Molded Case Circuit Breaker Product Family

Contents

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Product Overview

Eaton's molded case circuit breakers are designed to provide circuit protection for low voltage distribution systems. They are described by NEMA as, "... a device for closing and interrupting a circuit between separable contacts under both normal and abnormal conditions," and furthermore as, "... a breaker assembled as an integral unit in a supporting and enclosing housing of insulating material." The National Electrical Code (NEC) describes them as, "A device designed to open and close a circuit by non-automatic means, and to open the circuit automatically on a predetermined overload of current, without injury to itself when properly applied within its rating."

So designed, Eaton circuit breakers protect conductors against overloads and conductors and connected apparatus, such as motors and motor starters, against short circuits.

In low voltage distribution systems, there are many varied applications of molded case circuit breakers.

Eaton offers the most comprehensive family of molded case circuit breakers in the industry.

This section of circuit breakers includes:

- Thermal-magnetic trip breakers
- Electronic rms trip breakers
- Molded case switches
- Motor circuit protectors
- Current limiting breakers
- Special application breakers

Modified Breakers

Eaton breakers can be ordered with internal accessories installed. These modified breakers will be subject to an addition charge.

Special Calibration

Special non-UL-listed calibrations are available for certain ambient temperatures other than 40°C and for frequencies other than 50/60 Hz or DC. Reduced interrupting ratings will apply for 400 Hz applications.

50°C Calibration

Add suffix **V** to catalog Number for complete breaker, listed above, when ordering listed ampere ratings for breakers to be used in 50°C ambients. (No price adder.) (No UL label.)

Moisture-Fungus Treatment

All circuit breaker cases are molded from glass-polyester which does not support the growth of fungus. Any parts which are susceptible to the growth of fungus will require special treatment.

Freeze-Tested Circuit Breakers

The circuit breakers may be ordered with freeze testing. This option uses special lubrication and mechanical operation is verified at –40°C.

Marine Applications

E- to R-Framed circuit breakers can be supplied to meet the following marine specifications:

- U.S. Coast Guard CFR 46; ABS—American Bureau of Shipping; IEEE 45; DNV; Lloyds; and ABS/NVR

These specifications generally require molded case circuit breakers to be supplied with 50°C ambient, and plug-in adapter kits. When plug-in adapter kits are used, no terminals need be supplied (switchboard applications).

Circuit breakers can also be supplied to meet UL 489 Supplement SA (Marine use) and UL 489 Supplement SB (Naval Use).

UL 489 Supplement SA applies to vessels over 65 feet (19.8 m) in length. Requirements include 40°C ambient calibration, special labeling, and no use of aluminum conductors or terminals. (No 50°C.)

- Suffix H08

Or you can choose to add 50°C ambient but then there is no "UL" mark.

- Suffix VH08

UL 489 Supplement SB requires partial 50°C ambient calibration, vibration testing, special nameplating and no use of aluminum conductors or terminals. Eaton chooses to always fully calibrate to 50°C ambient. ("Naval" labeled per UL, and UL now allows 50°C label here.)

- Suffix VH09

Certified Test Reports

Eaton breakers can be ordered with certified test reports at the time of order entry. Test report documents the thermal and magnetic or electronic tripping characteristics of the individual breaker. Breaker and test report must be ordered together. Add suffix 12 to breaker catalog number and enter separate line item on order for certified test report.

Standards and Certifications

Molded case circuit breakers are designed to conform with the following standards:

- Underwriters Laboratories Inc., Standard UL 489, molded case circuit breakers and circuit breaker enclosures
- National Electrical Manufacturers Association (NEMA) Standards Publication No. AB1-1993, molded case circuit breakers
- Australian Standard AS 2184, molded case circuit breakers
- British Standards Institution Standard BS 4752: Part 1, switchgear and control gear Part 1: circuit breakers
- Canadian Standards Association (CSA) Standard C22.2 No. 5, service entrance and branch circuit breakers
- International Electrotechnical Commission Recommendations IEC 60947-2, circuit breakers
- Japanese T-Mark Standard molded case circuit breakers
- South African Bureau of Standards, Standard SABS 156, Standard Specification for molded case circuit breakers
- Swiss Electro-Technical Association Standard SEV 157-1, safety regulations for circuit breakers
- Union Technique de l'Electricite Standard NF C 63-120, low voltage switchgear and control gear circuit breaker requirements
- Verband Deutscher Elektrotechniker (Association of German Electrical Engineers) Standard VDE 0660, low voltage switchgear and control gear, circuit breakers

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

Molded case circuit breakers equal or exceed Federal Specification Classification W-C-375b requirements for the particular class associated with the circuit breaker frame being considered.

Open breakers do not have service entrance ratings. Service entrance rating is part of the enclosure.

Listed

Quick Reference

Industrial Circuit Breakers

G-Frame

Circuit Breaker Type	Continuous Ampere Rating at 40°C	No. of Poles	Volts AC	Volts DC	Type of Trip ①	Federal Specification W-C-375b	UL Listed Interrupting Ratings (rms Symmetrical Amperes) AC (kA) 120	120/240	240	277	480	600	DC (kA) ② 125	250	Page Number
GHB	15–100	1	120	125	N.I.T.U.	11a	65	—	—	—	—	—	14	—	**V4-T2-134**
GHB	15–100	2, 3	240	125/250	N.I.T.U.	11a10b, 11b	—	—	65	—	—	—	—	14	**V4-T2-134**
GHB	15–100	1	277	125	N.I.T.U.	12b, 14b	—	—	—	14	—	—	14	—	**V4-T2-134**
GHB	15–100	2, 3	480Y/277	125/250	N.I.T.U.	15b	—	—	—	14	14	—	—	14	**V4-T2-134**
HGHB	15–30	11	277	125	N.I.T.U.	12c, 13a, 13b	65	—	—	25	—	—	14	—	**V4-T2-134**
GHQ	15–20	1	277	—	N.I.T.U.	—	65	—	—	14	—	—	—	—	**V4-T2-134**
GHBS	15–30	1, 2	480Y/277	—	—	—	65	65	—	14	—	—	—	—	**V4-T1-34**
GBHS	15–20	1, 2	600Y/347	—	N.I.T.U.	—	—	—	—	—	—	10	—	—	**V4-T1-34**
GDB	15–50	2	480	125/250	N.I.T.U.	—	—	—	—	—	14	—	—	10	**V4-T2-132**
GDB	15–100	3	480	250	N.I.T.U.	—	—	—	—	—	14	—	—	10	**V4-T2-132**
GD	15–50	2	480	125/250	N.I.T.U.	13b	—	—	65	—	14	—	—	10	**V4-T2-131**
GD	15–100	3	480	250	N.I.T.U.	13b	—	—	65	—	22	—	—	10	**V4-T2-131**
GHC	15–100	1	120	125	N.I.T.U.	12c, 13a	65	—	—	—	—	—	14	—	**V4-T2-139**
GHC	15–100	2, 3	240	125/250	N.I.T.U.	13b	—	—	65		—	—	—	1	**V4-T2-139**
GHC	15–100		277	125	N.I.T.U.	12c, 13a	—	—	—	14	—	—	14	—	**V4-T2-139**
GHC	15–100	2, 3	480Y/277	125/250	N.I.T.U.	13b	—	—	—	14	14	—	—	14	**V4-T2-139**
HGHC	15–30	1	277	125	N.I.T.U.	—	65	—	—	25	—	—	14	—	**V4-T2-139**

Notes

① N.I.T.U. is non-interchangeable trip unit and I.T.U. is interchangeable trip unit.

② Two-pole circuit breaker, or two poles of three-pole circuit breaker at 250 Vdc.

F-Frame

Circuit Breaker Type	Continuous Ampere Rating at 40°C	No. of Poles	Volts AC	Volts DC	Type of Trip ①	Federal Specification W-C-375b	UL Listed Interrupting Ratings (rms Symmetrical Amperes) AC (kA) 120	120/240	240	277	480	600	DC (kA) ② 125	250	Page Number
EDB	100–225	2, 3	240	125	N.I.T.U.	—	—	—	22	—	—	—	10	—	**V4-T2-143**
EDS	100–225	2, 3	240	125	N.I.T.U.	—	—	—	42	—	—	—	10	—	**V4-T2-143**
ED	15–225	2, 3	240	125	N.I.T.U.	12b	—	—	65	—	—	—	10	—	**V4-T2-143**
EDH	100–225	2, 3	240	125	N.I.T.U.	14b	—	—	100	—	—	—	10	—	**V4-T2-143**
EDC	100–225	2, 3	240	125	N.I.T.U.	1	—	—	200	—	—	—	10	—	**V4-T2-143**
EHD	15–100	1	277	125	N.I.T.U.	13a	—	—	—	14	—	—	10	—	**V4-T2-143**
EHD	15–100	2, 3	480	250	N.I.T.U.	13b	—	—	18	—	14	—	—	10	**V4-T2-143**
FDB	15–150	2, 3	600	250	N.I.T.U.	18a	—	—	18	—	14	14	—	10	**V4-T2-143**
FDB	15–150	4	600	250	N.I.T.U.	③	—	—	18	—	14	14	—	10	**V4-T2-143**
FD	15–150	1	277	125	N.I.T.U.	13a	—	—	—	35	—	—	10	—	**V4-T2-143**
FD	15–225	2, 3	600	250	N.I.T.	22a	—	—	65	—	35	18	—	10	**V4-T2-143**
FD	15–225	4	600	250	—	③	—	—	65	—	35	18	—	10	**V4-T2-143**
FDE	15–225	3	600	—	N.I.T.	—	—	—	65	—	35	18	—	—	**V4-T2-143**
HFD	15–150	1	277	125	N.I.T.U.	13a	—	—	—	65	—	—	10	—	**V4-T2-143**
HFD	15–225	2,3	600	250	—	22a	—	—	100	—	65	25	—	22	**V4-T2-143**
HFD	15–225	4	600	250	—	③	—	—	100	—	65	25	—	22	**V4-T2-143**
HFDE	15–225	3	600	—	N.I.T.	—	—	—	100	—	65	25	—	—	**V4-T2-143**
FDC ④	15–225	2, 3	600	250	N.I.T.U.	24a	—	—	200	—	100	35	—	22	**V4-T2-143**
FDC ④	15–225	4	600	250	—	③	—	—	200	—	100	35	—	22	**V4-T2-143**
FDCE ④⑤	15–225	3	600	—	N.I.T.	—	—	—	200	—	100	25	—	—	**V4-T2-143**

Notes

① N.I.T.U. is non-interchangeable trip unit and I.T.U. is interchangeable trip unit.
② Two-pole circuit breaker, or two poles of three-pole circuit breaker at 250 Vdc.
③ Not defined in W-C-375b.
④ Current limiting.
⑤ Check with Eaton for availability.

J-Frame

Circuit Breaker Type	Continuous Ampere Rating at 40°C	No. of Poles	Volts AC	Volts DC	Type of Trip ①	Federal Specification W-C-375b	UL Listed Interrupting Ratings (rms Symmetrical Amperes) AC (kA) 120	120/240	240	277	480	600	DC (kA) ② 125	250	Page Number
JDB	70–250	2, 3	600	250	N.I.T.U.	22a	—	—	65	—	35	18	—	10	**V4-T2-163**
JD	70–250	2, 3, 4	600	250	I.T.U.	22a	—	—	65	—	35	18	—	10	**V4-T2-162**
HJD	70–250	2, 3, 4	600	250	I.T.U.	22a	—	—	100	—	65	25	—	22	**V4-T2-162**
JDC ③	70–250	2, 3, 4	600	250	I.T.U.	22a	—	—	200	—	100	35	—	22	**V4-T2-162**

K-Frame

Circuit Breaker Type	Continuous Ampere Rating at 40°C	No. of Poles	Volts AC	Volts DC	Type of Trip ①	Federal Specification W-C-375b	UL Listed Interrupting Ratings (rms Symmetrical Amperes) AC (kA) 120	120/240	240	277	480	600	DC (kA) ② 125	250	Page Number
DK	250–400	2, 3	240	250	N.I.T.U.	14b	—	—	65	—	—	—	—	10	**V4-T2-176**
KDB	100–400	2, 3	600	250	N.I.T.U.	23a	—	—	65	—	35	25	—	10	**V4-T2-176**
KD	100–400	2, 3, 4	600	250	I.T.U.	23a	—	—	65	—	35	25	—	10	**V4-T2-170, V4-T2-172, V4-T2-179, V4-T2-182**
CKD	100–400	2, 3, 4	600	250	I.T.U.	23a	—	—	65	—	35	25	—	—	**V4-T2-178, V4-T2-185, V4-T2-187**
HKD	100–400	2, 3, 4	600	250	I.T.U.	23a	—	—	100	—	65	35	—	22	**V4-T2-170, V4-T2-172, V4-T2-179, V4-T2-182**
CHKD	100–400	2, 3, 4	600	250	I.T.U.	23a	—	—	100	—	65	35	—	—	**V4-T2-178, V4-T2-185, V4-T2-187**
KDC ③	100–400	2, 3, 4	600	250	I.T.U.	23a	—	—	200	—	100	65	—	22	**V4-T2-170, V4-T2-172, V4-T2-179, V4-T2-182**

L-Frame

Circuit Breaker Type	Continuous Ampere Rating at 40°C	No. of Poles	Volts AC	Volts DC	Type of Trip ①	Federal Specification W-C-375b	UL Listed Interrupting Ratings (rms Symmetrical Amperes) AC (kA) 120	120/240	240	277	480	600	DC (kA) ② 125	250	Page Number
LDB	300–600	2, 3	600	250	N.I.T.U.	23a	—	—	65	—	35	25	—	22	**V4-T2-201**
LD	300–600	2, 3, 4	600	250	I.T.U.	23a	—	—	65	—	35	25	—	22	**V4-T2-197, V4-T2-198, V4-T2-205**
CLD	300–600	2, 3, 4	600	250	I.T.U.	23a	—	—	65	—	35	25	—	—	**V4-T2-200, V4-T2-211**
HLD	300–600	2, 3, 4	600	250	I.T.U.	23a	—	—	100	—	65	35	—	25	**V4-T2-197, V4-T2-198, V4-T2-205**
CHLD	300–600	2, 3, 4	600	250	I.T.U.	23a	—	—	100	—	65	35	—	—	**V4-T2-200, V4-T2-211**
LDC ③	300–600	2, 3, 4	600	250	I.T.U.	23a	—	—	200	—	100	50	—	30	**V4-T2-197, V4-T2-198, V4-T2-207**
CLDC ③	300–600	2, 3, 4	600	250	I.T.U.	23a	—	—	200	—	100	50	—	30	**V4-T2-200, V4-T2-213**

Notes

① N.I.T.U. is non-interchangeable trip unit and I.T.U. is interchangeable trip unit.
② Two-pole circuit breaker, or two poles of three-pole circuit breaker at 250 Vdc.
③ Current limiting.

M-Frame

Circuit Breaker Type	Continuous Ampere Rating at 40°C	No. of Poles	Volts AC	Volts DC	Type of Trip ①	Federal Specification W-C-375b	UL Listed Interrupting Ratings (rms Symmetrical Amperes) AC (kA) 120	120/240	240	277	480	600	DC (kA) ② 125	250	Page Number
MDL	300–800	2, 3	600	250	I.T.U.	23a	—	—	65	—	50	25	—	22	**V4-T2-223, V4-T2-225**
CMDL	300–800	2, 3	600	250	I.T.U.	23a	—	—	65	—	50	25	—	—	**V4-T2-226**
HMDL	300–800	2, 3	600	250	I.T.U.	23a	—	—	100	—	65	35	—	25	**V4-T2-223, V4-T2-225**
CHMDL	300–800	2, 3	600	250	I.T.U.	23a	—	—	100	—	65	35	—	—	**V4-T2-226**

N-Frame

Circuit Breaker Type	Continuous Ampere Rating at 40°C	No. of Poles	Volts AC	Volts DC	Type of Trip ①	Federal Specification W-C-375b	UL Listed Interrupting Ratings (rms Symmetrical Amperes) AC (kA) 120	120/240	240	277	480	600	DC (kA) ② 125	250	Page Number
ND	600–1200	3, 4	600	—	N.I.T.U.	23a	—	—	65	—	50	25	—	—	**V4-T2-234, V4-T2-247**
CND	600–1200	3, 4	600	—	N.I.T.U.	23a	—	—	65	—	50	25	—	—	**V4-T2-241, V4-T2-250**
HND	600–1200	3, 4	600	—	N.I.T.U.	23a	—	—	100	—	65	35	—	—	**V4-T2-236, V4-T2-247**
CHND	600–1200	3, 4	600	—	N.I.T.U.	23a	—	—	100	—	65	35	—	—	**V4-T2-243, V4-T2-250**
NDC	600–1200	3, 4	600	—	N.I.T.U.	23a	—	—	200	—	100	65	—	—	**V4-T2-238, V4-T2-247**
CNDC	600–1200	3, 4	600	—	N.I.T.U.	23a	—	—	200	—	100	65	—	—	**V4-T2-245, V4-T2-250**
NDU	600–1200	3	600	—	N.I.T.	—	—	—	300		150	75	—	—	—

R-Frame

Circuit Breaker Type	Continuous Ampere Rating at 40°C	No. of Poles	Volts AC	Volts DC	Type of Trip ①	Federal Specification W-C-375b	UL Listed Interrupting Ratings (rms Symmetrical Amperes) AC (kA) 120	120/240	240	277	480	600	DC (kA) ② 125	250	Page Number
RD 1600	800–1600	3, 4	600	—	N.I.T.U.	24a	—	—	125	—	65	50	—	—	**V4-T2-262**
CRD 1600	800–1600	3	600	—	N.I.T.U.	24a	—	—	125	—	65	50	—	—	**V4-T2-266**
RD 2000	1000–2000	3, 4	600	—	N.I.T.U.	24a	—	—	125	—	65	50	—	—	**V4-T2-262**
RD 2500	1000–2500	3, 4	600	—	N.I.T.U.	24a	—	—	125	—	65	50	—	—	**V4-T2-262**
CRD 2000	1000–2000	3	600	—	N.I.T.U.	24a	—	—	125	—	65	50	—	—	**V4-T2-266**
RDC 1600	800–1600	3, 4	600	—	N.I.T.U.	25a	—	—	200	—	100	65	—	—	**V4-T2-262**
CRDC 1600	800–1600	3	600	—	N.I.T.U.	25a	—	—	200	—	100	65	—	—	**V4-T2-266**
RDC 2000	1000–2000	3, 4	600	—	N.I.T.U.	25a	—	—	200	—	100	65	—	—	**V4-T2-264**
RDC 2500	1000–2500	3, 4	600	—	N.I.T.U.	25a	—	—	200	—	100	65	—	—	**V4-T2-264**
CRDC 2000	1000–2000	3	600	—	N.I.T.U.	25a	—	—	200	—	100	65	—	—	**V4-T2-266**

Notes

① N.I.T.U. is non-interchangeable trip unit and I.T.U. is interchangeable trip unit.

② Two-pole circuit breaker, or two poles of three-pole circuit breaker at 250 Vdc.

③ Current limiting.

Molded Case Circuit Breaker Product Family

Contents

G-Frame (15–100 Amperes)

Product Description

- All two- and three-pole circuit breakers are of the common trip type. On all three-phase delta (240V) Grounded B phase applications, refer to Eaton
- Single-pole circuit breakers, 15 and 20 amperes. Switching duty rated (SWD) for fluorescent lighting applications
- All G-Frame circuit breakers are suitable for reverse feed use
- HACR rated

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 or trip units.

Circuit Breaker/Frame

GD 3 100 K

Circuit Breaker Type	
GD	HGHB
GDB	HGHC
GHB	GHBGFEP
GHC	GHCGFEP
GHQ	

Number of Poles
1 = 1 pole
2 = 2 poles
3 = 3 poles

Trip Amperes		
015	035	070
020	040	080
024	045	090
030	050	100
	060	

Suffix	
K = Molded case switch	**J01**= Fungus proofed
D = Ring type terminals	**R01**= Shock tested
C = Steel collars	**F01**= Freeze tester
V = 122°F (50°C)	**HID**= High intensity discharge ①

Technical Data and Specifications

UL 489 Interrupting Capacity Ratings

		Interrupting Capacity (kA Symmetrical Amperes)						
		Volts AC (50/60 Hz)					Volts DC	
Circuit Breaker Type	Number of Poles	120	240	277	480	480Y/277	125	250 ②③
GDB	2, 3	—	—	—	14	—	—	10
GD	2	—	65	—	14	—	—	10
GD	3	—	65	—	22	—	—	10
GHQ	—	65	—	14	—	—	—	—
GHB	1	65	—	14	—	—	14	—
GHB	2, 3	—	65	—	—	14	14	—
HGHB	1	65	—	25	—	—	14	—
GHC	1	65	—	14	—	—	14	—
GHC	2, 3	—	65	—	—	14	14	—
HGHC	1	65	—	25	—	—	14	—

Terminal Types

For line and load-side. Terminals are UL listed as suitable for wire type and size given below.

Terminal Types

Circuit Breaker Amperes	Terminal Type Material	Screw Head Type	Wire Type	AWG Wire Range	Metric Wire Range (mm^2) ④
Standard					
15–20	Clamp (plated steel)	Slotted	Cu/Al	14–10	2.5–4
25–100	Pressure (aluminum body)	Slotted	Cu/Al	10–1/0	4–50
Optional—GD Only					
15–100	Pressure (steel body)	Slotted	Cu	14–3	—

Notes

① HID suffix only applies to the GHB and GHC single-pole, 15–20A circuit breakers.
② Time constant is 8 milliseconds minimum.
③ Two poles of three-pole circuit breaker.
④ Not UL listed sizes.

Typical G-Frame Circuit Breaker

Contents

Type GD Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units (15–100 Amperes)

Product Description

- Cable in, cable out
- Includes mounting hardware and BMHE

Standards and Certifications

- UL/CSA

Listed

Product Selection

Type GD Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units

Maximum Continuous Ampere Rating at 40°C	480 Vac Maximum, 250 Vdc 14 kAIC at 480 Vac Includes Line and Load Terminals Two-Pole Catalog Number	22 kAIC at 480 Vac Three-Pole Catalog Number	Includes Binding Head Screws and Clamps 10–32 x 0.312 Three-Pole Catalog Number
15	GD2015	GD3015	GD3015D
20	GD2020	GD3020	GD3020D
25	GD2025	GD3025	GD3025D
30	GD2030	GD3030	GD3030D
35	GD2035	GD3035	GD3035D
40	GD2040	GD3040	GD3040D
45	GD2045	GD3045	GD3045D
50	GD2050	GD3050	GD3050D
60	—	GD3060	GD3060D
70	—	GD3070	GD3070D
80	—	GD3080	GD3080D
90	—	GD3090	GD3090D
100	—	GD3100	GD3100D

Type GDB Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units

Maximum Continuous Ampere Rating at 40°C	480 Vac Maximum, 250 Vdc 14 kAIC at 480 Vac Includes Line and Load Terminals Two-Pole Catalog Number	Three-Pole Catalog Number
15	**GDB2015**	**GDB3015**
20	**GDB2020**	**GDB3020**
25	**GDB2025**	**GDB3025**
30	**GDB2030**	**GDB3030**
35	**GDB2035**	**GDB3035**
40	**GDB2040**	**GDB3040**
45	**GDB2045**	**GDB3045**
50	**GDB2050**	**GDB3050**
60	—	**GDB3060**
70	—	**GDB3070**
80	—	**GDB3080**
90	—	**GDB3090**
100	—	**GDB3100**

Type GD Molded Case Switches

Type GD Molded Case Switches—Three-Pole

Maximum Continuous Ampere Rating at 40°C	480 Vac Maximum, 250 Vdc Catalog Number (Includes Line and Load Terminals)
60	**GD3060K**
60	**GD3060KC** ①
100	**GD3100K**
100	**GD3100KD** ②

Notes

① Includes line and load steel terminals.

② Includes binding head screws and clamps 10–32 x 0.312.

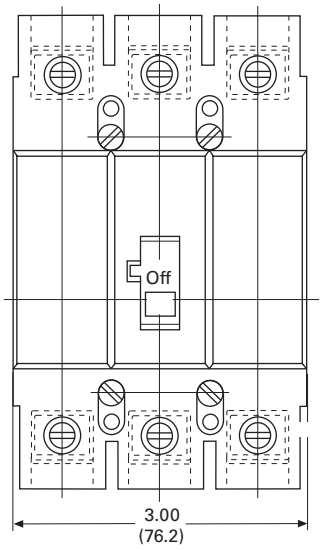
Molded case switches may open above 1300 amperes.

Dimensions

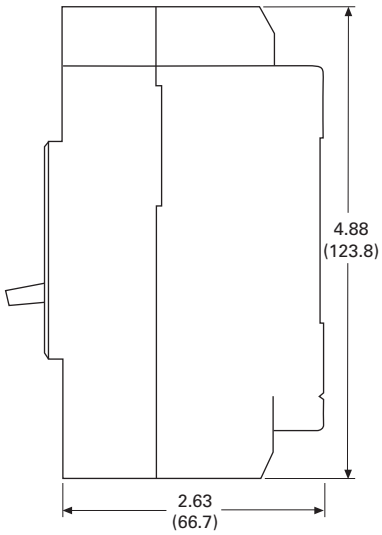
Approximate Dimensions in Inches (mm)

GD-Frame, Three-Pole

Front View



Side View



Typical GHB

Contents

Types GHB and HGHB Bolt-On Panelboard Circuit Breakers (15–100 Amperes)

Standards and Certifications

These breakers meet the requirements of Federal Specification W-C-375b as follows:

- Type GHB, 120 and 240V:
  - Single-pole: Class 11a
  - Two-, three-pole: Classes 10b, 11b, 12b, 14b, 15b
  - UL/CSA
- Type GHB, 277 and 480Y/277V:
  - Single-pole: Classes 12c, 13a
  - Two-, three-pole: Class 13b
  - Type HGHB 277V
  - Type GHQ 277V

Listed

Product Selection

Typical GHB

Type GHB Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units ①

Continuous Ampere Rating at 40°C	277/480 Vac Maximum, 125 Vdc Maximum ② Single-Pole Catalog Number	277/480 Vac Maximum, 125/250 Vdc Maximum Two-Pole Catalog Number	277/480 Vac Maximum, 125/250 Vdc Maximum ③ Three-Pole Catalog Number
15	GHB1015 ④⑤	GHB2015 ④	GHB3015 ④
20	GHB1020 ④⑤	GHB2020 ④	GHB3020 ④
25	GHB1025	GHB2025	GHB3025
30	GHB1030	GHB2030	GHB3030
35	GHB1035	GHB2035	GHB3035
40	GHB1040	GHB2040	GHB3040
45	GHB1045	GHB2045	GHB3045
50	GHB1050	GHB2050	GHB3050
60	GHB1060	GHB2060	GHB3060
70	GHB1070	GHB2070	GHB3070
80	GHB1080	GHB2080	GHB3080
90	GHB1090	GHB2090	GHB3090
100	GHB1100	GHB2100	GHB3100

Type HGHB Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units

Continuous Ampere Rating at 40°C	277 Vac Maximum, 125 Vdc Maximum Single-Pole Catalog Number
15	HGHB1015 ⑥
20	HGHB1020 ⑥
25	HGHB1025
30	HGHB1030

Type GHQ Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units

Continuous Ampere Rating at 40°C	277 Vac Maximum 14 kAIC, No DC Rating (HID and SWD) Single-Pole Catalog Number
15	GHQ1015 ⑦
20	GHQ1020 ⑦

Notes

① 480Y/277V, circuit breakers (Type GHB) not suitable for three-phase delta (480V).
② 15 through 70 ampere circuit breakers only.
③ Use two outside poles.
④ Uses 0.190 (4.83) –32 screw type clamp terminals.
⑤ Add suffix HID for High Intensity Discharge (HID) applications. 15 and 20 ampere, single-pole are SWD rated.
⑥ 15 and 20 ampere, single-pole are SWD rated.
⑦ Includes 4A33462H01 load clip.

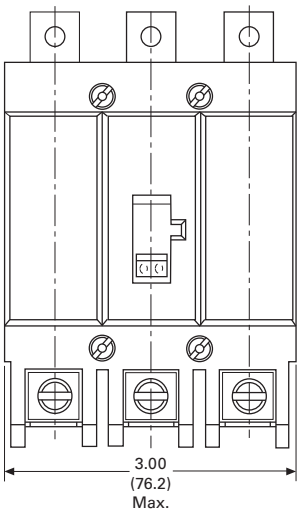
Dimensions

Approximate Dimensions in Inches (mm)

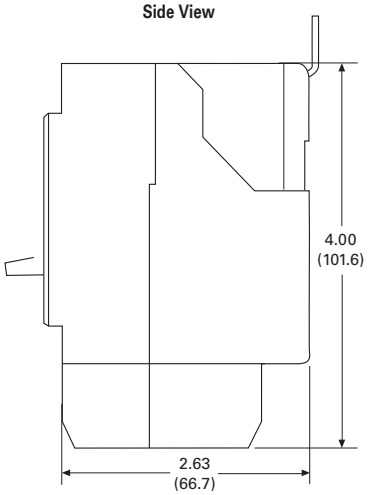
2

GDB-Frame, Three-Pole

Front View



Side View



Single-Phase (requires two poles)

Contents

Type GHBGFEP Bolt-On Panelboard 30 mA Industrial Ground Fault Circuit Protectors (15–100 Amperes)

Product Description

- 15–60 amperes, 277V, 50/60 Hz
- Operational voltage 240V to 305V

Standards and Certifications

These circuit breakers meet the requirements of UL 489 and UL 1053.

UL Listed

Product Selection

Type GHBGFEP Bolt-On Panelboard 30 mA Industrial Ground Fault Circuit Protectors with Non-Interchangeable Trip Units

Continuous Ampere Rating at 40°C	Single-Phase (Requires Two Poles) 277 Vac, 30 mA Catalog Number
15	**GHBGFEP1015**
20	**GHBGFEP1020**
30	**GHBGFEP1030**
40	**GHBGFEP1040**
50	**GHBGFEP1050**
60	**GHBGFEP1060**

Technical Data and Specifications

Interrupting Capacity Ratings

Circuit Breaker Type	Number of Poles	Interrupting Capacity (Symmetrical Amperes) 277 Vac (50/60 Hz)
GHBGFEP	1	14,000

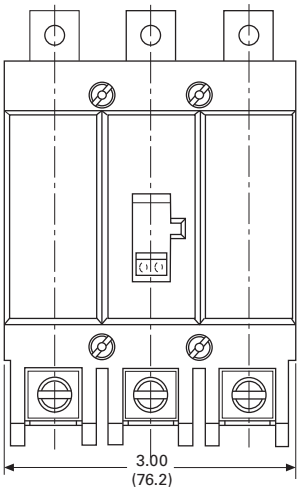
Dimensions

Approximate Dimensions in Inches (mm)

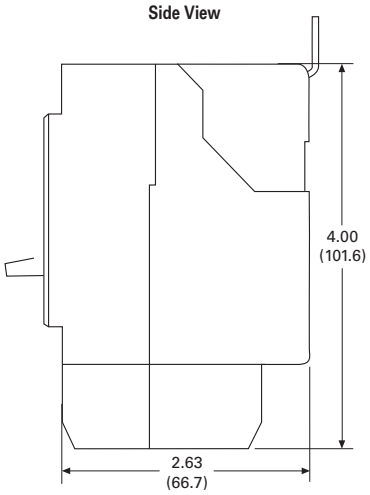
2

GHB-Frame, Three-Pole

Front View



Side View



Typical GHC

Contents

Types GHC and HGHC Circuit Breakers (15–100 Amperes)

Product Description

- 15–100 amperes
- 120, 240, 277, 480Y/277V, 50/60 Hz, 125, 125/250 Vdc
- Single-, two- and three-pole
- Cable in, cable out
- Does not include mounting hardware

Standards and Certifications

These breakers meet the requirements of Federal Specification W-C-37b as follows:

- Type GHC, 277 and 480Y/277V:
  - Single-pole: Classes 12c, 13a
  - Two-, three-pole: Class 13b
  - UL/CSA

Listed

Product Selection

Type GHC Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units

Continuous Ampere Rating at 40°C	277 Vac Maximum, 125 Vdc Maximum ① Single-Pole Catalog Number	480Y/277 Vac Maximum, 125/250 Vdc Maximum Two-Pole Catalog Number	480Y/277 Vac Maximum, 125/250 Vdc Maximum ② Three-Pole Catalog Number
15	**GHC1015** ③④	**GHC2015** ③	**GHC3015** ③
20	**GHC1020** ③④	**GHC2020** ③	**GHC3020** ③
25	**GHC1025**	**GHC2025**	**GHC3025**
30	**GHC1030**	**GHC2030**	**GHC3030**
35	**GHC1035**	**GHC2035**	**GHC3035**
40	**GHC1040**	**GHC2040**	**GHC3040**
45	**GHC1045**	**GHC2045**	**GHC3045**
50	**GHC1050**	**GHC2050**	**GHC3050**
60	**GHC1060**	**GHC2060**	**GHC3060**
70	**GHC1070**	**GHC2070**	**GHC3070**
80	**GHC1080**	**GHC2080**	**GHC3080**
90	**GHC1090**	**GHC2090**	**GHC3090**
100	**GHC1100**	**GHC2100**	**GHC3100**

Type HGHC Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units

Continuous Ampere Rating at 40°C	277 Vac Maximum, 125 Vdc Maximum Single-Pole Catalog Number
15	**HGHC1015** ⑤
20	**HGHC1020** ⑤
25	**HGHC1025**
30	**HGHC1030**

Notes

① 15 through 70 ampere circuit breakers only.
② Use two outside poles.
③ Uses 0.190–32 screw type clamp terminals.
④ Add suffix HID for High Intensity Discharge (HID) applications. 15 and 20 ampere, single-pole are SWD rated.
⑤ 15 and 20 ampere, single-pole are SWD rated.

Single-Phase (requires two-pole spaces)

Contents

Type GHCGFEP Cable-In/Cable-Out 30 mA Industrial Ground Fault Circuit Protectors (15–100 Amperes)

Product Description

- 15–60 amperes, 277V, 50/60 Hz
- Operational voltage 240V–305V

Standards and Certifications

These circuit breakers meet the requirements of UL 489 and UL 1053.

Listed

Product Selection

Type GHCGFEP 30 mA Industrial Ground Fault Circuit Protectors with Non-Interchangeable Trip Units

Continuous Ampere Rating at 40°C	Single-Phase (Requires Two Poles) 277V, 30 mA Catalog Number
15	**GHCGFEP1015**
20	**GHCGFEP1020**
30	**GHCGFEP1030**
40	**GHCGFEP1040**
50	**GHCGFEP1050**
60	**GHCGFEP1060**

Technical Data and Specifications

Interrupting Capacity Ratings

Circuit Breaker Type	Number of Poles	Interrupting Capacity (Symmetrical Amperes) 277 Vac (50/60 Hz)
GHCGFEP	1	14,000

Special Purpose Circuit Breakers

Contents

Special Purpose GHC Circuit Breakers (15–100 Amperes)

Product Description

Eaton's Type GHC circuit breakers have binding head screw-type terminals on line and load side. These circuit breakers with screw-type terminals (0.190–32) will be marked "Special purpose breaker not for general use." To order this special breaker, use the catalog number from the tables on this page.

Product Selection

Type GHC Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units

Continuous Ampere Rating at 40°C	277 Vac Maximum, 125 Vdc Maximum Single-Pole Catalog Number	480Y/277 Vac Maximum, 125/250 Vdc Maximum Two-Pole Catalog Number	480Y/277 Vac Maximum, 125/250 Vdc Maximum ① Three-Pole Catalog Number
25	GHC1025D	GHC2025D	GHC3025D
30	GHC1030D	GHC2030D	GHC3030D
35	GHC1035D	GHC2035D	GHC3035D
40	GHC1040D	GHC2040D	GHC3040D
45	GHC1045D	GHC2045D	GHC3045D
50	GHC1050D	GHC2050D	GHC3050D
60	GHC1060D	GHC2060D	GHC3060D
70	GHC1070D	GHC2070D	GHC3070D
80	GHC1080D	GHC2080D	GHC3080D
90	GHC1090D	GHC2090D	GHC3090D
100	GHC1100D	GHC2100D	GHC3100D

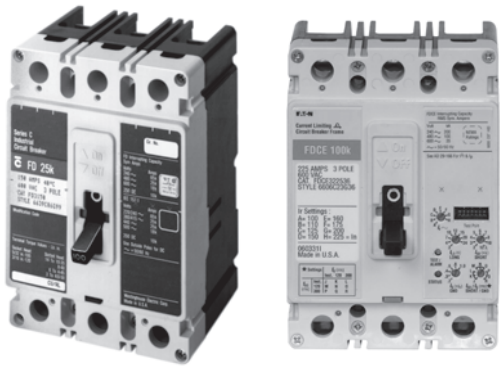
Type GHB and GHC Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units for HID Lighting Applications

Type	Continuous Ampere Rating at 40°C	277 Vac Maximum Single-Pole Catalog Number
Cable-in	15	GHC1015HID
	20	GHC1020HID
Bolt-on	15	GHB1015HID
	20	GHB1020HID

Note

① Use two outside poles.

Typical F-Frame Breaker
F-Frame Breaker with Electronic Trip Unit



Contents

F-Frame (10–225 Amperes)

Product Description

- All Eaton's F-Frame circuit breakers are HACR rated
- All circuit breakers 10 through 30 amperes are suitable for HID (high intensity discharge) use
- All F-Frame circuit breakers are suitable for reverse feed use

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 or trip units.

2

FDC 3 100 L

Circuit Breaker Type	Number of Poles	Trip Amperes	Suffix
EHD	**1** = 1 pole	**010**	**E** = 100% protected (four-pole only) neutral pole
FDB	**2** = 2 poles	**015**	**EH** = 50% protected (four-pole only)
FD	**3** = 3 poles	**020**	**K** = High magnetic molded case switch
HFD	**4** = 4 poles	**025**	**L** = Line and load terminals
FDC		**030**	**S** = Stainless steel terminals
		035	**V** = 50°C calibration
		040	**W** = Without terminals
		045	**Y** = Line terminals only
		050	**Z** = Aluminum terminals (≤100 amperes)
		060	
		070	
		080	
		090	
		100	
		110	
		125	
		150	
		175 (FD, HFD, FDC, two-, three-, four-pole only)	
		200 (FD, HFD, FDC, two-, three-, four-pole only)	
		225 (FD, HFD, FDC, two-, three-, four-pole only)	

EDC 3 200 L

Circuit Breaker Type	Number of Poles	Trip Amperes	Suffix
EDB	**2** = 2 poles	**100**	**L** = Line and load terminals
EDS	**3** = 3 poles	**125**	**W** = Without terminals
ED		**150**	**Y** = Line terminals only
EDH		**175**	**Z** = Aluminum terminals (100 amperes)
EDC		**200**	
		225	

FDE 3 225 32 _ W

Circuit Breaker Type	Number of Poles	Trip Amperes	Trip Unit	Suffix	Suffix
FDE	**3** = 3 poles	**80**	**33** = LS	**ZG** = Zone selective interlocking	**W** = Without terminals
HFDE		**160**	**32** = LSI		**L** = Line and load terminals
FDCE		**225**	**35** = LSG		— = Load side terminals only
			36 = LSIG		

Product Selection

Type ED Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units Suitable for Reverse Feed

	240 Vac Maximum, 125 Vdc (Includes Terminals on Load End Only) 65 kAIC at 240 Vac	
	Two-Pole	Three-Pole
Maximum Continuous Ampere Rating at 40°C	Catalog Number	Catalog Number
15	ED2015	ED3015
20	ED2020	ED3020
25	ED2025	ED3025
30	ED2030	ED3030
35	ED2035	ED3035
40	ED2040	ED3040
50	ED2050	ED3050
60	ED2060	ED3060
100	ED2100	ED3100
125	ED2125	ED3125
150	ED2150	ED3150
175	ED2175	ED3175
200	ED2200	ED3200
225	ED2225	ED3225

Type EDH Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units Suitable for Reverse Feed

	240 Vac Maximum, 125 Vdc (Includes Terminals on Load End Only) 100 kAIC at 240 Vac	
	Two-Pole	Three-Pole
Maximum Continuous Ampere Rating at 40°C	Catalog Number	Catalog Number
15	—	—
20	—	—
25	—	—
30	—	—
35	—	—
40	—	—
50	—	—
60	—	—
100	EDH2100	EDH3100
125	EDH2125	EDH3125
150	EDH2150	EDH3150
175	EDH2175	EDH3175
200	EDH2200	EDH3200
225	EDH2225	EDH3225

2

Type EDC Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units Suitable for Reverse Feed

	240 Vac Maximum, 125 Vdc (Includes Terminals on Load End Only) 200 kAIC at 240 Vac	
	Two-Pole	Three-Pole
Maximum Continuous Ampere Rating at 40°C	Catalog Number	Catalog Number
15	—	—
20	—	—
25	—	—
30	—	—
35	—	—
40	—	—
50	—	—
60	—	—
100	**EDC2100**	**EDC3100**
125	**EDC2125**	**EDC3125**
150	**EDC2150**	**EDC3150**
175	**EDC2175**	**EDC3175**
200	**EDC2200**	**EDC3200**
225	**EDC2225**	**EDC3225**

Type EDB Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units Suitable for Reverse Feed

	240 Vac Maximum, 125 Vdc (Includes Terminals on Load End Only) 22 kAIC at 240 Vac	
	Two-Pole	Three-Pole
Maximum Continuous Ampere Rating at 40°C	Catalog Number	Catalog Number
100	**EDB2100**	**EDB3100**
110	**EDB2110**	**EDB3110**
125	**EDB2125**	**EDB3125**
150	**EDB2150**	**EDB3150**
175	**EDB2175**	**EDB3175**
200	**EDB2200**	**EDB3200**
225	**EDB2225**	**EDB3225**

Type EDS Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units Suitable for Reverse Feed

	240 Vac Maximum, 125 Vdc (Includes Terminals on Load End Only) 42 kAIC at 240 Vac	
	Two-Pole	Three-Pole
Maximum Continuous Ampere Rating at 40°C	Catalog Number	Catalog Number
100	EDS2100	EDS3100
110	EDS2110	EDS3110
125	EDS2125	EDS3125
150	EDS2150	EDS3150
175	EDS2175	EDS3175
200	EDS2200	EDS3200
225	EDS2225	EDS3225

Type EHD Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units (Includes Terminals on Load End Only)

	277 Vac Maximum, 125 Vdc 14 kAIC at 277 Vac	480 Vac Maximum, 250 Vdc 14 kAIC at 480 Vac	
	Single-Pole	Two-Pole	Three-Pole
Maximum Continuous Ampere Rating at 40°C	Catalog Number	Catalog Number	Catalog Number
10 ①	EHD1010	EHD2010	EHD3010
15	EHD1015 ②	EHD2015	EHD3015
20	EHD1020 ②	EHD2020	EHD3020
25	EHD1025	EHD2025	EHD3025
30	EHD1030	EHD2030	EHD3030
35	EHD1035	EHD2035	EHD3035
40	EHD1040	EHD2040	EHD3040
45	EHD1045	EHD2045	EHD3045
50	EHD1050	EHD2050	EHD3050
60	EHD1060	EHD2060	EHD3060
70	EHD1070	EHD2070	EHD3070
80	EHD1080	EHD2080	EHD3080
90	EHD1090	EHD2090	EHD3090
100	EHD1100	EHD2100	EHD3100

Notes

① Not UL listed. 5 kAIC interrupting rating.

② UL listed for SWD applications, see NEC Article 240.83(d).

Type FDB Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units (Includes Terminals on Load End Only)

	600 Vac Maximum, 250 Vdc 14 kAIC at 600 Vac		
	Two-Pole	Three-Pole	Four-Pole
Maximum Continuous Ampere Rating at 40°C	Catalog Number	Catalog Number	Catalog Number
10 ①	**FDB2010**	**FDB3010**	**FDB4010**
15	**FDB2015**	**FDB3015**	**FDB4015**
20	**FDB2020**	**FDB3020**	**FDB4020**
25	**FDB2025**	**FDB3025**	**FDB4025**
30	**FDB2030**	**FDB3030**	**FDB4030**
35	**FDB2035**	**FDB3035**	**FDB4035**
40	**FDB2040**	**FDB3040**	**FDB4040**
45	**FDB2045**	**FDB3045**	**FDB4045**
50	**FDB2050**	**FDB3050**	**FDB4050**
60	**FDB2060**	**FDB3060**	**FDB4060**
70	**FDB2070**	**FDB3070**	**FDB4070**
80	**FDB2080**	**FDB3080**	**FDB4080**
90	**FDB2090**	**FDB3090**	**FDB4090**
100	**FDB2100**	**FDB3100**	**FDB4100**
110	**FDB2110**	**FDB3110**	**FDB4110**
125	**FDB2125**	**FDB3125**	**FDB4125**
150	**FDB2150**	**FDB3150**	**FDB4150**

Notes

① Not UL listed. 5 kAIC interrupting rating.

② UL listed for SWD applications, see NEC Article 240.83(d).

Type FD Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units (Includes Terminals on Load End Only)

	277 Vac Maximum, 125 Vdc 35 kAIC at 277 Vac	600 Vac Maximum, 250 Vdc 35 kAIC at 480 Vac		
	Single-Pole	Two-Pole	Three-Pole	Four-Pole
Maximum Continuous Ampere Rating at 40°C	Catalog Number	Catalog Number	Catalog Number	Catalog Number
10 ①	**FD1010**	—	—	—
15	**FD1015** ②	**FD2015**	**FD3015**	**FD4015**
20	**FD1020** ②	**FD2020**	**FD3020**	**FD4020**
25	**FD1025**	**FD2025**	**FD3025**	**FD4025**
30	**FD1030**	**FD2030**	**FD3030**	**FD4030**
35	**FD1035**	**FD2035**	**FD3035**	**FD4035**
40	**FD1040**	**FD2040**	**FD3040**	**FD4040**
45	**FD1045**	**FD2045**	**FD3045**	**FD4045**
50	**FD1050**	**FD2050**	**FD3050**	**FD4050**
60	**FD1060**	**FD2060**	**FD3060**	**FD4060**
70	**FD1070**	**FD2070**	**FD3070**	**FD4070**
80	**FD1080**	**FD2080**	**FD3080**	**FD4080**
90	**FD1090**	**FD2090**	**FD3090**	**FD4090**
100	**FD1100**	**FD2100**	**FD3100**	**FD4100**
110	**FD1110**	**FD2110**	**FD3110**	**FD4110**
125	**FD1125**	**FD2125**	**FD3125**	**FD4125**
150	**FD1150**	**FD2150**	**FD3150**	**FD4150**
175	—	**FD2175**	**FD3175**	**FD4175**
200	—	**FD2200**	**FD3200**	**FD4200**
225	—	**FD2225**	**FD3225**	**FD4225**

Notes

① Not UL listed. 5 kAIC interrupting rating.

② UL listed for SWD applications, see NEC Article 240.83(d).

Type HFD Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units (Includes Terminals on Load End Only)

	277 Vac Maximum, 125 Vdc 65 kAIC at 277 Vac	600 Vac Maximum, 250 Vdc 65 kAIC at 480 Vac		
	Single-Pole	Two-Pole	Three-Pole	Four-Pole
Maximum Continuous Ampere Rating at 40°C	Catalog Number	Catalog Number	Catalog Number	Catalog Number
15	**HFD1015** ①	**HFD2015**	**HFD3015**	**HFD4015**
20	**HFD1020** ①	**HFD2020**	**HFD3020**	**HFD4020**
25	**HFD1025**	**HFD2025**	**HFD3025**	**HFD4025**
30	**HFD1030**	**HFD2030**	**HFD3030**	**HFD4030**
35	**HFD1035**	**HFD2035**	**HFD3035**	**HFD4035**
40	**HFD1040**	**HFD2040**	**HFD3040**	**HFD4040**
45	**HFD1045**	**HFD2045**	**HFD3045**	**HFD4045**
50	**HFD1050**	**HFD2050**	**HFD3050**	**HFD4050**
60	**HFD1060**	**HFD2060**	**HFD3060**	**HFD4060**
70	**HFD1070**	**HFD2070**	**HFD3070**	**HFD4070**
80	**HFD1080**	**HFD2080**	**HFD3080**	**HFD4080**
90	**HFD1090**	**HFD2090**	**HFD3090**	**HFD4090**
100	**HFD1100**	**HFD2100**	**HFD3100**	**HFD4100**
110	**HFD1110**	**HFD2110**	**HFD3110**	**HFD4110**
125	**HFD1125**	**HFD2125**	**HFD3125**	**HFD4125**
150	**HFD1150**	**HFD2150**	**HFD3150**	**HFD4150**
175	—	**HFD2175**	**HFD3175**	**HFD4175**
200	—	**HFD2200**	**HFD3200**	**HFD4200**
225	—	**HFD2225**	**HFD3225**	**HFD4225**

Note

① UL listed for SWD applications, see NEC Article 240.83(d).

Type FDC Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units (Includes Terminals on Load End Only)

	600 Vac Maximum, 250 Vdc 100 kAIC at 480 Vac		
	Two-Pole	Three-Pole	Four-Pole
Maximum Continuous Ampere Rating at 40°C	Catalog Number	Catalog Number	Catalog Number
15	FDC2015	FDC3015	FDC4015
20	FDC2020	FDC3020	FDC4020
25	FDC2025	FDC3025	FDC4025
30	FDC2030	FDC3030	FDC4030
35	FDC2035	FDC3035	FDC4035
40	FDC2040	FDC3040	FDC4040
45	FDC2045	FDC3045	FDC4045
50	FDC2050	FDC3050	FDC4050
60	FDC2060	FDC3060	FDC4060
70	FDC2070	FDC3070	FDC4070
80	FDC2080	FDC3080	FDC4080
90	FDC2090	FDC3090	FDC4090
100	FDC2100	FDC3100	FDC4100
110	FDC2110	FDC3110	FDC4110
125	FDC2125	FDC3125	FDC4125
150	FDC215	FDC3150	FDC4150
175	FDC2175	FDC3175	FDC4175
200	FDC2200	FDC3200	FDC4200
225	FDC2225	FDC3225	FDC4225

Types FDE, HFDE and FDCE Electronic Circuit Breakers with Non-Interchangeable Trip Units

Maximum Ampere Rating	Neutral CT for LSG and LSIG	LS Catalog Number	LSI Catalog Number	LSG Catalog Number	LSIG Catalog Number
IC Rating 35 kAIC at 480 Vac					
80	CTF080	**FDE308033**	**FDE308032**	**FDE308035**	**FDE308036**
160	CTF160	**FDE316033**	**FDE316032**	**FDE316035**	**FDE316036**
225	CTF225	**FDE322533**	**FDE322532**	**FDE322535**	**FDE322536**
IC Rating 65 kAIC at 480 Vac					
80	CTF080	**HFDE308033**	**HFDE308032**	**HFDE308035**	**HFDE308036**
160	CTF160	**HFDE316033**	**HFDE316032**	**HFDE316035**	**HFDE316036**
225	CTF225	**HFDE322533**	**HFDE322532**	**HFDE322535**	**HFDE322536**
IC Rating 100 kAIC at 480 Vac ①					
80	CTF080	**FDCE308033**	**FDCE308032**	**FDCE308035**	**FDCE308036**
160	CTF160	**FDCE316033**	**FDCE316032**	**FDCE316035**	**FDCE316036**
225	CTF225	**FDCE322533**	**FDCE322532**	**FDCE322535**	**FDCE322536**

FDE Electronic Breaker with Zone Selective Interlocking

Ampere Rating	LSI w/ZSI Catalog Number	LSIG w/ZSI Catalog Number
35 kAIC at 480 Vac		
80	**FDE308032ZG**	**FDE308036ZG**
160	**FDE316032ZG**	**FDE316036ZG**
225	**FDE322532ZG**	**FDE322536ZG**
65 kAIC at 480 Vac		
80	**HFDE308032ZG**	**HFDE308036ZG**
160	**HFDE316032ZG**	**HFDE316036ZG**
225	**HFDE322532ZG**	**HFDE322536ZG**

Digitrip Electronic Trip Units

Circuit Breaker Type	Frame	Ratings
FDE, HFDE, FDCE	225	100, 110, 125, 150, 160, 175, 200, 225
FDE, HFDE, FDCE	160	60, 70, 80, 90, 100, 125, 150, 160
FDE, HFDE, FDCE	80	15, 20, 30, 40, 50, 60, 70, 80

Note

① Check with Eaton for availability.

Molded Case Switches

Eaton's molded case switches are used as compact switches in applications requiring high current switching capabilities. Molded case switches are constructed of circuit breaker components and are of the high instantaneous automatic type. Molded case switches are listed in accordance with Underwriters Laboratories Standard UL 489.

Molded Case Switches

	Complete Circuit Breaker with Load Side Terminals Only		
	480 Vac Maximum, 250 Vdc	600 Vac Maximum, 250 Vdc	
Maximum Continuous Ampere Rating at 40°C	Catalog Number	Catalog Number	Catalog Number
Two-Pole			
100	**EHD2100K**	**FD2100K**	**HFD2100K**
150	—	**FD2150K**	**HFD2150K**
225	—	**FD2225K**	**HFD2225K**
Three-Pole			
100	**EHD3100K**	**FD3100K**	**HFD3100K**
150	—	**FD3150K**	**HFD3150K**
225	—	**FD3225K**	**HFD3225K**
Four-Pole			
100	—	**FD4100K**	**HFD4100K**
150	—	**FD4150K**	**HFD4150K**
225	—	**FD4225K**	**HFD4225K**

Note

Molded case switches will open above 1800 amperes.

Accessories Selection Guide and Ordering Information

Breaker Mount Ammeter ①

Description	Catalog Number
Breaker mount ammeter	**DIGIVIEW**

Line and Load Terminals

Line and load terminals provide wire connecting capabilities for specific ranges of continuous current ratings and wire types. Except as noted, terminals comply with Underwriters Laboratories Standards UL 486A and UL 486B. Unless otherwise specified, F-Frame circuit breakers are factory equipped with load terminals only.

Ordering Information

F-Frame circuit breakers and molded case switches have load terminals only as standard equipment. When standard line-end terminals (same as standard load-end terminals) are required, add Suffix **L** to the circuit breaker catalog number. When non-standard or optional line and/or load terminals are required, order by style number. Specify if factory installation is required.

Line and Load Terminals

Maximum Breaker Amperes	Terminal Body Material	Wire Type	AWG Wire Range	Metric Wire Range mm^2	Package of Three Terminals Catalog Number
Standard Pressure Type Terminals					
20 (EHD)	Steel	Cu/Al	14–10	2.5–4	**3T20FB** ②
100	Steel	Cu/Al	14–1/0	2.5–50	**3T100FB**
225	Aluminum	Cu/Al	4–4/0	25–95	**3TA225FD**
Optional Pressure Terminals					
50	Aluminum	Cu/Al	14–4	2.5–25	**3TA50FB** ②
100	Aluminum	Cu/Al	14–1/0	2.5–50	**3TA100FD**
200	Stainless steel	Cu	4–4/0	25–95	**3T150FB**
225	Copper	Cu	4–4/0	25–95	**3T225FD**
225	Aluminum	Cu/Al	6–300 kcmil	16–150	**3TA225FDK** ③

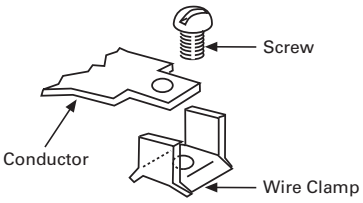
Notes

① Use on FDE, HFDE and FDCE electronic trip only.

② Not for use with ED, EDH, EDC breakers.

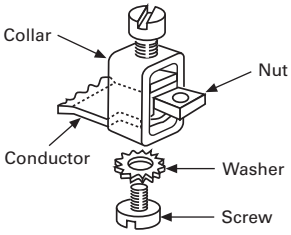
③ Includes terminal shield kit. Adds approximately 3 inches (76.2) to breaker height. Available for use on three-pole breaker only.

Line and Load Terminals



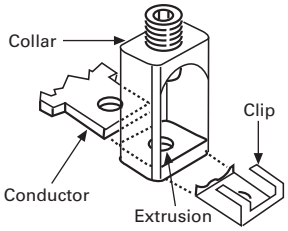
3T20FB

Assemble wire clamp to bottom of conductor as shown.



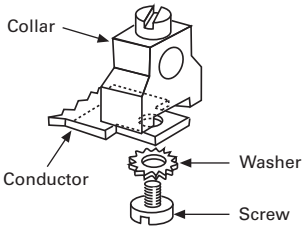
3T100FB, 3T150FB

Insert collar enclosing conductor as shown. Locate nut on top of conductor and tighten securely with screw and washer.
Caution: Collar must surround conductor.



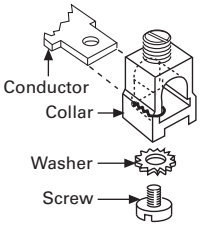
3TA225FD

Insert collar enclosing conductor and center on extrusion on collar. Install clip with legs on top of conductor and snap end around bottom of collar.



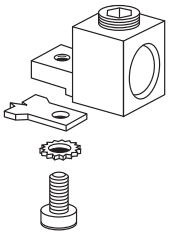
3TA50FB

Assemble collar on top of conductor as shown. Tighten securely with screw and washer.



3TA100FD

Collar slides onto conductor and is held in position by a screw and lockwasher.



3TA225FDK (Up to 150 mm^2)

Assemble collar on top of conductor as shown. Tighten securely with screw and washer. Terminal shield must be used with this collar.
Note: For 185 mm^2, use 3TA225FDK1.

Accessories

Different combinations of accessories can be supplied, depending on the types of accessories and the number of poles in the circuit breaker.

Allowable Accessory Combinations

FD Frame Accessories

Description	Reference Page	Single-Pole	Two-Pole		Three-Pole ①			Four-Pole			
		Center	Left	Right	Left	Center	Right	Left	Center	Right	Neutral
Internal Accessories (Only one internal accessory per pole)											
Alarm lockout switch (make only)	V4-T2-304	■									
Alarm lockout (Make/Break)	V4-T2-304			■	❑		❑	■			
Alarm lockout (2Make/2Break)	V4-T2-304			■	❑		❑	■			
Auxiliary switch (1A, 1B)	V4-T2-306			■	■		■	■			■
Auxiliary switch (2A, 2B)	V4-T2-306			■	■		■	■			■
Auxiliary switch and alarm switch combination	V4-T2-308			■	❑		❑	■			
Shunt trip—standard	V4-T2-310			■	■		■	■			■
Shunt trip—low energy	V4-T2-314			■	■		■	■			
Undervoltage release mechanism	V4-T2-316			■	■		■	■			
External Accessories											
End cap kit	V4-T2-337		●	●	●	●	●	●	●	●	●
Keeper nut	V4-T2-337	●	●	●	●	●	●	●	●	●	●
Control wire terminal kit	V4-T2-338	●	●	●	●	●	●	●	●	●	●
Multiwire connectors	V4-T2-339	●	●	●	●	●	●	●	●	●	●
Base mounting hardware	V4-T2-339	●	●	●	●	●	●	●	●	●	●
Terminal shields	V4-T2-341	●	●	●	●	●	●	●	●	●	●
Terminal end covers	V4-T2-342				●	●	●				
Interphase barriers	V4-T2-342		●	●	●	●	●	●	●	●	●
Non-padlockable handle block	V4-T2-343	■	■			■			■		
Snap-on padlockable handle lock hasp	V4-T2-343	■	■			■			■		
Padlockable handle lock hasp	V4-T2-344			■	❑		❑	❑		❑	
Cylinder lock	V4-T2-344				■						
Key interlock kit	V4-T2-345			■	❑		❑	❑		❑	
Sliding bar interlock—requires two breakers	V4-T2-346				●	●	●				
Walking beam interlock—requires two breakers	V4-T2-346				●	●	●	●	●	●	●
Electrical (solenoid and motor) operators	V4-T2-347				●	●	●	●	●	●	●
Plug-in adapters	V4-T2-348		●	●	●	●	●	●	●	●	●
Rear connecting studs	V4-T2-350	●	●	●	●	●	●	●	●	●	●
Panelboard connecting straps	V4-T2-351	●	●	●	●	●	●	●	●	●	●
Handle mechanisms	V4-T2-353				●	●	●				
LFD current limiter	V4-T2-358				●	●	●				
IQ Energy Sentinel	V4-T2-358		●	●	●	●	●				
Cause of trip display	V4-T2-359				●			●			
Remote mount cause of trip display	V4-T2-359				●			●			
Cause of trip LED	V4-T2-359				●			●			
Modifications (Refer to Eaton)											
Special calibration	—	●	●	●	●	●	●	●	●	●	●
Moisture fungus treatment	V4-T2-123	●	●	●	●	●	●	●	●	●	●
Freeze-tested circuit breakers	—	●	●	●	●	●	●	●	●	●	●
Marine/naval application	—	●	●	●	●	●	●	●	●	●	●

Legend

■ Applicable in indicated pole position
❑ May be mounted on left or right pole—not both
● Accessory available/modification available

Note

① Internal accessories are listed with Underwriters Laboratories (UL) for factory installation. They are not listed with UL for field installation.

Technical Data and Specifications

UL 489 Interrupting Capacity Ratings

Circuit Breaker Type	Number of Poles	Interrupting Capacity (kA Symmetrical Amperes) Volts AC (50/60 Hz) 240	277	480	600	Volts DC ① 125	250 ②③
EDB	2, 3	22	—	—	—	10	—
EDS	2, 3	42	—	—	—	10	—
ED	2, 3	65	—	—	—	10	—
EDH	2, 3	100	—	—	—	10	—
EDC	2, 3	200	—	—	—	10	—
EHD	1	—	4	—	—	10	—
	2, 3	18	—	14	—	—	10
FDB	2, 3, 4	18	—	14	14	—	10
FD	1	—	35	—	—	10	—
	2, 3, 4	65	—	35	18	—	10
FDE ④	2, 3, 4	65	—	35	18	—	—
HFD	1	—	65	—	—	10	—
	2, 3, 4	100	—	65	25	—	22
HFDE ④	2, 3, 4	100	—	65	25	—	—
FDC ⑤	2, 3, 4	200	—	100	35	—	22
FDCE ④⑤⑥	3	200	—	100	25	—	—

IEC 157-1 (P1) Interrupting Capacity Ratings (P1)

Circuit Breaker Type	Number of Poles	Interrupting Capacity (kA Symmetrical Amperes) Volts AC (50/60 Hz) 220, 240	380, 415	440	500	Volts DC ① 125	250 ②③
EDB	2, 3	22	—	—	—	10	—
EDS	2, 3	42	—	—	—	10	—
ED	2, 3	65	—	—	—	10	—
EDH	2, 3	100	—	—	—	10	—
EDC	2, 3	200	—	—	—	10	—
EHD	1	—	14	—	—	10	—
	2, 3	18	—	14	—	—	10
FDB	2, 3, 4	18	14	14	14	—	10
FD	1	35	—	—	—	10	—
	2, 3, 4	65	35	35	18	—	10
HFD	1	65	—	—	—	10	—
	2, 3, 4	100	65	65	25	—	22
FDC	2, 3, 4	200	100	100	35	—	22

Digitrip Electronic Trip Units

Circuit Breaker Type	Frame	Ratings
FDE, HFDE, FDCE	225	100, 110, 125, 150, 160, 175, 200, 225
FDE, HFDE, FDCE	160	60, 70, 80, 90, 100, 125, 150, 160
FDE, HFDE, FDCE	80	15, 20, 30, 40, 50, 60, 70, 80

Notes

① DC ratings apply to substantially non-inductive circuits.
② Two-pole circuit breaker, or two poles of three-pole circuit breaker.
③ Time constant is 3 milliseconds minimum at 10 kA and 8 milliseconds minimum at 22 kA.
④ Electronics available on three-pole only, no DC rating for FDE, HFDE, FDCE.
⑤ Current limiting.
⑥ Check with Eaton for availability.

F-Frame Digitrip Specifications

Trip Unit Type	Digitrip RMS 310+	
rms sensing	Yes	
Breaker Type		
Frame	FDE	
Ampere range	15–225A	
Interrupting rating at 480V	35, 65, 100 (kA)	
Protection		
Ordering options	LS	LSI
	LSG	LSIG
Fixed rated plug (I_n)	No	
Overtemperature trip	Yes	
Long Delay Protection (L)		
Adjustable rating plug (I_n)	No	
Long delay pickup	40–100% frame	
Long delay time I^2t	2–24 seconds	
Long delay time I^4t	No	
Long delay thermal memory	Yes	
High load alarm	Yes	
Short Delay Protection (S)		
Short delay pickup	200–1000% x (I_r)	
Short delay time I^2t	Yes	No
Short delay time Flat	No	Inst–300 ms
Short delay time Z.S.I.	Yes ①	
Instantaneous Protection (I)		
Instantaneous pickup	No	
Discriminator	No	
Instantaneous override	Yes	
Ground Fault Protection (G)		
Ground fault alarm	No	
Ground fault pickup	20–100% frame	
Ground fault delay I^2t	No	
Ground fault delay flat	Inst–300 ms	
Ground fault Z.S.I.	Yes ①	
Ground fault thermal memory	Yes	
System Diagnostics		
Cause of trip LEDs	No	
Magnitude of trip information	No	
Remote signal contacts	No	
System Monitoring		
Digital display	No	
Current	No	
Voltage	No	
Power and energy	No	
Power quality harmonics	No	
Power factor	No	
Communications		
PowerNet	No	
Testing		
Testing method	Test kit	

Legend

I_n = Rating Plug
I_r = Long Delay Pickup Setting x I_n

Note

① ZSI (zone selective interlocking) is optional. Must order with ZSI. Standard 310+ does not come with ZSI.

Dimensions and Weights

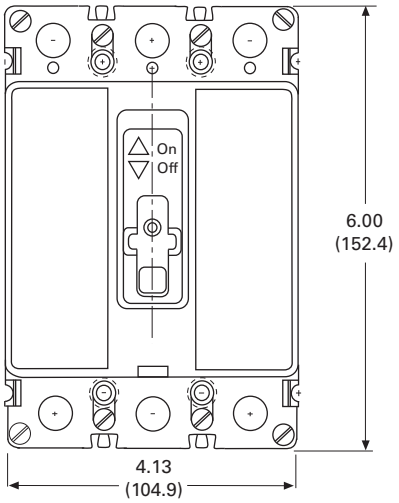
Approximate Dimensions in Inches (mm)

FD Frame

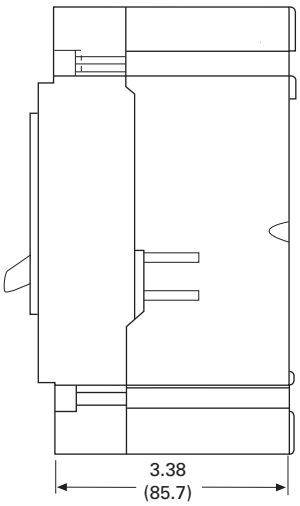
Number of Poles	Width	Height	Depth
1	1.38 (35.1)	6.00 (152.4)	3.38 (86.0)
2	2.75 (70.0)	6.00 (152.4)	3.38 (86.0)
3	4.13 (105.0)	6.00 (152.4)	3.38 (86.0)
4	5.50 (139.7)	6.00 (152.4)	3.38 (86.0)

FD Frame, Three-Pole

Front View



Side View



Approximate Shipping Weight Lbs (kg)

FD Frame

	Number of Poles			
Breaker Type	1	2	3	4
ED, EDB, EDS, EDH, EDC	—	3 (1.4)	4.5 (2.0)	—
EHD, FDB, FD, HFD, FDC	2 (0.9)	3 (1.4)	4.5 (2.0)	6 (2.7)
FDE, HFDE, FDCE	—	—	4.5 (2.0)	—

Typical J-Frame Breaker

Contents

J-Frame (70–250 Amperes)

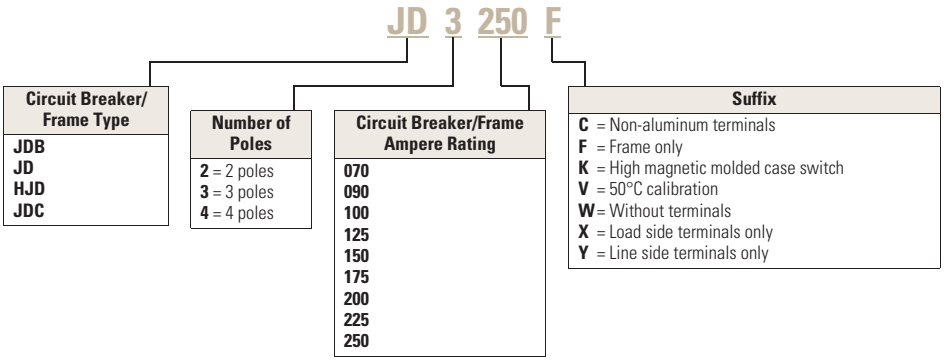
Product Description

- All Eaton's J-Frame circuit breakers are HACR rated
- J-Frame circuit breakers are available as individual components (frame, trip unit, terminals), or factory assembled complete breakers
- J-Frame circuit breakers with non-interchangeable trip units are suitable for reverse feed use

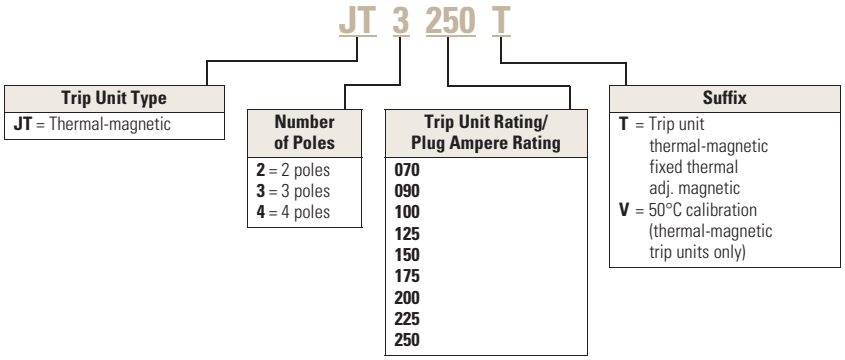
Catalog Number Selection

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 or trip units.

Circuit Breaker/Frame



Trip Unit



Product Selection

2

Types JD, HJD and JDC Thermal-Magnetic Circuit Breakers with Interchangeable Trip Units

Maximum Continuous Ampere Rating at 40°C	Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals ① Catalog Number	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals ① Catalog Number	Ultra High Interrupting Capacity Current Limiting 600 Vac Rated 100 kAIC at 480 Vac Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals ① Catalog Number	Thermal-Magnetic Trip Unit Only ① For Use with Standard or High or Ultra High Interrupting Frames Catalog Number	Standard Terminals Only See Page V4-T2-164 for Optional Terminals Catalog Number
Two-Pole					
70	**JD2070**	**HJD2070**	**JDC2070**	**JT2070T**	**TA250KB** ②
90	**JD2090**	**HJD2090**	**JDC2090**	**JT2090T**	
100	**JD2100**	**HJD2100**	**JDC2100**	**JT2100T**	
125	**JD2125**	**HJD2125**	**JDC2125**	**JT2125T**	
150	**JD2150**	**HJD2150**	**JDC2150**	**JT2150T**	
175	**JD2175**	**HJD2175**	**JDC2175**	**JT2175T**	
200	**JD2200**	**HJD2200**	**JDC2200**	**JT2200T**	
225	**JD2225**	**HJD2225**	**JDC2225**	**JT2225T**	
250	**JD2250**	**HJD2250**	**JDC2250**	**JT2250T**	
Three-Pole					
70	**JD3070**	**HJD3070**	**JDC3070**	**JT3070T**	**TA250KB** ②
90	**JD3090**	**HJD3090**	**JDC3090**	**JT3090T**	
100	**JD3100**	**HJD3100**	**JDC3100**	**JT3100T**	
125	**JD3125**	**HJD3125**	**JDC3125**	**JT3125T**	
150	**JD3150**	**HJD3150**	**JDC3150**	**JT3150T**	
175	**JD3175**	**HJD3175**	**JDC3175**	**JT3175T**	
200	**JD3200**	**HJD3200**	**JDC3200**	**JT3200T**	
225	**JD3225**	**HJD3225**	**JDC3225**	**JT3225T**	
250	**JD3250**	**HJD3250**	**JDC3250**	**JT3250T**	
Four-Pole ③④					
125	**JD4125**	**HJD4125**	**JDC4125**	**JT3125T**	**TA250KB** ②
150	**JD4150**	**HJD4150**	**JDC4150**	**JT3150T**	
175	**JD4175**	**HJD4175**	**JDC4175**	**JT3175T**	
200	**JD4200**	**HJD4200**	**JDC4200**	**JT3200T**	
225	**JD4225**	**HJD4225**	**JDC4225**	**JT3225T**	
250	**JD4250**	**HJD4250**	**JDC4250**	**JT3250T**	

Notes

① Magnetic trip adjustable 5–10 times continuous ampere rating.
② Individually packed.
③ Fully rated neutral pole with no protection.
④ Neutral is in right pole.

Types JD, HJD and JDC Thermal-Magnetic Circuit Breakers—Frame Only

Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac	Ultra High Interrupting Capacity Current Limiting 600 Vac Rated 100 kAIC at 480 Vac
Catalog Number	Catalog Number	Catalog Number
Two-Pole		
JD2250F	HJD2250F	JDC2250F
Three-Pole		
JD3250F	HJD3250F	JDC3250F
Four-Pole		
JD4250F	HJD4250F	JDC4250F

Type JDB Thermal-Magnetic Circuit Breakers with Non-Interchangeable Thermal-Magnetic Trip Units Suitable for Reverse Feed Application

	600 Vac Rated, 250 Vdc Complete Circuit Breaker	
Maximum Continuous Ampere Rating at 40°C	Without Line and Load Terminals Catalog Number	With Standard Line and Load Terminals Only Catalog Number
Two-Pole		
70	JDB2070W	JDB2070
90	JDB2090W	JDB2090
100	JDB2100W	JDB2100
125	JDB2125W	JDB2125
150	JDB2150W	JDB2150
175	JDB2175W	JDB2175
200	JDB2200W	JDB2200
225	JDB2225W	JDB2225
250	JDB2250W	JDB2250
Three-Pole		
70	JDB3070W	JDB3070
90	JDB3090W	JDB3090
100	JDB3100W	JDB3100
125	JDB3125W	JDB3125
150	JDB3150W	JDB3150
175	JDB3175W	JDB3175
200	JDB3200W	JDB3200
225	JDB3225W	JDB3225
250	JDB3250W	JDB3250

Molded Case Switches

Eaton's molded case switches are used as compact switches in applications requiring high current switching capabilities. Molded case switches are constructed of circuit breaker components and are of the high instantaneous automatic type. Molded case switches are listed in accordance with Underwriters Laboratories Standard UL 489.

Molded Case Switches

	600 Vac Maximum, 250 Vdc Complete Circuit Breaker Only Without Line and Load Terminals		Standard Terminals Only
Maximum Continuous Ampere Rating at 40°C	Catalog Number	Suitable for Reverse Feed Use Catalog Number	See PageV4-T2-164 for Optional Terminals Catalog Number
Two-Pole			
250	JD2250KW	JDB2250KW	TA250KB ①
	HJD2250KW	HJDB2250KW	—
Three-Pole			
250	JD3250KW	JDB3250KW	TA250KB ①
	HJD3250KW	HJDB3250KW	—
Four-Pole			
250	JD4250KW	JDB4250KW	TA250KB ①
	HJD4250KW	HJDB4250KW	—

Notes

① Individually packed.

Molded case switches may open above 2500 amperes.

Accessories Selection Guide and Ordering Information

Line and Load Terminals

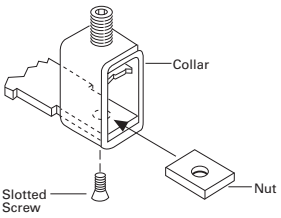
Eaton's line and load terminals provide wire connecting capabilities for specific ranges of continuous current ratings and wire types. All terminals comply with Underwriters Laboratories Standards UL 486A and UL 486B and CSA Standard C22.2 No. 65, or Electrical Bulletin 1165.

Unless otherwise specified, J-Frame circuit breaker line and load terminals are shipped separately for field installation.

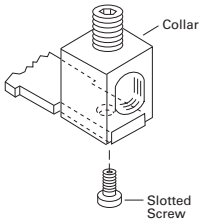
The bottom of the standard TA250KB terminal contains a recess that is positioned over the J-Frame circuit breaker terminal conductor.

Ordering Information

J-Frame circuit breakers use Cu/Al terminals as standard. When optional copper-only terminals are required, order by catalog number. Specify if factory installation is required.



T250KB Terminal



TA250KB Terminal (Standard)

Line and Load Terminals

Maximum Breaker Amperes	Terminal Body Material	Wire Type	AWG Wire Range/ No. Conductors	Metric Wire Range mm^2	Catalog Number
Standard Cu/Al Pressure Terminals					
250	Aluminum	Cu/Al	4–350 kcmil	25–185	**TA250KB**
Optional Cu Pressure Terminals					
250	Stainless Steel	Cu	4–350 kcmil	25–185	**T250KB**

Accessories

Allowable Accessory Combinations

Different combinations of accessories can be supplied, depending on the types of accessories and the number of poles in the circuit breaker.

JD Frame Accessories

Description	Reference Page	Two-, Three-Pole Left	Center	Right	Four-Pole Left	Center	Right	Neutral
Internal Accessories (Only One Internal Accessory Per Pole)								
Alarm lockout (Make/Break)	**V4-T2-304**	❑		❑	❑		❑	
Auxiliary switch (1A, 1B)	**V4-T2-306**	■		■	■		■	
Auxiliary switch (2A, 2B)	**V4-T2-306**	■		■	■		■	
Auxiliary switch and alarm switch combination	**V4-T2-308**	❑		❑	❑		❑	
Shunt trip—standard	**V4-T2-311**	■		■	■		■	
Shunt trip—low energy	**V4-T2-314**	■		■	■		■	
Undervoltage release mechanism	**V4-T2-318**	■		■	■		■	
External Accessories								
End cap kit	**V4-T2-337**	●	●	●	●	●	●	●
Plug nut	**V4-T2-338**	●	●	●	●	●	●	●
Control wire terminal kit	**V4-T2-338**	●	●	●	●	●	●	●
Multiwire connectors	**V4-T2-339**	●	●	●	●	●	●	●
Base mounting hardware	**V4-T2-340**	●	●	●	●	●	●	●
Terminal shields	**V4-T2-341**	●	●	●	●	●	●	●
Interphase barriers	**V4-T2-342**	●	●	●	●	●	●	●
Non-padlockable handle block	**V4-T2-343**		■			■		
Padlockable handle block	**V4-T2-343**		■			■		
Padlockable handle lock hasp	**V4-T2-344**	❑		❑	❑		❑	
Cylinder lock	**V4-T2-344**	❑		❑				
Key interlock kit	**V4-T2-345**	❑		❑	❑		❑	
Sliding bar interlock—requires two breakers	**V4-T2-346**	●	●	●				
Electrical (solenoid) operator	**V4-T2-348**	●	●	●	●	●	●	●
Plug-in adapters	**V4-T2-348**	●	●	●	●	●	●	●
Rear connecting studs	**V4-T2-350**	●	●	●	●	●	●	●
Panelboard connecting straps	**V4-T2-351**	●	●	●	●	●	●	●
Handle mechanisms	**V4-T2-353**	●	●	●	●	●	●	●
Handle extension	**V4-T2-357**	●	●	●	●	●	●	●
IQ Energy Sentinel	**V4-T2-358**	●	●	●				
Modifications (Refer to Eaton)								
Special calibration	—	●	●	●	●	●	●	●
Moisture fungus treatment	**V4-T2-123**	●	●	●	●	●	●	●
Freeze-tested circuit breakers	—	●	●	●	●	●	●	●
Marine/naval application	—	●	●	●	●	●	●	●

Legend

■ Applicable in indicated pole position
❑ May be mounted on left or right pole—not both
● Accessory available/modification available

Technical Data and Specifications

UL 489 Interrupting Capacity Ratings

Circuit Breaker Type	Number of Poles	Interrupting Capacity (kA Symmetrical Amperes) Volts AC (50/60 Hz) 240	480	600	Volts DC 125	250 ①②
JDB	2, 3	65	35	18	—	10
JD	2, 3, 4	65	35	18	—	10
HJD	2, 3, 4	100	65	25	—	22
JDC ③	2, 3, 4	200	100	35	—	22

IEC 157-1 (P1) Interrupting Capacity Ratings

Circuit Breaker Type	Number of Poles	Interrupting Capacity (kA Symmetrical Amperes) Volts AC (50/60 Hz) 240	380	415	600	Volts DC 125	250 ①②
JD	2, 3, 4	65	35	35	—	—	10
HJD	2, 3, 4	100	65	65	—	—	22
JDC	2, 3, 4	200	100	100	—	—	22

Notes

① Two-pole circuit breaker or two outside poles of three-pole circuit breaker.
② Time constant is 3 milliseconds minimum at 10 kA and 8 milliseconds minimum at 22 kA.
③ Current limiting.

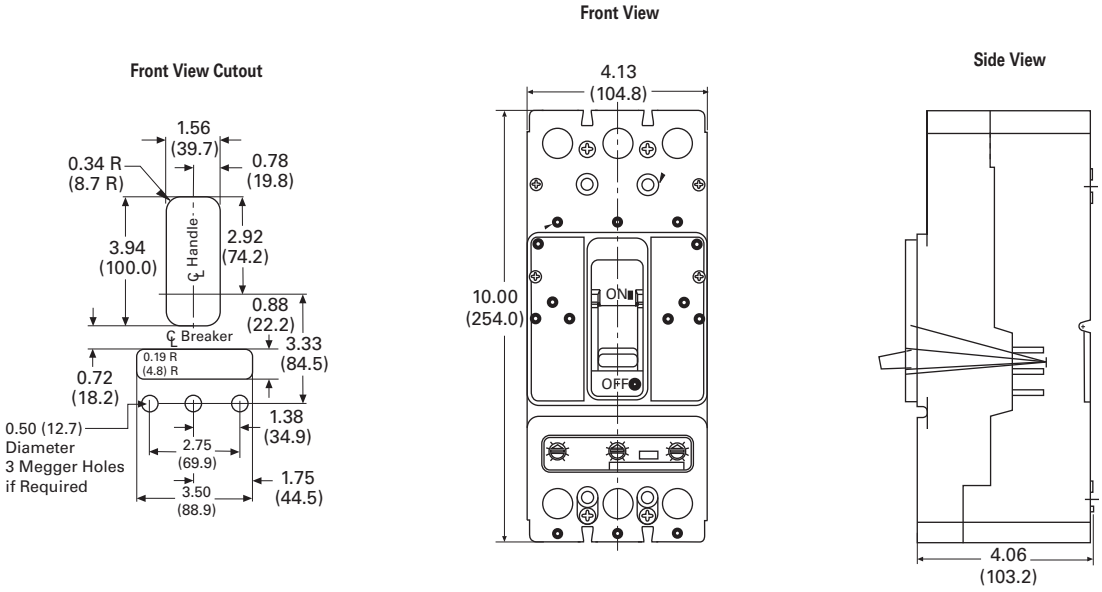
Dimensions and Weights

Approximate Dimensions in Inches (mm)

JD Frame

Number of Poles	Width	Height	Depth
2, 3	4.13 (105.0)	10.00 (254.0)	4.06 (104.1)
4	5.50 (139.7)	10.00 (254.0)	4.06 (104.1)

JD-Frame, Three-Pole



Approximate Shipping Weight in Lbs (kg)

JD Frame

Breaker Type	Complete Breaker			Frame Only			Trip Unit		
	Two-Pole	Three-Pole	Four-Pole	Two-Pole	Three-Pole	Four-Pole	Two-Pole	Three-Pole	Four-Pole
JDB	11.25 (5.1)	12.50 (5.7)	—	—	—	—	—	—	—
JD	11.25 (5.1)	12.50 (5.7)	13.25 (6.0)	9.00 (4.1)	10.00 (4.5)	10.50 (4.8)	2.00 (0.9)	2.00 (0.9)	2.25 (1.0)
HJD	11.25 (5.1)	12.50 (5.7)	13.25 (6.0)	9.00 (4.1)	10.00 (4.5)	10.50 (4.8)	2.00 (0.9)	2.00 (0.9)	2.25 (1.0)
JDC	12.25 (5.6)	13.50 (6.1)	14.25 (6.5)	10.00 (4.5)	11.00 (5.0)	11.50 (5.2)	2.00 (0.9)	2.00 (0.9)	2.25 (1.0)

Typical K-Frame Circuit Breaker

Contents

K-Frame (70–400 Amperes)

Product Description

- All Eaton K-Frame Circuit Breakers are HACR rated
- K-Frame circuit breakers are available as individual components (frame, trip unit, terminals), or factory assembled complete breakers
- K-Frame circuit breakers with non-interchangeable trip units are suitable for reverse feed use

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 or trip units.

Circuit Breaker/Frame

KD 3 400 F

Circuit Breaker/ Frame Type	Number of Poles	Circuit Breaker/Frame Ampere Rating	Suffix
DK **KD** **KDB** **HKD** **HKDB** **KDC** **CKD** **CHKD**	**2** = 2 poles **3** = 3 poles **4** = 4 poles	**100** **125** **150** **175** **200** **225** **250** **300** **350** **400**	**C** = Copper terminals **E** = 50% protected neutral pole (four-pole electronic trip circuit breaker only) **F** = Frame only **K** = High magnetic molded case switch **V** = 50°C calibration (thermal-magnetic trip units only) **W** = Without terminals **X** = Load side terminals only **Y** = Line side terminals only No suffix number indicates standard load and line side terminals

Trip Unit

KT 3 400 T

Trip Unit Type	Number of Poles	Trip Unit Rating/ Plug Ampere Rating	Suffix
KT = Thermal-magnetic **KES** = Electronic	**2** = 2 poles **3** = 3 poles **4** = 4 poles	**070** ① **090** ① **100** **125** **150** **175** **200** **225** **250** **300** **350** **400**	**LS** = Electronic trip unit adjustable short time delay with I^2t short delay ramp **LSI** = Electronic trip unit independently adjustable short time pickup and delay **LSG** = Electronic trip unit adjustable short time pickup with I^2t short delay and ground fault protection **LSIG** = Electronic trip unit independently adjustable short time pickup and delay and ground fault protection **V** = 50°C calibration (thermal-magnetic trip units only) **E** = 50% protected neutral pole (four-pole electronic trip unit only) terminals only **T** = Trip unit only

OPTIM Circuit Breaker/Frame

KD 3 125 T5 7 W

Circuit Breaker/ Frame Type	Number of Poles	Circuit Breaker/Frame Ampere Rating	Trip Model	Trip Type	Suffix
KD **HKD** **KDC** **CKD** **CHKD**	**3** = 3 poles	**125** **250** **400**	**T5** = Model 550 **T10** = Model 1050	**2** = LSI **6** = LSIG **7** = LSIA	**W** = Without terminals

Note

① Ampere rating available with electronic trip unit only.

Product Selection

2

Types KD, HKD and KDC Thermal-Magnetic Circuit Breakers with Interchangeable Trip Units

Maximum Continuous Ampere Rating at 40°C	Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals ① Catalog Number	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals ① Catalog Number	Ultra High Interrupting Capacity Current Limiting 600 Vac Rated 100 kAIC at 480 Vac Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals ① Catalog Number	Thermal-Magnetic Trip Unit Only ① For Use with Standard or High or Ultra High Interrupting Frames Catalog Number	Standard Terminals Only See Page V4-T2-189 for Optional Terminals Catalog Number
Two-Pole					
100	**KD2100**	**HKD2100**	**KDC2100**	**KT2100T**	**TA300K** ②
125	**KD2125**	**HKD2125**	**KDC2125**	**KT2125T**	**TA300K** ②
150	**KD2150**	**HKD2150**	**KDC2150**	**KT2150T**	**TA300K** ②
175	**KD2175**	**HKD2175**	**KDC2175**	**KT2175T**	**TA300K** ②
200	**KD2200**	**HKD2200**	**KDC2200**	**KT2200T**	**TA300K** ②
225	**KD2225**	**HKD2225**	**KDC2225**	**KT2225T**	**TA300K** ②
250	**KD2250**	**HKD2250**	**KDC2250**	**KT2250T**	**TA350K** ②
300	**KD2300**	**HKD2300**	**KDC2300**	**KT2300T**	**TA350K** ②
350	**KD2350**	**HKD2350**	**KDC2350**	**KT2350T**	**TA350K** ②
400	**KD2400**	**HKD2400**	**KDC2400**	**KT2400T**	**2TA400K** ③
Three-Pole					
100	**KD3100**	**HKD3100**	**KDC3100**	**KT3100T**	**TA300K** ②
125	**KD3125**	**HKD3125**	**KDC3125**	**KT3125T**	**TA300K** ②
150	**KD3150**	**HKD3150**	**KDC3150**	**KT3150T**	**TA300K** ②
175	**KD3175**	**HKD3175**	**KDC3175**	**KT3175T**	**TA300K** ②
200	**KD3200**	**HKD3200**	**KDC3200**	**KT3200T**	**TA300K** ②
225	**KD3225**	**HKD3225**	**KDC3225**	**KT3225T**	**TA300K** ②
250	**KD3250**	**HKD3250**	**KDC3250**	**KT3250T**	**TA350K** ②
300	**KD3300**	**HKD3300**	**KDC3300**	**KT3300T**	**TA350K** ②
350	**KD3350**	**HKD3350**	**KDC3350**	**KT3350T**	**TA350K** ②
400	**KD3400**	**HKD3400**	**KDC3400**	**KT3400T**	**3TA400K** ③
Four-Pole					
100	**KD4100**	**HKD4100**	**KDC4100**	**KT3100T**	**TA300K** ②
125	**KD4125**	**HKD4125**	**KDC4125**	**KT3125T**	**TA300K** ②
175	**KD4175**	**HKD4175**	**KDC4175**	**KT3175T**	**TA300K** ②
200	**KD4200**	**HKD4200**	**KDC4200**	**KT3200T**	**TA300K** ②
225	**KD4225**	**HKD4225**	**KDC4225**	**KT3225T**	**TA300K** ②
250	**KD4250**	**HKD4250**	**KDC4250**	**KT3250T**	**TA350K** ②
300	**KD4300**	**HKD4300**	**KDC4300**	**KT3300T**	**TA350K** ②
350	**KD4350**	**HKD4350**	**KDC4350**	**KT3350T**	**TA350K** ②
400	**KD4400**	**HKD4400**	**KDC4400**	**KT3400T**	**4TA400K** ③

Notes

① Magnetic trip adjustable 5–10 times continuous ampere rating.
② Individually packed.
③ 2TA400K, 3TA400K and 4TA400K terminal kits contain one terminal for each pole and one terminal cover.

Types KD, HKD and KDC Thermal-Magnetic Circuit Breakers—Frame Only

Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac Catalog Number	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac Catalog Number	Ultra High Interrupting Capacity Current Limiting 600 Vac Rated 100 kAIC at 480 Vac Catalog Number
Two-Pole		
KD2400F	HKD2400F	KDC2400F
Three-Pole		
KD3400F	HKD3400F	KDC3400F
Four-Pole		
KD4400F	HKD4400F	KDC4400F

Types KD, HKD and KDC Electronic Circuit Breakers with Interchangeable Trip Units

Order as individual components: breaker frame, trip unit, rating plug, terminals.

2

Types KD, HKD and KDC Electronic Circuit Breakers with Interchangeable Trip Units—Three-Pole ①

	Circuit Breaker Frame Only			Digitrip RMS 310 Trip Unit Only ③				Digitrip 310 Rating Plug Only			
				Standard	Options					Adjustable Rating Plug	
Max. Cont. Ampere Rating at 40°C ②	Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac	Ultra High Interrupting Capacity Current Limiting 600 Vac Rated 100 kAIC at 480 Vac	Adjustable Short Time Pickup with I^2t Short Delay Ramp	Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Ampere Rating	Fixed Rating Plug	Ampere Rating	Standard Terminals Only See Page V4-T2-189 for Optional Terminals
	Catalog Number								Catalog Number		
125	**KD3400F**	**HKD3400F**	**KDC3400F**	**KES3125LS**	**KES3125LSI**	**KES3125LSG**	**KES3125LSIG**	70	**1KES070T**	70/90/100/125 **A1KES125T1**	**TA300K** ④
								90	**1KES090T**		**TA300K** ④
								100	**1KES100T**		**TA300K** ④
								110	**1KES110T**		**TA300K** ④
								125	**1KES125T**		**TA300K** ④
250	**KD3400F**	**HKD3400F**	**KDC3400F**	**KES3250LS**	**KES3250LSI**	**KES3250LSG**	**KES3250LSIG**	70	**2KES070T**	125/150/200/250 **A2KES250T1**	—
								100	**2KES100T**		—
								125	**2KES125T**		**TA300K** ④
								150	**2KES150T**		**TA300K** ④
								160	**2KES160T**		**TA300K** ④
								175	**2KES175T**		**TA300K** ④
								200	**2KES200T**		**TA300K** ④
								225	**2KES225T**		**TA300K** ④
								250	**2KES250T**		**TA350K** ④
400	**KD3400F**	**HKD3400F**	**KDC3400F**	**KES3400LS**	**KES3400LSI**	**KES3400LSG**	**KES3400LSIG**	200	**4KES200T**	200/250/300/400 **A4KES400T1**	**TA300K** ④
								225	**4KES225T**		**TA300K** ④
								250	**4KES250T**	200/240/260/280 **A4KES200T5**	**TA300K** ④
								300	**4KES300T**		**TA300K** ④
								350	**4KES350T**	320/340/360/380 **A4KES300T5**	**TA350K** ④
								400	**4KES400T**		**3TA400K** ⑤

Notes

① Three-pole KES Trip Units are for use in three-pole frames only.
② Ampere rating is established by rating plug.
③ For AC use only.
④ Individually packed.
⑤ 3TA400K and 4TA400K terminal kits contain one terminal for each pole and one terminal cover.

Types KD, HKD and KDC Electronic Circuit Breakers with Interchangeable Trip Units—Four Pole ①②

	Circuit Breaker Frame Only			Digitrip RMS 310 Trip Unit Only ④				Digitrip 310 Rating Plug Only			
				Standard	Options					Adjustable Rating Plug	Standard Terminals Only
Max. Cont. Ampere Rating at 40°C ③	Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac	Ultra High Interrupting Capacity Current Limiting 600 Vac Rated 100 kAIC at 480 Vac	Adjustable Short Time Pickup with I^2t Short Delay Ramp	Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Ampere Rating	Fixed Rating Plug	Ampere Rating	See Page V4-T2-189 for Optional Terminals
	Catalog Number								Catalog Number		
125	**KD4400F**	**HKD4400F**	**KDC4400F**	**KES4125LS**	**KES4125LSI**	—	—	70	**1KES070T**	70/90/100/125 **A1KES125T1**	**TA300K** ⑤
								90	**1KES090T**		**TA300K** ⑤
								100	**1KES100T**		**TA300K** ⑤
								110	**1KES110T**		**TA300K** ⑤
								125	**1KES125T**		**TA300K** ⑤
250	**KD4400F**	**HKD4400F**	**KDC4400F**	**KES4250LS**	**KES4250LSI**	—	—	70	**2KES070T**	125/150/200/250 **A2KES250T1**	**TA300K** ⑤
								100	**2KES100T**		**TA300K** ⑤
								125	**2KES125T**		**TA300K** ⑤
								150	**2KES150T**		**TA300K** ⑤
								160	**2KES160T**		**TA300K** ⑤
								175	**2KES175T**		**TA300K** ⑤
								200	**2KES200T**		**TA300K** ⑤
								225	**2KES225T**		**TA300K** ⑤
								250	**2KES250T**		**TA350K** ⑤
400	**KD4400F**	**HKD4400F**	**KDC4400F**	**KES4400LS**	**KES4400LSI**	—	—	200	**4KES200T**	200/250/300/400 **A4KES400T1**	**TA300K** ⑤
								225	**4KES225T**		**TA300K** ⑤
								250	**4KES250T**	200/240/260/280 **A4KES200T5**	**TA350K** ⑤
								300	**4KES300T**		**TA350K** ⑤
								350	**4KES350T**	320/340/360/380 **A4KES300T5**	**TA350K** ⑤
								400	**4KES400T**		**4TA400K** ⑥

Notes

① Trip unit includes protected neutral pole. Use corresponding three-pole trip unit if protected neutral pole is not required.
② Fully rated neutral pole protection is standard. For 50% rated protection on neutral pole, add Suffix **E** to four-pole trip unit catalog number.
③ Ampere rating is established by rating plug.
④ For AC use only.
⑤ Individually packed.
⑥ 3TA400K and 4TA400K terminal kits contain one terminal for each pole and one terminal cover.

Types KDB and HKDB with Digitrip 310 Non-Interchangeable Trip Unit Suitable for Reverse Feed

Maximum Continuous Ampere Rating at 40°C	Number of Poles	Circuit Breaker Frame Including Digitrip RMS 310 Electronic Tip Unit Less Terminals and Rating Plug—Catalog Number L – Adjustable Long Delay Pickup (By Adjustable Rating Plug) S – Adjustable Short Delay Pickup with Fixed Short Delay Time (I^2t Response) or Adjustable Short Time (Flat Response) I – Adjustable Instantaneous Pickup by Setting Short Time Delay Time to Instantaneous G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Delay (Flat Response)				Digitrip RMS 310 Rating Plug (Order as Separate Items)	
		LS	LSI	LSG	LSIG	Fixed	Adjustable
Short Time Range Short Time Delay Ground Fault Pickup Ground Fault Delay		2–8 x I_n — — —	2–8 x I_n I–300 ms — —	2–8 x I_n — Varies by frame 0–500 ms	2–8 x I_n 0–300 ms Varies by frame 0–500 ms	Catalog Number	
Type KDB							
125	3	**KDB3125FT33W**	**KDB3125FT32W**	**KDB3125FT35W**	**KDB3125FT36W**	**1KES070T**	70/90/100/125 **A1KES125T1**
						1KES090T	
						1KES100T	
						1KES125T	
250	3	**KDB3250FT33W**	**KDB3250FT32W**	**KDB3250FT35W**	**KDB3250FT36W**	**2KES070T**	125/150/200/250 **A2KES250T1**
						2KES090T	
						2KES100T	
						2KES125T	
						2KES150T	
						2KES160T	
						2KES175T	
						2KES200T	
						2KES225T	
						2KES250T	
400	3	**KDB3400FT33W**	**KDB3400FT32W**	**KDB3400FT35W**	**KDB3400FT36W**	**4KES200T**	200/250/300/400 **A4KES400T1**
						4KES225T	
						4KES250T	200/240/260/280 **A4KES200T5**
						4KES300T	
						4KES350T	320/340/360/380 **A4KES300T5**
						4KES400T	

Types KDB and HKDB with Digitrip 310 Non-Interchangeable Trip Unit Suitable for Reverse Feed, continued

Maximum Continuous Ampere Rating at 40°C	Number of Poles	Circuit Breaker Frame Including Digitrip RMS 310 Electronic Tip Unit Less Terminals and Rating Plug—Catalog Number L – Adjustable Long Delay Pickup (By Adjustable Rating Plug) S – Adjustable Short Delay Pickup with Fixed Short Delay Time (I^2t Response) or Adjustable Short Time (Flat Response) I – Adjustable Instantaneous Pickup by Setting Short Time Delay Time to Instantaneous G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Delay (Flat Response)				Digitrip RMS 310 Rating Plug (Order as Separate Items)	
		LS	LSI	LSG	LSIG	Fixed	Adjustable
Short Time Range Short Time Delay Ground Fault Pickup Ground Fault Delay		2–8 x I_n — — —	2–8 x I_n I–300 ms — —	2–8 x I_n — Varies by frame 0–500 ms	2–8 x I_n 0–300 ms Varies by frame 0–500 ms	Catalog Number	
Type HKDB							
125	3	**HKDB3125FT33W**	**HKDB3125FT32W**	**HKDB3125FT35W**	**HKDB3125FT36W**	**1KES070T**	70/90/100/125 **A1KES125T1**
						1KES090T	
						1KES100T	
						1KES125T	
250	3	**HKDB3250FT33W**	**HKDB3250FT32W**	**HKDB3250FT35W**	**HKDB3250FT36W**	**2KES070T**	125/150/200/250 **A2KES250T1**
						2KES090T	
						2KES100T	
						2KES125T	
						2KES150T	
						2KES160T	
						2KES175T	
						2KES200T	
						2KES225T	
						2KES250T	
400	3	**HKDB3400FT33W**	**HKDB3400FT32W**	**HKDB3400FT35W**	**HKDB3400FT36W**	**4KES200T**	125/150/200/250 **A4KES250T1**
						4KES225T	
						4KES250T	200/240/260/280 **A4KES200T5**
						4KES300T	
						4KES350T	320/340/360/380 **A4KES300T5**
						4KES400T	

Types DK and KDB Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units
Suitable for reverse feed application.

Types DK and KDB Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units

Maximum Continuous Ampere Rating at 40°C	240 Vac Rated, 250 Vdc Complete Circuit Breaker Without Line and Load Terminals Catalog Number	With Line Terminals Only Catalog Number	With Standard Line and Load Terminals Only Catalog Number	600 Vac Rated, 250 Vdc Complete Circuit Breaker Without Line and Load Terminals Catalog Number	With Standard Line and Load Terminals Catalog Number
Two-Pole					
100	—	—	—	**KDB2100W**	**KDB2100**
125	—	—	—	**KDB2125W**	**KDB2125**
150	—	—	—	**KDB2150W**	**KDB2150**
175	—	—	—	**KDB2175W**	**KDB2175**
200	—	—	—	**KDB2200W**	**KDB2200**
225	—	—	—	**KDB2225W**	**KDB2225**
250	**DK2250W**	**DK2250Y**	**DK2250**	**KDB2250W**	**KDB2250**
300	**DK2300W**	**DK2300Y**	**DK2300**	**KDB2300W**	**KDB2300**
350	**DK2350W**	**DK2350Y**	**DK2350**	**KDB2350W**	**KDB2350**
400	**DK2400W**	**DK2400Y**	**DK2400**	**KDB2400W**	**KDB2400**
Three-Pole					
100	—	—	—	**KDB3100W**	**KDB3100**
125	—	—	—	**KDB3125W**	**KDB3125**
150	—	—	—	**KDB3150W**	**KDB3150**
175	—	—	—	**KDB3175W**	**KDB3175**
200	—	—	—	**KDB3200W**	**KDB3200**
225	—	—	—	**KDB3225W**	**KDB3225**
250	**DK3250W**	**DK3250Y**	**DK3250**	**KDB3250W**	**KDB3250**
300	**DK3300W**	**DK3300Y**	**DK3300**	**KDB3300W**	**KDB3300**
350	**DK3350W**	**DK3350Y**	**DK3350**	**KDB3350W**	**KDB3350**
400	**DK3400W**	**DK3400Y**	**DK3400**	**KDB3400W**	**KDB3400**

Molded Case Switches

Eaton's molded case switches are used as compact switches in applications requiring high current switching capabilities. Molded case switches are constructed of circuit breaker components and are of the high instantaneous automatic type. Molded case switches are listed in accordance with Underwriters Laboratories Standard UL 489.

Molded Case Switches

Maximum Continuous Ampere Rating at 40°C	240 Vac Maximum, 250 Vdc Complete Circuit Breaker with Standard Line and Load Terminals Catalog Number	600 Vac Maximum, 250 Vdc Complete Circuit Breaker with Standard Line and Load Terminals Catalog Number	600 Vac Maximum, 250 Vdc Complete Circuit Breaker with Standard Line and Load Terminals. Suitable for Reverse Feed Use Catalog Number
Two-Pole			
400	**DK2400K**	**KD2400K**	**KDB2400K**
	—	**HKD2400K**	**HKDB2400K**
Three-Pole			
400	**DK3400K**	**KD3400K**	**KDB3400K**
	—	**HKD3400K**	**HKDB3400K**
Four-Pole			
400	—	**KD4400K**	**KDB4400K**
	—	**HKD4400K**	**HKDB4400K**

Note

Molded case switches may open above 4000 amperes.

100% Rated Types CKD and CHKD Electronic Circuit Breakers

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at the 75°C ampacity. All 100% rated circuit breakers have electronic trip units.

100% Rated Types CKD and CHKD Electronic Circuit Breakers—Three Pole

	Circuit Breaker Frame Only		Digitrip RMS 310 Trip Unit Only				Digitrip 310 Rating Plug Only			
			Standard	Options					Adjustable Rating Plug	Standard Terminals Only
Maximum Continuous Ampere Rating at 40°C	Standard Interrupting Capacity 35 kAIC at 480 Vac	High Interrupting Capacity 65 kAIC at 480 Vac	Adjustable Short Time Pickup with I^2t Short Delay Ramp	Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Ampere Rating	Fixed Rating Plug	Ampere Rating	See Page V4-T2-189 for Optional Terminals
	Catalog Number							Catalog Number		
125	**CKD3400F**	**CHKD3400F**	**KES3125LS**	**KES3125LSI**	**KES3125LSG**	**KES3125LSIG**	70	**1KES070T**	70/90/100/125 **A1KES125T1**	**TA300K** ①
							90	**1KES090T**		**TA300K** ①
							100	**1KES100T**		**TA300K** ①
							110	**1KES110T**		**TA300K** ①
							125	**1KES125T**		**TA300K** ①
							125	**1KES125T**		**TA300K** ①
250	**CKD3400F**	**CHKD3400F**	**KES3250LS**	**KES3250LSI**	**KES3250LSG**	**KES3250LSIG**	70	**2KES070T**	125/150/200/225 **A2KES250T1**	
							100	**2KES100T**		**TA300K** ①
							125	**2KES125T**		**TA300K** ①
							150	**2KES150T**		**TA300K** ①
							160	**2KES160T**		**TA300K** ①
							175	**2KES175T**		**TA300K** ①
							200	**2KES200T**		**TA300K** ①
							225	**2KES225T**		**TA300K** ①
							250	**2KES250T**		**TA350K** ①
400	**CKD3400F**	**CHKD3400F**	**KES3400LS**	**KES3400LSI**	**KES3400LSG**	**KES3400LSIG**	200	**4KES200T**	200/250/300/400 **A4KES400T1**	**TA300K** ①
							225	**4KES225T**		**TA300K** ①
							250	**4KES250T**	220/240/260/280 **A4KES200T5**	**TA350K** ①
							300	**4KES300T**		**TA350K** ①
							350	**4KES350T**	320/340/360/380 **A4KES300T5**	**TA350K** ①
							400	**4KES400T**		**3TA400K** ②

Notes

① Individually packed.

② 3TA400K terminal kit contains one terminal for each pole and one terminal cover.

Digitrip OPTIM 550 Electronic Circuit Breakers with Interchangeable Rating Plug

Order as individual components: breaker frame (which includes trip unit), rating plug, terminals.

Digitrip OPTIM 550 Electronic Circuit Breakers with Interchangeable Rating Plug

	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ① S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response) A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)			Digitrip OPTIM Rating Plug Only	
Maximum Continuous Ampere Rating at 40°C	OPTIM 550 ② LSI Catalog Number	LSIG Catalog Number	LSIA Catalog Number	Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac					
125	**KD3125T52W**	**KD3125T56W**	**KD3125T57W**	70	**ORPK125A70**
				90	**ORPK125A90**
				100	**ORPK125A100**
				110	**ORPK125A110**
				125	**ORPK125A125**
250	**KD3250T52W**	**KD3250T56W**	**KD3250T57W**	125	**ORPK025A125**
				150	**ORPK025A150**
				175	**ORPK025A175**
				200	**ORPK025A200**
				225	**ORPK025A225**
				250	**ORPK025A250**
400	**KD3400T52W**	**KD3400T56W**	**KD3400T57W**	200	**ORPK40A200**
				225	**ORPK40A225**
				250	**ORPK40A250**
				300	**ORPK40A300**
				350	**ORPK40A350**
				400	**ORPK40A400**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Zone interlocking, PowerNet, or both features can be added at the factory by adding suffixes **ZG**, **PN** or **ZGP** respectively to above catalog number.

Digitrip OPTIM 550 Electronic Circuit Breakers with Interchangeable Rating Plug, continued

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①
S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)
I – Adjustable Instantaneous Pickup
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response)
A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)

Digitrip OPTIM Rating Plug Only

Maximum Continuous Ampere Rating at 40°C	OPTIM 550 ② LSI Catalog Number	LSIG Catalog Number	LSIA Catalog Number	Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac					
125	**HKD3125T52W**	**HKD3125T56W**	**HKD3125T57W**	70	**ORPK125A70**
				90	**ORPK125A90**
				100	**ORPK125A100**
				110	**ORPK125A110**
				125	**ORPK125A125**
250	**HKD3250T52W**	**HKD3250T56W**	**HKD3250T57W**	125	**ORPK025A125**
				150	**ORPK025A150**
				175	**ORPK025A175**
				200	**ORPK025A200**
				225	**ORPK025A225**
				250	**ORPK025A250**
400	**HKD3400T52W**	**HKD3400T56W**	**HKD3400T57W**	200	**ORPK40A200**
				225	**ORPK40A225**
				250	**ORPK40A250**
				300	**ORPK40A300**
				350	**ORPK40A350**
				400	**ORPK40A400**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Zone interlocking, PowerNet, or both features can be added at the factory by adding suffixes **ZG**, **PN** or **ZGP** respectively to above catalog number.

Digitrip OPTIM 550 Electronic Circuit Breakers with Interchangeable Rating Plug, continued

	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ① S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response) A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)			Digitrip OPTIM Rating Plug Only	
Maximum Continuous Ampere Rating at 40°C	OPTIM 550 ② LSI Catalog Number	LSIG Catalog Number	LSIA Catalog Number	Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Ultra High Interrupting Capacity Current Limiting 600 Vac Rated 100 kAIC at 480 Vac					
125	**KDC3125T52W**	**KDC3125T56W**	**KDC3125T57W**	70	**ORPK125A70**
				90	**ORPK125A90**
				100	**ORPK125A100**
				110	**ORPK125A110**
				125	**ORPK125A125**
250	**KDC3250T52W**	**KDC3250T56W**	**KDC3250T57W**	125	**ORPK025A125**
				150	**ORPK025A150**
				175	**ORPK025A175**
				200	**ORPK025A200**
				225	**ORPK025A225**
				250	**ORPK025A250**
400	**KDC3400T52W**	**KDC3400T56W**	**KDC3400T57W**	200	**ORPK40A200**
				225	**ORPK40A225**
				250	**ORPK40A250**
				300	**ORPK40A300**
				350	**ORPK40A350**
				400	**ORPK40A400**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Zone interlocking, PowerNet, or both features can be added at the factory by adding suffixes **ZG**, **PN** or **ZGP** respectively to above catalog number.

Digitrip OPTIM 1050 Electronic Circuit Breakers with Interchangeable Rating Plug

Order as individual components: breaker frame (which includes trip unit), rating plug, terminals.

Digitrip OPTIM 1050 Electronic Circuit Breakers with Interchangeable Rating Plug

	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ① S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response) A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)		Digitrip OPTIM Rating Plug Only	
Maximum Continuous Ampere Rating at 40°C	OPTIM 1050 ② LSIG Catalog Number	LSIA Catalog Number	Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac				
125	**KD3125T106W**	**KD3125T107W**	70	**ORPK125A70**
			90	**ORPK125A90**
			100	**ORPK125A100**
			110	**ORPK125A110**
			125	**ORPK125A125**
250	**KD3250T106W**	**KD3250T107W**	125	**ORPK025A125**
			150	**ORPK025A150**
			175	**ORPK025A175**
			200	**ORPK025A200**
			225	**ORPK025A225**
			250	**ORPK025A250**
400	**KD3400T106W**	**KD3400T107W**	200	**ORPK40A200**
			225	**ORPK40A22**
			250	**ORPK40A250**
			300	**ORPK40A300**
			350	**ORPK40A350**
			400	**ORPK40A400**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Factory sealed.

Digitrip OPTIM 1050 Electronic Circuit Breakers with Interchangeable Rating Plug, continued

	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ① S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response) A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)		Digitrip OPTIM Rating Plug Only	
Maximum Continuous Ampere Rating at 40°C	OPTIM 1050 ②			
	LSIG	LSIA		Fixed Rating Plug
	Catalog Number	Catalog Number	Ampere Rating	Catalog Number
Three-Pole High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac				
125	**HKD3125T106W**	**HKD3125T107W**	70	**ORPK125A70**
			90	**ORPK125A90**
			100	**ORPK125A100**
			110	**ORPK125A110**
			125	**ORPK125A125**
250	**HKD3250T106W**	**HKD3250T107W**	125	**ORPK025A125**
			150	**ORPK025A150**
			175	**ORPK025A175**
			200	**ORPK025A200**
			225	**ORPK025A225**
			250	**ORPK025A250**
400	**HKD3400T106W**	**HKD3400T107W**	200	**ORPK40A200**
			225	**ORPK40A225**
			250	**ORPK40A250**
			300	**ORPK40A300**
			350	**ORPK40A350**
			400	**ORPK40A400**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Factory sealed.

Digitrip OPTIM 1050 Electronic Circuit Breakers with Interchangeable Rating Plug, continued

	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ① S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response) A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)		Digitrip OPTIM Rating Plug Only	
Maximum Continuous Ampere Rating at 40°C	OPTIM 1050 ② LSIG Catalog Number	LSIA Catalog Number	Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Ultra High Interrupting Capacity Current Limiting 600 Vac Rated 100 kAIC at 480 Vac				
125	**KDC3125T106W**	**KDC3125T107W**	70	**ORPK125A70**
			90	**ORPK125A90**
			100	**ORPK125A100**
			110	**ORPK125A110**
			125	**ORPK125A125**
250	**KDC3250T106W**	**KDC3250T107W**	125	**ORPK025A125**
			150	**ORPK025A150**
			175	**ORPK025A175**
			200	**ORPK025A200**
			225	**ORPK025A225**
			250	**ORPK025A250**
400	**KDC3400T106W**	**KDC3400T107W**	200	**ORPK40A200**
			225	**ORPK40A225**
			250	**ORPK40A250**
			300	**ORPK40A300**
			350	**ORPK40A350**
			400	**ORPK40A400**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Factory sealed.

100% Rated Digitrip OPTIM 550 Electronic Circuit Breakers with Interchangeable Rating Plug

Order as individual components: breaker frame (which includes trip unit), rating plug, terminals.

100% Rated Digitrip OPTIM 550 Electronic Circuit Breakers with Interchangeable Rating Plug

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ① S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response) A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response) OPTIM 550 ②			Digitrip OPTIM Rating Plug Only	
	LSI	LSIG	LSIA		Fixed Rating Plug
	Catalog Number	Catalog Number	Catalog Number	Ampere Rating	Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac					
125	**CKD3125T52W**	**CKD3125T56W**	**CKD3125T57W**	70	**ORPK125A70**
				90	**ORPK125A90**
				100	**ORPK125A100**
				110	**ORPK125A110**
				125	**ORPK125A125**
250	**CKD3250T52W**	**CKD3250T56W**	**CKD3250T57W**	125	**ORPK025A125**
				150	**ORPK025A150**
				175	**ORPK025A175**
				200	**ORPK025A200**
				225	**ORPK025A225**
				250	**ORPK025A250**
400	**CKD3400T52W**	**CKD3400T56W**	**CKD3400T57W**	200	**ORPK40A200**
				225	**ORPK40A225**
				250	**ORPK40A250**
				300	**ORPK40A300**
				350	**ORPK40A350**
				400	**ORPK40A400**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Zone interlocking, PowerNet, or both features can be added at the factory by adding suffixes **ZG**, **PN** or **ZGP** respectively to above catalog number (refer to **Page V4-T2-322**).

100% Rated Digitrip OPTIM 550 Electronic Circuit Breakers with Interchangeable Rating Plug, continued

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①
S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)
I – Adjustable Instantaneous Pickup
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response)
A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)

Digitrip OPTIM Rating Plug Only

Maximum Continuous Ampere Rating at 40°C	OPTIM 550 ② LSI Catalog Number	LSIG Catalog Number	LSIA Catalog Number	Fixed Rating Plug Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac					
125	**CHKD3125T52W**	**CHKD3125T56W**	**CHKD3125T57W**	70	**ORPK125A70**
				90	**ORPK125A90**
				100	**ORPK125A100**
				110	**ORPK125A110**
				125	**ORPK125A125**
250	**CHKD3250T52W**	**CHKD3250T56W**	**CHKD3250T57W**	125	**ORPK025A125**
				150	**ORPK025A150**
				175	**ORPK025A175**
				200	**ORPK025A200**
				225	**ORPK025A225**
				250	**ORPK025A250**
400	**CHKD3400T52W**	**CHKD3400T56W**	**CHKD3400T57W**	200	**ORPK40A200**
				225	**ORPK40A225**
				250	**ORPK40A250**
				300	**ORPK40A300**
				350	**ORPK40A350**
				400	**ORPK40A400**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Zone interlocking, PowerNet, or both features can be added at the factory by adding suffixes **ZG**, **PN** or **ZGP** respectively to above catalog number.

100% Rated Digitrip OPTIM 1050 Electronic Circuit Breakers with Interchangeable Rating Plug

Order as individual components: breaker frame (which includes trip unit), rating plug, terminals.

100% Rated Digitrip OPTIM 1050 Electronic Circuit Breakers with Interchangeable Rating Plug

	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ① S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response) A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)		Digitrip OPTIM Rating Plug Only	
Maximum Continuous Ampere Rating at 40°C	OPTIM 1050 ② LSIG Catalog Number	LSIA Catalog Number	Fixed Rating Plug Ampere Rating	Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac				
125	**CKD3125T106W**	**CKD3125T107W**	70	**ORPK125A70**
			90	**ORPK125A90**
			100	**ORPK125A100**
			110	**ORPK125A110**
			125	**ORPK125A125**
250	**CKD3250T106W**	**CKD3250T107W**	125	**ORPK025A125**
			150	**ORPK025A150**
			175	**ORPK025A175**
			200	**ORPK025A200**
			225	**ORPK025A225**
			250	**ORPK025A250**
400	**CKD3400T106W**	**CKD3400T107W**	200	**ORPK40A200**
			225	**ORPK40A225**
			250	**ORPK40A250**
			300	**ORPK40A300**
			350	**ORPK40A350**
			400	**ORPK40A400**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Factory sealed.

100% Rated Digitrip OPTIM 1050 Electronic Circuit Breakers with Interchangeable Rating Plug, continued

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①
S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)
I – Adjustable Instantaneous Pickup
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response)
A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)

Digitrip OPTIM Rating Plug Only

Maximum Continuous Ampere Rating at 40°C	OPTIM 1050 ② LSIG Catalog Number	LSIA Catalog Number	Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac				
125	**CHKD3125T106W**	**CHKD3125T107W**	70	**ORPK125A70**
			90	**ORPK125A90**
			100	**ORPK125A100**
			110	**ORPK125A110**
			125	**ORPK125A125**
250	**CHKD3250T106W**	**CHKD3250T107W**	125	**ORPK025A125**
			150	**ORPK025A150**
			175	**ORPK025A175**
			200	**ORPK025A200**
			225	**ORPK025A225**
			250	**ORPK025A250**
400	**CHKD3400T106W**	**CHKD3400T107W**	200	**ORPK40A200**
			225	**ORPK40A225**
			250	**ORPK40A250**
			300	**ORPK40A300**
			350	**ORPK40A350**
			400	**ORPK40A400**

Notes

① Long delay I^4t response selection limits short delay time to flat response.
② Factory sealed.

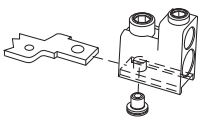
Accessories Selection Guide and Ordering Guide

Line and Load Terminals

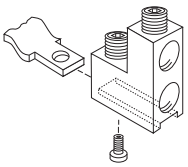
Eaton's line and load terminals provide wire connecting capabilities for specific ranges of continuous current ratings and wire types. All terminals comply with Underwriters Laboratories Standards UL 486A and UL 486B and CSA Standard C22.2 No. 65, or Electrical Bulletin 1165. Unless otherwise specified, K-Frame circuit breaker line and load terminals are shipped separately for field installation.

Ordering Information

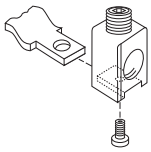
K-Frame circuit breakers use Cu/Al terminals as standard. When optional copper or Cu/Al terminals are required, order by catalog number. Specify if factory installation is required.



TA401K



TA400K, T400K



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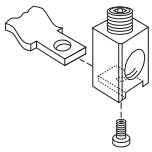

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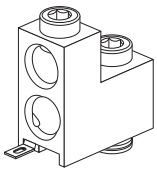
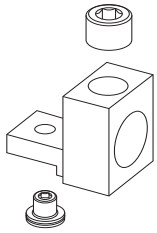


T400KCW, TA400KCW, TA401KCW



TA402K, T402K

Line and Load Terminals

Maximum Breaker Amperes	Terminal Body Material	Wire Type	AWG Wire Range/No. Conductors	Metric Wire Range mm²	Terminal Catalog Number	Terminals with Control Wire Termination Catalog Number
Standard Cu/Al Pressure Terminals						
225	Aluminum	Cu/Al	3–350/(1)	35–185	**TA300K** ①	—
400	Aluminum	Cu/Al	250–500/(1)	120–240	**TA350K** ①	—
400	Aluminum	Cu/Al	3/0–250/(2)	95–120	**2TA400K** ②③	**2TA400KCW** ②③
400	Aluminum	Cu/Al	3/0–250/(2)	95–120	**3TA400K** ②④	**3TA400KCW** ②④
400	Aluminum	Cu/Al	3/0–250/(2)	95–120	**4TA400K** ⑤⑥	**4TA400KCW** ⑤⑥
Optional Copper and Cu/Al Pressure Type Terminals						
225	Copper	Cu	3–350/(1)	35–185	**T300K** ①	—
400	Copper	Cu	250–500/(1)	120–240	**T350K** ①	—
400	Copper	Cu	3/0–250/(2)	95–120	**2T400K** ③	**2T400KCW** ②③
					3T400K ④	**3T400KCW** ②④
					4T400K ⑤	**4T400KCW** ⑤⑥
400	Aluminum	Cu/Al	2/0–250/(2) or 2/0–500/(1)	70–120	**2TA401K** ②③	**2TA401KCW** ②③
				70–240	**3TA401K** ②④	**3TA401KCW** ②④
				70–240	**4TA401K** ⑤⑥	**4TA401KCW** ⑤⑥
400	Aluminum	Cu/Al	500–750/(1)	300–400	**2TA402K** ②③	—
					3TA402K ②④	—
					4TA402K ⑤⑥	—
400	Copper	Cu	500–750/(1)	—	**2T402K** ②③	—
					3T402K ②④	—
					4T402K ⑤⑥	—

Notes

① Individually packed.
② Terminal kits contain one terminal for each pole and one terminal cover.
③ Two-pole kit.
④ Three-pole kit.
⑤ Four-pole kit.
⑥ Terminal kits contain one terminal for each pole and three interphase barriers.

Accessories

Allowable Accessory Combinations

Different combinations of accessories can be supplied, depending on the types of accessories and the number of poles in the circuit breaker.

KD Frame Accessories

Description	Reference Page	Two-Pole ①		Three-Pole			Four-Pole			
		Left	Right	Left	Center	Right	Left	Center	Right	Neutral
Internal Accessories (Only One Internal Accessory Per Pole)										
Alarm lockout (Make/Break)	V4-T2-305		■	❑		❑	■			
Alarm lockout (2Make/2Break)	V4-T2-305			❑		❑	■			
Auxiliary switch (1A, 1B)	V4-T2-307		■	■		■	■		■	
Auxiliary switch (2A, 2B)	V4-T2-307			■		■	■		■	
Auxiliary switch (3A, 3B)	V4-T2-307			■		■	■		■	
Auxiliary switch and alarm switch combination	V4-T2-308			❑		❑	❑		❑	
Shunt trip—standard ②	V4-T2-311		■	■		■	■		■	
Shunt trip—low energy ②	V4-T2-314			■		■	■			
Undervoltage release mechanism ②	V4-T2-319		■	■		■	■			
PowerNet or zone interlock kit (OPTIM 550)	V4-T2-322					■				
External Accessories										
End cap kit	V4-T2-337	●	●	●	●	●	●	●	●	●
Keeper nut	V4-T2-337	●	●	●	●	●	●	●	●	●
Control wire terminal kit	V4-T2-338	●	●	●	●	●	●	●	●	●
Terminal adapter	V4-T2-338	●	●	●	●	●	●	●	●	●
Multiwire connectors	V4-T2-339	●	●	●	●	●	●	●	●	●
Base mounting hardware	V4-T2-340	●	●	●	●	●	●	●	●	●
Terminal shields	V4-T2-342	●	●	●	●	●	●	●	●	●
Interphase barriers	V4-T2-342	●	●	●	●	●	●	●	●	●
Non-padlockable handle block	V4-T2-343	■			■			■		
Padlockable handle block	V4-T2-343				■					
Padlockable handle lock hasp	V4-T2-344		■	❑		❑	❑		❑	
Cylinder lock	V4-T2-344	❑	❑	❑		❑				
Key Interlock kit	V4-T2-345	■	❑	❑		❑	❑		❑	
Sliding bar interlock—requires two breakers	V4-T2-346			●	●	●				
Walking beam interlock—requires two breakers	V4-T2-346			●	●	●	●	●	●	●
Electrical (solenoid) operator	V4-T2-347			●	●	●	●	●	●	●
Plug-in adapters	V4-T2-348	●	●	●	●	●	●	●	●	●
Rear connecting studs	V4-T2-350	●	●	●	●	●	●	●	●	●
Panelboard connecting straps	V4-T2-351	●	●	●	●	●	●	●	●	●
Handle mechanisms	V4-T2-353	●	●	●	●	●	●	●	●	●
Handle extension	V4-T2-357	●	●	●	●	●	●	●	●	●
IQ Energy Sentinel	V4-T2-358			●	●	●	●	●	●	●
Solid-state (electronic) portable test kit	V4-T2-358	●	●	●	●	●	●	●	●	●

Legend

■ Applicable in indicated pole position

❑ May be mounted on left or right pole—not both

● Accessory available/modification available

Notes

① Two-pole breaker supplied in three-pole frame. Current carrying parts omitted from center pole.

② Shunt trip and UVR cannot be mounted in right poles on KES or OPTIM trip units. Standard internal accessories cannot be mounted in right pole on any K-Frame OPTIM trip unites. Special OPTIM ground fault and zone interlock accessories are available for field installation in the right pole of K-Frame 550 OPTIM trip units. Factory installed 2a/2b and bell/aux are available for factory installation. K-Frame breakers equipped with OPTIM 1050 trip units include aux-bell alarm in the right pole.

KD Frame Accessories, continued

Description	Reference Page	Two-Pole ①		Three-Pole			Four-Pole			
		Left	Right	Left	Center	Right	Left	Center	Right	Neutral
OPTIM System Components Three Poles										
Breaker interface module (BIM)	**V4-T2-359**									
Digitrip OPTIMizer	**V4-T2-359**									
Auxiliary power module	**V4-T2-359**									
Modifications (Refer to Eaton)										
Special calibration	—	●	●	●	●	●	●	●	●	●
Moisture fungus treatment	**V4-T2-123**	●	●	●	●	●	●	●	●	●
Freeze-tested circuit breakers	—	●	●	●	●	●	●	●	●	●
Marine/naval application	—	●	●	●	●	●	●	●	●	●

Legend

■ Applicable in indicated pole position

❑ May be mounted on left or right pole—not both

● Accessory available/modification available

Technical Data and Specifications

NEMA/UL 489/CSA Interrupting Capacity Ratings

Circuit Breaker Type	Number of Poles	Interrupting Capacity (kA Symmetrical Amperes) Volts AC (50/60 Hz) 240	277	480	600	Volts DC 250 ②③
DK	2, 3	65	—	—	—	10
KDB	2, 3, 4	65	—	35	25	10
KD	2, 3, 4	65	—	35	25	10
HKD, HKDB	2, 3, 4	100	—	65	35	22
KDC ④	2, 3, 4	200	—	100	65	22
CKD	3	65	—	35	25	—
CHKD	3	100	—	65	35	—

IEC 157-1 (P1) Interrupting Capacity Ratings

Circuit Breaker Type	Number of Poles	Interrupting Capacity (kA Symmetrical Amperes) Volts AC (50/60 Hz) 240	380	415	440	500	600	Volts DC 250 ②③
DK	2, 3	65	—	—	—	—	—	10
KDB	2, 3, 4	65	40	40	—	—	—	10
KD	2, 3, 4	65	40	40	—	—	—	10
HKD, HKDB	2, 3, 4	100	65	65	—	—	—	22
KDC	2, 3, 4	200	100	100	—	—	—	22

Notes

① Two-pole breaker supplied in three-pole frame. Current carrying parts omitted from center pole.

② Two-pole circuit breaker or two outside poles of three-pole circuit breaker.

③ Time constant is 3 milliseconds minimum at 10 kA and 8 milliseconds minimum at 22 kA.

④ Current limiting.

Specifications

Trip Unit Type	Digitrip RMS 310		Digitrip OPTIM 550	Digitrip OPTIM 1050
rms sensing	Yes	Yes	Yes	Yes
Breaker Type				
Frame	K	K	K	K
Ampere range	125–400A	125–400A	125–400A	125–400A
Interrupting rating at 480 volts	35, 65, 100 (kA)	35, 65, 100 (kA)	35, 65, 100 (kA)	35, 65, 100 (kA)
Protection				
Ordering options	LS, LSG	LSI, LSIG	LSI, LSI(A), LSIG	LSI(A), LSIG
Fixed rated plug (I_n)	Yes	Yes	Yes	Yes
Overtemperature trip	Yes	Yes	Yes	Yes
Long Delay Protection (L)				
Adjustable rating plug (I_n)	Yes	Yes	No	No
Long delay pickup	0.5–1.0 (I_n) ①	0.5–1.0 (I_n) ①	0.4–1.0 x (I_n)	0.4–1.0 x (I_n)
Long delay time I^2t	12 seconds	12 seconds	2–24 seconds	2–24 seconds
Long delay time I^4t	No	No	1–5 seconds	1–5 seconds
Long delay thermal memory	Yes	Yes	Yes	Yes
High load alarm	No	No	0.5–1.0 x I_r	0.5–1.0 x I_r
Short Delay Protection (S)				
Short delay pickup	200–800% x (I_n)	200–800% x (I_n)	150–800% x (I_r)	150–800% x (I_r)
Short delay time I^2t	100 ms	No	100–500 ms	100–500 ms
Short delay time flat	No	Inst–300 ms	100–500 ms	100–500 ms
Short delay time zone selective interlocking	No	No	Yes ②	Yes
Instantaneous Protection (I)				
Instantaneous pickup	No	200–800% x (I_n)	200–800% x (I_n)	200–800% x (I_n)
Discriminator	No	No	Yes	Yes
Instantaneous override	Yes	Yes	Yes	Yes
Ground Fault Protection (G)				
Ground fault alarm	No	No	20–100% x (I_s)	20–100% x (I_s)
Ground fault pickup	Varies by frame ⑥	Varies by frame ⑥	20–100% x (I_s)	20–100% x (I_s)
Ground fault delay I^2t	No	No	100–500 ms	100–500 ms
Ground fault delay flat	Inst–500 ms	Inst–500 ms	100–500 ms	100–500 ms
Ground fault zone selective interlocking	No	No	Yes ②	Yes
Ground fault thermal memory	Yes	Yes	Yes	Yes
System Diagnostics				
Status LEDs	Yes	Yes	Yes	Yes
Cause of trip LEDs	No	No	Yes	Yes
Magnitude of trip information	No	No	Yes	Yes
Remote signal contact—ground alarm	Yes ③	Yes ③	Yes ②	Yes
Local auxiliary and bell alarm contact	Optional	Optional	Optional	Included

Legend

BIM = Breaker Interface Module
(A) = GF Alarm
I_s = Sensor Rating
I_n = Rating Plug
I_r = Long Delay Pickup Setting

Notes

① Adjust by rating plug.
② Zone interlock kit.
③ With separate ground fault alarm unit (GFAU).
④ By OPTIMizer/BIM.
⑤ Eaton's PowerNet kit.
⑥ 400 ampere frame 1–5 x I_g (80A).
250 ampere frame 1–5 x I_g (50A).
125 ampere frame 1–5 x I_g (25A).

Specifications, continued

Trip Unit Type	Digitrip RMS 310		Digitrip OPTIM 550	Digitrip OPTIM 1050
System Monitoring				
Digital display	No	No	Yes ①	Yes ①
Current	No	No	Yes	Yes
Power and energy	No	No	No	Yes
Power quality—harmonics	No	No	No	Yes
Power factor	No	No	No	Yes
Communications				
PowerNet	No	No	Yes ②	Yes
Testing				
Testing method	Test set	Test set	OPTIMizer, BIM, PowerNet	OPTIMizer, BIM, PowerNet

Legend

BIM = Breaker Interface Module
(A) = GF Alarm
I_s = Sensor Rating
I_n = Rating Plug
I_r = Long Delay Pickup Setting

Notes

① By OPTIMizer/BIM.
② Eaton's PowerNet kit.

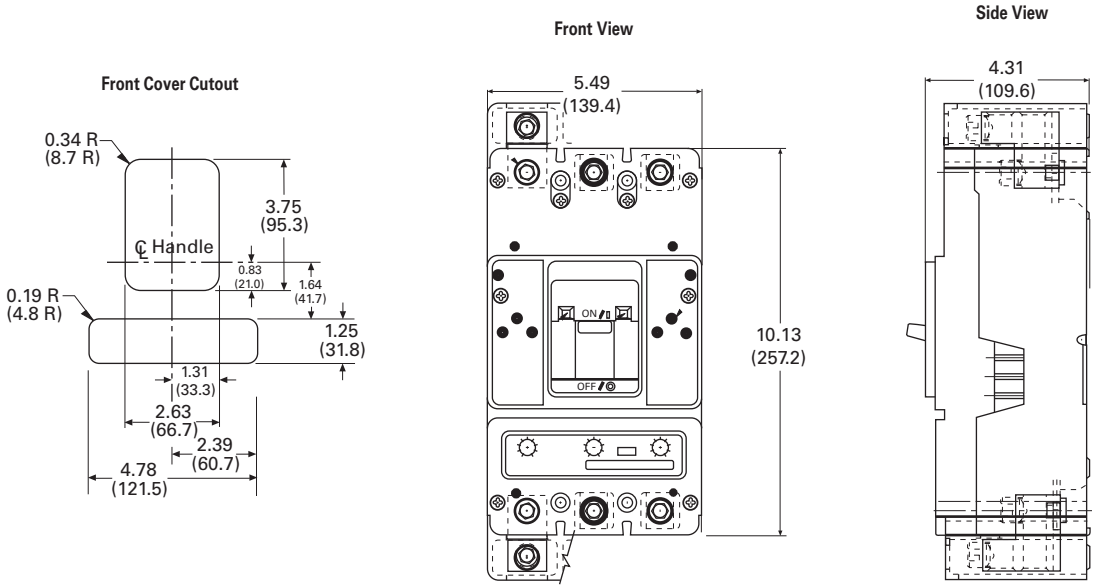
Dimensions and Weights

Approximate Dimensions in Inches (mm)

KD Frame

Number of Poles	Width	Height	Depth
2, 3	5.50 (149.7)	10.13 (257.3)	4.10 (104.1)
4	7.22 (183.4)	10.13 (257.3)	4.10 (104.1)

KD-Frame, Two- and Three-Pole



Approximate Shipping Weight, Lbs (kg)

KD Frame

Breaker Type	Complete Breaker		Frame Only		Trip Unit ①	
	Two-Pole	Three-Pole	Two-Pole	Three-Pole	Two-Pole	Three-Pole
DK	10.0 (4.5)	11.5 (5.2)	—	—	—	—
KDB	10.0 (4.5)	11.5 (5.2)	—	—	—	—
KD	10.0 (4.5)	11.5 (5.2)	7.5 (3.4)	8.5 (3.9)	1.5 (0.7)	1.5 (0.7)
HKD, HKDB	10.0 (4.5)	11.5 (5.2)	7.5 (3.4)	8.5 (3.9)	1.5 (0.7)	1.5 (0.7)
KDC	10.0 (4.5)	11.5 (5.2)	7.5 (3.4)	8.5 (3.9)	1.5 (0.7)	1.5 (0.7)

Note

① Weights shown are for thermal-magnetic trip units. Three-pole electronic trip units weigh 2.5 lbs (1.1 kg).

Typical L-Frame Circuit Breaker

Contents

L-Frame (125–600 Amperes)

Product Description

- All Eaton L-Frame circuit breakers are HACR rated
- L-Frame circuit breakers are available as individual components (frame, trip unit, terminals), or factory assembled complete breakers
- L-Frame circuit breakers with non-interchangeable trip units are suitable for reverse feed use

Standards and Certifications

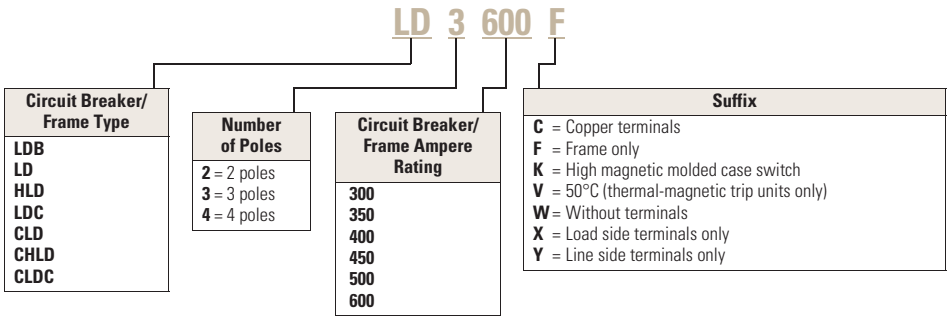
- CE marked

CE

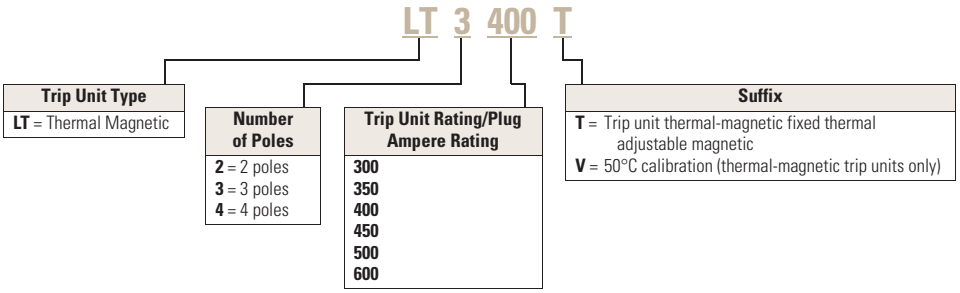
Catalog Number Selection

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 or trip units.

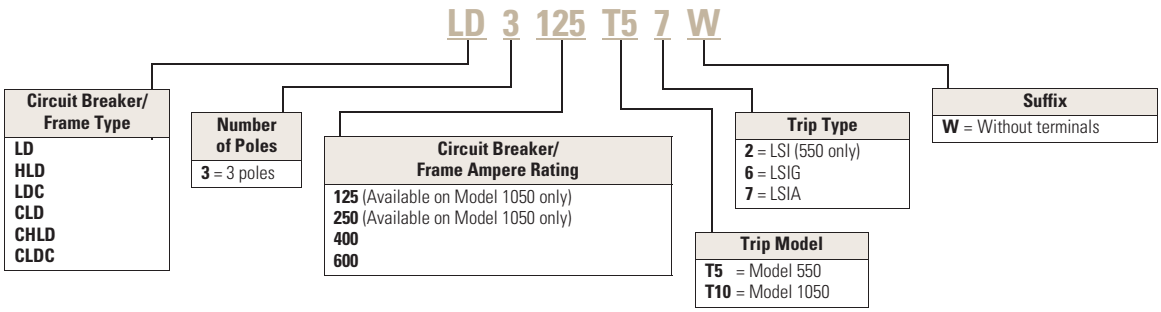
Circuit Breaker/Frame



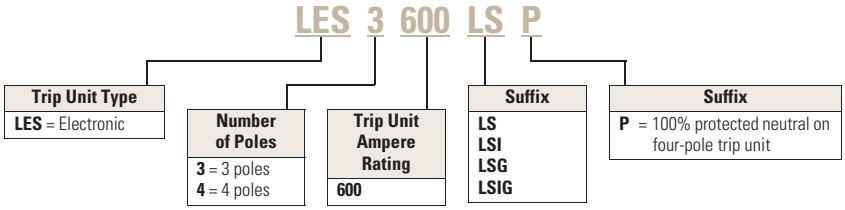
Thermal-Magnetic Trip Unit



OPTIM Circuit Breaker/Frame



Digitrip RMS 310 Trip Unit



Product Selection

Types LD, HLD and LDC Thermal-Magnetic Circuit Breakers with Interchangeable Trip Units

Maximum Continuous Ampere Rating at 40°C ①	Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals Catalog Number	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals Catalog Number	Ultra High Interrupting Capacity Current Limiting 600 Vac Rated 100 kAIC at 480 Vac Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals Catalog Number	Thermal-Magnetic Trip Unit Only For Use with Standard or High or Ultra High Interrupting Frames Catalog Number	Standard Terminals Only See Page V4-T2-214 for Optional Terminals Catalog Number
Two-Pole					
300	**LD2300**	**HLD2300**	**LDC2300**	**LT2300T**	**TA602LD** ②
350	**LD2350**	**HLD2350**	**LDC2350**	**LT2350T**	**TA602LD** ②
400	**LD2400**	**HLD2400**	**LDC2400**	**LT2400T**	**TA602LD** ②
450	**LD2450**	**HLD2450**	**LDC2450**	**LT2450T**	**TA602LD** ②
500	**LD2500**	**HLD2500**	**LDC2500**	**LT2500T**	**TA602LD** ②
600	**LD2600**	**HLD2600**	**LDC2600**	**LT2600T**	**2TA603LDK** ③
Three-Pole					
300	**LD3300**	**HLD3300**	**LDC3300**	**LT3300T**	**TA602LD** ②
350	**LD3350**	**HLD3350**	**LDC3350**	**LT3350T**	**TA602LD** ②
400	**LD3400**	**HLD3400**	**LDC3400**	**LT3400T**	**TA602LD** ②
450	**LD3450**	**HLD3450**	**LDC3450**	**LT3450T**	**TA602LD** ②
500	**LD3500**	**HLD3500**	**LDC3500**	**LT3500T**	**TA602LD** ②
600	**LD3600**	**HLD3600**	**LDC3600**	**LT3600T**	**3TA603LDK** ③
Four-Pole ④					
300	**LD4300**	**HLD4300**	**LDC4300**	**LT4300T**	**TA602LD** ②
350	**LD4350**	**HLD4350**	**LDC4350**	**LT4350T**	**TA602LD** ②
400	**LD4400**	**HLD4400**	**LDC4400**	**LT4400T**	**TA602LD** ②
450	**LD4450**	**HLD4450**	**LDC4450**	**LT4450T**	**TA602LD** ②
500	**LD4500**	**HLD4500**	**LDC4500**	**LT4500T**	**TA602LD** ②
600	**LD4600**	**HLD4600**	**LDC4600**	**LT4600T**	**4TA603LDK** ③

Types LD, HLD and LDC Thermal-Magnetic Circuit Breakers—Frame Only

Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac Catalog Number	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac Catalog Number	Ultra High Interrupting Capacity Current Limiting 600 Vac Rated 100 kAIC at 480 Vac Catalog Number
Two-Pole		
LD2600F	**HLD2600F**	**LDC2600F**
Three-Pole		
LD3600F	**HLD3600F**	**LDC3600F**
Four-Pole		
LD4600F	**HLD4600F**	**LDC4600F**

Notes

① Magnetic trip range 5–10 times continuous ampere rating.
② Individually packed.
③ Terminal kits contain one terminal for each pole and one terminal cover.
④ Neutral is in right pole.

Types LD, HLD and LDC Electronic Circuit Breakers with Interchangeable Trip Units

Order as individual components: breaker frame, trip unit, rating plug, terminals.

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Types LD, HLD and LDC Electronic Circuit Breakers with Interchangeable Trip Units

Maximum Continuous Ampere Rating at 40°C ①	Circuit Breaker Frame Only Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac Catalog Number	Circuit Breaker Frame Only High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac Catalog Number	Circuit Breaker Frame Only Ultra High Interrupting Capacity Current Limiting 600 Vac Rated 100 kAIC at 480 Vac Catalog Number	Digitrip RMS 310 Trip Unit Only ② L – Adjustable Long Delay Pickup (By Adjustable Rating Plug) S – Adjustable Short Delay Pickup with Fixed Short Delay Time (I^2t Response) or Adjustable Short Delay Time (Flat Response) I – Adjustable Instantaneous Pickup by Setting Short Delay Time to Instantaneous G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Delay (Flat Response) Catalog Number				Digitrip RMS 310 Rating Plug Only Ampere Rating	Digitrip RMS 310 Rating Plug Only Fixed Rating Plug Catalog Number	Digitrip RMS 310 Rating Plug Only Adjustable Rating Plug Ampere Rating	Standard Terminals Only See Page V4-T2-214 for Optional Terminals
Three-Pole ③											
600	**LD3600F**	**HLD3600F**	**LDC3600F**	**LES3600LS**	**LES3600LSI**	**LES3600LSG**	**LES3600LSIG**	300	**6LES300T**	300/400/500/600 **A6LES600T1**	**TA602LD** ①
								350	**6LES350T**		**TA602LD** ①
								400	**6LES400T**	420/440/460/480 **A6LES400T5**	**TA602LD** ①
								450	**6LES450T**		**TA602LD** ①
								500	**6LES500T**	520/540/560/580 **A6LES500T5**	**3TA603LDK** ④
								600	**6LES600T**		
Four-Pole ③											
600	**LD4600F**	**HLD4600F**	**LDC4600F**	**LES4600LS**	**LES4600LSI**	—	—	300	**6LES300T**	300/400/500/600 **A6LES600T1**	**TA602LD** ②
								350	**6LES350T**		**TA602LD** ②
								400	**6LES400T**	420/440/460/480 **A6LES400T5**	**TA602LD** ②
								450	**6LES450T**		**TA602LD** ②
								500	**6LES500T**	520/540/560/580 **A6LES500T5**	**4TA603LDK** ④
								600	**6LES600T**		

Notes

① Individually packed.
② For AC use only.
③ Neutral is in right pole.
④ Terminal kits contain one terminal for each pole and one terminal cover.

Types LDB, HLDB and LDCB Electronic Circuit Breakers with Non-Interchangeable Electronic Trip Units Suitable for Reverse Feed

Maximum Continuous Ampere Rating at 40°C	Number of Poles	Circuit Breaker Frame Including Digitrip RMS 310 Electronic Tip Unit Less Terminals and Rating Plug—Catalog Number L – Adjustable Long Delay Pickup (By Adjustable Rating Plug) S – Adjustable Short Delay Pickup with Fixed Short Delay Time (I^2t Response) or Adjustable Short Time (Flat Response) I – Adjustable Instantaneous Pickup by Setting Short Time Delay Time to Instantaneous G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Delay (Flat Response)				Digitrip RMS 310 Rating Plug (Order as Separate Items)	
		LS	LSI	LSG	LSIG	Fixed	Adjustable
Short Time Range		2–8 x I_n	2–8 x I_n	2–8 x I_n	2–8 x I_n		
Short Time Delay		—	I–300 ms	—	0–300 ms		
Ground Fault Pickup		—	—	Varies by frame	Varies by frame		
Ground Fault Delay		—	—	0–500 ms	0–500 ms	Catalog Number	
Type LDB, HLDB and LDCB with Digitrip 310 Non-Interchangeable Trip Unit							
600	3	**LDB3600FT33W**	**LDB3600FT32W**	**LDB3600FT35W**	**LDB3600FT35W**	**6LES300T**	300/400/500/600 **A6LES600T1**
						6LES350T	
						6LES400T	420/440/460/480 **A6LES400T5**
						6LES450T	
						6LES500T	520/540/560/580 **A6LES500T5**
						6LES600T	
600	3	**HLDB3600FT33W**	**HLDB3600FT32W**	**HLDB3600FT35W**	**HLDB3600FT36W**	**6LES300T**	300/400/500/600 **A6LES600T1**
						6LES350T	
						6LES400T	420/440/460/480 **A6LES400T5**
						6LES450T	
						6LES500T	520/540/560/580 **A6LES500T5**
						6LES600T	
600	3	**LDCB3600FT33W**	**LDCB3600FT32W**	**LDCB3600FT35W**	**LDCB3600FT36W**	**6LES300T**	300/400/500/600 **A6LES600T1**
						6LES350T	
						6LES400T	420/440/460/480 **A6LES400T5**
						6LES450T	
						6LES500T	520/540/560/580 **A6LES500T5**
						6LES600T	

100% Rated Types CLD, CHLD and CLDC Electronic Circuit Breakers with Interchangeable Trip Units

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at the 75°C ampacity. All 100% rated circuit breakers have electronic trip units. Order as individual components: breaker frame, trip unit, rating plug and terminals.

100% Rated Types CLD, CHLD and CLDC Electronic Circuit Breakers with Interchangeable Trip Units

	Circuit Breaker Frame Only			Digitrip RMS 310 Trip Unit Only				Digitrip RMS 310 Rating Plug Only			
				Standard	Options					Adjustable Rating Plug	
Maximum Continuous Ampere Rating at 40°C ①	Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac	Ultra High Interrupting Capacity Current Limiting 600 Vac Rated 100 kAIC at 480 Vac	Adjustable Short Time Pickup with I^2t Short Delay Ramp	Independently Adjustable Short Time Pickup and Delay Ground Fault Protection	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Ampere Rating	Fixed Rating Plug Catalog Number	Ampere Rating	Standard Terminals Only See Page V4-T2-214 for Optional Terminals
	Catalog Number										
Three-Pole											
600	**CLD3600F**	**CHLD3600F**	**CLDC3600F**	**LES3600LS**	**LES3600LSI**	**LES3600LSG**	**LES3600LSIG**	300	**6LES300T**	300/400/500/600 **A6LES600T1**	**TA602LD** ②
								350	**6LES350T**		**TA602LD** ②
								400	**6LES400T**	420/440/460/480 **A6LES400T5**	**TA602LD** ②
								450	**6LES450T**		**TA602LD** ②
								500	**6LES500T**	520/540/560/580 **A6LES500T5**	**3TA603LDK** ③
								600	**6LES600T**		**3TA603LDK** ③

Notes

① Ampere rating is established by rating plug.

② Individually packed.

③ 3TA603LDK terminal kit contains one terminal for each pole and one terminal cover.

Type LDB Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units ①

Maximum Continuous Ampere Rating	600 Vac Rated, 250 Vdc Complete Circuit Breaker Without Line and Load Terminals Catalog Number	With Standard Line and Load Terminals Only Catalog Number
Two-Pole		
300	**LDB2300W**	**LDB2300**
350	**LDB2350W**	**LDB2350**
400	**LDB2400W**	**LDB2400**
450	**LDB2450W**	**LDB2450**
500	**LDB2500W**	**LDB2500**
600	**LDB2600W**	**LDB2600**
Three-Pole		
300	**LDB3300W**	**LDB3300**
350	**LDB3350W**	**LDB3350**
400	**LDB3400W**	**LDB3400**
450	**LDB3450W**	**LDB3450**
500	**LDB3500W**	**LDB3500**
600	**LDB3600W**	**LDB3600**

Molded Case Switches

Eaton's molded case switches are used as compact switches in applications requiring high current switching capabilities. Molded case switches are constructed of circuit breaker components and are of the high instantaneous automatic type. Molded case switches are listed in accordance with Underwriters Laboratories Standard UL 489.

Molded Case Switches

Maximum Continuous Ampere Rating at 40°C	600 Vac Maximum, 250 Vdc Circuit Breaker Only without Line and Load Terminals Catalog Number	Standard Terminals Only See Page V4-T2-214 for Optional Terminals Catalog Number
Two-Pole		
600	**LD2600WK**	**2TA603LDK**
600	**LDB2600WK** ①	**2TA603LDK**
600	**HLD2600WK**	**2TA603LDK**
Three-Pole		
600	**LD3600WK**	**3TA603LDK**
600	**LDB3600WK** ①	**3TA603LDK**
600	**HLD3600WK**	**3TA603LDK**
Four-Pole		
600	**LD4600WK**	**4TA603LDK**
600	**LDB4600WK** ①	**4TA603LDK**
600	**HLD4600WK**	**4TA603LDK**

Notes

① Factory sealed—suitable for reverse feed application.

Molded case switch will trip above 6000 amperes.

Digitrip OPTIM Electronic Circuit Breaker with Interchangeable Rating Plug

Order as individual components: Breaker Frame (which includes Trip Unit), Rating Plug, Terminals.

Digitrip OPTIM 550 Electronic Circuit Breaker with Interchangeable Rating Plug

	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ① S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response) A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)			Digitrip OPTIM Rating Plug Only	
Maximum Continuous Ampere Rating at 40°C	OPTIM 550 ② LSI Catalog Number	LSIG Catalog Number	LSIA Catalog Number	Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac					
125	**LD3125T52W**	**LD3125T56W**	**LD3125T57W**	—	**ORPL125A070**
				—	**ORPL125A090**
				—	**ORPL125A100**
				—	**ORPL125A110**
				—	**ORPL125A125**
250	**LD3250T52W**	**LD3250T56W**	**LD3250T57W**	—	**ORPL025A125**
				—	**ORPL025A150**
				—	**ORPL025A175**
				—	**ORPL025A200**
				—	**ORPL025A225**
				—	**ORPL025A250**
400	**LD3400T52W**	**LD3400T56W**	**LD3400T57W**	200	**ORPL40A200**
				225	**ORPL40A225**
				250	**ORPL40A250**
				300	**ORPL40A300**
				350	**ORPL40A350**
				400	**ORPL40A400**
600	**LD3600T52W**	**LD3600T56W**	**LD3600T57W**	300	**ORPL60A300**
				350	**ORPL60A350**
				400	**ORPL60A400**
				500	**ORPL60A500**
				600	**ORPL60A600**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Zone interlocking, PowerNet, or both features can be added at the factory by adding suffixes **ZG**, **PN** or **ZGP** respectively to above catalog number.

Digitrip OPTIM 550 Electronic Circuit Breaker with Interchangeable Rating Plug, continued

	Circuit Breaker Frame Only			Digitrip OPTIM Rating Plug Only	
	L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ① S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response) A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)				
Maximum Continuous Ampere Rating at 40°C	OPTIM 550 ②				
	LSI	LSIG	LSIA		Fixed Rating Plug
	Catalog Number	Catalog Number	Catalog Number	Ampere Rating	Catalog Number
Three-Pole High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac					
125	**HLD3125T52W**	**HLD3125T56W**	**HLD3125T57W**	70	**ORPL125A070**
				90	**ORPL125A090**
				100	**ORPL125A100**
				110	**ORPL125A110**
				125	**ORPL125A125**
250	**HLD3250T52W**	**HLD3250T56W**	**HLD3250T57W**	125	**ORPL025A125**
				150	**ORPL025A150**
				175	**ORPL025A175**
				200	**ORPL025A200**
				225	**ORPL025A225**
				250	**ORPL025A250**
400	**HLD3400T52W**	**HLD3400T56W**	**HLD3400T57W**	200	**ORPL40A200**
				225	**ORPL40A225**
				250	**ORPL40A250**
				300	**ORPL40A300**
				350	**ORPL40A350**
				400	**ORPL40A400**
600	**HLD3600T52W**	**HLD3600T56W**	**HLD3600T57W**	300	**ORPL60A300**
				350	**ORPL60A350**
				400	**ORPL60A400**
				500	**ORPL60A500**
				600	**ORPL60A600**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Zone interlocking, PowerNet, or both features can be added at the factory by adding suffixes **ZG**, **PN** or **ZGP** respectively to above catalog number.

Digitrip OPTIM 550 Electronic Circuit Breaker with Interchangeable Rating Plug, continued

	Circuit Breaker Frame Only			Digitrip OPTIM Rating Plug Only	
	L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①				
	S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)				
	I – Adjustable Instantaneous Pickup				
	G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response)				
	A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)				
Maximum Continuous Ampere Rating at 40°C	OPTIM 550 ②				
	LSI	LSIG	LSIA		Fixed Rating Plug
	Catalog Number	Catalog Number	Catalog Number	Ampere Rating	Catalog Number
Three-Pole Ultra High Interrupting Capacity Current Limiting 600 Vac Rated 100 kAIC at 480 Vac					
125	**LDC3125T52W**	**LDC3125T56W**	**LDC3125T57W**	—	**ORPL125A070**
				—	**ORPL125A090**
				—	**ORPL125A100**
				—	**ORPL125A110**
				—	**ORPL125A125**
250	**LDC3250T52W**	**LDC3250T56W**	**LDC3250T57W**	—	**ORPL025A125**
				—	**ORPL025A150**
				—	**ORPL025A175**
				—	**ORPL025A200**
				—	**ORPL025A225**
				—	**ORPL025A250**
400	**LDC3400T52W**	**LDC3400T56W**	**LDC3400T57W**	200	**ORPL40A200**
				225	**ORPL40A225**
				250	**ORPL40A250**
				300	**ORPL40A300**
				350	**ORPL40A350**
				400	**ORPL40A400**
600	**LDC3600T52W**	**LDC3600T56W**	**LDC3600T57W**	300	**ORPL60A300**
				350	**ORPL60A350**
				400	**ORPL60A400**
				500	**ORPL60A500**
				600	**ORPL60A600**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Zone interlocking, PowerNet, or both features can be added at the factory by adding suffixes **ZG**, **PN** or **ZGP** respectively to above catalog number.

Digitrip OPTIM Electronic Circuit Breaker with Interchangeable Rating Plug

Order as individual components: Breaker Frame (which includes Trip Unit), Rating Plug, Terminals.

Digitrip OPTIM 1050 Electronic Circuit Breaker with Interchangeable Rating Plug

	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ① S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response) A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)		Digitrip OPTIM Rating Plug Only	
Maximum Continuous Ampere Rating at 40°C	OPTIM 1050 ②③ LSIG Catalog Number	LSIA Catalog Number	Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac				
125	**LD3125T106W**	**LD3125T107W**	70	**ORPL125A070**
			90	**ORPL125A090**
			100	**ORPL125A100**
			110	**ORPL125A110**
			125	**ORPL125A125**
250	**LD3250T106W**	**LD3250T107W**	125	**ORPL025A125**
			150	**ORPL025A150**
			175	**ORPL025A175**
			200	**ORPL025A200**
			225	**ORPL025A225**
			250	**ORPL025A250**
400	**LD3400T106W**	**LD3400T107W**	200	**ORPL40A200**
			225	**ORPL40A225**
			250	**ORPL40A250**
			300	**ORPL40A300**
			350	**ORPL40A350**
			400	**ORPL40A400**
600	**LD3600T106W**	**LD3600T107W**	300	**ORPL60A300**
			350	**ORPL60A350**
			400	**ORPL60A400**
			500	**ORPL60A500**
			600	**ORPL60A600**

Notes

① Long delay I^4t response selection limits short delay time to flat response.
② One Form C auxiliary switch and one Form C bell alarm switch supplied with breaker as standard.
③ Factory sealed.

Digitrip OPTIM 1050 Electronic Circuit Breaker with Interchangeable Rating Plug, continued

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①
S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)
I – Adjustable Instantaneous Pickup
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response)
A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)

Digitrip OPTIM Rating Plug Only

Maximum Continuous Ampere Rating at 40°C	OPTIM 1050 ②③ LSIG Catalog Number	LSIA Catalog Number	Fixed Rating Plug Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac				
125	**HLD3125T106W**	**HLD3125T107W**	70	**ORPL125A070**
			90	**ORPL125A090**
			100	**ORPL125A100**
			110	**ORPL125A110**
			125	**ORPL125A125**
250	**HLD3250T106W**	**HLD3250T107W**	125	**ORPL025A125**
			150	**ORPL025A150**
			175	**ORPL025A175**
			200	**ORPL025A200**
			225	**ORPL025A225**
			250	**ORPL025A250**
400	**HLD3400T106W**	**HLD3400T107W**	200	**ORPL40A200**
			225	**ORPL40A225**
			250	**ORPL40A250**
			300	**ORPL40A300**
			350	**ORPL40A350**
			400	**ORPL40A400**
600	**HLD3600T106W**	**HLD3600T107W**	300	**ORPL60A300**
			350	**ORPL60A350**
			400	**ORPL60A400**
			500	**ORPL60A500**
			600	**ORPL60A600**

Notes

① Long delay I^4t response selection limits short delay time to flat response.
② One Form C auxiliary switch and one Form C bell alarm switch supplied with breaker as standard.
③ Factory sealed.

Digitrip OPTIM 1050 Electronic Circuit Breaker with Interchangeable Rating Plug, continued

	Circuit Breaker Frame Only		Digitrip OPTIM Rating Plug Only	
	L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ① S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response) A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)			
Maximum Continuous Ampere Rating at 40°C	OPTIM 1050 ②③ LSIG Catalog Number	LSIA Catalog Number	Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Ultra High Interrupting Capacity Current Limiting 600 Vac Rated 100 kAIC at 480 Vac				
125	**LDC3125T106W**	**LDC3125T107W**	70	**ORPL125A070**
			90	**ORPL125A090**
			100	**ORPL125A100**
			110	**ORPL125A110**
			125	**ORPL125A125**
250	**LDC3250T106W**	**LDC3250T107W**	125	**ORPL025A125**
			150	**ORPL025A150**
			175	**ORPL025A175**
			200	**ORPL025A200**
			225	**ORPL025A225**
			250	**ORPL025A250**
400	**LDC3400T106W**	**LDC3400T107W**	200	**ORPL40A200**
			225	**ORPL40A225**
			250	**ORPL40A250**
			300	**ORPL40A300**
			350	**ORPL40A350**
			400	**ORPL40A400**
600	**LDC3600T106W**	**LDC3600T107W**	300	**ORPL60A300**
			350	**ORPL60A350**
			400	**ORPL60A400**
			500	**ORPL60A500**
			600	**ORPL60A600**

Notes

① Long delay I^4t response selection limits short delay time to flat response.
② One Form C auxiliary switch and one Form C bell alarm switch supplied with breaker as standard.
③ Factory sealed.

100% Rated Digitrip OPTIM Circuit Breakers with Interchangeable Rating Plug

Order as individual components: Breaker Frame (which includes Trip Unit), Rating Plug, Terminals.

100% Rated Digitrip OPTIM 550 Circuit Breakers with Interchangeable Rating Plug

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①
S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)
I – Adjustable Instantaneous Pickup
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response)
A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)

Maximum Continuous Ampere Rating at 40°C	OPTIM 550 ② LSI Catalog Number	LSIG Catalog Number	LSIA Catalog Number	Digitrip OPTIM Rating Plug Only Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac					
125	**CLD3125T52W**	**CLD3125T56W**	**CLD3125T57W**	70	**ORPL125A070**
				90	**ORPL125A090**
				100	**ORPL125A100**
				110	**ORPL125A110**
				125	**ORPL125A125**
250	**CLD3250T52W**	**CLD3250T56W**	**CLD3125T57W**	125	**ORPL025A125**
				150	**ORPL025A150**
				175	**ORPL025A175**
				200	**ORPL025A200**
				225	**ORPL025A225**
				250	**ORPL025A250**
400	**CLD3400T52W**	**CLD3400T56W**	**CLD3400T57W**	200	**ORPL40A200**
				225	**ORPL40A225**
				250	**ORPL40A250**
				300	**ORPL40A300**
				350	**ORPL40A350**
				400	**ORPL40A400**
600	**CLD3600T52W**	**CLD3600T56W**	**CLD3600T57W**	300	**ORPL60A300**
				350	**ORPL60A350**
				400	**ORPL60A400**
				500	**ORPL60A500**
				600	**ORPL60A600**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Zone interlocking, PowerNet, or both features can be added at the factory by adding suffixes **ZG**, **PN** or **ZGP** respectively to above catalog number.

100% Rated Digitrip OPTIM 550 Circuit Breakers with Interchangeable Rating Plug, continued

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①
S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)
I – Adjustable Instantaneous Pickup
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response)
A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)

OPTIM 550 ②

Maximum Continuous Ampere Rating at 40°C	LSI Catalog Number	LSIG Catalog Number	LSIA Catalog Number	Digitrip OPTIM Rating Plug Only: Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac					
125	**CHLD3125T52W**	**CHLD3125T56W**	**CHLD3125T57W**	70	**ORPL125A070**
				90	**ORPL125A090**
				100	**ORPL125A100**
				110	**ORPL125A125**
				125	**ORPL125A125**
250	**CHLD3250T52W**	**CHLD3250T56W**	**CHLD3125T57W**	125	**ORPL025A125**
				150	**ORPL025A150**
				175	**ORPL025A175**
				200	**ORPL025A200**
				225	**ORPL025A225**
				250	**ORPL025A250**
400	**CHLD3400T52W**	**CHLD3400T56W**	**CHLD3400T57W**	200	**ORPL40A200**
				225	**ORPL40A225**
				250	**ORPL40A250**
				350	**ORPL40A350**
				400	**ORPL40A400**
600	**CHLD3600T52W**	**CHLD3600T56W**	**CHLD3600T57W**	300	**ORPL60A300**
				350	**ORPL60A350**
				400	**ORPL60A400**
				500	**ORPL60A500**
				600	**ORPL60A600**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Zone interlocking, PowerNet, or both features can be added at the factory by adding suffixes **ZG**, **PN** or **ZGP** respectively to above catalog number.

100% Rated Digitrip OPTIM 550 Circuit Breakers with Interchangeable Rating Plug, continued

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①
S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)
I – Adjustable Instantaneous Pickup
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response)
A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)

Digitrip OPTIM Rating Plug Only

Maximum Continuous Ampere Rating at 40°C	OPTIM 550 ② LSI Catalog Number	LSIG Catalog Number	LSIA Catalog Number	Fixed Rating Plug Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Ultra High Interrupting Capacity Current Limiting 600 Vac Rated 100 kAIC at 480 Vac					
125	**CLDC3125T52W**	**CLDC3125T56W**	**CLDC3125T57W**	70	**ORPL125A070**
				90	**ORPL125A090**
				100	**ORPL125A100**
				110	**ORPL125A110**
				125	**ORPL125A125**
250	**CLDC3250T52W**	**CLDC3250T56W**	**CLDC3125T57W**	125	**ORPL025A125**
				150	**ORPL025A150**
				175	**ORPL025A175**
				200	**ORPL025A200**
				225	**ORPL025A225**
				250	**ORPL025A250**
400	**CLDC3400T52W**	**CLDC3400T56W**	**CLDC3400T57W**	200	**ORPL40A200**
				225	**ORPL40A225**
				250	**ORPL40A250**
				300	**ORPL40A300**
				350	**ORPL40A350**
				400	**ORPL40A400**
600	**CLDC3600T52W**	**CLDC3600T56W**	**CLDC3600T57W**	300	**ORPL60A300**
				350	**ORPL60A350**
				400	**ORPL60A400**
				500	**ORPL60A500**
				600	**ORPL60A600**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Zone interlocking, PowerNet, or both features can be added at the factory by adding suffixes **ZG**, **PN** or **ZGP** respectively to above catalog number.

100% Rated Digitrip OPTIM 1050 Circuit Breakers with Interchangeable Rating Plug

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①
S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)
I – Adjustable Instantaneous Pickup
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response)
A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)

Digitrip OPTIM Rating Plug Only

Maximum Continuous Ampere Rating at 40°C	OPTIM 1050 ②③ LSIG Catalog Number	LSIA Catalog Number	Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 35 kAIC at 480 Vac				
125	**CLD3125T106W**	**CLD3125T107W**	70	**ORPL125A070**
			90	**ORPL125A090**
			100	**ORPL125A100**
			110	**ORPL125A110**
			125	**ORPL125A125**
250	**CLD3250T106W**	**CLD3250T107W**	125	**ORPL025A125**
			150	**ORPL025A150**
			175	**ORPL025A175**
			200	**ORPL025A200**
			225	**ORPL025A225**
			250	**ORPL025A250**
400	**CLD3400T106W**	**CLD3400T107W**	200	**ORPL40A200**
			225	**ORPL40A225**
			250	**ORPL40A250**
			300	**ORPL40A300**
			350	**ORPL40A350**
			400	**ORPL40A400**
600	**CLD3600T106W**	**CLD3600T107W**	300	**ORPL60A300**
			350	**ORPL60A350**
			400	**ORPL60A400**
			500	**ORPL60A500**
			600	**ORPL60A600**

Notes

① Long delay I^4t response selection limits short delay time to flat response.
② One Form C auxiliary switch and one Form C bell alarm switch supplied with breaker as standard.
③ Factory sealed.

100% Rated Digitrip OPTIM 1050 Circuit Breakers with Interchangeable Rating Plug, continued

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①
S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)
I – Adjustable Instantaneous Pickup
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response)
A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)

Digitrip OPTIM Rating Plug Only

Maximum Continuous Ampere Rating at 40°C	OPTIM 1050 ②③ LSIG Catalog Number	LSIA Catalog Number	Fixed Rating Plug Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac				
125	**CHLD3125T106W**	**CHLD3125T107W**	70	**ORPL125A070**
			90	**ORPL125A090**
			100	**ORPL125A100**
			110	**ORPL125A110**
			125	**ORPL125A125**
250	**CHLD3250T106W**	**CHLD3250T107W**	125	**ORPL025A125**
			150	**ORPL025A150**
			175	**ORPL025A175**
			200	**ORPL025A200**
			225	**ORPL025A225**
			250	**ORPL025A250**
400	**CHLD3400T106W**	**CHLD3400T107W**	200	**ORPL40A200**
			225	**ORPL40A225**
			250	**ORPL40A250**
			300	**ORPL40A300**
			350	**ORPL40A350**
			400	**ORPL40A400**
600	**CHLD3600T106W**	**CHLD3600T107W**	300	**ORPL60A300**
			350	**ORPL60A350**
			400	**ORPL60A400**
			500	**ORPL60A500**
			600	**ORPL60A600**

Notes

① Long delay I^4t response selection limits short delay time to flat response.
② One Form C auxiliary switch and one Form C bell alarm switch supplied with breaker as standard.
③ Factory sealed.

100% Rated Digitrip OPTIM 1050 Electronic Circuit Breaker with Interchangeable Rating Plug, continued

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①
S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)
I – Adjustable Instantaneous Pickup
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (I^2t or Flat Response)
A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time (I^2t or Flat Response)

Digitrip OPTIM Rating Plug Only

Maximum Continuous Ampere Rating at 40°C	OPTIM 1050 ②③ LSIG Catalog Number	LSIA Catalog Number	Fixed Rating Plug Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Ultra High Interrupting Capacity Current Limiting 600 Vac Rated 100 kAIC at 480 Vac				
125	**CLDC3125T106W**	**CLDC3125T107W**	70	**ORPL125A070**
			90	**ORPL125A090**
			100	**ORPL125A100**
			110	**ORPL125A110**
			125	**ORPL125A125**
250	**CLDC3250T106W**	**CLDC3250T107W**	125	**ORPL025A125**
			150	**ORPL025A150**
			175	**ORPL025A175**
			200	**ORPL025A200**
			225	**ORPL025A225**
			250	**ORPL025A250**
400	**CLDC3400T106W**	**CLDC3400T107W**	200	**ORPL40A200**
			225	**ORPL40A225**
			250	**ORPL40A250**
			300	**ORPL40A300**
			350	**ORPL40A350**
			400	**ORPL40A400**
600	**CLDC3600T106W**	**CLDC3600T107W**	300	**ORPL60A300**
			350	**ORPL60A350**
			400	**ORPL60A400**
			500	**ORPL60A500**
			600	**ORPL60A600**

Notes

① Long delay I^4t response selection limits short delay time to flat response.
② One Form C auxiliary switch and one Form C bell alarm switch supplied with breaker as standard.
③ Factory sealed.

Accessories Selection Guide and Ordering Information

Line and Load Terminals

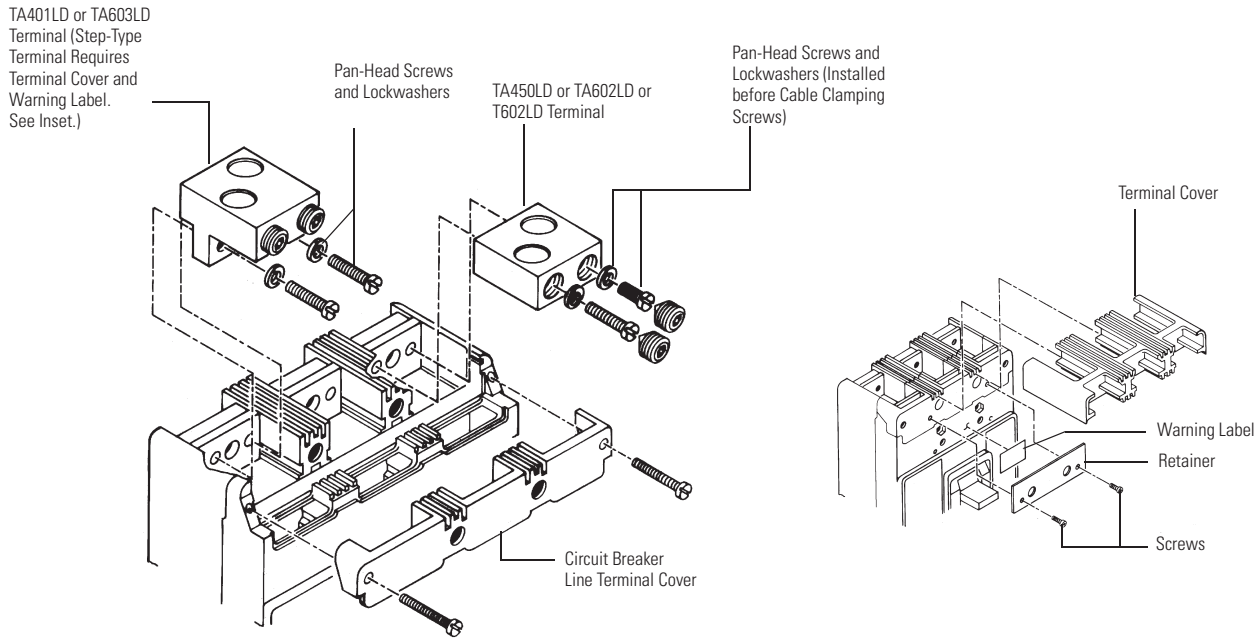
Eaton's line and load terminals provide wire connecting capabilities for specific ranges of continuous current ratings and wire types. All terminals comply with Underwriters Laboratories Standards UL 486A and UL 486B and CSA Standard C22.2 No. 65M. Unless otherwise specified, L-Frame circuit breaker line and load terminals are shipped separately for field installation.

The wire connecting terminal is secured with two pan-head, slotted screws and lockwashers that can be checked for the correct torque loading or retightened from the front of the circuit breaker before installation of the conductors. (Applies to all styles.) The circuit breaker line/load terminal conductors are positioned in the conducting holes in the wire connecting terminal and are secured with recessed socket screws that are tightened to the correct torque loading from the front of the circuit breaker.

Ordering Information

L-Frame circuit breakers use Cu/Al terminals as standard. When optional copper terminals are required, order by catalog Number. Specify if factory installation is required.

Terminals



Line and Load Terminals

Maximum Breaker Amperes	Terminal Body Material	Wire Type	AWG Wire Range/Number of Conductors	Metric Wire Range mm²	Terminal Poles	Catalog Number	Terminals with Control Wire Termination Catalog Number
Standard Cu/Al Pressure Terminals							
400	Aluminum	Cu/Al	4/0–600 (1)	120–300	Two-pole kit ①	**2TA401LDK**	—
400	Aluminum	Cu/Al	4/0–600 (1)	120–300	Three-pole kit ①	**3TA401LDK**	—
400	Aluminum	Cu/Al	4/0–600 (1)	120–300	Four-pole kit ①	**4TA401LDK**	—
450	Aluminum	Cu/Al	4–4/0 (2)	25–95	②	**TA450LD**	—
500	Aluminum	Cu/Al	3/0–350 (2)	95–150	②	**TA602LD**	**TA602LDCW**
600	Aluminum	Cu/Al	400–500 (2)	185–240	Two-pole kit ①	**2TA603LDK**	**2TA603LDKCW**
600	Aluminum	Cu/Al	400–500 (2)	185–240	Three-pole kit ①	**3TA603LDK**	**3TA603LDKCW**
600	Aluminum	Cu/Al	400–500 (2)	185–240	Four-pole kit ①	**4TA603LDK**	**4TA603LDKCW**
Optional Copper and Cu/Al Pressure Type Terminals							
600	Copper	Cu	250–350 (2)	120–250	②	**T602LD**	**T602LDCW**

Notes

① Terminal kits contain one terminal for each pole and one terminal cover.

② Individually packed.

Accessories

Allowable Accessory Combinations

Different combinations of accessories can be supplied, depending on the types of accessories and the number of poles in the circuit breaker.

LD Frame Accessories

Description	Reference Page	Two-Pole ①, Three-Pole Left	Center	Right	Four-Pole Left	Center	Right	Neutral ②
Internal Accessories (Only One Internal Accessory Per Pole) ③								
Alarm lockout (Make/Break)	V4-T2-305	■		■	■		■	
Alarm lockout (2Make/2Break)	V4-T2-305	■		■	■		■	
Auxiliary switch (1A, 1B)	V4-T2-307	■		■	■		■	
Auxiliary switch (2A, 2B)	V4-T2-307	■		■	■		■	
Auxiliary switch (3A, 3B)	V4-T2-307	■		■	■		■	
Auxiliary switch (1A, 1B) and alarm switch combination	V4-T2-309	■		■	■		■	
Auxiliary switch (2A, 2B) and alarm switch combination	V4-T2-309	■		■	■		■	
Shunt trip—standard ④	V4-T2-311	■		■	■		■	
Shunt trip—low energy ④	V4-T2-314	■		■	■		■	
Undervoltage release mechanism ④	V4-T2-320	■		■	■		■	
Eaton PowerNet communications kit (OPTIM 550)	V4-T2-322			■				
External Accessories								
End cap kit	V4-T2-337	●	●	●	●	●	●	●
Control wire terminal kit	V4-T2-338	●	●	●	●	●	●	●
Base mounting hardware	V4-T2-340	●	●	●	●	●	●	●
Terminal shields	V4-T2-342	●	●	●	●	●	●	●
Interphase barriers	V4-T2-342	●	●	●	●	●	●	●
Non-padlockable handle block	V4-T2-343		■			■		
Padlockable handle lock hasp	V4-T2-344	❑		❑	❑		❑	
Key interlock kit	V4-T2-345	❑		❑	❑		❑	
Sliding bar interlock—requires two breakers	V4-T2-346	●	●	●				
Walking beam interlock—requires two breakers	V4-T2-346	●	●	●	●	●	●	●
Electrical (motor) operator	V4-T2-347	●	●	●	●	●	●	●
Plug-in adapters	V4-T2-349	●	●	●	●	●	●	●
Rear connecting studs	V4-T2-350	●	●	●	●	●	●	●
Panelboard connecting straps	V4-T2-351	●	●	●	●	●	●	●
Handle mechanisms	V4-T2-353	●	●	●	●	●	●	●
Handle extension	V4-T2-357	●	●	●	●	●	●	●
Solid-state (electronic) portable test kit	V4-T2-358	●	●	●	●	●	●	●

Legend

■ Applicable in indicated pole position

❑ May be mounted on left or right pole—not both

● Accessory available/modification available

Notes

① Two-pole breaker supplied in three-pole frame. Current carrying parts omitted from center pole.

② Refer to Eaton for appropriate neutral pole accessory combinations.

③ OPTIM model 1050 is factory sealed and does not have the right pole space available for accessories.

④ Shunt trip and UVR cannot be mounted in right poles on LES or OPTIM trip units. Standard non-tripping internal accessories can be mounted in the left or right poles of LES and 550 OPTIM trip units.

LD Frame Accessories, continued

Description	Reference Page	Two-Pole ①, Three-Pole Left	Center	Right	Four-Pole Left	Center	Right	Neutral ②
OPTIM System Components Three Poles								
Ground fault alarm unit	**V4-T2-358**							
Potential transformer module	**V4-T2-358**							
Breaker interface module (BIM)	**V4-T2-359**							
Digitrip OPTIMizer	**V4-T2-359**							
Auxiliary power module	**V4-T2-359**							
Modifications (Refer to Eaton)								
Special calibration	—	●	●	●	●	●	●	●
Moisture fungus treatment	**V4-T2-123**	●	●	●	●	●	●	●
Freeze-tested circuit breakers	—	●	●	●	●	●	●	●
Marine/naval application	—	●	●	●	●	●	●	●

Legend

■ Applicable in indicated pole position

❑ May be mounted on left or right pole—not both

● Accessory available/modification available

Notes

① Two-pole breaker supplied in three-pole frame. Current carrying parts omitted from center pole.

② Refer to Eaton for appropriate neutral pole accessory combinations.

Technical Data and Specifications

UL 489 Interrupting Capacity Ratings ①

Circuit Breaker Type	Number of Poles	Interrupting Capacity (kA rms Symmetrical Amperes) Volts AC (50/60 Hz) 240	277	480	600	Volts DC 125	250 ②③
LDB	2, 3	65	—	35	25	—	22
LD	2, 3, 4	65	—	35	25	—	22
CLD ④	2, 3, 4	65	—	35	25	—	—
HLD, HLDB	2, 3, 4	100	—	65	35	—	25
CHLD ④	2, 3, 4	100	—	65	35	—	—
LDC, LDCB ⑤	2, 3, 4	200	—	100	50	—	30
CLDC ④⑤	2, 3, 4	200	—	100	50	—	—

IEC 947-2 Interrupting Capacity Ratings ①

Circuit Breaker Type	Number of Poles	Interrupting Capacity (kA Symmetrical Amperes) Volts AC (50/60 Hz) 240		415		690		Volts DC 250 ②③	
		I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}
LDB	2, 3	85	85	45	45	20	10	20	10
LD	2, 3, 4	85	85	45	45	20	10	20	10
CLD ④	2, 3, 4	85	85	45	45	20	10	—	—
HLD, HLDB	2, 3, 4	100	100	70	70	25	13	20	10
CHLD ④	2, 3, 4	100	100	70	70	25	13	—	—
LDC, LDCB	2, 3, 4	200	100	100	75	35	18	20	10
CLDC ④	2, 3, 4	200	100	100	75	35	18	—	—

Notes

① Utilization Category A circuit breakers.
② L/R = 8 milliseconds minimum.
③ Two-pole circuit breaker or two poles of three-pole circuit breaker. Incorporating thermal-magnetic trip unit only.
④ 100% rated breakers.
⑤ Current limiting.

Specifications

Trip Unit Type	Digitrip RMS 310		Digitrip OPTIM 550	Digitrip OPTIM 1050
rms sensing	Yes	Yes	Yes	Yes
Breaker Type				
Frame	L	L	L	L
Ampere range	300–600A	300–600A	200–600A	200–600A
Interrupting rating at 480 volts	35, 65, 100 (kA)	35, 65, 100 (kA)	35, 65, 100 (kA)	35, 65, 100 (kA)
Protection				
Ordering options	LS, LSG	LSI, LSIG	LSI, LSI(A), LSIG	LSI(A), LSIG
Fixed rated plug (I_n)	Yes	Yes	Yes	Yes
Overtemperature trip	Yes	Yes	Yes	Yes
Long Delay Protection (L)				
Adjustable rating plug (I_n)	Yes	Yes	No	No
Long delay pickup	0.5–1.0 (I_n) ①	0.5–1.0 (I_n) ①	0.4–1.0 x (I_n)	0.4–1.0 x (I_n)
Long delay time I^2t	12 seconds	12 seconds	2–24 seconds	2–24 seconds
Long delay time I^4t	No	No	1–5 seconds	1–5 seconds
Long delay thermal memory	Yes	Yes	Yes	Yes
High load alarm	No	No	0.5–1.0 x I_r	0.5–1.0 x I_r
Short Delay Protection (S)				
Short delay pickup	200–800% x (I_n)	200–800% x (I_n)	150–800% x (I_r)	150–800% x (I_r)
Short delay time I^2t	100 ms	No	100–500 ms	100–500 ms
Short delay time flat	No	Inst–300 ms	100–500 ms	100–500 ms
Short delay time zone selective interlocking	No	No	Yes ④	Yes
Instantaneous Protection (I)				
Instantaneous pickup	No	200–800% x (I_n)	200–800% x (I_n)	200–800% x (I_n)
Discriminator	No	No	Yes	Yes
Instantaneous override	Yes	Yes	Yes	Yes
Ground Fault Protection (G)				
Ground fault alarm	No	No	20–100% x (I_s)	20–100% x (I_s)
Ground fault pickup	1–5 x I_g (120A)	1–5 x I_g (120A)	20–100% x (I_s)	20–100% x (I_s)
Ground fault delay I^2t	No	No	100–500 ms	100–500 ms
Ground fault delay flat	Inst–500 ms	Inst–500 ms	100–500 ms	100–500 ms
Ground fault zone selective interlocking	No	No	Yes ④	Yes
Ground fault thermal memory	Yes	Yes	Yes	Yes
System Diagnostics				
Status LEDs	Yes	Yes	Yes	Yes
Cause of trip LEDs	No	No	Yes	Yes
Magnitude of trip information	No	No	Yes	Yes
Remote signal contact—ground alarm	Yes ⑤	Yes ⑤	Yes ④	Yes
Local auxiliary and bell alarm contact	Optional	Optional	Optional	Included

Legend

BIM = Breaker Interface Module
(A) = GF Alarm
I_s = Sensor Rating
I_n = Rating Plug
I_r = Long Delay Pickup Setting

Notes

① Adjust by rating plug.
② By OPTIMizer/BIM.
③ Eaton's PowerNet kit.
④ Zone interlock kit.
⑤ With separate ground fault alarm unit (GFAU).

Specifications, continued

Trip Unit Type	Digitrip RMS 310		Digitrip OPTIM 550	Digitrip OPTIM 1050
System Monitoring				
Digital display	No	No	Yes ①	Yes ①
Current	No	No	Yes	Yes
Power and energy	No	No	No	Yes
Power quality—harmonics	No	No	No	Yes
Power factor	No	No	No	Yes
Communications				
PowerNet	No	No	Yes ②	Yes
Testing				
Testing method	Test set	Test set	OPTIMizer, BIM, PowerNet	OPTIMizer, BIM, PowerNet

Legend

BIM = Breaker Interface Module
(A) = GF Alarm
I_s = Sensor Rating
I_n = Rating Plug
I_r = Long Delay Pickup Setting

Notes

① By OPTIMizer/BIM.
② Eaton's PowerNet kit.

Dimensions and Weights

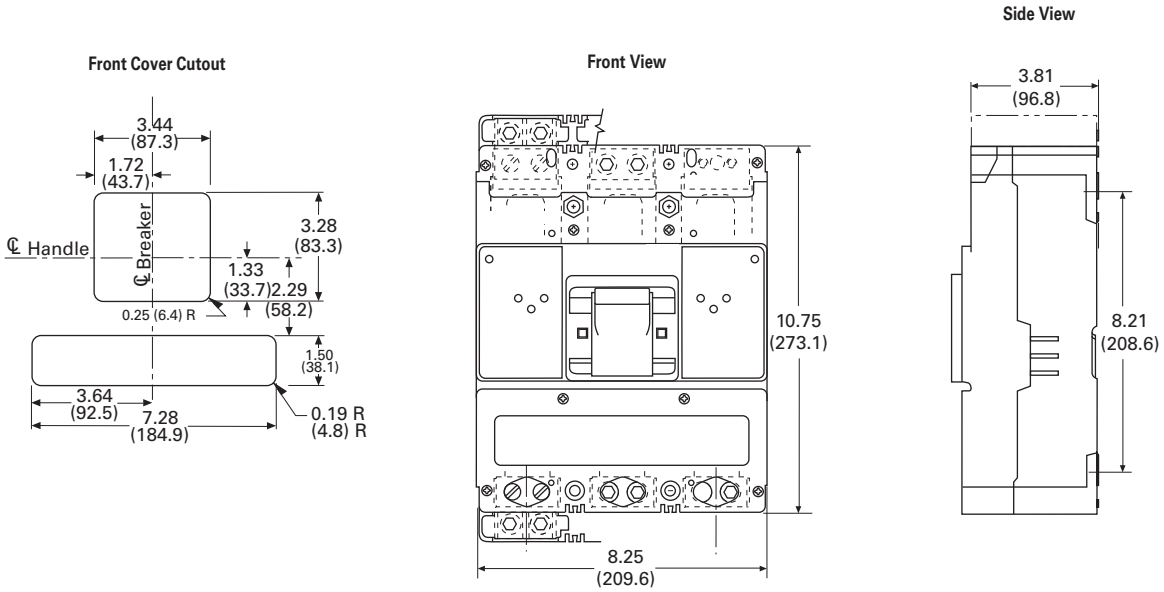
Dimensions in Inches (mm)

2

LD Frame

Number of Poles	Width	Height	Depth
2, 3	8.25 (209.6)	10.75 (273.1)	4.06 (103.1)
4	11.00 (279.4)	10.75 (273.1)	4.06 (103.1)

LD-Frame, Two- and Three-Pole



Approximate Shipping Weight, Lbs (kg)

LD Frame

Breaker Type	Complete Breaker			Frame Only			Trip Unit		
	Two-Pole	Three-Pole	Four-Pole	Two-Pole	Three-Pole	Four-Pole	Two-Pole	Three-Pole	Four-Pole
LD, HLD, LDC	18 (8.2)	20 (9.1)	25 (11.3)	14 (6.4)	15 (6.8)	20 (9.1)	3 (1.4)	4 (1.8)	5 (2.3)
LDB	18 (8.2)	20 (9.1)	25 (11.3)	—	—	—	—	—	—

Typical M-Frame Circuit Breaker

Contents

M-Frame (300–800 Amperes)

Product Description

- All Eaton M-Frame circuit breakers are HACR rated
- MDL-Frame circuit breakers are available as individual components (frame, trip unit, terminals), or factory assembled complete breakers
- MDLB, HMDLB-Frame circuit breakers with non-interchangeable trip units are suitable for reverse feed use

Standards and Certifications

- CE marked

CE

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 or trip units.

Circuit Breaker/Frame

MDL 3 800 F

Circuit Breaker/ Frame Type	Number of Poles	Circuit Breaker/ Frame Ampere Rating	Suffix
MDL, MDLB **HMDL, HMDLB**	**2** = 2 poles **3** = 3 poles	**300** ① **350** ① **400** **450** **500** **600** **700** **800**	**F** = Frame only **K** = High magnetic molded case switch **V** = 50°C (thermal-magnetic trip units only) **W** = Without terminals **X** = Load side terminals only **Y** = Line side terminals only

Thermal-Magnetic Trip Unit

MT 3 800 T

Trip Unit Type	Number of Poles	Trip Unit Rating/ Plug Ampere Rating	Suffix
MT **MES**	**2** = 2 poles **3** = 3 poles	**300** ① **350** ① **400** **450** **500** **600** **700** **800**	**T** = Thermal-magnetic **V** = 50°C (thermal-magnetic trip units only) **LS** = Digitrip RMS 310 **LSI** = Digitrip RMS 310 **LSG** = Digitrip RMS 310 **LSIG** = Digitrip RMS 310

Note

① Thermal-magnetic only.

Product Selection

Types MDL and HMDL Thermal-Magnetic Circuit Breakers with Interchangeable Trip Units—Two-Pole

Maximum Continuous Ampere Rating at 40°C	Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac: Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals Catalog Number	Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac: Frame Only Catalog Number	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac: Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals Catalog Number	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac: Frame Only Catalog Number	Thermal-Magnetic Trip Unit Only: For Use with Standard or High or Ultra High Interrupting Frames; Magnetic Trip Range is 5–10 Up Through 600A; 4–8 on 700 and 800A x Continuous Ampere Rating Catalog Number	Standard Terminals Only ① See Page V4-T2-227 for Optional Terminals Catalog Number
300	**MDL2300**	**MDL2800F**	**HMDL2300**	**HMDL2800F**	**MT2300T**	**TA700MA1**
350	**MDL2350**		**HMDL2350**		**MT2350T**	**TA700MA1**
400	**MDL2400**		**HMDL2400**		**MT2400T**	**TA700MA1**
450	**MDL2450**		**HMDL2450**		**MT2450T**	**TA700MA1**
500	**MDL2500**		**HMDL2500**		**MT2500T**	**TA700MA1**
600	**MDL2600**		**HMDL2600**		**MT2600T**	**TA700MA1**
700	**MDL2700**		**HMDL2700**		**MT2700T**	**TA700MA1**
800	**MDL2800**		**HMDL2800**		**MT2800T**	**TA800MA2**

Types MDL and HMDL Thermal-Magnetic Circuit Breakers with Interchangeable Trip Units—Three-Pole

Maximum Continuous Ampere Rating at 40°C	Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac: Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals Catalog Number	Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac: Frame Only Catalog Number	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac: Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals Catalog Number	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac: Frame Only Catalog Number	Thermal-Magnetic Trip Unit Only: For Use with Standard or High or Ultra High Interrupting Frames; Magnetic Trip Range is 5–10 Up Through 600A; 4–8 on 700 and 800A x Continuous Ampere Rating Catalog Number	Standard Terminals Only ① See Page V4-T2-227 for Optional Terminals Catalog Number
300	**MDL3300**	**MDL3800F**	**HMDL3300**	**HMDL3800F**	**MT3300T**	**TA700MA1**
350	**MDL3350**		**HMDL3350**		**MT3400T**	**TA700MA1**
400	**MDL3400**		**HMDL3400**		**MT3400T**	**TA700MA1**
450	**MDL3450**		**HMDL3450**		**MT3450T**	**TA700MA1**
500	**MDL3500**		**HMDL3500**		**MT3500T**	**TA700MA1**
600	**MDL3600**		**HMDL3600**		**MT3600T**	**TA700MA1**
700	**MDL3700**		**HMDL3700**		**MT3700T**	**TA700MA1**
800	**MDL3800**		**HMDL3800**		**MT3800T**	**TA800MA2**

Note

① Two terminals are required per pole.

Types MDLB and HMDLB Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units—Two-Pole ①

Maximum Continuous Ampere Rating at 40°C	Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals Catalog Number	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals Catalog Number	Standard Terminals Only ② See Page V4-T2-227 for Optional Terminals Catalog Number
300	MDLB2300	HMDLB2300	TA700MA1
350	MDLB2350	HMDLB2350	TA700MA1
400	MDLB2400	HMDLB2400	TA700MA1
450	MDLB2450	HMDLB2450	TA700MA1
500	MDLB2500	HMDLB2500	TA700MA1
600	MDLB2600	HMDLB2600	TA700MA1
700	MDLB2700	HMDLB2700	TA700MA1
800	MDLB2800	HMDLB2800	TA800MA2

Types MDLB and HMDLB Thermal-Magnetic Circuit Breakers with Non-Interchangeable Trip Units—Three Pole①

Maximum Continuous Ampere Rating at 40°C	Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals Catalog Number	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals Catalog Number	Standard Terminals Only ② See Page V4-T2-227 for Optional Terminals Catalog Number
300	MDLB3300	HMDLB3300	TA700MA1
350	MDLB3350	HMDLB3350	TA700MA1
400	MDLB3400	HMDLB3400	TA700MA1
450	MDLB3450	HMDLB3450	TA700MA1
500	MDLB3500	HMDLB3500	TA700MA1
600	MDLB3600	HMDLB3600	TA700MA1
700	MDLB3700	HMDLB3700	TA700MA1
800	MDLB3800	HMDLB3800	TA800MA2

Notes

① Factory sealed for reverse feed application.

② Two terminals are required per pole.

Types MDL and HMDL Electronic Circuit Breakers with Interchangeable Trip Units

Order as Individual Components: breaker frame, trip unit, rating plug, terminals.

Types MDL and HMDL Electronic Circuit Breakers with Interchangeable Trip Units—Three-Pole

Maximum Continuous Ampere Rating at 40°C ①	Circuit Breaker Frame Only: Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac — Catalog Number	Circuit Breaker Frame Only: High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac — Catalog Number	Digitrip RMS 310 Trip Unit Only ② — Catalog Number	Digitrip RMS 310 Rating Plug Only: Ampere Rating	Fixed Rating Plug — Catalog Number	Adjustable Rating Plugs — Ampere Rating	Adjustable Rating Plugs — Catalog Number	Terminals
			L – Adjustable Long Delay Pickup (by Adjustable Rating Plug) S – Adjustable Short Delay Pickup with Fixed Short Delay Time (I^2t Response) or Adjustable Short Delay Time (Flat Response) I – Adjustable Instantaneous Pickup by Setting Short Delay Time to Instantaneous G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Delay (Flat Response)					
800	**MDL3800F**	**HMDL3800F**	**MES3800LS**	400	**8MES400T**	400/500/600/800	**A8MES800T**	See **Page V4-T2-227** for standard and optional terminals
			MES3800LSI	500	**8MES500T**			
			MES3800LSG	600	**8MES600T**	620/640/660/680	**A8MES600T5**	
			MES3800LSIG	700	**8MES700T**			
			—	800	**8MES800T**	720/740/760/780	**A8MES700T5**	

Types MDLB and HMDLB Electronic Circuit Breakers with Non-Interchangeable Trip Units ③

Maximum Continuous Ampere Rating at 40°C ①	Factory-Assembled Circuit Breaker Consisting of Frame and Trip Unit: LS — Catalog Number	LSI — Catalog Number	LSG — Catalog Number	LSIG — Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac				
800	**MDLB3800T33W**	**MDLB3800T32W**	**MDLB3800T35W**	**MDLB3800T36W**
Three-Pole High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac				
800	**HMDLB3800T33W**	**HMDLB3800T32W**	**HMDLB3800T35W**	**HMDLB3800T36W**

Notes

① Ampere rating is established by rating plug.

② For AC use only.

③ Factory sealed, suitable for reverse feed application. CMDLB and CHMDLB are also available.

2

100% Rated Types CMDL and CHMDL Electronic Circuit Breakers with Non-Interchangeable Trip Units

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at the 75°C ampacity. All 100% rated circuit breakers have electronic trip units. Order as individual components: breaker frame, trip unit, rating plug and terminals.

100% Rated Types CMDL and CHMDL Electronic Circuit Breakers with Interchangeable Trip Units—Three-Pole

	Circuit Breaker Frame Only		Digitrip RMS 310 Trip Unit Only ②				Digitrip RMS 310 Trip Unit Only			
			Standard	Options					Adjustable Rating Plug	
Maximum Continuous Ampere Rating at 40°C ①	Standard Interrupting Capacity 50 kAIC at 480 Vac	High Interrupting Capacity 65 kAIC at 480 Vac	Adjustable Short Time Pickup with I^2t Short Delay Ramp	Independently Adjustable Short Time Pickup and Delay Ground Fault Protection	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Ground Fault Protection	Ampere Rating	Fixed Rating Plug Catalog Number	Ampere Rating	Terminals
	Catalog Number									
800	**CMDL3800F**	**CHMDL3800F**	**MES3800LS**	**MES3800LSI**	**MES3800LSG**	**MES3800LSIG**	400	**8MES400T**	400/500/600/800 **A8MES800T**	See **Page V4-T2-227** for standard and optional terminals
							500	**8MES500T**		
							600	**8MES600T**	620/640/660/680 **A8MES600T5**	
							700	**8MES700T**		
							800	**8MES800T**	720/740/760/780 **A8MES700T5**	

Molded Case Switches

Eaton's molded case switches are used as compact switches in applications requiring high current switching capabilities. Molded case switches are constructed of circuit breaker components and are of the high instantaneous automatic type. Molded case switches are listed in accordance with Underwriters Laboratories Standard UL 489.

Molded Case Switches

Maximum Continuous Ampere Rating at 40°C	600 Vac Maximum, 250 Vdc Circuit Breaker Only without Line and Load Terminals Catalog Number
Two-Pole	
800	**MDL2800WK**
	MDLB2800WK ③
	HMDL2800WK
Three-Pole	
800	**MDL3800WK**
	MDLB3800WK ③
	HMDL3800WK

Notes

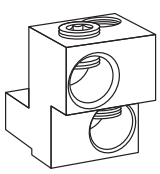
① Ampere rating is established by rating plug.
② For AC use only.
③ MDLB and HMDLB are suitable for reverse feed applications.

Molded case switch may trip above 6000 amperes.

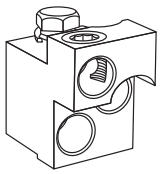
Accessories Selection Guide and Ordering Information

Line and Load Terminals

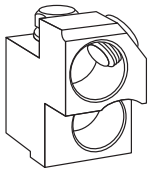
M-Frame circuit breakers use Cu/Al terminals as standard. When optional copper or Cu/Al terminals are required, order by catalog number. Specify if factory installation is required.



TA700MA1



TA800MA2



TA801MA

Line and Load Terminals

Maximum Breaker Amperes	Terminal Body Material	Wire Type	AWG Wire Range/No. Conductors	Terminal Catalog Number	Terminals with Control Wire Termination Catalog Number
Standard Cu/Al Pressure Terminals					
700	Aluminum	Cu/Al	(2) 1–500 kcmil	**TA700MA1**	**TA700MA1CWT**
800 std.	Aluminum	Cu/Al	(3) 3/0–400 kcmil	**TA800MA2**	**TA800MA2CWT**
800	Aluminum	Cu/Al	(2) 500–750 kcmil	**TA801MA**	**TA801MACWT**
Optional Copper and Cu/Al Pressure Type Terminals					
600	Copper	Cu	(2) 2/0–500 kcmil	**T600MA1**	—
800	Copper	Cu	(3) 3/0–300 kcmil	**T800MA1**	—

Accessories

Allowable Accessory Combinations

Different combinations of accessories can be supplied, depending on the types of accessories and the number of poles in the circuit breaker.

MD Frame Accessories

Description	Reference Page	Two-Pole ① Left	Two-Pole ① Right	Three-Pole Left	Three-Pole Center	Three-Pole Right
Internal Accessories (Only One Internal Accessory Per Pole)						
Alarm lockout (Make/Break)	**V4-T2-305**	■	■	■		■
Alarm lockout (2Make/2Break)	**V4-T2-305**	■	■	■		■
Auxiliary switch (1A, 1B)	**V4-T2-307**	■	■	■		■
Auxiliary switch (2A, 2B)	**V4-T2-307**	■	■	■		■
Auxiliary switch (3A, 3B)	**V4-T2-307**	■	■	■		■
Auxiliary switch (1A, 1B) and alarm switch combination	**V4-T2-309**	■	■	■		■
Auxiliary switch (2A, 2B) and alarm switch combination	**V4-T2-309**	■	■	■		■
Shunt trip—standard ②	**V4-T2-312**	■	■	■		■
Shunt trip—low energy ②	**V4-T2-314**	■	■	■		■
Undervoltage release mechanism ②	**V4-T2-320**	■	■	■		■
External Accessories						
Base mounting hardware	**V4-T2-340**				●	
Terminal shields	**V4-T2-342**				●	
Interphase barriers	**V4-T2-342**				●	
Non-padlockable handle block	**V4-T2-343**				■	
Padlockable handle lock hasp	**V4-T2-344**	❑		❑		❑
Key interlock kit	**V4-T2-345**	❑		❑		❑
Sliding bar interlock—requires two breakers	**V4-T2-346**	●	●	●	●	●
Walking beam interlock—requires two breakers	**V4-T2-346**	●	●	●	●	●
Electrical (motor) operator	**V4-T2-347**	●	●	●	●	●
Plug-in adapters	**V4-T2-349**	●	●	●	●	●
Rear connecting studs	**V4-T2-350**	●	●	●	●	●
Panelboard connecting straps	**V4-T2-351**	●	●	●	●	●
Handle mechanisms	**V4-T2-353**	●	●	●	●	●
Handle extension	**V4-T2-357**	●	●	●	●	●
Solid-state (electronic) portable test kit	**V4-T2-358**	●	●	●	●	●
Modifications (Refer to Eaton)						
Special calibration	—	●	●	●	●	●
Moisture fungus treatment	**V4-T2-123**	●	●	●	●	●
Freeze-tested circuit breakers	—	●	●	●	●	●
Marine/naval application	—	●	●	●	●	●

Legend

■ Applicable in indicated pole position

❑ May be mounted on left or right pole—not both

● Accessory available/modification available

Notes

① Two-pole breaker supplied in three-pole frame. Current carrying parts omitted from center pole.

② Shunt trip and UVR cannot be mounted in right poles on MES trip units.

Technical Data and Specifications

UL 489/CSA Interrupting Capacity Ratings ①

Circuit Breaker Type	Number of Poles	Interrupting Capacity (kA Symmetrical Amperes) Volts AC (50/60 Hz) 240	480	600	Volts DC ②③ 250
MDL, MDLB	2, 3	65	50	25	22
CMDL	2, 3	65	50	25	—
HMDL, HMDLB	2, 3	100	65	35	25
CHMDL	2, 3	100	65	35	—

IEC 947-2 Interrupting Capacity Ratings ①

Circuit Breaker Type	Number of Poles	Interrupting Capacity rms (kA Symmetrical Amperes) $I_{cu} \neq I_{cs}$ Volts AC (50/60 Hz) 240	415	690	Volts DC ②③ 250
MDL, MDLB	2, 3	65/65	50/50	20/10	20/10
CMDL	2, 3	65/65	50/50	20/10	—
HMDL, HMDLB	2, 3	100/100	70/50	25/13	20/10
CHMDL	2, 3	100/100	70/50	25/13	—

Notes

① Utilization Category A circuit breakers.
② Two-pole or two poles of three-pole circuit breaker. Thermal-magnetic trip units only, MDL, HMDL breakers with electronic trip unit are not DC rated.
③ Time constant is 3 milliseconds minimum at 10 kA and 8 milliseconds at 22 kA.

Specifications

MDL-Frame Digitrip

Trip Unit Type	Digitrip RMS 310	
rms sensing	Yes	Yes
Breaker Type		
Frame	MDL, MDLB, CMDL, HMDL, HMDLB, CHMDL	MDL, MDLB, CMDL, HMDL, HMDLB, CHMDL
Ampere range	400–800A	400–800A
Interrupting rating at 480 volts	50, 65 (kA)	50, 65 (kA)
Protection		
Ordering options	LS, LSG	LSI, LSIG
Fixed rated plug (I_n)	Yes	Yes
Overtemperature trip	Yes	Yes
Long Delay Protection (L)		
Adjustable rating plug (I_n)	Yes	Yes
Long delay pickup	0.5–1.0 (I_n) ①	0.5–1.0 (I_n) ①
Long delay time I^2t	12 seconds	12 seconds
Long delay time I^4t	No	No
Long delay thermal memory	Yes	Yes
High load alarm	No	No
Short Delay Protection (S)		
Short delay pickup	200–800% x (I_n)	200 –800% x (I_n)
Short delay time I^2t	100 ms	No
Short delay time flat	No	Inst–300 ms
Short delay time zone selective interlocking	No	No
Instantaneous Protection (I)		
Instantaneous pickup	No	200–800% x (I_n)
Discriminator	No	No
Instantaneous override	Yes	Yes
Ground Fault Protection (G)		
Ground fault alarm	No	No
Ground fault pickup	1–5 x I_g (160A)	1–5 x I_g (160A)
Ground fault delay I^2t	No	No
Ground fault delay flat	Inst–500 ms	Inst–500 ms
Ground fault zone selective interlocking	No	No
Ground fault thermal memory	Yes	Yes
System Diagnostics		
Status LEDs	Yes	Yes
Cause of trip LEDs	No	No
Magnitude of trip information	No	No
Remote signal contacts—ground alarm	Yes ②	Yes ②
System Monitoring		
Digital display	No	No
Current	No	No
Power and energy	No	No
Power quality—harmonics	No	No
Power factor	No	No
Communications		
Eaton's PowerNet	No	No
Testing		
Testing method	Test set	Test set

Legend

I_n = Rating Plug

Notes

① Adjust by rating plug.

② With separate ground fault alarm unit (GFAU).

Dimensions and Weights

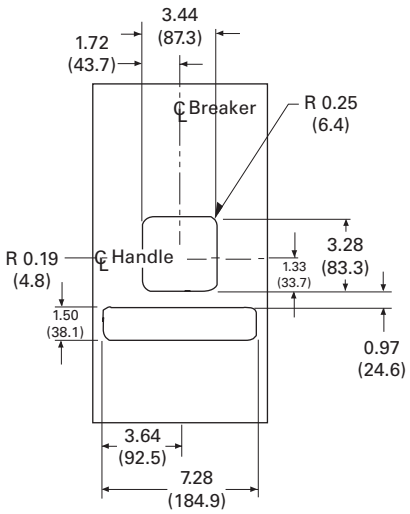
Dimensions in Inches (mm)

MD Frame

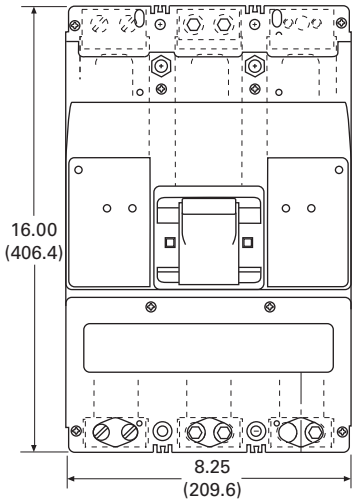
Number of Poles	Width	Height	Depth
2, 3	8.25 (209.6)	16.00 (406.4)	4.06 (103.1)

MDL-Frame, Two- and Three-Pole

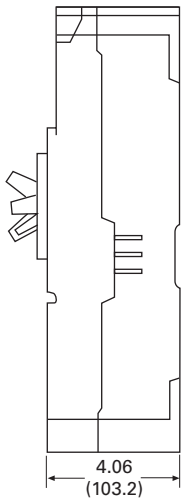
Drilling Plan



Front View



Side View



Approximate Shipping Weight, Lbs (kg)

MD Frame

Breaker Type	Complete Breaker		Frame Only		Trip Unit ①	
	Two-Pole	Three-Pole	Two-Pole	Three-Pole	Two-Pole	Three-Pole
MDL, HMDL (T/M T.U.)	26.5 (12.0)	29.0 (13.2)	24.5 (11.1)	26.0 (11.8)	2.5 (1.1)	3.0 (1.4)
MDL, HMDL (Elec. T.U.)	—	30.0 (13.6)	—	26.0 (11.8)	—	4.0 (1.8)

Note

① Thermal-magnetic only.

Typical N-Frame Breaker

Contents

N-Frame (400–1200 Amperes)

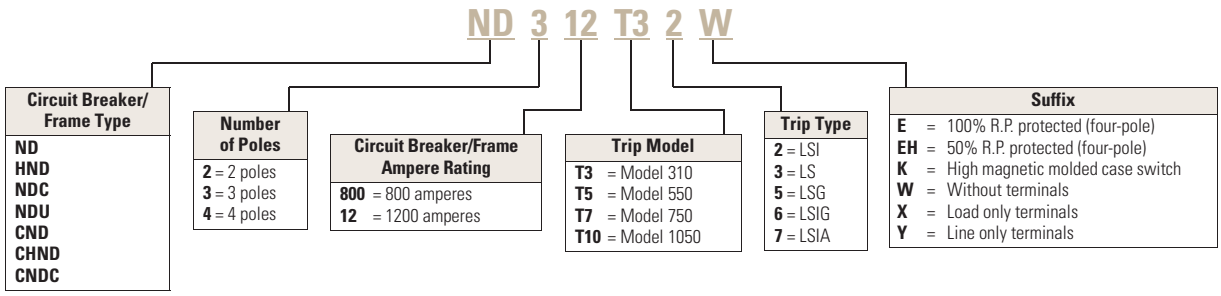
Product Description

- All Eaton N-Frame circuit breakers are suitable for reverse feed use
- All N-Frame circuit breakers are HACR rated

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 or trip units.

Circuit Breaker/Frame



Product Selection

Type ND Electronic Circuit Breakers with Non-Interchangeable Trip Units

Order as individual components: breaker frame, rating plug, terminals.

Type ND Electronic Circuit Breakers with Non-Interchangeable Trip Units

	Digitrip RMS 310 Circuit Breaker Frame Only Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac				Digitrip RMS 310 Rating Plug Only			
	Standard	Options					Adjustable Rating Plug	Standard Terminals Only ①
Maximum Continuous Ampere Rating at 40°C	Adjustable Short Time Pickup with I^2t Short Delay Ramp Catalog Number	Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Ampere Rating	Fixed Rating Plugs Catalog Number	Adjustable Ampere Ratings	See Page V4-T2-254 for Optional Terminals
Two-Pole								
800	**ND2800T33W**	**ND2800T32W**	**ND2800T35W**	**ND2800T36W**	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB1**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**ND212T33W**	**ND212T32W**	**ND212T35W**	**ND212T36W**	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1200NB1**
Three-Pole								
800	**ND3800T33W** or **ND4800T33EW** (100% Neutral)	**ND3800T32W**	**ND3800T35W**	**ND3800T36W**	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB1**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**ND312T33W**	**ND312T32W**	**ND312T35W**	**ND312T36W**	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1200NB1**

Note

① Two terminals are required per pole.

Type ND Electronic Circuit Breakers with Non-Interchangeable Trip Units, continued

	Digitrip RMS 310 Circuit Breaker Frame Only Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac				Digitrip RMS 310 Rating Plug Only			
	Standard	Options					Adjustable Rating Plug	Standard Terminals Only ①
Maximum Continuous Ampere Rating at 40°C	Adjustable Short Time Pickup with I^2t Short Delay Ramp Catalog Number	Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Ampere Rating	Fixed Rating Plugs Catalog Number	Adjustable Ampere Ratings	See Page V4-T2-254 for Optional Terminals
Four-Pole ②								
800	**ND4800T33W**	**ND4800T32W**	—	—	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB1**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**ND412T33W**	**ND412T32W**	—	—	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1200NB1**

Notes

① Two terminals are required per pole.

② Neutral is in right pole.

Type HND Electronic Circuit Breakers with Non-Interchangeable Trip Units

Order as individual components: breaker frame, rating plug, terminals.

Type HND Electronic Circuit Breakers with Non-Interchangeable Trip Units

	Digitrip RMS 310 Circuit Breaker Frame Only High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac				Digitrip RMS 310 Rating Plug Only		Adjustable Rating Plug	
	Standard	Options						Standard Terminals Only ①
Maximum Continuous Ampere Rating at 40°C	Adjustable Short Time Pickup with I^2t Short Delay Ramp Catalog Number	Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Ampere Rating	Fixed Rating Plugs Catalog Number	Adjustable Ampere Ratings	See Page V4-T2-254 for Optional Terminals
Two-Pole								
800	**HND2800T33W**	**HND2800T32W**	**HND2800T35W**	**HND2800T36W**	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB1**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**HND212T33W**	**HND212T32W**	**HND212T35W**	**HND212T36W**	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1200NB1**
Three-Pole								
800	**HND3800T33W**	**HND3800T32W**	**HND3800T35W**	**HND3800T36W**	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB1**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**HND312T33W**	**HND312T32W**	**HND312T35W**	**HND312T36W**	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1200NB1**

Note

① Two terminals are required per pole.

Type HND Electronic Circuit Breakers with Non-Interchangeable Trip Units, continued

Maximum Continuous Ampere Rating at 40°C	Digitrip RMS 310 Circuit Breaker Frame Only High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac Standard Adjustable Short Time Pickup with I^2t Short Delay Ramp Catalog Number	Options Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Digitrip RMS 310 Rating Plug Only Ampere Rating	Fixed Rating Plugs Catalog Number	Adjustable Rating Plug Adjustable Ampere Ratings	Standard Terminals Only ① See Page V4-T2-254 for Optional Terminals
Four-Pole ②								
800	**HND4800T33W**	**HND4800T32W**	—	—	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB1**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**HND412T33W**	**HND412T32W**	—	—	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1200NB1**

Notes

① Two terminals are required per pole.

② Neutral is in right pole.

Type NDC Electronic Circuit Breakers with Non-Interchangeable Trip Units
Order as individual components: breaker frame, rating plug, terminals.

Type NDC Electronic Circuit Breakers with Non-Interchangeable Trip Units

	Digitrip RMS 310 Circuit Breaker Frame Only				Digitrip RMS 310 Rating Plug Only			
	Ultra High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac						Adjustable Rating Plug	
	Standard	Options						Standard Terminals Only ①
Maximum Continuous Ampere Rating at 40°C	Adjustable Short Time Pickup with I^2t Short Delay Ramp Catalog Number	Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Ampere Rating	Fixed Rating Plugs Catalog Number	Adjustable Ampere Ratings	See Page V4-T2-254 for Optional Terminals
Two-Pole								
800	**NDC2800T33W**	**NDC2800T32W**	**NDC2800T35W**	**NDC2800T36W**	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**NDC212T33W**	**NDC212T32W**	**NDC212T35W**	**NDC212T36W**	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1200NB1**
Three-Pole								
800	**NDC3800T33W**	**NDC3800T32W**	**NDC3800T35W**	**NDC3800T36W**	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB1**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**NDC312T33W**	**NDC312T32W**	**NDC312T35W**	**NDC312T36W**	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1200NB1**

Note

① Two terminals are required per pole.

Type NDC Electronic Circuit Breakers with Non-Interchangeable Trip Units, continued

Maximum Continuous Ampere Rating at 40°C	Digitrip RMS 310 Circuit Breaker Frame Only Ultra High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac Standard Adjustable Short Time Pickup with I^2t Short Delay Ramp Catalog Number	Options Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Digitrip RMS 310 Rating Plug Only Ampere Rating	Fixed Rating Plugs Catalog Number	Adjustable Rating Plug Adjustable Ampere Ratings	Standard Terminals Only ① See Page V4-T2-254 for Optional Terminals
Four-Pole ②								
800	**NDC4800T33W**	**NDC4800T32W**	—	—	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB1**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**NDC412T33W**	**NDC412T32W**	—	—	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1200NB1**

Notes

① Two terminals are required per pole.

② Neutral is in right pole.

Type ND, 1200 Amperes 150 kA at 480 Vac

2

Type NDU Ultra High Capacity—U_e Max. 600 Vac, 150 kA I_{cu} at 480 Vac

Maximum Continuous Ampere Rating at 40°C ②③	Number of Poles	Circuit Breaker Frame Including Digitrip RMS 310 Electronic Tip Unit Less Terminals and Rating Plug—Catalog Number ① L –Adjustable Long Delay Pickup (By Adjustable Rating Plug) S –Adjustable Short Delay Pickup with Fixed Short Delay Time (I^2t Response) or Adjustable Short Time (Flat Response) I –Adjustable Instantaneous Pickup by Setting Short Time Delay Time to Instantaneous G –Adjustable Ground Fault Pickup with Adjustable Ground Fault Delay (Flat Response)				Interchangeable Rating Plugs (Order as Individual Component)		Included with Breaker
							Fixed Rating Plug	Adjustable Rating Plug
		LS	LSI	LSG	LSIG	Ampere Rating	Catalog Number	Adjustable Ampere Setting
Short Time Range		2–8 x I_n	2–8 x I_n	2–8 x I_n	2–8 x I_n			
Short Time Delay		—	I–300 ms	—	0–300 ms			
Ground Fault Pickup		—	—	Varies by frame	Varies by frame			
Ground Fault Delay		—	—	0–500 ms	0–500 ms			
800	3	**NDU3800T33W**	**NDU3800T32W**	**NDU3800T35W**	**NDU3800T36W**	400	**8NES400T**	400/500/600/800 **A8NES800T1**
						450	**8NES450T**	
						500	**8NES500T**	
						550	**8NES550T**	
						600	**8NES600T**	
						630	**8NES630T**	
						700	**8NES700T**	
						800	**8NES800T**	
	4 ④	**NDU4800T33W**	**NDU4800T32W**	—	—	400	**8NES400T**	400/500/600/800 **A8NES800T1**
						450	**8NES450T**	
						500	**8NES500T**	
						550	**8NES550T**	
						600	**8NES600T**	
						630	**8NES630T**	
						700	**8NES700T**	
						800	**8NES800T**	

Notes

① Order terminals separately.

② For AC use only.

③ ND MCCBs are suitable for 40°C or 50°C applications. Order suffix V3 to eliminate standard 40°C labeling.

④ Unprotected left pole neutral. Insert "E" for 100% neutral or "EH" for 60% neutral between "W" and "P" (for example, **NDS412T32EHP08**). Neutral is on LH side.

Non-UL listed ND 1250 with 1250 ampere trip unit is also available.

100% Rated Type CND Electronic Circuit Breakers with Non-Interchangeable Trip Units

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at the 75°C ampacity. Order as individual components: breaker frame, rating plug, terminals.

100% Rated Type CND Electronic Circuit Breakers with Non-Interchangeable Trip Units

	Digitrip RMS 310 Circuit Breaker Frame Only Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac				Digitrip RMS 310 Rating Plug Only			
	Standard	Options					Adjustable Rating Plug	
Maximum Continuous Ampere Rating at 40°C	Adjustable Short Time Pickup with I^2t Short Delay Ramp Catalog Number	Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Ampere Rating	Fixed Rating Plugs Catalog Number	Adjustable Ampere Ratings	Standard Terminals Only ① See Page V4-T2-254 for Optional Terminals
Two-Pole ②								
800	**CND2800T33W**	**CND2800T32W**	**CND2800T35W**	**CND2800T36W**	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB1**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**CND212T33W**	**CND212T32W**	**CND212T35W**	**CND212T36W**	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1200NB1**
Three-Pole ②								
800	**CND3800T33W**	**CND3800T32W**	**CND3800T35W**	**CND3800T36W**	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**CND312T33W**	**CND312T32W**	**CND312T35W**	**CND312T36W**	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1200NB1**

Notes

① Two terminals are required per pole.

② For 1200A rating, includes conductor extension kit that increases breaker length 3.75 on each end. Terminal ordered separate.

100% Rated Type CND Electronic Circuit Breakers with Non-Interchangeable Trip Units, continued

	Digitrip RMS 310 Circuit Breaker Frame Only Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac				Digitrip RMS 310 Rating Plug Only			
	Standard	Options					Adjustable Rating Plug	
Maximum Continuous Ampere Rating at 40°C	Adjustable Short Time Pickup with I^2t Short Delay Ramp Catalog Number	Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Ampere Rating	Fixed Rating Plugs Catalog Number	Adjustable Ampere Ratings	Standard Terminals Only ① See Page V4-T2-254 for Optional Terminals
Four-Pole ②③								
800	**CND4800T33W**	**CND4800T32W**	—	—	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB1**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**CND412T33W**	**CND412T32W**	—	—	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB**
					1200	**12NES1200T**		**TA1200NB1**

Notes

① Two terminals are required per pole.

② Neutral is in right pole.

③ For 1200A rating, includes conductor extension kit that increases breaker length 3.75 on each end. Terminal ordered separate.

100% Rated Type CHND Electronic Circuit Breakers with Non-Interchangeable Trip Units

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at the 75°C ampacity. Order as individual components: breaker frame, rating plug, terminals.

100% Rated Type CHND Electronic Circuit Breakers with Non-Interchangeable Trip Units

	Digitrip RMS 310 Circuit Breaker Frame Only				Digitrip RMS 310 Rating Plug Only			
	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac						Adjustable Rating Plug	Standard Terminals Only ①
	Standard	Options						
Maximum Continuous Ampere Rating at 40°C	Adjustable Short Time Pickup with I^2t Short Delay Ramp Catalog Number	Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Ampere Rating	Fixed Rating Plugs Catalog Number	Adjustable Ampere Ratings	See Page V4-T2-254 for Optional Terminals
Two-Pole ②								
800	**CHND2800T33W**	**CHND2800T32W**	**CHND2800T35W**	**CHND2800T36W**	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB1**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**CHND212T33W**	**CHND212T32W**	**CHND212T35W**	**CHND212T36W**	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1200NB1**
Three-Pole ②								
800	**CHND3800T33W**	**CHND3800T32W**	**CHND3800T35W**	**CHND3800T36W**	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB1**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**CHND312T33W**	**CHND312T32W**	**CHND312T35W**	**CHND312T36W**	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1200NB1**

Notes

① Two terminals are required per pole.

② For 1200A rating, includes conductor extension kit that increases breaker length 3.75 on each end. Terminal ordered separate.

100% Rated Type CHND Electronic Circuit Breakers with Non-Interchangeable Trip Units, continued

	Digitrip RMS 310 Circuit Breaker Frame Only				Digitrip RMS 310 Rating Plug Only			
	High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac						Adjustable Rating Plug	Standard Terminals Only ①
	Standard	Options						
Maximum Continuous Ampere Rating at 40°C	Adjustable Short Time Pickup with I^2t Short Delay Ramp Catalog Number	Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Ampere Rating	Fixed Rating Plugs Catalog Number	Adjustable Ampere Ratings	See Page V4-T2-254 for Optional Terminals
Four-Pole ②③								
800	**CHND4800T33W**	**CHND4800T32W**	—	—	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB1**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**CHND412T33W**	**CHND412T32W**	—	—	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1200NB1**

Notes

① Two terminals are required per pole.

② Neutral is in right pole.

③ For 1200A rating, includes conductor extension kit that increases breaker length 3.75 on each end. Terminal ordered separate.

100% Rated Type CNDC Electronic Circuit Breakers with Non-Interchangeable Trip Units

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at the 75°C ampacity. Order as individual components: breaker frame, rating plug, terminals.

100% Rated Type CNDC Electronic Circuit Breakers with Non-Interchangeable Trip Units

	Digitrip RMS 310 Circuit Breaker Frame Only				Digitrip RMS 310 Rating Plug Only			
	Ultra High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac						Adjustable Rating Plug	Standard Terminals Only ①
	Standard	Options						
Maximum Continuous Ampere Rating at 40°C	Adjustable Short Time Pickup with I^2t Short Delay Ramp Catalog Number	Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Ampere Rating	Fixed Rating Plugs Catalog Number	Adjustable Ampere Ratings	See Page V4-T2-254 for Optional Terminals
Two-Pole ②								
800	**CNDC2800T33W**	**CNDC2800T32W**	**CNDC2800T35W**	**CNDC2800T36W**	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB1**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**CNDC212T33W**	**CNDC212T32W**	**CNDC212T35W**	**CNDC212T36W**	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1200NB1**
Three-Pole ②								
800	**CNDC3800T33W**	**CNDC3800T32W**	**CNDC3800T35W**	**CNDC3800T36W**	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB1**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**CNDC312T33W**	**CNDC312T32W**	**CNDC312T35W**	**CNDC312T36W**	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1200NB1**

Notes

① Two terminals are required per pole.

② For 1200A rating, includes conductor extension kit that increases breaker length 3.75 on each end. Terminal ordered separate.

100% Rated Type CNDC Electronic Circuit Breakers with Non-Interchangeable Trip Units, continued

	Digitrip RMS 310 Circuit Breaker Frame Only				Digitrip RMS 310 Rating Plug Only			
	Ultra High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac						Adjustable Rating Plug	Standard Terminals Only ①
	Standard	Options						
Maximum Continuous Ampere Rating at 40°C	Adjustable Short Time Pickup with I^2t Short Delay Ramp Catalog Number	Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I^2t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection	Ampere Rating	Fixed Rating Plugs Catalog Number	Adjustable Ampere Ratings	See Page V4-T2-254 for Optional Terminals
Four-Pole ②③								
800	**CNDC4800T33W**	**CNDC4800T32W**	—	—	400	**8NES400T**	Adjustable settings are: 400, 500, 600, 800 **A8NES800T1**	**TA700NB1**
					450	**8NES450T**		**TA700NB1**
					500	**8NES500T**		**TA700NB1**
					600	**8NES600T**		**TA700NB1**
					700	**8NES700T**		**TA700NB1**
					800	**8NES800T**		**TA1000NB1**
1200	**CNDC412T33W**	**CNDC412T32W**	—	—	600	**12NES600T**	Adjustable settings are: 600, 800, 1000, 1200 **A12NES1200T1**	**TA700NB1**
					700	**12NES700T**		**TA700NB1**
					800	**12NES800T**		**TA1000NB1**
					900	**12NES900T**		**TA1000NB1**
					1000	**12NES1000T**		**TA1000NB1**
					1200	**12NES1200T**		**TA1223200NB1**

Notes

① Two terminals are required per pole.

② Neutral is in right pole.

③ For 1200A rating, includes conductor extension kit that increases breaker length 3.75 on each end.

Digitrip OPTIM Electronic Circuit Breakers with Interchangeable Rating Plugs

Order as individual components: breaker frame (which includes trip unit), rating plug, terminals.

Digitrip OPTIM 550 Electronic Circuit Breakers with Interchangeable Rating Plugs

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①
S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)
I – Adjustable Instantaneous Pickup
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response)
A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time Delay (I^2t or Flat Response)

Digitrip OPTIM Rating Plug Only

Maximum Continuous Ampere Rating at 40°C	OPTIM 550 ② LSI Catalog Number	LSIG Catalog Number	LSIA Catalog Number	Fixed Rating Plug Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac					
800	**ND3800T52W**	**ND3800T56W**	**ND3800T57W**	400	**ORPN80A400**
				450	**ORPN80A450**
				500	**ORPN80A500**
				550	**ORPN80A550**
				600	**ORPN80A600**
				700	**ORPN80A700**
				800	**ORPN80A800**
1200	**ND312T52W**	**ND312T56W**	**ND312T57W**	600	**ORPN12A600**
				700	**ORPN12A700**
				800	**ORPN12A800**
				1000	**ORPN12A100**
				1200	**ORPN12A120**
Three-Pole High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac					
800	**HND3800T52W**	**HND3800T56W**	**HND3800T57W**	400	**ORPN80A400**
				450	**ORPN80A450**
				500	**ORPN80A500**
				550	**ORPN80A550**
				600	**ORPN80A600**
				700	**ORPN80A700**
				800	**ORPN80A800**
1200	**HND312T52W**	**HND312T56W**	**HND312T57W**	600	**ORPN12A600**
				700	**ORPN12A700**
				800	**ORPN12A800**
				1000	**ORPN12A100**
				1200	**ORPN12A120**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Zone interlocking, PowerNet, or both features can be added at the factory by adding suffixes **ZG**, **PN** or **ZGP** respectively to above catalog number.

Digitrip OPTIM 550 Electronic Circuit Breakers with Interchangeable Rating Plugs, continued

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①
S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)
I – Adjustable Instantaneous Pickup
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response)
A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time Delay (I^2t or Flat Response)

Maximum Continuous Ampere Rating at 40°C	OPTIM 550 ② LSI Catalog Number	LSIG Catalog Number	LSIA Catalog Number	Digitrip OPTIM Rating Plug Only Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Ultra High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac					
800	**NDC3800T52W**	**NDC3800T56W**	**NDC3800T57W**	400	**ORPN80A400**
				450	**ORPN80A450**
				500	**ORPN80A500**
				550	**ORPN80A550**
				600	**ORPN80A600**
				700	**ORPN80A700**
				800	**ORPN80A800**
1200	**NDC312T52W**	**NDC312T56W**	**NDC312T57W**	600	**ORPN12A600**
				700	**ORPN12A700**
				800	**ORPN12A800**
				1000	**ORPN12A100**
				1200	**ORPN12A120**

Notes

① Long delay I^4t response selection limits short delay time to flat response.

② Zone interlocking, PowerNet, or both features can be added at the factory by adding suffixes **ZG**, **PN** or **ZGP** respectively to above catalog number.

Digitrip OPTIM 1050 Electronic Circuit Breakers with Interchangeable Rating Plugs

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only L– Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ① S– Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I– Adjustable Instantaneous Pickup G– Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response) A– Adjustable Ground Fault Alarm with Adjustable Ground Fault Time Delay (I^2t or Flat Response) OPTIM 1050 ②③		Digitrip OPTIM Rating Plug Only	
	LSIG	LSIA		Fixed Rating Plug
	Catalog Number	Catalog Number	Ampere Rating	Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac				
800	**ND3800T106W**	**ND3800T107W**	400	**ORPN80A400**
			450	**ORPN80A450**
			500	**ORPN80A500**
			550	**ORPN80A550**
			600	**ORPN80A600**
			700	**ORPN80A700**
			800	**ORPN80A800**
1200	**ND312T106W**	**ND312T107W**	600	**ORPN12A600**
			700	**ORPN12A700**
			800	**ORPN12A800**
			1000	**ORPN12A100**
			1200	**ORPN12A120**
Three-Pole High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac				
800	**HND3800T106W**	**HND3800T107W**	400	**ORPN80A400**
			450	**ORPN80A450**
			500	**ORPN80A500**
			550	**ORPN80A550**
			600	**ORPN80A600**
			700	**ORPN80A700**
			800	**ORPN80A800**
1200	**HND312T106W**	**HND312T107W**	600	**ORPN12A600**
			700	**ORPN12A700**
			800	**ORPN12A800**
			1000	**ORPN12A100**
			1200	**ORPN12A120**
Three-Pole Ultra High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac				
800	**NDC3800T106W**	**NDC3800T107W**	400	**ORPN80A400**
			450	**ORPN80A450**
			500	**ORPN80A500**
			550	**ORPN80A550**
			600	**ORPN80A600**
			700	**ORPN80A700**
			800	**ORPN80A800**
1200	**NDC312T106W**	**NDC312T107W**	600	**ORPN12A600**
			700	**ORPN12A700**
			800	**ORPN12A800**
			1000	**ORPN12A100**
			1200	**ORPN12A120**

Notes

① Long delay I^4t response selection limits short delay time to flat response.
② One Form C auxiliary switch and one Form C bell (trip) alarm switch supplied with breaker as standard.
③ Factory sealed.

100% Rated Digitrip OPTIM Circuit Breakers with Interchangeable Rating Plugs

Order as individual components: breaker frame (which includes trip unit), rating plug, terminals.

100% Rated Digitrip OPTIM 550 Circuit Breakers with Interchangeable Rating Plugs

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①
S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)
I – Adjustable Instantaneous Pickup
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response)
A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time Delay (I^2t or Flat Response)

Digitrip OPTIM Rating Plug Only

Maximum Continuous Ampere Rating at 40°C	OPTIM 550 ② LSI Catalog Number	LSIG Catalog Number	LSIA Catalog Number	Fixed Rating Plug Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac					
800	**CND3800T52W**	**CND3800T56W**	**CND3800T57W**	400	**ORPN80A400**
				450	**ORPN80A450**
				500	**ORPN80A500**
				550	**ORPN80A550**
				600	**ORPN80A600**
				700	**ORPN80A700**
				800	**ORPN80A800**
1200 ③	**CND312T52W**	**CND312T56W**	**CND312T57W**	600	**ORPN12A600**
				700	**ORPN12A700**
				800	**ORPN12A800**
				1000	**ORPN12A100**
				1200	**ORPN12A120**
Three-Pole High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac					
800	**CHND3800T52W**	**CHND3800T56W**	**CHND3800T57W**	400	**ORPN80A400**
				450	**ORPN80A450**
				500	**ORPN80A500**
				550	**ORPN80A550**
				600	**ORPN80A600**
				700	**ORPN80A700**
				800	**ORPN80A800**
1200 ③	**CHND312T52W**	**CHND312T56W**	**CHND312T57W**	600	**ORPN12A600**
				700	**ORPN12A700**
				800	**ORPN12A800**
				1000	**ORPN12A100**
				1200	**ORPN12A120**

Notes

① Long delay I^4t response selection limits short delay time to flat response.
② Zone interlocking, PowerNet, or both features can be added at the factory by adding suffixes **ZG**, **PN** or **ZGP** respectively to above catalog number.
③ Includes conductor extension kit, which increases breaker length 3.75 on each end. Terminal ordered separate.

100% Rated Digitrip OPTIM 550 Circuit Breakers with Interchangeable Rating Plugs, continued

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①
S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)
I – Adjustable Instantaneous Pickup
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response)
A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time Delay (I^2t or Flat Response)

Maximum Continuous Ampere Rating at 40°C	OPTIM 550 ② LSI Catalog Number	LSIG Catalog Number	LSIA Catalog Number	Digitrip OPTIM Rating Plug Only: Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Ultra High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac					
800	**CNDC3800T52W**	**CNDC3800T56W**	**CNDC3800T57W**	400	**ORPN80A400**
				450	**ORPN80A450**
				500	**ORPN80A500**
				550	**ORPN80A550**
				600	**ORPN80A600**
				700	**ORPN80A700**
				800	**ORPN80A800**
1200 ③	**CNDC312T52W**	**CNDC312T56W**	**CNDC312T57W**	600	**ORPN12A600**
				700	**ORPN12A700**
				800	**ORPN12A800**
				1000	**ORPN12A100**
				1200	**ORPN12A120**

Notes

① Long delay I^4t response selection limits short delay time to flat response.
② Zone interlocking, PowerNet, or both features can be added at the factory by adding suffixes **ZG**, **PN** or **ZGP** respectively to above catalog number.
③ Includes conductor extension kit, which increases breaker length 3.75 on each end. Terminal ordered separate.

100% Rated Digitrip OPTIM 1050 Circuit Breakers with Interchangeable Rating Plugs

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①
S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)
I – Adjustable Instantaneous Pickup
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response)
A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time Delay (I^2t or Flat Response)

Digitrip OPTIM Rating Plug Only

Maximum Continuous Ampere Rating at 40°C	OPTIM 1050 ②③ LSIG Catalog Number	LSIA Catalog Number	Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 50 kAIC at 480 Vac				
800	**CND3800T106W**	**CND3800T107W**	400	**ORPN80A400**
			450	**ORPN80A450**
			500	**ORPN80A500**
			550	**ORPN80A550**
			600	**ORPN80A600**
			700	**ORPN80A700**
			800	**ORPN80A800**
1200	**CND312T106W**	**CND312T107W**	600	**ORPN12A600**
			700	**ORPN12A700**
			800	**ORPN12A800**
			1000	**ORPN12A100**
			1200	**ORPN12A120**
Three-Pole High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac				
800	**CHND3800T106W**	**CHND3800T107W**	400	**ORPN80A400**
			450	**ORPN80A450**
			550	**ORPN80A550**
			600	**ORPN80A600**
			700	**ORPN80A700**
			800	**ORPN80A800**
1200	**CHND312T106W**	**CHND312T107W**	600	**ORPN12A600**
			700	**ORPN12A700**
			800	**ORPN12A800**
			1000	**ORPN12A100**
			1200	**ORPN12A120**

Notes

① Long delay I^4t response selection limits short delay time to flat response.
② One Form C auxiliary switch one Form C bell (trip) alarm switch supplied with breaker as standard.
③ Factory sealed.

100% Rated Digitrip OPTIM 1050 Circuit Breakers with Interchangeable Rating Plugs, continued

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time (I^2t or I^4t Response) ①
S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response)
I – Adjustable Instantaneous Pickup
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response)
A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time Delay (I^2t or Flat Response)

Digitrip OPTIM Rating Plug Only

Maximum Continuous Ampere Rating at 40°C	OPTIM 1050 ②③ LSIG Catalog Number	LSIA Catalog Number	Fixed Rating Plug Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Ultra High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac				
800	**CNDC3800T106W**	**CNDC3800T107W**	400	**ORPN80A400**
			450	**ORPN80A450**
			500	**ORPN80A500**
			550	**ORPN80A550**
			600	**ORPN80A600**
			700	**ORPN80A700**
			800	**ORPN80A800**
1200	**CNDC312T106W** ④	**CNDC312T107W**	600	**ORPN12A600**
			700	**ORPN12A700**
			800	**ORPN12A800**
			1000	**ORPN12A100**
			1200	**ORPN12A120**

Type ND Molded Case Switches

Type ND High Instantaneous (K)

Continuous Ampere Rating at 40°C	Three-Pole Catalog Number	Four-Pole ⑤ Catalog Number
800	**ND3800WK**	**ND4800WK**
	HND3800WK	**HND4800WK**
1200	**ND312WK**	**ND412WK**
	HND312WK	**HND412WK**

Notes

① Long delay I^4t response selection limits short delay time to flat response.
② One Form C auxiliary switch one Form C bell (trip) alarm switch supplied with breaker as standard.
③ Factory sealed.
④ Includes conductor extension kit, which increases breaker length 3.75 on each end. Terminal ordered separate.
⑤ Neutral is in right pole.

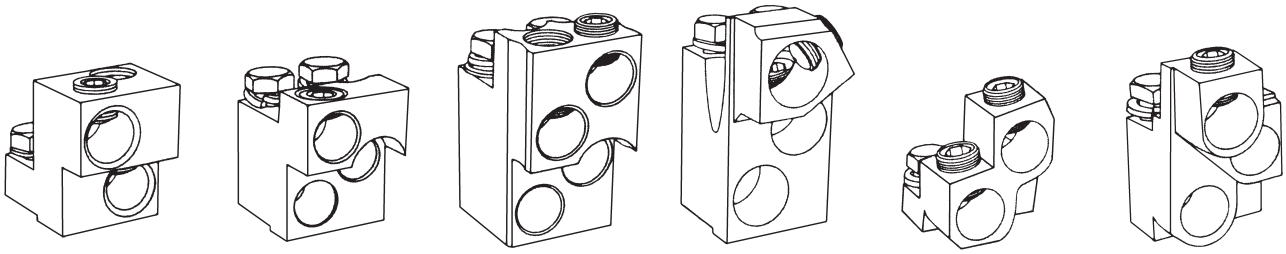
Molded case switch will trip above 14,000 amperes.

For UL listed, series tested molded case switch application data, refer to Eaton.

Accessories Selection Guide and Ordering Information

Line and Load Terminals—Ordering Information

N-Frame circuit breakers use Cu/Al terminals as standard. When optional copper or Cu/Al terminals are required, order by catalog number. Specify if factory installation is required.



TA700NB1 **TA1000NB1** **TA1200NB1** **TA1201NB1** **T700NB1** **T1000NB1**

Line and Load Terminals

Maximum Breaker Amperes	Terminal Body Material	Wire Type	AWG Wire Range/ No. Conductors	Metric Wire Range mm^2	Catalog Number
Standard Cu/Al Pressure Terminals					
700	Aluminum	Cu/Al	(2) 1–500 kcmil	50–240	**TA700NB1**
1000	Aluminum	Cu/Al	(3) 3/0–400 kcmil	95–185	**TA1000NB1** ①
1200	Aluminum	Cu/Al	(4) 4/0–500 kcmil	120–240	**TA1200NB1** ①
1200	Aluminum	Cu/Al	(3) 500–750 kcmil	300–400	**TA1201NB1** ②
Optional Copper and Cu/Al Pressure Type Terminals					
700	Copper	Cu	(2) 2/0–500 kcmil	70–240	**T700NB1**
1000	Copper	Cu	(3) 3/0–500 kcmil	95–240	**T1000NB1**
1200	Copper	Cu	(4) 3/0–400 kcmil	95–185	**T1200NB3**

Notes

① Terminal rating is AL9CU.
② Terminal rating is AL7CU.

Accessories

Allowable Accessory Combinations

Different combinations of accessories can be supplied, depending on the types of accessories and the number of poles in the circuit breaker.

ND Frame Accessories

Description	Reference Page	Three-Pole Left	Three-Pole Center	Three-Pole Right	Four-Pole Left	Four-Pole Center	Four-Pole Right	Four-Pole Neutral
Internal Accessories (Only One Internal Accessory Per Pole) ①								
Alarm lockout (Make/Break)	**V4-T2-305**	■		■	■		■	
Alarm lockout (2Make/2Break)	**V4-T2-305**	■		■	■		■	
Auxiliary switch (1A, 1B)	**V4-T2-307**	■		■	■		■	
Auxiliary switch (2A, 2B)	**V4-T2-307**	■		■	■		■	
Auxiliary switch (3A, 3B)	**V4-T2-307**	■		■	■		■	
Auxiliary switch (1A, 1B) and alarm switch combination	**V4-T2-309**	■		■	■		■	
Auxiliary switch (2A, 2B) and alarm switch combination	**V4-T2-309**	■		■	■		■	
Shunt trip—standard	**V4-T2-313**	■			■			
Shunt trip—low energy	**V4-T2-314**	■			■			
Undervoltage release mechanism	**V4-T2-321**	■			■			
Eaton PowerNet communications kit (OPTIM 550)	**V4-T2-322**			■				
External Accessories								
Base mounting hardware	**V4-T2-340**	●	●	●	●	●	●	●
Interphase barriers	**V4-T2-342**	●	●	●	●	●	●	●
Terminal shield	**V4-T2-342**	■	■	■				
Non-padlockable handle block	**V4-T2-343**		■			■		
Padlockable handle lock hasp	**V4-T2-344**	❑		❑	❑		❑	
Key interlock kit	**V4-T2-345**	❑		❑	❑		❑	
Sliding bar interlock—requires two breakers	**V4-T2-346**	●	●	●				
Walking beam interlock—requires two breakers	**V4-T2-346**	●	●	●	●	●	●	●
Electrical (motor) operator	**V4-T2-348**	●	●	●	●	●	●	●
Plug-in adapters	**V4-T2-349**	●	●	●	●	●	●	●
Rear connecting studs	**V4-T2-350**	●	●	●	●	●	●	●
Panelboard connecting straps	**V4-T2-351**	●	●	●	●	●	●	●
Handle mechanisms	**V4-T2-353**	●	●	●	●	●	●	●
Handle extension	**V4-T2-357**	●	●	●	●	●	●	●
Solid-state (electronic) portable test kit	**V4-T2-359**	●	●	●	●	●	●	●
OPTIM System Components Three Poles								
Ground fault alarm unit	**V4-T2-358**							
Potential transformer module	**V4-T2-358**							
Breaker interface module (BIM)	**V4-T2-359**							
Digitrip OPTIMizer	**V4-T2-359**							
Auxiliary power module	**V4-T2-359**							
Modifications (Refer to Eaton)								
Special calibration	—	●	●	●	●	●	●	●
Moisture fungus treatment	**V4-T2-123**	●	●	●	●	●	●	●
Freeze-tested circuit breakers	—	●	●	●	●	●	●	●
Marine/naval application	—	●	●	●	●	●	●	●

Legend

■ Applicable in indicated pole position
❑ May be mounted on left or right pole—not both
● Accessory available/modification available

Note

① OPTIM 550 and 1050 are factory sealed and do not have the right pole available for accessories.

Technical Data and Specifications

UL 489 Interrupting Capacity Ratings ①

Circuit Breaker Type	Number of Poles	Interrupting Capacity (kA Symmetrical Amperes) Volts AC (50/60 Hz) 240	277	480	600
ND	2, 3, 4	65	—	50	25
CND ②	2, 3, 4	65	—	50	25
HND	2, 3, 4	100	—	65	35
CHND ②	2, 3, 4	100	—	65	35
NDC	2, 3, 4	200	—	100	65
CNDC ②	2, 3, 4	200	—	100	65
NDU ③	3	300 ④	—	150	75 ⑤

IEC 947-2 Interrupting Capacity Ratings ①

Circuit Breaker Type	Number of Poles	Interrupting Capacity (kA Symmetrical Amperes) Volts AC (50/60 Hz) 240	415	690
ND				
I_{cu}	2, 3, 4	85	50	20
I_{cs}	2, 3, 4	85	50	10
CND ②				
I_{cu}	2, 3, 4	85	50	20
I_{cs}	2, 3, 4	85	50	10
HND				
I_{cu}	2, 3, 4	100	70	25
I_{cs}	2, 3, 4	100	50	13
CHND ②				
I_{cu}	2, 3, 4	100	70	25
I_{cs}	2, 3, 4	100	50	13
NDC				
I_{cu}	2, 3, 4	200	100	35
I_{cs}	2, 3, 4	100	50	18
CNDC ②				
I_{cu}	2, 3, 4	200	100	35
I_{cs}	2, 3, 4	100	50	18

Notes

① Utilization Category A circuit breakers.
② 100% rated breakers.
③ 800 amperes maximum rating.
④ Successfully tested at 300 kAIC, although UL recognizes maximum of 200 kAIC at 240 Vac.
⑤ Successfully tested at 75 kAIC, although UL recognizes maximum of 65 kAIC at 600 Vac.

N-Frame Digitrip

Trip Unit Type	Digitrip RMS 310		Digitrip OPTIM 550	Digitrip OPTIM 1050
rms sensing	Yes	Yes	Yes	Yes
Breaker Type				
Frame	N	N	N	N
Ampere range	400A–1200A	400A–1200A	400A–1200A	400A–1200A
Interrupting rating at 480 volts	50, 65, 100 (kA)	50, 65, 100 (kA)	50, 65, 100 (kA)	50, 65, 100 (kA)
Protection				
Ordering options	LS, LSG	LSI, LSIG	LSI, LSIG, LSI(A)	LSI(A), LISG
Fixed rated plug (I_n)	Yes	Yes	Yes	Yes
Overtemperature trip	Yes	Yes	Yes	Yes
Long Delay Protection (L)				
Adjustable rating plug (I_n)	Yes	Yes	No	No
Long delay pickup	0.5–1.0 (I_n) ①	0.5–1.0 (I_n) ①	0.4–1.0 x (I_n)	0.4–1.0 x (I_n)
Long delay time I^2t	12 seconds	12 seconds	2–24 seconds	2–24 seconds
Long delay time I^4t	No	No	1–5 Seconds	1–5 Seconds
Long delay thermal memory	Yes	Yes	Yes	Yes
High load alarm	No	No	No	0.5–1.0 x I_r
Short Delay Protection (S)				
Short delay pickup	200–800% x (I_n)	200–800% x (I_n)	150 –800% x (I_r)	150–800% x (I_r)
Short delay time I^2t	100 ms	No	100–500 ms	100–500 ms
Short delay time flat	No	Inst–300 ms	100–500 ms	100–500 ms
Short delay time zone selective interlocking	No	No	Yes	Yes
Instantaneous Protection (I)				
Instantaneous pickup	No	200–800% x (I_n)	200 –800% x (I_n)	200–800% x (I_n)
Discriminator	No	No	Yes	Yes
Instantaneous override	Yes	Yes	Yes	Yes
Ground Fault Protection (G)				
Ground fault alarm	No	No	20–100% x (I_s)	20 –100% x (I_s)
Ground fault pickup	Varies by frame ②	Varies by frame ②	20–100% x (I_s)	20 –100% x (I_s)
Ground fault delay I^2t	No	No	100–500 ms	100–500 ms
Ground fault delay flat	Inst–500 ms	Inst–500 ms	100–500 ms	100–500 ms
Ground fault zone selective interlocking	No	No	Yes ③	Yes
Ground fault thermal memory	Yes	Yes	Yes	Yes
System Diagnostics				
Status LEDs	Yes	Yes	Yes	Yes
Cause of trip LEDs	No	No	Yes	Yes
Magnitude of trip information	No	No	Yes	Yes
Remote signal contact—ground alarm	Yes ④	Yes ④	Yes ③	Yes
Local auxiliary and bell alarm contact	Optional	Optional	Optional	Included

Legend

BIM = Breaker Interface Module
(A) = GF Alarm
I_s = Sensor Rating
I_n = Rating Plug
I_r = Long Delay Pickup Setting

Notes

① Adjust by rating plug.
② By OPTIMizer/BIM.
③ Zone interlock kit.
④ With separate ground fault alarm unit (GFAU).

N-Frame Digitrip, continued

Trip Unit Type	Digitrip RMS 310		Digitrip OPTIM 550	Digitrip OPTIM 1050
System Monitoring				
Digital display	No	No	Yes ①	Yes ①
Current	No	No	Yes	Yes
Power and energy	No	No	No	Yes
Power quality—harmonics	No	No	No	Yes
Power factor	No	No	No	Yes
Communications				
Eaton PowerNet	No	No	No ②	Yes
Testing				
Testing method	Test set	Test set	OPTIMizer, BIM, PowerNet	OPTIMizer, BIM, PowerNet

Legend

BIM = Breaker Interface Module
(A) = GF Alarm
I_s = Sensor Rating
I_n = Rating Plug
I_r = Long Delay Pickup Setting

Notes

① By OPTIMizer/BIM.
② Eaton's PowerNet kit.

Dimensions and Weights

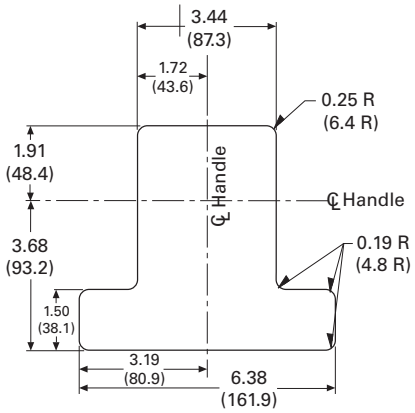
Approximate Dimensions in Inches (mm)

ND Frame

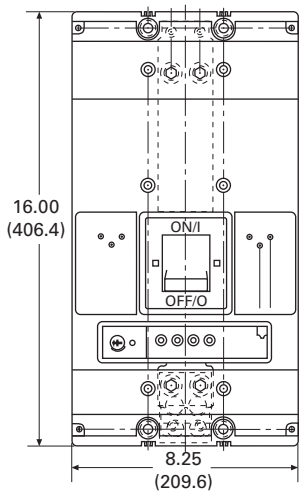
Number of Poles	Width	Height	Depth
2, 3	8.25 (209.6)	16.00 (406.4)	5.50 (139.7)
4	11.13 (282.6)	16.00 (406.4)	5.50 (139.7)

ND-Frame, Two- and Three-Pole

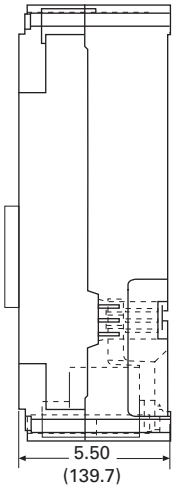
Front Cover Cutout



Front View



Side View

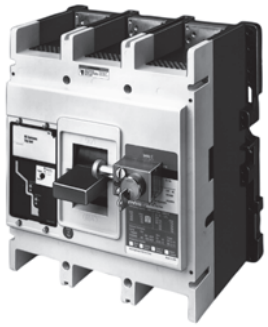


Approximate Shipping Weight in Lbs (kg)

ND Frame

Breaker Type	Complete Breaker Two-Pole	Three-Pole	Four-Pole
ND, HND, NDC, NDU	37 (16.8)	45 (20.4)	58 (26.3)

Typical R-Frame Breaker



Contents

R-Frame (800–2500 Amperes)

Product Description

- Eaton R-Frame circuit breakers are available as frame (which includes trip unit), rating plug and terminals
- All R-Frame circuit breakers are suitable for reverse feed use

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 or trip units.

Circuit Breaker/Frame

RD 3 16 T32 W

Circuit Breaker/ Frame Type
RD
RDC
CRD ②
CRDC ②

Number of Poles
3 = 3 poles
4 = 4 poles

Circuit Breaker/Frame Ampere Rating
16 = 1600 amperes
20 = 2000 amperes
25 = 2500 amperes

Trip Type ①	
T32	= Digitrip RMS 310 LSI
T53	= Digitrip RMS 510 LS
T65	= Digitrip RMS 610 LSG
T86	= Digitrip RMS 810 LSIG
T96	= Digitrip RMS 910 LSIG
T106	= Digitrip OPTIM 1050 LSIG
T107	= Digitrip OPTIM 1050 LSIA

Suffix	
W	= Without terminals
P	= 100% protected neutral pole
R	= Ground fault remote (310 only)
K	= Molded case switch

Notes

① For complete list of available trip types, refer to **Pages V4-T2-262** to **V4-T2-276**.

② No four-pole for CRD and CRDC.

Product Selection

Digitrip RMS 310 Electronic Circuit Breakers with Interchangeable Rating Plugs

Order as individual components: breaker frame (which includes trip unit) and rating plug.

Digitrip RMS 310 Electronic Circuit Breakers with Interchangeable Rating Plugs

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (By Adjustable Rating Plug) S – Adjustable Short Delay Pickup with Fixed Short Delay Time (I^2t Response) or Adjustable Short Delay Time (Flat Response) I – Adjustable Instantaneous Pickup by Setting Short Delay Time to Instantaneous G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (Flat Response) LS Catalog Number	LSI	LSG ①	LSIG ①	Digitrip RMS 310 Rating Plug Only Ampere Rating	Fixed Rating Plug Catalog Number	Adjustable Rating Plug Adjustable Ampere Ratings
Three-Pole Standard Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac							
1600 ②	**RD316T33W**	**RD316T32W**	**RD316T35W**	**RD316T36W**	800	**16RES08T**	Adjustable settings are: 800, 1000, 1200, 1600 **A16RES16T1**
					1000	**16RES10T**	
					1200	**16RES12T**	
					1250	**16RES125T**	
					1400	**16RES14T**	
					1500	**16RES15T**	
					1600	**16RES16T**	
2000	**RD320T33W**	**RD320T32W**	**RD320T35W**	**RD320T36W**	1000	**20RES10T**	Adjustable settings are: 1000, 1200, 1600, 2000 **A20RES20T1**
					1200	**20RES12T**	
					1250	**20RES125T**	
					1400	**20RES14T**	
					1600	**20RES16T**	
					2000	**20RES20T**	
2500	**RD325T33W**	**RD325T32W**	**RD325T35W**	**RD325T36W**	1200	**25RES12T**	Adjustable settings are: 1200, 1600, 2000, 2500 **A25RES25T1**
					1250	**25RES125T**	
					1600	**25RES16T**	
					2000	**25RES20T**	
					2500	**25RES25T**	

Notes

① Add **R** to catalog number for ground fault remote indication compatibility, for example, RD316T35**R**W.

② For SCR application, use 2000 ampere frame.

Digitrip RMS 310 Electronic Circuit Breakers with Interchangeable Rating Plugs, continued

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (By Adjustable Rating Plug) S – Adjustable Short Delay Pickup with Fixed Short Delay Time (I^2t Response) or Adjustable Short Delay Time (Flat Response) I – Adjustable Instantaneous Pickup by Setting Short Delay Time to Instantaneous G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (Flat Response) LS Catalog Number	LSI	LSG ①	LSIG ①	Digitrip RMS 310 Rating Plug Only Ampere Rating	Fixed Rating Plug Catalog Number	Adjustable Rating Plug Adjustable Ampere Ratings
Four-Pole ② Standard Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac							
1600 ③	**RD416T33W**	**RD416T32W**	—	—	800	**16RES08T**	Adjustable settings are: 800, 1000, 1200, 1600 **A16RES16T1**
					1000	**16RES10T**	
					1200	**16RES12T**	
					1250	**16RES125T**	
					1400	**16RES14T**	
					1500	**16RES15T**	
					1600	**16RES16T**	
2000	**RD420T33W**	**RD420T32W**	—	—	1000	**20RES10T**	Adjustable settings are: 1000, 1200, 1600, 2000 **A20RES20T1**
					1200	**20RES12T**	
					1250	**20RES125T**	
					1400	**20RES14T**	
					1600	**20RES16T**	
					2000	**20RES20T**	
2500	**RD425T33W**	**RD425T32W**	—	—	1200	**25RES12T**	Adjustable settings are: 1200, 1600, 2000, 2500 **A25RES25T1**
					1250	**25RES125T**	
					1600	**25RES16T**	
					2000	**25RES20T**	
					2500	**25RES25T**	

Notes

① Add **R** to catalog number for ground fault remote indication compatibility, for example, RD316T35**R**W.

② Unprotected right pole neutral. Add **P** to catalog number for 100% protected right pole neutral, for example, RD416T33**P**W.

③ For SCR application, use 2000 ampere frame.

Digitrip RMS 310 Electronic Circuit Breakers with Interchangeable Rating Plugs

Order as individual components: breaker frame (which includes trip unit) and rating plug.

Digitrip RMS 310 Electronic Circuit Breakers with Interchangeable Rating Plugs

	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (By Adjustable Rating Plug) S – Adjustable Short Delay Pickup with Fixed Short Delay Time (I^2t Response) or Adjustable Short Delay Time (Flat Response) I – Adjustable Instantaneous Pickup by Setting Short Delay Time to Instantaneous G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (Flat Response)				Digitrip RMS 310 Rating Plug Only		Adjustable Rating Plug
Maximum Continuous Ampere Rating at 40°C	LS Catalog Number	LSI	LSG ①	LSIG ①	Ampere Rating	Fixed Rating Plug Catalog Number	Adjustable Ampere Ratings
Three-Pole High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac							
1600 ②	**RDC316T33W**	**RDC316T32W**	**RDC316T35W**	**RDC316T36W**	800	**16RES08T**	Adjustable settings are: 800, 1000, 1200, 1600 **A16RES16T1**
					1000	**16RES10T**	
					1200	**16RES12T**	
					1250	**16RES125T**	
					1400	**16RES14T**	
					1500	**16RES15T**	
					1600	**16RES16T**	
2000	**RDC320T33W**	**RDC320T32W**	**RDC320T35W**	**RDC320T36W**	1000	**20RES10T**	Adjustable settings are: 1000, 1200, 1600, 2000 **A20RES20T1**
					1200	**20RES12T**	
					1250	**20RES125T**	
					1400	**20RES14T**	
					1600	**20RES16T**	
					2000	**20RES20T**	
2500	**RDC325T33W**	**RDC325T32W**	**RDC325T35W**	**RDC325T36W**	1200	**25RES12T**	Adjustable settings are: 1200, 1600, 2000, 2500 **A25RES25T1**
					1250	**25RES125T**	
					1600	**25RES16T**	
					2000	**25RES20T**	
					2500	**25RES25T**	

Notes

① Add **R** to catalog number for ground fault remote indication compatibility, for example, RDC316T35**R**W.

② For SCR application, use 2000 ampere frame.

Digitrip RMS 310 Electronic Circuit Breakers with Interchangeable Rating Plugs, continued

Circuit Breaker Frame Only

L – Adjustable Long Delay Pickup (By Adjustable Rating Plug)
S – Adjustable Short Delay Pickup with Fixed Short Delay Time (I^2t Response) or Adjustable Short Delay Time (Flat Response)
I – Adjustable Instantaneous Pickup by Setting Short Delay Time to Instantaneous
G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (Flat Response)

Digitrip RMS 310 Rating Plug Only

Adjustable Rating Plug

Maximum Continuous Ampere Rating at 40°C	LS Catalog Number	LSI	LSG ①	LSIG ①	Ampere Rating	Fixed Rating Plug Catalog Number	Adjustable Ampere Ratings
Four-Pole ② High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac							
1600 ③	**RDC416T33W**	**RDC416T32W**	—	—	800	**16RES08T**	Adjustable settings are: 800, 1000, 1200, 1600 **A16RES16T1**
					1000	**16RES10T**	
					1200	**16RES12T**	
					1250	**16RES125T**	
					1400	**16RES14T**	
					1500	**16RES15T**	
					1600	**16RES16T**	
2000	**RDC420T33W**	**RDC420T32W**	—	—	1000	**20RES10T**	Adjustable settings are: 1000, 1200, 1600, 2000 **A20RES20T1**
					1200	**20RES12T**	
					1250	**20RES125T**	
					1400	**20RES14T**	
					1600	**20RES16T**	
					2000	**20RES20T**	
2500	**RDC425T33W**	**RDC425T32W**	—	—	1200	**25RES12T**	Adjustable settings are: 1200, 1600, 2000, 2500 **A25RES25T1**
					1250	**25RES125T**	
					1600	**25RES16T**	
					2000	**25RES20T**	
					2500	**25RES25T**	

Notes

① Add **R** to catalog number for ground fault remote indication compatibility, for example, RDC316T35**R**W.
② Unprotected right pole neutral. Add **P** to catalog number for 100% protected right pole neutral, for example, RDC416T33**P**W.
③ For SCR application use 2000 ampere frame.

100% Rated Digitrip RMS 310 Electronic Circuit Breakers

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at 75°C ampacity. Order as individual components: breaker frame (which includes trip unit) and rating plug.

100% Rated Digitrip RMS 310 Electronic Circuit Breakers

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (By Adjustable Rating Plug) S – Adjustable Short Delay Pickup with Fixed Short Delay Time (I^2t Response) or Adjustable Short Delay Time (Flat Response) I – Adjustable Instantaneous Pickup by Setting Short Delay Time to Instantaneous G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time (Flat Response) LS Catalog Number	LSI	LSG [1]	LSIG [1]	Digitrip RMS 310 Rating Plug Only Ampere Rating	Fixed Rating Plug Catalog Number	Adjustable Rating Plug Adjustable Ampere Ratings
Three-Pole Standard Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac							
1600 [2]	**CRD316T33W**	**CRD316T32W**	**CRD316T35W**	**CRD316T36W**	800	**16RES08T**	Adjustable settings are: 800, 1000, 1200, 1600 **A16RES16T1**
					1000	**16RES10T**	
					1200	**16RES12T**	
					1250	**16RES125T**	
					1400	**16RES14T**	
					1500	**16RES15T**	
					1600	**16RES16T**	
2000 [3]	**CRD320T33W**	**CRD320T32W**	**CRD320T35W**	**CRD320T36W**	1000	**20RES10T**	Adjustable settings are: 1000, 1200, 1600, 2000 **A20RES20T1**
					1200	**20RES12T**	
					1250	**20RES125T**	
					1400	**20RES14T**	
					1600	**20RES16T**	
					2000	**20RES20T**	
Three-Pole High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac							
1600 [2]	**CRDC316T33W**	**CRDC316T32W**	**CRDC316T35W**	**CRDC316T36W**	800	**16RES08T**	Adjustable settings are: 800, 1000, 1200, 1600 **A16RES16T1**
					1000	**16RES10T**	
					1200	**16RES12T**	
					1250	**16RES125T**	
					1400	**16RES14T**	
					1500	**16RES15T**	
					1600	**16RES16T**	
2000 [3]	**CRDC320T33W**	**CRDC320T32W**	**CRDC320T35W**	**CRDC320T36W**	1000	**20RES10T**	Adjustable settings are: 1000, 1200, 1600, 2000 **A20RES20T1**
					1200	**20RES12T**	
					1250	**20RES125T**	
					1400	**20RES14T**	
					1600	**20RES16T**	
					2000	**20RES20T**	

Notes

[1] Add **R** to catalog number for ground fault remote indication compatibility, for example, CRD316T35**R**W.

[2] For SCR application use 2000 ampere frame.

[3] Includes B2016RDL rear connectors.

Digitrip RMS 510 Electronic Circuit Breakers with Interchangeable Rating Plugs

Order as individual components: breaker frame (which includes trip unit) and rating plug.

Digitrip RMS 510 Electronic Circuit Breakers with Interchangeable Rating Plugs

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response) LI Catalog Number						Digitrip Rating Plug Only Rated Current (I_n)	 Fixed Rating Plug Catalog Number
	LS	LSI	LIG	LSG	LSIG			
Three-Pole Standard Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac								
1600	**RD316T51W**	**RD316T53W**	**RD316T52W**	**RD316T54W**	**RD316T55W**	**RD316T56W**	800	**RP6R16A080**
							1000	**RP6R16A100**
							1200	**RP6R16A120**
							1600	**RP6R16A160**
2000	**RD320T51W**	**RD320T53W**	**RD320T52W**	**RD320T54W**	**RD320T55W**	**RD320T56W**	1000	**RP6R20A100**
							1200	**RP6R20A120**
							1600	**RP6R20A160**
							2000	**RP6R20A200**
2500	**RD325T51W**	**RD325T53W**	**RD325T52W**	**RD325T54W**	**RD325T55W**	**RD325T56W**	1600	**RP6R25A160**
							2000	**RP6R25A200**
							2500	**RP6R25A250**
Three-Pole High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac								
1600	**RDC316T51W**	**RDC316T53W**	**RDC316T52W**	**RDC316T54W**	**RDC316T55W**	**RDC316T56W**	800	**RP6R16A080**
							1000	**RP6R16A100**
							1200	**RP6R16A120**
							1600	**RP6R16A160**
2000	**RDC320T51W**	**RDC320T53W**	**RDC320T52W**	**RDC320T54W**	**RDC320T55W**	**RDC320T56W**	1000	**RP6R20A100**
							1200	**RP6R20A120**
							1600	**RP6R20A160**
							2000	**RP6R20A200**
2500	**RDC325T51W**	**RDC325T53W**	**RDC325T52W**	**RDC325T54W**	**RDC325T55W**	**RDC325T56W**	1600	**RP6R25A160**
							2000	**RP6R25A200**
							2500	**RP6R25A250**

2

100% Rated Digitrip RMS 510 Circuit Breakers

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at 75°C ampacity. Order as individual components: breaker frame (which includes trip unit) and rating plug.

100% Rated Digitrip RMS 510 Circuit Breakers

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response) LI Catalog Number						Digitrip Rating Plug Only	
		LS	LSI	LIG	LSG	LSIG	Rated Current (I_n)	Fixed Rating Plug Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac								
1600	**CRD316T51W**	**CRD316T53W**	**CRD316T52W**	**CRD316T54W**	**CRD316T55W**	**CRD316T56W**	800	**RP6R16A080**
							1000	**RP6R16A100**
							1200	**RP6R16A120**
							1600	**RP6R16A160**
2000 ①	**CRD320T51W**	**CRD320T53W**	**CRD320T52W**	**CRD320T54W**	**CRD320T55W**	**CRD320T56W**	1000	**RP6R20A100**
							1200	**RP6R20A120**
							1600	**RP6R20A160**
							2000	**RP6R20A200**
Three-Pole High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac								
1600	—	**CRDC316T53W**	**CRDC316T52W**	**CRDC316T54W**	**CRDC316T55W**	**CRDC316T56W**	800	**RP6R16A080**
							1000	**RP6R16A100**
							1200	**RP6R16A120**
							1600	**RP6R16A160**
2000 ①	**CRDC320T51W**	**CRDC320T53W**	**CRDC320T52W**	**CRDC320T54W**	**CRDC320T55W**	**CRDC320T56W**	1000	**RP6R20A100**
							1200	**RP6R20A120**
							1600	**RP6R20A160**
							2000	**RP6R20A200**

Note

① Includes B2016RDL rear connectors.

Digitrip RMS 610 Electronic Circuit Breakers with Interchangeable Rating Plugs

Order as individual components: breaker frame (which includes trip unit) and rating plug.

Digitrip RMS 610 Electronic Circuit Breakers with Interchangeable Rating Plugs

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response) LI Catalog Number						Digitrip Rating Plug Only Rated Current (I_n)	 Fixed Rating Plug Catalog Number
		LS	LSI	LIG	LSG	LSIG		
Three-Pole Standard Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac								
1600	**RD316T61W**	**RD316T63W**	**RD316T62W**	**RD316T64W**	**RD316T65W**	**RD316T66W**	800	**RP6R16A080**
							1000	**RP6R16A100**
							1200	**RP6R16A120**
							1600	**RP6R16A160**
2000	**RD320T61W**	**RD320T63W**	**RD320T62W**	**RD320T64W**	**RD320T65W**	**RD320T66W**	1000	**RP6R20A100**
							1200	**RP6R20A120**
							1600	**RP6R20A160**
							2000	**RP6R20A200**
2500	**RD325T61W**	**RD325T63W**	**RD325T62W**	**RD325T64W**	**RD325T65W**	**RD325T66W**	1600	**RP6R25A160**
							2000	**RP6R25A200**
							2500	**RP6R25A250**
Three-Pole High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac								
1600	**RDC316T61W**	**RDC316T63W**	**RDC316T62W**	**RDC316T64W**	**RDC316T65W**	**RDC316T66W**	800	**RP6R16A080**
							1000	**RP6R16A100**
							1200	**RP6R16A120**
							1600	**RP6R16A160**
2000	**RDC320T61W**	**RDC320T63W**	**RDC320T62W**	**RDC320T64W**	**RDC320T65W**	**RDC320T66W**	1000	**RP6R20A100**
							1200	**RP6R20A120**
							1600	**RP6R20A160**
							2000	**RP6R20A200**
2500	**RDC325T61W**	**RDC325T63W**	**RDC325T62W**	**RDC325T64W**	**RDC325T65W**	**RDC325T66W**	1600	**RP6R25A160**
							2000	**RP6R25A200**
							2500	**RP6R25A250**

2

100% Rated Digitrip RMS 610 Circuit Breakers

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at 75°C ampacity. Order as individual components: breaker frame (which includes trip unit) and rating plug.

100% Rated Digitrip RMS 610 Circuit Breakers

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response) LI Catalog Number						Digitrip Rating Plug Only Rated Current (I_n)	Fixed Rating Plug Catalog Number
	LS	LSI	LIG	LSG	LSIG			
Three-Pole Standard Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac								
1600	**CRD316T61W**	**CRD316T63W**	**CRD316T62W**	**CRD316T64W**	**CRD316T65W**	**CRD316T66W**	800	**RP6R16A080**
							1000	**RP6R16A100**
							1200	**RP6R16A120**
							1600	**RP6R16A160**
2000 ①	**CRD320T61W**	**CRD320T63W**	**CRD320T62W**	**CRD320T64W**	**CRD320T65W**	**CRD320T66W**	1000	**RP6R20A100**
							1200	**RP6R20A120**
							1600	**RP6R20A160**
							2000	**RP6R20A200**
Three-Pole High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac								
1600	**CRDC316T61W**	**CRDC316T63W**	**CRDC316T62W**	**CRDC316T64W**	**CRDC316T65W**	**CRDC316T66W**	800	**RP6R16A080**
							1000	**RP6R16A100**
							1200	**RP6R16A120**
							1600	**RP6R16A160**
2000 ①	**CRDC320T61W**	**CRDC320T63W**	**CRDC320T62W**	**CRDC320T64W**	**CRDC320T65W**	**CRDC320T66W**	1000	**RP6R20A100**
							1200	**RP6R20A120**
							1600	**RP6R20A160**
							2000	**RP6R20A200**

Note

① Includes B2016RDL rear connectors.

Digitrip RMS 810 Electronic Circuit Breakers with Interchangeable Rating Plugs

Order as individual components: breaker frame (which includes trip unit) and rating plug.

Digitrip RMS 810 Electronic Circuit Breakers with Interchangeable Rating Plugs

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response) LI Catalog Number						Digitrip Rating Plug Only Rated Current (I_n)	 Fixed Rating Plug Catalog Number
	LS	LSI	LIG	LSG	LSIG			
Three-Pole Standard Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac								
1600	**RD316T81W**	**RD316T83W**	**RD316T82W**	**RD316T84W**	**RD316T85W**	**RD316T86W**	800	**RP6R16A080**
							1000	**RP6R16A100**
							1200	**RP6R16A120**
							1600	**RP6R16A160**
2000	**RD320T81W**	**RD320T83W**	**RD320T82W**	**RD320T84W**	**RD320T85W**	**RD320T86W**	1000	**RP6R20A100**
							1200	**RP6R20A120**
							1600	**RP6R20A160**
							2000	**RP6R20A200**
2500	**RD325T81W**	**RD325T83W**	**RD325T82W**	**RD325T84W**	**RD325T85W**	**RD325T86W**	1600	**RP6R25A160**
							2000	**RP6R25A200**
							2500	**RP6R25A250**
Three-Pole High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac								
1600	**RDC316T81W**	**RDC316T83W**	**RDC316T82W**	**RDC316T84W**	**RDC316T85W**	**RDC316T86W**	800	**RP6R16A080**
							1000	**RP6R16A100**
							1200	**RP6R16A120**
							1600	**RP6R16A160**
2000	**RDC320T81W**	**RDC320T83W**	**RDC320T82W**	**RDC320T84W**	**RDC320T85W**	**RDC320T86W**	1000	**RP6R20A100**
							1200	**RP6R20A120**
							1600	**RP6R20A160**
							2000	**RP6R20A200**
2500	**RDC325T81W**	**RDC325T83W**	**RDC325T82W**	**RDC325T84W**	**RDC325T85W**	**RDC325T86W**	1600	**RP6R25A160**
							2000	**RP6R25A200**
							2500	**RP6R25A250**

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100% Rated Digitrip RMS 810 Circuit Breakers

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at 75°C ampacity. Order as individual components: breaker frame (which includes trip unit) and rating plug.

100% Rated Digitrip RMS 810 Circuit Breakers

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response) LI Catalog Number	LS	LSI	LIG	LSG	LSIG	Digitrip Rating Plug Only Rated Current (I_n)	Fixed Rating Plug Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac								
1600	**CRD316T81W**	**CRD316T83W**	**CRD316T82W**	**CRD316T84W**	**CRD316T85W**	**CRD316T86W**	800	**RP6R16A080**
							1000	**RP6R16A100**
							1200	**RP6R16A120**
							1600	**RP6R16A160**
2000 ①	**CRD320T81W**	**CRD320T83W**	**CRD320T82W**	**CRD320T84W**	**CRD320T85W**	**CRD320T86W**	1000	**RP6R20A100**
							1200	**RP6R20A120**
							1600	**RP6R20A160**
							2000	**RP6R20A200**
Three-Pole High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac								
1600	**CRDC316T81W**	**CRDC316T83W**	**CRDC316T82W**	**CRDC316T84W**	**CRDC316T85W**	**CRDC316T86W**	800	**RP6R16A080**
							1000	**RP6R16A100**
							1200	**RP6R16A120**
							1600	**RP6R16A160**
2000 ①	**CRDC320T81W**	**CRDC320T83W**	**CRDC320T82W**	**CRDC320T84W**	**CRDC320T85W**	**CRDC320T86W**	1000	**RP6R20A100**
							1200	**RP6R20A120**
							1600	**RP6R20A160**
							2000	**RP6R20A200**

Note

① Includes B2016RDL rear connectors.

Digitrip RMS 910 Electronic Circuit Breakers with Interchangeable Rating Plugs

Order as individual components: breaker frame (which includes trip unit) and rating plug.

Digitrip RMS 910 Electronic Circuit Breakers with Interchangeable Rating Plugs

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response) LI Catalog Number						Digitrip Rating Plug Only	
	LS	LSI	LIG	LSG	LSIG		Rated Current (I_n)	Fixed Rating Plug Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac								
1600	**RD316T91W**	**RD316T93W**	**RD316T92W**	**RD316T94W**	**RD316T95W**	**RD316T96W**	800	**RP6R16A080**
							1000	**RP6R16A100**
							1200	**RP6R16A120**
							1600	**RP6R16A160**
2000	**RD320T91W**	**RD320T93W**	**RD320T92W**	**RD320T94W**	**RD320T95W**	**RD320T96W**	1000	**RP6R20A100**
							1200	**RP6R20A120**
							1600	**RP6R20A160**
							2000	**RP6R20A200**
2500	**RD325T91W**	**RD325T93W**	**RD325T92W**	**RD325T94W**	**RD325T95W**	**RD325T96W**	1600	**RP6R25A160**
							2000	**RP6R25A200**
							2500	**RP6R25A250**
Three-Pole High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac								
1600	**RDC316T91W**	**RDC316T93W**	**RDC316T92W**	**RDC316T94W**	**RDC316T95W**	**RDC316T96W**	800	**RP6R16A080**
							1000	**RP6R16A100**
							1200	**RP6R16A120**
							1600	**RP6R16A160**
2000	**RDC320T91W**	**RDC320T93W**	**RDC320T92W**	**RDC320T94W**	**RDC320T95W**	**RDC320T96W**	1000	**RP6R20A100**
							1200	**RP6R20A120**
							1600	**RP6R20A160**
							2000	**RP6R20A200**
2500	**RDC325T91W**	**RDC325T93W**	**RDC325T92W**	**RDC325T94W**	**RDC325T95W**	**RDC325T96W**	1600	**RP6R25A160**
							2000	**RP6R25A200**
							2500	**RP6R25A250**

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100% Rated Digitrip RMS 910 Circuit Breakers

The NEC allows the breaker to be rated at 100% of its frame size in an assembly, provided that 90°C wire is applied at 75°C ampacity. Order as individual components: breaker frame (which includes trip unit) and rating plug.

100% Rated Digitrip RMS 910 Circuit Breakers

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response) LI Catalog Number						Digitrip Rating Plug Only	
	LS	LSI	LIG	LSG	LSIG		Rated Current (I_n)	Fixed Rating Plug Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac								
1600	**CRD316T91W**	**CRD316T93W**	**CRD316T92W**	**CRD316T94W**	**CRD316T95W**	**CRD316T96W**	800	**RP6R16A080**
							1000	**RP6R16A100**
							1200	**RP6R16A120**
							1600	**RP6R16A160**
2000 ①	**CRD320T91W**	**CRD320T93W**	**CRD320T92W**	**CRD320T94W**	**CRD320T95W**	**CRD320T96W**	1000	**RP6R20A100**
							1200	**RP6R20A120**
							1600	**RP6R20A160**
							2000	**RP6R20A200**
Three-Pole High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac								
1600	**CRDC316T91W**	**CRDC316T93W**	**CRDC316T92W**	**CRDC316T94W**	**CRDC316T95W**	**CRDC316T96W**	800	**RP6R16A080**
							1000	**RP6R16A100**
							1000	**RP6R16A100**
							1200	**RP6R16A120**
2000 ①	**CRDC320T91W**	**CRDC320T93W**	**CRDC320T92W**	**CRDC320T94W**	**CRDC320T95W**	**CRDC320T96W**	1000	**RP6R20A100**
							1200	**RP6R20A120**
							1600	**RP6R20A160**
							2000	**RP6R20A200**

Note

① Includes B2016RDL rear connectors.

Digitrip OPTIM Electronic Circuit Breakers with Interchangeable Rating Plugs

Order as individual components: breaker frame (which includes trip unit) and rating plug.

Digitrip OPTIM Electronic Circuit Breakers with Interchangeable Rating Plugs

	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response) A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time Delay (I^2t or Flat Response)		Digitrip OPTIM Rating Plug Only	
Maximum Continuous Ampere Rating at 40°C	LSIA 1050 Catalog Number	LSIG 1050 Catalog Number	Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac				
1600	**RD316T107W**	**RD316T106W**	800	**ORPR16A080**
			1000	**ORPR16A100**
			1200	**ORPR16A120**
			1600	**ORPR16A160**
2000	**RD320T107W**	**RD320T106W**	1000	**ORPR20A100**
			1200	**ORPR20A120**
			1600	**ORPR20A160**
			2000	**ORPR20A200**
2500	**RD325T107W**	**RD325T106W**	1600	**ORPR25A160**
			2000	**ORPR25A200**
			2500	**ORPR25A250**
Three-Pole High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac				
1600	**RDC316T107W**	**RDC316T106W**	800	**ORPR16A080**
			1000	**ORPR16A100**
			1200	**ORPR16A120**
			1600	**ORPR16A160**
2000	**RDC320T107W**	**RDC320T106W**	1000	**ORPR20A100**
			1200	**ORPR20A120**
			1600	**ORPR20A160**
			2000	**ORPR20A200**
2500	**RDC325T107W**	**RDC325T106W**	1600	**ORPR25A160**
			2000	**ORPR25A200**
			2500	**ORPR25A250**

100% Rated 600 Volts AC Digitrip OPTIM Circuit Breakers with Interchangeable Rating Plugs

Order as individual components: breaker frame (which includes trip unit) and rating plug.

100% Rated 600 Volts AC Digitrip OPTIM Circuit Breakers with Interchangeable Rating Plugs

Maximum Continuous Ampere Rating at 40°C	Circuit Breaker Frame Only L – Adjustable Long Delay Pickup (I_r) with Adjustable Long Delay Time S – Adjustable Short Delay Pickup with Adjustable Short Delay Time (I^2t or Flat Response) I – Adjustable Instantaneous Pickup G – Adjustable Ground Fault Pickup with Adjustable Ground Fault Time Delay (I^2t or Flat Response) A – Adjustable Ground Fault Alarm with Adjustable Ground Fault Time Delay (I^2t or Flat Response)		Digitrip OPTIM Rating Plug Only	
	LSIA 1050 Catalog Number	LSIG 1050 Catalog Number	Ampere Rating	Fixed Rating Plug Catalog Number
Three-Pole Standard Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac				
1600	**CRD316T107W**	**CRD316T106W**	800	**ORPR16A080**
			1000	**ORPR16A100**
			1200	**ORPR16A120**
			1600	**ORPR16A160**
2000 ①	**CRD320T107W**	**CRD320T106W**	1000	**ORPR20A100**
			1200	**ORPR20A120**
			1600	**ORPR20A160**
			2000	**ORPR20A200**
Three-Pole High Interrupting Capacity 600 Vac Rated 100 kAIC at 480 Vac				
1600	**CRDC316T107W**	**CRDC316T106W**	800	**ORPR16A080**
			1000	**ORPR16A100**
			1200	**ORPR16A120**
			1600	**ORPR16A160**
2000 ①	**CRDC320T107W**	**CRDC320T106W**	1000	**ORPR20A100**
			1200	**ORPR20A120**
			1600	**ORPR20A160**
			2000	**ORPR20A200**

Molded Case Switches

Refer to Eaton for UL listed, series tested Molded Case Switch application data.

Type RD—High Instantaneous (K)

Continuous Ampere Rating at 40°C	Complete without Terminals	
	Three-Pole Catalog Number	Four-Pole Catalog Number
1600	**RD316WK**	**RD416WK**
2000	**RD320WK**	**RD420WK**

Notes

① Includes B2016RDL rear connectors.

Molded case switch may trip above 17,500 amperes.

Accessories Selection Guide and Ordering Information

Line and Load Terminals

Line and load terminals provide wire connecting capabilities for specific ranges of continuous current ratings and wire types. All terminals comply with Underwriters Laboratories Standards UL 486A and UL 486B and CSA C22.2 No. 65M. Unless otherwise specified, R-Frame circuit breaker line load terminals are shipped separately for field installation.

Ordering Information

R-Frame circuit breakers have Cu/Al terminals as standard and Cu only terminals as an option. Specify if factory installation is required.

Line and Load Terminals

Maximum Breaker Amperes	Terminal Body Material	Wire Type	Hardware	AWG/kcmil Wire Range/ No. Conductors	Metric Wire Range mm^2	Catalog Number
Wire Terminals						
1600	Aluminum	Cu/Al	English	500–1000 (4)	300–500	**TA1600RD**
1600	Copper	Cu	English	1–600 (4)	50–300	**T1600RD**
2000	Aluminum	Cu/Al	English	2–600 (6)	35–300	**TA2000RD** ①
Rear Connectors						
2000	Copper	—	English	—	—	**B2016RD**
2000	Copper	—	English	—	—	**B2016RDL** ②
2500	Copper	—	English	—	—	**B2500RD** ③

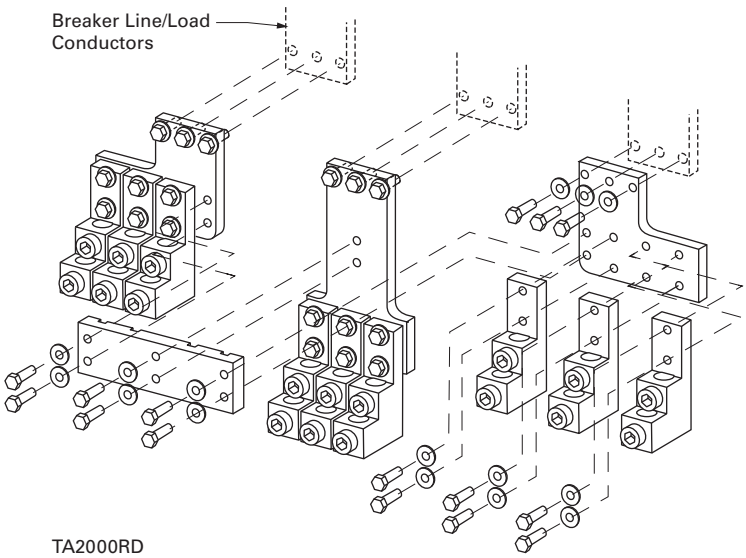
Notes

① Catalog Number includes bus connection, terminals and hardware for either line side or load side of three-pole breaker.

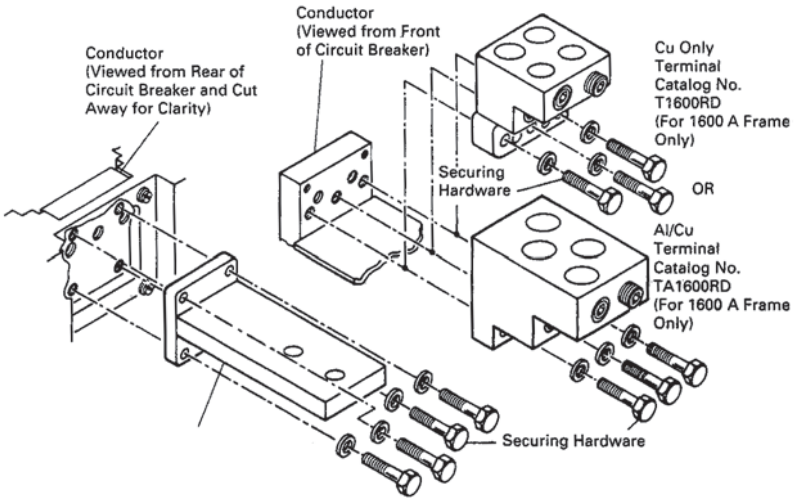
② For use with 100% rated 1600A and 2000A frame. Do not order separately unless for replacement purposes. Included in breaker carton when 100% rated device is ordered.

③ For use with 2500A frame. Do not order separately unless for replacement purposes. Included in breaker carton when 2500A breaker is ordered.

Mounting Hardware



TA2000RD



Accessories

Allowable Accessory Combinations

Different combinations of accessories can be supplied, depending on the types of accessories and the number of poles in the circuit breaker.

RD Frame Accessories

Description	Reference Page	Three-Pole Left	Center	Right	Four-Pole Left	Center	Right	Neu.
Internal Accessories ①								
Alarm lockout (Make/Break)	**V4-T2-305**			■			■	
Alarm lockout (2Make/2Break)	**V4-T2-305**			■			■	
Auxiliary switch (2A, 2B)	**V4-T2-305**			■			■	
Auxiliary switch (4A, 4B)	**V4-T2-305**			■			■	
Shunt trip—standard	**V4-T2-313**			■			■	
Shunt trip—low energy	**V4-T2-314**			■			■	
Undervoltage release mechanism	**V4-T2-321**			■			■	
Accessory terminal block ②	**V4-T2-322**			■				■
External Accessories								
Base mounting hardware	**V4-T2-340**							
Padlockable handle lock hasp	**V4-T2-343**		●			●		
Key interlock kit	**V4-T2-345**	■	■	■		■		
Walking beam interlock	**V4-T2-346**							
Electrical (motor) operator	**V4-T2-348**	■	■	■		■		
Handle mechanisms	**V4-T2-353**	■	■	■		■		
Handle extension ③	**V4-T2-357**		■			■		
Solid-state (electronic) portable test kit (310 only)	**V4-T2-358**	●	●	●		●		
OPTIM System Components								
Breaker interface module (BIM)	**V4-T2-359**	●	●	●				
Digitrip OPTIMizer	**V4-T2-359**	●	●	●				
Auxiliary power module	**V4-T2-359**	●	●	●				
Modifications (Refer to Eaton)								
Special calibration	—	●	●	●	●	●	●	●
Moisture fungus treatment	**V4-T2-123**	●	●	●	●	●	●	●
Freeze-tested circuit breakers	—	●	●	●	●	●	●	●
Marine/naval application	—	●	●	●	●	●	●	●

Legend

■ Applicable in indicated pole position

● Accessory available/modification available

Notes

① All accessories mount in the RH cavity which will accept one each shunt trip, UVR, auxiliary switch and alarm switch.

② Mounts outside breaker.

③ Included with breaker.

Technical Data and Specifications

UL 489/CSA Interrupting Capacity Ratings ①

Circuit Breaker Type	Number of Poles	Interrupting Capacity (kA Symmetrical Amperes) Volts AC (50/60 Hz) 240	277	480	600
RD	3, 4	125	—	65	50
CRD ②	3	125	—	65	50
RDC	3, 4	200	—	100	65
CRDC ②	3	200	—	100	65

IEC 947-2 Interrupting Capacity Ratings ①

Circuit Breaker Type	Number of Poles	Interrupting Capacity (kA Symmetrical Amperes) Volts AC (50/60 Hz) 240	415	690
RD				
I_{cu}	3, 4	135	70	25
I_{cs}	3, 4	100	50	13
RDC				
I_{cu}	3, 4	200	100	35
I_{cs}	3, 4	100	50	18

Notes

① Utilization Category A circuit breakers.

② 100% rated breakers.

See **Page V4-T2-281** for Trip Unit Specifications.

Specifications

R-Frame Digitrip

Trip Unit Type	Digitrip RMS 310		Digitrip RMS 510	Digitrip RMS 610	Digitrip RMS 810	Digitrip RMS 910	Digitrip OPTIM 1050
rms sensing	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Breaker Type							
Frame	R	R	R	R	R	R	R
Ampere range	800–2500A	800–2500A	800–2500A	800–2500A	800–2500A	800–2500A	800–2500A
Interrupting rating at 480 volts	65, 100 (kA)	65, 100 (kA)	65, 100 (kA)	65, 100 (kA)	65, 100 (kA)	65, 100 (kA)	65, 100 (kA)
Protection							
Ordering options	LS, LSG	LSI, LSIG	LI, LS, LSI, LIG, LSG, LSIG	LI, LS, LSI, LIG, LSG, LSIG	LI, LS, LSI, LIG, LSG, LSIG	LI, LS, LSI, LIG, LSG, LSIG	LSI(A), LISG
Fixed rated plug (I_n)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overtemperature trip	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Long Delay Protection (L)							
Adjustable rating plug (I_n)	Yes	Yes	No	No	No	No	No
Long delay pickup	0.5–1.0 (I_n) ①	0.5–1.0 (I_n) ①	0.5–1.0 x (I_n)	0.5–1.0 x (I_n)	0.5–1.0 x (I_n)	0.5 –1.0 x (I_n)	0.4–1.0 x (I_n)
Long delay time I^2t	12 seconds	12 seconds	2–24 seconds	2–24 seconds	2–24 seconds	2–24 seconds	2–24 seconds
Long delay time I^4t	No	No	No	No	No	No	1–5 Seconds
Long delay thermal memory	Yes	Yes	Yes	Yes	Yes	Yes	Yes
High load alarm	No	No	No	0.85 x I_r	0.85 x I_r	0.85 x I_r	0.5-1.0 x I_r
Short Delay Protection (S)							
Short delay pickup	200–800% x (I_n) ②	200–800% x (I_n) ②	200–600% S1 and S2 x (I_r)	200–600% S1 and S2 x (I_r)	200–600% S1 and S2 x (I_r)	200–600% S1 and S2 x (I_r)	150-800% x (I_r) ②③
Short delay time I^2t	100 ms	No	100–500 ms	100–500 ms	100–500 ms	100–500 ms	100–500 ms
Short delay time flat	No	Inst–300 ms	100–500 ms	100–500 ms	100–500 ms	100–500 ms	100–500 ms
Short delay time zone selective interlocking	No	No	Yes	Yes	Yes	Yes	Yes
Instantaneous Protection (I)							
Instantaneous pickup	No	200–800% x (I_n)	200–600% M1and M2 x (I_n)	200–600% M1and M2 x (I_n)	200–600% M1and M2 x (I_n)	200–600% M1and M2 x (I_n)	200–800% x (I_n) ③
Discriminator	No	No	Yes ④	Yes ④	Yes ④	Yes ④	Yes
Instantaneous override	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ground Fault Protection (G)							
Ground fault alarm ⑤	No	No	No	No	No	No	25–100% x (I_n)
Ground fault pickup ⑤	200–1200A	200–1200A	25–100% x (I_s)	25-100% x (I_s)	25–100% x (I_s)	25–100% x (I_s)	25–100% x (I_n)
Ground fault delay I^2t	No	No	100–500 ms	100–500 ms	100–500 ms	100–500 ms	100–500 ms
Ground fault delay flat	Inst–500 ms	Inst–500 ms	100–500 ms	100–500 ms	100 –500 ms	100–500 ms	100–500 ms
Ground fault zone selective interlocking	No	No	Yes	Yes	Yes	Yes	Yes
Ground fault thermal memory	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Legend

BIM = Breaker Interface Module
(A) = GF Alarm
I_s = Sensor Rating
I_n = Rating Plug
I_r = Long Delay Pickup Setting x I_n

Notes

① Adjust by rating plug.
② Except 2500 ampere frame is 200–600%.
③ Varies by frame.
④ LS/LSG only.
⑤ Not to exceed 1200 amperes.

R-Frame Digitrip, continued

Trip Unit Type	Digitrip RMS 310		Digitrip RMS 510	Digitrip RMS 610	Digitrip RMS 810	Digitrip RMS 910	Digitrip OPTIM 1050
System Diagnostics							
Status LEDs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cause of trip LEDs	No	No	Yes	Yes	Yes	Yes	Yes
Magnitude of trip information	No	No	No	Yes	Yes	Yes	Yes
Remote signal contacts	Yes ①	Yes ①	No	Yes	Yes	Yes	Yes
System Monitoring							
Digital display	No	No	No	Yes	Yes	Yes	Yes ②
Current	No	No	No	Yes	Yes	Yes	Yes
Voltage	No	No	No	No	No	Yes	No
Power and energy	No	No	No	No	Yes	Yes	Yes
Power quality—harmonics	No	No	No	No	No	Yes	Yes
Power factor	No	No	No	No	Yes (over Eaton PowerNet only)	Yes	Yes
Communications							
Eaton PowerNet	No	No	No	No	Yes	Yes	Yes
Testing							
Testing method	Test set	Test set	Integral	Integral	Integral	Integral	OPTIMizer, BIM, PowerNet

Legend

BIM = Breaker Interface Module
(A) = GF Alarm
I_s = Sensor Rating
I_n = Rating Plug
I_r = Long Delay Pickup Setting x I_n

Notes

① Optional. Add suffix "R" to catalog number.
② By OPTIMizer/BIM.

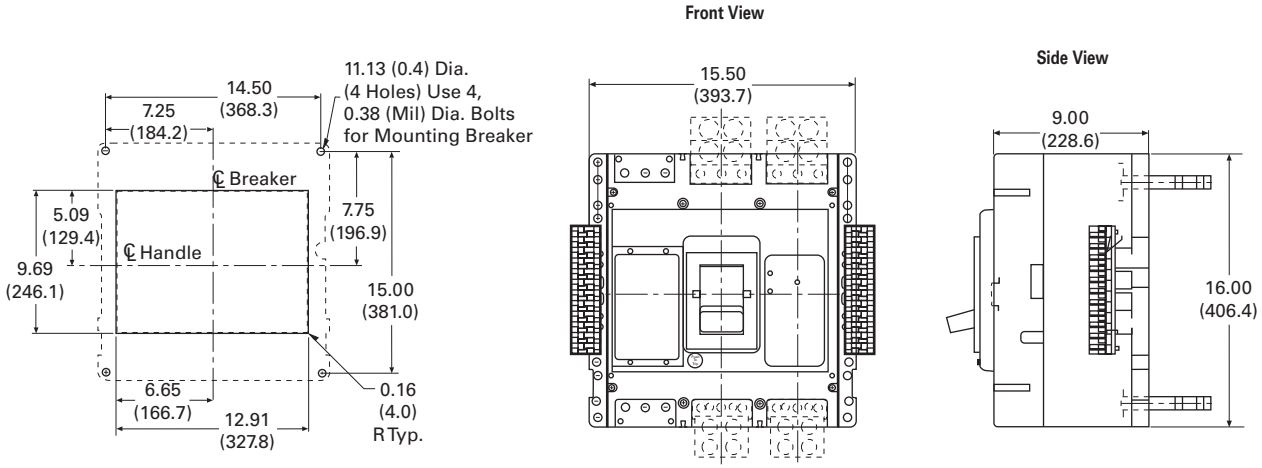
Dimensions and Weights

Dimensions in Inches (mm)

RD Frame

Number of Poles	Width	Height	Depth
3	15.50 (393.7)	16.00 (406.4)	9.75 (247.7)
4	20.00 (508.0)	16.00 (406.4)	9.75 (247.7)

RD-Frame, Three-Pole, 1600 and 2000 Amperes



Approximate Shipping Weight in Lbs (kg)

RD Frame

Breaker Type	Complete Breaker Three-Pole	Four-Pole
1600 Amperes		
RD, CRD ①, RDC, CRDC ①	102 (46.3)	135 (61.2)
2000 Amperes		
RD, RDC	102 (46.3)	135 (61.2)
CRD, CRDC	130 (59.0)	175 (79.4)
2500 Amperes		
RD, RDC	135 (61.2)	182 (82.6)

Note

① No four-pole for CRD and CRDC.

Motor Circuit Protectors

Contents

Motor Circuit Protectors (MCP)

Product Description

Designated as Eaton's Types GMCP and HMCP, the instantaneous-only motor circuit protector (MCP) is available in ratings from 3A to 1200A for motor starter sizes 0 through 8.

An innovative design of internal components allows higher MCP-starter combination interrupting ratings. The MCP is marked to permit proper electrical application within the assigned equipment ratings.

Standards and Certifications

The MCP is designed to comply with the applicable requirements of Underwriters Laboratories Standard UL 489, Canadian Standards Association Standard C22.2 No. 5.1, and International Electrotechnical Commission Recommendations IEC 157-1.

The MCP is a recognized component (UL File E7819) and complies with the applicable requirements of Underwriters Laboratories Standard UL 489. It is also designed to comply with the applicable requirements of Canadian Standards Association Standard C22.2 No. 5.1, International Electrotechnical Commission Recommendations IEC 157-1, and nameplates bear the CE marking.

Listed

Note: Interrupting ratings are dependent on starter it is used with.

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 or trip units.

Motor Circuit Protector

HMCP 003 A0 C

Motor Circuit Protective Type
HMCP = 3 poles
HM2P = 2 poles ①
HMCPS = 3 poles

Continuous Ampere Rating
003
007
015
025
030
050
070
100
150
250
400
600
800
1200

Magnetic Trip Range/ NEMA Starter Size
A0 = 9–30/0
C0 = 21–70/0
E0 = 45–150/0
D0 = 40–60/0
H1 = 90–300/1
G2 = 80–120/2
K2 = 50–500/2
J2 = 115–170/2
M2 = 210–700/2
L3 = 160–240/3
R3 = 300–1000/3
T4 = 450–1500/4
U4 = 750–2500/4
A5 = 350–700/5
C5 = 450–900/5
D5 = 500–1000/5
F5 = 625–1250/5
G5 = 750–1500/5
J5 = 875–1750/5
K5 = 1000–2000/5
L5 = 1125–2250/5
W5 = 1250–2500/5
N5 = 1500–3000/5
R5 = 1750–3500/5
X5 = 2000–4000/5
Y5 = 2250–4500/5
L6 = 1800–6000/6 (electronic)
X6 = 500–2500/6 (electronic)
Y6 = 1000–4000/6 (electronic)
X7 = 1600–6400/7 (electronic)
Y8 = 2400–9600/8 (electronic)

Suffix
C = Non-aluminum terminals
W = Without terminals
X = Load terminals only
Y = Line terminals only
S = Stainless steel terminals (150A frame only)
No Suffix: Standard terminals on line and load

Motor Circuit Protector

GMCP 003 A0 C

Motor Circuit Protective Device
GMCP = 3 poles

Continuous Ampere Rating
003
007
015
030
050
060
063

Magnetic Trip Range/NEMA Starter Size
A0 = 15–30/0
C0 = 35–70/0
E0 = 75–150/0
H1 = 150–300/1
K2 = 250–500/2
J2 = 300–600/2
M2 = 320–630/2

Suffix
C = Non-aluminum terminals

Note

① On J- and K-Frame HMCPs only.

Product Selection

G-Frame

480 Vac Maximum, 600Y/347 Vac

NEMA Starter Size	Continuous Amperes	Cam Setting	Motor Full Load Current Amperes (FLA) ①	MCP Trip Setting	MCP Catalog Number
0	3	A	1.1–1.2	15	**GMCP003A0C**
		B	1.3–1.5	18	
		C	1.6–1.7	21	
		D	1.8–1.9	24	
		E	2.0–2.2	27	
		F	2.3–2.5	30	
0	7	A	2.6–3.1	35	**GMCP007C0C**
		B	3.2–3.6	42	
		C	3.7–3.9	49	
		D	4.3–4.7	56	
		E	4.8–5.2	63	
		F	5.3–5.7	70	
0	15	A	5.7–6.8	75	**GMCP015E0C**
		B	6.9–7.9	90	
		C	8.0–9.1	105	
		D	9.2–10.3	120	
		E	10.4–11.4	135	
		F	11.5–12.6	150	
1	30	A	11.5–13.7	150	**GMCP030H1C**
		B	13.8–16.0	180	
		C	16.1–18.3	210	
		D	18.4–20.6	240	
		E	20.7–22.9	270	
		F	23.0–25.2	300	
2	50	A	19.3–22.9	250	**GMCP050K2C**
		B	23.0–26.8	300	
		C	26.9–30.6	350	
		D	30.7–34.5	400	
		E	34.6–38.3	450	
		F	38.4–42.1	500	
3	60	A	23.1–27.5	300	**GMCP060J2C**
		B	27.7–32.2	360	
		C	32.3–36.7	420	
		D	36.9–41.4	480	
		E	41.5–46.0	540	
		F	46.2–50.5	600	
3	63	A	24.2–32.1	320	**GMCP063M2C**
		B	29.1–34.8	380	
		D	38.8–46.4	500	
		E	43.6–48.9	570	
		F	48.5–53.7	630	

Notes

① Motor FLA ranges are typical. The corresponding trip setting is at 13 x the minimum FLA value shown. Where a 13 x setting is required for an intermediate FLA value, alternate Cam settings and/or MCP ratings should be used.

All GMCP 3–63A come with line and load steel body terminals for Cu only wire. Refer to **Page V4-T2-130** under Optional Terminal Types.

UL recognized and CSA approved.

Accessories

Modifications for GMCP

Internal accessories must be factory installed.

Internal Accessories ①

Type Accessory	Electrical Ratings Volts	Frequency	Amperes	Contact Arrangement	Factory Suffix	Style Number
Shunt trip ②	120	50/60 Hz	1.1	—	S5	**1373D62G18**
Shunt trip ②	240	50/60 Hz	2.1	—	S6	**1373D62G19**
Auxiliary switch ③	240	50/60 Hz	6.0	1A/1B	A3	**1288C74G03**
Auxiliary switch ③	240	50/60 Hz	6.0	2A/2B	A6	**1288C73G03**
Alarm switch ③	240	50/60 Hz	6.0	Make/Break	B3	**1288C75G03**
Auxiliary switch/alarm switch combination ③	240	50/60 Hz	6.0	1A/1B Make/Break	B13	**1288C76G09**

External Mounted Accessories

Description	Number Units in Package	Style Number
Lock dog (non-padlockable)	1	**1294C01H01**
Mounting hardware	1	**624B375G23**
DIN rail adapter ④	10	**1225C79G02**

Vari-Depth Handle Mechanism ⑤

Description	Catalog Number
For Type 1 use	**HRGMV11L**
For Type 3R, 4X, 12 use	**HRGMV14L**
Close coupled black with gray handle	**HRGMC10**
Close coupled red with yellow handle	**HRGMC30**

Modifications for HMCP

See Internal Accessories starting on **Page V4-T2-302**.

Notes

① Only one accessory may be installed in GMCP.
② LH only.
③ RH only.
④ For use with standard 35 mm DIN rail such as, 35 x 7.5 or 15 mm per DIN EN50022.
⑤ For use with GMCP only.

No UVR available on GMCP.

F-Frame

600 Vac Maximum, 250 Vdc Maximum

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ①	MCP Trip Setting ②	MCP Catalog Number
0	3	A	0.69–0.91	9	**HMCP003A0C**
		B	0.92–1.0	12	
		C	1.1–1.2	15	
		D	1.3–1.5	18	
		E	1.6–1.7	21	
		F	1.8–1.9	24	
		G	2.0–2.2	27	
		H	2.3–2.5	30	
0	7	A	1.5–2.0	21	**HMCP007C0C**
		B	2.1–2.5	28	
		C	2.6–3.1	35	
		D	3.2–3.6	42	
		E	3.7–3.9	49	
		F	4.3–4.7	56	
		G	4.8–5.2	63	
		H	5.3–5.7	70	
0	15	A	3.4–4.5	45	**HMCP015E0C**
		B	4.6–5.6	60	
		C	5.7–6.8	75	
		D	6.9–7.9	90	
		E	8.0–9.1	105	
		F	9.2–10.3	120	
		G	10.4–11.4	135	
		H	11.5 –12.6	150	
1	30	A	6.9–9.1	90	**HMCP030H1C**
		B	9.2–11.4	120	
		C	11.5–13.7	150	
		D	13.8–16.0	180	
		E	16.1–18.3	210	
		F	18.4–20.6	240	
		G	20.7–22.9	270	
		H	23.0–25.2	300	
2	50	A	11.5–15.2	150	**HMCP050K2C**
		B	15.3–19.1	200	
		C	19.2–22.9	250	
		D	23.0–26.8	300	
		E	26.9–30.6	350	
		F	30.7–4.5	400	
		G	34.6–38.3	450	
		H	38.4–42.1	500	

600 Vac Maximum, 250 Vdc Maximum, continued

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ①	MCP Trip Setting ②	MCP Catalog Number
2	70	A	16.1–21.4	210	**HMCP070M2C**
		B	21.5 –26.8	280	
		C	26.9 –32.2	350	
		D	32.3–37.5	420	
		E	37.6–42.9	490	
		F	43.0–48.3	560	
		G	48.4–53.7	630	
		H	53.8–59.1	700	
3	100	A	23.0–30.6	300	**HMCP100R3C**
		B	30.7–38.3	400	
		C	38.4–46.0	500	
		D	46.1–53.7	600	
		E	53.8 –61.4	700	
		F	61.5 –69.1	800	
		G	69.2–76.8	900	
		H	76.9–84.5	1000	
4	150	A	34.6–46.0	450	**HMCP150T4C**
		B	46.1–57.5	600	
		C	57.6–69.1	750	
		D	69.2–80.6	900	
		D	69.2–80.6	900	
		E	80.7–92.2	1050	
		F	92.3–103.7	1200	
		G	103.8–115.2	1350	
		H	115.3–126.7	1500	
4	150	A	57.0 –75.0	750	**HMCP150U4C**
		B	76.0–95.0	1000	
		C	96.0–114.0	1250	
		D	115.0–130.7	1500	
		E	③	1750	
		F	③	2000	
		G	③	2250	
		H	③	2500	

Notes

① Motor FLA ranges are typical. The corresponding trip setting is at 13 x the minimum FLA value shown. Where a 13 x setting is required for an intermediate FLA value, alternate Cam settings and/or MCP ratings should be used.

② For DC applications, actual trip levels are approximately 40% higher than values shown.

③ Settings above 130 amperes are for special applications. NEC Article 430.110(a) requires the ampere rating of the disconnecting means to be not less than 115% of the motor full load ampere rating.

HMCP 3–100A come with line and load steel body terminals, 3T100FB. HMCP 150A come with line and load steel body terminals, 3T150FB.

Special Low Magnetic Protection Application MCP

600 Vac Maximum, 250 Vdc Maximum

Cont. Amps	Cam Setting	MCP Trip Setting ①	MCP Catalog Number
25	A	40	**HMCP025D0C**
	B	43	
	D	49	
	E	52	
	F	55	
	G	58	
	H	60	
50	A	80	**HMCP050G2C**
	B	87	
	C	93	
	D	98	
	E	103	
	F	109	
	G	115	
	H	120	
70	A	115	**HMCP070J2C**
	B	122	
	C	130	
	D	139	
	E	145	
	F	153	
	G	160	
	H	170	
100	A	160	**HMCP100L3C**
	B	174	
	C	185	
	D	196	
	E	207	
	F	218	
	G	229	
	H	240	

Notes

① For DC applications, actual trip levels are approximately 40% higher than values shown.

HMCP 25–100A come with line and load steel body terminals, 3T100FB.

MCPs for Application with Motor Starters Equipped with Electronic Overload Relays

600 Vac Maximum, 250 Vdc Maximum

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ①	MCP Trip Setting ②	MCP Catalog Number
0	3	A	0.69–0.91	9	**HMCPS003A0C**
		B	0.92–1.0	12	
		C	1.1–1.2	15	
		D	1.3–1.5	18	
		E	1.6–1.7	21	
		F	1.8–1.9	24	
		G	2.0–2.2	27	
		H	2.3–2.5	30	
0	7	A	1.5–2.0	21	**HMCPS007C0C**
		B	2.1–2.5	28	
		C	2.6–3.1	35	
		D	3.2–3.6	42	
		E	3.7–3.9	49	
		F	4.3–4.7	56	
		G	4.8–5.2	63	
		H	5.3–5.7	70	
0	15	A	3.4–4.5	45	**HMCPS015E0C**
		B	4.6–5.6	60	
		C	5.7–6.8	75	
		D	6.9–7.9	90	
		E	8.0–9.1	105	
		F	9.2–10.3	120	
		G	10.4–11.4	135	
		H	11.5–12.6	150	
1	30	A	6.9–9.1	90	**HMCPS030H1C**
		B	9.2–11.4	120	
		C	11.5–13.7	150	
		D	13.8–16.0	180	
		E	16.1–18.3	210	
		F	18.4–20.6	240	
		G	20.7–22.9	270	
		H	23.0–25.2	300	
2	50	A	11.5–15.2	150	**HMCPS050K2C**
		B	15.3–19.1	200	
		C	19.2–22.9	250	
		D	23.0–26.8	300	
		E	26.9–30.6	350	
		F	30.7–34.5	400	
		G	34.6–38.3	450	
		H	38.4–42.1	500	

600 Vac Maximum, 250 Vdc Maximum, continued

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ①	MCP Trip Setting ②	MCP Catalog Number
3	100	A	23.0–30.6	300	**HMCPS100R3C**
		B	30.7–38.3	400	
		C	38.4–46.0	500	
		D	46.1–53.7	600	
		E	53.8–61.4	700	
		F	61.5–69.1	800	
		G	69.2–76.8	900	
		H	76.9–84.5	1000	
4	150	A	34.6–46.0	450	**HMCPS150T4C**
		B	46.1–57.5	600	
		C	57.6–69.1	750	
		D	69.2–80.6	900	
		E	80.7–92.2	1050	
		F	92.3–103.7	1200	
		G	103.8–115.2	1350	
		H	115.3–126.7	1500	
4	150	A	57.0–75.0	750	**HMCPS150U4C**
		B	76.0–95.0	1000	
		C	96.0–114.0	1250	
		D	115.0–130.7	1500	
		E	③	1750	
		F	③	2000	
		G	③	2250	
		H	③	2500	

Notes

① Motor FLA ranges are typical. The corresponding trip setting is at 13 x the minimum FLA value shown. Where a 13 x setting is required for an intermediate FLA value, alternate cam settings and/or MCP ratings should be used.

② For DC applications, actual trip levels are approximately 40% higher than values shown.

③ Settings above 130A are for special applications. NEC Article 430.110(a) requires the ampere rating of the disconnecting means to be not less than 115% of the motor full load ampere rating.

HMCP 25–100A come with line and load steel body terminals, 3T100FB.

HMCPS 3–100A come with line and load steel body terminals, 3T100FB. HMCPS 150A come with line and load steel body terminals, 3T150FB.

J-Frame

600 Vac Maximum, 250 Vdc Maximum

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ①	MCP Trip Setting ②	MCP Catalog Number ③
4	250	A	27.0–30.7	350	**HMCP250A5C**
		B	30.8–33.8	400	
		C	33.9–36.9	440	
5	250	D	37.0–40.3	480	
		E	40.4–43.8	525	
		F	43.9–46.9	570	
		G	47.0–50.7	610	
		H	47.0–50.7	660	
		I	47.0–50.7	700	
5	250	A	34.7–38.8	450	**HMCP250C5C**
		B	38.9–43.4	505	
		C	43.5–47.6	565	
		D	47.7–52.2	620	
		E	52.3–56.5	680	
		F	56.6–60.7	735	
		G	60.8–64.9	790	
		H	65.0–69.2	845	
		I	69.3–73.5	900	
5	250	A	38.5–43.4	500	**HMCP250D5C**
		B	43.5–48.0	565	
		C	48.1–53.0	625	
		D	53.1–57.6	690	
		E	57.7–62.3	750	
		F	62.4–67.3	810	
		G	67.4–71.9	875	
		H	72.0–76.9	935	
		I	77.0–81.6	1000	
5	250	A	48.1–53.8	625	**HMCP250F5C**
		B	53.9–59.9	700	
		C	60.0–66.1	780	
		D	66.2–72.3	860	
		E	72.4–78.4	940	
		F	78.5–83.8	1020	
		G	83.9–89.9	1090	
		H	90.0–96.1	1170	
		I	96.2–102.0	1250	
5	250	A	57.7–64.6	750	**HMCP250G5C**
		B	64.7–71.9	840	
		C	72.0–79.2	935	
		D	79.3–86.5	1030	
		E	86.6–93.8	1125	
		F	93.9–101.1	1220	
		G	101.2–108.4	1315	
		H	108.5–115.3	1410	
		I	115.4–122.4	1500	

600 Vac Maximum, 250 Vdc Maximum, continued

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ①	MCP Trip Setting ②	MCP Catalog Number ③
5	250	A	67.4–75.3	875	**HMCP250J5C**
		B	75.4–83.8	980	
		C	83.9–92.3	1090	
		D	92.4–100.7	1200	
		E	100.8–109.2	1310	
		F	109.3–117.6	1420	
		G	117.7–126.1	1530	
		H	126.2–134.6	1640	
		I	134.7–142.8	1750	
5	250	A	77.0–86.6	1000	**HMCP250K5C**
		B	86.6–96.1	1125	
		C	96.2–105.7	1250	
		D	105.8–115.3	1375	
		E	115.4–124.9	1500	
		F	125.0–134.6	1625	
		G	134.7–144.2	1750	
		H	144.3–153.8	1875	
		I	153.9–163.3	2000	
5	250	A	86.6–97.3	1125	**HMCP250L5C**
		B	97.4–108.4	1265	
		C	108.5–118.8	1410	
		D	118.9–129.9	1545	
		E	130.0–140.7	1690	
		F	140.8–151.5	1830	
		G	151.6–162.3	1970	
		H	162.4–173.0	2110	
		I	173.1–183.6	2250	
5	250	A	96.2–108.0	1250	**HMCP250W5C**
		B	108.1–119.9	1405	
		C	120.0–132.3	1560	
		D	132.4–144.2	1720	
		E	144.3–156.1	1875	
		F	156.2–168.0	2030	
		G	168.1–179.9	2185	
		H	180.0–192.3	2340	
		I	192.4–204.0	2500	

Notes

① Motor FLA ranges are typical. The corresponding trip setting is at 13 times the minimum FLA value shown. Where a 13 times setting is required for an intermediate FLA value, alternate cam settings and/or MCP ratings should be used.

② For DC applications, actual trip levels are approximately 40% higher than values shown.

③ Three-pole catalog numbers shown. Two-pole catalog numbers begin with **HM2P** in place of **HMCP**.

All HMCP and HM2P 250A come with line and load steel body terminals, T250KB. (With suffix "C," without "C" comes with TA250KB.)

K-Frame

2

600 Vac Maximum, 250 Vdc Maximum

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ①	MCP Trip Setting ②	MCP Catalog Number ③
4	400	A	27.0–30.7	350	**HMCP400A5C**
		B	30.8–33.8	400	
		C	33.9–36.9	440	
5	400	D	37.0–40.3	480	**HMCP400A5C**
		E	40.4–43.8	525	
		F	43.9–46.9	570	
		G	47.0–50.7	610	
		H	50.8–53.8	660	
		I	53.9–57.2	700	
5	400	A	38.5–43.4	500	**HMCP400D5C**
		B	43.5–48.0	565	
		C	48.1–53.0	626	
		D	53.1–57.6	690	
		E	57.7–62.3	750	
		F	62.4–67.3	810	
		G	67.4–71.9	875	
		H	72.0–76.9	935	
		I	77.0–81.6	1000	
5	400	A	48.1–53.8	625	**HMCP400F5C**
		B	53.9–59.9	700	
		C	60.0–66.1	780	
		D	66.2–72.3	860	
		E	72.4–78.4	940	
		F	78.5–83.8	1020	
		G	83.9–89.9	1090	
		H	90.0–96.1	1170	
		I	96.2–102.0	1250	
5	400	A	57.7–64.6	750	**HMCP400G5C**
		B	64.7–71.9	840	
		C	72.0–79.2	935	
		D	79.3–86.5	1030	
		E	86.6–93.8	1125	
		F	93.9–101.1	1220	
		G	101.2–108.4	1315	
		H	108.5–115.3	1410	
		I	115.4–122.4	1500	
5	400	A	67.4–75.3	875	**HMCP400J5C**
		B	75.4–83.8	980	
		C	83.9–92.3	1090	
		D	92.4–100.7	1200	
		E	100.8–109.2	1310	
		F	109.3–117.6	1420	
		G	117.7–126.1	1530	
		H	126.2–134.6	1640	
		I	134.7–142.8	1750	

600 Vac Maximum, 250 Vdc Maximum, continued

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ①	MCP Trip Setting ②	MCP Catalog Number ③
5	400	A	77.0–86.5	1000	**HMCP400K5C**
		B	86.6–96.1	1125	
		C	96.2–105.7	1250	
		D	105.8–115.3	1375	
		E	115.4–124.9	1500	
		F	125.0–134.6	1625	
		G	134.7–144.2	1750	
		H	144.3–153.8	1875	
		I	153.9–163.3	2000	
5	400	A	86.6–97.3	1125	**HMCP400L5C**
		B	97.4–108.4	1265	
		C	108.5–118.8	1410	
		D	118.9–129.9	1545	
		E	130.0–140.7	1690	
		F	140.8–151.5	1830	
		G	151.6–162.3	1970	
		H	162.4–173.0	2110	
		I	173.1–183.6	2250	
5	400	A	96.2–108.0	1250	**HMCP400W5C**
		B	108.1–119.9	1405	
		C	120.0–132.3	1560	
		D	132.4–144.2	1720	
		E	144.3–156.1	1875	
		F	156.2–168.0	2030	
		G	168.1–179.9	2185	
		H	180.0–192.3	2340	
		I	192.4–204.0	2500	
5	400	A	115.4–129.9	1500	**HMCP400N5C**
		B	130.0–144.2	1690	
		C	144.3–158.4	1875	
		D	158.5–173.0	2060	
		E	173.1–187.6	2250	
		F	187.7–201.9	2440	
		G	202.0–216.1	2625	
		H	216.2–230.7	2810	
		I	230.8–244.9	3000	

Notes

① Motor FLA ranges are typical. The corresponding trip setting is at 13 x the minimum FLA value shown. Where a 13 x setting is required for an intermediate FLA value, alternate cam settings and/or MCP ratings should be used.

② For DC applications, actual trip levels are approximately 40% higher than values shown.

③ Three-pole catalog numbers shown. Two-pole catalog numbers begin with **HM2P** in place of **HMCP**.

All HMCP and HM2P 400A come with aluminum body terminals, 3TA400K. Catalog numbers with suffix "C" as shown above come with copper body terminals 3T400K.

L-Frame

600 Vac Maximum, 250 Vdc Maximum, continued

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ①	MCP Trip Setting ②	MCP Catalog Number ③
5	400	A	134.7–151.5	1750	**HMCP400R5C**
		B	151.6–168.4	1970	
		C	168.5–185.3	2190	
		D	185.4–201.9	2410	
		E	202.0–218.8	2625	
		F	218.9–235.7	2845	
		G	235.8–252.6	3065	
		H	252.7–269.2	3285	
		I	269.3–285.7	3500	
5	400	A	153.9–173.0	2000	**HMCP400X5C**
		B	173.1–192.3	2250	
		C	192.4–211.5	2500	
		D	211.6–230.7	2750	
		E	230.8–249.9	3000	
		F	250.0–269.2	3250	
		G	269.3–288.4	3500	
		H	288.5–307.6	3750	
		I	307.7–326.9	4000	
5	400	A	173.1–194.5	2250	**HMCP400Y5C**
		B	194.6–216.1	2530	
		C	216.2–237.6	2810	
		D	237.7–259.5	3090	
		E	259.6–281.1	3375	
		F	281.2–302.6	3655	
		G	302.7–324.1	3935	
		H	324.2–346.1	4215	
		I	346.2–368.1	4500	

600 Vac Maximum ④

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ①	MCP Trip Setting	MCP Catalog Number
6	600	A	138.5–184.5	1800	**HMCP600L6W**
		B	184.6–230.7	2400	
		C	230.8–276.8	3000	
		D	276.9–323.0	3600	
		E	323.1–369.1	4200	
		F	369.2–415.3	4800	
		G	415.4–461.4	5400	
		H	461.5–507.7	6000	
6	600	A	38.5–46.1	500	**HMCP600X6W**
		B	46.2–61.4	600	
		C	61.5–76.8	800	
		D	76.9–96.1	1000	
		E	96.2–115.3	1250	
		F	115.4–153.7	1500	
		G	153.8–192.2	2000	
		H	192.3–230.7	2500	
6	600	A	76.9–96.1	1000	**HMCP600Y6W**
		B	96.2–115.3	1250	
		C	115.4–153.7	1500	
		D	153.8–192.2	2000	
		E	192.3–230.7	2500	
		F	230.8–269.1	3000	
		G	269.2–307.6	3500	
		H	307.7–346.1	4000	

Notes

① Motor FLA ranges are typical. The corresponding trip setting is at 13 x the minimum FLA value shown. Where a 13 x setting is required for an intermediate FLA value, alternate cam settings and/or MCP ratings should be used.

② For DC applications, actual trip levels are approximately 40% higher than values shown.

③ Three-pole catalog numbers shown. Two-pole catalog numbers begin with **HM2P** in place of **HMCP**.

④ Equipped with electronic trip device.

All HMCP and HM2P 400A come with aluminum body terminals, 3TA400K. Catalog numbers with suffix "C" as shown above come with copper body terminals 3T400K.

All HMCP 600A come without terminals. For terminals, see **Page V4-T2-227.**

N-Frame

600 Vac Maximum ①

NEMA Starter Size	Cont. Amps	Cam Setting	Motor Full Load Current Amperes (FLA) ②	MCP Trip Setting	MCP Catalog Number
7	800	A	123.1–184.5	1600	**HMCP800X7W**
		B	184.6–246.1	2400	
		C	246.2–307.6	3200	
		D	307.7–369.1	4000	
		E	369.2–430.7	4800	
		F	430.8–492.2	5600	
		G	492.3–553.7	6400	
8	1200	A	184.6–276.8	2400	**HMCP12Y8W**
		B	276.9–369.1	3600	
		C	369.2–461.4	4800	
		D	461.5–553.7	6000	
		E	553.8–646.1	7200	
		F	646.2–738.4	8400	
		G	738.5–830.7	9600	

Notes

① Equipped with electronic trip device.

② Motor FLA ranges are typical. The corresponding trip setting is at 13X the minimum FLA value shown. Where a 13X setting is required for an intermediate FLA value, alternate cam settings and/or MCP ratings should be used.

Motor Protection Circuit Breakers

Contents

Motor Protection Circuit Breakers (MPCB)

Product Description

Motor protection circuit breakers (MPCBs) provide UL 489 branch circuit protection, UL 508 and CSA C22.2 No. 14 motor protection, and meet IEC 60947-2 and 50947-4 requirements. Typical branch motor loads are protected by three-component starters, consisting of breaker, contactor and overload relay, or fuse, contactor and overload relay. The MPCB application-specific protection eliminates the need for motor overload relay found in the traditional three-component starter assembly. The branch motor load protection is simplified to an MPCB and contactor, reducing both space requirements and heat generation in customer panels. Protection is provided by application-specific electronic trip units.

The electronic trip unit provides typical motor overload relay functionality and short-circuit protection against potential phase-to-phase or phase-to-ground faults.

- Disconnecting means
- Branch circuit short-circuit protection
- Overload protection
  - Class 5, 10, 15 and 20
- Phase unbalance protection
  - FDMP breaker trips when there is a 40% difference between any phase compared to the calculated three-phase average
- Phase loss protection
  - Active when the maximum phase current is greater than 50% of FLA setting
  - Breaker will trip when minimum phase current is 25% or less than the maximum phase current
  - Time delay of 1 or 2 seconds before breaker trips
- Thermal memory to prevent immediate restart after overload trip to allow motor to cool down

The MPCB is based on the Series C F-Frame. Accessories for standard Series C breakers apply to the MPCB. Unlike Motor Circuit Protectors (MCPs), MPCBs are UL 489 listed with 35 kA and 65 kA interruption ratings.

Product Selection

FDMP and HFDMP

Continuous Amperes	35 kA Without Phase Unbalance, Class 10 Motor Protection Only	35 kA With Phase Unbalance and Adjustable Motor Class Protection	65 kA Without Phase Unbalance, Class 10 Motor Protection Only	65 kA With Phase Unbalance and Adjustable Motor Class Protection
80	**FDMP3080L**	**FDMP3080JL**	**HFDMP3080L**	**HFDMP3080JL**
100	**FDMP3100L**	**FDMP3100JL**	**HFDMP3100L**	**HFDMP3100JL**
160	**FDMP3160L**	**FDMP3160JL**	**HFDMP3160L**	**HFDMP3160JL**
205	**FDMP3205L**	**FDMP3205JL**	**HFDMP3205L**	**HFDMP3205JL**

FLA Ie Dial Setting

Continuous Amperes	A	B	C	D	E	F	G	H
80	40	50	60	70	80	—	—	—
100	80	—	90	—	100	—	—	—
160	100	115	130	145	160	—	—	—
205	160	170	180	195	205	—	—	—

Technical Data and Specifications

Specifications

Feature	FDMP	HFDMP
Interruption rating at 240V	65 kA	100 kA
Interruption rating at 480V	35 kA	65 kA
Interruption rating at 600V	18 kA	25 kA
Icu/Ics at 240V	65 kA/33 kA ①	100 kA/50 kA ①
Icu/Ics at 415V	35 kA/18 kA ①	65 kA/33 kA ①
100% rated	No	No
FLA range (A)	40–205	40–205
Motor class protection	5, 10, 15, 20	5, 10, 15, 20
Phase unbalance protection (current)—active for phase current >0.5 FLA setting	≥40% delta (single-phase): (three-phase avg.) for 5 seconds	≥40% delta (single-phase): (three-phase avg.) for 5 seconds
Phase loss protection (current)—active for phase current >0.5 FLA setting	Min. phase ≤0.25 max. phase for 1 second	Min. phase ≤0.25 max. phase for 1 second
Thermal memory protection	Yes	Yes
High load indicator	—	—
Pre-detection relays	—	—
Internal accessories	Factory installed	Factory installed
	Aux. alarm, shunt trip, UVR	Aux. alarm, shunt trip, UVR

Notes

① IEC ratings available only on FWMP and HFWMP.

For additional breaker solutions, see **Page V4-T2-86**.

Type ELC Current Limiter Attachment

Contents

Type ELC Current Limiter Attachment (Size 0–4)

Product Description

Eaton's Type ELC current limiter attachment for the MCP is designed to provide increased interrupting capacity. The combination may be used for the application up to 200,000A symmetrical at 600 Vac, making the MCP suitable for use in network distribution systems or other applications where unusually high fault currents are available. The current limiter connects to the load end of the MCP and is provided with terminals suitable for copper or aluminum conductors. (See table at right.)

Limiters are coordinated with the MCP so that normal fault currents are interrupted automatically by the MCP without any damage to the limiter. Only the rare very high fault is opened by the limiter. Faults that are interrupted by the limiter also magnetically trip the MCP, opening all three poles, preventing single-phase operation.

Each of the three poles of the Type ELC limiter is equipped with an indicator that extends when a fault is interrupted by the limiter.

Product Selection

Type ELC Current Limiter Attachment

ELC Current Limiter Attachment

MCP Rating (Amperes)	Catalog Number
3	**ELC3003R**
7	**ELC3007R**
15	**ELC3015R**
30	**ELC3030R**
50	**ELC3050R**
100	**ELC3100R**
150	**ELC3150R**

Technical Data and Specifications

Type ELC Current Limiter Terminal Wire Sizes ①

Type ELC Current Limiter Maximum Amperes	Wire Range AWG	Metric (mm^2)
Standard Aluminum Terminals		
50	14–2	2.5–35
100	1–4/0	50–95
150	1–4/0	50–95
Non-Standard Terminals (Steel)		
50	14–2 ②	2.5–35
100	—	—
150	—	—

Notes

① Terminal wire connectors are UL listed for standard stranded wire sizes as defined in UL 486A or UL 486B.

② Optional on special order for copper cable only.

All HMCP 800A and 1200A come without terminals. For terminals, see **Page V4-T2-227.**

Current Limiting Circuit Breaker Module

Contents

Current Limiting Circuit Breaker Module

Product Overview

Power demand continues to grow in new and existing facilities. To meet increased demand, larger utility supplies, spot networks and large facility transformers are installed. The increased capacity of the electrical source results in increased fault currents in excess of 100 kA short-circuit protection. Eaton manufactures non-fused current limiting modules with interrupting capacities up to 200 kA at 600 Vac. Unlike fused current limiters with a one-time use, a current limiter module provides an automatic reset of the module after a short-circuit event. Resetting the molded-case circuit breaker is the only action required to restore critical power to the system; there is no time wasted with sourcing the correct replacement fuses or module to bring the system back online.

Product Description

The current limiting breaker modules use a unique contact design to enhance the system protection similar to that of the circuit breaker. When high short-circuit current is flowing through the contacts of these modules, the design results in very high interrupting capacities and improved current limiting characteristics.

Application Description

High-performance breakers are most commonly applied when very high fault levels are available and with applications where the current limiting capability is used upstream of the final load to limit current. Typical loads include lighting, power distribution, and motor control applications.

Features and Benefits

Superior system protection:

- Auto reset improves system uptime and eliminates the need for finding replacement parts
- No fuses to replace, reducing the overall cost of ownership and the waste created by fuses
- Overloads, by using inverse time current tripping characteristics of the molded-case circuit breaker
- Low-level short circuits, by using instantaneous and/or short-time delay tripping characteristics of the molded-case circuit breaker
- High-level short circuits, by using ultra-high-speed, blow-apart contacts of the current limiting module in series with the circuit breaker contacts
- Let-through currents, by improved opening speed of the contacts, the resultant rapid rise of arc voltage introduces impedance into the system

Standards and Certifications

- UL 489
- CSA C22.2

Listed

Product Selection

Series C High Performance Ratings

Type	Product	Amperes	480 Vac (UL)	600 Vac (UL)
FDC 3P thermal-magnetic	Breaker only	15–225	100	35
	With limiter	40–200	200	200

FD Frame

FD IC Rating—200 kAIC at 600 Vac ①

Ampere Rating	Breaker with Line Side Mounted Current Limiter ②	Breaker with Load Side Mounted Current Limiter ③
Thermal-Magnetic		
40	**FDC3040Q01**	**FDC3040Q02**
45	**FDC3045Q01**	**FDC3045Q02**
50	**FDC3050Q01**	**FDC3050Q02**
60	**FDC3060Q01**	**FDC3060Q02**
70	**FDC3070Q01**	**FDC3070Q02**
80	**FDC3080Q01**	**FDC3080Q02**
90	**FDC3090Q01**	**FDC3090Q02**
100	**FDC3100Q01**	**FDC3100Q02**
110	**FDC3110Q01**	**FDC3110Q02**
125	**FDC3125Q01**	**FDC3125Q02**
150	**FDC3150Q01**	**FDC3150Q02**
175	**FDC3175Q01**	**FDC3175Q02**
200	**FDC3200Q01**	**FDC3200Q02**

Notes

① Line and load terminal included.

② Two interphase barriers provided, mounted on line end of limiter, catalog number **FJ1PBK**.

③ Four interphase barriers provided, (2) line end of breaker, (2) load end of limiter.

Limiter Terminals

Maximum Breaker Amperes	Terminal Body Material	Wire Type	Metric Wire Range mm^2	AWG Wire Range/ Number of Conductors	Catalog Number
Standard Pressure Type Terminals					
250	Aluminum	Cu/Al	10–185	#8–350 (1)	**TA250FJ** ①

Breaker Load Terminals (For Line Mounted Limiters Only)

Maximum Breaker Amperes	Terminal Body Material	Wire Type	AWG Wire Range	Metric Wire Range mm^2	Package of Three Terminals Catalog Number
Standard Pressure Type Terminals					
100	Steel	Cu/Al	14–1/0	2.5–50	**3T100FB**
225	Aluminum	Cu/Al	4–4/0	25–95	**3TA225FD**

Note

① Load side breaker terminations included for units configured with line mounted limiters.

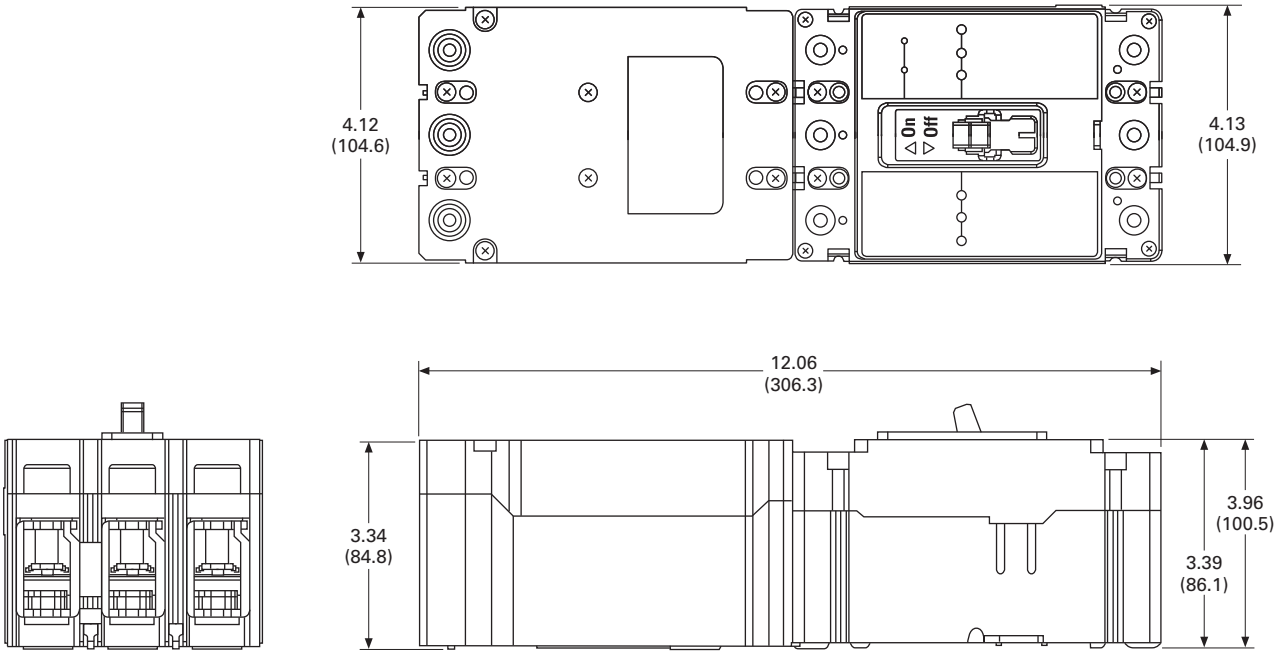
Dimensions and Weights

Approximate Dimensions in Inches (mm)

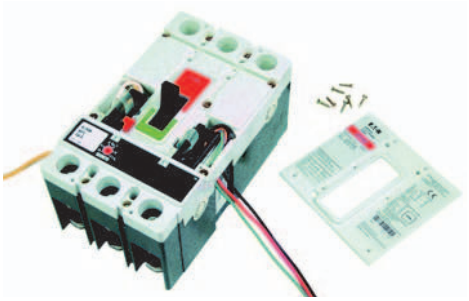
Assembled Breaker and Current Limiting Module

Frame	Height	Width	Depth	Weight in lbs (kg)
FD + limiter	12.06 (306.3)	4.13 (104.9)	3.39 (86.1)	8.50 (3.86)

FD-Frame With Current Limiter Module



Series C Internal Accessories



Contents

Internal Accessories

Product Overview

Alarm Switch

For remote indication of automatic trip operation. Does not function with manual switching; however, it will operate when either a shunt trip or undervoltage release is operated. A "make" contact closes and a "break" contact opens when the alarm/lockout switch operates. The switch automatically resets when the circuit breaker is reset.

Auxiliary Switch

The auxiliary switch provides circuit breaker contact status information by monitoring the position of the molded cross bar that contains the moving contact arms. The auxiliary switch is used for remote indication and interlock system verification, and consists of one or two SPDT switches housed in a plug-in module. Each SPDT switch has one "a" and one "b" contact. When the circuit breaker contacts are open, the "a" contact is open and the "b" contact is closed.

Auxiliary Switch and Alarm Switch Combination

Each catalog number listed in tables on **Pages V4-T2-307** and **V4-T2-308** includes one auxiliary switch and one alarm switch. In an auxiliary switch ASL switch combination, the auxiliary switch is always mounted on the side of the plug-in module next to the center pole of the circuit breaker.

Shunt Trip

The shunt trip provides remote controlled tripping of the circuit breaker. The shunt trip consists of an intermittent rated solenoid with a tripping plunger and a cutoff switch assembled to a plug-in module. When required for ground fault protection applications, certain AC rated shunt trips, as noted in the electrical rating table, are suitable for operation at 55 percent of rated voltage.

Select shunt trip catalog number for the voltage within the indicated voltage range. Shunt trip coils are designed to be applied at specific AC or DC voltages within the voltage range shown. Electrical ratings are also shown on applicable circuit breaker accessory nameplates.

Low Energy Shunt Trip

Low energy shunt trip devices are designed to operate from low energy output signals from dedicated current sensors typically applied in ground fault protection schemes. However, with a proper control voltage source, they may be applied in place of conventional trip devices for special applications. Flux paths surrounding permanent magnets used in the shunt trip assembly hold a charged spring poised in readiness to operate the circuit breaker trip mechanism.

When a 100 microfarad capacitor charged to 28 Vdc is discharged through the shunt trip coil, the resultant flux opposes the permanent magnet flux field, which releases the stored energy in the spring to trip the circuit breaker. As the circuit breaker resets, the shunt trip reset arm is actuated by the circuit breaker handle, resetting the shunt trip. The plug-in module is mounted in retaining slots in the top of the trip unit. Coil is intermittent-rated only. Cutoff provisions required in control circuit.

Undervoltage Release Mechanism

The undervoltage release mechanism monitors a voltage (typically a line voltage) and trips the circuit breaker when the voltage falls to between 70 and 35 percent of the solenoid coil rating.

The undervoltage release mechanism consists of a continuous rated solenoid with a plunger and tripping lever mounted in a plug-in module. The tab on the tripping lever resets the undervoltage release mechanism when normal voltage has been restored and the circuit breaker handle is moved to the reset (or OFF) position. With less than pickup voltage applied to the undervoltage release mechanism, the circuit breaker contacts will not touch when a closing operation is attempted.

Note: Undervoltage release mechanism accessories are not designed for, and should not be used as, circuit interlocks.

Accessory Terminal Block (R-Frame)

(For fixed-mounted configuration.)

Internal accessory wiring leads are normally supplied with pigtail leads (18 AWG) that exit from the right side of the circuit breaker. Where specified, fixed-mounted accessory terminal blocks are available. A maximum of one 24-point terminal block can be installed on the right side of the circuit breaker for the internal accessories.

For convenience in determining the appropriate number of terminal block points required, refer to **Page V4-T2-303**.

PowerNet and Zone Interlock Kits (OPTIM 550 only) K-, L- and N-Frames

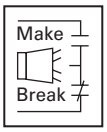
Eaton's PowerNet Communications Kit can be ordered to add PowerNet communications to an existing OPTIM 550 breaker in the field. An 18-inch (457.2 mm) wiring pigtail is routed to the rear of the breaker: two wires for PowerNet and two wires for 24 Vdc (45 mA load). It is recommended that the power supply be an "isolated high quality" unit.

Product Selection

Alarm Switch

2

Alarm Switch



G-Frame Alarm Switch (RH Only) ①

Electrical Ratings Volts	Frequency	Amperes	Contact Arrangement	Factory Suffix	Catalog Number ②③④
Alarm Switch					
240	50/60 Hz	6	1 Make/1 Break	**B3**	**1288C75G03**
Alarm Switch Auxiliary Switches Combination					
240	50/60 Hz	6	1 Make/1 Break and 1A/1B	**B13**	**1288C76G09**

F-Frame Alarm Switch ①

Number of Contacts (Make and Break)	Mounting Location (Pole)	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Same Side Suffix Number	Rear ⑥ Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Factory Installation Kit ⑤ Pigtail Leads Catalog Number	Terminal Block Catalog Number
1	Left ⑦	**B01**	**B02**	**B03**	**B04**	**A1L1LPK**	**A1L1LTK**
	Right	**B05**	**B06**	**B07**	**B08**	**A1L1RPK**	**A1L1RTK**
2	Left ⑦	**B09**	**B10**	—	**B11**	**A2L1LPK**	**A2L1LTK**
	Right	**B12**	**B13**	—	**B14**	**A2L1RPK**	**A2L1RTK**
1 (Make only)	Single-pole	**B15** ⑧	—	—	—	—	—

F-Frame HMCP Alarm Switch ①

Number of Contacts (Make and Break)	Mounting Location (Pole)	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Same Side Suffix Number	Rear ⑥ Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Factory Installation Kit ⑤ Pigtail Leads Catalog Number	Terminal Block Catalog Number
1	Left ⑦	**B01**	**B02**	**B03**	**B04**	**MA1L1LPK**	**MA1L1LTK**
	Right	**B05**	**B06**	**B07**	**B08**	**MA1L1RPK**	**MA1L1RTK**
2	Left ⑦	**B09**	**B10**	—	**B11**	**MA2L1LPK**	**MA2L1LTK**
	Right	**B12**	**B13**	—	**B14**	**MA2L1RPK**	**MA2L1RTK**

J-Frame and HMCP (J) Alarm Switch

Number of Contacts (Make and Break)	Mounting Location (Pole)	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Same Side Suffix Number	Rear ⑦ Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Field Mounted Field Installation Kits ⑨ Pigtail Leads Catalog Number	Terminal Block Catalog Number
1	Left ⑩	**B01**	**B02**	**B03**	**B04**	**A1L2LPK**	**A1L2LTK**
	Right	**B05**	**B06**	**B07**	**B08**	**A1L2RPK**	**A1L2RTK** ⑥

Notes

① F-Frame circuit breakers are factory sealed. Underwriters Laboratories requires that internal accessories be installed at the factory. Internal accessories are UL listed for factory installation under E7819. Where local codes and standards permit and UL listing is not required, internal accessories can be field installed. Accessory installation should be done before the circuit breaker is mounted and connected.

② Includes 24-inch (609.6 mm) external pigtail leads,18 AWG (16–0.010).

③ A maximum of two internal accessories may be mounted in a three-pole circuit breaker.

④ Suitable for mounting in right pole only of two- or three-pole breaker.

⑤ Not listed with Underwriters Laboratories; for field installation.

⑥ Standard pigtail lead exit location.

⑦ Standard mounting location.

⑧ Factory installation only. Leads exit load end of circuit breaker.

⑨ Listed with Underwriters Laboratories; for field installation on interchangeable trip unit breakers under E64983.

⑩ Standard mounting location—leads exit rear of breaker.

K-Frame and HMCP (K) Alarm Switch

Number of Sets of Contacts (1M and 1B)	Mounting Location (Pole)	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Same Side Suffix Number	Rear ② Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Field Mounted Field Installation Kits ① Pigtail Leads Catalog Number	Terminal Block Catalog Number
1	Left ③	**B01**	**B02**	**B03**	**B04**	**A1L3LPK**	**A1L3LTK**
	Right ④	**B05**	**B06**	**B07**	**B08**	**A1L3RPK**	**A1L3RTK**
2	Left ③	**B09**	**B10**	—	**B11**	**A2L3LPK**	**A2L3LTK**
	Right ④	**B12**	**B13**	—	**B14**	**A2L3RPK**	**A2L3RTK**

L-, HMCP (L) and (M) Frames and Alarm Switch

Number of Sets of Contacts (1M and 1B)	Mounting Location (Pole)	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Same Side Suffix Number	Rear ② Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Field Mounted Field Installation Kits ① Pigtail Leads Catalog Number	Terminal Block Catalog Number
1	Left ③	**B01**	**B02**	**B03**	**B04**	**A1L4LPK**	**A1L4LTK**
	Right	**B05**	**B06**	**B07**	**B08**	**A1L4RPK**	**A1L4RTK**
2	Left ③	**B09**	**B10**	—	**B11**	**A2L4LPK**	**A2L4LTK**
	Right	**B12**	**B13**	—	**B14**	**A2L4RPK**	**A2L4RTK**

N-Frame and HMCP (N) Alarm Switch

Number of Sets of Contacts (1M and 1B)	Mounting Location (Pole)	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Same Side Suffix Number	Rear ② Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Field Mounted Field Installation Kits ⑤ Pigtail Leads Catalog Number	Terminal Block Catalog Number
1	Left	**B01**	**B02**	**B03**	**B04**	**A1L5LPK**	**A1L5LTK**
	Right ③	**B05**	**B06**	**B07**	**B08**	**A1L5RPK**	**A1L5RTK**
2	Left	**B09**	**B10**	—	**B11**	**A2L5LPK**	**A2L5LTK**
	Right ③	**B12**	**B13**	—	**B14**	**A2L5RPK**	**A2L5RTK**

R-Frame Alarm Switch (RH Only)

Number of Contacts (Make and Break)	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Suffix Number ⑥	Field Mounted Field Installation Kits ⑤ Pigtail Leads Catalog Number ⑥
1	**B05**	**A1L6RPK**
2	**B12**	**A2L6RPK**

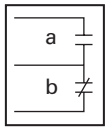
Notes

① Listed with Underwriters Laboratories; for field installation on interchangeable trip unit breakers under E64983.
② Standard mounting location.
③ Standard mounting location—leads exit rear of breaker.
④ Breakers with K-Frame OPTIM 550 can only accept accessories in left pole.
⑤ Listed with Underwriters Laboratories for field installation under E64983.
⑥ A maximum of three ASL plug-in modules may be installed in a circuit breaker.

Auxiliary Switch

2

Auxiliary Switch



G-Frame Auxiliary Switch (RH Only)

Electrical Ratings Volts	Frequency	Amperes	Contact Arrangement	Factory Suffix	Catalog Number ①②
240	50/60 Hz	6	1a/1b	**A3**	**1288C74G03**
240	50/60 Hz	6	2a/2b	**A6**	**1288C73G03**

F-Frame and HMCP (F) Auxiliary Switch

		Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads				Factory Installation Kit ④	
					Terminal Block	Pigtail Leads	Terminal Block
Number of Contacts A and B	Mounting Location (Pole)	Same Side Suffix Number	Rear ③ Suffix Number	Opposite Side Suffix Number	Same Side Suffix Number	Catalog Number	Catalog Number
1	Left ⑤	**A01**	**A02**	**A03**	**A04**	**A1X1PK**	**A1X1LTK**
	Left ⑤	**A15** ⑦	**A16** ⑦	**A17** ⑦	—	**E1X1PK**	—
	Right or Neutral ⑥	**A05**	**A06**	**A07**	**A08**	**A1X1PK**	**A1X1RTK** ⑧
	Right or Neutral ⑥	**A18** ⑦	**A19** ⑦	**A20** ⑦	—	—	—
2	Left ⑤	**A09**	**A10**	—	**A11**	**A2X1LPK**	**A2X1LTK**
	Left ⑤	**A21** ⑦	**A22** ⑦	—	—	**E2X1LPK**	—
	Right or Neutral ⑥	**A12**	**A13**	—	**A14**	**A2X1RPK**	**A2X1RTK** ⑧
	Right or Neutral ⑥	**A23** ⑦	**A24** ⑦	—	—	**E2X1RPK**	—

F-Frame with Electronic Trip Unit Auxiliary Switch ⑨

		Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads				Factory Installation Kit ④	
					Terminal Block	Pigtail Leads	Terminal Block
Number of Contacts A and B	Mounting Location (Pole)	Same Side Suffix Number	Rear Suffix Number	Opposite Side Suffix Number	Same Side Suffix Number	Catalog Number	Catalog Number
1	Right	**A30**	**A31**	**A32**	—	**A1X1RPKFDE**	—

J-Frame and HMCP (J) Auxiliary Switch

		Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads				Field Mounted Factory Installation Kit ⑩	
					Terminal Block	Pigtail Leads	Terminal Block
Number of Contacts A and B	Mounting Location (Pole)	Same Side Suffix Number	Rear ③ Suffix Number	Opposite Side Suffix Number	Same Side Suffix Number	Catalog Number	Catalog Number
1	Left	**A01**	**A02**	**A03**	**A04**	**A1X2PK**	**A1X2LTK**
	Right ⑪	**A05**	**A06**	**A07**	**A08**	**A1X2PK**	**A1X2RTK** ④
2	Left	**A09**	**A10**	—	**A11**	**A2X2PK**	**A2X2LTK**
	Right ⑪	**A12**	**A13**	—	**A14**	**A2X2PK**	**A2X2RTK** ④

Notes

① Includes 24-inch external pigtail leads, 18 AWG (16–0.010).
② A maximum of two internal accessories may be mounted in a three-pole circuit breaker. Suitable for mounting in right pole only of two- or three-pole breaker.
③ Standard pigtail lead exit location.
④ Not listed with Underwriters Laboratories; for field installation.
⑤ Pigtail wire size: 18 AWG (0.82 mm^2).
⑥ Not for use on F-Frame with electronic trip unit.
⑦ 125 volts (max.), 50/60 Hz switch for use in electronic circuit of 100 micro amperes and 15 Vdc minimum.
⑧ Not for use on four-pole circuit breakers.
⑨ Only for use on three-pole F-Frame breakers with electronic trip unit.
⑩ Listed with Underwriters Laboratories for field installation or interchangeable trip unit breakers under E64983.
⑪ Standard mounting location—leads exit rear of breaker.

K-Frame and HMCP (K) Auxiliary Switch

Number of Contacts A and B	Mounting Location (Pole)	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Same Side Suffix Number	Rear ② Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Field Mounted Factory Installation Kit ① Pigtail Leads Catalog Number	Terminal Block Catalog Number
1	Left	A01	A02	A03	A04	A1X3PK	A1X3LTK
	Right ②③	A05	A06	A07	A08	A1X3PK	A1X3RTK ④
2	Left	A09	A10	—	A11	A2X3PK	A2X3LTK
	Right ②③	A12	A13	—	A14	A2X3PK	A2X3RTK ④
	Right	A21	A22	—	—	1482D28G10 ⑥⑦	—
3	Left	A18	—	—	A15	A3X3LPK	A3X3LTK
	Right ③	A17	—	—	A16	A3X3RPK	A3X3RTK ④

L-, HMCP (L) and (M) Frames and Auxiliary Switch

Number of Contacts A and B	Mounting Location (Pole)	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Same Side Suffix Number	Rear ② Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Field Mounted Factory Installation Kit ① Pigtail Leads Catalog Number	Terminal Block Catalog Number
1	Left	A01	A02	A03	A04	A1X4PK	A1X4LTK
	Right ②	A05	A06	A07	A08	A1X4PK	A1X4RTK ④
2	Left	A09	A10	—	A11	A2X4PK	A2X4LTK
	Right ②	A12	A13	—	A14	A2X4PK	A2X4RTK ④
3	Left	A18	—	—	A15	A3X4PK	A3X4LTK
	Right ②	A17	—	—	A16	A3X4PK	A3X4RTK ④

N-Frame and HMCP (N) Auxiliary Switch

Number of Contacts A and B	Mounting Location (Pole)	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Same Side Suffix Number	Rear ② Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Field Mounted Factory Installation Kit ① Pigtail Leads Catalog Number	Terminal Block Catalog Number
1	Left	A01	A02	A03	A04	A1X5PK	A1X5LTK
	Right ②	A05	A06	A07	A08	A1X5PK	A1X5RTK ④
2	Left	A09	A10	—	A11	A2X5PK	A2X5LTK
	Right ②	A12	A13	—	A14	A2X5PK	A2X5RTK ④
3	Left	A18	—	—	A15	A3X5LPK	A3X5LTK
	Right ②	A17	—	—	A16	A3X5RPK	A3X5RTK ④

R-Frame Auxiliary Switch (RH Only)

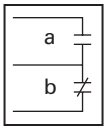
Number of Contacts A and B	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Suffix Number ⑤	Field Mounted Field Installation Kits ① Pigtail Leads Catalog Number ⑤
2	A12	A2X6RPK
4	A19	A4X6RPK

Notes

① Listed with Underwriters Laboratories for field installation under E64983.
② Standard mounting location—leads exit rear of breaker.
③ Breakers with K-Frame OPTIM 550 can only accept accessories in left pole.
④ Not for use on four-pole circuit breakers.
⑤ A maximum of two auxiliary switches (any combination of 2a/2b or 4a/4b plug-in modules may be installed in a circuit breaker.
⑥ This option is not field installable.
⑦ Available on the OPTIM 550 only. Communications are not available with this option.

Auxiliary Switch and Alarm Switch Combination

Auxiliary Switch and Alarm Switch Combination



F-Frame Auxiliary Switch and Alarm Switch Combination

Mounting Location (Pole)	Factory Mounted Connection Type and Location 18-Inch (457 mm) Pigtail Leads Same Side Suffix Number	Rear ② Suffix Number	Terminal Block Same Side Suffix Number	Factory Installation Kit ① Pigtail Leads Catalog Number	Terminal Block Catalog Number
Left ②	C01	C02	C03	AAL1LPK	AAL1LTK
Right	C04	C05	C06	AAL1RPK	AAL1RTK ③

F-Frame HMCP Auxiliary Switch and Alarm Switch Combination

Mounting Location (Pole)	Factory Mounted Connection Type and Location 18-Inch (457 mm) Pigtail Leads Same Side Suffix Number	Rear ② Suffix Number	Terminal Block Same Side Suffix Number	Factory Installation Kit ① Pigtail Leads Catalog Number	Terminal Block Catalog Number
Left ③	C01	C02	C03	MAAL1LPK	MAAL1LTK
Right	C04	C05	C06	MAAL1RPK	MAAL1RPK

J-Frame and HMCP (J) Auxiliary Switch and Alarm Switch Combination

Number of Sets of Contacts (1A and 1B) (1M–1B)	Mounting Location (Pole)	Factory Mounted Connection Type and Location 18-Inch (457 mm) Pigtail Leads Same Side Suffix Number	Rear ⑤ Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Field Mounted Field Installation Kits ④ Pigtail Leads Catalog Number	Terminal Block Catalog Number
1	Left	C01	C02	—	C03	AAL2LPK	AAL2LTK
	Right ③	C04	C05	—	C06	AAL2RPK	AAL2RTK ③

K-Frame and HMCP (K) Auxiliary Switch and Alarm Switch Combination

Number of Sets of Contacts (1A and 1B) (1M–1B)	Mounting Location (Pole)	Factory Mounted Connection Type and Location 18-Inch (457 mm) Pigtail Leads Same Side Suffix Number	Rear ⑤ Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Field Mounted Field Installation Kits ④ Pigtail Leads Catalog Number	Terminal Block Catalog Number
1	Left	C01	C02	—	C03	AAL3LPK	AAL3LTK
	Right ⑤⑥	C04	C05	—	C06	AAL3RPK ⑦	AAL3RTK
	Right	C07	C08	—	—	1482D28G09 ⑧⑨	—

Notes

① Not listed with Underwriters Laboratories for field installation.
② Standard mounting location.
③ Not for use on four-pole circuit breakers
④ Listed with Underwriters Laboratories for field installation of interchangeable trip unit breakers under E64983.
⑤ Standard mounting location—leads exit rear of breaker.
⑥ Breakers with K-Frame OPTIM 550 can only accept accessories in left pole.
⑦ Will not install on OPTIM Trip (RH).
⑧ Available on the OPTIM 550 only. Communications are not available with this option.
⑨ This option is not field installable.

L-, HMCP (L) and (M) Frames and Auxiliary Switch and Alarm Switch Combination

Number of Sets of Contacts	Mounting Location (Pole)	Factory Mounted Connection Type and Location 18-Inch (457 mm) Pigtail Leads Same Side Suffix Number	Rear ② Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Field Mounted Field Installation Kits ① Pigtail Leads Catalog Number	Terminal Block Catalog Number
1A, 1B and 1 Make/1 Break	Left	**C01**	**C02**	—	**C03**	**AA114LPK**	**AA114LTK**
	Right ②	**C04**	**C05**	—	**C06**	**AA114RPK**	**AA114RTK** ③
2A, 2B and 1 Make/1 Break	Left	**C07**	**C08**	—	**C12**	**AA214LPK**	**AA214LTK**
	Right ②	**C10**	**C11**	—	**C13**	**AA214RPK**	**AA214RTK** ③
3A, 3B and 1 Make/1 Break	Left	**C14**	—	—	—	**AA314LPK**	—
	Right ②	**C15**	—	—	—	**AA314RPK**	—

N-Frame and HMCP (N) Auxiliary Switch and Alarm Switch Combination

Number of Sets of Contacts	Mounting Location (Pole)	Factory Mounted Connection Type and Location 18-Inch (457 mm) Pigtail Leads Same Side Suffix Number	Rear ② Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Field Mounted Field Installation Kits ① Pigtail Leads Catalog Number	Terminal Block Catalog Number
1A, 1B and 1 Make/1 Break	Left	**C01**	**C02**	—	**C03**	**AA115LPK**	**AA115LTK**
	Right ②	**C04**	**C05**	—	**C06**	**AA115RPK**	**AA115RTK** ③
2A, 2B and 1 Make/1 Break	Left	**C07**	**C08**	—	**C12**	**AA215LPK**	**AA215LTK**
	Right ②	**C10**	**C11**	—	**C13**	**AA215RPK**	**AA215RTK** ③

Notes

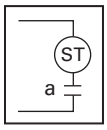
① Listed with Underwriters Laboratories for field installation under E64983.

② Standard mounting location—leads exit rear of breaker.

③ Not for use on four-pole circuit breaker.

Shunt Trip

Shunt Trip



G-Frame Shunt Trip (LH Three-Pole Only)

Electrical Ratings			Suffix	Catalog
Volts	**Frequency**	**Amperes**	**Number**	**Number**
120	50/60 Hz	1.1	**S1**	**1373D62G01**
240	50/60 Hz	2.1	**S2**	**1373D62G02**
12	DC	2.8	**S3**	**1373D62G15**
24	DC	5.7	**S4**	**1373D62G16**
24	60 Hz	—	**S7**	**1373D62G20**

F-Frame and HMCP (F) Shunt Trip

	Factory Mounted Connection Type and Location				Factory Installation Kit ①	
	18-Inch (457.2 mm) Pigtail Leads ②			Terminal Block	Pigtail Leads	Terminal Block
	Same Side	Rear ③	Opposite Side	Same Side		
Voltage Rating (AC Frequency = 50/60 Hz)	**Suffix Number**	**Suffix Number**	**Suffix Number**	**Suffix Number**	**Catalog Number**	**Catalog Number**
Left-Pole Mounting AC/DC Ratings						
12–24 Vac or Vdc	**S01**	**S02**	**S03**	**S04**	**SNT1LP03K**	**SNT1LT03K**
48–127 Vac or 48–60 Vdc ④	**S05**	**S06**	**S07**	**S08**	**SNT1LP08K**	**SNT1LT08K**
208–380 Vac or 110–127 Vdc	**S09**	**S10**	**S11**	**S12**	**SNT1LP12K**	**SNT1LT12K**
415–600 Vac or 220–250 Vdc	**S13**	**S14**	**S15**	**S16**	**SNT1LP18K**	**SNT1LT18K**
Right- or Neutral-Pole Mounting AC/DC Ratings ⑤						
12–24 Vac or Vdc	**S17**	**S18**	**S19**	**S20**	**SNT1RP03K**	**SNT1RT03K** ⑥
48–127 Vac or 48–60 Vdc ④	**S21**	**S22**	**S23**	**S24**	**SNT1RP08K**	**SNT1RT08K** ⑥
208–380 Vac or 110–127 Vdc	**S25**	**S26**	**S27**	**S28**	**SNT1RP12K**	**SNT1RT12K** ⑥
415–600 Vac or 220–250 Vdc	**S29**	**S30**	**S31**	**S32**	**SNT1RP18K**	**SNT1RT18K** ⑥

Notes

① Not listed with Underwriters Laboratories, for field installation.
② Pigtail wire size: 18 AWG (0.82 mm^2).
③ Standard pigtail lead exit location.
④ 120 Vac marked suitable for ground fault protection devices.
⑤ Standard mounting location.
⑥ Not for use on four-pole circuit breakers.

G-Frame circuit breakers are factory sealed. Underwriters Laboratories requires that internal accessories be installed at the factory.

Internal accessories are UL listed for factory installation under E7819.

Where local codes and standards permit and UL listing is not required, internal accessories can be field installed. Accessory installation should be done before the circuit breaker is mounted and connected.

J-Frame and HMCP (J) Shunt Trip

Voltage Rating (AC Frequency = 50/60 Hz)	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Same Side Suffix Number	Rear ② Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Field Mounted Field Installation Kits ① Pigtail Leads Catalog Number	Terminal Block Catalog Number
Left-Pole Mounting AC/DC Ratings ②						
12–24 Vac or Vdc	S41	S42	S43	S44	SNT2P04K	SNT2T04K
48–60 Vac or Vdc	S49	S50	S51	S52	SNT2P06K	SNT2T06K
110–240 Vac or 110–125 Vdc ③	S09	S10	S11	S12	SNT2P11K	SNT2T11K
380–440 Vac or 220–250 Vdc	S13	S14	S15	S16	SNT2P14K	SNT2T14K
480–600 Vac	S17	S18	S19	S20	SNT2P18K	SNT2T18K
Right- or Neutral-Pole Mounting AC/DC Ratings						
12–24 Vac or Vdc	S45	S46	S47	S48	SNT2P04K	SNT2T04K ④
48–60 Vac or Vdc	S53	S54	S55	S56	SNT2P06K	SNT2T06K ④
110–240 Vac or 110–125 Vdc ③	S29	S30	S31	S32	SNT2P11K	SNT2T11K ④
380–440 Vac or 220–250 Vdc	S33	S34	S35	S36	SNT2P14K	SNT2T14K ④
480–600 Vac	S37	S38	S39	S40	SNT2P18K	SNT2T18K ④

K-Frame and HMCP (K) Shunt Trip

Voltage Rating (AC Frequency = 50/60 Hz)	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Same Side Suffix Number	Rear ② Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Field Mounted Field Installation Kits ① Pigtail Leads Catalog Number	Terminal Block Catalog Number
Left-Pole Mounting AC/DC Ratings ②						
12–24 Vac or Vdc	S41	S42	S43	S44	SNT3P04K	SNT3T04K
48–60 Vac or Vdc	S49	S50	S51	S52	SNT3P06K	SNT3T06K
110–240 Vac or 110–125 Vdc ③	S09	S10	S11	S12	SNT3P11K	SNT3T11K
380–440 Vac or 220–250 Vdc	S13	S14	S15	S16	SNT3P14K	SNT3T14K
480–600 Vac	S17	S18	S19	S20	SNT3P18K	SNT3T18K
Right- or Neutral-Pole Mounting AC/DC Ratings ⑤⑥						
12–24 Vac or Vdc	S45	S46	S47	S48	SNT3P04K	SNT3T04K ④
48–60 Vac or Vdc	S53	S54	S55	S56	SNT3P06K	SNT3T06K ④
110–240 Vac or 110–125 Vdc ③	S29	S30	S31	S32	SNT3P11K	SNT3T11K ④
380–440 Vac or 220–250 Vdc	S33	S34	S35	S36	SNT3P14K	SNT3T14K ④
480–600 Vac	S37	S38	S39	S40	SNT3P18K	SNT3T18K ④

Notes

① Listed with Underwriters Laboratories for field installation under E64983.
② Standard mounting location—leads exit rear of breaker.
③ Suitable for use with Class 1 ground fault sensing element.
④ Not for use on four-pole circuit breakers.
⑤ For use with KT (thermal-magnetic) trip units only.
⑥ Breakers with K-Frame OPTIM 550 can only accept accessories in left pole.

L-, HMCP (L) and (M) Frames and Shunt Trip

Voltage Rating (AC Frequency = 50/60 Hz)	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Same Side Suffix Number	Rear ② Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Field Mounted Field Installation Kits ① Pigtail Leads Catalog Number	Terminal Block Catalog Number
Left-Pole Mounting AC/DC Ratings ②						
12–24 Vac or Vdc	**S01**	**S02**	**S03**	**S04**	**SNT4LP03K**	**SNT4LT03K**
48–60 Vac	**S05**	**S06**	**S07**	**S08**	**SNT4LP05K**	**SNT4LT05K**
48–60 Vdc	**S85**	**S86**	**S87**	—	**SNT4LP23K**	**SNT4LT23K**
110–240 Vac	**S09**	**S10**	**S11**	**S12**	**SNT4LP11K**	**SNT4LT11K**
110–125 Vdc	**S41**	**S42**	**S43**	**S44**	**SNT4LP26K**	**SNT4LT26K**
380–440 Vac or 220–250 Vdc	**S13**	**S14**	**S15**	**S16**	**SNT4LP14K**	**SNT4LT14K**
480–600 Vac	**S17**	**S18**	**S19**	**S20**	**SNT4LP18K**	**SNT4LT18K**
Right-Pole Mounting AC/DC Ratings ③						
12–24 Vac or Vdc	**S21**	**S22**	**S23**	**S24**	**SNT4RP03K**	**SNT4RT03K**
48–60 Vac	**S25**	**S26**	**S27**	**S28**	**SNT4RP05K**	**SNT4RT05K**
48–60 Vdc	**S88**	**S89**	**S90**	—	**SNT4RP23K**	**SNT4RT23K**
110–240 Vac	**S29**	**S30**	**S31**	**S32**	**SNT4RP11K**	**SNT4RT11K**
110–125 Vdc	**S45**	**S46**	**S47**	**S48**	**SNT4RP26K**	**SNT4RT26K**
380–440 Vac or 220–250 Vdc	**S33**	**S34**	**S35**	**S36**	**SNT4RP14K**	**SNT4RT14K**
480–600 Vac	**S37**	**S38**	**S39**	**S40**	**SNT4RP18K**	**SNT4RT18K**

Notes

① Listed with Underwriters Laboratories, for field installation under E64983.
② Standard mounting location—leads exit rear of breaker.
③ For use with LT (thermal-magnetic) three-pole trip units only.

N-Frame and HMCP (N) Shunt Trip

Voltage Rating (AC Frequency = 50/60 Hz)	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Same Side Suffix Number	Rear ② Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Field Mounted Field Installation Kits ① Pigtail Leads Catalog Number	Terminal Block Catalog Number
Left-Pole Mounting AC/DC Ratings ②						
9–24 Vac or Vdc	**S01**	**S02**	**S03**	**S04**	**SNT5LP03K**	**SNT5LT03K**
48–60 Vac	**S05**	**S06**	**S07**	**S08**	**SNT5LP05K**	**SNT5LT05K**
110–240 Vac ③	**S09**	**S10**	**S11**	**S12**	**SNT5LP11K**	**SNT5LT11K**
110–125 Vdc	**S41**	**S42**	**S43**	**S44**	**SNT5LP26K**	**SNT5LT26K**
380–440 Vac or 220–250 Vdc	**S13**	**S14**	**S15**	**S16**	**SNT5LP14K**	**SNT5LT14K**
480–600 Vac	**S17**	**S18**	**S19**	**S20**	**SNT5LP18K**	**SNT5LT18K**
48–60 Vdc	**S21**	**S22**	**S23**	**S24**	**SNT5LP23K**	**SNT5LT23K**

R-Frame Shunt Trip (RH Only)

Voltage Rating (AC Frequency = 50/60 Hz)	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Suffix Number ④	Field Mounted Field Installation Kits ① Pigtail Leads Catalog Number ④
24 Vac or Vdc	**S21**	**SNT6P03K**
48–60 Vac	**S25**	**SNT6P05K**
110–240 Vac	**S29**	**SNT6P11K**
380–440 Vac or 220–250 Vdc	**S33**	**SNT6P14K**
480–600 Vac	**S37**	**SNT6P18K**
48–60 Vdc	**S88**	**SNT6P23K**
110–125 Vdc	**S45**	**SNT6P26K**

Notes

① Listed with Underwriters Laboratories for field installation under E64983.
② Standard mounting location—leads exit rear of breaker.
③ Supply voltages suitable for use with Class 1 GFP devices. Marking label included with accessory kits.
④ A maximum of two shunt trip plug-in modules may be installed in a circuit breaker.

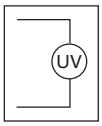
2

Low Energy Shunt Trip

Ordering Information

Select shunt trip catalog number for the voltage within the indicated voltage range. Shunt trip coils are designed to be applied at specific AC or DC voltages within the voltage range shown. Electrical ratings are also shown on applicable circuit breaker accessory nameplates.

Low Energy Shunt Trip



F-, J-, K-, L-, M-, N- and R-Frames and HMCPs Low Energy Shunt Trip ①

Mounting Positions (Pole)	Factory Mounted Connection Type and Location 18-Inch (457.2 mm) Pigtail Leads Same Side Suffix Number	Rear ③ Suffix Number	Opposite Side Suffix Number	Terminal Block Same Side Suffix Number	Field Mounted Field Installation Kits ② Pigtail Leads Catalog Number	Terminal Block Catalog Number
F-Frame						
Left	**N01**	**N02**	**N03**	**N04**	**LST1LPK** ④	**LST1LTK** ④
Right ③	**N05**	**N06**	**N07**	**N08**	**LST1RPK** ④	**LST1RTK** ④
J-Frame						
Left	**N01**	**N02**	**N03**	—	**LST2LPK**	—
Right ③	**N05**	**N06**	**N07**	—	**LST2RPK**	—
K-Frame						
Left ③	**N01**	**N02**	**N03**	—	**LST3LPK**	—
Right ⑤⑥	**N05**	**N06**	**N07**	—	**LST3RPK**	—
L- and M-Frames						
Left	**N01**	**N02**	**N03**	—	**LST4LPK**	—
Right	**N05**	**N06**	**N07**	—	**LST4RPK**	—
N-Frame						
Left ③	**N01**	**N02**	**N03**	—	**LST5LPK**	—
R-Frame						
Right	**N01**	—	—	—	**LST6RPK**	—

Notes

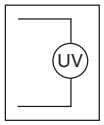
① Cutoff provisions required in control circuit.
② Listed with Underwriters Laboratories for field installation under E64983.
③ Standard mounting location—leads exit rear of breaker.
④ For F-Frame HMCP, add an "M" to beginning of catalog number. Field Installation Kit referenced for factory use only, not UL listed for field installation.
⑤ For use with thermal-magnetic trip units only.
⑥ Breakers with K-Frame OPTIM 550 can only accept accessories in left pole.

Undervoltage Release Mechanism

Ordering Information

Select handle reset undervoltage release mechanism catalog number for the voltage within the indicated voltage range. Undervoltage release mechanism coils are designed to be applied at specific AC or DC voltages within the voltage range shown on applicable circuit breaker accessory nameplates.

Undervoltage Release Mechanism



G-Frame Undervoltage Release Mechanism (LH Three-Pole Only)

Electrical Ratings Volts (AC Only)	Frequency	Amperes	Style Numbers ①②③	Factory Suffix
120	50/60 Hz	0.05	**1373D62G03**	**T1**
24	50/60 Hz	0.22	**1373D62G04**	**T2**
48	50/60 Hz	0.11	**1373D62G05**	**T3**
60	50/60 Hz	0.10	**1373D62G06**	**T4**
110	50 Hz	0.049	**1373D62G07**	**T5**
208	60 Hz	0.026	**1373D62G08**	**T6**
220	50 Hz	0.025	**1373D62G09**	**T7**
240	50/60 Hz	0.024	**1373D62G10**	**T8**
380	50 Hz	0.015	**1373D62G11**	**T9**
415	50 Hz	0.013	**1373D62G12**	**T10**
440	50 Hz	0.012	**1373D62G13**	**T11**
480	60 Hz	0.01	**1373D62G14**	**T12**

Notes

① Includes 24-inch (609.6 mm) external pigtail leads, 18 AWG (16–0.010).

② A maximum of two internal accessories may be mounted in a three-pole circuit breaker.

③ Suitable for mounting in left pole only of three-pole breaker.

G-Frame circuit breakers are factory sealed. Underwriters Laboratories requires that internal accessories be installed at the factory.

Internal accessories are UL listed for factory installation under E7819.

Where local codes and standards permit and UL listing is not required, internal accessories can be field installed. Accessory installation should be done before the circuit breaker is mounted and connected.

F-Frame Factory Mounted (For F-Frame Breaker and F-Frame HMCP) Undervoltage Release Mechanism

Voltage Rating (AC Freq. = 50/60 Hz)	Connection Type and Location: 18-Inch Pigtail Leads, Same Side Suffix Number	Rear ① Suffix Number	Opposite Side Suffix Number	Terminal Block, Same Side Suffix Number
Left-Pole Mounting AC Ratings				
12 Vac	**U01**	**U02**	**U03**	**U04**
24 Vac	**U05**	**U06**	**U07**	**U08**
48 Vac	**U37**	**U38**	**U39**	**U40**
60 Vac	**U97**	**U98**	**U99**	**U100**
110–127 Vac	**U13**	**U14**	**U15**	**U16**
208–240 Vac	**U17**	**U18**	**U19**	**U20**
380–480 Vac	**U21**	**U22**	**U23**	**U24**
525–600 Vac	**U25**	**U26**	**U27**	**U28**
Right-Pole Mounting AC Ratings ②③				
12 Vac	**U49**	**U50**	**U51**	**U52**
24 Vac	**U53**	**U54**	**U55**	**U56**
48 Vac	**U85**	**U86**	**U87**	**U88**
60 Vac	**U101**	**U102**	**U103**	**U104**
110–127 Vac	**U61**	**U62**	**U63**	**U64**
208–240 Vac	**U65**	**U66**	**U67**	**U68**
380–480 Vac	**U69**	**U70**	**U71**	**U72**
525–600 Vac	**U73**	**U74**	**U75**	**U76**
Left-Pole Mounting DC Ratings				
12 Vdc	**U29**	**U30**	**U31**	**U32**
24 Vdc	**U33**	**U34**	**U35**	**U36**
48 Vdc	**U37**	**U38**	**U39**	**U40**
60 Vdc	**U97**	**U98**	**U99**	**U100**
110–127 Vdc	**U41**	**U42**	**U43**	**U44**
220–250 Vdc	**U45**	**U46**	**U47**	**U48**
Right-Pole Mounting DC Ratings ②③				
12 Vdc	**U77**	**U78**	**U79**	**U80**
24 Vdc	**U81**	**U82**	**U83**	**U84**
48 Vdc	**U85**	**U86**	**U87**	**U88**
60 Vdc	**U101**	**U102**	**U103**	**U104**
110–127 Vdc	**U89**	**U90**	**U91**	**U92**
220–250 Vdc	**U93**	**U94**	**U95**	**U96**

Notes

① Standard pigtail lead exit location.

② Standard mounting location.

③ Not for use on right pole of four-pole circuit breaker.

F-Frame circuit breakers are factory sealed. Underwriters Laboratories requires that internal accessories be installed at the factory.

Internal accessories are UL listed for factory installation under E7819.

Where local codes and standards permit and UL listing is not required, internal accessories can be field installed. Accessory installation should be done before the circuit breaker is mounted and connected.

F-Frame Field Mounted Undervoltage Release Mechanism

Voltage Rating (AC Freq. = 50/60 Hz)	F-Frame Breaker Factory Installation Kits ① Pigtail Leads Catalog Number	F-Frame Breaker Factory Installation Kits ① Terminal Block Catalog Number	F-Frame Breaker HMCP Pigtail Leads Catalog Number	F-Frame Breaker HMCP Terminal Block Catalog Number
Left-Pole Mounting AC Ratings				
12 Vac	**UVH1LP02K**	**UVH1LT02K**	**MUVH1LP02K**	**MUVH1LT02K**
24 Vac	**UVH1LP03K**	**UVH1LT03K**	**MUVH1LP03K**	**MUVH1LT03K**
48 Vac	**UVH1LP22K**	**UVH1LT22K**	**MUVH1LP22K**	**MUVH1LT22K**
60 Vac	**UVH1LP24K**	**UVH1LT24K**	**MUVH1LP24K**	**MUVH1LT24K**
110–127 Vac	**UVH1LP08K**	**UVH1LT08K**	**MUVH1LP08K**	**MUVH1LT08K**
208–240 Vac	**UVH1LP11K**	**UVH1LT11K**	**MUVH1LP11K**	**MUVH1LT11K**
380–480 Vac	**UVH1LP15K**	**UVH1LT15K**	**MUVH1LP15K**	**MUVH1LT15K**
525–600 Vac	**UVH1LP18K**	**UVH1LT18K**	**MUVH1LP18K**	**MUVH1LT18K**
Right-Pole Mounting AC Ratings ②③				
12 Vac	**UVH1RP02K**	**UVH1RT02K**	**MUVH1RP02K**	**MUVH1RT02K**
24 Vac	**UVH1RP03K**	**UVH1RT03K**	**MUVH1RP03K**	**MUVH1RT03K**
48 Vac	**UVH1RP22K**	**UVH1RT22K**	**MUVH1RP22K**	**MUVH1RT22K**
60 Vac	**UVH1RP24K**	**UVH1RT24K**	**MUVH1RP24K**	**MUVH1RT24K**
110–127 Vac	**UVH1RP08K**	**UVH1RT08K**	**MUVH1RP08K**	**MUVH1RT08K**
208–240 Vac	**UVH1RP11K**	**UVH1RT11K**	**MUVH1RP11K**	**MUVH1RT11K**
380–480 Vac	**UVH1RP15K**	**UVH1RT15K**	**MUVH1RP15K**	**MUVH1RT15K**
525–600 Vac	**UVH1RP18K**	**UVH1RT18K**	**MUVH1RP18K**	**MUVH1RT18K**
Left-Pole Mounting DC Ratings				
12 Vdc	**UVH1LP20K**	**UVH1LT20K**	**MUVH1LP20K**	**MUVH1LT20K**
24 Vdc	**UVH1LP21K**	**UVH1LT21K**	**MUVH1LP21K**	**MUVH1LT21K**
48 Vdc	**UVH1LP22K**	**UVH1LT22K**	**MUVH1LP22K**	**MUVH1LT22K**
60 Vdc	**UVH1LP24K**	**UVH1LT24K**	**MUVH1LP24K**	**MUVH1LT24K**
110–127 Vdc	**UVH1LP26K**	**UVH1LT26K**	**MUVH1LP26K**	**MUVH1LT26K**
220–250 Vdc	**UVH1LP28K**	**UVH1LT28K**	**MUVH1LP28K**	**MUVH1LT28K**
Right-Pole Mounting DC Ratings ②③				
12 Vdc	**UVH1RP20K**	**UVH1RT20K**	**MUVH1RP20K**	**MUVH1RT20K**
24 Vdc	**UVH1RP21K**	**UVH1RT21K**	**MUVH1RP21K**	**MUVH1RT21K**
48 Vdc	**UVH1RP22K**	**UVH1RT22K**	**MUVH1RP22K**	**MUVH1RT22K**
60 Vdc	**UVH1RP22K**	**UVH1RT22K**	**MUVH1RP22K**	**MUVH1RT22K**
110–127 Vdc	**UVH1RP26K**	**UVH1RT26K**	**MUVH1RP26K**	**MUVH1RT26K**
220–250 Vdc	**UVH1RP28K**	**UVH1RT28K**	**MUVH1RP28K**	**MUVH1RT28K**

Notes

① Not listed with Underwriters Laboratories, for field installation.
② Standard mounting location.
③ Not for use on right pole of four-pole circuit breaker.

J-Frame and HMCP (J) Undervoltage Release Mechanism

	Factory Mounted Connection Type and Location				Field Mounted Field Installation Kits ②	
	18-Inch (457.2 mm) Pigtail Leads			Terminal Block ①		
	Same Side	Rear ②	Opposite Side	Same Side	Pigtail Leads	Terminal Block ③
Voltage Rating (AC Freq. = 50/60 Hz)	Suffix Number	Suffix Number	Suffix Number	Suffix Number	Catalog Number	Catalog Number
Left-Pole Mounting AC Ratings ④						
12 Vac	U05	U06	U07	U08	UVH2LP02K	UVH2LT02K
24 Vac	U09	U10	U11	U12	UVH2LP03K	UVH2LT03K
48–60 Vac	U13	U14	U15	U16	UVH2LP05K	UVH2LT05K
110–127 Vac	U17	U18	U19	U20	UVH2LP08K	UVH2LT08K
208–240 Vac	U21	U22	U23	U24	UVH2LP11K	UVH2LT11K
380–480 Vac	U25	U26	U27	U28	UVH2LP15K	UVH2LT15K
Right-Pole Mounting AC Ratings ③						
12 Vac	U37	U38	U39	U40	UVH2RP02K	UVH2RT02K
24 Vac	U41	U42	U43	U44	UVH2RP03K	UVH2RT03K
48–60 Vac	U45	U46	U47	U48	UVH2RP05K	UVH2RT05K
110–127 Vac	U49	U50	U51	U52	UVH2RP08K	UVH2RT08K
208–240 Vac	U53	U54	U55	U56	UVH2RP11K	UVH2RT11K
380–480 Vac	U57	U58	U59	U60	UVH2RP15K	UVH2RT15K
Left-Pole Mounting DC Ratings ④						
12 Vdc	T01	T02	T03	T04	UVH2LP20K	UVH2LT20K
24 Vdc	T05	T06	T07	T08	UVH2LP21K	UVH2LT21K
48–60 Vdc	T09	T10	T11	T12	UVH2LP23K	UVH2LT23K
110–127 Vdc	T13	T14	T15	T16	UVH2LP26K	UVH2LT26K
220–250 Vdc	T17	T18	T19	T20	UVH2LP28K	UVH2LT28K
Right-Pole Mounting DC Ratings ③						
12 Vdc	T21	T22	T23	T24	UVH2RP20K	UVH2RT20K
24 Vdc	T25	T26	T27	T28	UVH2RP21K	UVH2RT21K
48–60 Vdc	T29	T30	T31	T32	UVH2RP23K	UVH2RT23K
110–127 Vdc	T33	T34	T35	T36	UVH2RP26K	UVH2RT26K
220–250 Vdc	T37	T38	T39	T40	UVH2RP28K	UVH2RT28K

Notes

① For electrical rating data for manual, automatic and electrical reset undervoltage release mechanisms, refer to Eaton.
② Listed with Underwriters Laboratories for field installation under E64983.
③ Not for use on right pole of four-pole circuit breakers.
④ Standard mounting location—leads exit rear of breaker.

K-Frame and HMCP (K) Undervoltage Release Mechanism

	Factory Mounted Connection Type and Location				Field Mounted Field Installation Kits ①	
	18-Inch (457.2 mm) Pigtail Leads			Terminal Block		
	Same Side	Rear ②	Opposite Side	Same Side	Pigtail Leads	Terminal Block
Voltage Rating (AC Freq. = 50/60 Hz)	Suffix Number	Suffix Number	Suffix Number	Suffix Number	Catalog Number	Catalog Number
Left-Pole Mounting AC Ratings ②						
12 Vac	U05	U06	U07	U08	UVH3LP02K	UVH3LT02K
24 Vac	U09	U10	U11	U12	UVH3LP03K	UVH3LT03K
48–60 Vac	U13	U14	U15	U16	UVH3LP05K	UVH3LT05K
110–127 Vac	U17	U18	U19	U20	UVH3LP08K	UVH3LT08K
208–240 Vac	U21	U22	U23	U24	UVH3LP11K	UVH3LT11K
380–480 Vac	U25	U26	U27	U28	UVH3LP15K	UVH3LT15K
Right-Pole Mounting AC Ratings ③④⑤						
12 Vac	U37	U38	U39	U40	UVH3RP02K	UVH3RT02K
24 Vac	U41	U42	U43	U44	UVH3RP03K	UVH3RT03K
48–60 Vac	U45	U46	U47	U48	UVH3RP05K	UVH3RT05K
110–127 Vac	U49	U50	U51	U52	UVH3RP08K	UVH3RT08K
208–240 Vac	U53	U54	U55	U56	UVH3RP11K	UVH3RT11K
380–480 Vac	U57	U58	U59	U60	UVH3RP15K	UVH3RT15K
Left-Pole Mounting DC Ratings ②						
12 Vdc	T01	T02	T03	T04	UVH3LP20K	UVH3LT20K
24 Vdc	T05	T06	T07	T08	UVH3LP21K	UVH3LT21K
48–60 Vdc	T09	T10	T11	T12	UVH3LP23K	UVH3LT23K
110–127 Vdc	T13	T14	T15	T16	UVH3LP26K	UVH3LT26K
220–250 Vdc	T17	T18	T19	T20	UVH3LP28K	UVH3LT28K
Right-Pole Mounting DC Ratings ③④⑤						
12 Vdc	T21	T22	T23	T24	UVH3RP20K	UVH3RT20K
24 Vdc	T25	T26	T27	T28	UVH3RP21K	UVH3RT21K
48–60 Vdc	T29	T30	T31	T32	UVH3RP23K	UVH3RT23K
110–127 Vdc	T33	T34	T35	T36	UVH3RP26K	UVH3RT26K
220–250 Vdc	T37	T38	T39	T40	UVH3RP28K	UVH3RT28K

Notes

① Listed with Underwriters Laboratories, for field installation under E64983.
② Standard mounting location—leads exit rear of breaker.
③ For use with KT (thermal-magnetic) trip units only.
④ Not for use on right pole of four-pole circuit breaker.
⑤ Breakers with K-Frame OPTIM 550 can only accept accessories in left pole.

L-, HMCP (L) and (M)-Frames and Undervoltage Release Mechanism

	Factory Mounted				Field Mounted	
	Connection Type and Location				Field Installation Kits ①	
	18-Inch (457.2 mm) Pigtail Leads			Terminal Block		
	Same Side	Rear ②	Opposite Side	Same Side	Pigtail Leads	Terminal Block
Voltage Rating (AC Freq. = 50/60 Hz)	Suffix Number	Suffix Number	Suffix Number	Suffix Number	Catalog Number	Catalog Number
Left-Pole Mounting AC Ratings ②						
12 Vac	U05	U06	U07	U08	UVH4LP02K	UVH4LT02K
24 Vac	U09	U10	U11	U12	UVH4LP03K	UVH4LT03K
48–60 Vac	U13	U14	U15	U16	UVH4LP05K	UVH4LT05K
110–127 Vac	U17	U18	U19	U20	UVH4LP08K	UVH4LT08K
208–240 Vac	U21	U22	U23	U24	UVH4LP11K	UVH4LT11K
380–480 Vac	U25	U26	U27	U28	UVH4LP15K	UVH4LT15K
Right-Pole Mounting AC Ratings ③④						
12 Vac	U37	U38	U39	U40	UVH4RP02K	UVH4RT02K
24 Vac	U41	U42	U43	U44	UVH4RP03K	UVH4RT03K
48–60 Vac	U45	U46	U47	U48	UVH4RP05K	UVH4RT05K
110–127 Vac	U49	U50	U51	U52	UVH4RP08K	UVH4RT08K
208–240 Vac	U53	U54	U55	U56	UVH4RP11K	UVH4RT11K
380–480 Vac	U57	U58	U59	U60	UVH4RP15K	UVH4RT15K
Left-Pole Mounting DC Ratings ②						
12 Vdc	T01	T02	T03	T04	UVH4LP20K	UVH4LT20K
24 Vdc	T05	T06	T07	T08	UVH4LP21K	UVH4LT21K
48–60 Vdc	T09	T10	T11	T12	UVH4LP23K	UVH4LT23K
110–127 Vdc	T13	T14	T15	T16	UVH4LP26K	UVH4LT26K
220–250 Vdc	T17	T18	T19	T20	UVH4LP28K	UVH4LT28K
Right-Pole Mounting DC Ratings ③④						
12 Vdc	T21	T22	T23	T24	UVH4RP20K	UVH4RT20K
24 Vdc	T25	T26	T27	T28	UVH4RP21K	UVH4RT21K
48–60 Vdc	T29	T30	T31	T32	UVH4RP23K	UVH4RT23K
110–127 Vdc	T33	T34	T35	T36	UVH4RP26K	UVH4RT26K
220–250 Vdc	T37	T38	T39	T40	UVH4RP28K	UVH4RT28K

Notes

① Listed with Underwriters Laboratories for field installation under E64983.
② Standard mounting location—leads exit rear of breaker.
③ For use with LT (thermal-magnetic) trip units only.
④ Not for use on right pole of four-pole circuit breaker.

N-Frame and HMCP (N) Undervoltage Release Mechanism

	Factory Mounted				Field Mounted	
	Connection Type and Location				Field Installation Kits ①	
	18-Inch (457.2 mm) Pigtail Leads			Terminal Block		
	Same Side	Rear ②	Opposite Side	Same Side	Pigtail Leads	Terminal Block
Voltage Rating (AC Freq. = 50/60 Hz)	Suffix Number	Suffix Number	Suffix Number	Suffix Number	Catalog Number	Catalog Number
Left-Pole Mounting AC Ratings ②						
12 Vac	U05	U06	U07	U08	UVH5LP02K	UVH5LT02K
24 Vac	U09	U10	U11	U12	UVH5LP03K	UVH5LT03K
48–60 Vac	U13	U14	U15	U16	UVH5LP05K	UVH5LT05K
110–127 Vac	U17	U18	U19	U20	UVH5LP08K	UVH5LT08K
208–240 Vac	U21	U22	U23	U24	UVH5LP11K	UVH5LT11K
380–480 Vac	U25	U26	U27	U28	UVH5LP29K	UVH5LT29K
Left-Pole Mounting DC Ratings ②						
12 Vdc	T01	T02	T03	T04	UVH5LP20K	UVH5LT20K
24 Vdc	T05	T06	T07	T08	UVH5LP21K	UVH5LT21K
48–60 Vdc	T09	T10	T11	T12	UVH5LP23K	UVH5LT23K
110–127 Vdc	T13	T14	T15	T16	UVH5LP26K	UVH5LT26K
220–250 Vdc	T17	T18	T19	T20	UVH5LP28K	UVH5LT28K

R-Frame Undervoltage Release Mechanism (RH only)

	Factory Mounted	Field Mounted
	Connection Type and Location	Field Installation Kits ③
	18-Inch (457.2 mm) Pigtail Leads	Pigtail Leads
Voltage Rating (AC Frequency = 50/60 Hz)	Suffix Number ④	Catalog Number ④
12 Vac	U37	UVH6RP02K
24 Vac	U41	UVH6RP03K
48–60 Vac	U45	UVH6RP05K
110–127 Vac	U49	UVH6RP08K
208–240 Vac	U53	UVH6RP11K
380–500 Vac	U57	UVH6RP29K
12 Vdc	T21	UVH6RP20K
24 Vdc	T25	UVH6RP21K
48–60 Vdc	T29	UVH6RP23K
110–125 Vdc	T33	UVH6RP26K
220–250 Vdc	T37	UVH6RP28K

Notes

① Listed with Underwriters Laboratories for field installation under E64983.
② Standard mounting location—leads exit rear of breaker.
③ Endurance: 500 electrical operations plus 2500 mechanical operations.
④ Pigtail wire size: 18 AWG (0.82 mm^2). Leads are orange and brown.

Accessory Terminal Block (R-Frame)

2

Accessory Terminal Block (R-Frame)

R-Frame Accessory Terminal Block ①

Factory Installed Suffix Number	Field Mounted Catalog Number
Q01	**TBRDK**

Number of Control Wires for Each Internally Mounted Accessory

Type of Accessory	Number of Contacts per Single Accessory	Required Number of Wires
Auxiliary switch	2a/2b 4a/4b	6 12
Alarm (Signal)/ Lockout switch	1m/1b 2m/2b	6 12
Shunt trip	N/A	2
Low energy shunt	N/A	2
Undervoltage release mechanism	N/A	2

PowerNet and Zone Interlock Kits (OPTIM 550 Only) K-, L- and N-Frames

PowerNet and Zone Interlock Kits

PowerNet Interlock Kit ②

Circuit Breaker	Factory Install Suffix	Catalog Number
K-Frame	**PN**	**ICK550K**
L-Frame	**PN**	**ICK550L**
N-Frame	**PN**	**ICK550N**

Zone Interlock/Ground Kit ②③

Circuit Breaker	Factory Install Suffix	Catalog Number
K-Frame	**ZG**	**ZGK550K**
L-Frame	**ZG**	**ZGK550L**
N-Frame	**ZG**	**ZGK550N**

PowerNet and Zone Interlock/Ground Kit ②③

Circuit Breaker	Factory Install Suffix	Catalog Number
K-Frame	**ZGP**	**ZGPK550K**
L-Frame	**ZGP**	**ZGPK550L**
N-Frame	**ZGP**	**ZGPK550N**

Notes

① One 24-point accessory terminal block provided with circuit breaker when ordered factory installed or shipped from warehouse as separate item when ordered for field installation. See Digitrip RMS master connection diagram (IL 29C714).

② Installation of these kits restrict any other attachments from being installed in the RH pole.

③ Includes a ground fault alarm signal that can drive the ground fault alarm unit (catalog number GFAU).

Technical Data and Specifications

Alarm Switch

F-Frame Electrical Rating Data ①②

Maximum Voltage	Frequency	Maximum Current Amperes	Dielectric Withstand Voltage
Multi-Pole Circuit Breakers			
600	50/60 Hz	6	2500
125	DC	0.50 ③	2500
250	DC	0.25 ③	2500
Single-Pole Circuit Breakers			
125/250	50/60 Hz	6 ③	2000
28	DC	3 ③	2000
28	DC	5 ④	2000

J-Frame Electrical Rating Data ⑤⑥

Maximum Voltage	Frequency	Maximum Current Amperes	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	DC	0.50 ③	2500
250	DC	0.25 ③	2500

K-Frame Electrical Rating Data ⑥⑦

Maximum Voltage	Frequency	Maximum Current Amperes	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	DC	0.50 ③	2500
250	DC	0.25 ③	2500

L- and M-Frames Electrical Rating Data ⑥⑦

Maximum Voltage	Frequency	Maximum Current Amperes	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	DC	0.50 ③	2500
250	DC	0.25 ③	2500

N-Frame Electrical Rating Data ⑧

Maximum Voltage	Frequency	Maximum Current Amperes	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	DC	0.50 ③	2500
250	DC	0.25 ③	2500

R-Frame Electrical Rating Data ⑨⑩

Maximum Voltage	Frequency	Maximum Current Amperes	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	DC	0.50 ③	2500
250	DC	0.25 ③	2500

Notes

① Endurance: 6000 electrical operations plus 4000 mechanical operations.
② Endurance: 6000 electrical operations plus 2000 mechanical operations.
③ Non-inductive load.
④ Inductive (L/R = 0.026).
⑤ Endurance: 6000 electrical operations plus 2000 mechanical operations.
⑥ Pigtail wire size: 18 AWG (0.82 mm^2).
⑦ Endurance: 5000 electrical operations plus 1000 mechanical operations.
⑧ Endurance: 3000 electrical operations plus 1000 mechanical operations.
⑨ Endurance: 500 electrical operations plus 2500 mechanical operations.
⑩ Pigtail wire size: 18 AWG (0.82 mm^2). Leads are red, black and blue.

Auxiliary Switch

F-Frame Electrical Rating Data ①②

Maximum Voltage	Frequency	Maximum Current Amperes	Dielectric Withstand Voltage
125 ③	50/60 Hz	1	2500
600	50/60 Hz	6	2500
125	DC	0.50 ④	2500
250	DC	0.25 ④	2500

J-Frame Electrical Rating Data ①②

Maximum Voltage	Frequency	Maximum Current Amperes	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	DC	0.50 ④	2500
250	DC	0.25 ④	2500

K-Frame Electrical Rating Data ②⑤

Maximum Voltage	Frequency	Maximum Current Amperes	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	DC	0.50 ④	2500
250	DC	0.25 ④	2500

L- and M-Frames Electrical Rating Data ②

Maximum Voltage	Frequency	Maximum Current Amperes	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	DC	0.50 ④	2500
250	DC	0.25 ④	2500

N-Frame Electrical Rating Data ②⑥

Maximum Voltage	Frequency	Maximum Current Amperes	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	DC	0.50 ④	2500
250	DC	0.25 ④	2500

R-Frame Electrical Rating Data ⑦⑧

Maximum Voltage	Frequency	Maximum Current Amperes
600	50/60 Hz	6
125	DC	0.50 ④
250	DC	0.25 ④

Notes

① Endurance: 6000 electrical operations plus 4000 mechanical operations.
② Pigtail wire size: 18 AWG (0.82 mm^2).
③ For use in electronic circuit of 100 micro amperes and 15 Vdc minimum.
④ Non-inductive load.
⑤ Endurance: 5000 electrical operations plus 1000 mechanical operations.
⑥ Endurance: 3000 electrical operations plus 1000 mechanical operations.
⑦ Endurance: 500 electrical operations plus 2500 mechanical operations.
⑧ Pigtail wire size: 18 AWG (0.82 mm^2). Leads are red, black and blue.

Auxiliary Switch and Alarm Switch Combination

F-Frame Electrical Rating Data ①②

Maximum Voltage	Frequency	Maximum Current Amperes	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	DC	0.50 ③	2200
250	DC	0.25 ③	2200

J-Frame Electrical Rating Data ②④

Maximum Voltage	Frequency	Maximum Current Amperes	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	DC	0.50 ③	2500
250	DC	0.25 ③	2500

K-Frame Electrical Rating Data ②⑤

Maximum Voltage	Frequency	Maximum Current Amperes	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	DC	0.50 ③	2500
250	DC	0.25 ③	2500

L- and M-Frames Electrical Rating Data ⑤②

Maximum Voltage	Frequency	Maximum Current Amperes	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	DC	0.50 ③	2500
250	DC	0.25 ③	2500

N-Frame Electrical Rating Data ⑥②

Maximum Voltage	Frequency	Maximum Current Amperes	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	DC	0.50 ③	2500
250	DC	0.25 ③	2500

Notes

① Endurance: 6000 electrical operations plus 4000 mechanical operations.
② Pigtail wire size: 18 AWG (0.82 mm^2).
③ Non-inductive load.
④ Endurance: 6000 electrical operations plus 2000 mechanical operations.
⑤ Endurance: 5000 electrical operations plus 1000 mechanical operations.
⑥ Endurance: 3000 electrical operations plus 1000 mechanical operations.

Shunt Trip

F-Frame Electrical Rating Data ①②③

50/60 Hz			DC		
Supply Voltage	Minimum Operating Voltage	VA	Supply Voltage	Minimum Operating Voltage	VA
12	6.75	75	12	9	100
24	6.75	300	24	9	400
48	36	92	48	36	100
60	36	140	60	36	160
110	156	480	110	77	55
120	156	570	120	77	66
127	156	640	125	77	71
208	156	180	—	—	—
220	156	200	—	—	—
240	156	240	—	—	—
380	300	610	127	—	72
415	300	130	220	—	110
440	300	330	250	—	140
480	300	380	—	—	—
525	300	450	—	—	—
550	300	530	—	—	—
600	300	590	—	—	—

J-Frame Electrical Rating Data ①②④

50/60 Hz			DC		
Supply Voltage	Minimum Operating Voltage	VA	Supply Voltage	Minimum Operating Voltage	VA
12	9	31	12	8.4	50
24	9	173	24	8.4	247
48	36	686	48	33.6	1094
60	36	1014	60	33.6	1698
110 ⑤	60.5	66	110	77	112
120 ⑤	60.5	84	120	77	138
127 ⑤	60.5	102	125	77	150
208 ⑤	60.5	354	—	77	—
220 ⑤	60.5	396	—	—	—
240 ⑤	60.5	432	—	—	—
380	285	180	110	154	40
400	285	200	120	154	58
415	285	240	125	154	—
440	285	610	127	154	—
480	360	34	—	—	—
525	360	42	—	—	—
550	360	50	—	—	—
600	360	60	—	—	—

K-Frame Electrical Rating Data ⑥⑦⑧

50/60 Hz			DC		
Supply Voltage	Minimum Operating Voltage	VA	Supply Voltage	Minimum Operating Voltage	VA
12	9	45	12	8.4	35
24	9	200	24	8.4	170
48	—	830	48	—	710
60	—	1280	60	—	1105
110 ⑤	60	100	110	77	110
120 ⑤	60	120	120	77	130
127 ⑤	60	140	125	77	140
208 ⑤	60	420	—	—	—
220 ⑤	60	470	—	—	—
240 ⑤	60	550	—	—	—
380	285	95	220	154	41
400	285	108	250	154	54
415	285	120	—	154	—
440	285	136	—	154	—
480	360	40	—	—	—
525	360	50	—	—	—
550	360	50	—	—	—
600	360	70	—	—	—

Notes

① Average unlatching time: 6 milliseconds.
② Average circuit breaker contact total opening time: 18 milliseconds.
③ Endurance: 6000 electrical operations plus 4000 mechanical operations.
④ Endurance: 6000 electrical operations plus 2000 mechanical operations.
⑤ Supply voltages suitable for use with Class 1 GFP devices. Marking label included with accessory kits.
⑥ Approximate unlatching time: 6 milliseconds.
⑦ Approximate total circuit breaker contact opening time: 8 milliseconds.
⑧ Endurance: 5000 electrical operations plus 1000 mechanical operations.

L- and M-Frame Electrical Rating Data ①②③

50/60 Hz			DC		
Supply Voltage	Minimum Operating Voltage	VA	Supply Voltage	Minimum Operating Voltage	VA
12	9	45	12	9	35
24	9	200	24	9	170
48	34	830	48	34	710
60	34	1280	60	34	1105
110 ④	60	100	110	77	110
120 ④	60	120	120	77	130
127 ④	60	140	125	77	140
208 ④	60	420	—	77	—
220 ④	60	470	—	—	—
240 ④	60	550	—	—	—
380	266	95	220	154	41
400	266	108	250	—	54
415	266	120	—	—	—
440	266	136	—	—	—
480	336	40	—	—	—
525	336	50	—	—	—
550	336	50	—	—	—
600	336	70	—	—	—

N-Frame Electrical Rating Data ①②⑤

50/60 Hz			DC		
Supply Voltage	Minimum Operating Voltage	VA	Supply Voltage	Minimum Operating Voltage	VA
24	16.8	200	24	16.8	170
48	33.6	830	48	33.6	710
60	33.6	1280	60	33.6	1150
110 ④	60	100	110	77	110
120 ④	60	120	120	77	130
127 ④	60	140	125	77	140
208 ④	60	420	—	—	—
220 ④	60	470	—	—	—
240 ④	60	550	—	—	—
380	266	95	220	154	41
400	266	108	250	—	54
415	266	120	—	—	—
440	266	136	—	—	—
480	336	40	—	—	—
525	336	50	—	—	—
550	336	50	—	—	—
600	336	70	—	—	—

Notes

① Approximate unlatching time: 6 milliseconds.
② Approximate total circuit breaker contact opening time: 18 milliseconds.
③ Endurance: 5000 electrical operations plus 1000 mechanical operations.
④ Supply voltages suitable for use with Class 1 GFP devices. Marking label included with accessory kits.
⑤ Endurance: 3000 electrical operations plus 1000 mechanical operations.

R-Frame Electrical Rating Data ①②③④⑤⑥

Suffix Number	Application Ratings		Electrical Operating Ratings						
	Voltage (V)	Frequency (Hz)	Supply Voltage (V)	Minimum Operating Voltage (V)	I_p (A)	I_{rms} at 0.250s (A)	I_{rms} at 0.033s (A)	VA	One Minute Dielectric Withstand Voltage (V)
03/03K	24	50/60	24	16.8	36.1	—	25.5	612	1050
	24	DC	24	16.8	36.1	16.5	—	396	1050
05/05K	48–60	50/60	48	34.0	13.1	—	9.2	450	1120
	48–60	50/60	60	34.0	17.2	—	12.2	740	1120
11/11K ③	110–240	50/60	110	60.5	4.2	—	3.0	330	1480
	110–240	50/60	120	60.5	4.5	—	3.2	390	1480
	110–240	50/60	127	60.5	4.6	—	3.3	430	1480
	110–240	50/60	208	60.5	7.9	—	5.6	1170	1480
	110–240	50/60	220	60.5	8.5	—	6.0	1370	1480
	110–240	50/60	240	60.5	8.7	—	6.1	1470	1480
14/14K	380–440	50/60	380	266.0	4.5	—	3.2	1220	1880
	380–440	50/60	415	266.0	5.0	—	3.6	1500	1880
	380–440	50/60	440	266.0	5.3	—	3.7	1640	1880
	220–250	DC	220	154.0	—	2.4	—	530	1500
	220–250	DC	250	154.0	—	2.7	—	680	1500
18/18K	480–600	50/60	480	336.0	0.6	—	0.4	200	2200
	480–600	50/60	525	336.0	0.7	—	0.5	270	2200
	480–600	50/60	550	336.0	0.7	—	0.5	280	2200
	480–600	50/60	600	336.0	0.8	—	0.6	360	2200
23/23K	48–60	DC	48	34.0	—	9.8	—	470	1120
	48–60	DC	60	34.0	—	11.6	—	700	1120
26/26K	110–125	DC	110	77.0	—	3.3	—	370	1250
	110–125	DC	120	77.0	—	3.6	—	440	1250
	110–125	DC	125	77.0	—	3.8	—	480	1250

Notes

① Approximate unlatching time of 6 milliseconds.
② Average circuit breaker contact total opening time approximately 62 milliseconds, at rated voltage.
③ Endurance: 500 electrical operations and 2500 mechanical operations.
④ Shunt trip can be operated up to a maximum of six times per minute.
⑤ Maximum operating voltage—110% of maximum voltage range rating.
⑥ Pigtail wire size: 18 AWG (0.82 mm^2). Leads are yellow and white.

Undervoltage Release Mechanism

F-Frame Electrical Rating Data ①

50/60 Hz					DC				
Supply Voltage	Dropout Voltage Minimum	Dropout Voltage Maximum	Pickup Voltage Maximum	VA	Supply Voltage	Dropout Voltage Minimum	Dropout Voltage Maximum	Pickup Voltage Maximum	VA
12	4.2	6.3	7.6	1.3	12	4.2	8.4	10.2	2.8
12	4.2	6.3	7.6	2.5	12	4.2	8.4	10.2	2.8
24	8.4	16.8	20.4	1.4	24	8.4	16.8	20.4	1.6
48	21.0	33.6	40.8	1.2	48	21.0	33.6	40.8	1.3
60	21.0	33.6	40.8	1.9	60	21.0	33.6	40.8	2.0
110	44.5	77.0	93.5	1.3	110	44.5	77.0	93.5	1.5
120	44.5	77.0	93.5	1.5	120	44.5	77.0	93.5	1.7
127	44.5	77.0	93.5	1.7	125	44.5	77.0	93.5	1.9
208	84.0	145.6	176.8	2.2	220	87.5	154.0	187.0	2.6
220	84.0	145.6	176.8	2.4	250	87.5	154.0	187.0	3.4
240	84.0	145.6	176.8	2.9	—	—	—	—	—
380	168.0	266.0	323.0	2.9	—	—	—	—	—
415	168.0	266.0	323.0	3.5	—	—	—	—	—
440	168.0	266.0	323.0	3.9	—	—	—	—	—
480	168.0	266.0	323.0	4.6	—	—	—	—	—
525	210.0	367.0	446.0	4.3	—	—	—	—	—
550	210.0	367.0	446.0	4.8	—	—	—	—	—
600	210.0	367.0	446.0	5.8	—	—	—	—	—

J-Frame Electrical Rating Data ②③

50/60 Hz					DC				
Supply Voltage	Dropout Voltage Minimum	Dropout Voltage Maximum	Pickup Voltage Maximum	VA	Supply Voltage	Dropout Voltage Minimum	Dropout Voltage Maximum	Pickup Voltage Maximum	VA
12	4.2	8.4	10.2	1.9	12	4.2	8.4	10.2	1.6
24	8.4	16.8	20.4	3.9	24	8.4	16.8	20.4	3.1
48	21.0	33.6	40.8	2.5	48	21.0	33.6	40.8	2.0
60	21.0	33.6	40.8	3.8	60	21.0	33.6	40.8	3.1
110	44.5	77.0	93.5	1.8	110	44.5	77.0	93.5	1.6
120	44.5	77.0	93.5	2.1	120	44.5	77.0	93.5	1.9
127	44.5	77.0	93.5	2.4	125	44.5	77.0	93.5	2.2
208	84.0	145.6	176.8	2.7	220	87.5	154.0	187.0	3.1
220	84.0	145.6	176.8	3.1	250	87.5	154.0	187.0	4.0
240	84.0	145.6	176.8	3.8	—	—	—	—	—
380	168.0	266.0	323.0	3.4	—	—	—	—	—
415	168.0	266.0	323.0	4.0	—	—	—	—	—
440	168.0	266.0	323.0	4.6	—	—	—	—	—
480	168.0	266.0	323.0	5.4	—	—	—	—	—

Notes

① Endurance: 6000 electrical operations plus 4000 mechanical operations.
② Endurance: 6000 electrical operations plus 2000 mechanical operations.
③ For electrical rating data for manual, automatic and electrical reset undervoltage release mechanisms, refer to Eaton.

K-Frame Electrical Rating Data ①

50/60 Hz					DC				
Supply Voltage	Dropout Voltage		Pickup Voltage		Supply Voltage	Dropout Voltage		Pickup Voltage	
	Minimum	Maximum	Maximum	VA		Minimum	Maximum	Maximum	VA
12	4.2	8.4	10.2	1.9	12	4.2	8.4	10.2	1.6
24	8.4	16.8	20.4	3.9	24	8.4	16.8	20.4	3.1
48	21.0	33.6	40.8	2.5	48	21.0	33.6	40.8	2.0
60	21.0	33.6	40.8	3.8	60	21.0	33.6	40.8	3.1
110	44.5	77.0	93.5	1.8	110	44.5	77.0	93.5	1.6
120	44.5	77.0	93.5	2.1	120	44.5	77.0	93.5	1.9
127	44.5	77.0	93.5	2.4	125	44.5	77.0	93.5	2.2
208	84.0	145.6	176.8	2.7	220	87.5	154.0	187.0	3.1
220	84.0	145.6	176.8	3.1	250	87.5	154.0	187.0	4.0
240	84.0	145.6	176.8	3.8	—	—	—	—	—
380	168.0	266.0	323.0	3.4	—	—	—	—	—
415	168.0	266.0	323.0	4.0	—	—	—	—	—
440	168.0	266.0	323.0	4.6	—	—	—	—	—
480	168.0	266.0	323.0	5.4	—	—	—	—	—

L- and M-Frames Electrical Rating Data ①

50/60 Hz					DC				
Supply Voltage	Dropout Voltage		Pickup Voltage		Supply Voltage	Dropout Voltage		Pickup Voltage	
	Minimum	Maximum	Maximum	VA		Minimum	Maximum	Maximum	VA
12	4.2	8.4	10.2	1.9	12	4.2	8.4	10.2	1.6
24	8.4	16.8	20.4	3.9	24	8.4	16.8	20.4	3.1
48	21.0	33.6	40.8	2.5	48	21.0	33.6	40.8	2.0
60	21.0	33.6	40.8	3.8	60	21.0	33.6	40.8	3.1
110	44.5	77.0	93.5	1.8	110	44.5	77.0	93.5	1.6
120	44.5	77.0	93.5	2.1	120	44.5	77.0	93.5	1.9
127	44.5	77.0	93.5	2.4	125	44.5	77.0	93.5	2.2
208	84.0	145.6	176.8	2.7	220	87.5	154.0	187.0	3.1
220	84.0	145.6	176.8	3.1	250	87.5	154.0	187.0	4.0
240	84.0	145.6	176.8	3.8	—	—	—	—	—
380	168.0	266.0	323.0	3.4	—	—	—	—	—
415	168.0	266.0	323.0	4.0	—	—	—	—	—
440	168.0	266.0	323.0	4.6	—	—	—	—	—
480	168.0	266.0	323.0	5.4	—	—	—	—	—

Note

① Endurance: 5000 electrical operations plus 1000 mechanical operations.

N-Frame Electrical Rating Data ①

50/60 Hz					DC				
Supply Voltage	Dropout Voltage		Pickup Voltage		Supply Voltage	Dropout Voltage		Pickup Voltage	
	Minimum	Maximum	Maximum	VA		Minimum	Maximum	Maximum	VA
12	4.2	8.4	10.2	1.9	12	4.2	8.4	10.2	1.6
24	8.4	16.8	20.4	3.9	24	8.4	16.8	20.4	3.1
48	21.0	33.6	40.8	2.5	48	21.0	33.6	40.8	2.0
60	21.0	33.6	40.8	3.8	60	21.0	33.6	40.8	3.1
110	44.5	77.0	93.5	1.8	110	44.5	77.0	93.5	1.6
120	44.5	77.0	93.5	2.1	120	44.5	77.0	93.5	1.9
127	44.5	77.0	93.5	2.4	125	44.5	77.0	93.5	2.2
208	84.0	145.6	176.8	2.7	220	87.5	154.0	187.0	3.1
220	84.0	145.6	176.8	3.1	220	87.5	154.0	187.0	—
240	84.0	145.6	176.8	3.8	250	—	—	—	4.0
380	175.0	266.0	323.0	3.4	—	—	—	—	—
415	175.0	266.0	323.0	4.0	—	—	—	—	—
480	175.0	266.0	323.0	4.6	—	—	—	—	—
500	175.0	266.0	323.0	5.4	—	—	—	—	—

Note

① Endurance: 3000 electrical operations plus 1000 mechanical operations.

R-Frame AC Undervoltage Release Mechanism (Handle Reset) Ratings ①②

Catalog Suffix	Application Ratings Voltage (V)	Electrical Operating Ratings Supply Voltage (V)	Dropout Voltage (V) Minimum	Dropout Voltage (V) Maximum	Pickup Voltage (V) Max.	Approximate Operating Time (ms) VA	Minimum UVR Response ③	Initiation Circuit Breaker Contact Separation ④	Maximum Circuit Breaker Contact Opening	Dielectric Withstand Voltage (V) ⑤
02/02K	12	12	4.2	8.4	10.2	2.3	5	46	77	1024
03/03K	24	24	8.4	16.8	20.4	3.1	5	46	77	1048
05/05K	48–60	48	21.0	33.5	40.8	3.4	5	46	77	1120
		60	21.0	33.5	40.8	6.0	5	46	77	1120
08/08K	110–127	110	44.5	77.0	93.5	3.3	5	46	77	1254
		120	44.5	77.0	93.5	3.6	5	46	77	1254
		127	44.5	77.0	93.5	3.8	5	46	77	1254
11/11K	208–240	208	84.0	145.6	176.8	4.2	5	46	77	1480
		220	84.0	145.6	176.8	6.6	5	46	77	1480
		240	84.0	145.6	176.8	7.2	5	46	77	1480
29/29K	380–500	380	168.0	266.0	323.0	3.8	5	46	77	2000
		415	168.0	266.0	323.0	8.3	5	46	77	2000
		440	168.0	266.0	323.0	8.8	5	46	77	2000
		480	168.0	266.0	323.0	9.6	5	46	77	2000
		500	168.0	266.0	323.0	10.0	5	46	77	2000

R-Frame DC Undervoltage Release Mechanism (Handle Reset) Ratings ①②

Catalog Suffix	Application Ratings Voltage (V)	Electrical Operating Ratings Supply Voltage (V)	Dropout Voltage (V) Minimum	Dropout Voltage (V) Maximum	Pickup Voltage (V) Max.	Approximate Operating Time (ms) VA	Minimum UVR Response ③	Initiation Circuit Breaker Contact Separation ④	Maximum Circuit Breaker Contact Opening	Dielectric Withstand Voltage (V) ⑤
20/20K	12	12	4.2	8.4	10.2	3.4	5	46	77	1024
21/21K	24	24	8.4	16.8	20.4	4.3	5	46	77	1048
23/23K	48–60	48	21.0	33.5	40.8	4.8	5	46	77	1120
		60	21.0	33.5	40.8	7.2	5	46	77	1120
26/26K	110–127	110	43.8	77.0	93.5	3.3	5	46	77	1250
		120	43.8	77.0	93.5	3.6	5	46	77	1250
		125	43.8	77.0	93.5	3.8	5	46	77	1250
28/28K	220–250	220	87.5	154.0	187.0	6.6	5	46	77	1500
		250	87.5	154.0	187.0	7.5	5	46	77	1500

Notes

① Endurance: 500 electrical operations plus 2500 mechanical operations.
② Pigtail wire size: 18 AWG (0.82 mm^2). Leads are orange and brown.
③ UVR will override a momentary voltage dip up to the response time shown.
④ Unlatching occurs 1 millisecond before circuit breaker contacts begin to separate.
⑤ For 1 minute.

Series C External Accessories

Contents

External Accessories

Product Overview

End Cap Kit

The end cap kit slides onto the line or load conductor of the circuit breaker and acts as a threaded adapter for the conductor to accept a ring terminal or other bolt-on connector. The end cap kit is available with English and metric thread sizes. (Field installation only.) Listed per UL File E7819.

Keeper Nut

The keeper nut slides onto the line or load conductor of the circuit breaker and acts as a threaded adapter for the conductor to accept a ring terminal or other bolt-on connector. The keeper nut is available with English and metric thread sizes. Screws and washers are supplied by customer. (Field installation only.) Listed per UL File E7819.

L-, M-, N-Frames

Not required. Terminals are threaded.

J-Frame Plug Nut

The plug nut is used in applications where screw-connected ring-type terminals are preferred to connect cables to circuit breaker conductors. The plug nut is press-fit into the opening in the circuit breaker terminal conductor. Screws and washers are supplied by customer.

Terminal Adapter

Control Wire Terminal Kit

The control wire terminal kit provides a means to tap off control power from a main disconnect, using the provided male end of a quick disconnect.

For use with steel or stainless steel terminals only.

Note: Terminal Kits contain one terminal for each pole and one terminal cover.

Multiwire Connectors

Eaton's field-installed multiwire connectors for the load side (OFF) end terminals, are used to distribute the load from the circuit breaker to multiple devices without the use of separate distribution terminal blocks.

Multiwire lug kits include mounting hardware, insulators and tin-plated aluminum connectors to replace three mechanical load lugs. UL listed as used on the load side (OFF) end.

Terminal Shields

Terminal shields provide protection against accidental contact with live line side terminations. Terminal shields are fabricated from high dielectric insulating material and fasten over the front terminal access openings. Small openings in the shields provide limited access to the terminals for tightening connectors. (Field installation only.)

Terminal End Covers

The terminal end covers are designed for use in motor control center applications where, because of confined spaces, line side conductors are normally custom fitted. The molded end covers are made of high dielectric glass-polyester and slide over the line ends of the circuit breaker. Close fitting conductor openings are molded into the end covers. The end cover and circuit breaker case fit together to form terminal compartments that isolate discharged ionizing gases during circuit breaker tripping. Terminal end covers are available with two conductor opening diameters, 0.25-inch (6.4 mm) and 0.41-inch (10.4 mm), and are listed per UL File E7819. (Field installation only.)

Interphase Barriers

The interphase barriers provide additional electrical clearance between circuit breaker poles for special termination applications. The barriers are high dielectric insulating plates that are installed in the molded slots between the terminals. (Field installation only.) Two per package.

Base Mounting Plate

Suitable for mounting six single-pole circuit breakers.

DIN Rail Adapter

For use with standard 35 mm DIN rail such as, 35 x 7.5 or 35 x 15 mm per DIN EN50022.

Adapter mounting screws included are for use with two- and three-pole circuit breakers. Adapters for single-pole circuit breakers clip into the base molding.

Key Operated Attachment

Lock Dog (Non-Padlockable)

Non-Padlockable Handle Block

The non-padlockable handle block secures the circuit breaker handle in either the ON or OFF position. (Trip-free operation allows the circuit breaker to trip when the handle block holds the circuit breaker handle in the ON position.) The device is positioned over the circuit breaker handle and secured by a setscrew to deter accidental operation of the circuit breaker handle. Listed per UL File E7819. (Field installation only.)

Padlockable Handle

Padlockable Handle Lock

The device is positioned in the cover opening to prevent handle movement. Will accommodate one 5/16-inch (8 mm) padlock.

Snap-on Padlockable Handle Lock Hasp

The snap-on padlockable handle lock allows the handle to be locked in the OFF or ON position. (Trip-free operation allows the circuit breaker to trip when the handle lock holds the circuit breaker handle in the ON position.) This device was designed for use on the single-pole circuit breaker, but may be used on one-, two-, three- and four-pole styles. The handle lock snaps onto the escutcheon area of the handle with an optional retaining screw for added secureness. The handle lock will accommodate one padlock with a 1/4-inch (6.4 mm) shackle. Listed per UL File E7819. (Field installation only.)

Padlockable Handle Lock Hasp

The padlockable handle lock hasp allows the handle to be locked in the ON or OFF position. (Trip-free operation allows the circuit breaker to trip when the handle lock holds the circuit breaker handle in the ON position.) The hasp mounts on the circuit breaker cover within the trimline. The cover is predrilled on both sides of the operating handle so that the hasp can be mounted on either side of the handle. The hasp will accommodate up to three padlocks with 1/4-inch (6.4 mm) shackles, one per circuit breaker. Listed per UL File E7819. (Field installation only.)

Cylinder Lock

The cylinder lock internally blocks the trip bar in the tripped position to prevent the circuit breaker from being switched to ON. The cylinder lock is factory installed in the left pole only of the circuit breaker cover. Other internally mounted accessories cannot be installed in the same pole as the cylinder lock. (Factory installation only.)

Key Interlock Kit (Lock Not Included)

The key interlock is used to externally lock the circuit breaker handle in the OFF position. When the key interlock is locked, an extended deadbolt blocks movement of the circuit breaker handle. Uniquely coded keys are removable only with the deadbolt extended. Each coded key controls a group of circuit breakers for a given specific customer installation.

The key interlock assembly is Underwriters Laboratories listed for field installation under UL File E7819 and consists of a mounting kit and a purchaser supplied deadbolt lock. The mounting kit comprises a mounting plate, which is secured to the circuit breaker cover in either the left- or right-pole position, key interlock mounting screws, and a wire seal. Specific mounting kits are required for individual key interlock types.

Sliding Bar Interlock

The sliding bar interlock provides mechanical interlocking between two adjacent three-pole circuit breakers. It is installed on the enclosure cover between the circuit breakers. When the sliding bar interlock handle is moved from one side to the other, a bar extends to alternately block movement of the circuit breaker handles and prevents both circuit breakers from being switched to ON at the same time. Sliding bar interlocks are not UL listed. (Field installation only.)

Walking Beam Interlock

The walking beam Interlock provides mechanical interlocking between two adjacent circuit breakers of the same pole configuration. The walking beam interlock mounts on a bracket behind and between the circuit breakers. A plunger on each end of the beam is inserted through an access hole in the back plate and base of each circuit breaker. The walking beam interlock prevents both circuit breakers from being switched ON at the same time. If a walking beam interlock is installed, the wiring troughs in the back of the circuit breaker case are blocked by the plungers and cannot be used for cross wiring. Factory modified circuit breakers are required for this application. UL File E38116.

Electrical Operator

The electrical (solenoid) operator is a single solenoid mechanism that enables local and remote circuit breaker ON, OFF, and reset switching. The electrical operator is mounted on the circuit breaker cover within the trimline of the circuit breaker. The electrical operator uses a unique bi-stable latch that allows the device to operate using one solenoid. The accessory provides high-speed switching with a maximum operating time of 5 cycles (80 mS), making it suitable for generator synchronizing applications.

Means are provided for remote electrical operation and for local manual operation. A special slide includes provisions for padlocking the circuit breaker handle in the OFF position. The slide will accept three padlock shackles with a maximum diameter of 1/4-inch (6.4 mm) each. An interlock electrically disconnects the solenoid when the electrical operator cover is removed. The rating data tables provide electrical rating data for the electrical (solenoid) operator.

The electrical (motor) operator allows the circuit's breaker to be opened, closed or reset remotely. It also has a lock-off capability and provisions for manual operation.

The electrical (motor) operator contains a reversible motor connected to a ball screw. The ball screw drives the circuit breaker handle. Limit switches and relays are used to control the motor.

Plug-In Adapters

Plug-in adapters simplify installation and front removal of circuit breakers. Individual line and load plug-in adapters are available for rear connection applications on two-, three-, and four-pole circuit breakers. Common mounting plates for line- and load-end adapters are available.

One plug-in adapter kit is required for line-end and one for load-end.

Plug-in adapters are UL approved unless otherwise noted.

Rear Connecting Studs

Rear connecting studs are available in several sizes to accommodate specific fixed-mounted circuit breaker applications.

Each rear connecting stud assembly consists of one stud and one tube. To maintain proper clearances between poles, select alternate long and short stud assemblies for circuit breakers with more than one pole. One assembly is required for line-end and one for load-end of each pole. Tubes must be ordered separately. Connecting studs are available only with English thread sizes.

Note: Not UL listed.

Panelboard Connecting Straps

Panelboard connecting straps are used to connect the circuit breaker terminals to the panelboard bus. The panelboard connecting straps are available with various ratings for outside and center poles. (Field installation only.)

Panelboard connecting straps are available to meet the needs of most standard panelboard applications. Style numbers for mounting brackets for CDP panelboard installations are also included.

Note: Not UL listed. Refer to panelboard manufacturer for compatibility.

Handle Mechanisms

Handle mechanisms are used to operate molded case circuit breakers, molded case switches and motor circuit protectors. They are available in three basic configurations—flange mounted, through-the-door and direct (close-coupled)—providing safe, dependable operation and ease of installation.

- Flange mounted:
  - Flex Shaft™
  - C371
- Through-the-door:
  - Series C Rotary
  - Universal Rotary
- Direct (close-coupled):
  - Universal Direct
  - Euro IEC
  - G Direct

Handle mechanisms are typically used on enclosed circuit breakers, control panels and motor control centers in many different applications. Eaton has a handle mechanism for virtually any need.

Flange Mounted Handle Mechanisms

Flange mounted handle mechanisms mount on the flange of an enclosure door. The Flex Shaft is an extra heavy-duty mechanism that includes a flexible shaft in various lengths, 3 feet (0.9m) through 10 feet (3m) for use with various size enclosures.

The Flex Shaft handle will accept up to three padlock shackles, each with a maximum diameter of 3/8-inch (9.5 mm). Can be used with NEMA 1, 3R and 12 fabricated enclosures. An optional handle is available for Flex Shaft that is suitable for use with NEMA 4 and 4X environments. Flex Shaft comes preset from the factory, requiring only minor field adjustments on installation, which takes about 10 minutes—a significant time savings compared to installation of other types of flange handle mechanisms. The Flex Shaft mechanism also takes up less interior enclosure space than competitive designs and the handle fits standard flange cutouts. Flex Shaft handle can be remotely mounted from breaker, where an operator can use it by "funneling" the cable through conduit.

The Type C371 circuit breaker operating mechanisms are designed for installation in control enclosures where main or branch circuit protective devices are required. All circuit breaker mechanisms are suitable for right-hand mounting.

Auxiliary contacts are not available for mounting on operating mechanisms. Where required, have them installed in circuit breaker.

Type C371 is UL listed under File E62635.

Flex Shaft is UL listed under File E64983 and meets CSA requirements.

Listed

Through-the-Door Handle Mechanisms

Eaton's through-the-door handle mechanisms mount on the front of an enclosure or cabinet door and externally operate the circuit breaker via a variable depth shaft or a linear operator (Type MC). Each rotary type handle mechanism includes a handle, base operating mechanism and shaft that can be cut to various lengths.

Series C Rotary and Universal Rotary handle mechanisms are for use with molded case circuit breakers (G, F, J, K, L, MDL), molded case switches and motor circuit protectors. Series C Rotary and Universal Rotary, are UL listed and meet CSA requirements. Universal Rotary also meets IEC947-1/2 for international compliance. Rotary UL File Number is E64983.

Type 4/4X handles are similar to standard handles except they include an internal neoprene gasket. Type 4/4X handle style number is 6648C22G03. Due to gasketing effect between the handle and the housing, the handle may not indicate a tripped position.

Universal Rotary F-Frame

Direct (Close-Coupled) Handle Mechanisms

Direct (close-coupled) handle mechanisms mount directly to the circuit breaker. They are used in shallow enclosures where the standard variable depth Through-the-door type mechanism is not practical or cannot be used. They are typically for applications where high volume, standardized enclosures are being fabricated.

The Euro IEC Direct handle mechanism can be used on F- through R-Frames.

The G Direct is available with a black or the yellow handle, and with or without a shroud. It is suitable for use with NEMA 1 enclosures. It is for use only with the G-Frame (GD, GC, GHC, GMCP).

An escutcheon ring and interlock clip are provided as standard. The standard design includes a lock-off feature.

The Universal Direct handle mechanism is UL 489 listed, IEC947-1/2 and meets CSA requirements. The Euro IEC Direct handle mechanism is IEC-240-1. G Direct is UL listed and meets CSA requirements.

Handle Extension

Handle extension is not included with J, K, L, M and N-Frame breakers. It must be purchased separately.

Type LFD Current Limiter

The LFD current limiter is an accessory that bolts to the load end of a standard FDB or FD thermal-magnetic circuit breaker, providing 200,000A interrupting capacity at up to 600 Vac. LFD current limiters for thermal-magnetic and electronic circuit breakers are listed with Underwriters Laboratories under File E47239.

Ground Fault Alarm Unit

The ground fault alarm unit is a remotely mounted device with a combination indicating light/test button that will light when the breaker trips or alarms on ground fault. The ground fault alarm unit requires a separate 120 Vac power source to power the light and the internal relay, which has 1NO and 1NC contacts for remote indication. The ground fault alarm unit can be panel mounted for ordering with an optional face mounting bracket. For use on Digitrip 310 only, K- through N-Frame.

IQ Energy Sentinel

The IQ Energy Sentinel is a highly accurate, microprocessor-based, breaker-mounted device designed to monitor power and energy readings. It represents an alternative to watt meters, watt-hour meters, and watt demand meters. Key advantages include savings in space, lower installation costs, and remote monitoring capability.

The IQ Energy Sentinel mounts on the load side of a Series C F-Frame (150 ampere) circuit breaker. It can be applied on three-phase, four-wire systems, or single-phase, three-wire systems with voltage connected through Phases A and C.

For more information, see Descriptive Bulletin 8178.

Potential Transformer Module

The potential transformer module is required for the Digitrip OPTIM 1050 to provide a voltage input to allow the trip unit to monitor power and energy as well as power factor. The potential transformer module is a 6 VA transformer with a primary voltage input of up to 600 volt line to line. Three 0.1 ampere fuses are provided on the primary of the transformer and can be used for isolation purposes during dielectric testing. The device is normally panel mounted and can feed up to 16 OPTIM trip units.

Solid-State (Electronic) Portable Test Kit

The solid-state (electronic) portable test kit provides verification of performance of all ratings of Digitrip 310 electronic trip units installed in circuit breakers while in service under varying load and/or phase imbalance. The test kit operates on 120-volt, 50/60 Hz power; it includes complete instructions and test times for testing long time, short time/instantaneous operation and optional ground fault operation of the circuit breaker.

Breaker Interface Module (BIM)

The Breaker Interface Module (BIM) is a panel mounted user interface device that is mounted on the front of an electrical assembly or at a remote location. The BIM is used to access, configure, test and display information for OPTIM trip units and other devices. The BIM consists of four display windows, eight function buttons, 18 LEDs, and a graphical time/current curve to provide breaker status, operational information, protection status and energy monitoring. A 24 Vdc power supply is required to provide power to the BIM. This is supplied by the switchboard builder to Eaton's specifications. The BIM is a member of Eaton's PowerNet family of communicating devices that connects OPTIM trip units, Digitrip RMS 810/910 trip units and energy sentinels as a subnetwork system. The BIM can also be connected to a main network via a PONI module to PowerNet software.

Digitrip OPTIMizer

The Digitrip OPTIMizer is a hand-held programmer that is used to access, configure, test and display information from OPTIM trip units. The OPTIMizer plugs into the front of an OPTIM trip unit via an eight-pin telephone jack and is powered by a nine-volt battery or the auxiliary power module. One highlighted feature is the "Copy" and "Download" commands.

Setting up multiple OPTIM trips can be finished in minutes and with no errors. An Auxiliary Power Module connection provides a trip test when control power is not present at the breaker. The OPTIMizer is supplied as a standard package to include the programmer, the eight-pin connection cord, battery and carrying case. The auxiliary power module is optional.

Auxiliary Power Module

The auxiliary power module is a power supply requiring 120 Vac input at 50 or 60 Hz that provides a 32 Vdc output. The auxiliary power module provides control power for testing an OPTIM trip unit when other means of control power is not available or for continuous OPTIMizer operation versus temporary with a battery. The auxiliary power module connects into the top of the Digitrip OPTIMizer via a keyed receptacle. The main application for the auxiliary power module would be for the testing of a standalone non-communicating OPTIM breaker that ordinarily would not have control power.

Cause of Trip Display/Remote Mount Cause of Trip Display

The Cause of Trip Display can be field-installed on any Digitrip RMS 310+ trip unit. The device provides breaker information through an LCD screen, such as cause of trip, phrase current, ground current and low loads. The display is ideal for troubleshooting common trips such as ground fault, long delay, and instantaneous/short delay. The DIGIVIEW version will provide a local display at the breaker without additional wiring by connecting directly onto the trip unit. The DIGIVIEWR06 version has a 6 foot cable that allows users to mount the display on the outside of an enclosure door and connect to the trip unit that is contained inside the enclosure.

Cause of Trip LED Module

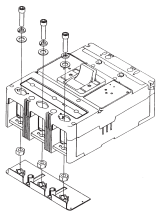
The Cause of Trip LED Module can be field-installed on any Digitrip RMS 310+ trip unit. The device provides a cause of trip indication via LED. The Cause of Trip LED Module connects directly onto the trip unit. When the breaker trips, the module indicates the cause of trip (long delay, short delay, instantaneous and ground) via LED indication. The module is reset after the breaker is reset.

Note: The OPTIMizer can work off of 32 Vdc control power, although 24 Vdc is the standard on OPTIM breakers.

Product Selection

Termination Hardware—End Cap Kit

End Cap Kit

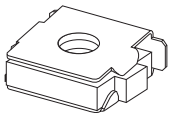


End Cap Kit

Thread Type	Thread Size	Catalog Number
Two-Pole F-Frame (225A)		
Imperial	10–32	**KPEK12**
Metric	M–5	**KPEKM12**
Three-Pole F-Frame (225A)		
Imperial	10–32	**KPEK1**
Metric	M–5	**KPEKM1**
Four-Pole F-Frame (225A)		
Imperial	10–32	**KPEK14**
Metric	M–5	**KPEKM14**
Three-Pole J-Frame		
Imperial	0.312–18	**KPEK2**
Metric	M–8	**KPEKM2**
Four-Pole J-Frame		
Imperial	0.312–18	**KPEK24**
Metric	M–8	**KPEKM24**
Three-Pole K-Frame		
Imperial	0.312–18	**KPEK3**
Metric	M–8	**KPEKM3**
Four-Pole K-Frame		
Imperial	0.312–18	**KPEK34**
Metric	M–8	**KPEKM34**
Three-Pole L-Frame		
Imperial	0.312-18	**KPEK4**
Metric	M-8	**KPEKM4**
Four-Pole L-Frame		
Imperial	0.312–18	**KPEK44**
Metric	M–8	**KPEKM44**

Termination Hardware—Keeper Nut

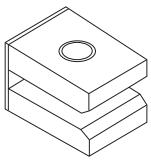
F-Frame Keeper Nut



F-Frame Keeper Nut

Thread Type	Thread Size	Catalog Number Package of 12 (Priced Individually)
Imperial	10–32	**KPR1A**
Metric	M–5	**KPR1AM**

K-Frame Keeper Nut



K-Frame Keeper Nut

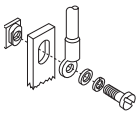
Thread Type	Thread Size	Line/Load End	Catalog Number Package of 3
Imperial	0.375–16	Line	**KPR3A**
		Load	**KPR3B**
Metric	M–8	Line	**KPR3AM**
		Load	**KPR3BM**

Note

L-, M-, N-Frames not required. Terminals are threaded.

Termination Hardware

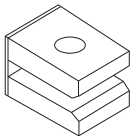
J-Frame Plug Nut



J-Frame Plug Nut

Thread Type	Thread Size	Catalog Number Package of 6
Imperial	0.250–20	**PLN2**
Metric	M–6	**PLN2M**

K-Frame Terminal Adapter



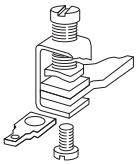
K-Frame Terminal Adapter ①

Line/Load End	Catalog Number
Line and load	**TAD3**

F-Frame Ordering Information

Terminals must be ordered separately. Priced individually.

F-Frame Kit



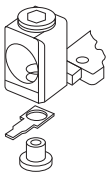
F-Frame Control Wire Terminal Kit ②

Description	Maximum Amperes	Catalog Number
Package of 12 control wire terminal tangs.	150	**FCWTK**
	225	**FCWTK225**

J- and K-Frame Ordering Information

Terminals must be ordered separately. Priced individually.

J- and K-Frame Kit



J- and K-Frame Control Wire Terminal Kit

Description	Catalog Number
Package of 12 control wire terminal tangs.	**KCWTK**

L-Frame Control Wire Terminal Kit

AWG Wire Range/Number Conductors	Metric Wire Range mm²	Catalog Number
Al/Cu (2) 3/0–350 kcmil	95–150	**TA602LDCW** ③
Cu (2) 250–350 kcmil	120–250	**T602LDCW** ③
Al/Cu (2) 400–500 kcmil	185–240	**2TA603LDKCW** ④⑤
Al/Cu (2) 400–500 kcmil	185–240	**3TA603LDKCW** ④⑥
Al/Cu (2) 400–500 kcmil	185–240	**4TA603LDKCW** ④⑦

Notes

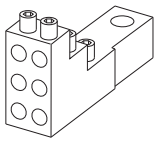
① K-Frame terminal adapter for use in replacing LB/DA breakers.
② Not for use with T250KB terminals.
③ Individually packed.
④ Terminal kits contain one terminal for each pole and one terminal cover.
⑤ Two-pole kit.
⑥ Three-pole kit.
⑦ Four-pole kit.

Termination Hardware

G-Frame Control Wire Terminal

Description	Catalog Number	Catalog Number
Control wire terminal (kit of 12)	**5652B38G01**	**GCWTK**

Multiwire Connectors



Multiwire Connectors Ordering Information (Package of 3)

Maximum Amperes	Wires per Terminal	Wire Size Range AWG Cu	Kit Catalog Number
G-Frame ①			
100	3	14–2	**3TA100G3K**
	6	14–6	**3TA100G6K**
F-Frame			
225	3	14–2	**3TA150F3K**
	6	14–6	**3TA150F6K**
J-Frame			
250	3	14–2	**3TA250J3K**
	6	14–6	**3TA250J6K**
K-Frame			
400	3	14–2/0	**3TA400K3K**
	6	14–3	**3TA400K6K**

Base Mounting Hardware

Ordering Information

Hardware for surface mounting of circuit breakers is supplied only on request. Hardware consists of mounting screws and lockwashers. Order hardware for circuit breaker pole configurations as required.

Mounting Hardware

Screw Length in Inches (mm)	Catalog Number
G-Frame	
0.138–32 x 2.63 (3.5 x 66.7 mm) Std.	**624B375G23**
0.138–32 x 3.00 (3.5 x 76.2 mm)	**8703C80G05**

Note

① GD breakers require special tapping for multiwire lugs, as described in the IL or use with standard aluminum collars.

Imperial Thread Mounting Hardware

Number of Poles	Description	Type of Mounting	Catalog Number
F-Frame			
1	0.164-32 x 3.188-inch pan-head steel screws, lockwashers and clamps	Individual	**624B375G01**
		Group ①	**624B375G02**
2	0.164-32 x 1.5-inch pan-head steel screws and lockwashers	Individual	**4218B80G01**
3, 4	0.164-32 x 1.5-inch pan-head steel screws and lockwashers	Individual	**BMH1**
J-Frame			
2, 3, 4	0.250-20 x 2.75 inch pan-head steel screws and lockwashers	Individual	**BMH2**
K-Frame			
2, 3, 4	0.250-20 x 1.5 inch pan-head steel screws and lockwashers	Individual	**BMH3**
L-Frame			
2, 3, 4	0.250-20 x 1.5 inch filister-head steel screws and lockwashers and flat washers	Individual	**BMH4**
M-Frame			
2, 3	0.3125-18 x 1.25 inch filister-head steel screws and lockwashers and flat washers	Individual	**BMH5**
N-Frame			
2, 3, 4	0.3125-18 x 1.25 inch pan-head steel screws and lockwashers	Individual	**BMH5**
R-Frame			
Supplied by customer			

Metric Thread Mounting Hardware

Number of Poles	Description	Type of Mounting	Catalog Number
F-Frame			
1	M4–0.7 x 80 mm pan-head steel screws, lockwashers, and clamps	Individual	**4218B80G09**
		Group ①	**4218B80G10**
2	M4–0.7 x 38 mm pan-head steel screws and lockwashers	Individual	**4218B80G11**
3, 4	M4–0.7 x 38 mm pan-head steel screws and lockwashers	Individual	**BMH1M**
J-Frame			
2, 3, 4	M6–0.7 x 70 mm pan-head steel screws and lockwashers	Individual	**BMH2M**
K-Frame			
2, 3, 4	M6–0.7 x 38 mm pan-head steel screws and lockwashers	Individual	**BMH3M**
L-Frame			
2, 3	—	Individual	**BMH4M**
M-Frame			
2, 3	—	Individual	**BMH5M**
N-Frame			
2, 3	—	Individual	**BMH5M**
R-Frame			
Supplied by customer			

Note

① One set of hardware for two circuit breakers.

Terminal Shields

G-Frame Terminal Shield

Number Units in Package	Catalog Number
10	**GTSK3**

F-Frame

F-Frame Terminal Shield

		Standard (Package of 10) (Priced Individually)	Special—For Use When Electrical Operator is Mounted on Circuit Breaker
Number of Poles	Location	Catalog Number	Catalog Number
1	Line	**625B229G06**	—
2	Line	**625B229G07**	—
3	Line	**625B229G08**	**4210B95G01**
4	Line	**625B229G09**	**4210B95G02**

J-Frame

J-Frame Terminal Shield

Number of Poles	Location	Catalog Number (Package of 10)
2, 3	Line End	**1266C07G01**
4	Line End	**6631C01G01**
2, 3	Load End	**6641C16G01**
4	Load End	**6641C16G02**

K-Frame

K-Frame Terminal Shield

Number of Poles	Location	Catalog Number (Package of 10)
2, 3	Line	**TS33LN**
4	Line	**TS34LN**
3	Load	**TS33LD**

L-Frame

L-Frame Terminal Shield

Catalog Number (Package of 1)
314C420G05

M-Frame

M-Frame Terminal Shield

Catalog Number (Package of 1)
208B966G01

N-Frame Terminal Shield

Catalog Number (Package of 1)
NTS3K

Terminal End Covers

Ordering Information

The terminal end cover is available for three-pole circuit breakers only. Two conductor opening sizes are available. Specify quantity (one per circuit breaker) when ordering.

F-Frame

F-Frame Terminal End Covers

Conductor Opening Diameter in Inches (mm)	Catalog Number
0.25 (6.35 mm)	**TEC1**
0.41 (10.41 mm)	**TEC2**

Interphase Barriers

Ordering Information

Two per package.

Interphase Barrier

Interphase Barriers

Frame	Catalog Number
F	**IPB1**
J, K	**IPB3**
L	**IPB4**
M	**IPB4**
N	**IPB5**

Base Mounting Plate

Base Mounting Plate

Base Mounting Plate G-Frame GD/GHC

Number of Units in Package	Catalog Number
1	**207B513G01**

DIN Rail Adapter

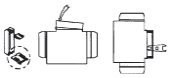
DIN Rail Adapter

DIN Rail Adapter G-Frame GD/GHC

Number of Poles	Number of Units in Package	Catalog Number
1, 2	10	**1225C79G01**
3	10	**1225C79G02** ①

Key Operated Attachment

Key Operated Attachment



Key Operated Attachment G-Frame GD/GHC

Number of Units in Package	Catalog Number
10	**GKOA**

Lock Dog (Non-Padlockable)

Lock Dog (Non-Padlockable)

Lock Dog (Non-Padlockable) G-Frame GD/GHC/GHB/GMCP

Number of Units in Package	Catalog Number
1	**1294C01H01**

Note

① For use on three-pole breakers only.

Non-Padlockable Handle Block

Non-Padlockable Handle Block

Non-Padlockable Handle Block

Frame	Catalog Number
F	**LKD1**
J, K	**LKD3**
L, M, N	**LKD4**

Padlockable Handle

Padlockable Handle

Padlockable G-Frame GD/GHC/GHB

Number of Units in Package	Catalog Number ①
10	**1223C77G03**
10	**1223C77G05** ②
10	**1223C77G06** ②

Padlockable Handle Lock

Padlockable Handle Lock

Padlockable Handle Lock

Frame	Catalog Number
G	**GPHBOFF**
J, K	**PHB3**

Snap-On Padlockable Handle Lock Hasp

Snap-On Padlockable Handle Lock Hasp

Snap-On Padlockable Handle Lock Hasp

Frame	Catalog Number
F	**PHL1**

Notes

① Accepts 0.285 Lock Shank.

② Padlockable in the OFF position only.

Padlockable Handle Lock Hasp

2

Padlockable Handle Lock Hasp

Padlockable Handle Lock Hasp

Description	Catalog Number
F-Frame	
Single-pole breakers	**PHL1**
Two-, three- and four-pole breakers	**PLK1**
For left side mounting	**PLK1LOFF**
For right side mounting	**PLK1ROFF**
J, K-Frames	
Two-, three- and four-pole breakers	**PLK3**
For left side mounting	**PLK3LOFF** ①
For right side mounting	**PLK3ROFF** ①
L-Frame (Side Mounted)	
Side Mounted	
Lock ON or OFF	**HLK4**
Lock OFF only (left-hand mount)	**HLK4LOFF** ①
L-Frame (Top Mounted)	
Lock ON or OFF	**HLK4S**
Lock OFF only	**HLK4SOFF** ①
M-Frame	
Lock ON or OFF	**HLK4**
Lock OFF only (left-hand mount)	**HLK4LOFF** ①
M-Frame (Vertical Mounting)	
Lock ON/OFF	**HLK4S**
Lock OFF only	**HLK4SOFF**
N-Frame	
Side mounted	**PLK5**
Top mounted (ON/OFF)	**PLK5S**
Top mounted (OFF only)	**PLK5SOFF** ①
R-Frame	
Lock ON/OFF	**HLK6**
Lock OFF only	**HLK6OFF** ①

Cylinder Lock

Cylinder Lock

Cylinder Lock

Frame	Catalog Number
F, J, K	Order by description

Note

① For padlockable handle lock hasp to padlock handle in OFF position only, order either catalog number.

Key Interlock Kit

Ordering Information

Key interlock mounting kits are for field installation only. Select mounting kit catalog numbers to match type of lock used. Key interlocks are supplied by customer.

Key Interlock Kit

Key Interlock Kit

Lock Manufacturer	Lock Type	Bolt Projection in Withdrawn Position in Inches (mm)	Kit Catalog Number
F-Frame			
Superior	B-4003-1	0.38 (9.5)	**KYK1**
Kirk®	F	0.38 (9.5)	**KYK1**
Square D®	SF	None	**KYK1**
Castell ①	K or QK	0.38 (9.5)	**CTK1**
J, K-Frames			
Superior	B-4003-1	0.38 (9.5)	**KYK3**
Kirk	F	0.38 (9.5)	**KYK3**
Square D	SF	None	**KYK3**
Castell ①	K or QK	0.38 (9.5)	**CTK3**
L-, M-, N-Frames			
Superior	B-4003-1	0.38 (9.5)	**KYK4**
Kirk	F	0.38 (9.5)	**KYK4**
Square D	SF	None	**KYK4**
Castell ①	K or QK	0.38 (9.5)	**CTK4**
R-Frame			
Superior	B-4003-1	1.0 (25.4)	**KYK6**
Kirk	F	1.0 (25.4)	**KYK6**
Square D	SF	1.0 (25.4)	**KYK6**
Castell ①	K or QK	1.0 (25.4)	**CTK6**
JG-Frame			
Superior	B-4003-1	0.38 (9.5)	**KYKJG**
Kirk	F	0.38 (9.5)	**KYKJG**
Square D	SF	None	**KYKJG**
Castell ①	K or QK	0.38 (9.5)	**CTKJG**
LG-Frame			
Superior	B-4003-1	0.38 (9.5)	**KYKLG**
Kirk	F	0.38 (9.5)	**KYKLG**
Square D	SF	None	**KYKLG**
Castell ①	K or QK	0.38 (9.5)	**CTKLG**

Note

① When ordering Castell Interlock, it is necessary for customer to specify that the mounting bolt holes must be 10 mm in diameter

2

Sliding Bar Interlock

Ordering Information

The sliding bar interlock is available for mounting between two adjacent three-pole circuit breakers with circuit breakers centerline spacing as indicated in table and enclosure front panel thickness of 1/8 or 3/16 inch (3.2 or 4.8 mm). (For field installation only.)

Sliding Bar Interlock

Sliding Bar Interlock

Frame	Centerline Spacing in Inches (mm)	Catalog Number
F	4.19 (106.4)	**SBK1**
J	4.38 (111.3)	**SBK2**
K	5.75 (146.0)	**SBK3**
L, M	8.50 (215.9)	**SBK4**
N	8.50 (215.9)	**SBK5**

Walking Beam Interlock

Ordering Information

The walking beam interlock is available for mounting between two adjacent circuit breakers spaced 1/4-inch (6.4 mm) apart and having the same pole configuration. The two circuit breakers must be factory modified to accept the walking beam interlock assembly (suitable for use with either two-, three- or four-pole circuit breakers).

With properly modified circuit breakers, the walking beam interlock is suitable for field installation. Order circuit breakers specifying modification for walking beam (20% price adder) and select walking beam interlock from table below. Circuit breakers and walking beam interlock are boxed and shipped separately.

Walking Beam Interlock

Walking Beam Interlock

Frame	Catalog Number
F	**WBL1**
K	**WBL3**
L, M	**WBL4A**
N	**WBL5**
R ①	**WBL6**

Note

① Three-pole only.

Electrical Operator

F-Frame Electrical (Solenoid) Operator

Voltage	Frequency	Terminal Block Catalog Number	18-Inch (457.2 mm) Pigtail Lead Catalog Number
120	AC	**EOP1T07**	**EOP1P07**
240	AC	**EOP1T11**	**EOP1P11**

F-Frame Electrical (Motor) Operator ①

Voltage	Frequency	18-Inch (457.2 mm) Pigtail Lead Catalog Number
120	50/60 Hz AC	**MOPFD120C**
24	DC	**MOPFD24D**
125	DC	**MOPFD120C**
208–240	50/60 Hz	**MOPFD240C**
220–250	DC	**MOPFD240C**

J-Frame Electrical (Solenoid) Operator

Operating Voltage	Frequency	Terminal Block Catalog Number
120	50/60 Hz AC	**EOP2T07**
240	50/60 Hz AC	**EOP2T11**

K-Frame Electrical (Solenoid) Operator

Operating Voltage	Frequency	Terminal Block Catalog Number
120	50/60 Hz AC	**EOP3MT07**
240	50/60 Hz AC	**EOP3MT11**

K-Frame Electrical (Solenoid) Operator Base Mounting Kit

Frame	Catalog Number
K	**BBMK3**

L- and M-Frame Electrical (Motor) Operator (310 and OPTIM)

Operating Voltage	Frequency	Terminal Block Catalog Number
120	50/60 Hz	**EOP4MT07**
208	50/60 Hz	**EOP4MT11**
240	50/60 Hz	**EOP4MT11A**
480	50/60 Hz	**EOP4MT15**
125	DC	**EOP4MT26**
24	DC	**EOP4MT21**

Note

① Motor operators MOP1P07, MOP1P03DC, MOP1P05DC and MOP1P07DC are replaced by MOPFD motor operators listed in table.

N-Frame Electrical (Motor) Operator

Operating Voltage	Frequency	Pigtail Leads Catalog Number
120	50/60 Hz	**EOP5T07**
208	50/60 Hz	**EOP5T09**
240	50/60 Hz	**EOP5T11**
480	50/60 Hz	**EOP5T15**
24	DC	**EOP5T21**
48	DC	**EOP5T22**
125	DC	**EOP5T26**

R-Frame Electrical (Motor) Operator

Operating Voltage	Frequency	Factory-Installed Terminal Block Catalog Number
120	50/60 Hz	**EOP6T08K**
240	50/60 Hz	**EOP6T11K**
48	DC	**EOP6T21K**

Plug-In Adapters

F-Frame Ordering Information (Flat Bar Type)

Continuous Current Rating (Amperes)	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
100–225	**1480D13G01**	**1480D13G02**	**1480D13G07** ①
Mounting plate	**176C511H01**	**507C047H01**	—

J-Frame Ordering Information (Flat Bar Type)

Continuous Current Rating (Amperes)	Terminal End	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
250	Line	**1260C86G05**	**1260C86G06**	**1231C67G01**
	Load	**1260C86G07**	**1260C86G08**	**1231C67G02**
	One line and one load	**506C144G27**	**506C144G28**	—
Mounting plate	—	②	**PMP23**	—

K-Frame Ordering Information (Flat Bar Type)—600 Vac Maximum

Continuous Current Rating (Amperes)	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
400	**PAD32**	**PAD33**	—
Mounting plate	②	**PMP33**	—

Notes

① 100 ampere maximum.

② Use three-pole mounting plate for two-pole circuit breaker.

L-Frame (Threaded Stud Type)

Continuous Current Rating (Amperes)	Two-Pole Catalog Number	Three-Pole Catalog Number	Four-Pole Catalog Number
600 (threaded stud type)	**506C059G03**	**506C059G04**	**PAD44**
600 (flat bar type)	**1288C19G01**	**1288C19G02**	**6636C55H01**
Mounting plate	**504C824H01**	**504C824H01**	—

M-Frame (Flat Bar Type)—600 Vac Maximum

Continuous Current Rating (Amperes)	Two-Pole Catalog Number	Three-Pole Catalog Number
800	**2614D53G05**	**2614D53G06**
Mounting plate	**1290C73H01**	**1290C73H01**

N-Frame (Flat Bar Type)

Continuous Current Rating (Amperes)	Two-Pole Catalog Number	Three-Pole Catalog Number
1200	**2614D53G03**	**2614D53G04**
Mounting plate	**1290C73H01**	**1290C73H01**

Plug-In Adapters

Frame	Number of Poles	Standard Certification	Catalog Number
FD	3	IEC	**PAD3F**
FD	4	IEC	**PAD4F**
JD	3	IEC	**PAD3JD**
KD	3	IEC	**PAD3K**
LD	3	IEC	**PAD3LD**
LD	4	IEC	**PAD4LD**

Rear Connecting Studs

F-Frame ①

Stud Ampere Rating	Stud Catalog Number	Tube Catalog Number
For 15 to 100 Ampere Circuit Breakers		
100A short	**451D874G01**	**32B9446H20**
100A short	**451D874G01**	**32B9446H21**
100A short	**451D874G01**	**32B9446H22**
100A short	**451D874G01**	**32B9446H23**
100A long	**451D874G02**	**32B9446H24**
100A long	**451D874G02**	**32B9446H25**
100A long	**451D874G02**	**32B9446H26**
100A long	**451D874G02**	**32B9446H27**
For 110 to 225 Ampere Circuit Breakers		
225A short	**374D883G01**	**374D883H06**
225A short	**374D883G01**	**374D883H07**
225A short	**374D883G01**	**374D883H08**
225A short	**374D883G01**	**374D883H09**
225A long	**374D883G02**	**374D883H10**
225A long	**374D883G02**	**374D883H11**
225A long	**374D883G02**	**374D883H12**
225A long	**374D883G02**	**374D883H13**

J-Frame ①

Stud Ampere Rating	Stud Catalog Number	Tube Catalog Number
250A short	**5010D23G01**	**456D983H05**
250A short	**5010D23G01**	**456D983H06**
250A short	**5010D23G01**	**456D983H07**
250A long	**5010D23G02**	**5010D23H05**
250A long	**5010D23G02**	**5010D23H06**
250A long	**5010D23G02**	**5010D23H07**

K-Frame ①

Stud Ampere Rating	Stud Catalog Number	Standard Tube Catalog Number
400A short	**6642C14G02**	**313C909H17**
400A short	**6642C14G04**	**313C909H18**
400A short	**6642C14G06**	**313C909H19**
400A long	**6642C14G03**	**313C909H20**
400A long	**6642C14G05**	**313C909H21**
400A long	**6642C14G07**	**313C909H22**

L-Frame Ordering Information

Stud Catalog Number
314C960G07
314C960G08
314C960G09

M-Frame Ordering Information ①

Stud Ampere Rating	Stud Catalog Number
225	**314C960G01**
400	**314C960G04**
400	**314C960G05**
400	**314C960G06**
600	**314C960G07**
600	**314C960G08**
600	**314C960G09**
800	**314C960G10**
800	**314C960G11**
800	**314C960G12**

N-Frame Ordering Information ①

Stud Ampere Rating	Stud Catalog Number
800	**623B222G01**
800	**623B222G02**
800	**623B222G03**
1200	**373B375G04**
1200	**373B375G03**

Note

① Not UL listed.

Panelboard Connecting Straps

F-Frame Panelboard Connecting Straps

Bus Spacing in Inches (mm)	Continuous Current Rating (Amperes)	Pole Connector Type Center Catalog Number	Outside Catalog Number
2.75 (69.9)	50	**673B142G02**	**673B142G09**
2.75 (69.9)	100	**673B142G02**	**673B142G10**
2.75 (69.9)	150	**673B142G04**	**673B142G03**
3.50 (88.9)	50	**1253C72G01**	**1253C72G03**
3.50 (88.9)	100	**1253C73G03**	**1253C73G06**
3.50 (88.9)	150	**1253C73G01**	**1253C73G05**

F-Frame Mounting Bracket

Number of Poles	Catalog Number
2	**624B600H02**
3	**624B600H01**

J-Frame Panelboard Connecting Straps

Bus Spacing in Inches (mm)	Continuous Current Rating (Amperes)	Pole Connector Type Center Catalog Number	Outside Catalog Number
3.50 (88.9)	250	**2600D26G01**	**2600D26G02**

K-Frame Panelboard Connecting Straps

Bus Spacing in Inches (mm)	Continuous Current Rating (Amperes)	Pole Connector Type Center Catalog Number	Outside Catalog Number
3.50 (88.9)	400	**4212B78G02**	**4212B77G01**

K-Frame Mounting Bracket

Number of Poles	Catalog Number
2, 3	**208B264H01**

L-Frame Panelboard Connecting Straps

Continuous Current Rating (Amperes)	Pole Connector Type Center Catalog Number	Outside Catalog Number
600	**624B609G01**	**506C052G01**

L-Frame Mounting Bracket

Number of Poles	Catalog Number
2, 3	**208B297H01**

M-Frame Panelboard Connecting Straps

Bus Spacing in Inches (mm)	Continuous Current Rating (Amperes)	Connector Type	Pole Connector Type Catalog Number
3.50 (88.9)	800	Short	**314C996G01**
		Medium	**314C996G02**
		Long	**314C996G03**

M-Frame Mounting Bracket

Catalog Number
315C270H01

N-Frame Panelboard Connecting Straps

Bus Spacing in Inches (mm)	Continuous Current Rating (Amperes)	Connector Type	Pole Connector Type Catalog Number
3.50 (88.9)	1200	Short	**505C606G04**
		Medium	**505C606G05**
		Long	**505C606G06**

N-Frame Mounting Bracket (Four Required)

Catalog Number
315C270H01

Handle Mechanisms

Flex Shaft

Breaker Frame	Flexible Shaft Length in Feet (m) 3 (0.9) Catalog Number	4 (1.2) Catalog Number	5 (1.5) Catalog Number	6 (1.8) Catalog Number	7 (2.1) Catalog Number	8 (2.4) Catalog Number	9 (2.7) Catalog Number	10 (3.0) Catalog Number
G ①	**F0S03C**	**F0S04C**	**F0S05C**	**F0S06C**	—	—	—	—
F	**F1S03C**	**F1S04C**	**F1S05C**	**F1S06C**	**F1S07C**	**F1S08C**	**F1S09C**	**F1S10C**
F (dual)	**F1S03CD**	**F1S04CD**	**F1S05CD**	**F1S06CD**	**F1S07CD**	**F1S08CD**	**F1S09CD**	**F1S10CD**
J	**F2S03C**	**F2S04C**	**F2S05C**	**F2S06C**	**F2S07C**	**F2S08C**	**F2S09C**	**F2S10C**
K	**F3S03C**	**F3S04C**	**F3S05C**	**F3S06C**	**F3S07C**	**F3S08C**	**F3S09C**	**F3S10C**
L and MDL	—	**F4S04C**	**F4S05C**	**F4S06C**	—	—	—	**F4S10C**
N	—	**F5S04C**	**F5S05C**	**F5S06C**	—	—	—	**F5S10C**
R	—	**F6S04**	**F6S05**	**F6S06**	—	—	—	—
MD, MDS (old)	—	**F7S04**	**F7S05**	**F7S06**	—	—	—	**F7S10C**

Notes

① Suitable for GC/GD MCCB; not suitable for GMCP.

Type 4/4X handle mechanisms are available. Add Suffix **X** to complete catalog number. Add Suffix I to complete catalog number for IEC handle. Original narrow handle design (No C Suffix) is available. Remove C from catalog number.

When selecting the length of shaft, ensure minimum bending radius of 4 inches (101.6 mm) (5 inches, 12.7 mm for L-, N- and R-Frames) is maintained to operate properly. The standard method of shipment includes the mechanism preset at the factory; however, minor field adjustments may be required.

Dual breakers operator available on F-Frame only. Only the F, J and K can mount LH and RH all other RH only.

Type C371

Circuit Breaker or Motor Circuit Protector	Frame Size	Variable Depth Mounting Range Min/Max ①②	Operating Mechanism Only ③ Catalog Number	Operating Mechanism w/ 4-Inch Handle For NEMA 1–12 Enclosure Catalog Number	Operating Mechanism w/ 4-Inch Handle For NEMA 4/4X Enclosure Catalog Number
HMCP and Series C EHD, FDB, FD, FDC, HFD, ED	150	6.50–16 (165.1–406.4)	**C371E**	**C371E1**	**C371E2**
HMCP and Series C HJD, JD, JDB, JDC	250	6.50–16.63 (165.1–422.4)	**C371F**	**C371F5**	**C371F6**
HMCP and Series C DK, HKD, KD, KDB	400	6.50–16.63 (165.1–422.4)	**C371F**	**C371F5**	**C371F6**
Series C HLD, LD, LDC	600	8.50–22 (215.9–558.8)	**C371G**	**C371G5**	**C371G6**
Series C MD, MDS (No MDL)	800	8.75–22 (222.3–558.8)	**C371K**	**C371K5**	**C371K6**
Series C HND, ND, NDC	1200	9.75–22 (247.7–558.8)	**C371K**	**C371K5**	**C371K6**

Handle Only

Circuit Breaker Frame Size (Amperes)	NEMA Enclosure Type	Operating Handle Length	Catalog Number
150	1-3R-3-12	4.00 (101.6)	**C371H1**
	4/4X	4.00 (101.6)	**C371H2**
	1-3R-3-12	6.00 (152.4)	**C371H3**
	4/4X	6.00 (152.4)	**C371H4**
250–1200	1-3R-3-12	4.00 (101.6)	**C371H5**
	4/4X	4.00 (101.6)	**C371H6**
	1-3R-3-12	6.00 (152.4)	**C371H7**
	4/4X	6.00 (152.4)	**C371H8**

Channel Support Kit (Rod Not Supplied)

For use to prevent bending of the operating handle mounting surface. This is especially useful when the operating handle is mounted on a channel in a multi-door enclosure.

Amperes	Catalog Number
600–1200	**C371CS6**

Connecting Rods ④

Application	Catalog Number
Disconnect switches (30, 60, 100, 200A sizes)	**C371CS1**
Circuit breakers (150, 250, 400A sizes)	**C371CS1**
Circuit breakers (600, 800, 1200A sizes)	**C371CS2**

Notes

① For increased maximum allowable depth, see connecting rods left.
② Dimensions shown are from panel flange surface.
③ Does not include handle.
④ Increase maximum allowable depth by 5 inches (127 mm).

Through-the-Door Handle Mechanisms

Series C Rotary

Series C Rotary Ordering Information

Shaft Length Inches (mm)	Complete Catalog Number ①	Separate Catalog Number			Catalog Number	
		Standard Handle ②	Breaker Mechanism ③	Shaft ④	IEC IP65 ⑤⑥	IEC IP66 ⑤⑥
F-Frame						
6.00 (152.4)	**HM1R06**	**6648C22G25**	**6648C23G11**	**4217B37G08**	**WHM1R06**	**WHM1R06X**
12.00 (304.8)	**HM1R12**	**6648C22G25**	**6648C23G11**	**4217B37G05**	**WHM1R12**	**WHM1R12X**
16.00 (406.4)	**HM1R16**	**6648C22G25**	**6648C23G11**	**4217B37G06**	**WHM1R16**	**WHM1R16X**
24.00 (609.6)	**HM1R24**	**6648C22G25**	**6648C23G11**	**4217B37G07**	**WHM1R24**	**WHM1R24X**
J-Frame						
6.00 (152.4)	**HM2R06**	**6648C22G01**	**6648C23G21**	**4217B37G08**	**WHM2R06**	**WHM2R06X**
12.00 (304.8)	**HM2R12**	**6648C22G01**	**6648C23G21**	**4217B37G05**	**WHM2R12**	**WHM2R12X**
16.00 (406.4)	**HM2R16**	**6648C22G01**	**6648C23G21**	**4217B37G06**	**WHM2R16**	**WHM2R16X**
24.00 (609.6)	**HM2R24**	**6648C22G01**	**6648C23G21**	**4217B37G07**	**WHM2R24**	**WHM2R24X**
K-Frame						
6.00 (152.4)	**HM3R06**	**6648C22G01**	**6648C23G25**	**4217B37G08**	**WHM3R06**	**WHM3R06X**
12.00 (304.8)	**HM3R12**	**6648C22G01**	**6648C23G25**	**4217B37G05**	**WHM3R12**	**WHM3R12X**
16.00 (406.4)	**HM3R16**	**6648C22G01**	**6648C23G25**	**4217B37G06**	**WHM3R16**	**WHM3R16X**
24.00 (609.6)	**HM3R24**	**6648C22G01**	**6648C23G25**	**4217B37G07**	**WHM3R24**	**WHM3R24X**
L- and MDL-Frame						
6.00 (152.4)	**HM4R06**	**6648C22G11**	**6648C23G19**	**4217B37G08**	**WHM4R06**	**WHM4R06X**
12.00 (304.8)	**HM4R12**	**6648C22G11**	**6648C23G19**	**4217B37G05**	**WHM4R12**	**WHM4R12X**
16.00 (406.4)	**HM4R16**	**6648C22G11**	**6648C23G19**	**4217B37G06**	**WHM4R16**	**WHM4R16X**
24.00 (609.6)	**HM4R24**	**6648C22G11**	**6648C23G19**	**4217B37G07**	**WHM4R24**	**WHM4R24X**
MD/MDS						
6.00 (152.4)	**HM7R06**	**6648C22G21**	**6648C23G17**	**4217B37G08**	—	—
12.00 (304.8)	**HM7R12**	**6648C22G21**	**6648C23G17**	**4217B37G05**	—	—
16.00 (406.4)	**HM7R16**	**6648C22G21**	**6648C23G17**	**4217B37G06**	—	—
24.00 (609.6)	**HM7R24**	**6648C22G21**	**6648C23G17**	**4217B37G07**	—	—
N-Frame						
6.00 (152.4)	**HM5R06**	**6648C22G21**	**6648C23G08**	**4217B37G08**	**WHM5R06**	**WHM5R06X**
12.00 (304.8)	**HM5R12**	**6648C22G21**	**6648C23G08**	**4217B37G05**	**WHM5R12**	**WHM5R12X**
16.00 (406.4)	**HM5R16**	**6648C22G21**	**6648C23G08**	**4217B37G06**	**WHM5R16**	**WHM5R16X**
24.00 (609.6)	**HM5R24**	**6648C22G21**	**6648C23G08**	**4217B37G07**	**WHM5R24**	**WHM5R24X**

Notes

① Complete catalog number includes the standard handle, mechanism, shaft and support brace/bracket.

② Handle is designed suitable for NEMA Types 1, 3R and 12 enclosures. Use style number **6648C22G03** for Type 4/4X handle or add **X** Suffix to complete catalog number. Handle is cast aluminum.

③ Breaker mechanism includes a shaft support bracket and its parts. Shaft is.50-inch (12.7 mm).

④ Longer shafts,16-inch (406.4 mm) and 24-inch (609.6 mm), include an adjustable support extension.

⑤ IEC handle mechanism supplied with metric thread mounting hardware.

⑥ Complete catalog number includes a handle, mechanism and shaft.

Universal Rotary F-Frame

Features Comparison of Series C Rotary and Universal Rotary Handle Mechanism

Rotary	Number of Poles	NEMA Enclosure Type 1	3R	12	4/4X ①	Handle Lock-Off ②	Handle Indication: ON/OFF TRIPPED/RESET	International Markings ON (I) OFF (O)	Handle Material	Available Handle Colors	Handle Rotation	Shaft Lengths (Inches)
Series C rotary	—	X	X	X	X	X	X	X	Metal	Black	45 deg.	6, 12, 16, 24
Universal rotary	—	X	—	X	—	X	X	X	Molded plastic	Yellow/Red/Black	90 deg.	6, 12, 24

Universal Rotary F-Frame

Series C Universal Rotary ③

Shaft Length in Inches (mm)	Handle Color	Complete Catalog Number
G-Frame		
6.00 (152.4)	Black	**GHMVD06B**
12.00 (304.8)	Black	**GHMVD12B**
6.00 (152.4)	Red	**GHMVD06R**
12.00 (304.8)	Red	**GHMVD12R**
F-Frame		
6.00 (152.4)	Black	**FHMVD06B**
12.00 (304.8)	Black	**FHMVD12B**
6.00 (152.4)	Red	**FHMVD06R**
12.00 (304.8)	Red	**FHMVD12R**
J-Frame		
6.00 (152.4)	Black	**JHMVD06B**
12.00 (304.8)	Black	**JHMVD12B**
6.00 (152.4)	Red	**JHMVD06R**
12.00 (304.8)	Red	**JHMVD12R**
K-Frame		
6.00 (152.4)	Black	**KHMVD06B**
12.00 (304.8)	Black	**KHMVD12B**
6.00 (152.4)	Red	**KHMVD06R**
12.00 (304.8)	Red	**KHMVD12R**
L-Frame		
6.00 (152.4)	Black	**LHMVD06B**
12.00 (304.8)	Black	**LHMVD12B**
6.00 (152.4)	Red	**LHMVD06R**
12.00 (304.8)	Red	**LHMVD12R**

Series C G-Frame Vari-Depth Handle Mechanism (Not Shown)

For Use With Enclosure	Breaker	Handle Color Black	Complete Catalog Number
NEMA 1	GC/GHC/GD	Black	**HRGCV11L**
NEMA 1	GC/GHC/GD	Yellow	**HRGCV31L**
NEMA 3R/12/4X	GC/GHC/GD	Black	**HRGCV14L**
NEMA 3R/12/4X	GC/GHC/GD	Yellow	**HRGCV34L**
NEMA 1	GMCP	Black	**HRGMV11L**
NEMA 1	GMCP	Yellow	**HRGMV31L**
NEMA 3R/12/4X	GMCP	Black	**HRGMV14L**
NEMA 3R/12/4X	GMCP	Yellow	**HRGMV34L**

Notes

① Type 4/4X application requires special handle. See "Ordering Information."
② All rotary handle mechanisms include a handle "Lock Off" to prevent turning the breaker ON while in the OFF position.
③ Only available as complete handle mechanism. Parts not sold separately.

Direct (Close-Coupled) Handle Mechanisms

Euro IEC Direct

Frame	Black Handle Catalog Number	Red Handle Catalog Number
F	**HMCC1B**	**HMCC1R**
J	**HMCC2B**	**HMCC2R**
K	**HMCC3B**	**HMCC3R**
L and M	**HMCC4B**	**HMCC4R**
N	**HMVD5B**	—
R	**HMVD6B**	—

G Direct ①

Frame	Black Handle With Shroud Catalog Number	Black Handle Without Shroud Catalog Number	Yellow Handle With Shroud Catalog Number	Yellow Handle Without Shroud Catalog Number
GD/GHC	**HRGCC1S**	**HRGCC10**	**HRGCC3S**	**HRGCC30**
GMCP	**HRGMC1S**	**HRGMC10**	**HRGMC3S**	**HRGMC30**

Handle Extension

Handle Extension

Handle Extension ②③

Frame	Style Number
J, K	**HEX3**
L, M	**HEX4**
N	**HEX5**
R	**HEX6**

Notes

① Suitable for use on two- or three-pole G-Frame.
② Handle extension is not included with J, K, L, M and N-Frame breakers. It must be purchased separately.
③ Handle extension is included with breaker with R-Frame breakers.

Type LFD Current Limiter

The LFD current limiter is an accessory that bolts to the load end of a standard FDB or FD thermal-magnetic and electronic circuit breaker, providing 200,000A interrupting capacity at up to 600 Vac. LFD current limiters for thermal-magnetic circuit breakers are listed with Underwriters Laboratories under File E47239.

Type LFD Current Limiter

Type LFD Current Limiter

Circuit Breaker Rating Amperes	Catalog Number
15–70	**LFD3070R**
80–160	**LFD3150R**

Ground Fault Alarm Unit

The ground fault alarm unit is a remotely mounted device with a combination indicating light/test button that will light when the breaker trips or alarms on ground fault. The ground fault alarm unit requires a separate 120 Vac power source to power the light and the internal relay, which has 1NO and 1NC contacts for remote indication. The ground fault alarm unit can be panel mounted for ordering with an optional face mounting bracket. For use on Digitrip 310 only, K- through N-Frame.

Ground Fault Alarm Unit

GF Alarm Unit

Description	Catalog Number
Ground fault alarm unit	**GFAU**
Face mounting bracket	**1264C67G01**

IQ Energy Sentinel

The IQ Energy Sentinel is a highly accurate, microprocessor-based, breaker-mounted device designed to monitor power and energy readings. It represents an alternative to watt meters, watt-hour meters, and watt demand meters. Key advantages include savings in space, lower installation costs, and remote monitoring capability.

The IQ Energy Sentinel mounts on the load side of a Series C F-Frame (150 ampere) circuit breaker. It can be applied on three-phase, four-wire systems, or single-phase, three-wire systems with voltage connected through Phases A and C.

For more information, see Descriptive Bulletin 8178.

Potential Transformer Module

The potential transformer module is required for the Digitrip OPTIM 1050 to provide a voltage input to allow the trip unit to monitor power and energy as well as power factor. The potential transformer module is a 6 VA transformer with a primary voltage input of up to 600 volt line to line. Three 0.1 ampere fuses are provided on the primary of the transformer and can be used for isolation purposes during dielectric testing. The device is normally panel mounted and can feed up to 16 OPTIM trip units.

Potential Transformer Module

Potential Transformer Module

Description	Catalog Number
Potential transformer module	**DOPTMLN**

Solid-State (Electronic) Portable Test Kit

The solid-state (electronic) portable test kit provides verification of performance of all ratings of Digitrip 310 electronic trip units installed in circuit breakers while in service under varying load and/or phase imbalance. The test kit operates on 120-volt, 50/60 Hz power; it includes complete instructions and test times for testing long time, short time/ instantaneous operation and optional ground fault operation of the circuit breaker.

Portable Test Kit

Description	Catalog Number
Solid-state (electronic) portable test kit	**STK2**

Breaker Interface Module (BIM)

The Breaker Interface Module (BIM) is a panel mounted user interface device that is mounted on the front of an electrical assembly or at a remote location. The BIM is used to access, configure, test and display information for OPTIM trip units and other devices. The BIM consists of four display windows, eight function buttons, 18 LEDs, and a graphical time/current curve to provide breaker status, operational information, protection status and energy monitoring. A 24 Vdc power supply is required to provide power to the BIM. This is supplied by the switchboard builder to Eaton's specifications. The BIM is a member of Eaton's PowerNet family of communicating devices that connects OPTIM trip units, Digitrip RMS 810/910 trip units and energy sentinels as a subnetwork system. The BIM can also be connected to a main network via a PONI module to PowerNet software.

Breaker Interface Module (BIM)

Breaker Interface Module (BIM)

Catalog Number
BIMII

Digitrip OPTIMizer

The Digitrip OPTIMizer is a hand-held programmer that is used to access, configure, test and display information from OPTIM trip units. The OPTIMizer plugs into the front of an OPTIM trip unit via an eight-pin telephone jack and is powered by a nine-volt battery or the auxiliary power module. One highlighted feature is the "Copy" and "Download" commands.

Setting up multiple OPTIM trips can be finished in minutes and with no errors. An Auxiliary Power Module connection provides a trip test when control power is not present at the breaker. The OPTIMizer is supplied as a standard package to include the programmer, the eight-pin connection cord, battery and carrying case. The auxiliary power module is optional.

Note: 24 Vdc Power Supply
A 24 Vdc power supply is required for all Digitrip OPTIM trip units that are required to communicate either on the main Eaton PowerNet network or as a subnetwork to a BIM. The breaker's load is 45 mA of current. Typically one power supply is required per switchboard and can provide control power to a BIM and the OPTIM trip units. The 24 Vdc power supply should be an "isolated high quality" power supply with a "CE" label, and is normally provided by the switchboard manufacturer to Eaton's recommendations.

Digitrip OPTIMizer

Digitrip OPTIMizer

Catalog Number
OPTIMizer—standard package

Auxiliary Power Module

The auxiliary power module is a power supply requiring 120 Vac input at 50 or 60 Hz that provides a 32 Vdc output. The auxiliary power module provides control power for testing an OPTIM trip unit when other means of control power is not available or for continuous OPTIMizer operation versus temporary with a battery. The auxiliary power module connects into the top of the Digitrip OPTIMizer via a keyed receptacle. The main application for the auxiliary power module would be for the testing of a standalone non-communicating OPTIM breaker that ordinarily would not have control power.

Auxiliary Power Module

Auxiliary Power Module

Catalog Number
PRTBAPMDV

Cause of Trip Display/Remote Mount Cause of Trip Display

The Cause of Trip Display can be field-installed on any Digitrip RMS 310+ trip unit. The device provides breaker information through an LCD screen, such as cause of trip, phrase current, ground current and low loads. The display is ideal for troubleshooting common trips such as ground fault, long delay, and instantaneous/short delay. The DIGIVIEW version will provide a local display at the breaker without additional wiring by connecting directly onto the trip unit. The DIGIVIEWR06 version has a 6 foot cable that allows users to mount the display on the outside of an enclosure door and connect to the trip unit that is contained inside the enclosure.

Cause of Trip Display/Remote Mount Cause of Trip Display

Catalog Number
DIGIVIEW
DIGIVIEWR06

Cause of Trip LED Module

The Cause of Trip LED Module can be field-installed on any Digitrip RMS 310+ trip unit. The device provides a cause of trip indication via LED. The Cause of Trip LED Module connects directly onto the trip unit. When the breaker trips, the module indicates the cause of trip (long delay, short delay, instantaneous and ground) via LED indication. The module is reset after the breaker is reset.

Cause of Trip LED Module

Catalog Number
TRIP-LED

Accessories

Flex Shaft Accessories (F- through R-Frame)

NEMA 12 Safety Door Hardware for Flex Shaft and C371 ①

Handle Length in Inches (mm)	Catalog Number ②
4 (101.6)	**C361KJ4**
6 (152.4)	**C361KJ6**
Roller Latch ③	**C361KR**

Series C Rotary Accessories

As an option, an auxiliary switch is offered so that the control panel builder may electrically indicate the status of the breaker.

This accessory would be mounted on the mechanism and comes with 24-inch (609.6 mm) pigtail leads.

Series C Auxiliary Switch

Catalog Number
5108A61G01

Notes

① Customer: Consult with box manufacturer for correct door hardware and any adapters required for assembly.

② The 1/4-inch x 1/2-inch (6.35 x 12.7 mm) standard mill rectangular locking bar is not supplied with these kits.

③ Third roller latch for use with 4- or 6-inch (101.6 or 152.4 mm) handle when 3 point latching is required.

Technical Data and Specifications

Electrical Operator

F-Frame Electrical (Solenoid) Operator Rating Data ①②

Voltage ③	Frequency	Inrush Current Amperes	Maximum Operating Time	Fuse Amperes ④
120	50/60 Hz AC	10	5 cycles (80 ms)	3
240	50/60 Hz AC	5	5 cycles (80 ms)	2

F-Frame Electrical (Motor) Operator Rating Data ②⑤⑥⑦

Voltage ③	Frequency	Inrush Current Amperes
120	AC	2
24	DC	5
48	DC	3
125	DC	2

J-Frame Electrical (Solenoid) Operator Rating Data ①⑥⑧⑨

Voltage ③	Inrush Current Amperes	Fuse Amperes
120	30	6
240	16	4

K-Frame Electrical (Solenoid) Operator Rating Data ①⑥⑧⑨

Operating Voltage ③	Inrush Current Amperes	Fuse Amperes
120	30	6
240	16	4

L- and M-Frame Electrical (Motor) Operator Rating Data ①⑥⑧⑩

Operating Voltage ③	Inrush Current Amperes
120 AC	31
208 AC	13
240 AC	12
125 DC	21
24 DC	50

N-Frame Electrical (Motor) Operator Rating Data ①⑥⑪⑫

Operating Voltage ③	Frequency	Inrush Current Amperes	Fuse Amperes
120	50/60 Hz	31	6
208	50/60 Hz	21	—
240	50/60 Hz	19	4
480	50/60 Hz	—	—
24	DC	50	—
48	DC	80	—
125	DC	21	—

R-Frame Electrical (Motor) Operator Rating Data ⑬⑭⑮⑯

Operating Voltage ⑰	Frequency	Motor Inrush Current Amperes
120	50/60 Hz	40
240	50/60 Hz	27
48	DC	53
24	DC	58

Notes

① UL listed under UL File E64983.
② The electrical operator design is endurance tested for 8000 electrical operations.
③ Tolerance: +10%, –15% of nominal voltage.
④ Use current-limiting type fuse where required.
⑤ UL listed under UL File E64124.
⑥ Frequency: 50/60 Hz.
⑦ Maximum operating time: 3 seconds max. Operator is an intermittent duty device. The safe duty cycle (OFF to ON to OFF) should not exceed one per minute.
⑧ The electrical operator design has been endurance tested for 6000 electrical operations.
⑨ Maximum operating time: 5 cycles (80 mS).
⑩ Maximum operating time: 12 cycles.
⑪ The electrical operator design has been endurance tested for 2,500 electrical operations.
⑫ Maximum operating time: 12 cycles max. Operator is an intermittent duty device. The safe duty cycle (OFF to ON to OFF) should not exceed one per minute.
⑬ Operator is an intermittent duty service. The safe duty cycle (OFF to ON to OFF) should not exceed one per minute.
⑭ Electric Operating time at rated voltage; (a) To turn breaker ON–1/2 second max. (b) To turn breaker OFF–1/2 second max.
⑮ Motor operating temperature; Class "A" temperature limits apply.
⑯ A minimum 1 kVA power source is recommended for motor operation.
⑰ Applied voltage should be no less than 85% or no more than 110% of rated voltage.

For OPTIM trip, OPEOPCK kit required.

Dimensions

Approximate Dimensions in Inches (mm)

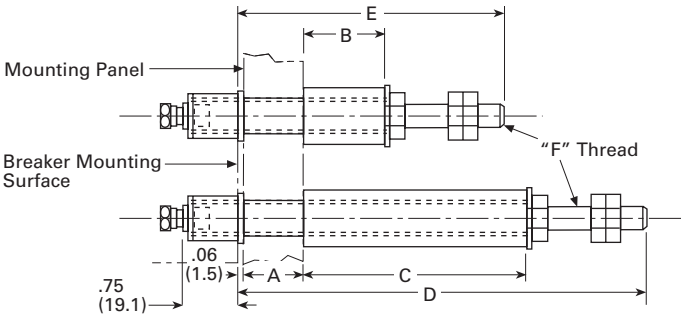
2

Rear Connecting Studs

F-Frame ①

Stud Ampere Rating	Stud Catalog Number	Panel Thickness A	Tube Length B	C	Tube Catalog Number	Dimensions D	E	F
For 15 to 100 Ampere Circuit Breakers								
100A short	**451D874G01**	1.00 (25.4)	1.06 (26.9)	—	**32B9446H20**	—	3.63 (92.1)	0.31 (7.9)–18
100A short	**451D874G01**	0.69 –0.94 (17.5 to 23.8)	1.38 (34.9)	—	**32B9446H21**	—	3.63 (92.1)	0.31 (7.9)–18
100A short	**451D874G01**	0.38 –0.63 (9.5 to 15.9)	1.69 (42.9)	—	**32B9446H22**	—	3.63 (92.1)	0.31 (7.9)–18
100A short	**451D874G01**	0.25 –0.31 (6.4 to 7.9)	2.00 (50.8)	—	**32B9446H23**	—	3.63 (92.1)	0.31 (7.9)–18
100A long	**451D874G02**	1.00 (25.4)	—	3.44 (87.3)	**32B9446H24**	6.13 (155.6)	—	0.31 (7.9)–18
100A long	**451D874G02**	0.69 –0.94 (17.5 to 23.8)	—	3.75 (95.2)	**32B9446H25**	6.13 (155.6)	—	0.31 (7.9)–18
100A long	**451D874G02**	0.38 –0.63 (9.5 to 15.9)	—	4.06 (103.1)	**32B9446H26**	6.13 (155.6)	—	0.31 (7.9)–18
100A long	**451D874G02**	0.25 –0.31 (6.4 to 7.9)	—	4.38 (111.3)	**32B9446H27**	6.13 (155.6)	—	0.31 (7.9)–18
For 110 to 225 Ampere Circuit Breakers								
225A short	**374D883G01**	1.00 (25.4)	1.06 (26.9)	—	**374D883H06**	—	4.25 (108.0)	0.44 (11.1)–14
225A short	**374D883G01**	0.69 –0.94 (17.5 to 23.8)	1.38 (34.9)	—	**374D883H07**	—	4.25 (108.0)	0.44 (11.1)–14
225A short	**374D883G01**	0.38 –0.63 (9.5 to 15.9)	1.69 (42.9)	—	**374D883H08**	—	4.25 (108.0)	0.44 (11.1)–14
225A short	**374D883G01**	0.25 –0.31 (6.4 to 7.9)	2.00 (50.8)	—	**374D883H09**	—	4.25 (108.0)	0.44 (11.1)–14
225A long	**374D883G02**	1.00 (25.4)	—	3.44 (87.3)	**374D883H10**	7.50 (190.5)	—	0.44 (11.1)–14
225A long	**374D883G02**	0.69 –0.94 (17.5 to 23.8)	—	3.75 (95.2)	**374D883H11**	7.50 (190.5)	—	0.44 (11.1)–14
225A long	**374D883G02**	0.38 –0.63 (9.5 to 15.9)	—	4.06 (103.1)	**374D883H12**	7.50 (190.5)	—	0.44 (11.1)–14
225A long	**374D883G02**	0.25 –0.31 (6.4 to 7.9)	—	4.38 (111.3)	**374D883H13**	7.50 (190.5)	—	0.44 (11.1)–14

F-Frame



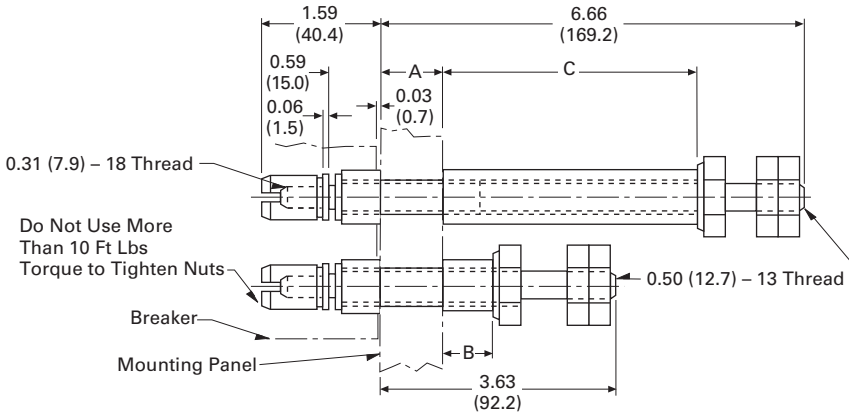
Note

① Not UL listed.

Approximate Dimensions in Inches (mm)

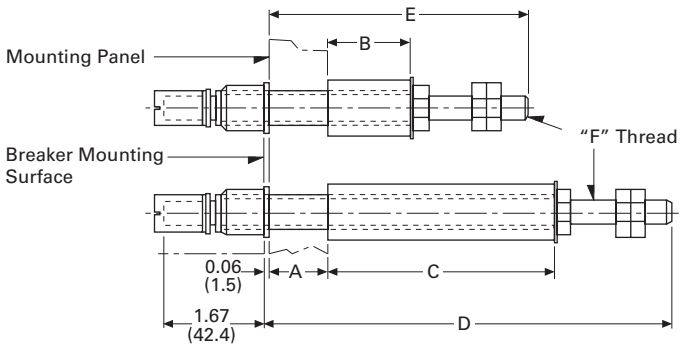
J-Frame

Stud Ampere Rating	Stud Catalog Number	Panel Thickness A	Tube Length B	C	Tube Catalog Number
250A short	**5010D23G01**	0.75–1.00 (19.1–25.4)	0.84 (21.4)	—	**456D983H05**
250A short	**5010D23G01**	0.50 –0.75 (12.7–19.1)	1.09 (27.7)	—	**456D983H06**
250A short	**5010D23G01**	0.25 –0.50 (6.4–12.7)	1.03 (26.2)	—	**456D983H07**
250A long	**5010D23G02**	0.75–1.00 (19.1–25.4)	—	3.88 (98.6)	**5010D23H05**
250A long	**5010D23G02**	0.50 –0.75 (12.7–19.1)	—	4.13 (104.9)	**5010D23H06**
250A long	**5010D23G02**	0.25 –0.50 (6.4–12.7)	—	4.38 (111.3)	**5010D23H07**



K-Frame ①

Stud Ampere Rating	Stud Catalog Number	Panel Thickness A	Tube Length B	C	Standard Tube Catalog Number	Dimensions D	E	F
400A short	**6642C14G02**	0.75–1 (19.1–25.4)	0.84 (21.3)	—	**313C909H17**	—	3.66 (93.0)	0.75–16 (19.1–406.4)
400A short	**6642C14G04**	0.50 –0.75 (12.7–18.4)	1.09 (27.69)	—	**313C909H18**	—	—	—
400A short	**6642C14G06**	0.25 –0.5 (6.35–12.7)	1.03 (26.16)	—	**313C909H19**	—	—	—
400A long	**6642C14G03**	0.75–1 (19.1–25.4)	—	3.78 (96.0)	**313C909H20**	—	—	—
400A long	**6642C14G05**	0.50 –0.75 (12.7–18.4)	—	4.03 (102.4)	**313C909H21**	6.58 (167.1)	—	—
400A long	**6642C14G07**	0.25 –0.5 (6.35–12.7)	—	4.28 (108.7)	**313C909H22**	—	—	—



Note

① Not UL listed.

Approximate Dimensions in Inches (mm)

Flange Mounted Handle Mechanisms

Type C371

Circuit Breaker or Motor Circuit Protector	Frame Size	Variable Depth Mounting Range Min/Max ①②	Operating Mechanism Only Catalog Number	Operating Mechanism w/ 4-inch Handle For NEMA 1–12 Enclosure Catalog Number	Operating Mechanism w/ 4-inch Handle For NEMA 4/4X Enclosure Catalog Number
HMCP and Series C EHD, FDB, FD, FDC, HFD, ED	150	6.5–16 (165.1–406.4)	**C371E**	**C371E1**	**C371E2**
HMCP and Series C HJD, JD, JDB, JDC	250	6.5–16.63 (165.1–422.4)	**C371F**	**C371F5**	**C371F6**
HMCP and Series C DK, HKD, KD, KDB	400	6.5–16.63 (165.1–422.4)	**C371F**	**C371F5**	**C371F6**
Series C HLD, LD, LDC	600	8.5–22 (215.9–558.8)	**C371G**	**C371G5**	**C371G6**
Series C MD, MDS (No MDL)	800	8.75–22 (222.3–558.8)	**C371K**	**C371K5**	**C371K6**
Series C HND, ND, NDC	1200	9.75–22 (247.7–558.8)	**C371K**	**C371K5**	**C371K6**

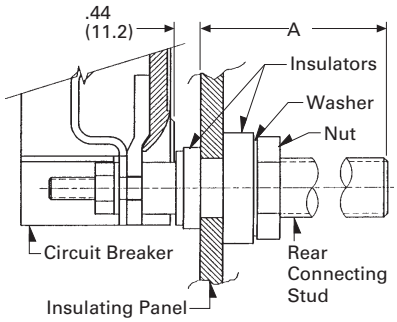
Handle Only

Circuit Breaker Frame Size (Amperes)	NEMA Enclosure Type	Operating Handle Length	Catalog Number
150	1-3R-3-12	4.00 (101.6)	**C371H1**
	4/4X	4.00 (101.6)	**C371H2**
	1-3R-3-12	6.00 (152.4)	**C371H3**
	4/4X	6.00 (152.4)	**C371H4**
250–1200	1-3R-3-12	4.00 (101.6)	**C371H5**
	4/4X	4.00 (101.6)	**C371H6**
	1-3R-3-12	6.00 (152.4)	**C371H7**
	4/4X	6.00 (152.4)	**C371H8**

Approximate Dimensions in Inches (mm)

L-Frame

Stud Length (A)	Stud Catalog Number
5.47 (138.9)	**314C960G07**
7.97 (202.4)	**314C960G08**
10.47 (265.9)	**314C960G09**



M-Frame

Stud Ampere Rating	Diameter and Thread	Extension Back of Breaker	Stud Catalog Number
225	0.50 (12.7)–13	3.66 (93.0)	**314C960G01**
400	0.75 (19.1)–16	5.91 (150.1)	**314C960G04**
400	0.75 (19.1)–16	8.41 (213.6)	**314C960G05**
400	0.75 (19.1)–16	10.91 (277.0)	**314C960G06**
600	1.00 (25.4)–12	5.91 (150.1)	**314C960G07**
600	1.00 (25.4)–12	8.41 (213.6)	**314C960G08**
600	1.00 (25.4)–12	10.91 (277.0)	**314C960G09**
800	1.13 (28.7)–12	5.91 (150.1)	**314C960G10**
800	1.13 (28.7)–12	8.41 (213.6)	**314C960G11**
800	1.13 (28.7)–12	10.91 (277.0)	**314C960G12**

N-Frame

Stud Ampere Rating	Diameter and Thread	Extension Back of Breaker	Stud Catalog Number
800	1.13 (28.7)–12	5.5 (139.7)	**623B222G01**
800	1.13 (28.7)–12	8.0 (203.2)	**623B222G02**
800	1.13 (28.7)–12	10.5 (266.7)	**623B222G03**
1200	1.25 (31.8)–12	5.5 (139.7)	**373B375G04**
1200	1.25 (31.8)–12	10.5 (266.7)	**373B375G03**