

## 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.

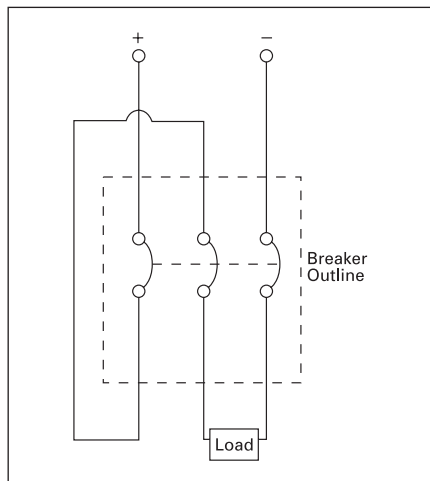
### Frame, Trip Unit and Lugs Ordered Together

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.

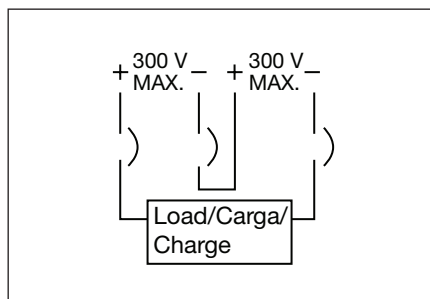


500V DC Wiring Configuration

## 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

ED 125A Frame Sentron Series

Selection

## Ordering Instructions

- All ED Frame Sentron circuit breakers are supplied with load side lugs. If line side lugs are required, add "L" suffix to catalog number. Consult Siemens sales office for any additional charge
- 50°C Calibration, 400HZ - see page 7-91. All ED frame circuit breakers may be reverse connected

## Type ED2<sup>⑤</sup>

Blue Label

Continuous Current Rating @ 40°C	1-Pole		2-Pole		3-Pole
	120V AC	125V DC	240V AC	125V DC 250V DC	240V AC
	Catalog Number		Catalog Number		Catalog Number
15	ED21B015 <sup>④</sup> ■		ED22B015		ED23B015
20	ED21B020 <sup>④</sup> ■		ED22B020		ED23B020
25	ED21B025■		ED22B025■		ED23B025■
30	ED21B030■		ED22B030		ED23B030
35	ED21B035■		ED22B035■		ED23B035■
40	ED21B040■		ED22B040		ED23B040
45	ED21B045■		ED22B045■		ED23B045■
50	ED21B050■		ED22B050		ED23B050
60	ED21B060■		ED22B060		ED23B060
70	ED21B070■		ED22B070		ED23B070
80	ED21B080■		ED22B080■		ED23B080
90	ED21B090■		ED22B090■		ED23B090■
100	ED21B100■		ED22B100		ED23B100

## Shipping Weights

Number of Poles	Number per Carton	Shipping Weight (lbs.)
<b>ED2, ED4, ED6, HED4, HHED6</b>		
1	30	38
2	10	25
3	10	38
<b>CED6</b>		
2	5	20
3	5	30

## Lugs

Ampere Rating	No. of Poles	Catalog Number	Wire Range
<b>Aluminum Body Lugs</b>			
All 15-25A	1, 2, 3	Line/Load SA1E025	#14-#10 Cu #12-#10 Al
All 30-100A	1, 2, 3	Line Side LN1E100	#10-1/0 Cu/Al
ED2, 4, CED6 30-60A	1	Load Side LD1E060	#10-#4 Cu/Al
ED2, 4, CED6 70-100A	1	Load Side LD1E100	#6-#1/0 Cu/Al
ED2, 4, HED4, HHED6 30-100A	2, 3	Load Side LN1E100	#10-1/0 Cu/Al
ED6 20-50A	2, 3	Line Side LN1E100	#10-1/0 Cu/Al
All 110, 125A	2, 3	Line/Load TA1E6125	#3-3/0 Cu #1-2/0 Al
<b>Copper Body Lugs</b>			
All 30-125A	1, 2, 3	Line/Load TC1ED6150 <sup>③</sup>	#10-1/0 Cu only
<b>Compression Lugs</b>			
All ED, HHED, CED		CCE125	2/0

## Enclosures (Neutral Included)<sup>⑥</sup>

Type	Catalog Number
1 (Surface)	E2N1S (15-100A)
1 (Flush)	E2N1F (15-100A)
3R	E2N3R (15-100A)
4-4X	ED6SS4 (15-100A)
4-4X	ED6S4 (15-100A)
4-4X (316SS)	ED6S4316 (15-100A)
7-9	EA (15-60A)
7-9	EB (70-100A)
12	E2N12 (15-100A)
1 (Surface)	CED6N1S <sup>②</sup>
1 (Flush)	CED6N1F <sup>②</sup>
3R	CED6N3R <sup>②</sup>
12	CED6N12 <sup>②</sup>

## Type ED4<sup>⑤</sup>

Blue Label

Continuous Current Rating @ 40°C	1-Pole		2-Pole		3-Pole
	120V AC	125V DC	480V AC	250V DC	480V AC
	Catalog Number		Catalog Number		Catalog Number
15	ED41B015 <sup>④</sup>		—		ED43B015
20	ED41B020 <sup>④</sup>		ED42B020		ED43B020
25	ED41B025		ED42B025		ED43B025
30	ED41B030		ED42B030		ED43B030
35	ED41B035■		ED42B035■		ED43B035
40	ED41B040		ED42B040		ED43B040
45	ED41B045■		ED42B045■		ED43B045
50	ED41B050		ED42B050		ED43B050
60	ED41B060		ED42B060		ED43B060
70	ED41B070		ED42B070		ED43B070
80	ED41B080■		ED42B080■		ED43B080
90	ED41B090■		ED42B090■		ED43B090
100	ED41B100		ED42B100		ED43B100
110	ED41B110		ED42B110■		ED43B110
125	—		ED42B125		ED43B125

## Type ED6<sup>⑤</sup>

Blue Label

Continuous Current Rating @ 40°C	1-Pole <sup>①</sup>		2-Pole		3-Pole		3-Pole
	347V AC		600V AC	250V DC	600V AC	500V DC	600V DC
	Catalog Number		Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number
15	ED61B015	—	—	—	—	—	ED63D015L
20	ED61B020	ED62B020	—	—	ED63B020	—	ED63D020L
25	ED61B025	ED62B025■	—	—	ED63B025	—	ED63D025L
30	ED61B030	ED62B030	—	—	ED63B030	—	ED63D030L
35	ED61B035	ED62B035■	—	—	ED63B035	—	ED63D035L
40	ED61B040	ED62B040■	—	—	ED63B040	—	ED63D040L
45	ED61B045■	ED62B045■	—	—	ED63B045	—	ED63D045L
50	ED61B050	ED62B050■	—	—	ED63B050	—	ED63D050L
60	ED61B060	—	—	—	ED63B060	—	ED63D060L
70	ED61B070■	—	—	—	ED63B070	—	—
80	ED61B080	—	—	—	ED63B080	—	—
90	ED61B090	—	—	—	ED63B090	—	—
100	ED61B100■	—	—	—	ED63B100	—	—
110	—	—	—	—	ED63B110	—	—
125	—	—	—	—	ED63B125	—	—

Note: ED frame circuit breakers qualified to UL 489 Supplement SB "Naval"— See page 7-91 for additional information

- Built to order. Allow 2-3 weeks for delivery.
- ① CSA Certified only (Not UL)

② For CED types and all 110-125 ampere ED frames.

③ See Note: A, page 7-88.

④ SWD rated.

⑤ HACR rated.

⑥ Not for use with HHED6 breakers.

Modifications page 7-91  
Enclosures Section 6  
Accessories pages 7-47 and 7-95 to 7-100

# Molded Case Circuit Breakers

A variety of internal and external accessories, as well as modifications, are available to adapt Siemens circuit breakers to special installation requirements. UL listed internal accessories for 100 through 2000A circuit breakers are field-addable.

Internal accessories fine tune an electrical distribution system, allowing control of the circuit breakers to meet special application requirements. For example, emergency situations may dictate tripping critically placed circuit breakers quickly. Shunt trips accomplish this conveniently and efficiently. Or, when voltage drops are a concern, undervoltage trips automatically open the circuit breaker at a predetermined voltage level.

A wide range of external operating and mounting accessories is also available. For example, face, shallow, and back mounting plates are ideal for tailoring BQ circuit breakers to OEM applications. A complete line of operating handles and handle-blocking devices meet switchboard, enclosure and safety needs. Plug-in mounting assemblies, which simplify switchboard mounting of circuit breakers and permit breaker removal without disconnecting bus or cable connections, are available.

## UL 489 Supplement SB Naval Use Breakers

Breakers tested to UL 489 Supplement SB are qualified for use on non combat and auxiliary naval vessels.

Siemens molded case breakers, including BL, NGB and Sentron ED through RD frames can be labeled "NAVAL" in compliance with UL 489 Supplement SB.

Supplement SB testing comprises two sets of vibration tests. The first is to find mechanical resonances in the product and to subject the breaker to extreme testing at each resonant frequency. The second is a swept frequency test, in which the frequency of excitation is changed in intervals of 1Hz, and held at each frequency for five minutes. The excitation frequencies run from 4 to 33Hz, and the test is conducted in each of the three orthogonal axes of the breaker.

During these tests, the breaker must not trip from the closed position, nor may the contacts touch from the open position. Calibration and insulation resistance are also verified during the test.

For detailed information, refer to UL 489, Supplement SB.

### 50°C Ambient Calibration — Not UL listed and not available for solid state, 100% rated breakers or 400HZ calibrated breakers.

- For BL Type Circuit Breakers
  - Add suffix 'M' to catalog number (Example: B120M).....No Charge
- For BQ and ED Frame Circuit Breakers
  - Replace 'B' in catalog number with 'M' .....No Charge (Example: BQ3M060, ED63M060)
- For FD, JD, LD, LMD, MD, ND, PD, and RD Frame Circuit Breakers
  - Non-Interchangeable Trip (3-pole only) .....No Charge
  - Replace 'B' in catalog number with 'M' (Example: FXD63M225, JXD63M400)

### 400 HZ Calibration

- UL Listed (5KA IR)
  - For BQ & BL Type Circuit Breakers (200A max.).....Add 25% to list price
  - Add suffix 'Y' to catalog number
- Not UL Listed
  - For all other Circuit Breakers, see derating tables on page 7-102 and order standard circuit breakers.

### Fungus Proofing

- All BQD, CQD, GB, GG, ED, FD, JD, LD, LMD, MD, ND, PD, RD, DG, FG, JG, LG, MG, NG, and PG Frame Circuit Breakers are inherently fungus resistant and do not require special treatment.
- For BL, and BQ Type Circuit Breakers.....Add \$10.00 net per pole
  - Consult Sales Office for Availability
- For all other Circuit Breaker Types.....Add \$160.00 net per device
  - Consult Sales Office for Availability

**Certificate of Compliance with Test Report (catalog number CERT OF COMP.)** Add \$210.00 net  
 Certificate of compliance testing must be performed on the actual device being shipped. The certificate cannot be provided after initial shipment. Order for devices with COC requirement must be placed directly with the factory by the sales office and shipped directly to the end user.

### Ordering Information

For "NAVAL" label, add **\$75.** net per catalog number per order. Order must be placed directly with the factory by Siemens Sales Office.

Types	UL File
BQD/CQD	E10848, Vol 10, Sec 1
GG	E10848, Vol 10, Sec 2
GB	E10848, Vol 10, Sec 3
ED2, ED4, IIED4, HED6	E10848, Vol 4, Sec 11
CED6	E10848, Vol 4, Sec 13
FD6, FXD6, HFD6, HFXD6	E10848, Vol 4, Sec 17
CFD6	E10848, Vol 4, Sec 18
JXD2, JD6, JXD6, LXD6, LD6, HJD6, HJXD6, HLD6, HLXD6	E10848, Vol 4, Sec 8
HHJD6, HHJXD6, HHLD6, HHLXD6	E10848, Vol 4, Sec 20
CJD6, CLD6	E10848, Vol 4, Sec 14
MD6, MXD6, HMD6, HMXD6, CMD6, ND6, NXD6, HND6, HNXD6, CND6	E10848, Vol 4, Sec 15
PD6, PXD6, HPD6, HPXD6, CPD6, RD6, RXD6, HRD6, HRXD6	E10848, Vol 4, Sec 19