E-Frame Thermal Magnetic Circuit Breakers

Class 0515

Catalog

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Schneider Electric

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EDB, EGB, and EJB Circuit Breakers



125 A Frame Lighting Panelboard Circuit Breakers

- One-, two-, and three-pole bolt-on constructions for use in Square D™ NF panelboards
- Current ratings: 15–125 A
- 480Y/277 Vac, 600Y/347 Vac
- Optional factory-installed electrical accessories include:
  - 120 Vac shunt trip
  - 1A / 1B Auxiliary switch
  - Normally open alarm switch
- Optional handle padlock attachment
- Optional copper and compression lugs
- Visi-Trip™ feature
- HACR rated (15–125 A, 1–, 2–, and 3–pole)
- UL® Listed: file E84967, E84905, and E181374
- CSA® Certified: file LR 40970
- NOM® 117 Certified
- In compliance with Federal Specification W-C-375B/GEN

Ampere Interrupting Ratings

Interrupting Rating	240 V	480Y / 277 V	600Y / 347 V
D	25 kA	18 kA	14 kA
G	65 kA	35 kA	18 kA
J	100 kA	65 kA	25 kA

PowerLink™ ECB-G3 Circuit Breakers

Remotely Operated Circuit Breakers

PowerLink G3 remotely operated circuit breakers are designed for installation in Schneider Electric NF lighting panelboards as part of the PowerLink G3 Lighting Control System. These circuit breakers provide the same overcurrent protection as found in standard circuit breakers.

- Robust 24 Vdc motor and trip mechanism provide remote operation capability in terms of compact size, electrical ratings, and mechanical life.
- Motor and drive train can open and close the contacts when the circuit breaker handle is in the ON position.
- Contacts cannot be closed remotely when the handle is in the OFF position, or the circuit breaker is tripped.
- Manual override selector located on the front of the circuit breaker provides bypass of automated control command.
- In manual mode, the motor drive train is disconnected from the contact, allowing the circuit breaker handle to operate the contacts like a conventional circuit breaker.
- Remote contact status indication determines the presence or absence of voltage on the load side terminal of the circuit breaker.

Tripping System with RMS Sensing

- Schneider Electric PowerLink ECB-G3 circuit breakers have a permanent trip unit that contains a factory preset thermal (overload) trip element and a magnetic (short circuit) trip element in each pole.
- The thermal trip element—true RMS sensing—is calibrated to carry the continuous current rating of the circuit breaker at 140°F (40°C) free air ambient temperature.



ECB-G3 Circuit Breakers

ECB-G3 Circuit Breakers, Bolt-On Remotely Operated

Ampere Rating	One-Pole 277 Vac – 14,000 AIR 120 Vac – 65,000 AIR	Two-Pole 480Y / 277 Vac – 14,000 AIR 120 / 240 Vac – 65,000 AIR 240 Vac – 14,000 AIR Ground B Phase	Three-Pole 480Y / 277 Vac – 14,000 AIR 240 Vac – 42,000 AIR
15	ECB14015G3[1]	ECB24015G3[1]	ECB34015G3[1]
20	ECB14020G3[1]	ECB24020G3[1]	ECB34020G3[1]
30	ECB14030G3	ECB24030G3	ECB32030G3[2]

ECB-G3 Circuit Breakers for Emergency Lighting (requires two pole spaces)

Ampere Rating	One-Pole 480 Y/277 – 14,000 AIR 240 V – 65,000 AIR
20	ECB142020G3EL

NOTE:

All are listed as HACR type for use with air conditioning, heating and refrigeration equipment having motor group combinations and marked for use with HACR type circuit breakers. UL® listed as HID rated for use with high intensity discharge lighting systems. (1) #12–8 Al or (1) #10–8 Cu. Suitable for use with 167°F (75°C) conductors.

1. c
2. d

Interrupting Ratings

Interrupting Rating Level	Ampere Rating	Catalog Number						Standard Al Lug Wire Range
		1–Pole		2–Pole[3]		3–Pole		
		277 Vac	600Y / 347 Vac	480Y / 277 Vac	600Y / 347 Vac	480Y / 277 Vac	600Y / 347 Vac	
D	15	EDB14015[4][5]	EDB16015[4][5]	EDB24015[4]	EDB26015[4]	EDB34015[4]	EDB36015[4]	#12—6 AWG Al or #14—6 AWG Cu
	20	EDB14020[4][5]	EDB16020[4][5]	EDB24020[4]	EDB26020[4]	EDB34020[4]	EDB36020[4]	
	25	EDB14025[4]	EDB16025[4]	EDB24025[4]	EDB26025[4]	EDB34025[4]	EDB36025[4]	
	30	EDB14030[4]	EDB16030[4]	EDB24030[4]	EDB26030[4]	EDB34030[4]	EDB36030[4]	
	35	EDB14035	EDB16035	EDB24035	EDB26035	EDB34035	EDB36035	#12—2/0 AWG Al or #14—2/0 AWG Cu
	40	EDB14040	EDB16040	EDB24040	EDB26040	EDB34040	EDB36040	
	45	EDB14045	EDB16045	EDB24045	EDB26045	EDB34045	EDB36045	
	50	EDB14050	EDB16050	EDB24050	EDB26050	EDB34050	EDB36050	
	60	EDB14060	EDB16060	EDB24060	EDB26060	EDB34060	EDB36060	
	70	EDB14070	EDB16070	EDB24070	EDB26070	EDB34070	EDB36070	
	80	—	—	EDB24080	EDB26080	EDB34080	EDB36080	
	90	—	—	EDB24090	EDB26090	EDB34090	EDB36090	
	100	—	—	EDB24100	EDB26100	EDB34100	EDB36100	
	110	—	—	EDB24110	—	EDB34110	—	
	125	—	—	EDB24125	—	EDB34125	—	
G	15	EGB14015[4][5]	EGB16015[4][5]	EGB24015[4]	EGB26015[4]	EGB34015[4]	EGB36015[4]	#12—6 AWG Al or #14—6 AWG Cu
	20	EGB14020[4][5]	EGB16020[4][5]	EGB24020[4]	EGB26020[4]	EGB34020[4]	EGB36020[4]	
	25	EGB14025[4]	EGB16025[4]	EGB24025[4]	EGB26025[4]	EGB34025[4]	EGB36025[4]	
	30	EGB14030[4]	EGB16030[4]	EGB24030[4]	EGB26030[4]	EGB34030[4]	EGB36030[4]	
	35	EGB14035	—	EGB24035	—	EGB34035	EGB36035	#12—2/0 AWG Al or #14—2/0 AWG Cu
	40	EGB14040	EGB16040	EGB24040	EGB26040	EGB34040	EGB36040	
	45	EGB14045	—	EGB24045	—	EGB34045	EGB36045	
	50	EGB14050	—	EGB24050	EGB26050	EGB34050	EGB36050	
	60	EGB14060	EGB16060	EGB24060	EGB26060	EGB34060	EGB36060	
	70	EGB14070	—	EGB24070	EGB26070	EGB34070	EGB36070	
	80	—	—	EGB24080	EGB26080	EGB34080	EGB36080	
	90	—	—	EGB24090	—	EGB34090	EGB36090	
	100	—	—	EGB24100	EGB26100	EGB34100	EGB36100	
	110	—	—	EGB24110	—	EGB34110	—	
	125	—	—	EGB24125	—	EGB34125	—	
J	15	EJB14015[4][5]	EJB16015[4][5]	EJB24015[4]	EJB26015[4]	EJB34015[4]	EJB36015[4]	#12—6 AWG Al or #14—6 AWG Cu
	20	EJB14020[4][5]	EJB16020[4][5]	EJB24020[4]	EJB26020[4]	EJB34020[4]	EJB36020[4]	
	25	EJB14025[4]	EJB16025[4]	EJB24025[4]	EJB26025[4]	EJB34025[4]	EJB36025[4]	
	30	EJB14030[4]	EJB16030[4]	EJB24030[4]	EJB26030[4]	EJB34030[4]	EJB36030[4]	

3. UL Listed for use on 240 V corner-grounded delta systems (grounded B phase).
4. UL Listed as HID (High Intensity Discharge) rated.
5. UL Listed as SWD (Switching Duty) rated.

Interrupting Rating Level	Ampere Rating	Catalog Number						Standard Al Lug Wire Range
		1–Pole		2–Pole[6]		3–Pole		
		277 Vac	600Y / 347 Vac	480Y / 277 Vac	600Y / 347 Vac	480Y / 277 Vac	600Y / 347 Vac	
J	35	EJB14035	EJB16035	EJB24035	—	EJB34035	EJB36035	#12—2/0 AWG Al or #14—2/0 AWG Cu
	40	EJB14040	EJB16040	EJB24040	EJB26040	EJB34040	EJB36040	
	45	EJB14045	—	EJB24045	—	EJB34045	EJB36045	
	50	EJB14050	EJB16050	EJB24050	EJB26050	EJB34050	EJB36050	
	60	EJB14060	EJB16060	EJB24060	EJB26060	EJB34060	EJB36060	
	70	EJB14070	—	EJB24070	—	EJB34070	EJB36070	
	80	—	—	EJB24080	EJB26080	EJB34080	EJB36080	
	90	—	—	EJB24090	EJB26090	EJB34090	EJB36090	
	100	—	—	EJB24100	EJB26100	EJB34100	EJB36100	
	110	—	—	EJB24110	—	EJB34110	—	
	125	—	—	EJB24125	—	EJB34125	—	

6. UL Listed for use on 240 V corner-grounded delta systems (grounded B phase).

Circuit Breaker Selection

Select a catalog number from the preceding table.

For special applications, modify the catalog number as follows:
E D B 3 4 0 7 0 _ _ _ _ _ _ _ _ _ _

Factory Installed Options [7]

Option	Meaning	Example:
AABA	1A1B Aux. Switch, Normally-open Alarm Switch Package	To order a three-pole 480Y / 277 Vac 70 A “D” interrupting rating level circuit breaker with factory-installed copper lugs and an auxiliary switch and alarm switch package: EDB34070AABALC
AABASA	1A1B Aux. Switch, Normally-open Alarm Switch, 120 Vac Shunt Trip Package	
SA	120 Vac Shunt Trip Package	
CA	Special Ambient Temperature: 122°F (50°C) (Not UL, CSA, or NOM Certified)	
LC	Copper Lugs	
LH	High Ampere Standard Lugs	



EDB24030



EDB34125

7. Factory-installed options must be listed in the catalog number in the sequence shown.

Lug Kit Information

Mechanical Lug Kits

Kit Catalog Number	Circuit Breaker Application				Number of Wires per Lug and Wire Range	Torque	Lugs per Kit
	Standard Ampere Rating		Optional Ampere Rating				
Aluminum Lugs for use with Al or Cu Wire							
AL30FD	EDB, EGB, EJB	15—30	—	—	(1) #12—6 AWG Al or (1) #14—6 AWG Cu	30 lb-in. (4.0 N•m) #14—10	3
AL100FD		35—125	EDB, EGB, EJB	15—30	(1) #12—2/0 AWG Al or (1) #14—2/0 AWG Cu	35 lb-in. (3.4 N•m) #14—10 50 lb-in. (5.5 N•m) #8—2/0	3
Copper Lugs for use with Cu Wire Only							
CU100FD	EDB, EGB, EJB	15—125	—	—	(1) #14—1/0 AWG Cu	35 lb-in. (3.4 N•m) #14—10 40 lb–in. (4.5 N•m) #8 45 lb–in. (5.1 N•m) #6—4 50 lb-in. (5.5 N•m) #8—2/0	3

Compression Lug Kit Information[8]

Circuit Breaker Type	VERSAtile™ System Range	Dimension A		Versa-Crimp™ Tool Type	Max. Lugs per Terminal	Kit Catalog Number	Lugs per Kit
		in.	mm				
Aluminum Compression Lug Kits							
EDB, EGB, EJB	#8—1/0 AWG	1.375	35	VC-6 Series	1	VC100FD	3

Handle Accessories

Circuit Breaker Type	Catalog Number
Handle Padlock Attachment (locks ON or OFF)	
EDB, EGB, EJB	HPAFD

Terminal Insert Kit

Circuit Breaker Type	Catalog Number	Inserts per Lug
EDB, EGB, EJB	TIKFD	3

8. Terminal insert kit TIKFDrequired for application of compression lugs.

EDB-EPD, EGB-EPD, and EJB-EPD

Equipment Protection Device Circuit Breakers for Ground Fault Protection in NF Panelboards

Square D brand EDB-EPD, EGB-EPD, and EJB-EPD (Equipment Protection Device) circuit breakers are one-pole thermal-magnetic circuit breakers with integral equipment ground fault protection. The ground fault protection level is fixed at 30 milliamperes per UL 1053 and is designed to protect equipment from damage. These EPDs also provide branch circuit overload and short-circuit protection per UL 489 at 277 Vac. The EDB-EPD, EGB-EPD, and EJB-EPD circuit breakers mount in NF circuit breaker panelboards and interiors, each circuit breaker occupying two poles of space.

Benefits of EDB-EPD, EGB-EPD, and EJB-EPD Circuit Breakers

More than 90% of short circuits initially involve ground faults (also called earth leakage or residual current). Detecting ground faults before they reach hazardous levels helps to avoid damage to critical equipment. This allows preventative maintenance to be scheduled before damage occurs, thus minimizing costly downtime.

- Protects expensive electrical equipment from damage due to ground faults
- Reduces equipment and employee downtime by preventing damage from ground faults
- Provides warning that the equipment needs preventative maintenance
- Reduced potential for hazards associated with ground fault-related fires and equipment malfunction

Applications

The NEC permits the use of an EPD for heat trace as a means of preventing freezing of pipes, rain gutters, etc. Other applications include protection of well pumps and other electrical equipment.

- Oil and gas / chemical
- Pharmaceuticals
- Water and waste treatment
- Food and beverage
- Other applications that require 30 mA ground fault protection

Key Features

- Designed for 30 mA equipment protection in commercial and industrial applications. Ideal for use with heat trace, pumps, etc.
- Can be installed in any Square D NF circuit breaker panelboard (each EPD occupies two pole spaces)
- Provides equipment protection at 30 mA
- One pole at 277 Vac
- Continuous current ratings of 15, 20, 30, 40 and 50 A available
- Push-to-test button to test ground fault protection circuitry
- A wide range of interrupting ratings (AIR): EDB = 18 kA; EGB = 35 kA; EJB = 65 kA
- Thermal-magnetic trip curve identical to equivalent circuit breaker without ground fault protection
- Optional alarm switch with one normally open contact
- All amperages are UL Listed as HID (high intensity discharge); 15 and 20 A are UL Listed as SWD (switching duty rated)
- Ground fault protection meets UL 1053 and CSA C22.2 No. 144-M91 standards
- Overload and short circuit protection meets UL 489 and CSA C22.2 No. 5-02

How Equipment Protection Devices Operate

An EPD compares outgoing load currents with returning currents to determine if there is leakage of current to ground. If it detects a ground fault greater than 30 mA, the EPD will trip and display the “red flag” of the Visi-Trip™ indicator.

> **NOTE:** Unlike residential ground fault circuit interrupters (GFCIs), EPDs are not designed for people protection (UL 943 Class A calls for protection above 6 mA). EPDs are designed to meet the UL 1053 standard for equipment protection. Although not designed for people protection, they do reduce the potential for hazards associated with ground faults including fires and equipment malfunction.

These Square D EPDs are also designed to minimize nuisance tripping in an environment with electrical noise or harmonics.

An optional factory-installed alarm switch provides a set of contacts to remotely indicate if the EPD is in the tripped position. The alarm switch does not distinguish between ground fault, thermal, or magnetic trip.

Testing

EPD circuit breakers include a black test button to test the ground fault circuitry, as required by UL 1053. Pushing the test button causes the circuit breaker to trip, placing the handle into the tripped (middle) position. When the circuit breaker is tripped (by ground fault, short-circuit, or overload conditions), the Visi-Trip trip indication (red flag) appears in a window on the front of the circuit breaker case.



EGB14030EPD

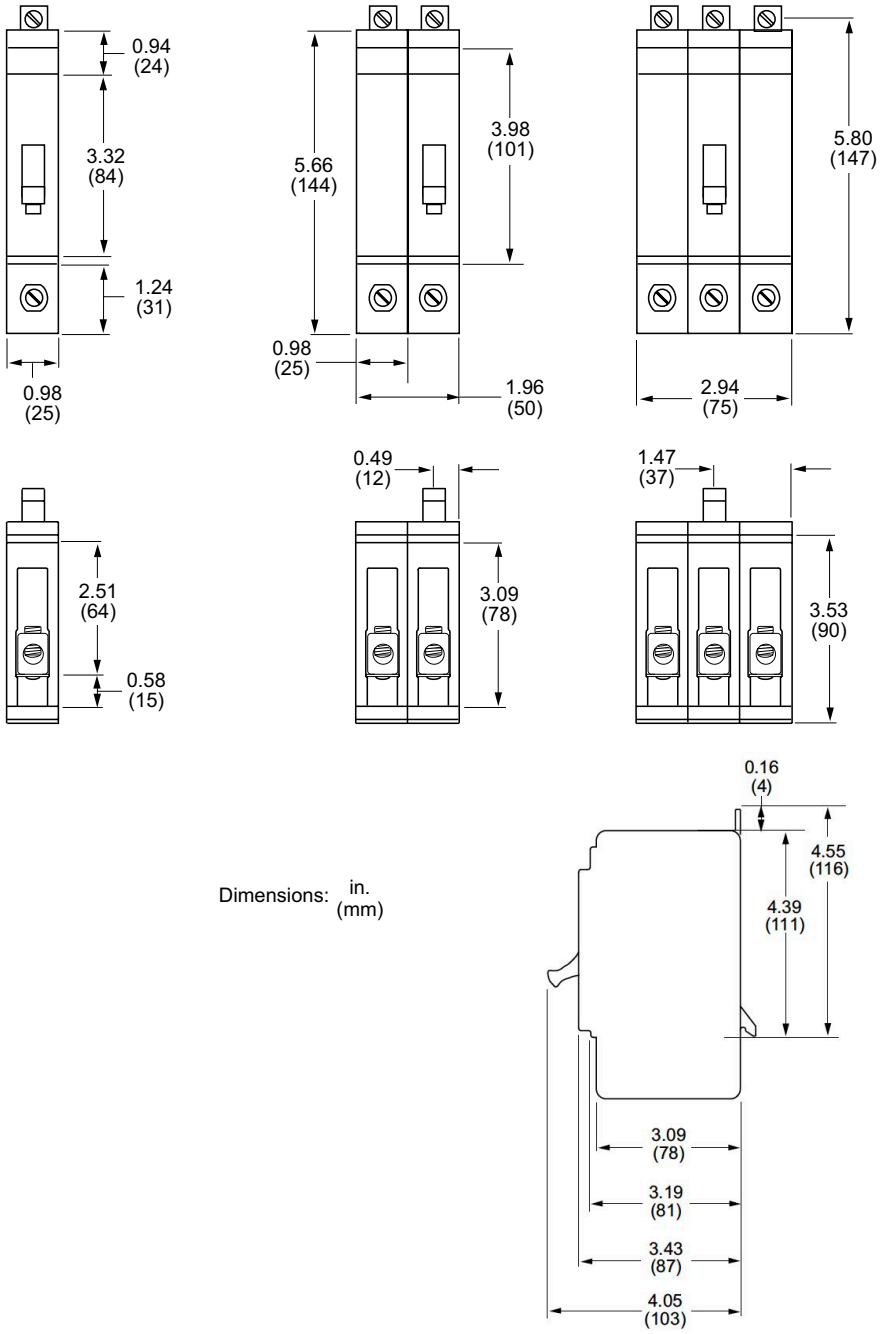
Catalog Numbers for EDB-EPD, EGB-EPD, and EJB-EPD Circuit Breakers

Continuous Current Rating at 40°C	AC Magnetic Trip (Amperes @277 V)		Catalog Numbers			Terminal Wire Range (AWG)
	Trip	Hold	EDB (18 kA)	EGB (35 kA)	EJB (65 kA)	
15	270	875	EDB14015EPD	EGB14015EPD	—	#6—14 AWG Cu or #4—12 AWG Al
20			EDB140120EPD	EGB14020EPD	EJB14020EPD	
30			EDB14030EPD	EGB14030EPD	EJB14030EPD	
40	630	1800	EDB14040EPD	EGB14040EPD	EJB14040EPD	
50			EDB14050EPD	EGB14050EPD	EJB14050EPD	

Accessories

- Optional alarm switch (bell alarm), factory-installed only–add BA suffix; (cable with #12—22 AWG Cu wire only)
- No other electrical accessories are available
- HPAFD handle padlock attachment (locks ON or OFF)

Dimensions


0.94
(24)
3.32
(84)
1.24
(31)
0.98
(25)
5.66
(144)
3.98
(101)
0.98
(25)
1.96
(50)
5.80
(147)
2.94
(75)
2.51
(64)
0.58
(15)
0.49
(12)
3.09
(78)
1.47
(37)
3.53
(90)
Dimensions: in.
(mm)
0.16
(4)
4.55
(116)
4.39
(111)
3.09
(78)
3.19
(81)
3.43
(87)
4.05
(103)

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5985 McLaughlin Rd,
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1-800-565-6699

Schneider Electric
5985 McLaughlin Rd,
Mississauga, ON L5R 1B8
Canada

1-800-565-6699

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