

Molded Case Circuit Breakers

Introduction

What's New?

Siemens Energy & Automation is proud to announce several new products. These new concepts serve the OEM and power distribution markets.

WL Power Circuit Breakers



It's the Circuit Breaker that changes everything! And it's armed with a full array of competitive advantages:

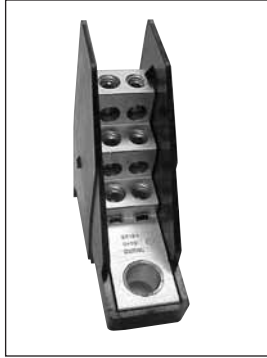
- Reliable – increased operations and better than 1% metering accuracy
- Compact – smallest switchgear footprint in the industry
- Easy to Use – straightforward catalog numbers & selection tools
- Modular – drop-in, front-mounted accessories & field changeable main contacts
- System Solution – Internet/Ethernet, Modbus and Profibus communications
- Safety – customized interlocking and unique status indicators

Specifications and Applications:

- Standards: UL489, UL1066 and ANSI C37
- Frame Ratings: 800A to 5000A
- Rated Nominal Voltages: 240, 480 and 600VAC
- Interrupting Ratings: from 50KA to 150KA un-fused and 200KA fused
- Assemblies: Fixed mounted, draw-out Circuit Breaker or Non-automatic Switch
- Applicable for all ICCB or RL Breaker applications

The WL Circuit Breaker may be new to North America, but it has already been proven in the field – with two years of flawless performance in Europe. No other product on the market today offers more flexibility or greater reliability.

Sentron Distribution Lug



Distribution lugs are now available for use with Siemens Sentron E, F, J and L-frame circuit breakers. These lugs are UL 486-B recognized and are ideal for UL 508 control panel applications to replace a distribution block. Using the Sentron distribution lugs can reduce the need for extra wire stripping. They also reduce the use of extra crimp connectors going between the circuit breaker and distribution block.

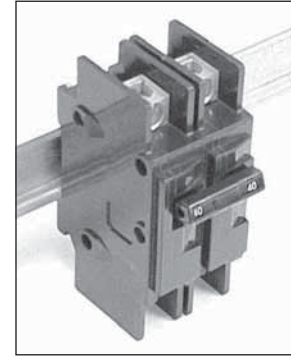
CE Marking

A wide range of Sentron® thermal magnetic circuit breakers has been fully tested for compliance with the European community's Low Voltage Directive, and carry the CE mark, indicating their compliance with that directive. These are noted in the Speedfax with the stylized CE in watermark behind the catalog numbers. Declarations of conformity are available for these products. A point of misunderstanding lies in the area of handle operators. A handle operator alone, such as that for the Max-flex, since there is no applicable European Directive, may not carry the CE mark. The mark is affixed to the finished equipment that incorporates the handle, but not to this component device.

PLC Level Auxiliary Switches

A new family of gold flashed auxiliary switches for the FD through ND breakers allows sensing at very low voltage and currents for interface directly to programmable logic controllers and other electronic devices. Standard contacts, built to switch 120 Volts and higher currents can be unreliable when the sensing current is in the milliamp range, and the sensing voltage is 12 Volts or lower. These very reliable low level switches overcome that limitation. Standard switch contacts should, of course, continue to be used in standard current and voltage applications.

DIN Rail mounted 120/240 V Breaker



The Siemens BQ breakers are now available in 1- and 2-pole construction, from 15 to 60 Amps in lug in – lug out DIN rail mounted configuration. These breakers, rated 120/240 Volts, are ideal for applications in control panels and HVAC, and with their available finger safe terminal shields can qualify as service disconnects.

NGG Type 125A Frame Circuit Breaker



The new NGG Circuit Breaker is a compact, industrial design with true value-added features such as Global Ratings (UL/CSA/IEC/CE/NOM), flexible DIN or base mounting without the need for adapters and UL Listed for field install-able accessories. This NGG125 has a 25KAIC interrupting rating at 480VAC and features a Quick Make/Quick Break Trip-free Mechanism. All this in a 3.0W x 5.4H x 2.8D package. Please consult your sales office for availability.

HID Lighting Breakers

Siemens BQD and CQD circuit breakers have been tested and approved for use in switching HID lighting. One, two and three pole breakers from 15A to 50A are now approved and marked for use in these high energy lighting systems where the breakers is used to directly control the lighting in 120VAC, 240VAC, 277AC or 480/277VAC circuits.

Molded Case Circuit Breakers

Catalog Numbering System

Selection/Application

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 | M — Type MD |
| F — Type FD | N — Type ND |
| J — Type JD | P — Type PD |
| L — Type LD | R — Type RD |
| LM — Type LMD | T — Type TD |

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)
- TD Frame — 2000, 2500, 3200

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

NOTE:

- Position omitted if not used.



Molded Case Circuit Breakers

Reference Guide

Selection/Application

Thermal-Magnetic Trip Breakers

Page			General Purpose Breakers									
			NEG 17/18	HEG 17/18	ED2 17/20	ED4 17/20	ED6 17/20	HED4 17/21	CED6 17/21			
Poles			1, 2, 3, 4	1, 2, 3, 4	1, 2, 3	1, 2, 3	1 [ⓐ] , 2, 3	1, 2, 3	2, 3			
Ratings	Amperes, Continuous		15-125	15-125	15-100	15-125	15-125	15-125	15-125			
	Volts 50/60HZ		1-Pole	347 [ⓑ]	347 [ⓑ]	120	277	347	277	—		
			2-Pole	600/347	600/347	240	480	600	480	600		
			3-Pole	600/347	600/347	240	480	600	480	600		
	Interrupt Rating Symmetrical RMS Amperes		UL	120V	—	—	10,000	—	—	100,000	—	
				240V	85,000	100,000	10,000	65,000	65,000	100,000 [ⓐ]	200,000	
				277V	—	—	—	22,000 [ⓑ]	—	65,000 [ⓐ]	—	
				347V	—	—	—	—	30,000	—	—	
				480V	35,000	65,000	—	18,000	25,000	42,000	200,000	
				600V	22,000 [ⓐ]	25,000 [ⓐ]	—	—	18,000	—	100,000	
			IEC 947-2 50/60HZ	220/240V	lcu	85,000	100,000	—	—	65,000	—	200,000 [ⓐ]
					lcs	43,000	50,000	—	—	17,000	—	—
				380/415V	lcu	40,000	70,000	—	—	35,000	—	200,000 [ⓐ]
					lcs	20,000	35,000	—	—	9,000	—	—
	500V	lcu	—	—	—	—	18,000	—	—			
lcs		—	—	—	—	5,000	—	—				
DC		2-Pole, 250V DC Interrupting Ratings		—	—	5,000	30,000	30,000	30,000			
		3-Pole, 500V DC Interrupting Ratings [ⓐ]		—	—	—	—	18,000	—	50,000		
Dimensions in inches	Height		5.5	5.5	6.34	6.34	6.34	6.34	9.26			
	Width		1-Pole	1.00	1.00	1.00	1.00	1.00	1.00			
			2-Pole	2.00	2.00	2.00	2.00	2.00	2.00			
			3-Pole	3.00	3.00	3.00	3.00	3.00	3.00			
			4-Pole	4.00	4.00	—	—	—	—			
Depth		3.00	3.00	4.00	4.00	4.00	4.00	4.00				
Overcurrent Devices	Thermal and Fixed Magnetic Trip		✓	✓	✓	✓	✓	✓	✓			
	Thermal and Adjustable Magnetic Trip		—	—	—	—	—	—	—			
	Adjustable Magnetic Trip only		✓	✓	—	—	✓	—	✓			
	Motor Circuit Protector		—	—	—	—	—	—	—			
	Molded Case Switch		✓	✓	✓	✓	✓	—	✓			
Accessories & Modifications	Undervoltage Trip		✓	✓	✓	✓	✓	✓	✓			
	Shunt Trip		✓	✓	✓	✓	✓	✓	✓			
	Auxiliary Switch		✓	✓	✓	✓	✓	✓	✓			
	Alarm Switch		✓	✓	✓	✓	✓	✓	✓			
	Mechanical Interlock		—	—	—	—	—	—	—			
	Rear Connection Studs		✓	✓	✓	✓	✓	✓	✓			
	Electric Motor Operator		✓	✓	✓	✓	✓	✓	✓			
	Plug-In Mounting Assembly		✓	✓	✓	✓	✓	✓	✓			
	Fungus Proofing (ref. page 17/70)		✓	✓	✓	✓	✓	✓	✓			
Individual Enclosures	Type 1 — Indoor Surface		✓	✓	✓	✓	✓	✓	✓			
	Type 1 — Indoor, Flush		✓	✓	✓	✓	✓	✓	✓			
	Type 3R — Outdoor-Rainproof		✓	✓	✓	✓	✓	✓	✓			
	Type 7 — Flammable Gas Atmosphere		—	—	✓	✓	✓	✓	—			
	Type 9 — Combustion Dusttight		—	—	✓	✓	✓	✓	—			
	Type 5, 12 — Lint, Fine Dust, Oils, Coolants		✓	✓	✓	✓	✓	✓	✓			
	Type 12K — Semi-Dusttight		✓	✓	✓	✓	✓	✓	✓			

For inches / millimeters conversion, see Application Data section.

ⓐ 1-pole only.

ⓑ 35-100A: 25,000 AIR at 277V AC/15-30A: 65,000 AIR at 277V AC.

ⓐ For DC UPS system application.

ⓐ Single pole ED6 (15-30A) 30kA, (35-100A) 18 kA. CSA Only.

ⓐ Single pole HED4, 15-30A: 65,000 AIR at 240V AC; single pole HED4, 35-100A: 25,000 AIR at 240V AC.

ⓐ NEG and HEG breakers are rated at 600/347V.

ⓐ 1-pole NEG breaker is rated 85K @ 240V, 35K @ 277V and 22K @ 347V. 1-pole HEG breaker is rated 100K @ 240V, 65K @ 277V and 25K @ 347V.

Molded Case Circuit Breakers

ED 125A Frame Sentron Series

Selection/Dimensions

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, and breaker will be supplied with line lugs installed at no charge.
- 50°C Calibration, 400HZ - see page 17/70. All ED frame circuit breakers may be reverse connected.

Type ED2[®]

Blue Label

Continuous Current Rating @ 40°C	1-Pole		2-Pole		3-Pole	
	120V AC		125V DC		240V AC	
	Catalog Number	List Price \$	Catalog Number	List Price \$	Catalog Number	List Price \$
15	ED21B015 [®]		ED22B015		ED23B015	
20	ED21B020 [®]		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.)
ED2, ED4, ED6, HED4, HHED6		
1	30	38
2	10	25
3	10	38
CED6		
2	5	20
3	5	30

Type ED4[®]

Blue Label

Continuous Current Rating @ 40°C	1-Pole		2-Pole		3-Pole	
	120V AC		125V DC		480V AC	
	Catalog Number	List Price \$	Catalog Number	List Price \$	Catalog Number	List Price \$
15	ED41B015 [®]		ED42B015		ED43B015	
20	ED41B020 [®]		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	—	—	ED42B110		ED43B110	
125	—	—	ED42B125		ED43B125	

Lugs

Ampere Rating	No. of Poles	Catalog Number	Wire Range
Aluminum Body Lugs			
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, 6, HED4, HHED6 30-100A	2, 3	Load Side LN1E100	#10-1/0 Cu/Al
All 110, 125A	2, 3	Line/Load TA1E6125	#3-3/0 Cu #1-2/0 Al
Copper Body Lugs			
All 30-125A	1, 2, 3	Line/Load TC1ED6150 [®]	#10-1/0 Cu only
Compression Lugs			
All ED, HHED, CED		CCE125	2/0

Enclosures (Neutral Included)

Type	Catalog Number	List Price \$
1 (Surface)	E2N1S (15-100A)	
1 (Flush)	E2N1F (15-100A)	
3R	E2N3R (15-100A)	
4-4X	ED6SS4 (15-100A)	
7-9	EA (15-60A)	
7-9	EB (70-100A)	
12	E2N12 (15-100A)	
1 (Surface)	CED6N1S [®]	
1 (Flush)	CED6N1F [®]	
3R	CED6N3R [®]	
12	CED6N12 [®]	

Type ED6[®]

Blue Label

Continuous Current Rating @ 40°C	1-Pole [®]		2-Pole		3-Pole	
	347V AC		600V AC		250V DC	
	Catalog Number	List Price \$	Catalog Number	List Price \$	Catalog Number	List Price \$
15	ED61B015		ED62B015		ED63B015	
20	ED61B020		ED62B020		ED63B020	
25	ED61B025		ED62B025		ED63B025	
30	ED61B030		ED62B030		ED63B030	
35	ED61B035		ED62B035		ED63B035	
40	ED61B040		ED62B040		ED63B040	
45	ED61B040		ED62B045		ED63B045	
50	ED61B050		ED62B050		ED63B050	
60	ED61B060		ED62B060		ED63B060	
70	ED61B070		ED62B070		ED63B070	
80	ED61B080		ED62B080		ED63B080	
90	ED61B090		ED62B090		ED63B090	
100	ED61B100		ED62B100		ED63B100	
110	—	—	—	—	ED63B110	
125	—	—	—	—	ED63B125	

Note: ED frame circuit breakers qualified to UL 489 Supplement SB "Naval" — See page 17/70 for additional information

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

®CSA Certified only (Not UL)

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

®See Note: A, page 17/67.

®SWD rated.

®HACR rated.

Modifications page 17/70
Accessories pages 17/22 and 17/71 to 17/77

Molded Case Circuit Breakers

ED 125A Frame Sentron Series

Selection

Type HED4[Ⓞ]

Black Label

Continuous Current Rating @ 40°C	1-Pole		2-Pole		3-Pole	
	277V AC		125V DC		480V AC	
	Catalog Number	List Price \$	Catalog Number	List Price \$	Catalog Number	List Price \$
15	HED41B015 [Ⓞ]		HED42B015		HED43B015	
20	HED41B020 [Ⓞ]		HED42B020		HED43B020	
25	HED41B025		HED42B025■		HED43B025	
30	HED41B030		HED42B030		HED43B030	
35	HED41B035■		HED42B035■		HED43B035	
40	HED41B040		HED42B040		HED43B040	
45	HED41B045■		HED42B045■		HED43B045	
50	HED41B050■		HED42B050		HED43B050	
60	HED41B060■		HED42B060■		HED43B060	
70	HED41B070■		HED42B070■		HED43B070	
80	HED41B080■		HED42B080■		HED43B080	
90	HED41B090■		HED42B090■		HED43B090	
100	HED41B100■		HED42B100■		HED43B100	
110	—		HED42B110■		HED43B110	
125	—		HED42B125■		HED43B125	

Fuseless Current Limiting

Type CED6[Ⓞ]

Red Label

2-Pole		3-Pole	
600V AC, 250V DC		600V AC, 500V DC [Ⓞ]	
Catalog Number	List Price \$	Catalog Number	List Price \$
CED62B015		CED63B015	
CED62B020■		CED63B020	
—		—	
CED62B030■		CED63B030	
—		—	
CED62B040■		CED63B040	
—		—	
CED62B050■		CED63B050	
CED62B060■		CED63B060	
CED62B070■		CED63B070	
CED62B080■		CED63B080	
CED62B090■		CED63B090	
CED62B100■		CED63B100	
—		CED63B110■	
CED62B125■		CED63B125	

FIGURE 1 - ED, HED, HHED

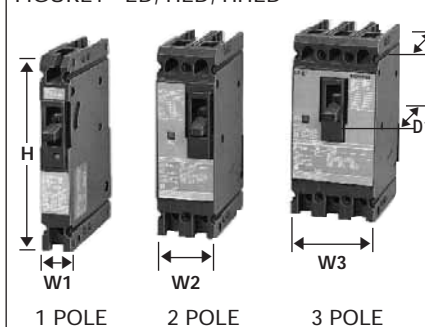
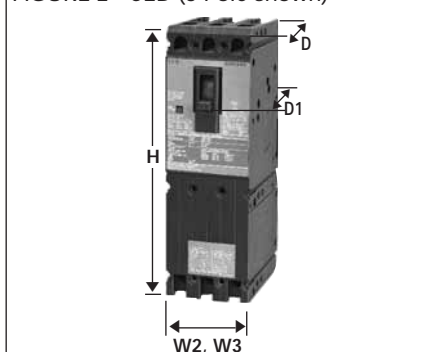


FIGURE 2 - CED (3 Pole shown)



Dimensions (in inches)

Breaker Type	W1	W2	W3	H	D	D1
Figure 1 ED2, ED4, ED6, HED4, ED6 ETI	1	2	3	6.35	3.92	4.56
Figure 1 HHED6	—	2	3	6.53	3.92	4.56
Figure 2 CED6, CED6 ETI	—	2	3	9.58	3.92	4.56

Interrupting Ratings

Breaker Type	UL 489 AIR (File #E10848)									IEC 947-2					
	RMS Symmetrical Amperes (KA)									Volts AC (50/60Hz)					
	Volts AC			Volts DC						220/240		380/415		500	
	120	240	277	347	480	600	125	250	500 [Ⓞ]	Icu	Ics	Icu	Ics	Icu	Ics
ED2 (1-P)	10	—	—	—	—	—	5	—	—	—	—	—	—	—	—
ED2 (2, 3-P)	—	10	—	—	—	—	—	5 (2-P)	—	—	—	—	—	—	—
ED4 (1-P)	65	—	22	—	—	—	30	—	—	—	—	—	—	—	—
ED4 (2, 3-P)	—	65	—	—	18	—	—	30 (2-P)	—	—	—	—	—	—	—
ED6 (1P)	—	—	—	30 [Ⓞ]	—	—	—	—	—	—	—	—	—	—	—
ED6 (2, 3-P)	—	65	—	—	25	18	—	30 (2-P)	18 (3-P)	65	17	35	9	18	5
HED4 (1-P) (15-30A)	100	—	65	—	—	—	30	—	—	—	—	—	—	—	—
HED4 (1-P) (35-100A)	100	—	25	—	—	—	30	—	—	—	—	—	—	—	—
HED4 (2, 3-P) [Ⓞ]	—	100	—	—	42	—	—	30 (2-P)	—	—	—	—	—	—	—
CED6 (2, 3-P)	—	200	—	—	200	100	—	30 (2-P)	50 (3-P)	—	—	—	—	—	—

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

Ⓞ SWD rated.

Ⓞ When wired as shown on page 17/3, this circuit breaker is UL listed and rated for use on 500V DC ungrounded UPS systems.

Ⓞ HED4 type circuit breakers meet the UL criteria for "current limiting" at 240V AC.

Ⓞ ED6-ETI, CED6-ETI, see page 17/52 for ordering information.

Ⓞ Single Pole 15-30A 30KA @ 347V non-UL. 35-100A 18KA @ 347V non-UL.

Ⓞ HACR rated.