

Sentron Molded Case Circuit Breakers

Magnetic Trip Only — ETI Motor Circuit Protector

Selection

Breaker Type	Ampere Rating	Instantaneous Trip Range ^②		Complete Circuit Breaker Without Lugs				
		Minimum ^③	Maximum ^③	Catalog Number 2-Pole	List Price \$	Catalog Number 3-Pole	List Price \$	
ED6-A 600V AC 250V DC	1	2.6	9	—	—	ED63A001		
	2	7	22	—	—	ED63A002		
	3	10	35	—	—	ED63A003		
	5	16	54	—	—	ED63A005		
	10	30	100	—	—	ED63A010		
	25	55	180	—	—	ED63A025		
	30	80	270	—	—	ED63A030		
	40	115	375	—	—	ED63A040		
	50	180	600	—	—	ED63A050		
	100	315	1000	—	—	ED63A100		
	125	500	1250	—	—	ED63A125		
	SHIPPING:						3.8 lbs. each	
	CED6-A 600V AC 250V DC	1	2.6	9	—	—	CED63A001■	
2		7	22	—	—	CED63A001■		
3		10	35	—	—	CED63A003■		
5		16	54	—	—	CED63A005■		
10		30	100	—	—	CED63A010■		
25		55	180	—	—	CED63A025■		
30		80	270	—	—	CED63A030■		
40		115	375	—	—	CED63A040■		
50		180	600	—	—	CED63A050■		
100		315	1000	—	—	CED63A100■		
125		500	1250	—	—	CED63A125■		
SHIPPING:						6 lbs. each		
FXD6 ^④ 600V AC 250V DC		150	400	800	—	—	FXD63L150■	
	150	800	1500	—	—	FXD63A150		
	150	1100	2500	—	—	FXD63H150		
	250	1100	2500	—	—	FXD63A250		
	SHIPPING:						9 lbs. each	
CFD6 ^④ 600V AC 250V DC	150	400	800	—	—	CFD63L150■		
	150	800	1500	—	—	CFD63A150■		
	150	1100	2500	—	—	CFD63H150■		
	250	1100	2500	—	—	CFD63A250■		
	SHIPPING:						12 lbs. each	
JXD6(A) ^① 600V AC 250V DC	400	1250	2500	—	—	JXD63L400		
	400	2000	4000	JXD62H400■	—	JXD63H400		
	SHIPPING:						16 lbs. each	
CJD6 ^① 600V AC 250V DC	400	1250	2500	CJD62L400■	—	CJD63L400■		
	400	2000	4000	CJD62H400■	—	CJD63H400■		
	SHIPPING:						29.5 lbs. each	
LXD6(A) ^① 600V AC 250V DC	600	2000	4000	LXD62L600■	—	LXD63L600■		
	600	3000	6000	—	—	LXD63H600■		
	SHIPPING:						16 lbs. each	
CLD6 ^① 600V AC 250V DC	600	2000	4000	CLD62L600■	—	CLD63L600■		
	600	3000	6000	CLD62H600■	—	CLD63H600■		
	SHIPPING:						31.5 lbs. each	
LMXD6 ^④ 600V AC 250V DC	800	2800	6000	—	—	LMXD63L800■		
	800	3200	8000	—	—	LMXD63A800		
	SHIPPING:						35 lbs. each	
MXD6 ^④ 600V AC 250V DC	800	3000	6000	—	—	MXD63L800■		
	800	4000	8000	—	—	MXD63A800■		
	800	5000	10000	—	—	MXD63H800		
	SHIPPING:						33 lbs. each	
CMD6 ^④ 600V AC 250V DC	800	3000	6000	—	—	CMD63L800■		
	800	4000	8000	—	—	CMD63A800■		
	800	5000	10000	—	—	CMD63H800■		
	SHIPPING:						80 lbs. each	

Important Information

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

⑤ Connectors included when ordering by circuit breaker catalog number for ED6 and CED6 ETI's. Order ETI circuit breaker and lugs (2 per pole) separately for the FXD6, CFD6, MXD6, CMD6, JXD6, CJD6, LXD6 and CLD6 ETI's.

Lug Information pages 17/100 to 17/102
Accessories pages 17/103 to 17/108
Application data pages 17/89 to 17/90

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

② 2-pole available in 3-pole width only.

③ When applied on DC Circuits — Trip levels will increase approximately +15 to 20%.

④ Tolerance -20/+30%

⑤ For 2-pole application use outside poles of 3-pole circuit breaker.

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

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

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

Note: Low instantaneous settings have a ±20% tolerance and high settings have a ±20% tolerance

Sentron Molded Case Circuit Breakers

Motor Circuits

Application

Breaker Mounted at a Distance From Motor Starter

ET thermal-magnetic circuit breakers conform to the National Electrical Code table 430-152 requirements for motor branch and feeder circuit protection when properly applied in conjunction with motor-running overcurrent protective devices. The recommended

circuit-breaker ratings in Table 2 provide adequate time delay for starting the majority of three phase induction motors.

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

Interrupt Ratings

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

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

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

Motor Horsepower Rating	200 and 208V Motors			230V Motors			460V Motors			575V Motors		
	240V Circuit Breaker Data ^①			240V Circuit Breaker Data ^①			480V Circuit Breaker Data ^①			600V Circuit Breaker Data ^①		
	Breaker Type	Catalog Number	Ampere Rating	Breaker Type	Catalog Number	Ampere Rating	Breaker Type	Catalog Number	Ampere Rating	Breaker Type	Catalog Number	Ampere Rating
½	BQ ^②	BQ3B015	15	BQ ^②	BQ3B015	15	ED4	ED43B015	15	ED6	ED63B015	15
¾		BQ3B015	15		BQ3B015	15		ED43B015	15		ED63B015	15
1		BQ3B015	15		BQ3B015	15		ED43B015	15		ED63B015	15
1½		BQ3B015	15		BQ3B015	15		ED43B015	15		ED63B015	15
2		BQ3B020	20		BQ3B015	15		ED43B015	15		ED63B015	15
3		BQ3B030	30		BQ3B020	20		ED43B015	15		ED63B015	15
5	BQ ^②	BQ3B040	40	BQ ^②	BQ3B030	30	ED4	ED43B015	15	ED6	ED63B015	15
7½		BQ3B060	60		BQ3B050	50		ED43B030	30		ED63B020	20
10		BQ3B070	70		BQ3B070	70		ED43B030	30		ED63B030	30
15		BQ3B100	100		BQ3B090	90		ED43B040	40		ED63B035	35
20					BQ3B100	100		ED43B050	50		ED63B050	50
25	FXD6	FXD63B125	125	FXD6	FXD63B125	125	FXD6	FXD63B090	90	FXD6	FXD63B060	60
30		FXD63B150	150		FXD63B150	150		FXD63B100	100		FXD63B070	70
40		FXD63B175	175		FXD63B175	175		FXD63B125	125		FXD63B090	90
50		FXD63B200	200		FXD63B200	200		FXD63B150	150		FXD63B100	100
50		FXD63B225	225									
60	JXD2	JXD23B300	300	—	—	—	FXD6, FD6	FXD63B150	150	FXD6	FXD63B100	100
75	JXD2	JXD23B400	400	JXD2	JXD23B350	350	FXD6, FD6	FXD63B200	200	FXD6, FD6	FXD63B125	125
100	JXD2	JXD23B400	400	JXD2	JXD23B400	400	FD6 ^③ JD6 ^③	FD63B250 JD63B250	250 250	FXD6, FD6	FD63B175	175
125	LD6 ^③ or LMD6	LD63B600 LMD63B600	600	LD6 ^③ or LMD6	LD63B500 or LMD63B500	500	JD6 ^③	JD63B300	300	FXD6, FD6 OR JD6 ^③	FXD63B200 JD63B200	200 200
150	LD6 ^③ or LMD6	LD63B600 or LMD63B600	600	LMD6	LD63B600 or LMD63B600	600	JD6 ^③	JD63B300	300	FXD6 or JD6 ^③	FXD63B225 JD63B225	225 225
200	LMD6	LMD63B800	800	LMD6	LMD63B800	800	JD6 ^③	JD63B350	350	JD6 ^③	JD63B300	300
250	—	—	—	—	—	—	JD6 ^③	JD63B400	400	JD6 ^③	JD63B400	400
300	—	—	—	—	—	—	LD6 ^③ or LMD6	LD63B600 or LMD63B600	600	JD6 ^③	JD63B400	400
350	—	—	—	—	—	—	LMD6	LMD63B700	700	LD6 ^③ or LMD6	LD63B500 or LMD63B500	500
400	—	—	—	—	—	—	LMD6	LMD63B800	800	LD6 ^③ or LMD6	LD63B600 or LMD63B600	600
500	—	—	—	—	—	—	—	—	—	LMD6	LMD63B800	800

① The selection of breakers for this table is in accordance with Article 430, 2005 National Electric Code. Recommended circuit breakers are for full voltage starting, special consideration is necessary for reduced voltage starting.

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

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