

Section 7

Miniature and Molded Case Circuit Breakers



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The PowerPact Advantage

- **Proven Performance:** Industry-leading circuit breaker innovation and protection for heavy-duty commercial and industrial applications.
- **Smart:** Integrated metering options provide a cost-effective solution to reduce energy consumption, optimize energy costs, and improve energy availability for your facilities.
- **Flexible:** Full range of thermal-magnetic and electronic trip molded case circuit breakers from 15 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

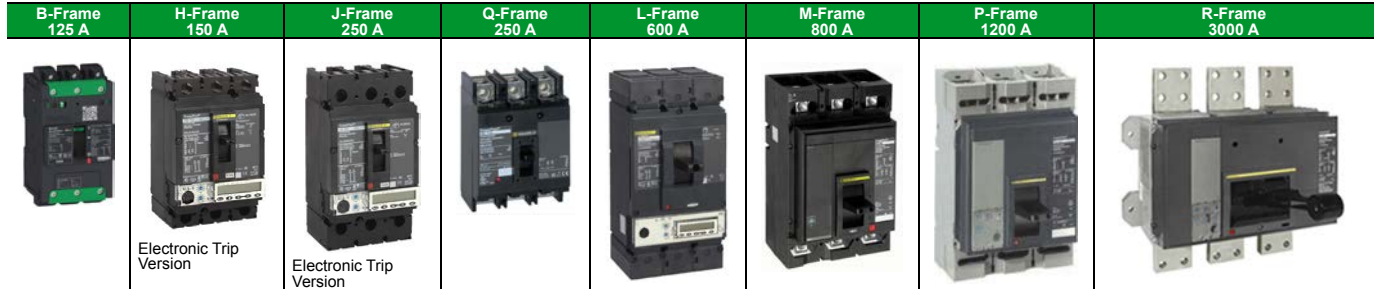


Table 7.45: PowerPact Interrupting Ratings

Voltage	Interrupting Rating						
	B	D	G	J	K	L	R
240 Vac	10 kA	25 kA	65 kA	100 kA	65 kA [1]	125 kA	200 kA
480 Vac	—	18 kA	35 kA	65 kA	65 kA [2]	100 kA	200 kA
600 Vac	—	14 kA	18 kA	25 kA	65 kA [2]	50 kA [3]	100 kA

Table 7.46: Common Catalog Numbering System

Frame	Rating	Termination	Poles	Voltage	Amperage ^[4]			Suffix Code		Suffix Code	
H	G	L	3	6	1	5	0	A	B	S	A
			1=1Pole 2=2Pole 3=3Pole 4=4Pole	4=480 V 6=600 V				2A/2B Auxiliary Switch		110 Vac Shunt Trip	

B	125 A Frame
H	150 A Frame
J	250 A Frame
Q	250 A Frame
L	600 A Frame
M	800 A Frame
P	1200 A Frame
R	3000 A Frame

	240 Vac	480 Vac	600Vac
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	100 kA	65 kA	65 kA
L	125 kA	100 kA	50 kA
R	200 kA	200 kA	100 kA

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 more information:

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- H- and J-Frame Circuit Breakers, page 7-31
- Q-Frame Circuit Breakers, page 7-34
- L-Frame Circuit Breakers, page 7-36
- P-Frame Circuit Breakers, page 7-39
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[1] B-frame K interrupting rating is 100 kA at 240 Vac

[2] P-frame K interrupting is 50 kA at 480 and 600 Vac.

[3] P-frame L interrupting is 25 kA at 600 Vac.

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



B-Frame Thermal-Magnetic Trip Unit



With EverLink Lug Technology

PowerPact B-Frame Molded Case Circuit Breakers (125 A)

PowerPact B-frame circuit breakers provides economical thermal-magnetic circuit protection in a compact size.

- Fixed 15-125 A thermal-magnetic protection up to 600Y/347 Vac and 250 Vdc
- 1- to 4-pole unit mount construction; 1- to 3-pole I-Line construction
- UL listed interrupting ratings from 18 kA to 65 kA at 480 Vac
- EverLink lugs, a cable connection method that helps maintain low resistance connections
- UL, CSA, NOM, IEC, CCC certified and CE marked for global acceptance

Table 7.47: PowerPact B-Frame 125 A Thermal-Magnetic Circuit Breakers (600Y/347 Vac) with EverLink Lugs

Current Rating @ 40° C	Interrupting Rating													
	D				G				J				K	
	1 Pole 347 Vac 125 Vdc	2 Pole 600Y/347 Vac 250 Vdc	3 Pole 600Y/347 Vac 250 Vdc	4 Pole 600Y/347 Vac 250 Vdc	1 Pole 347 Vac 125 Vdc	2 Pole 600Y/347 Vac 250 Vdc	3 Pole 600Y/347 Vac 250 Vdc	4 Pole 600Y/347 Vac 250 Vdc	1 Pole 347 Vac 125 Vdc	2 Pole 600Y/347 Vac 250 Vdc	3 Pole 600Y/347 Vac 250 Vdc	4 Pole 600Y/347 Vac 250 Vdc	1 Pole 347 Vac	2 Pole 600Y/347 Vac
15 A	BDL16015	BDL26015	BDL36015	BDL46015	BGL16015	BGL26015	BGL36015	BGL46015	BJL16015	BJL26015	BJL36015	BJL46015	BKL16015	BKL26015
20 A	BDL16020	BDL26020	BDL36020	BDL46020	BGL16020	BGL26020	BGL36020	BGL46020	BJL16020	BJL26020	BJL36020	BJL46020	BKL16020	BKL26020
25 A	BDL16025	BDL26025	BDL36025	BDL46025	BGL16025	BGL26025	BGL36025	BGL46025	BJL16025	BJL26025	BJL36025	BJL46025	BKL16025	BKL26025
30 A	BDL16030	BDL26030	BDL36030	BDL46030	BGL16030	BGL26030	BGL36030	BGL46030	BJL16030	BJL26030	BJL36030	BJL46030	BKL16030	BKL26030
35 A	BDL16035	BDL26035	BDL36035	BDL46035	BGL16035	BGL26035	BGL36035	BGL46035	BJL16035	BJL26035	BJL36035	BJL46035	---	---
40 A	BDL16040	BDL26040	BDL36040	BDL46040	BGL16040	BGL26040	BGL36040	BGL46040	BJL16040	BJL26040	BJL36040	BJL46040	---	---
45 A	BDL16045	BDL26045	BDL36045	BDL46045	BGL16045	BGL26045	BGL36045	BGL46045	BJL16045	BJL26045	BJL36045	BJL46045	---	---
50 A	BDL16050	BDL26050	BDL36050	BDL46050	BGL16050	BGL26050	BGL36050	BGL46050	BJL16050	BJL26050	BJL36050	BJL46050	---	---
60 A	BDL16060	BDL26060	BDL36060	BDL46060	BGL16060	BGL26060	BGL36060	BGL46060	BJL16060	BJL26060	BJL36060	BJL46060	---	---
70 A	BDL16070	BDL26070	BDL36070	BDL46070	BGL16070	BGL26070	BGL36070	BGL46070	BJL16070	BJL26070	BJL36070	BJL46070	---	---
80 A	BDL16080	BDL26080	BDL36080	BDL46080	BGL16080	BGL26080	BGL36080	BGL46080	BJL16080	BJL26080	BJL36080	BJL46080	---	---
90 A	BDL16090	BDL26090	BDL36090	BDL46090	BGL16090	BGL26090	BGL36090	BGL46090	BJL16090	BJL26090	BJL36090	BJL46090	---	---
100 A	BDL16100	BDL26100	BDL36100	BDL46100	BGL16100	BGL26100	BGL36100	BGL46100	BJL16100	BJL26100	BJL36100	BJL46100	---	---
110 A	BDL16110	BDL26110	BDL36110	BDL46110	BGL16110	BGL26110	BGL36110	BGL46110	BJL16110	BJL26110	BJL36110	BJL46110	---	---
125 A	BDL16125	BDL26125	BDL36125	BDL46125	BGL16125	BGL26125	BGL36125	BGL46125	BJL16125	BJL26125	BJL36125	BJL46125	---	---

Table 7.48: B-Frame Termination Options

Termination Letter	
A = I-Line (See Section 9, Panelboards)	B D L 3 6 1 0 0
F = No Lugs (includes terminal nut kit on both ends)	For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.
L = EverLink Lugs both ends	
M = Lugs ON end Terminal Nut Kit OFF end	
P = Lugs OFF end Terminal Nut Kit ON end	

Table 7.49: B-Frame Interrupting Ratings

Voltage	Interrupting Rating			
	D	G	J	K
240 Vac	25 kA	65 kA	100 kA	100 kA
480Y/277 Vac	18 kA	35 kA	65 kA	65 kA
480 Vac	18 kA	35 kA	65 kA	65 kA
600Y/347 Vac	14 kA	18 kA	25 kA	65 kA
125 Vdc	10 kA	20 kA	50 kA	---
250 Vdc	10 kA	20 kA	50 kA	---

Table 7.50: B-Frame Lug Options

Lug Option Suffix	
No Suffix = EverLink Lugs both ends	B D L 3 6 1 0 0 LU
LU = EverLink Lug with Control Wire Terminal ON end; EverLink Lug OFF end	For factory-installed lug option, place suffix after the amperage in the circuit breaker catalog number.
LV = EverLink Lug ON end; EverLink Lug with Control Wire Terminal OFF end	
LW = EverLink Lug with Control Wire Terminal both ends	
LC = Copper Mechanical Lugs both ends	
LH = Aluminum Mechanical Lugs both ends	

Table 7.51: PowerPact B-Frame 125 A Magnetic Trip Values

Current Rating @ 40° C	Fixed AC Magnetic Trip	
	Hold	Trip
15 A	400 A	600 A
20 A	400 A	600 A
25 A	480 A	720 A
30 A	480 A	720 A
35 A	480 A	720 A
40 A	480 A	720 A
45 A	480 A	720 A
50 A	480 A	720 A
60 A	640 A	960 A
70 A	800 A	1200 A
80 A	800 A	1200 A
90 A	1000 A	1500 A
100 A	1000 A	1500 A
110 A	1000 A	1500 A
125 A	1000 A	1500 A

Accessories see page 7-49
Optional Lugs see page 7-54
Dimensions see page 7-81

PowerPact H- and J-Frame Molded-Case Circuit Breakers (150 A and 250 A)

A flexible, high performance offer certified to global standards.

- Thermal magnetic or Micrologic™ trip protection from 15–250 A up to 600 Vac and 250 Vdc
- 2 and 3-pole unit mount and I-Line constructions^[5]
- High performance UL listed interrupting ratings from 18 to 200 kA at 480 Vac
- H- and J-Frame have common mounting holes, handle locations and trim dimensions with many shared accessories and auxiliaries.
- UL, CSA, NOM, IEC, CCC certified and CE marked for global acceptance.



J-Frame Micrologic™ Trip Unit



J-Frame 3-Pole Thermal-Magnetic Trip Unit

Table 7.52: Lug Kit Wire Ranges

Sensor Rating	Standard Lug Kit	Terminal Wire Range
60–150 A	AL150HD	14–3/0 AWG Al or Cu
250 A	AL250JD	3/0 AWG–350 kcmil Al or Cu

Table 7.53: H- and J-Frame Interrupting Ratings

Voltage	Interrupting Rating				
	D	G	J	L	R
240 Vac	25 kA	65 kA	100 kA	125 kA	200 kA
480 Vac	18 kA	35 kA	65 kA	100 kA	200 kA
600 Vac	14 kA	18 kA	25 kA	50 kA	100 kA
250 Vdc ^[6]	20 kA	20 kA	20 kA	20 kA	—

Table 7.54: H- and J-Frame Termination Options

Termination Letter	
A - I-Line (See Section 9—Panelboards)	H D L 3 6 0 1 5 For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.
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	

Accessories see [page 7-49](#)
 Optional Lugs see [page 7-54](#)
 Dimensions see [page 7-81](#)
 Enclosures see [page 7-82](#)

[5] H- and J- frame circuit breakers can be used as a main or sub-feed circuit breaker in an NQ or NF panelboard.

[6] Not available with electronic trip units.

PowerPact H-Frame Thermal-Magnetic Circuit Breakers

Table 7.55: Powerpact H-Frame 150 A Thermal-Magnetic UL Current-Limiting [7] Circuit Breakers (600 Vac, 250 Vdc) [8] With Factory Sealed Trip Unit Suitable for Reverse Connection [9]

Current Rating @ 40° C	Fixed AC Magnetic Trip		Interrupting Rating							
			D		G		J [8]		L [8]	
	Hold	Trip	Standard (80% Rated)	100% Rated	Standard (80% Rated)	100% Rated	Standard (80% Rated)	100% Rated	Standard (80% Rated)	100% Rated
H-Frame, 150A 2P, 600 Vac 50/60 Hz, 250 Vdc [10]										
15 A	350 A	750 A	HDL26015	HDL26015C	HGL26015	HGL26015C	HJL26015	HJL26015C	HLL26015	HLL26015C
20 A	350 A	750 A	HDL26020	HDL26020C	HGL26020	HGL26020C	HJL26020	HJL26020C	HLL26020	HLL26020C
25 A	350 A	750 A	HDL26025	HDL26025C	HGL26025	HGL26025C	HJL26025	HJL26025C	HLL26025	HLL26025C
30 A	350 A	750 A	HDL26030	HDL26030C	HGL26030	HGL26030C	HJL26030	HJL26030C	HLL26030	HLL26030C
35 A	400 A	850 A	HDL26035	HDL26035C	HGL26035	HGL26035C	HJL26035	HJL26035C	HLL26035	HLL26035C
40 A	400 A	850 A	HDL26040	HDL26040C	HGL26040	HGL26040C	HJL26040	HJL26040C	HLL26040	HLL26040C
45 A	400 A	850 A	HDL26045	HDL26045C	HGL26045	HGL26045C	HJL26045	HJL26045C	HLL26045	HLL26045C
50 A	400 A	850 A	HDL26050	HDL26050C	HGL26050	HGL26050C	HJL26050	HJL26050C	HLL26050	HLL26050C
60 A	800 A	1450 A	HDL26060	HDL26060C	HGL26060	HGL26060C	HJL26060	HJL26060C	HLL26060	HLL26060C
70 A	800 A	1450 A	HDL26070	HDL26070C	HGL26070	HGL26070C	HJL26070	HJL26070C	HLL26070	HLL26070C
80 A	800 A	1450 A	HDL26080	HDL26080C	HGL26080	HGL26080C	HJL26080	HJL26080C	HLL26080	HLL26080C
90 A	800 A	1450 A	HDL26090	HDL26090C	HGL26090	HGL26090C	HJL26090	HJL26090C	HLL26090	HLL26090C
100 A	800 A	1700 A	HDL26100	HDL26100C	HGL26100	HGL26100C	HJL26100	HJL26100C	HLL26100	HLL26100C
110 A	900 A	1700 A	HDL26110	HDL26110C	HGL26110	HGL26110C	HJL26110	HJL26110C	HLL26110	HLL26110C
125 A	900 A	1700 A	HDL26125	HDL26125C	HGL26125	HGL26125C	HJL26125	HJL26125C	HLL26125	HLL26125C
150 A	900 A	1700 A	HDL26150	HDL26150C	HGL26150	HGL26150C	HJL26150	HJL26150C	HLL26150	HLL26150C
H-Frame 150A 3P, 600 Vac 50/60 Hz, 250 Vdc										
15 A	350 A	750 A	HDL36015	HDL36015C	HGL36015	HGL36015C	HJL36015	HJL36015C	HLL36015	HLL36015C
20 A	350 A	750 A	HDL36020	HDL36020C	HGL36020	HGL36020C	HJL36020	HJL36020C	HLL36020	HLL36020C
25 A	350 A	750 A	HDL36025	HDL36025C	HGL36025	HGL36025C	HJL36025	HJL36025C	HLL36025	HLL36025C
30 A	350 A	750 A	HDL36030	HDL36030C	HGL36030	HGL36030C	HJL36030	HJL36030C	HLL36030	HLL36030C
35 A	400 A	850 A	HDL36035	HDL36035C	HGL36035	HGL36035C	HJL36035	HJL36035C	HLL36035	HLL36035C
40 A	400 A	850 A	HDL36040	HDL36040C	HGL36040	HGL36040C	HJL36040	HJL36040C	HLL36040	HLL36040C
45 A	400 A	850 A	HDL36045	HDL36045C	HGL36045	HGL36045C	HJL36045	HJL36045C	HLL36045	HLL36045C
50 A	400 A	850 A	HDL36050	HDL36050C	HGL36050	HGL36050C	HJL36050	HJL36050C	HLL36050	HLL36050C
60 A	800 A	1450 A	HDL36060	HDL36060C	HGL36060	HGL36060C	HJL36060	HJL36060C	HLL36060	HLL36060C
70 A	800 A	1450 A	HDL36070	HDL36070C	HGL36070	HGL36070C	HJL36070	HJL36070C	HLL36070	HLL36070C
80 A	800 A	1450 A	HDL36080	HDL36080C	HGL36080	HGL36080C	HJL36080	HJL36080C	HLL36080	HLL36080C
90 A	800 A	1450 A	HDL36090	HDL36090C	HGL36090	HGL36090C	HJL36090	HJL36090C	HLL36090	HLL36090C
100 A	800 A	1700 A	HDL36100	HDL36100C	HGL36100	HGL36100C	HJL36100	HJL36100C	HLL36100	HLL36100C
110 A	900 A	1700 A	HDL36110	HDL36110C	HGL36110	HGL36110C	HJL36110	HJL36110C	HLL36110	HLL36110C
125 A	900 A	1700 A	HDL36125	HDL36125C	HGL36125	HGL36125C	HJL36125	HJL36125C	HLL36125	HLL36125C
150 A	900 A	1700 A	HDL36150	HDL36150C	HGL36150	HGL36150C	HJL36150	HJL36150C	HLL36150	HLL36150C

HJ and HL are UL certified as current limiting circuit breakers.

PowerPact J-Frame Thermal-Magnetic Circuit Breakers

Table 7.56: J-Frame 250 A Thermal-Magnetic UL Current-Limiting [11] Circuit Breakers (600 Vac, 250 Vdc) With Factory Sealed Trip Unit Suitable for Reverse Connection [9]

Current Rating @ 40° C	Adjustable AC Magnetic Trip		Interrupting Rating									
			D		G		J [11]		L [11]		R [11]	
	Low	High	Standard (80% Rated)	100% Rated	Standard (80% Rated)	100% Rated	Standard (80% Rated)	100% Rated	Standard (80% Rated)	100% Rated	Standard (80% Rated)	100% Rated
J-Frame 250 A 2P, 600 Vac 50/60 Hz, 250 Vdc [12]												
150 A	750 A	1500 A	JDL26150C	JDL26150	JGL26150	JGL26150C	JJL26150	JJL26150C	JLL26150	JLL26150C	—	—
175 A	875 A	1750 A	JDL26175C	JDL26175	JGL26175	JGL26175C	JJL26175	JJL26175C	JLL26175	JLL26175C	—	—
200 A	1000 A	2000 A	JDL26200C	JDL26200	JGL26200	JGL26200C	JJL26200	JJL26200C	JLL26200	JLL26200C	—	—
225 A	1125 A	2250 A	JDL26225C	JDL26225	JGL26225	JGL26225C	JJL26225	JJL26225C	JLL26225	JLL26225C	—	—
250 A	1250 A	2500 A	JDL26250C	JDL26250	JGL26250	JGL26250C	JJL26250	JJL26250C	JLL26250	JLL26250C	—	—
J-Frame 250 A 3P, 600 Vac 50/60 Hz, 250 Vdc												
150 A	750 A	1500 A	JDL36150C	JDL36150	JGL36150	JGL36150C	JJL36150	JJL36150C	JLL36150	JLL36150C	JRL36150	JRL36150C
175 A	875 A	1750 A	JDL36175C	JDL36175	JGL36175	JGL36175C	JJL36175	JJL36175C	JLL36175	JLL36175C	JRL36175	JRL36175C
200 A	1000 A	2000 A	JDL36200C	JDL36200	JGL36200	JGL36200C	JJL36200	JJL36200C	JLL36200	JLL36200C	JRL36200	JRL36200C
225 A	1125 A	2250 A	JDL36225C	JDL36225	JGL36225	JGL36225C	JJL36225	JJL36225C	JLL36225	JLL36225C	JRL36225	JRL36225C
250 A	1250 A	2500 A	JDL36250C	JDL36250	JGL36250	JGL36250C	JJL36250	JJL36250C	JLL36250	JLL36250C	JRL36250	JRL36250C

JJ, JL and JR are UL certified as current limiting circuit breakers.

[7] Circuit breakers with J and L interrupting ratings are UL certified as current limiting.
 [8] Standard lug kit: AL150HD. Terminal wire range: 14–3/0 AWG Al or Cu.
 [9] See Supplemental Digest Section 3 for circuit breakers with field interchangeable trip units.
 [10] HD and HG circuit breakers are true two-pole construction.
 [11] Circuit breakers with J, L, and R interrupting ratings are UL certified as current limiting.
 [12] 2P in a 3P module

PowerPact H- and J-Frame Electronic Trip Current Limiting Circuit Breakers (150 A and 250 A)



Table 7.57: H-Frame 150 A and J-Frame 250 A Electronic Trip UL Current-Limiting [13] Standard (80% Rated) Circuit Breakers (600 Vac) With Factory Sealed Trip Unit [14] Suitable for Reverse Connection [15]

Electronic Trip Unit			Sensor Rating	Interrupting Rating (80% Rated)				
Type	Function	Trip Unit		D	G	J [13]	L [13]	R [13]
600 Vac, 50/60 Hz, 3P								
Micrologic Standard	LI	3.2 [16]	60 A	HDL36060U31X	HGL36060U31X	HJL36060U31X	HLL36060U31X	HRL36060U31X
			100 A	HDL36100U31X	HGL36100U31X	HJL36100U31X	HLL36100U31X	HRL36100U31X
			150 A	HDL36150U31X	HGL36150U31X	HJL36150U31X	HLL36150U31X	HRL36150U31X
			250 A	JDL36250U31X	JGL36250U31X	JJL36250U31X	JLL36250U31X	JRL36250U31X
Micrologic Standard	LSI	3.2S [16] [17]	60 A	HDL36060U33X	HGL36060U33X	HJL36060U33X	HLL36060U33X	HRL36060U33X
			100 A	HDL36100U33X	HGL36100U33X	HJL36100U33X	HLL36100U33X	HRL36100U33X
			150 A	HDL36150U33X	HGL36150U33X	HJL36150U33X	HLL36150U33X	HRL36150U33X
			250 A	JDL36250U33X	JGL36250U33X	JJL36250U33X	JLL36250U33X	JRL36250U33X
Micrologic Ammeter	LSI	5.2A	60 A	HDL36060U43X	HGL36060U43X	HJL36060U43X	HLL36060U43X	HRL36060U43X
			100 A	HDL36100U43X	HGL36100U43X	HJL36100U43X	HLL36100U43X	HRL36100U43X
			150 A	HDL36150U43X	HGL36150U43X	HJL36150U43X	HLL36150U43X	HRL36150U43X
			250 A	JDL36250U43X	JGL36250U43X	JJL36250U43X	JLL36250U43X	JRL36250U43X
Micrologic Energy	LSI	5.2E	60 A	HDL36060U53X	HGL36060U53X	HJL36060U53X	HLL36060U53X	HRL36060U53X
			100 A	HDL36100U53X	HGL36100U53X	HJL36100U53X	HLL36100U53X	HRL36100U53X
			150 A	HDL36150U53X	HGL36150U53X	HJL36150U53X	HLL36150U53X	HRL36150U53X
			250 A	JDL36250U53X	JGL36250U53X	JJL36250U53X	JLL36250U53X	JRL36250U53X
Micrologic Ammeter	LSIG	6.2A [18]	60 A	HDL36060U44X	HGL36060U44X	HJL36060U44X	HLL36060U44X	HRL36060U44X
			100 A	HDL36100U44X	HGL36100U44X	HJL36100U44X	HLL36100U44X	HRL36100U44X
			150 A	HDL36150U44X	HGL36150U44X	HJL36150U44X	HLL36150U44X	HRL36150U44X
			250 A	JDL36250U44X	JGL36250U44X	JJL36250U44X	JLL36250U44X	JRL36250U44X
Micrologic Energy	LSIG	6.2E	60 A	HDL36060U54X	HGL36060U54X	HJL36060U54X	HLL36060U54X	HRL36060U54X
			100 A	HDL36100U54X	HGL36100U54X	HJL36100U54X	HLL36100U54X	HRL36100U54X
			150 A	HDL36150U54X	HGL36150U54X	HJL36150U54X	HLL36150U54X	HRL36150U54X
			250 A	JDL36250U54X	JGL36250U54X	JJL36250U54X	JLL36250U54X	JRL36250U54X

Table 7.58: H-Frame 150 A and J-Frame 250 A Electronic Trip UL Current-Limiting [13] 100% Rated Circuit Breakers (600 Vac) With Factory Sealed Trip Unit [14] Suitable for Reverse Connection [15]

Electronic Trip Unit			Sensor Rating	Interrupting Rating (100% Rated)				
Type	Function	Trip Unit		D	G	J [13]	L [13]	R [13]
600 Vac, 50/60 Hz, 3P [19]								
Micrologic Standard	LI	3.2 [16]	60 A	HDL36060CU31X	HGL36060CU31X	HJL36060CU31X	HLL36060CU31X	HRL36060CU31X
			100 A	HDL36100CU31X	HGL36100CU31X	HJL36100CU31X	HLL36100CU31X	HRL36100CU31X
			150 A	HDL36150CU31X	HGL36150CU31X	HJL36150CU31X	HLL36150CU31X	HRL36150CU31X
			250 A	JDL36250CU31X	JGL36250CU31X	JJL36250CU31X	JLL36250CU31X	JRL36250CU31X
Micrologic Standard	LSI	3.2S [16] [17]	60 A	HDL36060CU33X	HGL36060CU33X	HJL36060CU33X	HLL36060CU33X	HRL36060CU33X
			100 A	HDL36100CU33X	HGL36100CU33X	HJL36100CU33X	HLL36100CU33X	HRL36100CU33X
			150 A	HDL36150CU33X	HGL36150CU33X	HJL36150CU33X	HLL36150CU33X	HRL36150CU33X
			250 A	JDL36250CU33X	JGL36250CU33X	JJL36250CU33X	JLL36250CU33X	JRL36250CU33X
Micrologic Ammeter	LSI	5.2A	60 A	HDL36060CU43X	HGL36060CU43X	HJL36060CU43X	HLL36060CU43X	HRL36060CU43X
			100 A	HDL36100CU43X	HGL36100CU43X	HJL36100CU43X	HLL36100CU43X	HRL36100CU43X
			150 A	HDL36150CU43X	HGL36150CU43X	HJL36150CU43X	HLL36150CU43X	HRL36150CU43X
			250 A	JDL36250CU43X	JGL36250CU43X	JJL36250CU43X	JLL36250CU43X	JRL36250CU43X
Micrologic Energy	LSI	5.2E	60 A	HDL36060CU53X	HGL36060CU53X	HJL36060CU53X	HLL36060CU53X	HRL36060CU53X
			100 A	HDL36100CU53X	HGL36100CU53X	HJL36100CU53X	HLL36100CU53X	HRL36100CU53X
			150 A	HDL36150CU53X	HGL36150CU53X	HJL36150CU53X	HLL36150CU53X	HRL36150CU53X
			250 A	JDL36250CU53X	JGL36250CU53X	JJL36250CU53X	JLL36250CU53X	JRL36250CU53X
Micrologic Ammeter	LSIG	6.2A [18]	60 A	HDL36060CU44X	HGL36060CU44X	HJL36060CU44X	HLL36060CU44X	HRL36060CU44X
			100 A	HDL36100CU44X	HGL36100CU44X	HJL36100CU44X	HLL36100CU44X	HRL36100CU44X
			150 A	HDL36150CU44X	HGL36150CU44X	HJL36150CU44X	HLL36150CU44X	HRL36150CU44X
			250 A	JDL36250CU44X	JGL36250CU44X	JJL36250CU44X	JLL36250CU44X	JRL36250CU44X
Micrologic Energy	LSIG	6.2E	60 A	HDL36060CU54X	HGL36060CU54X	HJL36060CU54X	HLL36060CU54X	HRL36060CU54X
			100 A	HDL36100CU54X	HGL36100CU54X	HJL36100CU54X	HLL36100CU54X	HRL36100CU54X
			150 A	HDL36150CU54X	HGL36150CU54X	HJL36150CU54X	HLL36150CU54X	HRL36150CU54X
			250 A	JDL36250CU54X	JGL36250CU54X	JJL36250CU54X	JLL36250CU54X	JRL36250CU54X

Accessories see page 7-49
Optional Lugs see page 7-54
Dimensions see page 7-81
Enclosures see page 7-82

[13] Circuit breakers with J, L, and R interrupting ratings are UL certified as current limiting.
[14] See Supplemental Digest Section 3 for circuit breakers with field interchangeable trip units.
[15] For applications requiring communications see page 7-62.
[16] 3P circuit breakers with this trip unit can be used for 2P applications.
[17] Fixed ST and LT delays.
[18] 3P circuit breakers with this trip unit can be used for 2P applications requiring ground fault protection. Additional metering capabilities will not work properly on the unconnected phase.
[19] 3-pole PowerPact H- and J-frame circuit breakers can be used for 2-pole applications. (For such instances, Micrologic 6.2 Ammeter and Energy trip units can be used for ground fault protection. Additional metering capabilities are not guaranteed when using Micrologic Ammeter and Energy trip units for this type of application.)

Q-Frame Molded Case Circuit Breakers (250 A)

PowerPact Q-frame circuit breakers are used for overcurrent protection and switching on 240 Vac applications.^[20]

- Fixed thermal magnetic protection from 70–250 A at 240 Vac
- 2- and 3-pole unit mount and I-Line constructions^[21]
- UL listed interruption ratings from 10 kA to 100 kA at 240 Vac
- Available in standard (80%) rating only
- UL 489 Listed, CSA, NOM and IEC certified



2-Pole Q-Frame with Thermal-Magnetic Trip Unit 70–250

3-Pole Q-Frame with Thermal-Magnetic Trip Unit 70–250 A

Table 7.59: PowerPact Q-Frame 250 A Thermal-Magnetic Circuit Breaker (240 Vac)

Ampere Rating	Fixed AC Magnetic Trip		Interrupting Rating				Terminal Wire Range	
	Hold	Trip	B	D	G	J		
2P, 240 Vac								
70 A	1000 A	1800 A	QBL22070	QDL22070	QGL22070	QJL22070	#4 AWG - 300 kcmil Al/Cu	
80 A	1000 A	1800 A	QBL22080	QDL22080	QGL22080	QJL22080		
90 A	1000 A	1800 A	QBL22090	QDL22090	QGL22090	QJL22090		
100 A	1200 A	2400 A	QBL22100	QDL22100	QGL22100	QJL22100		
110 A	1200 A	2400 A	QBL22110	QDL22110	QGL22110	QJL22110		
125 A	1200 A	2400 A	QBL22125	QDL22125	QGL22125	QJL22125		
150 A	1200 A	2400 A	QBL22150	QDL22150	QGL22150	QJL22150		
175 A	1200 A	2400 A	QBL22175	QDL22175	QGL22175	QJL22175		
200 A	1200 A	2400 A	QBL22200	QDL22200	QGL22200	QJL22200		
225 A	1200 A	2400 A	QBL22225	QDL22225	QGL22225	QJL22225		
250 A ^[22]	1200 A	2400 A	QBL22250	QDL22250	QGL22250	QJL22250		
3P, 240 Vac								
70 A	1000 A	1800 A	QBL32070	QDL32070	QGL32070	QJL32070		#4 AWG - 300 kcmil Al/Cu
80 A	1000 A	1800 A	QBL32080	QDL32080	QGL32080	QJL32080		
90 A	1000 A	1800 A	QBL32090	QDL32090	QGL32090	QJL32090		
100 A	1200 A	2400 A	QBL32100	QDL32100	QGL32100	QJL32100		
110 A	1200 A	2400 A	QBL32110	QDL32110	QGL32110	QJL32110		
125 A	1200 A	2400 A	QBL32125	QDL32125	QGL32125	QJL32125		
150 A	1200 A	2400 A	QBL32150	QDL32150	QGL32150	QJL32150		
175 A	1200 A	2400 A	QBL32175	QDL32175	QGL32175	QJL32175		
200 A	1200 A	2400 A	QBL32200	QDL32200	QGL32200	QJL32200		
225 A	1200 A	2400 A	QBL32225	QDL32225	QGL32225	QJL32225		
250 A ^[23]	1200 A	2400 A	QBL32250	QDL32250	QGL32250	QJL32250		

Table 7.60: Q-Frame Interrupting Ratings

Voltage	Interrupting Rating			
	B	D	G	J
240 Vac	10 kA	25 kA	65 kA	100 kA ^[24]

Table 7.61: Q-Frame Termination Options

Termination Letter	
A = I-Line (See Section 9—Panelboards)	Q G L 3 2 2 0 0
E = Bolt-on I-Line (See Section 9)	For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.
F = No lugs	
L = Lugs both ends	
M = Lugs ON end, studs on OFF end	
P = Lugs OFF end, studs on ON end	

Dimension see page 7-81
Enclosures see page 7-82

[20] Replacement lugs and electrical accessories are not available for PowerPact Q-frame circuit breakers.
 [21] Q-frame can be used as main or sub-feed circuit breaker in a NQ panelboard.
 [22] 250 A lugs are suitable for copper conductors only.
 [23] 250 A circuit breakers are suitable for copper conductors only.
 [24] 3P QJ circuit breakers are rated at 208Y/120 Vac only.



Q4L
2P and 3P
250-400 A

Q4-Frame Molded Case Circuit Breaker (400 A)

- Thermal magnetic protection from 250 A up to 400 A at 240 Vac
- 2- and 3-pole unit mount and I-Line constructions
- 25 kA at 240 Vac UL interrupting rating
- UL, CSA and IEC certified

NOTE: Consider using PowerPact™ circuit breakers for situations requiring circuit breaker accessories. See [PowerPact Accessories](#), page 7-49 for more information.

Table 7.62: Q4-Frame, 400 A, Thermal-Magnetic Circuit Breakers, Individually-Mounted, 240 Vac

Ampere Rating	Adjustable AC Magnetic Trip [25]		Standard Interrupting Cat. No.	Terminal Wire Range
	Low	High		
2P, 240 Vac				
250	1250 A	2500 A	Q4L2250	AL400LA (1) 1 AWG-600 kcmil Al or (2) 1 AWG-250 kcmil Al
300	1500 A	3000 A	Q4L2300	
350	1750 A	3500 A	Q4L2350	
400	2000 A	4000 A	Q4L2400	
3P, 240 Vac				
250	1250 A	2500 A	Q4L3250	AL400LA (1) 1 AWG-600 kcmil Al or (2) 1 AWG-250 kcmil Al
300	1500 A	3000 A	Q4L3300	
350	1750 A	3500 A	Q4L3350	
400	2000 A	4000 A	Q4L3400	

Accessories see [PowerPact Accessories](#), page 7-49 through [Plug-In and Drawout Mountings](#), page 7-58

Optional Lugs see [Mechanical Lugs](#), page 7-54

Dimensions see [Dimensions and Shipping Weights](#), page 7-80

Enclosures see [Circuit Breaker Enclosures](#), page 7-82



LAL/LHL
2P and 3P 125-400 A

LAL/LH-Frame Molded Case Circuit Breaker (400 A)

- Thermal magnetic protection from 125-400 A up to 600 Vac and 250 Vdc
- 2- and 3-pole unit mount and I-Line constructions
- UL listed interrupting ratings from 30 kA to 35 kA at 480 Vac
- UL, CSA and IEC certified

NOTE: Consider using PowerPact™ circuit breakers for situations requiring circuit breaker accessories. See [PowerPact Accessories](#), page 7-49 for more information.

Table 7.63: L-Frame, 400 A, Thermal-Magnetic, Individually-Mounted Circuit Breakers, 400 Vac

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

Table 7.64: Interrupting Ratings

Voltage	LAL	LHL
240 Vac	42 kA	65 kA
480 Vac	30 kA	35 kA
600 Vac	22 kA	25 kA

Accessories see [PowerPact Accessories](#), page 7-49 through [Plug-In and Drawout Mountings](#), page 7-58

Optional Lugs see [Mechanical Lugs](#), page 7-54

Dimensions see [Dimensions and Shipping Weights](#), page 7-80

Enclosures see [Circuit Breaker Enclosures](#), page 7-82

[25] UL magnetic trip setting tolerances are ±25% for low and ±20% for high from nominal value shown.

PowerPact L-Frame Molded Case Circuit Breakers (600 A)

A flexible, high performance offer certified to global standards.

- Micrologic trip protection from 250–600 A up to 600 Vac
- 3- and 4-pole design; wide range of trip units to protect most applications
- High performance UL listed interrupting ratings from 18 to 200 kA at 480 Vac
- Standard (80%) or 100% rating
- UL, CSA, NOM, IEC, CCC certified and CE marked for global acceptance



PowerPact L-Frame with Micrologic™ Trip Unit

Table 7.65: L-Frame 600 A Standard (80% Rated) UL Current-Limiting [26] Circuit Breakers with Lugs and Factory-Sealed Electronic Trip Units Suitable for Reverse Connection [27][28]

Electronic Trip Unit			Sensor Rating	Interrupting Rating (80% Rated)					Terminal
Type	Function	Trip Unit		D	G	J [26]	L [26]	R [26]	
600 Vac, 50/60 Hz, 3P									
Micrologic Standard	LI	3.3 [29]	250 A	LDL36250U31X	LGL36250U31X	LJL36250U31X	LLL36250U31X	LRL36250U31X	AL400L61K3 [30]
			400 A	LDL36400U31X	LGL36400U31X	LJL36400U31X	LLL36400U31X	LRL36400U31X	AL600LS52K3
			600 A	LDL36600U31X	LGL36600U31X	LJL36600U31X	LLL36600U31X	LRL36600U31X	
			250 A	LDL36250U33X	LGL36250U33X	LJL36250U33X	LLL36250U33X	LRL36250U33X	AL400L61K3 [32]
Micrologic Standard	LSI	3.3S [29] [31]	400 A	LDL36400U33X	LGL36400U33X	LJL36400U33X	LLL36400U33X	LRL36400U33X	AL600LS52K3
			600 A	LDL36600U33X	LGL36600U33X	LJL36600U33X	LLL36600U33X	LRL36600U33X	
Micrologic Ammeter	LSI	5.3A	400 A	LDL36400U43X	LGL36400U43X	LJL36400U43X	LLL36400U43X	LRL36400U43X	AL600LS52K3
			600 A	LDL36600U43X	LGL36600U43X	LJL36600U43X	LLL36600U43X	LRL36600U43X	
Micrologic Energy	LSI	5.3E	400 A	LDL36400U53X	LGL36400U53X	LJL36400U53X	LLL36400U53X	LRL36400U53X	
			600 A	LDL36600U53X	LGL36600U53X	LJL36600U53X	LLL36600U53X	LRL36600U53X	
Micrologic Ammeter	LSIG	6.3A	400 A	LDL36400U44X	LGL36400U44X	LJL36400U44X	LLL36400U44X	LRL36400U44X	
			600 A	LDL36600U44X	LGL36600U44X	LJL36600U44X	LLL36600U44X	LRL36600U44X	
Micrologic Energy	LSIG	6.3E [33]	400 A	LDL36400U54X	LGL36400U54X	LJL36400U54X	LLL36400U54X	LRL36400U54X	
			600 A	LDL36600U54X	LGL36600U54X	LJL36600U54X	LLL36600U54X	LRL36600U54X	
600 Vac, 50/60 Hz, 4P									
Micrologic Standard	LI	3.3	250 A	LDL46250U31X	LGL46250U31X	LJL46250U31X	LLL46250U31X	LRL46250U31X	AL400L61K4
			400 A	LDL46400U31X	LGL46400U31X	LJL46400U31X	LLL46400U31X	LRL46400U31X	AL600LS52K4
			600 A	LDL46600U31X	LGL46600U31X	LJL46600U31X	LLL46600U31X	LRL46600U31X	
			250 A	LDL46250U33X	LGL46250U33X	LJL46250U33X	LLL46250U33X	LRL46250U33X	AL400L61K4
Micrologic Standard	LSI	3.3S [31]	400 A	LDL46400U33X	LGL46400U33X	LJL46400U33X	LLL46400U33X	LRL46400U33X	AL600LS52K4
			600 A	LDL46600U33X	LGL46600U33X	LJL46600U33X	LLL46600U33X	LRL46600U33X	
Micrologic Ammeter	LSI	5.3A	400 A	LDL46400U43X	LGL46400U43X	LJL46400U43X	LLL46400U43X	LRL46400U43X	AL600LS52K4
			600 A	LDL46600U43X	LGL46600U43X	LJL46600U43X	LLL46600U43X	LRL46600U43X	
Micrologic Energy	LSI	5.3E	400 A	LDL46400U53X	LGL46400U53X	LJL46400U53X	LLL46400U53X	LRL46400U53X	
			600 A	LDL46600U53X	LGL46600U53X	LJL46600U53X	LLL46600U53X	LRL46600U53X	
Micrologic Ammeter	LSIG	6.3A	400 A	LDL46400U44X	LGL46400U44X	LJL46400U44X	LLL46400U44X	LRL46400U44X	
			600 A	LDL46600U44X	LGL46600U44X	LJL46600U44X	LLL46600U44X	LRL46600U44X	
Micrologic Energy	LSIG	6.3E	400 A	LDL46400U54X	LGL46400U54X	LJL46400U54X	LLL46400U54X	LRL46400U54X	
			600 A	LDL46600U54X	LGL46600U54X	LJL46600U54X	LLL46600U54X	LRL46600U54X	

[26] Circuit breakers with J, L, and R interrupting ratings are UL certified as current limiting.
 [27] See Supplemental Digest Section 3 for circuit breakers with field interchangeable trip units.
 [28] For applications requiring communications see page 7-62.
 [29] 3P circuit breakers with this trip unit can be used for 2P applications.
 [30] AL600LS52K3 terminal wire range is (2) 2/0 AWG 500 kcmil Al/Cu
 [31] Fixed ST and LT delays.
 [32] AL400L61K3 terminal wire ranges are (1) 2 AWG–600 kcmil Cu or (1) 2 AWG–500 kcmil Al.
 [33] 3-pole circuit breakers can be used for 2-pole applications. (For such instances, Micrologic 6.2 Ammeter and Energy trip units can be used for ground fault protection. Additional metering capabilities are not guaranteed when using Micrologic Ammeter and Energy trip units for this type of application.)



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PowerPact L-Frame Electronic-Trip Circuit Breakers

PowerPact™ Molded Case Circuit Breakers

Class 611 / Refer to Catalogs: 0611CT1001

Table 7.66: L-Frame 600 A 100% Rated UL Current-Limiting [34] Circuit Breakers with Lugs and Factory-Sealed Electronic Trip Units Suitable for Reverse Connection [35][36]

Electronic Trip Unit			Sensor Rating	Interrupting Rating (100% Rated)					Terminal
Type	Function	Trip Unit		D	G	J [34]	L [34]	R [34]	
600 Vac, 50/60 Hz, 3P									
Micrologic Standard	LI	3.3 [37]	250 A	LDL36250CU31X	LGL36250CU31X	LJL36250CU31X	LLL36250CU31X	LRL36250CU31X	AL400L61K3
			400 A	LDL36400CU31X	LGL36400CU31X	LJL36400CU31X	LLL36400CU31X	LRL36400CU31X	AL600LS52K3
Micrologic Standard	LSI	3.3S [37] [38]	250 A	LDL36250CU33X	LGL36250CU33X	LJL36250CU33X	LLL36250CU33X	LRL36250CU33X	AL400L61K3
			400 A	LDL36400CU33X	LGL36400CU33X	LJL36400CU33X	LLL36400CU33X	LRL36400CU33X	AL600LS52K3
Micrologic Ammeter	LSI	5.3A	400 A	LDL36400CU43X	LGL36400CU43X	LJL36400CU43X	LLL36400CU43X	LRL36400CU43X	AL600LS52K3
Micrologic Energy	LSI	5.3E	400 A	LDL36400CU53X	LGL36400CU53X	LJL36400CU53X	LLL36400CU53X	LRL36400CU53X	
Micrologic Ammeter	LSIG	6.3A	400 A	LDL36400CU44X	LGL36400CU44X	LJL36400CU44X	LLL36400CU44X	LRL36400CU44X	
Micrologic Energy	LSIG	6.3E [39]	400 A	LDL36400CU54X	LGL36400CU54X	LJL36400CU54X	LLL36400CU54X	LRL36400CU54X	
600 Vac, 50/60 Hz, 4P									
Micrologic Standard	LI	3.3	250 A	LDL46250CU31X	LGL46250CU31X	LJL46250CU31X	LLL46250CU31X	LRL46250CU31X	AL400L61K4
			400 A	LDL46400CU31X	LGL46400CU31X	LJL46400CU31X	LLL46400CU31X	LRL46400CU31X	AL600LS52K4
Micrologic Standard	LSI	3.3S	250 A	LDL46250CU33X	LGL46250CU33X	LJL46250CU33X	LLL46250CU33X	LRL46250CU33X	AL400L61K4
			400 A	LDL46400CU33X	LGL46400CU33X	LJL46400CU33X	LLL46400CU33X	LRL46400CU33X	AL600LS52K4
Micrologic Ammeter	LSI	5.3A	400 A	LDL46400CU43X	LGL46400CU43X	LJL46400CU43X	LLL46400CU43X	LRL46400CU43X	AL600LS52K4
Micrologic Energy	LSI	5.3E	400 A	LDL46400CU53X	LGL46400CU53X	LJL46400CU53X	LLL46400CU53X	LRL46400CU53X	
Micrologic Ammeter	LSIG	6.3A	400 A	LDL46400CU44X	LGL46400CU44X	LJL46400CU44X	LLL46400CU44X	LRL46400CU44X	
Micrologic Energy	LSIG	6.3E	400 A	LDL46400CU54X	LGL46400CU54X	LJL46400CU54X	LLL46400CU54X	LRL46400CU54X	

Table 7.67: PowerPact L-Frame Terminal Wire Ranges

Terminal	Wire Range
AL400L61K3	(1) 2 AWG–600 kcmil Cu or 1) 2 AWG–500 kcmil Al.
AL600LS52K3	(2) 2/0 AWG–500 kcmil Al/Cu.

Table 7.68: PowerPact L-Frame Termination Options

Termination Letter	Termination Option
A	I-Line (See Section 9—Panelboards)
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
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.
Termination Letter
L G L 3 6 6 0 0 U 4 4 X

Accessories see page 7-49
Optional Lugs see page 7-54
Dimensions see page 7-81
Enclosures see page 7-82

Table 7.69: Powerpact L-Frame Interrupting Ratings

Voltage	Interrupting Rating				
	D	G	J	L	R
240 Vac	25 kA	65 kA	100 kA	125 kA	200 kA
480 Vac	18 kA	35 kA	65 kA	100 kA	200 kA
600 Vac	14 kA	18 kA	25 kA	50 kA	100 kA

[34] Circuit breakers with J, L, and R interrupting ratings are UL certified as current limiting.
 [35] See Supplemental Digest Section 3 for circuit breakers with field interchangeable trip units.
 [36] For applications requiring communications see page 7-62.
 [37] 3P circuit breakers with this trip unit can be used for 2P applications.
 [38] Fixed ST and LT delays.
 [39] 3-pole circuit breakers can be used for 2-pole applications. (For such instances, Micrologic 6.2 Ammeter and Energy trip units can be used for ground fault protection. Additional metering capabilities are not guaranteed when using Micrologic Ammeter and Energy trip units for this type of application.)



PowerPact M-Frame Circuit Breaker with Basic Electronic Trip Unit

PowerPact M-Frame Molded Case Circuit Breakers (800 A)

PowerPact M-frame circuit breakers use an electronic trip system with the simplicity of a thermal magnetic breaker.

- Basic electronic trip protection from 300 to 800 A up to 600 Vac
- 2- and 3-pole unit mount and I-line construction
- UL listed interrupting ratings from 35 to 65 kA at 480 Vac
- Common mounting holes, handle locations and trim dimensions with shared auxiliaries and accessories with P-frame devices
- Available in standard (80%) rating only
- UL, CSA, NOM, CCC and IEC certified and CE marked for global acceptance

Table 7.70: M-Frame 800 A, Basic Electronic Trip System Type ET 1.0 [40] Factory-Sealed Trip Unit

Electronic Trip Unit		Sensor Rating	Interrupting Rating		Terminal Wire Range (AWG/kcmil)
Type	Function		G	J	
2P, 600 Vac 50/60 Hz					
Basic	Fixed Long-time, Adjustable Instantaneous Trip	300 A	MGL26300	MJL26300	AL800M23K (3) 3/0–500 Al/Cu
		350 A	MGL26350	MJL26350	
		400 A	MGL26400	MJL26400	
		450 A	MGL26450	MJL26450	
		500 A	MGL26500	MJL26500	
		600 A	MGL26600	MJL26600	
		700 A	MGL26700	MJL26700	
3P, 600 Vac 50/60 Hz					
Basic	Fixed Long-time, Adjustable Instantaneous Trip	300 A	MGL36300	MJL36300	AL800M23K (3) 3/0–500 Al/Cu
		350 A	MGL36350	MJL36350	
		400 A	MGL36400	MJL36400	
		450 A	MGL36450	MJL36450	
		500 A	MGL36500	MJL36500	
		600 A	MGL36600	MJL36600	
		700 A	MGL36700	MJL36700	
800 A	MGL36800	MJL36800			

Table 7.71: M-Frame Termination Options

Termination Letter	Termination Option
A	I-Line (See Section 9—Panelboards)
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

M G L 3 6 4 0 0

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

Table 7.72: PowerPact M-Frame Interrupting Ratings

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

Accessories see page 7-49

Optional Lugs see page 7-54

Dimensions see page 7-81

Enclosures see page 7-82

[40] 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.



P-Frame 1200 A Unit-Mount Electrically Operated P-Frame 800 A Unit-Mount

Table 7.73: P-Frame Interrupting Ratings

Voltage	P-Frame Interrupting Rating			
	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	25 kA

Table 7.74: P-Frame Termination Options

Termination Letter
A = I-Line (See Section 9—Panelboards)
D = Drawout
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
P G L 3 6 0 4 0 U 4 1 A
For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

Dimensions see page 7-81

Trip Unit Options see page 7-60

Optional Lugs see page 7-54

Alternate Rating Plugs see page 7-62

Enclosures see page 7-82

Accessories see page 7-49

PowerPact P-Frame Molded Case Circuit Breakers (1200 A)

- Micrologic trip protection from 250 to 1200 A up to 600 Vac
- 2-, 3- and 4-pole unit-mount construction
- UL listed interrupting ratings from 35 kA to 100 kA at 480 Vac
- Same dimensions, common mounting, bussing, cabling and door cut-out as PowerPact M-frame circuit breakers
- Standard (80%) and 100% rating
- UL, CSA, NOM, CCC and IEC certified and CE marked for global acceptance

Table 7.75: P-Frame 1200 A (600 Vac, 50/60 Hz) 3P [41] Circuit Breaker with Electronic Trip Unit

Type	Electronic Trip Unit		Sensor Rating	Cat. No.[42]	Terminal Wire Range
	Function	Trip Unit			
Basic Electronic Trip Unit (Not Interchangeable)	Fixed long-time, Adjustable Instantaneous	E-T1.01	600 A	P■L36060	AL800M23K (3) 3/0 AWG–500 kcmil Al or Cu
			800 A	P■L36080	
			1000 A	P■L36100	AL1200P25K
			1200 A	P■L36120	(4) 3/0 AWG–500 kcmil Al or Cu
Micrologic Interchangeable Standard Trip Unit	LI	3.0	250 A	P■L36025(C)U31A	AL800M23K (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	
			1200 A	P■L36120(C)U31A	
	LSI	5.0	250 A	P■L36025(C)U33A	AL800M23K (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	
			1200 A	P■L36120(C)U33A	
Micrologic Interchangeable Ammeter Trip Unit	LI	3.0A	250 A	P■L36025(C)U41A	AL800M23K (3) 3/0 AWG–500 kcmil Al or 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	
			1200 A	P■L36120(C)U41A	
	LSI	5.0A	250 A	P■L36025(C)U43A	AL800M23K (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	
			1200 A	P■L36120(C)U43A	
LSIG	6.0A	250 A	P■L36025(C)U44A	AL800M23K (3) 3/0 AWG–500 kcmil Al 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		
		1200 A	P■L36120(C)U44A		
	LSI	5.0P	250 A	P■L36025(C)U63AE1	AL800M23K (3) 3/0 AWG–500 kcmil Al 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	
			1200 A	P■L36120(C)U63AE1	
LSIG	6.0P	250 A	P■L36025(C)U64AE1	AL800M23K (3) 3/0 AWG–500 kcmil Al 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		
		1200 A	P■L36120(C)U64AE1		
Micrologic Interchangeable Harmonic Trip Unit	LSI	5.0H	250 A	P■L36025(C)U73AE1	AL800M23K (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	
			1200 A	P■L36120(C)U73AE1	
	LSIG	6.0H	250 A	P■L36025(C)U74AE1	AL800M23K (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	
			1200 A	P■L36120(C)U74AE1	

[41] For 2P and 4P information see Catalog 0612CT0101.

[42] To complete the catalog number:

Replace the ■ with the appropriate interrupting rating (G, J, K or L).

For all L interrupting ratings, change the 5th character (voltage rating) from a 6 (600 V) to a 4 (480V). The 480 V AIR is standard 100 kA.

For 100% rated circuit breakers, add a "C" in the 9th character place. For example, the catalog number for a 100% rated trip unit with LI trip functions at 250 A would be PBL36025CU31A.



R-Frame Unit-Mount

Table 7.76: R-Frame Interrupting Ratings

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

Table 7.77: R-Frame Termination Options

Termination Letter
A = I-Line (See Section 9—Panelboards)
F = No Lugs (Includes terminal nut kit on both ends)
RJ F 3 6 3 0 0 U 4 1 A
For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.
Dimensions see page 7-81
Trip Unit Options see page 7-60
Optional Lugs see page 7-54
Alternate Rating Plugs see page 7-62
Enclosures see page 7-82
Accessories see page 7-49

PowerPact R-Frame Molded Case Circuit Breakers (3000 A)

- Micrologic electronic trip protection from 600–3000A up to 600 Vac
- 2-, 3- and 4-pole construction
- UL listed interrupting ratings from 35 to 100 kA at 480Vac
- Built-in Modbus protocol
- Standard (80%) and 100% rating
- UL, CSA, NOM, CCC and IEC certified and CE marked for global acceptance

Table 7.78: R-Frame 3000 A (600 Vac, 50/60 Hz) 3P Circuit Breaker with Electronic Trip Unit

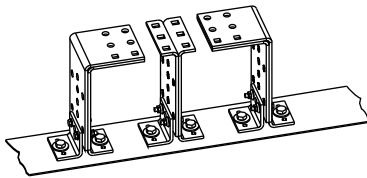
Type	Electronic Trip Unit [43]		Sensor Rating	Cat. No. [44]
	Function	Trip Unit		
Basic Electronic Trip Unit (Not Interchangeable)	Fixed long-time, Adjustable Instantaneous	ET1.0I	1200 A	R■F36120
			1600 A	R■F36160
			2000 A	R■F36200
			2500 A	R■F36250
Micrologic Interchangeable Standard Trip Unit	LI	3.0	600 A	R■F36060(C)U31A
			800 A	R■F36080(C)U31A
			1000 A	R■F36100(C)U31A
			1200 A	R■F36120(C)U31A
			1600 A	R■F36160(C)U31A
			2000 A	R■F36200(C)U31A
			2500 A	R■F36250(C)U31A
			3000 A	R■F36300(C)U31A
	LSI	5.0	600 A	R■F36060(C)U33A
			800 A	R■F36080(C)U33A
			1000 A	R■F36100(C)U33A
			1200 A	R■F36120(C)U33A
			1600 A	R■F36160(C)U33A
			2000 A	R■F36200(C)U33A
			2500 A	R■F36250(C)U33A
			3000 A	R■F36300(C)U33A
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
			1200 A	R■F36120(C)U41A
			1600 A	R■F36160(C)U41A
			2000 A	R■F36200(C)U41A
			2500 A	R■F36250(C)U41A
			3000 A	R■F36300(C)U41A
	LSI	5.0A	600 A	R■F36060(C)U43A
			800 A	R■F36080(C)U43A
			1000 A	R■F36100(C)U43A
			1200 A	R■F36120(C)U43A
			1600 A	R■F36160(C)U43A
			2000 A	R■F36200(C)U43A
			2500 A	R■F36250(C)U43A
			3000 A	R■F36300(C)U43A
LSIG	6.0A	600 A	R■F36060(C)U44A	
		800 A	R■F36080(C)U44A	
		1000 A	R■F36100(C)U44A	
		1200 A	R■F36120(C)U44A	
		1600 A	R■F36160(C)U44A	
		2000 A	R■F36200(C)U44A	
		2500 A	R■F36250(C)U44A	
		3000 A	R■F36300(C)U44A	
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
			1200 A	R■F36120(C)U63AE1
			1600 A	R■F36160(C)U63AE1
			2000 A	R■F36200(C)U63AE1
			2500 A	R■F36250(C)U63AE1
			3000 A	R■F36300(C)U63AE1
	LSIG	6.0P	600 A	R■F36060(C)U64AE1
			800 A	R■F36080(C)U64AE1
			1000 A	R■F36100(C)U64AE1
			1200 A	R■F36120(C)U64AE1
			1600 A	R■F36160(C)U64AE1
			2000 A	R■F36200(C)U64AE1
			2500 A	R■F36250(C)U64AE1
			3000 A	R■F36300(C)U64AE1
Micrologic Interchangeable Harmonic Trip Unit	LSI	5.0H	600 A	R■F36060(C)U73AE1
			800 A	R■F36080(C)U73AE1

[43] For 2P and 4P information see Catalog 0612CT0101.

[44] 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% rated trip unit with LI trip functions at 2500 A would be RGF36025CU31A.

Table 7.78 R-Frame 3000 A (600 Vac, 50/60 Hz) 3P Circuit Breaker with Electronic Trip Unit (cont'd.)

Type	Electronic Trip Unit [45]		Sensor Rating	Cat. No. [46]
	Function	Trip Unit		
			1000 A	R■F36100(C)U73AE1
			1200 A	R■F36120(C)U73AE1
			1600 A	R■F36160(C)U73AE1
			2000 A	R■F36200(C)U73AE1
			2500 A	R■F36250(C)U73AE1
			3000 A	R■F36300(C)U73AE1
	LSIG	6.0H	600 A	R■F36060(C)U74AE1
			800 A	R■F36080(C)U74AE1
			1000 A	R■F36100(C)U74AE1
			1200 A	R■F36120(C)U74AE1
			1600 A	R■F36160(C)U74AE1
			2000 A	R■F36200(C)U74AE1
			2500 A	R■F36250(C)U74AE1
			3000 A	R■F36300(C)U74AE1



RTLB Terminal Pad Kit

Unit-Mount R-Frame Standard Bus Connection

R-frame circuit breakers can be bus- or cable-connected.

- For cable connections, an optional terminal pad kit RLTB or equivalent bus structure is required.
- RLTB kits comes standard with bus bar connections.

RTLTB / RT3B Kits

- RLTB kits are included with 2500 A 100% rated circuit breakers.
- Each kit contains terminal pads for one end of the circuit breaker only
- Has provisions for mounting a maximum of 8 lugs per phase (9 lugs for 3000 A).
- RL3TB kits are included with the 3000 A, 80% and 100% rated circuit breakers.

R-Frame I-Line circuit breakers come with lugs on the load side. (See Panelboards—Section 9).

For other circuit breakers, order terminal pad kit (RLTB) and optional lugs separately. See [Terminal Nuts](#), [Terminal Pads](#), [Terminal Shields and Accessories](#), page 7-57 and [Mechanical Lugs](#), page 7-54.

[45] For 2P and 4P information see Catalog 0612CT0101.

[46] 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% rated trip unit with LI trip functions at 2500 A would be RGF36025CU31A.



PowerPact J-Frame

PowerPact Mission Critical Circuit Breakers

Delivering high levels of selective coordination in a flexible design that can be easily configured for a variety of applications.

- Adjustable long-time settings in three sensor sizes provide coverage from 70-600 A on 120-240, 208Y/120, 240, and 480Y/277 Vac systems
- Undergone rigorous testing procedures to certify the coordination with downstream circuit breakers
- Available in J-Frame (250A) and L-Frame (600A)
- UL 489 listed, CSA Certified Voltage: 480Y/277V

Table 7.79: J-Frame 250 A Electronic Trip Mission Critical 80% Rated Circuit Breakers (480/277 Vac) with Factory Sealed Trip Units Suitable for Reverse Connection

Electronic Trip Unit Type	Trip Function	Trip Unit	Continuous Current	Cat. No.				Terminal
				D Interrupting	G Interrupting	J Interrupting	L Interrupting	
Standard	LI	3.2 W	250 A	JDL34250WU31X	JGL34250WU31X	JJL34250WU31X	JLL34250WU31X	AL250JD [1]
Standard	LSI	3.2S-W	250 A	JDL34250WU33X	JGL34250WU33X	JJL34250WU33X	JLL34250WU33X	AL250JD [1]
High Perf. Ammeter	LSI	5.2A-W	250 A	JDL34250WU43X	JGL34250WU43X	JJL34250WU43X	JLL34250WU43X	AL250JD [1]
High Perf. Energy	LSI	5.2E-W	250 A	JDL34250WU53X	JGL34250WU53X	JJL34250WU53X	JLL34250WU53X	AL250JD [1]
High Perf. Ammeter	LSIG	6.2A-W	250 A	JDL34250WU44X	JGL34250WU44X	JJL34250WU44X	JLL34250WU44X	AL250JD [1]
High Perf. Energy	LSIG	6.2E-W	250 A	JDL34250WU54X	JGL34250WU54X	JJL34250WU54X	JLL34250WU54X	AL250JD [1]

Table 7.80: L-Frame 600 A Electronic Trip Mission Critical Circuit Breakers (480/277 Vac) with Factory Sealed Trip Units Suitable for Reverse Connection [2]

Electronic Trip Unit Type	Trip Function	Trip Unit	Continuous Current	Cat. No.				Terminal
				D Interrupting	G Interrupting	J Interrupting	L Interrupting	
480/277 Vac, 50/60 Hz, 3P								
Standard	LI	3.3 W	250 A	LDL34250WU31X	LGL34250WU31X	LJL34250WU31X	LLL34250WU31X	AL400L61K3 [3]
			400 A	LDL34400WU31X	LGL34400WU31X	LJL34400WU31X	LLL34400WU31X	AL600LS52K3 [4]
			600 A	LDL34600WU31X	LGL34600WU31X	LJL34600WU31X	LLL34300WU31X	AL600LS52K3 [4]
Standard	LSI	3.3S-W	250 A	LDL34250WU33X	LGL34250WU33X	LJL34250WU33X	LLL34250WU33X	AL400L61K3 [3]
			400 A	LDL34400WU33X	LGL34400WU33X	LJL34400WU33X	LLL34400WU33X	AL600LS52K3 [4]
			600 A	LDL34600WU33X	LGL34600WU33X	LJL34600WU33X	LLL34300WU33X	AL600LS52K3 [4]
High Perf. Ammeter	LSI	5.3A-W	400 A	LDL34400WU43X	LGL34400WU43X	LJL34400WU43X	LLL34400WU43X	AL600LS52K3 [4]
High Perf. Energy	LSI	5.3E-W	400 A	LDL34400WU53X	LGL34400WU53X	LJL34400WU53X	LLL34400WU53X	AL600LS52K3 [4]
			600 A	LDL34600WU53X	LGL34600WU53X	LJL34600WU53X	LLL34300WU53X	AL600LS52K3 [4]
High Perf. Ammeter	LSIG	6.3A-W	400 A	LDL34400WU44X	LGL34400WU44X	LJL34400WU44X	LLL34400WU44X	AL600LS52K3 [4]
			600 A	LDL34600WU44X	LGL34600WU44X	LJL34600WU44X	LLL34300WU44X	AL600LS52K3 [4]
High Perf. Energy	LSIG	6.3E-W	400 A	LDL34400WU54X	LGL34400WU54X	LJL34400WU54X	LLL34400WU54X	AL600LS52K3 [4]
			600 A	LDL34600WU54X	LGL34600WU54X	LJL34600WU54X	LLL34300WU54X	AL600LS52K3 [4]
480/277 Vac, 50/60 Hz, 4P								
Standard	LI	3.3 W	250 A	LDL44250WU31X	LGL44250WU31X	LJL44250WU31X	LLL44250WU31X	AL400L61K4 [3]
			400 A	LDL44400WU31X	LGL44400WU31X	LJL44400WU31X	LLL44400WU31X	AL600LS52K4 [4]
			600 A	LDL44600WU31X	LGL44600WU31X	LJL44600WU31X	LLL44300WU31X	AL600LS52K4 [4]
Standard	LSI	3.3S-W	250 A	LDL44250WU33X	LGL44250WU33X	LJL44250WU33X	LLL44250WU33X	AL400L61K4 [3]
			400 A	LDL44400WU33X	LGL44400WU33X	LJL44400WU33X	LLL44400WU33X	AL600LS52K4 [4]
			600 A	LDL44600WU33X	LGL44600WU33X	LJL44600WU33X	LLL44300WU33X	AL600LS52K4 [4]
High Perf. Ammeter	LSI	5.3A-W	400 A	LDL44400WU43X	LGL44400WU43X	LJL44400WU43X	LLL44400WU43X	AL600LS52K4 [4]
High Perf. Energy	LSI	5.3E-W	400 A	LDL44400WU53X	LGL44400WU53X	LJL44400WU53X	LLL44400WU53X	AL600LS52K3 [4]
			600 A	LDL44600WU53X	LGL44600WU53X	LJL44600WU53X	LLL44300WU53X	AL600LS52K3 [4]
High Perf. Ammeter	LSIG	6.3A-W	400 A	LDL44400WU44X	LGL44400WU44X	LJL44400WU44X	LLL44400WU44X	AL600LS52K4 [4]
			600 A	LDL44600WU44X	LGL44600WU44X	LJL44600WU44X	LLL44300WU44X	AL600LS52K4 [4]
High Perf. Energy	LSIG	6.3E-W	400 A	LDL44400WU54X	LGL44400WU54X	LJL44400WU54X	LLL44400WU54X	AL600LS52K4 [4]
			600 A	LDL44600WU54X	LGL44600WU54X	LJL44600WU54X	LLL44300WU54X	AL600LS52K4 [4]

Table 7.81: Terminal Wire Ranges

Terminal	Wire Range
AL250JD	(1) 3/0 AWG 350 kcmil AL or Cu
AL400L61K3	(1) #2 AWG-500 kcmil Al or (1) #2 AWG-600 kcmil Cu.
AL600LS52K3	(2) 2/0 AWG-500 kcmil Al or Cu.

Accessories see page 7-49

Optional Lugs see page 7-54

Compression and PDC Lugs see Supplemental Digest, Section 3

Dimensions see page 7-81

Enclosures see page 7-82

Table 7.82: J- and L-Frame Termination Options

Termination Letter
A = I-Line (See Section 9)
F = No Lugs (includes terminal nut kit on both ends) [5]
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

J G L 3 6 1 0 0
For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.
Termination Letter

Table 7.83: J- and L-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

[1] AL250JD terminal wire range is (1) 3/0 AWG-350 kcmil Al or Cu.

[2] 100% rated for 250 A and 400 A. 80% rated for 600 A.

[3] AL400L61K3 terminal wire ranges are (1) #2 AWG-500 kcmil Al or (1) #2 AWG-600 kcmil Cu.

[4] AL600LS52K3 terminal wire ranges are (2) 2/0 AWG-500 kcmil Al or Cu.

[5] Add TS suffix for circuit breaker without terminal nut kit.

PowerPact 500 Vdc Circuit Breakers

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. Suitable for use only with UPS (ungrounded uninterruptible power supplies systems).

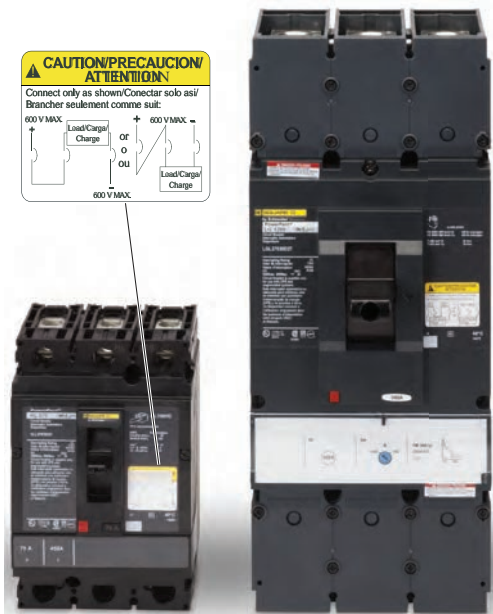
This two-level voltage rating allows these circuit breakers to be applied to battery sources having a short-circuit availability of 20,000 amperes or 50,000 amperes for PowerPact H-, J-, and L-frame DC circuit breakers at 500 Vdc. IEC 500 Vdc rating is available on PowerPact J-frame circuit breakers.

PowerPact H-frame DC circuit breakers have a fixed magnetic trip system. PowerPact J- and L-frame DC 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.

PowerPact H- and J-frame 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 figure for example of diagram.)

PowerPact L-frame circuit breakers are UL Listed for the interrupting ratings shown with two or three poles connected in series (series connection is external to circuit breaker).

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



Connection Diagram

Table 7.84: 500 Vdc Termination Options

Termination Letter	Termination Option
F	No Lugs (bus bar connection)
L	Lugs Both Ends
S	Rear Connection

JGL37125D81—Place termination letter in third block of circuit breaker catalog number.

Table 7.85: 500 Vdc Molded Case Circuit Breakers

Ampere Rating	Circuit Breaker Cat. No.	Fixed Magnetic Trip —DC Amperes	Adjustable Magnetic Trip Range—DC Amperes [1]		Interrupting Rating @ 500 Vdc	
			Low	High		
30 A	HGL37030D87	450	—	—	20 k AIR	
50 A	HGL37050D87	450	—	—		
70 A	HGL37070D87	450	—	—		
100 A	JGL37100D81	—	400	600	20 k AIR	
125 A	JGL37125D81	—	400	600		
150 A	JGL37150D81	—	400	600		
175 A	JGL37175D81	—	400	600		
200 A	JGL37200D82	—	500	850		
225 A	JGL37225D82	—	500	850		
250 A	JGL37250D82	—	500	850	20 k AIR	
300 A	LGL37030D27	—	750	1500		
350 A	LGL37035D29	—	875	1750	20 k AIR	
400 A	LGL37040D30	—	1000	2000		
450 A	LGL37045D31	—	1125	2250		
500 A	LGL37050D32	—	1250	2500		
600 A	LGL37060D33	—	1500	3000		
700 A	LGL47070D35	—	1750	3500		
800 A	LGL47080D36	—	2000	4000		
900 A	LGL47090D86	—	2250	4500		
1000 A	LGL47100D40	—	2500	5000		
1200 A	LGL47120D42	—	3000	6000		
30A	HLL37030D87	450	—	—		50 k AIR
50A	HLL37050D87	450	—	—		
70A	HLL37070D87	450	—	—		
100A	JLL37100D81	—	400	600	50 k AIR	
125A	JLL37125D81	—	400	600		
150A	JLL37150D81	—	400	600		
175A	JLL37175D81	—	400	600		
200A	JLL37200D82	—	500	850		
225A	JLL37225D82	—	500	850		
250A	JLL37250D82	—	500	850	50 k AIR	
300A	LLL37030D27	—	750	1500		
350A	LLL37035D29	—	875	1750		
400A	LLL37040D30	—	1000	200		
450 A	LLL36045D31	—	1125	2250		
500 A	LLL37050D32	—	1250	2500		
600 A	LLL37060D33	—	1500	3000		
700 A	LLL47070D35	—	1750	3500		
800 A	LLL47080D36	—	2000	4000		
900 A	LLL47090D86	—	2250	4500		
1000 A	LLL47100D40	—	2500	5000		
1200 A	LLL47120D42	—	3000	6000		

Accessories see page 7-49 and Supplemental Digest Section 3
 Optional Lugs see page 7-54 and Supplemental Digest Section 3
 Dimensions see page 7-81 and Supplemental Digest Section 3
 Enclosures see page 7-85

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



J-Frame Switch



L-Frame Switch

PowerPact 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.

- PowerPact™ H-, J-, and L-frame automatic switches are available in unit mount, I-Line™, plug-in and drawout versions.
- Accept the same lugs and accessories as equivalent thermal-magnetic circuit breakers^[1].
- May be interlocked with another switch or circuit breaker to form a source-changeover system
- UL Listed per UL 489 and CSA Certified.

Table 7.86: PowerPact™ B-Frame Automatic Molded Case Switches, 600 Vac

Circuit Breaker	Poles	Ampere Rating	D Withstand		G Withstand		J Withstand		Terminal	Wire Range
			Cat. No.	Trip Point	Cat. No.	Trip Point	Cat. No.	Trip Point		
B-Frame	2 [2]	125 A	BDL26000S12	1625 A	BGL26000S12	1625 A	BJL26000S12	1625 A	LV426973	14–2/0 AWG Cu
	3	125 A	BDL36000S12	1625 A	BGL36000S12	1625 A	BJL36000S12	1625 A	LV426974	14–2/0 AWG Cu

Table 7.87: H-, J-, and L-Frame PowerPact™ Automatic Molded Case Switches, 600 Vac

Circuit Breaker	Poles	Ampere Rating	G Withstand		L Withstand		R Withstand		Terminal	Wire Range
			Cat. No.	Trip Point	Cat. No.	Trip Point	Cat. No.	Trip Point		
H-Frame J-Frame	2	150 A	HGL26000S15 [2]	2250 A	HLL26000S15	2250 A	—	—	AL150HD	14 AWG–3/0 AWG Al/Cu
		175 A	JGL26000S17	3125 A	JLL26000S17	3125 A	—	—	AL175JD	4–4/0 AWG Al/Cu
		250 A	JGL26000S25	3125 A	JLL26000S25	3125 A	—	—	AL250JD	3/0 AWG–350 kcmil Al/Cu
	3	150 A	HGL36000S15	2250 A	HLL36000S15	2250 A	—	—	AL150HD	14 AWG–3/0 AWG Al/Cu
		175 A	JGL36000S17	3125 A	JLL36000S17	3125 A	JRL36000S17	3125 A	AL175JD	4–4/0 AWG Al/Cu
		250 A	JGL36000S25	3125 A	JLL36000S25	3125 A	JRL36000S25	3125 A	AL250JD	3/0 AWG–350 kcmil Al/Cu
L-Frame	3	400 A	LGL36000S40X	4800 A	LLL36000S40X	4800 A	LRL36000S40X	4800 A	AL150HD	AL600LS2K3
		600 A	LGL36000S60X	6600 A	LLL36000S60X	6600 A	LRL36000S60X	6600 A	AL250JD	(2) 2/0 AWG–500 kcmil Al/Cu
		400 A	LGL46000S40X	4800 A	LLL46000S40X	4800 A	LRL46000S40X	4800 A	AL150HD	AL600LS2K4
	4	600 A	LGL46000S60X	6600 A	LLL46000S60X	6600 A	LRL46000S60X	6600 A	AL250JD	(2) 2/0 AWG–500 kcmil Al/Cu

Table 7.88: P-Frame and R-Frame PowerPact™ Automatic Molded Case Switches [3], 600 Vac

Frame	Poles	Ampere Rating	J Withstand		K Withstand		L Withstand		Terminal	Wire Range
			Cat. No.	Trip Point	Cat. No.	Trip Point	Cat. No.	Trip Point		
P	2	600 A	PJL26000S60	10 kA	PKL26000S60	24 kA	PLL24000S60 [4]	10 kA	AL800M23K	(3) 3/0 AWG–500 kcmil Al or Cu
		800 A	PJL26000S80	10 kA	PKL26000S80	24 kA	PLL24000S80 [4]	10 kA		
		1000 A	PJL26000S10	10 kA	PKL26000S10	24 kA	PLL24000S10 [4]	10 kA		
	3	600 A	PJL36000S60	10 kA	PKL36000S60	24 kA	PLL34000S60 [4]	10 kA	AL800M23K	(3) 3/0 AWG–500 kcmil Al or Cu
		800 A	PJL36000S80	10 kA	PKL36000S80	24 kA	PLL34000S80 [4]	10 kA		
		1000 A	PJL36000S10	10 kA	PKL36000S10	24 kA	PLL34000S10 [4]	10 kA		
R	2	1200 A	—	—	RKF26000S12	57 kA	RLF26000S12	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 7-57.	
		1600 A	—	—	RKF26000S16	57 kA	RLF26000S16	48 kA		
		2000 A	—	—	RKF26000S20	57 kA	RLF26000S20	48 kA		
		2500 A	—	—	RKF26000S25	57 kA	RLF26000S25	48 kA		
		1200 A	—	—	RKF36000S12	57 kA	RLF36000S12	48 kA		
		1600 A	—	—	RKF36000S16	57 kA	RLF36000S16	48 kA		
	3	2000 A	—	—	RKF36000S20	57 kA	RLF36000S20	48 kA		
		2500 A	—	—	RKF36000S25	57 kA	RLF36000S25	48 kA		
		3000 A	—	—	RKF36000S30	57 kA	RLF36000S30	48 kA		

Table 7.89: Q-Frame (240 Vac) PowerPact™ Automatic Molded Case Switches

Circuit Breaker	Poles	Ampere Rating	J Withstand		Wire Range
			Cat. No.	Trip Point	
Q-Frame [5]	2	225 A	QBL22000S22	4500 A	4 AWG–300 kcmil
	3	225 A	QBL32000S22	4500 A	

Table 7.90: B-, H-, J-, L- P-, and R-Frame Withstand Ratings [6]

Voltage	Withstand					
	D	G	J	K	L	R
240 Vac	25 kA	65 kA	100 kA	65 kA	125 kA	200 kA
480 Vac	18 kA	35 kA	65 kA	50 kA [7]	100 kA	200 kA
600 Vac	14 kA	18 kA	25 kA	50 kA [7]	50 kA	100 kA

Accessories see page 7-49 and Supplemental Digest Section 3
Optional Lugs see page 7-54 and Supplemental Digest Section 3
Dimensions see page 7-80 and page 7-81
Enclosures see page 7-82

[1] Q-frame switches do not have electrical accessories available.

[2] True 2P device. Others are a 2P in a 3P module.

[3] UL magnetic trip tolerances are -20% / +30% from the nominal values shown.

[4] P-frame L-interrupting is available in 480 Vac only.

[5] Withstand rating of 10 kA at 240 Vac.

[6] 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.

[7] B- and R-frame withstand is 65 kA.



Instantaneous Trip Circuit Breakers for Motor Protection Applications

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 7.91: 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

- 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.
- Determine motor hp rating from the motor nameplate.
- Refer to the tables and select an instantaneous-trip circuit breaker with an ampere rating recommended for the hp and voltage involved.
- 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.
- 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 for those applications.
- Part-winding motors, per NEC 430.4, 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.
- Based on NEC 430.52 and NEC Table 430.250.

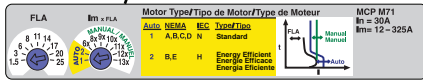
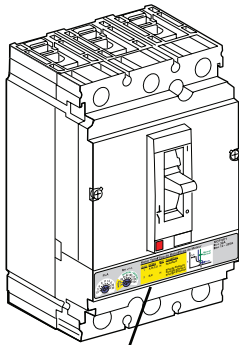
PowerPact Motor Circuit Protection (AC Only)

PowerPact electronic Motor Circuit Protectors (MCP) are magnetic-only instantaneous-trip circuit breakers. Designed to offer short circuit protection, they are National Electrical Code (NEC) compliant when installed as part of a combination controller having motor overload protection.

- Sensor ratings from 30–1200 A at up to 600 Vac
- Electronic trip units with adjustable instantaneous trip ranges
- 3-pole available in unit mount and I-Line construction
- Accept the same accessories and terminals as equivalent PowerPact circuit breakers
- UL, CSA, IEC certified and CE marked for global acceptance

Selection

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.



J-Frame Motor Circuit Protector
JLL36250M75

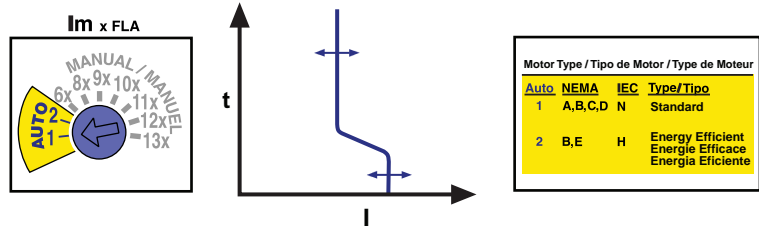


Table 7.92: Magnetic Only Electronic Motor Circuit Protection (MCP), 3–Pole, 600 Vac, 50/60 Hz—Three Device Solutions

Frame	Sensor Rating	Full Load Amperes Range	Adjustable Instantaneous Trip Range	Trip Unit	Suffix	G (See SCCR Cat. No. Table Below)	J (See SCCR Cat. No. Table Below)	L (See SCCR Cat. No. Table Below)	R (See SCCR Cat. No. Table Below)
H-Frame	30 A	1.5–25 A	9–325 A	2.2M	M71	HGL36030M38X	HJL36030M38X	HLL36030M38X	HRL36030M38X
	50 A	14–42 A	84–546 A		M72	HGL36050M38X	HJL36050M38X	HLL36050M38X	HRL36050M38X
	100 A	30–80 A	180–1040 A		M73	HGL36100M38X	HJL36100M38X	HLL36100M38X	HRL36100M38X
J-Frame	150 A	58–130 A	348–1690 A	2.2M	M74	HGL36150M38X	HJL36150M38X	HLL36150M38X	HRL36150M38X
	250 A	114–217 A	684–2500 A		M75	JGL36250M38X	JJL36250M38X	JLL36250M38X	JRL36250M38X
L-Frame [6]	400 A	125–400 A	500–1200%	2.3M	M37X	LGL36400M38X	LJL36400M38X	LLL36400M38X	LRL36400M38X
	600 A	200–600 A	500–1200 A		M37X	LGL36600M38X	LJL36600M38X	LLL36600M38X	LRL36600M38X
P-Frame [6]	600 A	630 A	1200–10000 A	ET1.0M	M68	—	PJL36060M68	PLL34060M68	—
	800 A	600–800 A	1200–10000 A		M68	—	PJL36080M68	PLL34080M68	—
	1000 A	600–1000 A	1200–10000 A		M69	—	PJL36100M69	PLL34100M69	—
	1200 A	600–1200 A	1200–10000 A		M70	—	PJL36120M70	PLL34120M70	—

Table 7.93: Maximum Rating or Setting of PowerPact Motor Protective Devices [1]

Type of Motor	Percentage of Full-load Current		
	Setting	Not to Exceed[2]	
A, B, C, D	Standard	800%	1300%
B, E	Energy Efficient	1100%	1700%

Table 7.94: Short Circuit Current Ratings (SCCR)

Contactor/ Starter	Interrupting Rating					
	J		L			
	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.

To select combination starters and motor controllers using MCP's Meeting NEC Article 430, refer to Section 16.

Accessories see page 7-49
Lugs see page 7-54
Dimensions see page 7-81
Enclosures see page 7-82

[1] Based on 2017 NEC Table 430.52.

[2] 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."

PowerPact Motor Circuit Protectors

Table 7.95: Application of PowerPact™ H-Frame and J-Frame Electronic Motor Circuit Protectors (MCP)

Starter Size	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
	200 Vac	230 Vac	480 Vac	575 Vac		
00			1/2	1/2	0.9 A	HJL36030M71 and HLL36030M71 1/2–10 hp
				3/4	1.1 A	
			3/4	1	1.3 A	
			1		1.7 A	
		1/2			2.1 A	
				1-1/2	2.2 A	
		1/2			2.4 A	
				2	2.5 A	
			1-1/2		2.7 A	
		3/4			3 A	
			2		3.2 A	
		3/4			3.4 A	
				3	3.7 A	
		1			3.9 A	
0			3		4.2 A	HJL36050M72 and HLL36050M72 10–25 hp
		1-1/2			4.8 A	
		2			4.8 A	
				5	6 A	
		1-1/2			6.1 A	
		2			6.8 A	
					6.9 A	
			5		7.6 A	
		2			7.8 A	
				7-1/2	9 A	
1		3			9.6 A	HJL36050M72 and HLL36050M72 10–25 hp
			7-1/2	10	11 A	
			10		14 A	
		5			15.2 A	
2				15	17 A	HJL36100M73 and HLL36100M73 15–50 hp
			15		17.5 A	
		7-1/2			21 A	
				20	22 A	
					25.3 A	
		7-1/2			27 A	
3		10			28 A	HJL36150M74 and HLL36150M74 30–100 hp
			20	25	32 A	
				30	32.2 A	
			25		34 A	
			30		40 A	
				40	41 A	
		15			42 A	
			40	50	48.3 A	
					52 A	
		20		60	54 A	
4			50		62 A	HJL36250M75 and JLL36250M75 50–150 hp
		25			65 A	
			60	75	68 A	
					77 A	
		25			78.2 A	
		30	30		80 A	
5			75		92 A	HJL36250M75 and JLL36250M75 50–150 hp
				100	96 A	
		40			99 A	
				100	104 A	
			100		120 A	
				125	124 A	
6		50			125 A	HJL36250M75 and JLL36250M75 50–150 hp
				150	130 A	
		50			144 A	
			60		150 A	
				125	154 A	
		60			156 A	
			150		177.1 A	
				200	180 A	
		75			192 A	
			200		221 A	
				240 A		
		100		248 A		

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

PowerPact Motor Protector Circuit Breakers—Two Device Solutions

Accessories see page 7-49 and Supplemental Digest Section 3
Optional Lugs see page 7-54 and Supplemental Digest Section 3
Dimensions see page 7-81
Enclosures see page 7-82

Micrologic 2.2M and 2.3M trip units provide built-in thermal and magnetic protections. Use PowerPact Motor Protect Circuit Breakers in two-device motor feeder solutions to provide protection against short-circuits, overloads, and phase unbalance.

- Protection settings are made using a rotary switch.
- Accept the same accessories and terminals as equivalent PowerPact circuit breakers.
- UL, CSA, IEC certified and CE marked for global acceptance.

Table 7.96: H-Frame (150 A), J-Frame (250 A) and L-Frame (600 A) Electronic Motor Protector Circuit Breakers (UL Ratings)—Two Device Solutions [3]

Electronic Trip Unit Type	Frame	Sensor Rating	Trip Unit	Full Load Amperes Range (FLA)	Isd (x FLA)	Interrupting Rating			
						G	J	L	R
Standard [4]	H-Frame	30	2.2 M	14–25	5-13 x FLA	HGL36030M38X	HJL36030M38X	HLL36030M38X	HRL36030M38X
		50		14–42	5-13 x FLA	HGL36050M38X	HJL36050M38X	HLL36050M38X	HRL36050M38X
		100		30–80	5-13 x FLA	HGL36100M38X	HJL36100M38X	HLL36100M38X	HRL36100M38X
		150		58–130	5-13 x FLA	HGL36150M38X	HJL36150M38X	HLL36150M38X	HRL36150M38X
	J-Frame	250	114–217	5-13 x FLA	JGL36250M38X	JJL36250M38X	JLL36250M38X	JRL36250M38X	
	L-Frame	400	190–348	5-13 x FLA	LGL36400M38X	LJL36400M38X	LLL36400M38X	LRL36400M38X	
		600	312–520	5-13 x FLA	LGL36600M38X	LJL36600M38X	LLL36600M38X	LRL36600M38X	

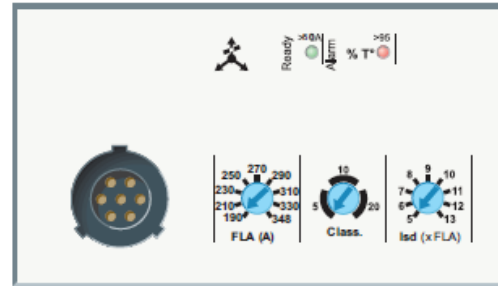
To select combination starters and motor controllers using MCP's meeting NEC Article 430, refer to Section 16.

PowerPact H, J, and L-Frame Motor Protectors

Table 7.97: Application of PowerPact H- and L-Frame Motor Protector Circuit Breaker

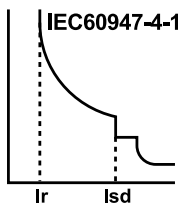


HJL36100M38X Motor Circuit Protector



Micrologic 2.2M and 2.3M Trip Units

Ii=4800A



Hp Ratings of Induction Type Squirrel-Cage and Wound Rotor Motors 3Ø 60 Hz				Full Load Amperes [5]	PowerPact Family Motor Protector Circuit Breaker Cat. No. [6]	Magnetic Trip Settings [7]	
200 Vac	230 Vac	460 Vac	575 Vac			MIN	MAX
5	5	10	15	14 15.2 17 17.5	H(J)L36030M38X H(J)L36030M38X H(J)L36030M38X H(J)L36030M38X	500%	1300%
			20	21 22 25.3	H(J)L36030M38X H(J)L36030M38X H(J)L36030M38X		
		25	30	28 32 32.2 34	H(J)L36050M38X H(J)L36050M38X H(J)L36050M38X H(J)L36050M38X		
			40	40 41 42 48.3	H(J)L36050M38X H(J)L36050M38X H(J)L36050M38X H(J)L36100M38X		
20	20	40	50	52 54 62 65	H(J)L36100M38X H(J)L36100M38X H(J)L36100M38X H(J)L36100M38X	500%	1300%
			60	62 65	H(J)L36100M38X H(J)L36100M38X		
		50	200	221 240 242 248	J(J)L36250M38X L(J)L36400M38X L(J)L36400M38X L(J)L36400M38X		
			250	285 289 302 312	L(J)L36400M38X L(J)L36400M38X L(J)L36400M38X L(J)L36400M38X		
125	125	250	300	336 359 360 361	L(J)L36400M38X L(J)L36600M38X L(J)L36600M38X L(J)L36600M38X	500%	1300%
			350	382 392 414 427	L(J)L36600M38X L(J)L36600M38X L(J)L36600M38X L(J)L36600M38X		
		300	400	414 472 477 480	L(J)L36600M38X L(J)L36600M38X L(J)L36600M38X L(J)L36600M38X		
			500	472 477 480	L(J)L36600M38X L(J)L36600M38X L(J)L36600M38X		

[3] Two-device solutions (these electronic motor protector circuit breakers include short circuit and overload protection)

- 1 electronic motor circuit protector with a Micrologic 2.2 M plus
- 1 contactor

[4] The standard trip unit offers Class 5, 10 and 20 and phase unbalance or phase loss protection.

[5] Motor full-load currents are taken from NEC Table 430.250. 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 Section 14 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.

[6] To complete catalog number, replace the blank with the appropriate rating (G, J, L or R).

[7] Only MIN and MAX settings are shown, intermediate settings are available on all circuit breakers.

PowerPact Accessories

Table 7.98: Electrical Accessories

Accessory	Description	Rated Voltage	B-, H-, J-, and L-Frame					M-, P-, and R-Frame					
			Factory Installed Cat. Suffix	B-Frame		H- and J-Frame	L-Frame	Factory Installed Cat. Suffix	Field-Installable Cat. No.				
				Field-Installable Cat. No.	Field-Installable Pre-Wired Cat. No.	Field-Installable Cat. No.	Field-Installable Cat. No.						
<p>Auxiliary and Alarm Switches (OF, SD, SDE)</p> <p>B-Frame</p> <p>H-, J-, L-, M-, P, and R-Frame</p>	<p>Provides circuit breaker contact status. Note: The location of the accessory in the circuit breaker determines its function.</p>	<p>Standard Min Load = 10mA with 24V</p> <p>Low Level Min Load = 1mA with 24V</p>	1 auxiliary switch (OF) 1a1b	AA	LV426950	LV426951	S29450	S29450	AA	S29450			
			2 auxiliary switch (OF) 2a2b	AB	—	—	2x S29450	2x S29450	AB	2x S29450			
			3 auxiliary switch (OF) 3a3b	AC	—	—	—	3x S29450	AC	3x S29450			
			Alarm Switch (SD) 1a1b	BC	LV426950	LV426952	S29450	S29450	BC	S29450			
			Overcurrent trip switch (SDE) 1a1b	BD	—	—	—	S29450	BD	S29450			
			Consisting of:	OF Switch	—	—	—	S29450	—	—			
				SDE Adapter	—	—	—	S29451	—	—			
			Alarm switch and Overcurrent trip switch	BE	—	—	—	2x S29450	BE	2x S29450			
			Consisting of:	OF Switch	—	—	—	2x S29450	—	—			
				SDE Adapter	—	—	—	S29451	—	—			
			Auxiliary Switch/Alarm Switch/Adapter (OF/SD/SDE) Kit	—	—	—	—	—	—	S33801 [1]			
			One auxiliary switch (OF) 1a1b	AE	—	—	S29452	S29452	AE	S29452			
			Two auxiliary switches (OF) 2a2b	AF	—	—	2x S29452	2x S29452	AF	2x S29452			
			3 auxiliary switches (OF) 3a3b	AG	—	—	—	3x S29452	AG	3x S29452			
			Alarm Switch (SD) 1a1b	BH	—	—	S29452	S29452	BH	S29452			
Overcurrent trip switch (SDE) 1a1b	BJ	—	—	—	S29452	BJ [2]	S29452						
Consisting of:	OF Switch	—	—	—	S29452	—	—						
	SDE Adapter	—	—	—	S29451	—	—						
Alarm switch and Overcurrent trip switch	BK	—	—	—	2x S29452	BK [2]	2x S29452						
Consisting of:	OF Switch	—	—	—	2x S29452	—	—						
	SDE Adapter [3]	—	—	—	S29451	—	—						
<p>Shunt Trip (MX)</p> <p>B-Frame</p> <p>H-, J-, and L-Frame</p>	<p>Trips the circuit breaker from a remote location by means of a trip coil energized from a separate supply voltage circuit.</p>	<p>AC</p> <p>DC</p>	24	SK	LV426841	LV426861	S29384	S29384	SK	S33659			
			48	SL	LV426842	LV426862	S29385	S29385	SL	S33660			
			110–130	SA	LV426843	LV426863	S29386	S29386	SA	S33661			
			220–240	SD, SF	—	—	—	—	SC	S33662			
			208–277	SD	LV426844	LV426864	S29387	S29387	SD	S33663			
			380–480	SH	LV426846	LV426866	S29388	S29388	SH	S33664			
			525–600	SJ	—	—	S29389	S29389	—	—			
			12	SN	LV426850	—	S29382	S29382	SN	S33658			
			24	SO	LV426841	LV426861	S29390	S29390	SK	S33659			
			30	SU	—	—	S29391	S29391	SK	S33659			
			48	SP	LV426842	LV426862	S29392	S29392	SL	S33660			
			60	SV	—	—	S29383	S29383	SL	S33660			
			125	SR	LV426843	LV426863	S29393	S29393	SA	S33661			
			250	SS	LV426844	LV426864	S29394	S29394	SC	S33662			
			<p>Undervoltage Trip (MN)</p> <p>H-, J-, and L-Frame</p>	<p>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.</p>	<p>AC</p> <p>DC</p>	24	UK	LV426801	LV426821	S29404	S29404	UK	S33668
						48	UL	LV426802	LV426822	S29405	S29405	UL	S33669
						110–130	UA	LV426803	LV426823	S29406	S29406	UA	S33670
						220–240	UC	LV426804	LV426824	—	—	UC	S33671
208–277	UD	LV426805				LV426825	S29407	S29407	—	—			
380–415	UF	LV426806				LV426826	—	—	—	—			
380–480	UH	LV426807				LV426827	S29408	S29408	UH	S33673			
525–600	UJ	—				—	S29409	S29409	—	—			
12	UN	—				—	S29402	S29402	—	—			
24	UO	LV426801				LV426821	S29410	S29410	UK	S33668			
30	UU	—				—	S29411	S29411	UK	S33668			
48	UP	LV426802				LV426822	S29412	S29412	UL	S33669			
60	UV	—				—	S29403	S29403	UL	S33669			
125	UR	LV426803				LV426823	S29413	S29413	UA	S33670			
250	US	LV426815				LV426835	S29414	S29414	UC	S33671			
<p>Time Delay Unit</p>	<p>Undervoltage trip with externally mounted adjustable time delay unit for UVVR of 0.5, 0.9, 1.5, 3.0 seconds before circuit breaker trips</p> <p>Undervoltage trip with externally mounted non-adjustable time delay unit of 0.25 sec before circuit breaker trips.</p>	AC/DC				48	—	S33680 [4]	—	S33680 [4]	S33680 [4]	—	S33680 [4]
						100–130	—	S33681 [4]	—	S33681 [4]	S33681 [4]	—	S33681 [4]
						220–250	—	S33682 [4]	—	S33682 [4]	S33682 [4]	—	S33682 [4]
			380–480	—	—	—	—	—	—	S33683 [4]			
		AC/DC	48	—	S29426 [4]	—	S29426 [4]	S29426 [4]	—	—			
			100–130	—	—	—	—	—	—	S33684 [4]			
			200–250	—	—	—	—	—	—	S33685 [4]			
			220–240	—	S29427 [4]	—	S29427 [4]	S29427 [4]	—	—			

[1] P-frame drawout circuit breaker only.
 [2] Not available on electrically operated P-frame.
 [3] SDE Adapter used for H- and J-frame only.
 [4] Field-installable kit includes time delay module only. Order undervoltage trip separately.