575★	250	1914.00
	S33576★	400–1600	1914.00
R-Frame	S48916★	250	2014.00
	S34036★	400–1600	2014.00
	S48896★	2000	2044.00
	S48182★	3000	2208.00
All	NCTWIRING	All	204.00

♦ DE2F Discount Schedule

★ Includes NCTWIRING kit.

New!

Table 7.107: Special Options

Description	Factory-Installed Suffix	Field-Installable Cat. No.	$ Price
Ship circuit breaker in closed position	YK	N/A	N/C

Table 7.107: Special Options

Description	Factory-Installed Suffix	Field-Installable Cat. No.	$ Price
CT Characterization (Calibrated trip system)	Q	N/A	3308.00

Table 7.108: Trip Unit Accessories

Device	Cat. No.◊	$ Price
Hand-held Test Kit	S33594	5386.00
Primary Injection Test Adaptor	S33937	252.00
Full-function Test Kit	S33595	33792.00
Seven-pin Test Cable (for connection between test kit and trip unit)▼	S48907	1488.00
Two-pin Test Cable (for connection between test kit and trip unit)△	S48908	784.00
230 Vac Filtered Power Cord□	S48856	166.00
120 Vac Filtered Power Cord□	S48855	61.00
Trip Unit Battery for Trip Indicator Lights	S33593	438.00
Power supply with:		
24–30 Vdc input	685823	1238.00
48/60 Vdc input	685824	
125 Vdc input	685825	
110–130 Vac input New!	685826	
200–240 Vac input	685827	
380–415 Vac input	685829	
Micrologic A Trip Unit Cover, clear	S33592	16.00
Micrologic P/H Trip Unit Cover, opaque gray	S47067	16.00
Trip Unit Seal (6 pieces) for compliance with NEC 240.6(c)	MICROTUSEAL	60.00
12-pin Trip Unit Connector for NT/NW Masterpact Circuit Breakers	S33101	228.00
12-pin Trip Unit Connector for P- and R-Frame Circuit Breakers	S33100☆	255.00
Battery Back-up (12 Hours)	685831	3570.00

▼ Used for testing Micrologic trip units. Included in the price of the Hand-held/Full-function Test Kits. Kit for replacement only.

△ Used for testing STR trip units. Included in the price of the Hand-held/Full-function Test Kits. Kit for replacement only.

□ Included in the price of the Full-function Test Kit. Kit for replacement only.

◊ DE2F Discount Schedule.

☆ DE2 Discount Schedule.

Table 7.109: Sensor Plugs for P- and R-Frame Circuit Breakers▽

Circuit Breaker	Original Circuit Breaker Amperage	Sensor Plug Range	Sensor Plug Catalog No.	$ Price◒
UL P-Frame	250 A	250 A	S47052	1040.00
	400 A	400 A	S47053	1040.00
	600 A	400 A	S48823	1040.00
	800 A	400–800 A	S33092	1040.00
	1000 A	400–1000 A	S33093	1040.00
	1200 A	600–1200 A	S33824	1040.00
IEC P-Frame	630 A	630 A	S48823	1040.00
	800 A	600–800 A	S33092	1040.00
	1000 A	600–1000 A	S33093	1040.00
	1250 A	600–1250 A	S33824	1040.00
	1600 A	600–1600 A	S33095	1040.00
UL R-Frame	600 A	600 A	S48823	1040.00
	800 A	600–800 A	S33092	1040.00
	1000 A	600–1000 A	S33093	1040.00
	1200 A	600–1200 A	S33824	1040.00
	1600 A	800–1600 A	S33095	1040.00
	2000 A	1000–2000 A	S33982	1040.00
	2500 A	1200–2500 A	S33983	1040.00
	3000 A	1200–3000 A	S48825	1040.00
IEC R-Frame	1600 A	1600 A	S33095	1040.00
	2000 A	1600–2000 A	S33982	1040.00
	2500 A	1600–2500 A	S33983	1040.00
	3200 A	1600–3200 A	S48825	1040.00

▽ For use only with circuit breakers with date codes later than 07011.

◒ DE2F Discount Schedule.

Table 7.110: Trip Unit Field-Installable Accessories

Description	Factory-Installed		Field-Installable Kit Cat. No.							$ Price
			P-Frame					R-Frame		
	Cat. No. Suffix	$ Price Adder	Unit Mount	I-Line	Motor Operated	Drawout	With Rotary Handle	Unit Mount	I-Line	
Circuit Breaker Communication Module (BCM) (Modbus)	E1	1778.00	S64205	S64205	S64207	S64206	S64205	S64205	S64205	2805.00
Two Programmable Contacts Module (M2C)	V	1248.00	S64273	S64273	S64273	S64273	S64273	S64273	S64273	1248.00
Six Programmable Contacts Module (M6C)	W	1599.00	S64204	S64204	S64204	S64202	S64204	S64201	S64201	1665.00
External Voltage Sensing (EVS)	YV	290.00	S64203	S64203	S64210	S64209	S64210	S64208	S64208	330.00

Masterpact NT

Masterpact NW

The Masterpact universal power circuit breaker offers a family of circuit protection products meeting the most common world standards, ANSI, UL and IEC. The basic design platform for each is common. The final result is UL, ANSI and IEC circuit breakers with the same basic external dimensions, features and accessories.

Full-Featured Performance

- Complete product offering up to 200 k AIR without fuses
- Circuit breakers tested to show arc flash hazard risk category as referenced by NFPA70E
- 800 A to 6000 A frames, fixed and draw-out
- Rated for AC voltage systems through 600 V (635 V ANSI)
- Short-time withstand ratings up to 100 kA
- Cradle position indicator: connected, test and disconnected
- Simple, visual contact wear indicators
- Full complement of field-installable accessories common to all standards
- Four interchangeable Micrologic trip units to choose from
- Available PowerLogic® based power metering and monitoring capabilities
- Available protective relay functions as defined by ANSI C37.2 and C37.90

The following charts show the Masterpact NW and NT ratings for ANSI and UL 489. See Pricing Guide **0613PL0001** and Catalog **0613CT0001**.

Table 7.111: Masterpact NW Circuit Breaker Ratings

Standard		ANSI C37 Certified/UL 1066 Listed																		UL 489 Listed							
Frame Rating		**800–1600 A**						**2000 A**					**3200/4000 A△**				**4000/5000 A**			**800/1200/1600/2000 A**				**2500/3000 A**		**4000/5000/6000 A**	
Interrupting Code		**N1**	**H1**	**H2**	**H3**	**L1□**	**L1F□**	**H1**	**H2**	**H3**	**L1□**	**L1F□**	**H1**	**H2**	**H3**	**L1□**	**H2**	**H3**	**L1□**	**N**	**H**	**L□**	**LF□**	**H**	**L□**	**H**	**L□**
Interrupting Current (kA RMS) 50/60 Hz	240 Vac	42	65	85	100	200	200	65	85	100	200	200	65	85	100	200	85	100	200	65	100	200	200	100	200	100	200
	480 Vac	42	65	85	100	200	200	65	85	100	200	200	65	85	100	200	85	100	200	65	100	150	150	100	150	100	150
	600 Vac	42	65	85	85	130	130	65	85	85	130	130	65	85	85	130	85	85	130	50	85	100	100	85	100	85	100
Short-time Withstand Current (kA RMS)		42	65	85	85	30	22	65	85	85	30	22	65	85	85	100	85	85	100	42▲	65▲	30▲■	22	65	65	85	100
Built-in Instantaneous Override (kA RMS ±10%)		♦	♦	♦	85	35♦	24	—	—	85	35	24	—	—	85	117	—	—	117	40	40	35▲■	24	65	65	75	75
Close and latch rating (kA RMS)		42	65	40	40	25	22	65	40	40	25	22	65	40	40	40	85	75	40	40	40	25★	22	40	40	40	40
Tested to show the arc flash hazard risk category as referenced by NFPA70E		—	—	—	—	—	Yes	—	—	—	—	Yes	—	—	—	—	—	—	—	—	—	—	Yes	—	—	—	—
Breaking time		25–30 ms with no intentional delay (9 ms for L1, L1F, L and LF)																									
Closing time		70 ms																									
Sensor Rating		100–250 A 400–800 A 800–1600 A						1000–2000 A					1600–3200 A				2000–4000 A 2500–5000 A			100–250 A 400–800 A 600–1200 A 800–1600 A 1000–2000 A				1200–2500 A 1600–3000 A		2000–4000 A 2500–5000 A 3000–6000 A	
Endurance Rating (C/O Cycles) With No Maintenance	Mechanical	12,500						10,000					10,000			5k	5,000			12,500▼				10,000		5,000	
	Electrical	2800						1,000					1,000			1k	1,000			2800▼				1,000		1,000	

▲ 24 kA RMS for 800 A circuit breaker frame with 100 A or 250 A sensor.
■ 65 kA RMS for 2000 A.
♦ None except 24 kA RMS for 800 A circuit breaker frame with 100 A or 250 A sensor.
★ 40 kA RMS for 2000 A.
▼ The endurance rating for 2000 A, N/H/L/LF is 10,000 for mechanical and 1000 for electrical.
△ 4000 A standard with circuit breaker is not available in L1 interrupting rating code or drawout construction (fixed mounting only).
□ Drawout mounted only.

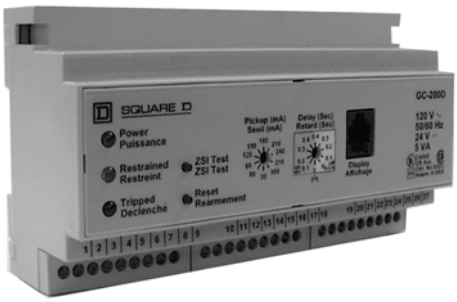
Table 7.112: Masterpact NT Circuit Breaker Ratings

Standard		ANSI C37 Certified/UL 1066 Listed	UL 489 Listed													
Frame Rating		**800 A**	**800 A**					**1200 A**					**1600 A◊**			
Interrupting Code		**N1**	**N**	**H**	**L1**	**L**	**LF☆**	**N**	**H**	**L1**	**L**	**LF☆**	**N**	**H**	**L1**	**L**
Interrupting Current (kA RMS) 50/60 Hz	240 Vac	42	50	65	100	200	200	50	65	100	200	200	50	65	100	200
	480 Vac	42	50	50	65	100	100	50	50	65	100	100	50	50	65	100
	600 Vac	—	35	50	—	—	—	35	50	—	—	—	35	50	N/A	N/A
Short-time Withstand Current (kA RMS)		42	35	35	10	10	10	35	35	10	10	10	35	35	10	10
Built-in Instantaneous Override (kA RMS ±10%)		—	40	40	10	10	10	40	40	10	10	10	40	40	10	10
Close and latch rating (kA RMS)		40	25	25	10	10	10	25	25	10	10	10	25	25	10	10
Tested to show the arc flash hazard risk category as referenced by NFPA70E		—	—	—	—	—	Yes	—	—	—	—	Yes	—	—	—	—
Breaking time		25–30 ms with no intentional delay	25–30 ms with no intentional delay (9 ms for L and LF)													
Closing time		< 50 ms														
Sensor Rating		100–250 A 400–800 A	100–250 A 400–800 A					600–1200 A —					800–1600 A			
Endurance Rating (C/O Cycles) With No Maintenance	Mechanical	12,500	12,500					12,500					12,500			
	Electrical	2800	2800					2800					2800			

◊ Fixed-mounted only.
☆ Drawout mounted only.

GC-200 Ground-Fault Relay System

The GC-200 Ground-fault relay system protects a grounded distribution system from low-level arcing ground faults. The system includes the GC-200 relay, a sensor (current transformer), and optional GC DSP display and is used with a bolted pressure switch or circuit breaker to open a circuit upon detection of a ground fault. (Replaces GC-100 relay.)



GC-200 Relay

GC-200 Relay Features

- Five models with sensitivities suitable for main, feeder, or branch circuits
- Ten adjustable pickup settings for each model
- Small, non-metallic enclosure mounts on DIN rail
- 10 A and 5 A output contacts for trip and alarm
- Zone-selective interlocking (ZSI) to optimize coordinated systems
- I^2t inverse time characteristics

GC DSP Display

GC DSP Display (Optional)

- Real-time display of ground-fault values
- Also recalls ground-fault at last trip or at maximum since reset
- Allows remote testing or resetting of the relay
- LCD back-lit display
- Surface mounts over panel meter cutout
- Fine adjust pickup settings (D and E versions only)

T3B Toroid Sensor

Sensors

- Zero sequence sensing current transformers for all phases and neutral
- Several sizes of toroids and rectangular CTs
- Many are split-core or open frame for ease of installation

GT912 Rectangular Sensor

Table 7.113: Ground-Fault Relay

Cat. No.	Description	Specifications	$ Price
GC200A	Ground-fault relay	30 mA–300 mA	**2960.00**
GC200B		300 mA–3.0 A	**2960.00**
GC200C		3.0 A–30.0 A	**2960.00**
GC200D		30.0 A–300 A	**2960.00**
GC200E		120 A–1200 A	**2960.00**
GCDSP	Display module		**948.00**
GC4	Display cable	4 feet	**96.00**
GC12▲		12 feet	**158.00**
GC30		30 feet	**302.00**

▲ One GC12 twelve foot cable is included with GCDSP display modules.

Table 7.114: GC-200 Relay Settings

Cat. No.	Adjustable Pickup Settings (in Amperes)									
GC200A	0.03	0.06	0.09	0.12	0.15	0.18	0.21	0.24	0.27	0.3
GC200B	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3
GC200C	3	6	9	12	15	18	21	24	27	30
GC200D	30	90	90	120	150	180	210	240	270	300
GC200E	120	240	360	480	600	720	840	960	1080	1200

Table 7.115: GC-200 Sensors

Relay Cat. No.	Sensor Cat. No.	Type	CT Ratio	Window Dimensions		$ Price
				in	mm	
GC200A	T2B	Toroid	700:1	1.875 dia.	48 dia.	**2046.00**
	T3B			2.75 dia.	70 dia.	**2709.00**
GC200B GC200C GC200D	T2A	Toroid	1000:1	1.875 dia.	48 dia.	**704.00**
	T3A	Toroid		2.75 dia.	70 dia.	**774.00**
	T6A	Toroid		5.75 dia.	146 dia.	**774.00**
	T6AS	Toroid, split-core		5.75 dia.	146 dia.	**1326.00**
	T9A	Toroid		8.75 dia.	222 dia.	**1106.00**
	R713A	Rectangular		7.5 x 13.5	191 x 343	**3063.00**
	R417A			4.25 x 17.625	108 x 448	**3650.00**
	R826A			8 x 26.5	203 x 674	**4446.00**
GC200E	All "A" type sensors above, plus:					
	RZ511	Rectangular, Open Frame	1000:1	4.5. x 11	114 x 280	**1914.00**
	RZ521		1000:1	4.5 x 21	114 x 534	**2255.00**
	RZ531		1000:1	4.5 x 31	114 x 788	**2706.00**
	RZ535		1000:1	4.5 x 35	114 x 890	**2834.00**
	RZ1011	Rectangular, Open Frame	1000:1	10.5 x 11	267 x 280	**2450.00**
	RZ1021		1000:1	10.5 x 21	267 x 514	**3075.00**
	RZ1031		1000:1	10.5 x 31	114 x 788	**4233.00**
	GT912	Rectangular, Open Frame	600:1	5.5 x 8.5	140 x 216	**1769.00**
	GT918		600:1	5.5 x 14.5	140 x 368	**2058.00**
	GT930		600:1	5.5 x 26.5	140 x 673	**2766.00**
	GT1218	Rectangular, Open Frame	600:1	8.5 x 14.5	216 x 368	**2645.00**
	GT1224		600:1	8.5 x 20.5	216 x 521	**2901.00**
	GT1230		600:1	8.5 x 26.5	292 x 673	**3246.00**
	GT1327	Rectangular, Open Frame	600:1	9.5 x 24	241 x 610	**2844.00**
	GT1330		600:1	9.5 x 27	241 x 686	**3219.00**
	GT1530	Rectangular, Open Frame	600:1	11.5 x 26.5	292 x 673	**3726.00**


RH99M


RH99P


PA50


SA200

Vigirex™ Ground-Fault Relay System

The Vigirex ground-fault relays, with associated sensors (current transformers), measure the residual current in an electrical installation to detect levels which may be damaging. When used for protection, they cause an associated circuit breaker or switch to interrupt the supply of power to the protected system. They may also be used for monitoring only, with output to an alarm. The product line includes fixed sensitivities from 30 mA to 1 A and adjustable sensitivities up to 30 A.
The Vigirex relays may be easily mounted on DIN rail or may be panel mounted in a meter cutout. Sensors for conductors range from a little more than an inch diameter toroids, to large rectangular sensors measuring 6 x 18 inches. The compact size of the relay and its sensor make it ideal for protection of OEM equipment as well as branch circuits.

Table 7.116: Vigirex Ground-Fault Relays (UL 1053 Listed)

Model	Delay	Reset	Control Voltage	Sensitivity	Cat. No.	$ Price
DIN Rail Mounted						
RH10M	Instantaneous	Manual	12–24 Vac/12–48 Vdc	30 mA 100 mA 300 mA 500 mA 1 A	56300 56302 56305 56306 56307	**1988.00**
			110–130 Vac	30 mA 100 mA 300 mA 500 mA 1 A	56320 56322 56325 56326 56327	**1988.00**
			220–240 Vac	30 mA 100 mA 300 mA 500 mA 1 A	56330 56332 56335 56336 56337	**1988.00**
RH21M	Instantaneous or 60 msec (2 settings)	Manual	12–24 Vac/12–48 Vdc 110–130 Vac 220–240 Vac	30 mA▲ or 300 mA (2 settings)	56360 56362 56363	**2363.00**
RH99M	Adjustable (9 settings): 0, 0.06, 0.15, 0.23, 0.31, 0.5, 0.8, 1.0, 4.5 sec	Manual	12–24 Vac/12–48 Vdc 110–130 Vac 220–240 Vac	Adjustable, (9 settings): 0.03▲, 0.1, 0.3, 0.5, 1, 3, 5, 10, 30 A	56370TD 56372TD 56373TD	**2700.00**
		Automatic	12–24 Vac/12–48 Vdc 110–130 Vac 220–240 Vac		56390TD 56392TD 56393TD	**2700.00**
Panel Mounted						
RH10P	Instantaneous	Manual	12–24 Vac/12–48 Vdc	30 mA 100 mA 300 mA 500 mA 1 Amp	56400 56402 56405 56406 56407	**2063.00**
			110–130 Vac	30 mA 100 mA 300 mA 500 mA 1 Amp	56420 56422 56425 56426 56427	**2063.00**
			220–240 Vac	30 mA 100 mA 300 mA 500 mA 1 A	56430 56432 56435 56436 56437	**2063.00**
RH21P	Instantaneous or 60 msec (2 settings)	Manual	12–24 Vac/12–48 Vdc 110–130 Vac 220–240 Vac	30 mA▲ or 300 mA (2 settings)	56460 56462 56463	**2438.00**
New! RH99P	Adjustable (9 settings): 0, 0.06, 0.15, 0.23, 0.31, 0.5, 0.8, 1.0, 4.5 sec	Manual	12–24 Vac/12–48 Vdc 110–130 Vac 220–240 Vac	Adjustable (9 settings): 0.03▲, 0.1, 0.3, 0.5, 1, 3, 5, 10, 30 A	56470TD 56472TD 56473TD	**2813.00**
		Automatic	12–24 Vac/12–48 Vdc 110–130 Vac 220–240 Vac		56490TD 56492TD 56493TD	**2813.00**

▲ 30 mA is instantaneous only, except for RH99M and RH99P models. Their suffix TD indicates time delay at 30 mA. For models with no time delay (IEC compliant) consult catalog 0972CT0401.

Table 7.117: Sensors for Vigirex Ground-Fault Relays

Sensors	Type	Maximum Current♦	Inside Diameter		Cat. No.	$ Price
			in.	mm		
Closed Toroids, Type A	TA30 PA50 IA80 MA120 SA200 GA300	65 A 85 A 160 A 250 A 400 A 630 A	1.18 1.97 3.15 4.72 7.87 11.81	30 50 80 120 200 300	50437 50438 50439 50440 50441 50442	**375.00** **488.00** **615.00** **833.00** **1253.00** **2295.00**
Vigirex Sensor Iron Rings (Optional)	TA30 PA50 IA80 MA120	65 A 85 A 160 A 250 A	0.79 1.58 2.76 4.33	20 40 70 110	56055 56056 56057 56058	**56.00** **59.00** **62.00** **83.00**
Split toroids, Type OA	POA■ GOA■	85 A 250 A	1.81 4.33	46 110	50485 50486	**1718.00** **3015.00**
Rectangular Sensors	280 x 115 470 x 160	1600 A 3200 A	11.02 x 4.53 18.50 x 6.30	280 x 115 470 x 160	56053 56054	**5333.00** **7088.00**

■ POA and GOA are not UL recognized
♦ Use as a guideline for sizing wire through sensor.

Optional GFM25CT

GFM250

Micrologic® Add-on Ground-Fault Module (GFM)

The Micrologic ground-fault module (GFM) is a UL Listed circuit breaker accessory for equipment protection. It is a combination ground-fault relay and ground-fault sensing device.

Micrologic Add-on Ground-fault Module Features:

- A shunt trip may be field-installed in the HD, HG, HJ, HL, JD, JG, JJ and JL circuit breakers.
- Shunt trip S29382 (12 Vdc) for circuit breaker may be factory- installed (suffix SN) or field-installed
- Adjustable ground-fault pickup levels
- Adjustable ground-fault time delays
- Integral ground fault push-to-test feature and ground-fault indicator
- All GFMs are supplied for I-Line® mounting, easily convertible to unit mount by removing the I-Line brackets
- Optional neutral current transformer for 3-phase 4-wire applications. Refer to instructions for proper installation
- Zone-selective interlocking capability is standard with upstream Micrologic trip system circuit breakers. The GFM can also be zone interlocked with the GC ground-fault system by using a restraint interface module.See Supplementary Digest.
- 120 Vac control power is required for integral test feature. Meets NEC 230-95(c)

NOTE: *Ground-fault modules cannot be used for alarming only.*

Table 7.118: Module/Enclosure Selection Chart▲

Companion Circuit Breaker Prefix	Cat. No.■	I-Line Switchboard	Ground-fault Pickup Adjustment Range	GFM $ Price
HD, HG, HJ, HL	GFM150HD	LA	20–100 A	**4250.00**
JD, JG, JJ, JL	GFM250JD	LA	40–200 A	**4250.00**
Accessories				
H & J	GFM25CT	Optional Neutral Current Transformer (required for 4-wire loads)		**375.00**

▲ At 250 A, the GFM250JD can be used with 80% rated circuit breakers only.
■ See Supplemental Digest for additional GFMs.

Figure 7.1: I-Line® J-Frame with ELM installed

New!

Earth Leakage Module (ELM) for PowerPact H- and J-Frame MCCBs

The Earth Leakage Module (ELM) is an add-on module which, when connected to a PowerPact H- or J-frame MCCB, provides low-level ground-fault sensing and ground-fault relay functions.

Because these ELMs are highly sensitive (30 mA to 3 A), they provide much greater protection than GFMs (20 Amps to 200 Amps sensitivity). The ELMs provide greater protection of control circuits and other sensitive equipment. The associated circuit breaker must have a 48 Vdc shunt trip), which may be field-installed (kit S29392) or factory-installed (suffix –SP) in the H- or J-Frame circuit breaker.

Add-on Earth Leakage Module (ELM) Features:

- Adjustable ground-fault pickup levels as low as 30 mA
- Adjustable ground-fault time delays from instantaneous to 500 msec (Time delay can be applied to the 30 mA setting)
- Integral ground fault push-to-test feature
- Ground-fault indicator (LED for local status; contacts for remote indication)
- All ELMs are supplied for I-Line® mounting and are easily convertible to unit-mount by removing the I-Line brackets
- Three poles; 240 to 600 Vac maximum: 3-wire applications only (no neutral)
- Line-power obtained through internal bus to provide power for electronics, shunt trip, and integral test feature.
- A shunt trip is required in the circuit breaker; it may be field-installed or factory-installed in the PowerPact H and J circuit breakers.
- UL 1053 – Ground-fault Sensing and Relaying Equipment

Table 7.119: ELM Selection Chart♦

Companion Circuit Breaker		Enclosure Space Required I-Line Switchboard	Pick-Up Adjustment Range	Catalog Number	$ Price
Prefix	Size				
HD, HG, HJ, HL	15–150 A	LA	30 mA–3 A	ELM150HD	**4500.00**
JD, JG, JJ, JL	150–250 A	LA	30 mA–3 A	ELM250JD	**4650.00**

♦ At 250 A, the ELM250JD can be used with 80% rated circuit breakers only.

FAL 1P 15–100 A

FAL/FHL 2P 15–100 A

FAL/FHL 3P 15–100 A

Thermal-magnetic molded case circuit breakers shown on pages 7-49 through 7-51 are permanent trip UL Listed, CSA Certified, IEC rated, and also meet the requirements of Federal Specification W–C–375B/GEN as indicated on pages 7-4 through 7-7. For I-Line® molded case circuit breakers, see listings on pages 9-23 through 9-30.

Table 7.120: F-Frame—100 A, Thermal-Magnetic, 240 Vac, Standard Interrupting

Ampere Rating	Fixed AC Magnetic Trip		1 P 120 Vac		2 P 240 Vac		3 P 240 Vac		Terminal Wire Range (AWG)
	Hold	Trip	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	
15 A	275 A	600 A	FAL12015	198.00	FAL22015	333.00	FAL32015	495.00	AL50FA 14–4 Cu or 12–4 Al
20 A	275 A	600 A	FAL12020	198.00	FAL22020	333.00	FAL32020	495.00	
25 A	275 A	600 A	FAL12025	198.00	FAL22025	333.00	FAL32025	495.00	
30 A	275 A	600 A	FAL12030	198.00	FAL22030	333.00	FAL32030	495.00	
35 A	400 A	850 A	FAL12035	198.00	FAL22035	333.00	FAL32035	495.00	AL100FA 14–1/0 Cu or 12–1/0 Al
40 A	400 A	850 A	FAL12040	198.00	FAL22040	333.00	FAL32040	495.00	
45 A	400 A	850 A	FAL12045	198.00	FAL22045	333.00	FAL32045	495.00	
50 A	400 A	850 A	FAL12050	198.00	FAL22050	333.00	FAL32050	495.00	
60 A	800 A	1450 A	FAL12060	198.00	FAL22060	333.00	FAL32060	495.00	
70 A	800 A	1450 A	FAL12070	261.00	FAL22070	543.00	FAL32070	704.00	
80 A	800 A	1450 A	FAL12080	261.00	FAL22080	543.00	FAL32080	704.00	
90 A	900 A	1700 A	FAL12090	261.00	FAL22090	543.00	FAL32090	704.00	
100 A	900 A	1700 A	FAL12100	261.00	FAL22100	543.00	FAL32100	704.00	

Table 7.121: F-Frame—100 A, Thermal-Magnetic, 480 Vac, Standard Interrupting

Ampere Rating	Fixed AC Magnetic Trip		1P 277 Vac, 125 Vdc		2P 480 Vac, 250 Vdc		3P 480 Vac, 250 Vdc		Terminal Wire Range (AWG)
	Hold	Trip	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	
15 A	275 A	600 A	FAL14015	251.00	FAL24015	609.00	FAL34015	782.00	AL50FA 14–4 Cu or 12–4 Al
20 A	275 A	600 A	FAL14020	251.00	FAL24020	609.00	FAL34020	782.00	
25 A	275 A	600 A	FAL14025	251.00	FAL24025	609.00	FAL34025	782.00	
30 A	275 A	600 A	FAL14030	251.00	FAL24030	609.00	FAL34030	782.00	
35 A	400 A	850 A	FAL14035	251.00	FAL24035	609.00	FAL34035	782.00	AL100FA 14–1/0 Cu or 12–1/0 Al
40 A	400 A	850 A	FAL14040	251.00	FAL24040	609.00	FAL34040	782.00	
45 A	400 A	850 A	FAL14045	251.00	FAL24045	609.00	FAL34045	782.00	
50 A	400 A	850 A	FAL14050	251.00	FAL24050	609.00	FAL34050	782.00	
60 A	800 A	1450 A	FAL14060	251.00	FAL24060	609.00	FAL34060	782.00	
70 A	800 A	1450 A	FAL14070	312.00	FAL24070	788.00	FAL34070	924.00	
80 A	800 A	1450 A	FAL14080	312.00	FAL24080	788.00	FAL34080	924.00	
90 A	900 A	1700 A	FAL14090	312.00	FAL24090	788.00	FAL34090	924.00	
100 A	900 A	1700 A	FAL14100	312.00	FAL24100	788.00	FAL34100	924.00	

Table 7.122: F-Frame—100 A, Thermal-Magnetic, 600 Vac

Ampere Rating	Fixed AC Magnetic Trip		1P High Interrupting 277 Vac, 125 Vdc		2P Standard Interrupting 600 Vac. 250 Vdc		2P High Interrupting 600 Vac. 250 Vdc		2P Current Limiting 600 Vac. 250 Vdc		3 P Standard Interrupting 600 Vac. 250 Vdc		3 P High Interrupting 600 Vac. 250 Vdc		3 P Current Limiting 600 Vac. 250 Vdc		Terminal Wire Range (AWG)
	Hold	Trip	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price	
15 A	275 A	600 A	FHL16015	452.00	FAL26015	704.00	FHL26015	1163.00	—	—	FAL36015	906.00	FHL36015	1358.00	—	—	AL50FA 14–4 Cu or 12–4 Al
20 A	275 A	600 A	FHL16020	452.00	FAL26020	704.00	FHL26020	1163.00	FIL26020	2633.00	FAL36020	906.00	FHL36020	1358.00	FIL36020	3296.00	
25 A	275 A	600 A	FHL16025	452.00	FAL26025	704.00	FHL26025	1163.00	FIL26025	2633.00	FAL36025	906.00	FHL36025	1358.00	FIL36025	3296.00	
30 A	275 A	600 A	FHL16030	452.00	FAL26030	704.00	FHL26030	1163.00	FIL26030	2633.00	FAL36030	906.00	FHL36030	1358.00	FIL36030	3296.00	
35 A	400 A	850 A	FHL16035	452.00	FAL26035	704.00	FHL26035	1163.00	FIL26035	2633.00	FAL36035	906.00	FHL36035	1358.00	FIL36035	3296.00	AL100FA 14–1/0 Cu or 12–1/0 Al
40 A	400 A	850 A	FHL16040	452.00	FAL26040	704.00	FHL26040	1163.00	FIL26040	2633.00	FAL36040	906.00	FHL36040	1358.00	FIL36040	3296.00	
45 A	400 A	850 A	FHL16045	452.00	FAL26045	704.00	FHL26045	1163.00	FIL26045	2633.00	FAL36045	906.00	FHL36045	1358.00	FIL36045	3296.00	
50 A	400 A	850 A	FHL16050	452.00	FAL26050	704.00	FHL26050	1163.00	FIL26050	2633.00	FAL36050	906.00	FHL36050	1358.00	FIL36050	3296.00	
60 A	800 A	1450 A	FHL16060	452.00	FAL26060	704.00	FHL26060	1163.00	FIL26060	2633.00	FAL36060	906.00	FHL36060	1358.00	FIL36060	3296.00	
70 A	800 A	1450 A	FHL16070	509.00	FAL26070	890.00	FHL26070	1353.00	FIL26070	2633.00	FAL36070	1115.00	FHL36070	1541.00	FIL36070	3296.00	
80 A	800 A	1450 A	FHL16080	509.00	FAL26080	890.00	FHL26080	1353.00	FIL26080	2633.00	FAL36080	1115.00	FHL36080	1541.00	FIL36080	3296.00	
90 A	900 A	1700 A	FHL16090	509.00	FAL26090	890.00	FHL26090	1353.00	FIL26090	2633.00	FAL36090	1115.00	FHL36090	1541.00	FIL36090	3296.00	
100 A	900 A	1700 A	FHL16100	509.00	FAL26100	890.00	FHL26100	1353.00	FIL26100	2633.00	FAL36100	1115.00	FHL36100	1541.00	FIL36100	3296.00	

AL50FA

AL100FA

Table 7.123: Mechanical Lug Kit Information

Circuit Breaker Application				(Number of Wires Per Lug) Wire Range	Cat. No.	Lugs Per Kit	$ Price Per Kit
Standard	Ampere Rating	Optional	Ampere Rating				
FA, FH, FI	15–30 A	FA, FH, FI	35–100 A	(1) 14–4 AWG Cu or (1) 12–4 AWG Al	AL50FA	3	37.20
FA, FH, FI	35–100 A	FA, FH, FI	15–30 A	(1) 14–1/0 AWG Cu or (1) 12–1/0 AWG Al	AL100FA	3	37.20
—	—	FA, FH	15–100 A	(1) 12–3 AWG Cu	AL100TF▲	3	37.20
—	—	FA	150 A (only)	(1) 2–3/0 AWG Cu or Al	AL150FA	3	37.20
—	—	FA, FH, FI	15–100	(1) 14–1 AWG Cu	CU100FA	3	37.20
—	—	FA, FH	15–100	(1) 12–3 AWG Cu	CU100TF▲	3	62.00

▲ For use in the OFF end only, when the OFF end is the load end.

Table 7.124: F-Frame Interrupting Ratings

	FAL			FHL	FIL
	240 Vac	480 Vac	600 Vac		
240 Vac	10 kA	18 kA (1P), 25 kA (2P, 3P)	25 kA	25 kA (1P) 65 kA(2P, 3P)	200 kA
480 Vac	—	18 kA	18 kA	25 kA(2P, 3P)	200 kA
600 Vac	—	—	14 kA	18 kA(2P, 3P)	100 kA

Termination Option

Termination Letter
F = No Lugs
L = Lugs both ends
P with MT Suffix = Lugs ON end
P = Lugs OFF end

For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

F A L 3 6 1 0 0
└Termination Letter

NOTE: *Consider using PowerPact® circuit breakers for situations requiring circuit breaker accessories.*

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KAL/KHL
2P and 3P

KIL36250

Q4L
2P and 3P

Table 7.125: K-Frame—250 A, Current-Limiting Thermal-Magnetic CIrcuit Breakers, 600 Vac

Ampere Rating	Adjustable AC Magnetic Trip		Current Limiting		Terminal Wire Range
	Low	High	Cat. No.	$ Price	
2P, 600 Vac, 250 Vdc					
110	550 A	1100 A	KIL26110	**6177.00**	AL250KA (1) 4 AWG–350 kcmil Al
125	625 A	1250 A	KIL26125	**6177.00**	
150	750 A	1500 A	KIL26150	**6177.00**	
175	875 A	1750 A	KIL26175	**6177.00**	
200	1000 A	2000 A	KIL26200	**6177.00**	AL250KI (1) 1/0 AWG–350 kcmil Al
225	1125 A	2250 A	KIL26225	**6177.00**	
250	1250 A	2500 A	KIL26250	**7223.00**	
3P, 600 Vac, 250 Vdc					
110	550 A	1100 A	KIL36110	**7754.00**	AL250KA (1) 4 AWG–350 kcmil Al
125	625 A	1250 A	KIL36125	**7754.00**	
150	750 A	1500 A	KIL36150	**7754.00**	
175	875 A	1750 A	KIL36175	**7754.00**	
200	1000 A	2000 A	KIL36200	**7754.00**	AL250KI (1) 1/0 AWG–350 kcmil Al
225	1125 A	2250 A	KIL36225	**7754.00**	
250	1250 A	2500 A	KIL36250	**9081.00**	

Table 7.126: Q4-Frame—400 A, Thermal-Magnetic Circuit Breakers, 240 Vac

Ampere Rating	Adjustable AC Magnetic Trip		Standard Interrupting		Terminal Wire Range (AWG/kcmil)
	Low	High	Cat. No.	$ Price	
2P, 240 Vac					
250	1250 A	2500 A	Q4L2250	**3171.00**	AL400LA (1) 1 AWG–600 kcmil Al or (2) 1 AWG–250 kcmil Al
300	1500 A	3000 A	Q4L2300	**3171.00**	
350	1750 A	3500 A	Q4L2350	**3171.00**	
400	2000 A	4000 A	Q4L2400	**3171.00**	
3P, 240 Vac					
250	1250 A	2500 A	Q4L3250	**3831.00**	AL400LA (1) 1 AWG–600 kcmil Al or (2) 1 AWG–250 kcmil Al
300	1500 A	3000 A	Q4L3300	**3831.00**	
350	1750 A	3500 A	Q4L3350	**3831.00**	
400	2000 A	4000 A	Q4L3400	**3831.00**	

AL250KI
AL250KA

AL400LA

Table 7.127: Mechanical Lug Kit Information

Circuit Breaker Application				(Number of Wires Per Lug) Wire Range	Cat. No.	Lugs Per Kit	$ Price Per Kit
Standard	Ampere Rating	Optional	Ampere Rating				
KI	110–175 A	—	—	(1) 4 AWG–350 kcmil Cu or Al	AL250KA	3	**113.00**
KI	200–250 A	KI	110–175 A	(1) 1/0 AWG–350 kcmil Cu or Al	AL250KI	3	**107.00**
Q4	125–400 A	—	—	(1) 1 AWG–600 kcmil Cu or Al or (2) 1 AWG–250 kcmil Cu or Al	AL400LA	1	**35.70**
—	—	KI	110–250 A	(1) 4 AWG–250 kcmil Cu	CU250KA	3	**113.00**
—	—	Q4	125–400 A	(1) 1 AWG–600 kcmil Cu (2) 1 AWG–250 kcmil Cu	CU400LA	1	**37.40**

Table 7.128: Interrupting Ratings

	KAL	KHL	KIL	Q4
240 Vac	42 kA	65 kA	200 kA	25 kA
480 Vac	25 kA	35 kA	200 kA	—
600 Vac	22 kA	25 kA	100 kA	—

NOTE: *Consider using PowerPact® circuit breakers for situations requiring circuit breaker accessories.*

LAL/LHL
2P and 3P
125–400 A

Table 7.129: L-Frame—400 A, Thermal-Magnetic Circuit Breakers, 600 Vac

Ampere Rating	Adjustable AC Magnetic Trip		Standard Interrupting		High Interrupting		Terminal Wire Range
	Low	High	Cat. No.	$ Price	Cat. No.	$ Price	
2P, 600 Vac, 250 Vdc							
125 A	625 A	1250 A	LAL26125	**3807.00**	LHL26125	**6362.00**	AL400LA (1) 1 AWG–600 kcmil Al or (2) 1 AWG–250 kcmil Al
150 A	750 A	1500 A	LAL26150	**3807.00**	LHL26150	**6362.00**	
175 A	875 A	1750 A	LAL26175	**3807.00**	LHL26175	**6362.00**	
200 A	1000 A	2000 A	LAL26200	**3807.00**	LHL26200	**6362.00**	
225 A	1125 A	2250 A	LAL26225	**3807.00**	LHL26225	**6362.00**	
250 A	1250 A	2500 A	LAL26250	**3807.00**	LHL26250	**6362.00**	
300 A	1500 A	3000 A	LAL26300	**3807.00**	LHL26300	**6362.00**	
350 A	1750 A	3500 A	LAL26350	**3807.00**	LHL26350	**6362.00**	
400 A	2000 A	4000 A	LAL26400	**3807.00**	LHL26400	**6362.00**	
3P, 600 Vac, 250 Vdc							
125 A	625 A	1250 A	LAL36125	**4619.00**	LHL36125	**7598.00**	AL400LA (1) 1 AWG–600 kcmil Al or (2) 1 AWG–250 kcmil Al
150 A	750 A	1500 A	LAL36150	**4619.00**	LHL36150	**7598.00**	
175 A	875 A	1750 A	LAL36175	**4619.00**	LHL36175	**7598.00**	
200 A	1000 A	2000 A	LAL36200	**4619.00**	LHL36200	**7598.00**	
225 A	1125 A	2250 A	LAL36225	**4619.00**	LHL36225	**7598.00**	
250 A	1250 A	2500 A	LAL36250	**4619.00**	LHL36250	**7598.00**	
300 A	1500 A	3000 A	LAL36300	**4619.00**	LHL36300	**7598.00**	
350 A	1750 A	3500 A	LAL36350	**4619.00**	LHL36350	**7598.00**	
400 A	2000 A	4000 A	LAL36400	**4619.00**	LHL36400	**7598.00**	

LIL36600
2P and 3P 300–600 A

Table 7.130: L-Frame—600 A, Extra-High Interrupting and Current-Limiting Circuit Breakers, 600 Vac■

Ampere Rating	Adjustable AC Magnetic Trip		Extra-High Interrupting		Current Limiting		Terminal Wire Range
	Low	High	Cat. No.	$ Price	Cat. No.	$ Price	
2P, 600 Vac							
300 A	1500 A	3200 A	LCL26300	**7479.00**	LIL26300	**8604.00**	AL600LI5 (2) 4/0 AWG–500 kcmil Al
350 A	1750 A	3200 A	LCL26350	**7479.00**	LIL26350	**8604.00**	
400 A	2000 A	3200 A	LCL26400	**7479.00**	LIL26400	**8604.00**	
450 A	2250 A	4200 A	LCL26450	**7823.00**	LIL26450	**12551.00**	
500 A	2500 A	4200 A	LCL26500	**7823.00**	LIL26500	**12551.00**	
600 A	3000 A	4200 A	LCL26600	**7823.00**	LIL26600	**12551.00**	
3P, 600 Vac							
300 A	1500 A	3200 A	LCL36300	**8312.00**	LIL36300	**9563.00**	AL600LI5 (2) 4/0 AWG–500 kcmil Al
350 A	1750 A	3200 A	LCL36350	**8312.00**	LIL36350	**9563.00**	
400 A	2000 A	3200 A	LCL36400	**8312.00**	LIL36400	**9563.00**	
450 A	2250 A	4200 A	LCL36450	**8691.00**	LIL36450	**13949.00**	
500 A	2500 A	4200 A	LCL36500	**8691.00**	LIL36500	**13949.00**	
600 A	3000 A	4200 A	LCL36600	**8691.00**	LIL36600	**13949.00**	

■ Type LC, LI, LX, LXI, and LE circuit breakers are NOT recommended for use on single motor branch circuits.

NOTE: *For LA Mission Critical circuit breakers, see Table 7.77.*

AL400LA

AL600LI5

Table 7.131: Mechanical Lug Kit Information

Circuit Breaker Application				(Number of Wires Per Lug) Wire Range	Cat. No.	Lugs Per Kit	$ Price Per Kit
Standard	Ampere Rating	Optional	Ampere Rating				
LA, LH	125–400 A	—	—	(1) 1 AWG–600 kcmil Al or Cu or (2) 1 AWG–250 kcmil Al or Cu	AL400LA	1	**35.70**
—	—	LA, LH	125–400 A	(1) 350–750 kcmil Al or Cu	AL400LH7	1	**47.10**
LE, LX, LXI	100–250 A	LC, LI, LE, LX, LXI	—	(2) 1 AWG–350 kcmil Al or Cu	AL600LI35	1	**53.00**
LI, LE, LX, LXI, LC	300–600 A	LE, LX, LXI	100–250 A	(2) 4/0 AWG–500 kcmil Al or Cu	AL600LI5	1	**47.10**
—	—	LI, LE, LX, LXI, LC	—	(1) 500–750 kcmil Al or Cu	AL600LI7	1	**53.00**
—	—	LA, LH	125–400 A	(1) 1 AWG–600 kcmil Cu or (2) 1 AWG–250 kcmil Cu	CU400LA	1	**70.00**
—	—	LI, LE, LX, LXI, LC	—	(2) 1 AWG–350 kcmil Cu	CU600LI35	1	**230.00**
—	—	LI, LE, LX, LXI, LC	—	(2) 4/0 AWG–500 kcmil Cu	CU600LI5	1	**230.00**
—	—	LI, LE, LX, LXI, LC	—	(1) 500–750 kcmil Cu	CU600LI7	1	**230.00**

AL400LH7

NOTE: *Consider using PowerPact® circuit breakers for situations requiring circuit breaker accessories.*

Table 7.132: Interrupting Table

	LAL	LHL	LCL	LIL
240 Vac	42 kA	65 kA	100 kA	200 kA
480 Vac	30 kA	35 kA	65 kA	200 kA
600 Vac	22 kA	25 kA	35 kA	100 kA

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L-Frame Electronic Trip Circuit Breakers

Micrologic® Series B Trip System

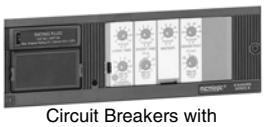
Standard-Function Features:

- 80% rated
- True RMS sensing
- Interchangeable rating plugs
- LSI, LS(I)G, trip configurations
- Short-time delay = I^2t IN and ground-fault delay = I^2t OUT
- Integral ground-fault testing
- LED long-time pickup indication
- Thermal & magnetic backup protection
- Long-time & ground-fault memory
- Optional local trip indicators—overload, short circuit, ground-fault
- Optional local ammeter/trip indicator
- Universal test set available
- Optional I-Line® mounting (LX, LXI)
- Optional neutral current transformer for 4-wire systems

Full-Function Features:

- 100% rated (600 sensor LE/LEL) circuit breakers are 80% rated)
- True RMS sensing
- Interchangeable rating plugs
- PowerLogic® compatible
- LI, LIG, LS(I), LS(I)G (instantaneous OFF) configurations
- Short-time delay = I^2t IN & I^2t OUT and ground-fault delay = I^2t IN & I^2t OUT
- Short-time withstand rating
- Integral ground-fault testing
- Optional ground-fault alarm (no trip) (Requires CIM3F with PowerLogic or see Bulletin 0502DB0001.)
- LED long-time pickup indication
- Zone-selective interlocking (short-time & ground-fault)
- Long-time & ground-fault memory
- Local Trip Indicators—overload, short circuit, ground-fault
- Local ammeter/trip indicator
- Universal test set available
- Optional I-Line® mounting (LE)
- Optional neutral current transformer for 4-wire systems

Table 7.133: L-Frame—600 A, Micrologic Series B Trip System 3P, 600 V♦

	Sensor Size	Ampere Rating	Trip Function	Standard Function Cat. No.	Standard Function $ Price	Standard Function Current Limiting Cat. No.	Standard Function Current Limiting $ Price	100% Rated Full Function■ Cat. No.	100% Rated Full Function■ $ Price	Installed Rating Plug	Terminal Wire Range
 Circuit Breakers with Micrologic Standard-Function Trip Systems (LXL, LXIL)	250	100	LI	—	—	—	—	LEL36100LI	**7692.00**	ARP040	AL600LI35 (2) 1 AWG–350 kcmil Al
			LSI	LXL36100	**5616.00**	LXIL36100	**11262.00**	LEL36100LS	**13035.00**		
			LIG	—	—	—	—	LEL36100LIG	**9768.00**		
			LSIG	LXL36100G	**7692.00**	LXIL36100G	**13338.00**	LEL36100LSG	**15111.00**		
		125	LI	—	—	—	—	LEL36125LI	**7692.00**	ARP050	
			LSI	LXL36125	**5616.00**	LXIL36125	**11262.00**	LEL36125LS	**13035.00**		
			LIG	—	—	—	—	LEL36125LIG	**9768.00**		
			LSIG	LXL36125G	**7692.00**	LXIL36125G	**13338.00**	LEL36125LSG	**15111.00**		
		150	LI	—	—	—	—	LEL36150LI	**7692.00**	ARP060	
			LSI	LXL36150	**5616.00**	LXIL36150	**11262.00**	LEL36150LS	**13035.00**		
			LIG	—	—	—	—	LEL36150LIG	**9768.00**		
			LSIG	LXL36150G	**7692.00**	LXIL36150G	**13338.00**	LEL36150LSG	**15111.00**		
		175	LI	—	—	—	—	LEL36175LI	**7692.00**	ARP070	
			LSI	LXL36175	**5616.00**	LXIL36175	**11262.00**	LEL36175LS	**13035.00**		
			LIG	—	—	—	—	LEL36175LIG	**9768.00**		
			LSIG	LXL36175G	**7692.00**	LXIL36175G	**13338.00**	LEL36175LSG	**15111.00**		
		200	LI	—	—	—	—	LEL36200LI	**7692.00**	ARP080	
			LSI	LXL36200	**5616.00**	LXIL36200	**11262.00**	LEL36200LS	**13035.00**		
			LIG	—	—	—	—	LEL36200LIG	**9768.00**		
			LSIG	LXL36200G	**7692.00**	LXIL36200G	**13338.00**	LEL36200LSG	**15111.00**		
		225	LI	—	—	—	—	LEL36225LI	**7692.00**	ARP090	
			LSI	LXL36225	**5616.00**	LXIL36225	**11262.00**	LEL36225LS	**13035.00**		
			LIG	—	—	—	—	LEL36225LIG	**9768.00**		
			LSIG	LXL36225G	**7692.00**	LXIL36225G	**13338.00**	LEL36225LSG	**15111.00**		
		250	LI	—	—	—	—	LEL36250LI	**7692.00**	ARP100	
			LSI	LXL36250	**5616.00**	LXIL36250	**11262.00**	LEL36250LS	**13035.00**		
			LIG	—	—	—	—	LEL36250LIG	**9768.00**		
			LSIG	LXL36250G	**7692.00**	LXIL36250G	**13338.00**	LEL36250LSG	**15111.00**		
 Circuit Breakers with Micrologic Full-Function Trip Systems (LEL)	400	300	LI	—	—	—	—	LEL36300LI	**10691.00**	ARP075	AL600LI5 (2) 4/0 AWG– 500 kcmil Al
			LSI	LXL36300	**8618.00**	LXIL36300	**16400.00**	LEL36300LS	**16034.00**		
			LIG	—	—	—	—	LEL36300LIG	**12767.00**		
			LSIG	LXL36300G	**10694.00**	LXIL36300G	**18476.00**	LEL36300LSG	**18110.00**		
		350	LI	—	—	—	—	LEL36350LI	**10691.00**	ARP088	
			LSI	LXL36350	**8618.00**	LXIL36350	**16400.00**	LEL36350LS	**16034.00**		
			LIG	—	—	—	—	LEL36350LIG	**12767.00**		
			LSIG	LXL36350G	**10694.00**	LXIL36350G	**18476.00**	LEL36350LSG	**18110.00**		
		400	LI	—	—	—	—	LEL36400LI	**10691.00**	ARP100	
			LSI	LXL36400	**8618.00**	LXIL36400	**16400.00**	LEL36400LS	**16034.00**		
			LIG	—	—	—	—	LEL36400LIG	**12767.00**		
			LSIG	LXL36400G	**10694.00**	LXIL36400G	**18476.00**	LEL36400LSG	**18110.00**		
	600 ▲	450	LI	—	—	—	—	LEL36450LI	**14688.00**	ARP075	
			LSI	LXL36450	**12611.00**	LXIL36450	**23250.00**	LEL36450LS	**20031.00**		
			LIG	—	—	—	—	LEL36450LIG	**16764.00**		
			LSIG	LXL36450G	**14687.00**	LXIL36450G	**25326.00**	LEL36450LSG	**22107.00**		
		500	LI	—	—	—	—	LEL36500LI	**14688.00**	ARP083	
			LSI	LXL36500	**12611.00**	LXIL36500	**23250.00**	LEL36500LS	**20031.00**		
			LIG	—	—	—	—	LEL36500LIG	**16764.00**		
			LSIG	LXL36500G	**14687.00**	LXIL36500G	**25326.00**	LEL36500LSG	**22107.00**		
		600	LI	—	—	—	—	LEL36600LI	**14688.00**	ARP100	
			LSI	LXL36600	**12611.00**	LXIL36600	**23250.00**	LEL36600LS	**20031.00**		
			LIG	—	—	—	—	LEL36600LIG	**16764.00**		
			LSIG	LXL36600G	**14687.00**	LXIL36600G	**25326.00**	LEL36600LSG	**22107.00**		

▲ 600 A sensor is 80% rated

■ Substitute (A) in place of (G) for ground-fault alarm (pickup indication only). Requires CIM3F and Powerlogic, or see Data Bulletin **0502DB0001**. No instantaneous OFF position for LI or LIG trip function type circuit breakers.

♦ Type LC, LI, LX, LXI, and LE circuit breakers are NOT recommended for use on single motor branch circuits.

Table 7.134: Interrupting Ratings

	LXL	LEL	LXIL
240 V	100 kA	100 kA	200 kA
480 V	65 kA	65 kA	200 kA
600 V	35 kA	35 kA	100 kA

NOTE: *Consider using PowerPact® circuit breakers for situations requiring circuit breaker accessories.*

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Combination Local Current Meter and Trip Indicator

Electronic Trip Unit with Seals Installed to Restrict Access

Universal Test Set

Table 7.135: Neutral Current Transformers

Cat. No.	$ Price	Sensor	Where Used
LE25CT2	**588.00**	250	LXL, LEL, LXIL
LE4CT2	**588.00**	400	LXL, LEL, LXIL
LE6CT2	**588.00**	600	LXL, LEL, LXIL

Table 7.136: Electronic Trip Indicator and Current Meter Field-installable Kits

Device	Cat. No.	Included With Circuit Breaker	Optional	$ Price
Local Trip Indicator Kit	ALTI	—	LXL, LXIL	**1461.00**
Local Current Meter Kit/Trip Indicator	ALAM	LEL	LXL, LXIL	**2286.00**

Complying with NEC®

The National Electrical Code, Section 240-6(c) exception allows conductor ampere ratings equal to the selected long-time pick-up setting. The seals below can be used to restrict access to the trip unit once settings are selected.

Table 7.137: Trip Unit Seals

Description	Cat. No.	Package Quantity	$ Price
Trip Unit Seal, Series B	TUSEAL	100	**102.00**
Non-lead Trip Unit Seal (for Micrologic Trip Unit, Vigirex, etc.)	MICROTUSEAL▲	6	**60.00**

▲ Discount schedule DE2F

Table 7.138: Interchangeable Rating Plug Kits for all Circuit Breakers with Micrologic Series B Trip System

Cat. No.	Sensor Multiplier Value	$ Price
ARP040	0.400	**297.00**
ARP050	0.500	**297.00**
ARP056	0.563	**297.00**
ARP058	0.583	**297.00**
ARP060	0.600	**297.00**
ARP063	0.625	**297.00**
ARP067	0.667	**297.00**
ARP070	0.700	**297.00**
ARP075	0.750	**297.00**
ARP080	0.800	**297.00**
ARP083	0.833	**297.00**
ARP088	0.875	**297.00**
ARP090	0.900	**297.00**
ARP100	1.000	**297.00**

Table 7.139: Test Equipment for Circuit Breakers with Micrologic Series B Trip Systems ■

Description	Cat. No.	$ Price
Universal Test Set (includes test module for Full-function and Standard-function LEL, LXL, LXIL)	UTS3	**14022.00**
Test Module for Full-function and Standard-function LEL, LXL, LXIL. (For use with existing CBTU1 or UTS3 test set.)	CBTMB	**2349.00**
Replacement ribbon cable and rating plug adapter for CBTMB	CBTMBRK	**627.00**
Long-time and ground-fault Memory Reset Module (Series B Electronics)	MTMB	**381.00**

■ See the Supplemental Digest for more information.

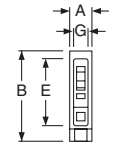


Figure 1

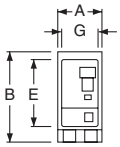
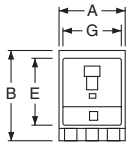


Figure 2



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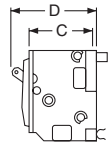
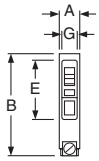


QO, QOB



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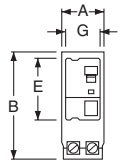
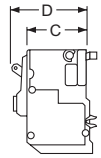


Figure 5



QO-GFI, QO-PL
QO-EPD

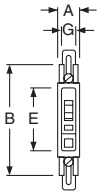


Figure 6

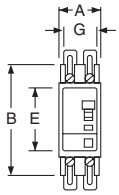
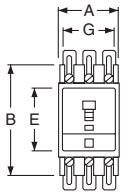


Figure 7



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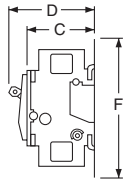


QOU, QYU
Low Ampere

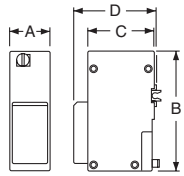
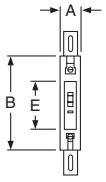


Figure 9
QO-PLPS



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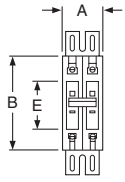

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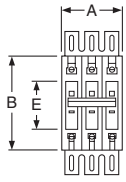

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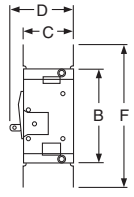
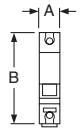


QOU
High Ampere



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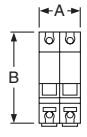


Figure 14

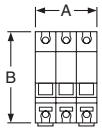
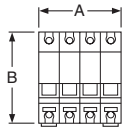


Figure 15



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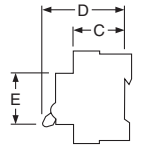
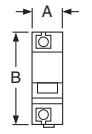


C60



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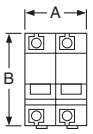

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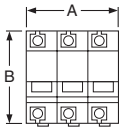

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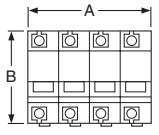
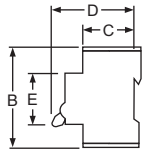
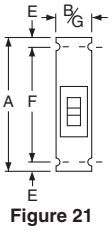


Figure 20



C120



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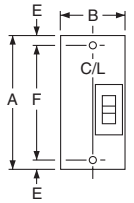

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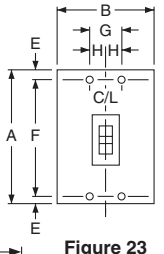
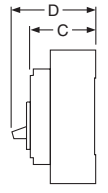


Figure 23



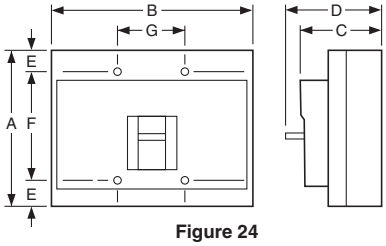


Figure 24

Table 7.140: QO®, QOU, Multi 9™ Circuit Breakers

Circuit Breaker Cat. No. Prefix	Poles	Fig. No.	Dimensions—Inches						
			A	B	C	D	E	F	G
QO, QOB	1	1	0.75	3.00▲	2.31	2.91	2.25	—	0.59
	2	2	1.50	3.00▲	2.31	2.91	2.25	—	1.34
	3	3	2.25	3.00▲	2.31	2.91	2.25	—	2.09
QOB-VH 150 A QOB-VH 110–150 A	2	2	3.0	5.72	2.53	4.90	3.78	—	2.85
	3	3	4.50	5.72	2.53	4.90	3.78	—	4.35
QO-PL QO-GFI QO-EPD	1	4	0.75	4.12■	2.31	2.91	2.25	—	0.59
	2	5	1.50	4.12■	2.31	2.91	2.25	—	1.34
	3	5	2.25	4.12■	2.31	2.91	2.25	—	2.09
QOU QYU Low Ampere	1	6	0.75	4.05♦	2.38	2.98	2.25	5.00★	0.62
	2	7	1.50	4.05♦	2.38	2.98	2.25	5.00★	1.37
	3	8	2.25	4.05★	2.38	2.98	2.25	5.00△	2.12
QOU High Ampere	1	10	0.75	4.45	2.37	2.96	2.25	6.78	—
	2	11	1.50	4.45	2.37	2.96	2.25	6.78	—
	3	12	2.25	4.45	2.37	2.96	2.25	6.78	—
Multi 9™ C60N	1	13	0.71	3.19	1.73	2.76	1.77	—	—
	2	14	1.42	3.19	1.73	2.76	1.77	—	—
	3	15	2.13	3.19	1.73	2.76	1.77	—	—
	4	16	2.84	3.19	1.73	2.76	1.77	—	—
QO-PLPS Power Supply	2	9	1.45	4.35	2.42	3.11	—	—	—

▲ 35–70 A is 3.12 in; 80–100 A 2P and 70–100 A 3P are 3.50 in.
■ QO-PL is 4.55 in.
♦ 80–100 A 1P and 80–125 A 2P are 4.45 in
★ 80–100 A 1P and 80–125 A 2P are 6.78 in.
▼ 70–100 A 4.45 in.
△ 70–100 A is 6.78 in.

Table 7.141: QB, QD, QG, QJ, Q4, FA, FI, KA, KC, KI, LA, LC, LI, LE, LX, LXI, MA Circuit Breakers

Circuit Breaker Cat. No. Prefix	Poles	Fig. No.	Dimensions—Inches							
			A	B	C	D	E	F	G	H
QB, QD, QG, QJ	2	22	6.47	3.00	3.02	3.93	□	4.25	—	—
	3	23	6.47	4.50	3.02	3.93	□	4.25	1.50	0.75
FAL, FHL	1	21	6.00	1.50	3.16	4.13	0.44	5.13	1.50	—
	2	22	6.00	3.00	3.16	4.13	0.44	5.13	—	—
	3	23	6.00	4.50	3.16	4.13	0.44	5.13	1.50	0.75
FIL, KAL, KCL, KHL, KIL	2 & 3	23	8.00	4.50	3.66	4.75	0.44	7.13	1.50	0.75
Q4L, LAL, LHL	2 & 3	23	11.00	6.00	4.06	5.84	0.88	9.25	2.00	1.00
LIL, LEL, LXL, LXIL, LCL	2 & 3	24	11.86	7.50	5.48	6.74	0.55	10.75	2.50	
MAL, MHL	2 & 3	23	14.00	9.00	4.53	6.50	1.66	10.69	3.00	1.50

□ Dimensions E are 1.59 in at ON end and 0.63 in at OFF end.

Table 7.142: Shipping Weights◊

Frame Size	Approx. Shipping Weight (Lbs.)	Frame Size	Approx. Shipping Weight (Lbs.)
FAL, FHL 1P	2	KIL	9
FAL, FHL 2P	3	LAL, LHL	15
FAL, FHL 3P	5	LEL, LIL, LXL, LXIL, LCL	25
FIL	8	Q4L	15
QB, QD, QG, QJ	4	MAL, MHL	34
KAL, KHL	7		

◊ All weights are for 3P circuit breakers unless otherwise noted.

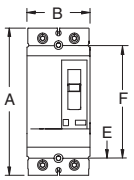


Figure 25

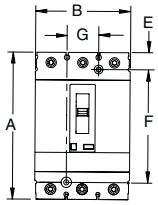
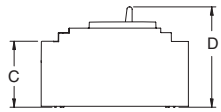
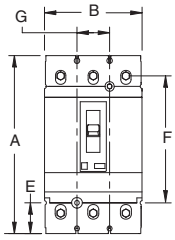


Figure 26





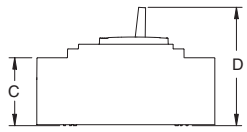


Figure 27

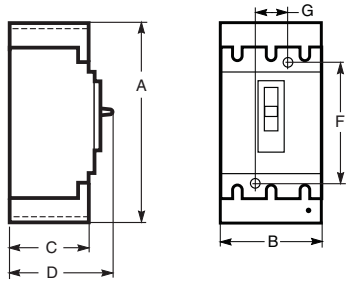


Figure 28

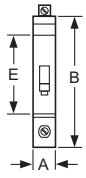


Figure 29

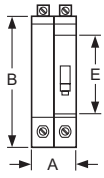


Figure 30

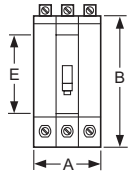
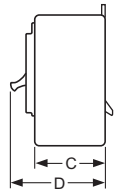
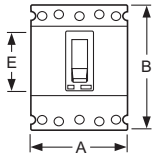


Figure 31





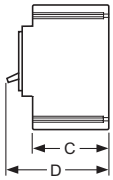


Figure 32

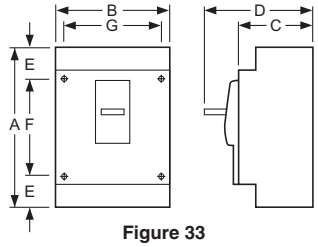


Figure 33

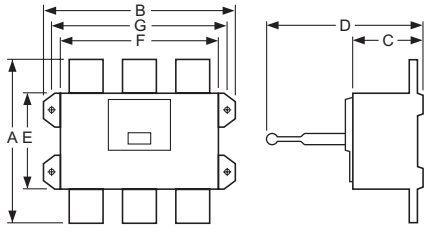


Figure 34

Table 7.143: HD, HG, HJ, HL, JD, JG, JJ, JL, DG, DJ, and DL Circuit Breakers

Circuit Breaker Cat. No. Prefix	No. of Poles	Fig. No.	Dimensions — Inches						
			A	B	C	D	E	F	G
HD, HG, HJ, HL	2	25	6.40	2.74	2.87	4.36	0.74	4.92	—
	3	26	6.40	4.12	2.87	4.36	0.74	4.92	1.38
JD, JG, JJ, JL	3	27	7.52	4.12	2.87	5.00	1.30	4.92	1.38
DG, DJ, DL	3	28	13.38	5.51	3.75	6.61	2.22	8.93	1.77

Table 7.144: ED, EG, EG and GJL Circuit Breakers

Circuit Breaker Cat. No. Prefix	No. of Poles	Fig. No.	Dimensions — Inches				
			A	B	C	D	E
ED, EG, EJ	1	29	0.98	5.66	3.09	4.05	3.32
ED, EG, EJ	2	30	1.96	5.66	3.09	4.05	3.32
ED, EG, EJ	3	31	2.94	5.66	3.09	4.05	3.32
GJ	3	32	3.54	4.72	2.76	3.94	2.20

Table 7.145: MG, MJ, PG, PJ, PL, RG, RJ and RL Circuit Breakers

Circuit Breaker Cat. No. Prefix	No. of Poles	Fig. No.	Dimensions — Inches						
			A	B	C	D	E	F	G
MG, MJ (800 A and below)	2, 3	33	12.86	8.27	5.77	8.05	2.49	7.87	7.83
PG, PJ, PK, PL (1000–1200 A)	2, 3	33	16.16	8.27	5.77	8.05	4.19	7.87	7.83
RG, RJ, RL	2, 3	34	16.24	16.54	6.63	14.49	8.73	14.25	15.35

Table 7.146: Shipping Weights▲

Frame Size	Approx. Shipping Weight (Lbs.)	Frame Size	Approx. Shipping Weight (Lbs.)
HD, HG, HJ, HL 2P	4	DG, DJ, DL	14
HD, HG, HJ, HL 3P	5	GJ	3
JD, JG, JJ, JL	5	MG, MJ	34
ED, EG, EJ 1P	2	PG, PJ, PL	32
ED, EG, EJ 2P	3	RG, RJ, RL (Without RLTB)	52
ED, EG, EJ 3P	4		

▲ All weights are for 3P circuit breakers unless otherwise noted.

FA100S

FA100RB

FA100DS

- Circuit breaker enclosures are UL Listed, CSA Certified and are suitable for use as service equipment except as footnoted.
- The short circuit rating of an enclosed circuit breaker is equal to the rating of the circuit breaker installed, except as footnoted.
- Circuit breakers are ordered and shipped separately for field installation—see pages 7-49 through 7-52.
- For enclosure accessories and dimensions refer to page 7-58.
- See Supplemental Digest Section 3 for NEMA 7 and 9 enclosures.

Table 7.147: Circuit Breaker Enclosures

Circuit Breaker			Enclosure					
Cat. No. Prefix	Rating	Poles	Cat. No.	$ Price	Cat. No.	$ Price	Cat. No.	$ Price
			NEMA 1 Flush		NEMA 1 Surface		NEMA 3R▲	
FAL, FHL, FCL	15–100 A	1, 2, 3	FA100F	189.00	FA100S	189.00	FA100RB	500.00
QBL, QDL, QGL, QJL	100–200 A	2	—	—	Q22200NS■□	176.00	Q22200NRB■□	380.00
	100–225 A	2, 3	Q23225NF■□	218.00	Q23225NS■□	218.00	Q23225NRB■□	417.00
HDL, HGL, HJL, HLL	15–150 A	2, 3	J250F	285.00	J250S	285.00	J250R	840.00
JDL, JGL, JJL, JLL	150–250 A	2, 3						
New! HDL	15–100 A	3	—	—	HD100S✱⬨✪	285.00	—	—
JDL	150–250 A	3	—	—	JD250S✱✪◑	285.00	—	—
LAL, LHL, Q4L, KAL, KHL	125–400 A	2, 3	LA400F	356.00	LA400S	356.00	LA400R	1655.00
New! LAL	125–400 A	3	—	—	LA400LS✱✪	356.00	—	—
MGL, MJL, PGL, PJL, PKL, PLL	300–800 A	2, 3	—	—	M800S★☆	783.00	M800R★▽	2159.00
PGL, PJL, PKL, PLL◊	250–1200 A	2, 3	—	—	P1200S☆	1260.00	P1200R▽	2790.00
			NEMA 4, 4X, 5, 3, 3R Stainless Steel (Hubs—See page 3-9)		NEMA 12/3R, 12K (Hubs—See page 3-9)			
					With Knockouts (NEMA 12K)		Without Knockouts♦ (NEMA 12/3R, 5)	
FAL, FHL, FCL	15–100 A	1, 2, 3	FA100DS	1431.00	FA100A	351.00	FA100AWK	335.00
HDL, HGL, HJL, HLL	15–150 A	2, 3	J250DS	3405.00	—	—	J250AWK	582.00
JDL, JGL,J JL, JLL	150–250 A	2, 3						
KAL, KIL▼, KCL, KHL	110–250 A	2, 3	IK250DS	5238.00	—	—	IK250AWK	878.00
LAL, LHL, Q4L	125–400 A	2, 3	LA400DS	5673.00	—	—	LA400AWK	903.00
LEL△, LXL, LXIL	100–600 A	3	—	—	—	—	LX600AWK	3728.00
LCL, LIL	300–600 A	2, 3	—	—	—	—	LX600AWK	3728.00
MGL, MJL, PGL, PJL, PKL, PLL	300–800	2, 3	M800DS◒	10125.00	—	—	M800AWK◒	2459.00
PGL, PJL, PKL, PLL◊	600–1200	2, 3	—	—	—	—	P1200AWK◒	5700.00

▲ Enclosures with NRB or RB suffix have provisions for 3/4 in. through 2-1/2 in. bolt-on hubs in top endwall. Enclosures with R suffix have blank endwalls and require field cut opening. For details and hub catalog numbers see page 3-9.
■ Not CSA Certified.
♦ Suitable for rainproof NEMA 3R application by removing drain screw from bottom endwall.
★ When using a CT in the M800S and R enclosure the unit will no longer accommodate a 200% neutral solution.
▼ Short circuit rating is 100 k AIR at 480 Vac maximum.
△ LEL 100% rated circuit breaker except for 600 A sensor.
□ DE2A Discount Schedule.
◊ Accepts MGL or MJL standard rated (80%) breakers. Accepts PGL, PJL or PLL breakers 80% or 100% rated breakers, 800A maximum.
☆ CE certified per IEC60439-1, IP20D, PE type TN-C or TN-S
▽ CE certified per IEC60439-1, IP24D, PE type TN-C or TN-S
◒ CE certified per IEC60439-1, IP56, PE type TN-C or TN-S
✱ Copper wire only.
⬨ Maximum short circuit rating is 25 kAIR, 240 Vac.
◑ Maximum short circuit rating is 18 kAIR, 480 Vac.
✪ Order service ground kit PKOGTA2 if required.

Table 7.148: DC CIrcuit Breaker Enclosures for MA and MH DC-Rated Circuit Breakers

Circuit Breaker♦			NEMA 1 Surface Enclosure◪	
New! Cat. No. Prefix...Suffix	Ampere Rating	Poles	Enclosure Cat. No.	$ Price
MAL, MHL	125–1000 A	2, 3	MA1200S	1355.00

◪ UL Listed Only
♦ Use 500 Vdc or 250 Vdc rated circuit breakers only.

Table 7.149: Enclosures for Walking Beam Manually Operated Mechanical Interlock Circuit Breakers (UL Listed)‡

Circuit Breaker			NEMA 1 Surface†		NEMA 3R †●	
Cat. No. Prefix...Suffix	Ampere Rating	Poles	Enclosure Cat. No.	$ Price	Enclosure Cat. No.	$ Price
FAL...WB, FHL...WB, KAL...WB	15–250 A	2, 3	KA250SWB	1040.00	KA250RWB	1827.00

‡ Catalog number in table is enclosure only. For complete installation, the following must be ordered separately: WB Circuit Breakers (qty. 2, Supplemental Digest), Walking Beam Assembly (Supplemental Digest), Mounting Pan (Supplemental Digest), Neutral (page 7-56) and Service Ground Kit (page 7-58).
† Enclosure has blank top endwall.
● For applications above 200 A requiring a neutral, use copper wire only.

Enclosed Motor-Operated Molded Case Circuit Breakers

For information on Enclosed Motor-Operated Molded Case Circuit Breakers see the Supplemental Digest

Enclosed Molded Case Switches

For information on Enclosed Molded Case Switches see the Supplemental Digest.

Enclosed Walking Beam Mechanical Interlock

NOTE: *Contact local Field Office for catalog number prior to quoting or placing an order.*

Industrial molded case circuit breakers with walking beam mechanical interlocks are available in NEMA 1 and 3R construction as completely enclosed device. Walking beam mechanical interlock is available manually operated or electrically operated using (2) 120 Vac motor operators. Not UL Listed.

Enclosed walking beam mechanically interlocked circuit breaker.

- Specify circuit breaker catalog numbers
- Specify manually or electrically operated (electrically operated factory installed only)
- Specify enclosure type (NEMA 1 or 3R)
- Specify if neutrals are required. (Same price)

Table 7.150: Enclosed Walking Beam Mechanical Interlock

Circuit Breaker Cat. No. Prefix (Standard Thermal-Magnetic Only)	$ Price▲			
	Manually Operated		Electrically Operated	
	NEMA 1	NEMA 3R	NEMA 1	NEMA 3R
FAL—240 V 100 A	—	—	**5783.00**	**3675.00**
FAL—480 V 100 A	—	—	**6311.00**	**6896.00**
FAL—600 V 100 A	—	—	**6879.00**	**7446.00**
FHL—600 V 100 A	—	—	**8691.00**	**9407.00**
KAL—600 V 250 A	—	—	**10961.00**	**11865.00**
LAL—600 V 400 A	**11165.00**	**13700.00**	**19857.00**	**22389.00**
LHL—600 V 400 A	**17067.00**	**19598.00**	**25760.00**	**28289.00**
MAL—600 V 600 A	**17811.00**	**20808.00**	—	—
MAL—600 V 800 A	**22493.00**	**25577.00**	—	—
MAL—600 V 1000 A	**28136.00**	**31133.00**	—	—
MHL—600 V 600 A	**21558.00**	**24548.00**	—	—
MHL—600 V 800 A	**26361.00**	**29283.00**	—	—
MHL—600 V 1000 A	**30842.00**	**33837.00**	—	—

▲ Price includes (2) walking beam 3P circuit breakers, walking beam operator and mounting pan, (2) neutrals (if specified), and (2) motor operators (if specified) factory assembled in specified enclosure.

■ Not available factory assembled. Refer to page 7-56 for merchandise enclosure.

NOTE: *Contact local Field Office for catalog number prior to quoting or placing an order.*

Enclosed Ground-Fault Modules (GFM)

Ground-fault modules (GFM) can be factory installed on FAL, FHL, FCL, KAL and KHL circuit breakers and enclosed in the next larger size NEMA 1 or 3R enclosure, KA and LA respectively, requires G suffix (ground fault shunt trip) circuit breaker. See page 7-48.

Enclosed circuit breaker with ground-fault module

- Specify circuit breaker catalog number: (ex: KAL36225G)
- Specify enclosure type (NEMA 1, 3R)
- Ground-fault modules are available factory installed. See table below for pricing and availability.

Table 7.151: Enclosed Circuit Breaker with Ground Fault Module

Circuit Breaker Prefix	$ Price ♦	
	NEMA 1	NEMA 3R
FAL, 600 V, 15–60 A	**6585.00**	**7091.00**
FAL, 600 V, 70–100 A	**6797.00**	**7307.00**
KAL, 600 V	**8424.00**	**8918.00**
FIL, 480 V	—	—
KCL, KIL, 480 V	—	—

♦ Price includes 3P circuit breaker, GFM, neutral assembly and neutral CT factory assembled in specified enclosure

Enclosed Molded Case Switches

For ordering information on molded case switches see page 7-33. For ordering information on enclosed molded case switches, see Supplemental Digest 175 Section 3.

Table 7.152: Insulated Groundable Neutral Assembly

Circuit Breaker		Neutral Assembly For Use With						Terminal Lug Data—Total Available (Line plus Load) AWG/kcmil
Cat. No. Prefix	Ampere Rating	NEMA 1 & 3R		NEMA 4, 4X, 5, 12 & 12K		NEMA 7 & 9		
		Cat. No.	$ Price	Cat. No.	Price	Cat. No.	$ Price	
FAL, FHL, FCL	100	SN100FA	**72.00**	SN100FA	**72.00**	—	—	(4) 14–1/0 Cu or (4) 12–1/0 Al
FAL, FHL, FIL	100	—	—	—	—	100SNA	**150.00**	FA060X/Y—(1) 14– 6 Cu, plus (1) 14–4 Cu FA100X/Y—(1) 14– 3 Cu, plus (1) 14–4 Cu
HDL,HGL,HJL,HLL	15–100	SN100FA	**72.00**	SN100FA	**72.00**	—	—	(4) 14–1/0 Cu or (4) 12–1/0 Al
HDL,HGL,HJL,HLL	125-150	SN400LA	**251.00**	SN400LA	**251.00**	—	—	(2) 1–600 or (4) 1–250 Al/Cu, plus (2) 4–300 Al/Cu
JDL,JGL,JJL,JLL	150–250	SN400LA	**251.00**	SN400LA	**251.00**	—	—	(2) 1–600 or (4) 1–250 Al/Cu, plus (2) 4–300 Al/Cu
KAL, KHL	225	SN225KA	**201.00**	—	—	—	—	(2) 4–300 Al/Cu, plus (2) 14–1/0 Al/Cu
KAL, KHL, KIL, KCL	225	—	—	SN225KA	**201.00**	—	—	(2) 4–300 Al/Cu, plus (2) 14–1/0 Al/Cu
KAL, KHL	225	—	—	—	—	225SNA	**198.00**	(4) 6–300 Cu
KAL, KHL, KIL, KCL	250	—	—	SN400LA	**251.00**	—	—	(2) 1–600 or (4) 1–250 Al/Cu, plus (2) 4–300 Al/Cu
FAL...WB, FHL...WB, and KAL...WB	200	Requires (2) SN20A plus (1) SN20NI link	**(2) @$200.00 ea plus (1) @$27.60 ea**	—	—	—	—	(4) 6–250 Al/Cu, plus (2) 14–1/0 Al/Cu
KAL...WB	225, 250	requires (1) SN400LA▲	**251.00**	—	—	—	—	(2) 1–600 or (4) 1–250 Al/Cu, plus (2) 4–300 Al/Cu
LAL, LHL, Q4L LAL, LHL, Q4L, LCL, LIL	400	400SN	**248.00**	—	—	—	—	(2) 1–600 or (4) 1–250 Al/Cu, plus (2) 4–300 Al/Cu
LXL, LXIL	400	—	—	SN400LA	**251.00**	—	—	(2) 1–600 or (4) 1–250 Al/Cu, plus (2) 4–300 Al/Cu
LCL, LIL, LXL ■, LXIL ■	400	—	—	SNC400LX♦	**1152.00**	—	—	(2) 2–600 Cu, plus (2) 6–250 Cu
LCL, LXL LIL, LXIL, LEL	600	—	—	SNC800LX♦	**1506.00**	—	—	(4) 2–600 Cu, plus (1) 2–4/0 Cu
MAL, MHL, MXL■ MAL, MHL, MXL■, MEL■	1000★	AL800SN	**365.00**	—	—	—	—	(6) 3/0–500 Al/Cu, plus (2) 6–250 Al/Cu
LCL, LXL■, LIL, LXIL■, LEL■	1000★	—	—	SN1000MA	**365.00**	—	—	(6) 3/0–500 Al/Cu, plus (1) 1–4/0 Al/Cu
MGL, MJL▼	300–800 A	AL800SN	**365.00**	AL800SN	**365.00**	AL800SN	**365.00**	(6) 3/0–500 Al/Cu, plus (2) 6–250 Al/Cu
PGL, PJL, PKL, PLL△	250–1200 A	SN1200	**1034.00**	SN1200	**1034.00**	—	—	(8) 750 Max. Al/Cu, plus (2) 350 Max. Al/Cu

▲ For applications above 200 A requiring a neutral, use copper wire only.

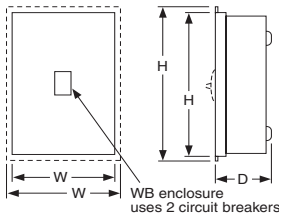
■ When using MXL, MEL, LXL, LEL or LXIL circuit breaker with integral ground fault protection on a 3Ø4W system, neutral assembly SN1000MA or SNC800LX must be used for neutral CT. Order neutral CT separately.

♦ All Cu neutral assembly.

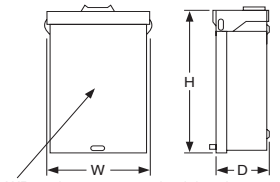
★ Rated maximum 900 A when used with Al wire.

▼ For NEMA 1 and 3R 200% neutral applications order Jumper kit SN800SNI and 2 of kit SN1200. (No 200% neutral is available for NEMA 4X or 12 devices.)

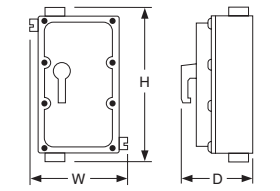
△ For applications with integral ground fault protection order Neutral Mounting Kit S33576MK and Neutral CT S33576 (400–1200 A only).



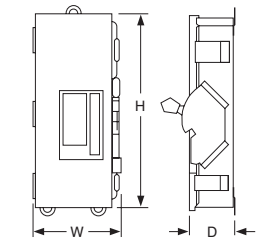
NEMA Type 1
Q2, FA, J, KA...SWB, LA, MA, MG, PG



NEMA Type 3R
Q2, FA, LA, MA, J, MG, PG
KA...RWB (uses side hinge cover)



NEMA Type 7, Type 9
FA, KA



NEMA Type 4, 4X, 5, 12, 12K
IK, FA, J, LA, LX, MA, MG, PG

Table 7.153: Service Ground Kits

Circuit Breaker Cat. No. Prefix	Ground Bar Cat. No.	Number of Terminals	Conductors Per Terminal	Wire Range AWG/kcmil	$ Price	
					Field-Installable	Factory-Installed
QBL, QDL, QGL, QJL FAL, FHL, FCL, FIL, FAL...WB, FHL...WB KAL, KHL, KCL, KIL, KAL...WB LAL, LHL, Q4L	PKOGTA2□	2	1	10–2/0 Cu or 6–2/0 Al	**56.00**	**191.00**
HDL,HGL,HJL,HLL,JDL,JGL,JJL,JLL	PKOGTJ250	2	1	6–300 Al/Cu	**75.00**	**195.00**
MAL, MHL, MXL, MEL LCL, LEL, LIL, LXL, LXIL MGL, MJL PGL, PJL, PKL, PLL	PKOGTA4	4	1	6–250 Al or Cu	**213.00**	**263.00**

□ Quantity (2) may be required for some wire installation.

Table 7.154: Dimensions

Cat. No.	Series	Approximate Dimension					
		H		W		D	
		in.	mm	in.	mm	in.	mm
FA100A, AWK	E2	19.50	495	9.13	232	4.88	124
FA100DS	E2	19.50	495	9.13	232	4.88	124
FA100F	E2	19.50	495	9.88	251	4.13	105
FA100RB	E2	18.00	457	8.88	226	4.88	124
FA100S	E2	18.13	461	8.63	219	4.13	105
IK250AWK	E2	42.25	1073	13.88	353	7.50	191
IK250DS	E2	42.25	1073	13.88	353	7.50	191
HD100S	A1	17.00	431.8	7.90	200.7	4.75	120.7
J250F	A01	32.40	823	15.40	391	6.00	152
J250S	A01	31.36	797	14.36	365	6.00	152
J250R	A01	31.05	789	14.47	368	6.28	160
J250DS	A01	32.26	819	9.72	247	7.94	202
J250AWK	A01	32.26	819	9.72	247	7.94	202
JD250S	A1	26.40	670.6	8.90	226.1	5.50	139.7
KA225A, AWK	E2	25.25	641	9.50	241	5.38	137
KA225DS	E2	25.25	641	9.50	241	5.38	137
KA225F	E2	29.88	759	13.75	349	5.38	137
KA225RB	E2	28.38	721	12.50	318	6.13	156
KA225S	E2	28.50	724	12.38	314	5.38	137
KA250SWB	E2	20.00	508	19.00	483	5.63	143
KA250RWB	E2	20.25	514	19.00	483	7.12	181

Cat. No.	Series	Approximate Dimension					
		H		W		D	
		in.	mm	in.	mm	in.	mm
LA400AWK	E2	42.25	1073	13.75	349	7.25	184
LA400DS	E2	42.25	1073	13.75	349	7.25	184
LA400F	E2	45.63	1159	16.50	419	6.50	165
LA400R	E2	44.00	1118	15.38	391	7.88	200
LA400S	E2	44.50	1130	15.38	391	6.50	165
LA400LS	A1	27.40	696.0	15.40	391.2	6.625	168.3
M800S	A1	40-3/8	1025.52	21	533.4	9-3/4	247.65
M800R	A1	40-3/8	1025.52	21	533.4	9-3/4	247.65
M800DS	A1	40-7/8	1036.96	20-3/4	527.05	9-1/2	241.3
M800AWK	A1	40-7/8	1036.96	20-3/4	527.05	9-1/2	241.3
P1200S	A1	52-1/8	1323.98	21	533.4	9-3/4	247.65
P1200R	A1	52-1/8	1323.98	21	533.4	9-3/4	247.65
P1200AWK	A1	53	1346.20	20-3/4	527.05	9-1/2	241.3
Q22200NRB	E3	23.38	594	7.63	194	4.75	121
Q22200NS	E3	23.13	588	7.63	194	4.25	108
Q23225NF	E3	26.25	667	9.88	251	4.75	121
Q23225NRB	E3	26.25	667	9.88	251	5.50	140
Q23225NS	E3	26.25	667	9.88	251	4.75	121