

Engine Generator Circuit Breakers

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Molded Case Circuit Breakers

Product Description	2
Application Description	2
Standards and Certifications	2
Technical Data and Specifications	2
Catalog Number Selection	3
Product Selection	4
Accessories	6
Breaker Dimensions	9

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Molded Case Circuit Breakers

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Product Description

Eaton's engine generator molded case circuit breakers are designed specifically for application on diesel engine powered standby generators where high interrupting circuit breakers are not required. The JG through NG breakers are equipped with a special trip unit, that includes standard thermal (overload) protection and special low magnetic pickup range (FG includes a fixed thermal-magnetic pickup). The standard thermal trip unit provides overload protection for conductors per the National Electrical Code®. The low magnetic pickup range is approximately two to five times the continuous rating and provides closer low-level short-circuit protection when applied on generators that have very low short-circuit capacity. This combination allows the user to customize the breaker to the generator output.

Application Description

Engine generator circuit breakers are suitable for reverse feed application.

Standards and Certifications

Engine generator molded case circuit breakers are designed to conform with the following standards:

- Underwriters Laboratories Standard UL 489, Molded Case Circuit Breakers and Circuit Breaker Enclosures File E7819
- Canadian Standards Association Standard C22.2 No. 5, Service Entrance and Branch Circuit Breakers
- International Electrotechnical Commission Recommendations IEC 947-2, Circuit Breakers



Conformance with these standards satisfies most local and international codes, assuming user acceptability and simplified application.

Technical Data and Specifications

UL 489 Interrupting Capacity Ratings

Volts AC (50/60 Hz)	Interrupting Capacity (Symmetrical Amperes)
240	18,000
480	14,000
600	10,000

IEC 947-2 Interrupting Capacity Ratings

Volts AC (50/60 Hz)	Interrupting Capacity (Symmetrical Amperes) I _{cu} /I _{cs}
220, 240	18,000/9,000
380, 415	14,000/7,000
660, 690	18,000/9,000 14,000/7,000 10,000/5,000

Engine Generator Circuit Breakers

Molded Case Circuit Breakers

Catalog Number Selection

This information is presented only as an aid to understanding catalog numbers. It is not to be used to build catalog numbers for circuit breakers.

- FG breakers include both line and load side terminals
- JG, KG, LG and NG breakers with **W** catalog number suffix do not include any terminals
- JG, KG, LG and NG breakers without **W** catalog number suffix include both line and load terminals
- Contact Eaton for additional ratings and internal/external accessories
- Accessories shown for F-Frame have a quick ship availability

Circuit Breakers FG, JG, KG, LG and NG

FG 3 100 W A06

Frame	Number of Poles	Trip Amperes	Suffix	Accessory ^①
FG	3 = Three-pole	015 020 025 030 035 040 045 050 060 070 080 090 100 125 150 175 200 225	W = Without terminals Blank = Terminals included	A06 = 1A-1B A13 = 2A-2B B06 = 1 Mk-1 Brk C05 = 1A-1B/Mk Brk S02 = 12-24 Vac S06 = 48-127 Vac S18 = 12-24 Vac S22 = 48-127 Vac N02 = 24 Vdc U14 = 110-127 Vdc
JG		175 200 225 250		
KG		300 350 400		
LG		450 500 600		
NG		700 800 900 1000 1200		

^① Accessories shown are for common F-Frame only; other configurations are available. See catalog for other frame sizes.

Engine Generator Circuit Breakers

Molded Case Circuit Breakers

Product Selection

The following table lists FG through NG engine generator breakers with the maximum generator kVA and kW rating. Engine generator breakers are applied at 115% of the

generator full load current rating (FLA). The maximum kW rating is based on three-phase generators at 80% power factor.

Breakers shown below include line and load terminals.

Thermal-Magnetic

Magnetic Pickup Range	Maximum Generator Rating 60 Hz		480 Vac		600 Vac		Engine Generator Breaker ^③ Catalog Number
	240 Vac kVA ^①	kW ^②	kVA ^①	kW ^②	kVA ^①	kW ^②	
Fixed	5	4	11	9	14	11	FG3015
Fixed	7	6	14	12	18	14	FG3020
Fixed	9	7	18	14	23	18	FG3025
Fixed	11	9	22	17	27	22	FG3030
Fixed	13	10	25	20	32	25	FG3035
Fixed	14	12	29	23	36	29	FG3040
Fixed	16	13	32	26	41	32	FG3045
Fixed	18	14	36	29	45	36	FG3050
Fixed	22	17	43	35	54	43	FG3060
Fixed	25	20	51	40	63	51	FG3070
Fixed	29	23	58	46	72	58	FG3080
Fixed	32	26	65	52	81	65	FG3090
Fixed	36	29	72	58	90	72	FG3100
Fixed	40	32	79	64	99	79	FG3110
Fixed	45	36	90	72	113	90	FG3125
Fixed	54	43	108	87	135	108	FG3150
Fixed	63	51	126	101	158	126	FG3175
Fixed	72	58	144	116	181	144	FG3200
Fixed	81	65	162	130	203	162	FG3225
350-700	63	51	126	101	158	126	JG3175
350-700	72	58	144	116	181	144	JG3200
350-700	81	65	162	130	203	162	JG3225
350-700	90	72	181	144	226	181	JG3250
500-1000	108	87	217	173	271	217	KG3300
500-1000	126	101	253	202	316	253	KG3350
1000-2000	144	116	289	231	361	289	KG3400

Notes

① Breaker continuous current is based on 115% of the generator full load ampere rating.

② Based on three-phase generators at 80% power factor.

③ FG, JG, KG include thermal-magnetic trip units; LG and NG include electronic trip units.

The following catalog numbers have center tap studs for dual voltage applications: JG3070CT, JG3100CT, JG3125CT, KG3175CT, LG3300CTW.

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Molded Case Circuit Breakers

Electronic

Magnetic Pickup Range	Maximum Generator Rating 60 Hz				Engine Generator Breaker ^③		
	240 Vac kVA ^①	kW ^②	480 Vac kVA ^①	kW ^②	600 Vac kVA ^①	kW ^②	Catalog Number
500–2500	162	130	325	260	406	325	LG3450 ^④
500–2500	181	144	361	289	451	361	LG3500 ^④
500–2500	217	173	433	347	542	433	LG3600 ^④
500–2500	253	202	505	404	632	505	NG3700 ^④
500–2500	289	231	578	462	722	578	NG3800 ^④
1250–5000	325	260	650	520	812	650	NG3900 ^④
1250–5000	361	289	722	578	903	722	NG31000 ^④
1250–5000	433	347	867	693	1083	867	NG31200 ^④

Notes

- ① Breaker continuous current is based on 115% of the generator full load ampere rating.
- ② Based on three-phase generators at 80% power factor.
- ③ FG, JG, KG include thermal-magnetic trip units; LG and NG include electronic trip units.
- ④ Breaker includes line and load terminals.

The following catalog numbers have center tap studs for dual voltage applications: JG3070CT, JG3100CT, JG3125CT, KG3175CT, LG3300CTW.

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Molded Case Circuit Breakers

Accessories Selection Guide and Ordering Information

Enclosures

Type 1 General Purpose

- Surface or flush mounting
- 15–1200 ampere range
- 600 Vac, 500 Vdc

Type 1 enclosed breakers are designed for use in commercial buildings, apartment buildings and other areas where a general purpose enclosure is applicable. The breaker is front operable and is capable of being padlocked in either the ON or OFF position. Ratings through 1200 amperes are listed with Underwriters Laboratories as approved for service entrance application. Both surface and flush mounted enclosures are available.

Type 12 Dustproof Surface Mounting

- No knockouts or other openings
- 15–1200 ampere range
- 600 Vac, 500 Vdc

The Type 12 enclosure is designed in line with specifications for special industry applications where unusually severe conditions involving oil, coolant, dust and other foreign materials exist in the operating atmosphere. The handle padlocks in the OFF position and the cover is interlocked with the handle mechanism to prevent opening the cover with the circuit breaker in the ON position. Ratings through 1200 amperes are listed by Underwriters Laboratories as suitable for service entrance application.

Type 3R Rainproof Surface Mounting

- Interchangeable hubs (through 400 amperes)
- 15–1200 ampere range
- 600 Vac, 500 Vdc

This general purpose outdoor service center employs a circuit breaker inside a weatherproof sheet steel breaker enclosure to serve as a main disconnect and protective device for feeder circuits. Ratings through 1200 amperes are listed by Underwriters Laboratories as suitable for service entrance application.

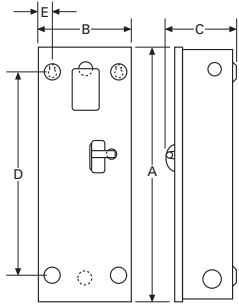
Enclosure Selection Data

Breaker Frame Amperes	Enclosure Type Class	A	B	C	D	E	Approx. Weight Lbs (kg)	Conduit Sizes, Inches	Catalog Number
FG 15–225	Type 1	23.25 (590.6)	8.41 (213.6)	6.28 (159.5)	18.75 (476.3)	1.20 (30.5)	15 (7)	0.25, 0.50, 0.75, 1, 1.25, 1.50, 2, 2.50	SFDN225
	Type 3R	25.66 (651.8)	8.84 (224.7)	9.31 (236.5)	24.28 (616.7)	1.70 (43.2)	19 (9)	0.25, 0.50, 0.75, 1, 1.25, 1.50, 2, 2.50	RFDN225
	Type 12	25.66 (651.8)	8.84 (224.7)	9.31 (236.5)	24.28 (616.7)	1.70 (43.2)	18 (8)	—	JFDN225
JG 175–250	Type 1	34.70 (881.4)	10.92 (277.4)	7.20 (182.9)	30.00 (762.0)	1.88 (47.8)	31 (14)	0.25, 0.50, 2, 2.50, 3	SJDN250
	Type 3R	37.50 (952.5)	11.56 (293.6)	10.22 (259.6)	35.77 (908.6)	1.94 (49.3)	40 (18)	0.25, 0.50, 2, 2.50, 3	RJDN250
	Type 12	37.53 (953.3)	11.56 (293.6)	10.22 (259.6)	35.77 (908.6)	1.94 (49.3)	37 (17)	—	JJDN250
KG 300–400	Type 1	38.81 (985.8)	11.06 (280.9)	10.94 (277.9)	34.00 (863.6)	2.28 (57.9)	53 (24)	0.25, 0.50, 0.75, 1.50, 2, 2.50, 3, 3.50	SKDN400
	Type 3R	41.69 (1058.9)	11.75 (298.5)	14.06 (357.1)	39.90 (1013.5)	1.97 (50.0)	60 (27)	0.25, 0.50, 0.75, 2.50, 3, 3.50	RKDN400
	Type 12	41.69 (1058.9)	11.75 (298.5)	14.06 (357.1)	39.90 (1013.5)	1.97 (50.0)	53 (24)	—	JKDN400
LG 450–600	Type 1	45.88 (1165.4)	14.31 (363.5)	12.38 (314.5)	46.56 (1182.6)	1.91 (48.5)	81 (37)	0.25, 0.50, 0.75, 3, 3.50, 4	SLDN600
	Type 3R	48.31 (1227.1)	14.91 (378.7)	15.50 (393.7)	46.56 (1182.6)	1.92 (48.8)	84 (38)	0.25, 0.50, 0.75, 3, 3.50, 4	RLDN600
	Type 12	48.31 (1227.1)	14.91 (378.7)	15.50 (393.7)	46.56 (1182.6)	1.92 (48.8)	81 (37)	—	JLDN600
NG 700–1200	Type 1	61.22 (1555.0)	21.44 (544.6)	15.41 (391.4)	61.84 (1570.7)	1.97 (50.0)	178 (81)	—	SNDN1200
	Type 3R	63.59 (1615.2)	22.00 (558.8)	17.63 (447.8)	61.84 (1570.7)	1.97 (50.0)	175 (79)	—	RNDN1200
	Type 12	63.59 (1615.2)	22.00 (558.8)	17.63 (447.8)	61.84 (1570.7)	1.97 (50.0)	170 (77)	—	JNDN1200

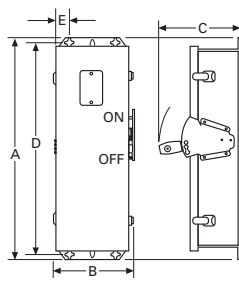
Engine Generator Circuit Breakers

Molded Case Circuit Breakers

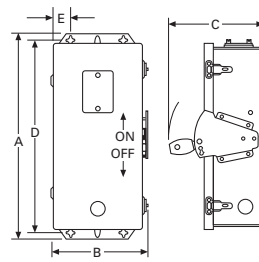
Type 1 Surface Mounted



Type 3R Rainproof



Type 12, 12K Dustproof



Enclosures, continued

Neutral Kits, Insulated and Groundable

Max. Enclosure Rating (Amperes)	Main Lug Number Size Cu/Al	Ground Lug Size Cu/Al	Catalog Number
100	(1) 14-1/0	(1) 14-1/0	INK100
250	(1) 6-350 kcmil	(1) 4-300 kcmil	INK250
400	(1) 4-750 kcmil or (2) 1/0-250 kcmil	(1) 4-300 kcmil	INK400
600	(2) 250-500 kcmil	(1) 4-300 kcmil	INK600
1200	(3) 1/0 to 750 kcmil or (4) 1/0 to 750 kcmil	(1) 6-250 kcmil	INK1200

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Molded Case Circuit Breakers

Options and Accessories

Internal Accessories

Standard Terminals

Breaker Frame	Max. Amp Rating	AWG Wire Range	Metric Wire Range mm ²	Catalog Number
FG	100	14–1/0	2.5–50	3T100FB ①
FG	150	4–4/0	25–95	3TA225FD ①
JG	250	4–350 kcmil	25–185	TA250KB
KG	350	250–500 kcmil	120–240	TA350K
KG	400	3/0–250 kcmil (2)	95–120	3TA400K ①
LG	600	250–500 kcmil (2)	120–240	3TA603LDK
NG	700	1–500 kcmil (2)	50–300	TA700NB1
NG	1000	3/0–400 kcmil (3)	95–185	TA1000NB1
NG	1200	4/0–500 kcmil (4)	120–300	TA1200NB1

Optional Terminals

Breaker Frame	Max. Amp Rating	AWG Wire Range	Z Suffix (Line and Load Terminals)	Catalog Number
FD, FG	100	14–1/0	LZ04	3T100FB
	225	4–4/0	LZ05	3TA225FD
JD, JG	250	4–350 kcmil	N/A	TA250KB
KD, KG	225	(1) 3–350 kcmil	Z01	TA300K
	350	(1) 250–500 kcmil	Z02	TA350K
	400	(2) 3/0–250 kcmil	Z04	3TA400K
LD, LG	400	(1) 4/0–600 kcmil	Z12	3TA401LDK
	450	(2) 4–4/0	Z22	TA450LD
	500	(2) 3/0–350	Z01	TA602LD
	600	(2) 400–500 kcmil	Z04	3TA603LDK
ND, NG	700	(2) 1–500 kcmil	Z01	TA700NB1
	1000	(3) 3/0–400 kcmil	Z02	TA1000NB1
	1200	(4) 4/0–500 kcmil	Z04	TA1200NB1
	1200	(3) 500–750 kcmil	Z03	TA1201NB1

Auxiliary Switch ②

Breaker Frame	Factory Mounted	1A-1B Field Kit Catalog Number	Factory Mounted	2A-2B Field Kit Catalog Number
FG ③	A06	A1X1PK	A13	A2X1RPK
JG	A06	A1X2PK	A13	A2X2PK
KG	A06	A1X3PK	A13	A2X3PK
LG	A06	A1X4PK	A13	A2X4PK
NG	A06	A1X5PK	A13	A2X5PK

Shunt Trip ②

Breaker Frame	Rating	Factory Mounted	Field Kit Catalog Number
FG ③	12–24 Vdc	S02	SNT1LP03K
JG	12–24 Vdc	S42	SNT2P04K
KG	12–24 Vdc	S42	SNT3P04K
LG	12–24 Vdc	S02	SNT4LP03K
NG	12–24 Vdc	S02	SNT5LP03K

Notes

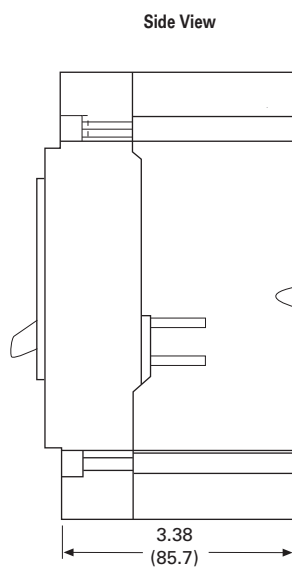
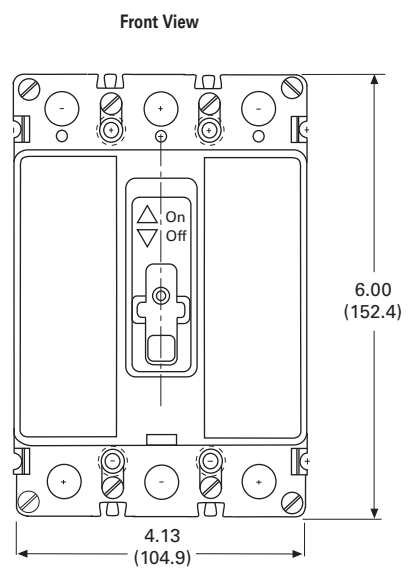
- ① Package of three terminals.
- ② Other accessories are available. Same as standard frame breakers.
- ③ Field installation on the FG Frame is not UL listed.

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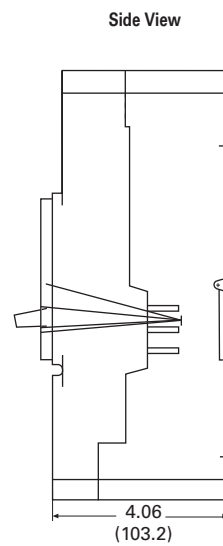
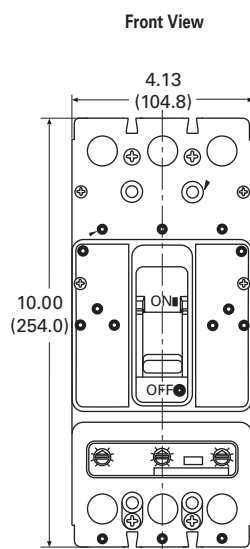
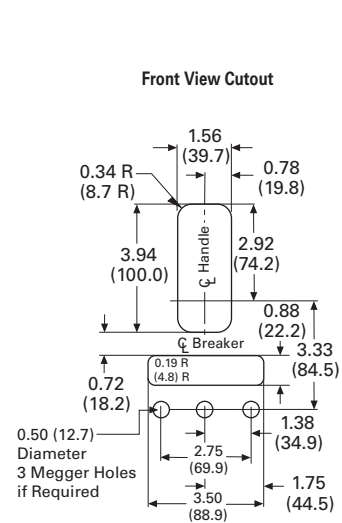
Molded Case Circuit Breakers

Breaker Dimensions

FG-Frame, Three-Pole



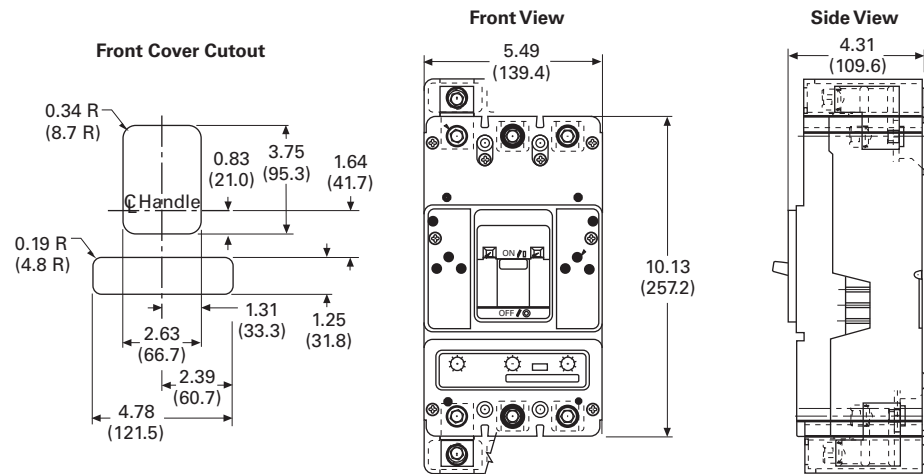
JG-Frame, Three-Pole



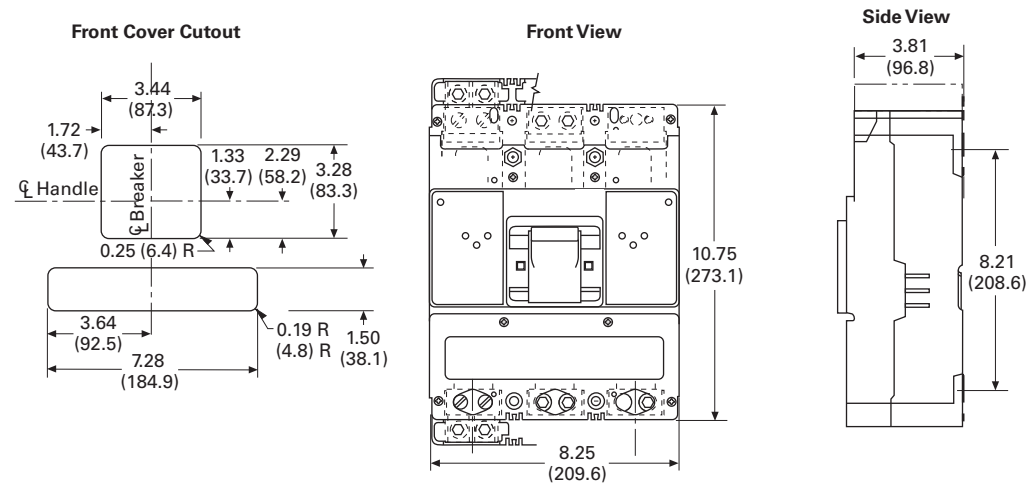
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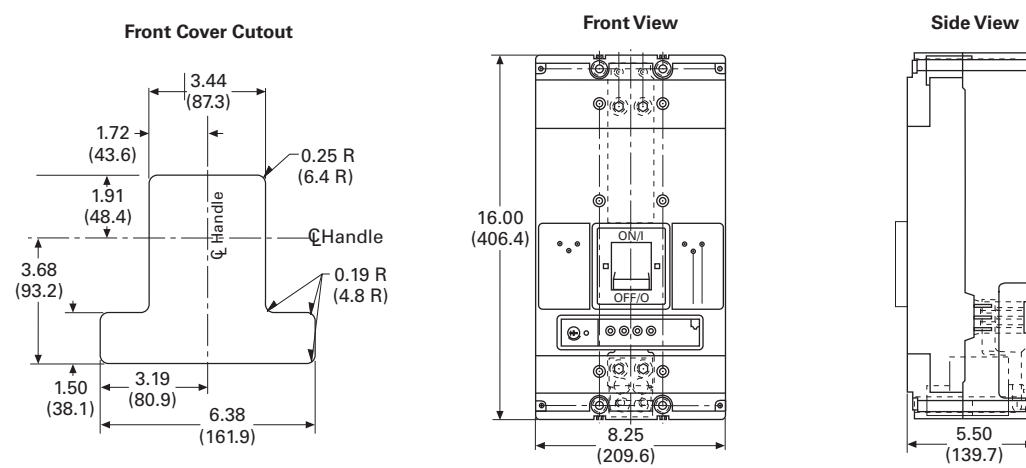
KG-Frame, Two- and Three-Pole



LG-Frame, Two- and Three-Pole



NG-Frame, Two- and Three-Pole



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Molded Case Circuit Breakers

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