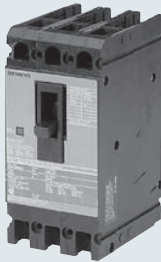


contents

600V Circuit Breakers



Sentron ED Breakers

Selection and ordering data

	240V	480V	600V
ED2	10KAIC	—	—
ED4	65KAIC	18KAIC	—
ED6	65KAIC	25KAIC	18KAIC

1-, 2- & 3-pole up to 125A for circuit protection up to 600 volt circuits (UL/CSA/IEC)

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Sentron HED/CED Breakers

Selection and ordering data

	480V	600V
HED4	42KAIC	—
CED6	200KAIC	100KAIC

1-, 2- & 3-pole up to 125A for circuit protection up to 600 volt circuits (UL/CSA/IEC)

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Sentron FD Breakers

Selection and ordering data

	480V	600V
FD6	35KAIC	22KAIC
HFD6	65KAIC	25KAIC
HHFD6	100KAIC	25KAIC
CFD6	200KAIC	100KAIC

2- & 3-pole up to 250A for circuit protection up to 600 volt circuits (UL/CSA/IEC)

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600V Circuit Breakers



Sentron JD Breakers

Selection and ordering data

	240V	480V	600V
JD2	65KAIC	—	—
JD6, SJD6-A	65KAIC	35KAIC	25KAIC
HHJD6	200KAIC	100KAIC	50KAIC
CJD6, SCJD6-A	200KAIC	150KAIC	100KAIC
HJD6, SHJD6-A	100KAIC	65KAIC	35KAIC

2- & 3-pole up to 400A for circuit protection up to 600 volt circuits (UL/CSA)

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Internal Accessories	17/72
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Sentron LD Breakers

Selection and ordering data

	480V	600V
LD6, SLD6-A	35KAIC	25KAIC
HLD6, SHLD6-A	65KAIC	25KAIC
HHL6	100KAIC	50KAIC
CLD6, SCLD6-A	150KAIC	100KAIC

2- & 3-pole up to 600A for circuit protection up to 600 volt circuits (UL/CSA)

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Sentron LMD Breakers

Selection and ordering data

	480V	600V
LMD6	50KAIC	25KAIC
HLMD6	65KAIC	50KAIC

2- & 3-pole up to 800A for circuit protection up to 600 volt circuits (UL/CSA)

Information	Page
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Introduction

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.

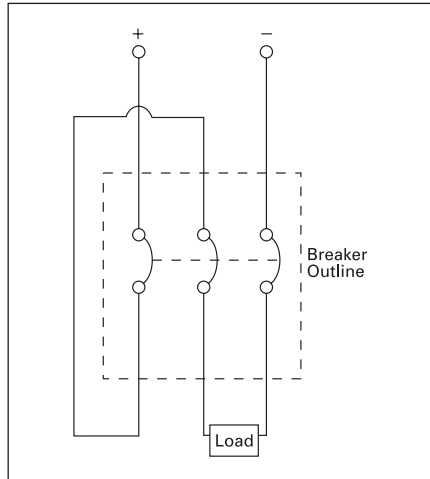
Frame, Trip Unit and Lugs Ordered Together

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.

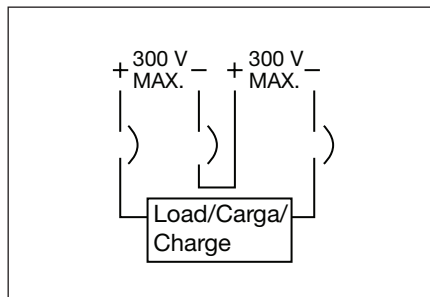


500V DC Wiring Configuration

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 Speedfax pages 7-11 to 7-16.



Accessories

Selection

Type FXD6-A^{①④}

Blue Label

Non-Interchangeable Trip (Assembled Circuit Breaker – Without Lugs)		
Continuous Current Rating @ 40°C	2-Pole	3-Pole
	Catalog Number	Catalog Number
70	FXD62B070■	FXD63B070
80	FXD62B080■	FXD63B080
90	FXD62B090■	FXD63B090
100	FXD62B100■	FXD63B100
110	FXD62B110■	FXD63B110
125	FXD62B125■	FXD63B125
150	FXD62B150■	FXD63B150
175	FXD62B175■	FXD63B175
200	FXD62B200■	FXD63B200
225	FXD62B225■	FXD63B225
250	FXD62B250■	FXD63B250

Ordering Information

Complete Breaker Unassembled with Lugs

Prices of FD6, HFD6, and HHFD6 breakers includes frame, trip and both line and load lugs (TA1FD350A). 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 with-out Lugs

Prices of FXD6, HFXD6, HHFXD6, and CFD6 includes frame with non-interchangeable trip unit installed only. Order required lugs separately. For line and load lugs (TA1FD350A) installed, add suffix "L" to catalog number (add 2 times list price of lugs for each pole).

50°C Applications see page 17/104.

400 Hz Applications see page 17/104.

Type FD6-A^⑥

Blue 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

70	FD62B070■	FD62F250	FD62T070■
80	FD62B080■		FD62T080■
90	FD62B090■		FD62T090■
100	FD62B100■		FD62T100■
110	FD62B110■		FD62T110■
125	FD62B125■		FD62T125■
150	FD62B150■		FD62T150■
175	FD62B175■		FD62T175■
200	FD62B200■		FD62T200■
225	FD62B225■		FD62T225■
250	FD62B250■		FD62T250■

3-Pole 600V AC, 500V DC^③

70	FD63B070■	FD63F250	FD63T070■
80	FD63B080■		FD63T080■
90	FD63B090■		FD63T090■
100	FD63B100■		FD63T100■
110	FD63B110■		FD63T110■
125	FD63B125■		FD63T125■
150	FD63B150■		FD63T150■
175	FD63B175■		FD63T175■
200	FD63B200■		FD63T200■
225	FD63B225■		FD63T225■
250	FD63B250■		FD63T250■

Lugs For 75°C Wire^⑤

Catalog Number	Wire Range
TA1FD350A	#6–350 kcmil Cu #4–350 kcmil Al
TC1FD350	#6–350 kcmil Cu
Compression Lug	
CCF250	350 kcmil Cu/Al

Enclosures

Type	Catalog Number
1	F6N1S(F)
3R	F6N3R
4-4X	FD6SS4
7-9	EC2
12	F6N12
Neutral ^④	N250

Modifications page 17/104
Enclosures Section 6
Accessories pages 17/68 and 17/24 to 17/27

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

- ① Type FXD6-A circuit breakers are UL Listed for reverse fed applications.
- ② 2-pole units are 3-pole width.
- ③ When wired as shown on page 17/5, this circuit breaker is UL listed and rated for use on 500V DC ungrounded UPS systems only.
- ④ Order neutral as separate item.
- ⑤ See **Note: A**, page 17/31.
- ⑥ HACR rated.

Interrupting Ratings

Breaker Type	RMS Symmetrical Amperes (KA)										
	UL 489 AIR (File E10848)						IEC 947-2				
	Volts AC (50/60Hz)			Volts DC		Volts AC (50/60Hz)					
	240	480	600	250	500 ^⑤	220/240	380/415	500			
						lcu	lcs	lcu	lcs	lcu	lcs
FXD6-A, FD6-A	65	35	22	30 (2-P)	18 (3-P)	65	33	35	9	—	—
HFXD6, HFD6	100	65	25	30 (2-P)	25 (3-P)	100	50	65	33	—	—
HHFD6, HHFXD6	200	100	25	—	—	—	—	—	—	—	—
CFD6	200	200	100	30 (2-P)	50 (3-P)	—	—	—	—	—	—

Instantaneous Adjustment Trip Range

Breaker Ampere Rating	Nominal Instantaneous Values							
	±20% Tolerance Low							±20% Tolerance High
		2	3	4	5	6	7	
70-90	600	640	690	730	770	810	850	900
100-110	700	770	840	920	990	1060	1140	1200
125-150	800	900	1000	1100	1200	1300	1400	1500
175-200	900	1060	1210	1370	1520	1780	1930	2000
225-250	1100	1300	1500	1700	1900	2100	2300	2500

Note: FD frame qualified to UL489 supplement SB "NAVAL".
See page 17/104 for additional information.

Modifications

General Selection

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.

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 17/115 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.

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.

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, ILED4, 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