

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.

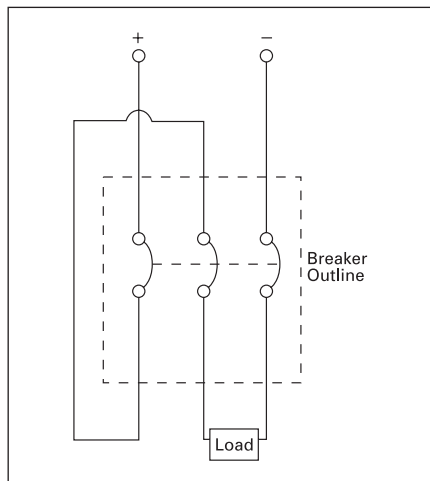
Frame, Trip Unit and Lugs Ordered Together

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.

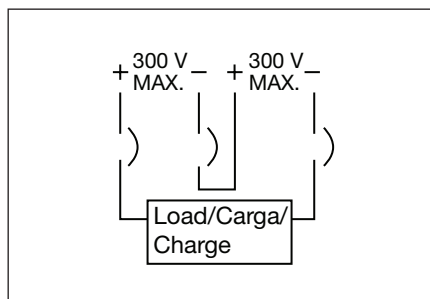


500V DC Wiring Configuration

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 [®]	Breaker Type (All Circuit Breakers Meet or Exceed the Indicated Class Level)
	Symmetrical Amperes ^①	Volts AC 60HZ			
10a ^②	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 ^②	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

MD 800A Frame Sentron Series

Selection

Type MXD6^{①⑥}

Blue Label

Non-Interchangeable Trip (Assembled Circuit Breaker Without Lugs)		
Continuous Current Rating @ 40°C	2-Pole ^②	3-Pole
	Catalog Number	Catalog Number
600	MXD62B600■	MXD63B600
700	MXD62B700■	MXD63B700
800	MXD62B800■	MXD63B800

Type MD6^⑥

Blue Label

Interchangeable Trip			
Continuous Current Rating @ 40°C	Complete Breaker Unassembled with Lugs	Frame Only	Trip Unit Only
	Catalog Number	Catalog Number	Catalog Number

2-Pole 600V AC, 250V DC^②

Continuous Current Rating @ 40°C	Catalog Number	Frame Only Catalog Number	Trip Unit Only Catalog Number
500	MD62B500■	MD62F800■	MD62T500■
600	MD62B600■		MD62T600■
700	MD62B700■		MD62T700■
800	MD62B800■		MD62T800■

3-Pole 600V AC, 500V DC^③

Continuous Current Rating @ 40°C	Catalog Number	Frame Only Catalog Number	Trip Unit Only Catalog Number
500	MD63B500	MD63F800	MD63T500
600	MD63B600		MD63T600
700	MD63B700		MD63T700
800	MD63B800		MD63T800

Lugs^④

Catalog Number	Cables Per Lug	Lugs Per Kit	Wire Range
TA2K500	1-2	1	#1-500 kcmil Cu/Al
TA3K500	1-3	1	1/0-500 kcmil Cu/Al
TC2K500	1-2	1	#1-500 kcmil Cu
TC3K350	1-3	1	#1-350 kcmil Cu
Kits			
2TA2N8750 3TA2N8750	1-2	2 3	500-750 kcmil Cu/Al
2TA3N8750 3TA3N8750	1-3	2 3	500-750 kcmil Cu/Al
2TA4N8500 3TA4N8500	1-4	2 3	250-500 kcmil Cu/Al
2TA4P8500 3TA4P8500	1-4	2 3	250-500 kcmil Cu/Al

Instantaneous Adjustment Trip Range

Ampere Rating	Nominal Instantaneous Values							
	Low +/- 20% Tolerance	2	3	4	5	6	7	High +/- 20% Tolerance
500	3000	3430	3860	4280	4710	5140	5570	6000
600-800	4000	4570	5140	5710	6280	6850	7420	8000

Ordering Information

Complete Breaker Unassembled with Lugs

Pricing information for MD6 and HMD6 breakers includes frame, trip, and both line and load lugs (TA3K500). When ordered by these catalog numbers, the customer will receive the frame, trip and lugs separately packaged. For applications requiring different lugs, order individual items as needed.

Complete Breaker Assembled without Lugs

Prices of MXD6, HMXD6 and CMD6 include frame with non-interchangeable trip units installed only. Order required lugs separately. For line and load lugs (TA3K500) installed, add suffix "L" to catalog number (add 2 times list price of lugs for each pole).

100% Rated^③ 3-Pole Only

Types MXD6, HMXD6 and CMD6 breakers are available with 100% ratings. To order add suffix "H" to catalog number, and 10% to list price. 100% rated MD breakers require the use of 90°C Cu cable sized at 75°C ampacity and lugs 3TA4P8500 or 3TA2N8750.

50°C Applications see page 7-91.

400Hz Applications see page 7-91.

Shipping Weights

Number of Poles	Number per Carton	Shipping Weight (lbs.)
MD6, HMD6, HMXD6, CMD6 Complete Breaker Assembled (less lugs)		
2	1	53
3	1	61.5
MD6, HMD6 Frame Only		
2	1	42.25
3	1	46
MD6, HMD6 Trip Unit Only		
2	1	4.5
3	1	6.5

Enclosures

Type	Catalog Number
1	MND61
3R	MND63
12	MND612■
Neutral	W63623

Modifications page 7-91
Enclosures Section 6
Accessories pages 7-65 and 7-95 to 7-100

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

①MXD6 circuit breakers are UL Listed for reverse connection applications.

②2-pole units available in 3-pole width only.

③ When wired as shown on page 7-4, this circuit breaker is UL listed and rated for use on 500V DC ungrounded UPS systems.

④ See **Note: A**, page 7-88.

⑤ 80% rated breakers with the CE mark will also be marked in the 100% rated version.

⑥ HACR rated.

Note: MD frame qualified to UL489 supplement B "NAVAL". See page 7-91 for additional information.

Molded Case Circuit Breakers

MD 800A Frame Sentron Series

Selection/Dimensions

Type HMXD6^{①⑤}

Black Label

Non-Interchangeable Trip (Assembled Circuit Breaker Without Lugs)		
Continuous Current Rating @ 40°C	2-Pole 600V AC/250V DC	3-Pole 600V AC/500V DC
	Catalog Number	Catalog Number
600	For 2-pole application use outside poles of 3-pole circuit breaker	HMXD63B600■
700		HMXD63B700■
800		HMXD63B800

Type HMD6^⑤

Black Label

Interchangeable Trip			
Continuous Current Rating @ 40°C	Complete Breaker Unassembled w/Lugs	Frame Only	Trip Unit Only
	Catalog Number	Catalog Number	Catalog Number

2-Pole 600V AC, 250V DC^②

500	HMD62B500■	HMD62F800■	MD62T500■
600	HMD62B600■		MD62T600■
700	HMD62B700■		MD62T700■
800	HMD62B800■		MD62T800■

3-Pole 600V AC, 500V DC^④

500	HMD63B500	HMD63F800	MD63T500
600	HMD63B600		MD63T600
700	HMD63B700		MD63T700
800	HMD63B800		MD63T800

Type CMD6^{①⑤}

Fuseless Current Limiting

Red Label

Non-Interchangeable Trip (Assembled Circuit Breaker Without Lugs)		
Continuous Current Rating @ 40°C	2-Pole 600V AC/250V DC	3-Pole 600V AC/500V DC
	Catalog Number	Catalog Number
600	For 2-pole application use outside poles of 3-pole circuit breaker	CMD63B600■
700		CMD63B700■
800		CMD63B800

Interrupting Ratings

Breaker Type	UL 489 AIR—File E10848					IEC 947-2 AIR					
	RMS Symmetrical Amperes (KA)					Volts AC (50/60HZ)					
	Volts AC			Volts DC		220/240		380/415		500	
	240	480	600	250	500 ^⑥	(lcu)	(lcs)	(lcu)	(lcs)	(lcu)	(lcs)
MD6, MXD6	65	50	25	30 (2-P)	25 (3-P)	65	33	40	20	—	—
HMD6, HMXD6	100	65	50	30 (2-P)	50 (3-P)	100	50	65	33	—	—
CMD6	200	100	65	—	50 (3-P)	—	—	—	—	—	—

For inches / millimeters conversion, see Application Data section.

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

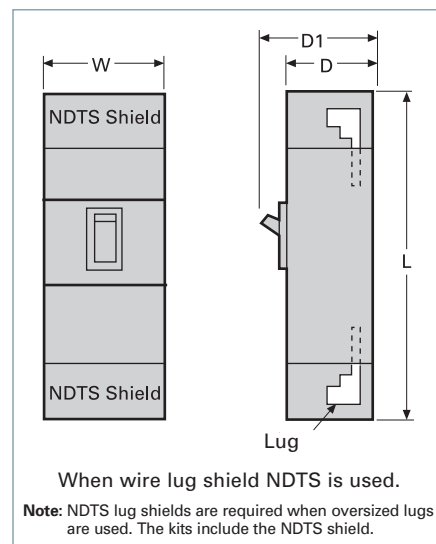
① HMXD6 and CMD circuit breakers are UL listed for reverse connection applications.

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

③ MXD6-ETI, CMD6-ETI see page 7-74 for catalog information.

④ When wired as shown on page 7-4, this circuit breaker is UL listed and rated for use on 500V DC ungrounded UPS systems only.

⑤ HACR rated.



Dimensions (in inches)

Breaker Type	W	L	D	(To Handle) D1
MD6, MXD6, HMD6, HMXD6, CMD6, MXD6-ETI, CMD6-ETI, SMD6, SHMD6, and SCMD6	9	16	6	8.25
with lug shields	9	24	6	8.25

MOLDED CASE CIRCUIT BREAKERS