

Molded Case Circuit Breakers

General

Protection of Motor Circuits

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

The recommended motor circuit protectors (Siemens ETI instantaneous only circuit breakers) listed have

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

Breaker Mounted Immediately Ahead of Motor Starter

Siemens ETI motor circuit protectors are recommended for use in combination motor starters to provide selective short-circuit protection for the motor

branch circuit. The adjustable instantaneous-trip feature of the Siemens ETI motor circuit protector provides for a trip setting slightly above the peak motor-inrush current. With this setting, no delay is introduced in opening the circuit when a fault occurs. This circuit breaker has no time-delay trip element. Therefore it must be used in conjunction with, and immediately ahead of, the motor-running overcurrent protective device.

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

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

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

Motor Full Load Amperes	Catalog Number	ETI Trip Setting		Motor Full Load Amperes	Catalog Number	ETI Trip Setting		Motor Full Load Amperes	Catalog Number	ETI Trip Setting	
		Adjustment	Amperes			Adjustment	Amperes			Adjustment	Amperes
0.69 – 0.91	HEM3M003L	A (min)	9	1.23 – 1.99	ED63A005 CED63A005	Low	16	95.00 – 110.00	JXD63L400 CJD63L400	Low	1250
1.1 – 1.3		B	15	2.00 – 2.75		2	26	110.00 – 124.00		2	1430
1.6 – 1.7		C	21	2.76 – 3.52		3	36	138.00 – 151.00		4	1790
2.0 – 2.2		D	27	3.53 – 4.14		4	46	165.00 – 178.00		6	2140
2.3 – 2.5		E	30	4.15 – 4.90		High	54	178.00 – 192.00		7	2320
2.6 – 2.8		F (max)	33					192.00 – 227.00		High	2500
1.5 – 2.0	HEM3M007L	A (min)	21	2.30 – 3.83	ED63A010 CED63A010	Low	30	154.00 – 176.00	JXD63H400 CJD63H400	Low	2000
2.6 – 3.1		B	35	3.84 – 5.37		2	50	176.00 – 198.00		2	2290
3.7 – 3.9		C	49	5.38 – 6.52		3	70	220.00 – 242.00		4	2860
4.8 – 5.2		D	63	6.53 – 7.68		4	85	264.00 – 285.00		6	3430
5.3 – 5.7		E	70	7.69 – 9.10		High	100	285.00 – 308.00		7	3710
5.8 – 6.1		F (max)	77					308.00 – 326.00		High	4000
3.4 – 4.5	HEM3M015L	A (min)	45	4.23 – 6.91	ED63A025 CED63A025	Low	55	155.00 – 176.00	LXD63L600 CLD63L600	Low	2000
5.7 – 6.8		B	75	6.92 – 9.61		2	90	176.00 – 198.00		2	2290
8.0 – 9.1		C	100	9.62 – 11.91		3	125	220.00 – 242.00		4	2860
10.4 – 11.4		D	135	11.92 – 13.83		4	155	264.00 – 285.00		6	3430
11.5 – 12.6		E	150	13.84 – 16.40		High	180	285.00 – 308.00		7	3710
12.7 – 13.0		F (max)	165					308.00 – 326.00		High	4000
3.9 – 9.1	HEM3M030L	A (min)	90	6.15 – 10.37	ED63A030 CED63A030	Low	80	231.00 – 264.00	LXD63H600 CLD63H600	Low	3000
11.5 – 13.7		B	150	10.38 – 14.22		2	135	264.00 – 292.00		2	3430
16.1 – 18.3		C	210	14.23 – 18.06		3	185	330.00 – 362.00		4	4290
20.7 – 22.9		D	270	18.07 – 20.75		4	235	395.00 – 428.00		6	5140
23.0 – 25.2		E	300	20.76 – 24.50		High	270	428.99 – 462.00		7	5570
25.3 – 26.1		F (max)	330					462.00 – 490.00		High	6000
11.5 – 15.2	HEM3M050L	A (min)	150	8.84 – 14.22	ED63A040 CED63A040	Low	115	215.00 – 238.00	LMXD63L800	Low	2800
19.2 – 22.9		B	250	14.23 – 19.60		2	185	238.00 – 261.00		2	3100
26.9 – 30.6		C	350	19.61 – 24.99		3	255	261.00 – 284.00		3	3400
34.6 – 38.3		D	450	25.00 – 28.83		4	325	308.00 – 369.00		5	4000
38.4 – 42.1		E	500	28.84 – 34.00		High	375	369.00 – 423.00		6	4800
42.2 – 43.5		F (max)	550					423.00 – 462.00		7	5500
16.1 – 30.6	HEM3M070L	A (min)	210	13.84 – 23.06	ED63A050 CED63A050	Low	180	246.00 – 269.00	LMXD63A800	Low	3200
26.9 – 32.2		B	350	23.07 – 31.52		2	300	269.00 – 284.00		2	3500
37.6 – 42.9		C	490	31.53 – 39.99		3	410	284.00 – 323.00		3	3700
48.4 – 53.7		D	630	40.00 – 46.14		4	520	362.00 – 492.00		5	4700
53.8 – 59.1		E	700	46.15 – 54.50		High	600	492.00 – 562.00		6	6400
59.2 – 60.9		F (max)	770					562.00 – 616.00		7	7300
23.0 – 30.9	HEM3M100L	A (min)	300	24.23 – 41.52	ED63A100 CED63A100	Low	315	284.00 – 323.00	MXD63L800 CMD63L800	Low	3000
38.4 – 46.0		B	500	41.53 – 56.91		2	540	292.00 – 292.00		2	3430
53.8 – 61.4		C	700	56.92 – 68.45		3	740	362.00 – 395.00		3	3800
69.2 – 76.8		D	900	68.46 – 76.91		4	890	362.00 – 395.00		5	4710
76.9 – 84.5		E	1000	76.92 – 90.90		High	1000	428.00 – 462.00		7	5570
84.6 – 87.0		F (max)	1100					462.00 – 490.00		High	6000
.20 – .33	ED63A001 CED63A001	Low	2.6	38.46 – 55.37	ED63A125 CED63A125	Low	500	308.00 – 352.00	MXD63A800 CMD63A800	Low	4000
.34 – .45		2	4.5	55.38 – 70.75		2	720	352.00 – 442.00		2	4570
.46 – .56		3	6	70.76 – 84.60		3	920	442.00 – 447.00		3	5740
.57 – .68		4	7.5	84.61 – 96.14		4	1100	483.00 – 527.00		5	6280
.69 – .81		High	9	96.15 – 113.60		High	1250	571.00 – 616.00		7	7240
.53 – .83	ED63A002 CED63A002	Low	7	30.76 – 35.37	FXD63A150 CFD63A150	Low	400	616.00 – 660.00	MXD63H800 CMD63H800	Low	5000
.84 – 1.14		2	11	35.38 – 39.99		2	460	385.00 – 440.00		3	6430
1.15 – 1.45		3	15	44.51 – 49.23		4	580	495.00 – 550.00		5	7860
1.46 – 1.68		4	19	53.84 – 58.45		6	700	605.00 – 660.00		6	8575
1.69 – 2.00		High	22	58.46 – 63.06		High	820	660.00 – 695.00			
.76 – 1.29	ED63A003 CED63A003	Low	10	61.53 – 69.22	FXD63A250 CFD63A250	Low	800				
1.30 – 1.75		2	17	69.23 – 76.91		2	900				
1.76 – 2.29		3	23	84.61 – 92.29		4	1100				
2.30 – 2.68		4	30	100.00 – 108.00		6	1300				
2.69 – 3.18		High	35	108.00 – 115.00		High	1500				
				85.00 – 100.00		Low	1100				
				100.00 – 115.00		2	1300				
				131.00 – 146.00		4	1700				
				162.00 – 177.00		6	2100				
				177.00 – 192.00		7	2300				
				192.00 – 227.00		High	2500				

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

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