

## Ordering

In the FD through RD frames, you may order molded case circuit breakers three basic ways:

- As separately ordered frames, trip units and lugs
- As frame, trip unit and lugs ordered as one catalog number and shipped unassembled or assembled
- As Frame and Trip Unit shipped assembled and with the trip unit made non-removable, in compliance with UL 489 requirements that to be reverse fed the circuit breaker must not have an interchangeable trip unit.

These two options are described in the following:

### Components Ordered Separately

To get the components for a 3-pole, 400 Amp standard interrupting circuit breaker, you would order the frame (JD63F400), the trip unit (JD63T400) and six lugs (TA2J6500). This option is normally useful only if you stock and use large volumes of product and wish to reduce your inventory cost. You may stock, for example, a smaller number of frames (JD63F400) and a variety of trip units (JD63T300, JD63T350, etc.) and assemble breakers as you need them.

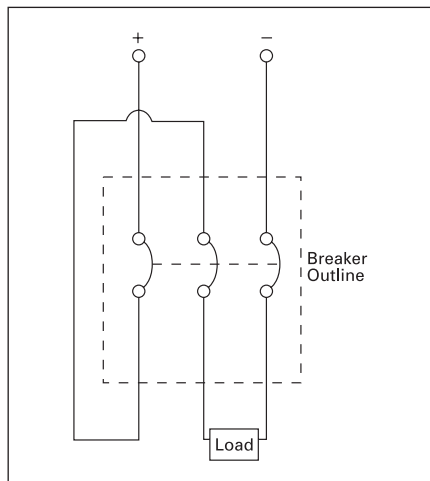
### Frame, Trip Unit and Lugs Ordered Together

If you order the catalog number JD63B400, you will receive a frame, a trip unit and 6 lugs in separate packages. By suffixing this number with "L" (e.g. JD63B400L), you will receive frame, trip unit and lugs assembled in one container. Pursuant to UL 489, a product ordered thus will have the markings "LINE" and "LOAD", and may not be "reverse fed" (with power flowing from the "OFF" end of the breaker toward the "ON" end).

### Non-Interchangeable Trip Breakers

If you place an "X" after the frame size designator (e.g. JXD63B400), you will receive a frame and trip unit assembled, with the trip unit made non-removable. If you suffix an "L" to this catalog number (e.g. JXD63B400L), you will receive the breaker, non-removable trip unit and lugs assembled. Unless you anticipate a specific need to change the breaker's ampere rating in the future, this is the preferred ordering method, as the products are assembled to Siemens' specifications in our factories. These breakers are suitable for use reverse fed according to UL 489, since the trip unit is not removable.

The smaller frames (QJ, ED and below) do not have removable trip units, and consequently are shipped only as assembled products. To add lugs, see the ordering instructions on each product's catalog page.

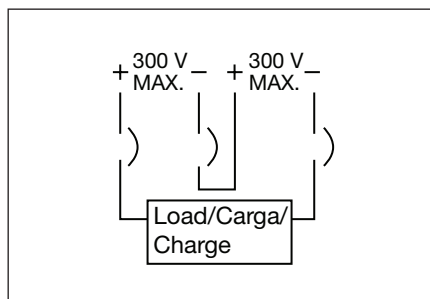


500V DC Wiring Configuration

## Connecting Breakers for DC Application

Most Siemens thermal magnetic trip MCCBs are applicable on direct current (dc) systems. Generally, for 250 V dc systems a two pole breaker is used, with one pole on each leg of the supply circuit. For three pole breakers applied on 500 V undergrounded DC systems, it is important to connect the power supply "zig-zag" through the breaker as shown in the figure below. This assures that the Voltage between phases on the breaker terminals is uniformly distributed.

See below for an alternative connection diagram. For a list of Sentron breakers with the DC ratings, please refer to pages 7-11 to 7-16.



# Molded Case Circuit Breakers

Federal Specification Classification

Reference

## W-C-375C/GEN

Class	Interrupting Rating		Poles	Range of Current Trip <sup>®</sup>	Breaker Type (All Circuit Breakers Meet or Exceed the Indicated Class Level)
	Symmetrical Amperes <sup>①</sup>	Volts AC 60HZ			
10a <sup>②</sup>	5,000	120/240	1 or 2	15–100	QP, BQ, QT, BL
10b	5,000	240	2 or 3	15–100	QP, BQ, BQD, CQD, BL
11a	7,500	120	1	15–100	QP, BQ, BQD, CQD, BL
11b	7,500	240	2 or 3	15–100	QP, BQ, BQD, CQD, BL
12a <sup>②</sup>	10,000	120/240	1 or 2	15–100	QP, BQ, QT, ED2, BL
12b	10,000	240	2 or 3	15–225	QP, BQ, QJ2, ED2, BQD, CQD, BL
12c	10,000	277	1	15–100	BQD, CQD, NGG, NGB, NEG, NEB
13a	14,000	277	1	15–100	ED4, BQD, CQD, NGG, NGB, NEG, NEB
13b	14,000	277/480	1, 2, or 3	15–100	ED4, BQD, CQD
14a	22,000	120/240	1 or 2	15–100	QPH, BQH, BLH
14b	22,000	240	2 or 3	70–400	QJH2, QJ2-H, BQH, BQD, CQD, BLH
15a	65,000	120/240	1 or 2	15–100	HQP, HBQ, ED4, HED4, NGG, NGB
15b	65,000	240	2 or 3	15–225	ED6, ED4, FXD6, FD6, HED4, BQD, CQD, HQJ2H, NGG, NGB, NEG, NEB
16a	100,000	480	2 or 3	15–225	CFD6, CED6
16b	100,000	600	2 or 3	15–600	CED6, CFD6, CJD6, SCJD6, CLD6, SCLD6
17a	200,000	600	2 or 3	70–2000	—
18a	18,000 14,000 14,000	240 480 600	2 or 3	15–125	ED6, HED6, HHED6
19a	22,000 18,000 14,000	240 480 600	2 or 3	70–225	FXD6, FD6, CFD6, HFD6
20a	25,000 22,000 22,000	240 480 600	2 or 3	70–225	FXD6-A, FD6-A, CFD6, HFD6
21a	42,000 30,000 22,000	240 480 600	2 or 3	70–800	HFD6, CFD6, JXD6(A), JD6(A), SJD6(A), HJD(A), HJXD6(A), HHJD6, SHJD6(A), CJD6, SCJD6, LXD6(A), LD6(A), SLD6(A), HLD6(A), HLXD6(A), HHL6(A), SHLD6(A), SHLD6(A), CLD6, SCLD6, LMD6, LMXD6, HLMD6, HLMXD6, MD6, MXD6, SMD6, HMD6, HMXD6, SHMD6, CMD6, SCMD6
22a	65,000 25,000 18,000	240 480 600	2 or 3	15–125	CED6, ED6, HED6, HHED6, FXD6-A, FD6-A
23a	65,000 35,000 25,000	240 480 600	2 or 3	70–1200	HHED6, FXD6-A, FD6-A, HFD6, HHFD6, CFD6, JD6(A), JXD6(A), SJD6(A), HJD6(A), HJXD6(A), SHJD6(A), HHJD6, HHJXD6, CJD6, SCJD6, LXD6(A), LD6(A), SLD6(A), HLD6(A), HLXD6(A), SHLD6(A), HHL6(A), HHLXD6, CLD6, SCLD6, LMD6, LMXD6, HLMD6, HLMXD6, MD6, MXD6, SMD6, HMD6, HMXD6, SHMD6, CMD6, SCMD6, ND6, NXD6, SND6, HND6, HNXD6, SHND6, CND6, SCND6
24a	65,000 50,000 42,000	240 480 600	2 or 3	1200–2000	PD6, PXD6, HPD6, HPXD6, CPD6, RD6, RXD6, HRD6, HRXD6, SPD6, SHPD6
25a	125,000 80,000 60,000	240 480 600	2 or 3	600–4000	HHL6, CLD6, CMD6, CND6, SCLD6, SCMD6, SCND6, CPD6

### Applicable Standards

UL489 — Molded Case Circuit Breakers and Circuit Breaker Enclosures.

UL486A — Wire Connectors and Solderless Lugs for use with copper wire

UL486B — Wire Connectors and Solderless Lugs for use with aluminum wire

UL943 — Ground Fault Interrupters (for personnel protectors)

UL1087 — Molded Case Switches

UL50 — Cabinets and Boxes

UL869 — Service Equipment

NEMA AB-1 — Molded Case Circuit Breakers and Molded Case Switches

CSA-C22.2 No. 5, C22.2 No. 14

### Note:

- (A) Molded case circuit breakers are designed and tested in accordance to applicable portions of UL489 and meet application requirements of the National Electric Code. Unless marked otherwise, circuit breakers are 80% duty rated.  
 (B) Molded case circuit breakers are to be connected with 60 or

75°C wire for circuit breakers having a rated ampacity of 100 amperes or less. Circuit breakers having a rated ampacity greater than 100 amperes shall only be cabled with 75°C cable unless otherwise indicated on the circuit breaker label. Exceptions to this rule are outlined in the article 110-14 C(1)(2) of the 2005 National Electric Code.

① Interrupting ratings are not limited to the values or groups of values listed. However, the values listed are minimum values for the class specified.

② Single-unit or duplex construction must be specified.

③ Use minimum frame size for ampere rating.

# Sentron Molded Case Circuit Breakers

If used on 250A frame and above means non-interchangeable trip breaker with factory assembled frame and trip. Solid state trip and current limiting (S or C in first character) are non-interchangeable only, and the "X" is omitted.



**Trip Unit Type**

- Omitted – Thermal-Magnetic
- S — Sensitrip® Electronic Trip

**Sentron Series Type/Interrupting Range**

- Omitted – Standard Rating
- H — High IC Rating
- HH — Extra High IC Rating
- C — Highest IC Rating and Current Limiting

**Frame Identifier**

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

**Maximum Voltage**

- 2 — 240 Vac
- 4 — 480 Vac
- 6 — 600 Vac

**Number of Poles**

- 1
- 2
- 3
- 9 used to indicate the max. functions for an electronic trip circuit breaker (always 3 poles)

**(Specific Application Type)**

- B — Standard 40°C Breaker
- M — Calibrated for 50°C Application
- F — Frame Only
- T — 40°C Trip Unit Only
- W — 50°C Trip Unit Only
- S — Molded Case Switch
- L — Low Instantaneous Range ETI Breaker
- A — Standard Range ETI Breaker
- H — High Instantaneous Range ETI Breaker

**Maximum Continuous Current Rating**

- ED Frame — 015, 020, 025, 030, 035, 040, 045, 050, 060, 070, 080, 090, 100, 110, 125
- FD Frame — 070, 080, 090, 100, 110, 125, 150, 175, 200, 225, 250
- JD Frame — 200, 225, 250, 300, 350, 400
- LD Frame — 250, 300, 350, 400, 450, 500, 600
- LMD Frame — 500, 600, 700, 800
- MD Frame — 500, 600, 700, 800
- ND Frame — 900, 100 (1000A), 120 (1200A)
- PD Frame — 120 (1200A), 140 (1400A), 160 (1600A)
- RD Frame — 160 (1600A), 180 (1800A), 200 (2000A)

**Suffix**

- L — where applicable indicates a breaker shipped with line/loads lugs installed
- A — used with a switch to show automatic self protection
- Y — 400 Hertz
- H — 100% rated
- P — Load side lugs only
- NAV — Navel Ratings

**NOTE:**

- Position omitted if not used.

# Molded Case Circuit Breakers

## Adjustable Instantaneous Magnetic Trip Settings

## Application

Breaker Type	Maximum Continuous Amperes	Nominal AC Adjustable Trip Range								ETI Motor Circuit Protector Catalog Number	Thermal Magnetic Catalog Number			
		Low	2	3	4	5	6	7	High		3-Pole	2-Pole	3-Pole	
HLMXD6	500	3000	3430	3860	4290	4710	5140	5570	6000	—	—	—	HLMXD63B500	
	600	3000	3430	3860	4290	4710	5140	5570	6000	—	—	—	HLMXD63B600	
	700	3200	3500	3700	4200	4700	6400	7300	8000	—	—	—	HLMXD63B700	
	800	3200	3500	3700	4200	4700	6400	7300	8000	—	—	—	HLMXD63B800	
HLMD6	500	3000	3430	3860	4290	4710	5140	5570	6000	—	—	—	HLMD62B500	
	600	3000	3430	3860	4290	4710	5140	5570	6000	—	—	—	HLMD62B600	
	700	3200	3500	3700	4200	4700	6400	7300	8000	—	—	—	HLMD62B700	
	800	3200	3500	3700	4200	4700	6400	7300	8000	—	—	—	HLMD62B800	
MD6	500	3000	3430	3860	4290	4710	5140	5570	6000	—	—	—	MD62B500	
	600	3000	3430	3860	4290	4710	5140	5570	6000	—	—	—	MD62B600	
	700	4000	4570	5140	5710	6280	6850	7420	8000	—	—	—	MD62B700	
	800	3000	3430	3860	4280	4710	5140	5570	6000	MXD63L800	—	—	—	
	800	4000	4570	5140	5710	6280	6850	7420	8000	MXD63A800	—	—	—	
	800	5000	5715	6430	7145	7860	8575	9290	10000	MXD63H800	—	—	—	
MXD6	500	3000	3430	3860	4280	4710	5140	5570	6000	—	—	—	MXD62B500	
	600	3000	3430	3860	4280	4710	5140	5570	6000	—	—	—	MXD62B600	
	700	4000	4570	5140	5710	6280	6850	7420	8000	—	—	—	MXD62B700	
	800	3000	3430	3860	4280	4710	5140	5570	6000	MXD63L800	—	—	—	
	800	4000	4570	5140	5710	6280	6850	7420	8000	MXD63A800	—	—	—	
	800	5000	5715	6430	7145	7860	8575	9290	10000	MXD63H800	—	—	—	
HMD6	500	3000	3430	3860	4280	4710	5140	5570	6000	—	—	—	HMD62B500	
	600	3000	3430	3860	4280	4710	5140	5570	6000	—	—	—	HMD62B600	
	700	4000	4570	5140	5710	6280	6850	7420	8000	—	—	—	HMD62B700	
	800	4000	4570	5140	5710	6280	6850	7420	8000	—	—	—	HMD62B800	
HMXD6	500	3000	3430	3860	4280	4710	5140	5570	6000	—	—	—	HMXD63B500	
	600	3000	3430	3860	4280	4710	5140	5570	6000	—	—	—	HMXD63B600	
	700	4000	4570	5140	5710	6280	6850	7420	8000	—	—	—	HMXD63B700	
	800	4000	4570	5140	5710	6280	6850	7420	8000	—	—	—	HMXD63B800	
CMD6	400	3000	3430	3860	4280	4710	5140	5570	6000	—	—	—	—	
	500	3000	3430	3860	4280	4710	5140	5570	6000	—	—	—	—	
	600	3000	3430	3860	4280	4710	5140	5570	6000	—	—	—	—	
	700	4000	4570	5140	5710	6280	6850	7420	8000	—	—	—	—	
	800	3000	3430	3860	4280	4710	5140	5570	6000	—	—	—	—	
	800	4000	4570	5140	5710	6280	6850	7420	8000	—	—	—	—	
ND6	800	4000	4570	5140	5710	6280	6850	7420	8000	—	—	—	ND62B800	
	900	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	ND62B900	
	1000	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	ND62B100	
	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	ND62B120	
	NXD6	900	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	NXD62B900
		1000	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	NXD62B100
1200		5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	NXD62B120	
HND6		800	4000	4570	5140	5710	6280	6850	7420	8000	—	—	—	HND62B800
		900	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	HND62B900
		1000	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	HND62B100
	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	HND62B120	
HNXD6	900	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	HNXD63B900	
	1000	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	HNXD63B100	
	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	HNXD63B120	
CND6	800	4000	4570	5140	5710	6280	6850	7420	8000	—	—	—	CND63B800	
	900	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	CND63B900	
	1000	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	CND63B100	
	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	CND63B120	
PD6	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	PD63B120	
	1400	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	PD63B140	
	1600	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	PD63B160	
PXD6	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	PXD63B120	
	1400	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	PXD63B140	
	1600	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	PXD63B160	
HPD6	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	HPD63B120	
	1400	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	HPD63B140	
	1600	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	HPD63B160	
HPXD6	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	HPXD63B120	
	1400	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	HPXD63B140	
	1600	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	HPXD63B160	
CPD6	1200	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	CPD63B120	
	1400	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	CPD63B140	
	1600	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	CPD63B160	
RD6	1800	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	RD63B180	
	2000	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	RD63B200	
RXD6	1800	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	RXD63B180	
	2000	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	RXD63B200	
HRD6	1800	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	HRD63B180	
	2000	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	HRD63B200	
HRXD6	1800	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	HRXD63B180	
	2000	5000	5715	6430	7145	7860	8575	9290	10000	—	—	—	HRXD63B200	

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MOLDED CASE  
CIRCUIT BREAKERS