

2.3

Molded Case Circuit Breakers

Series C

2

J-Frame

Circuit Breaker Type	Continuous Ampere Rating at 40 °C	No. of Poles	Volts		Type of Trip ①	Federal Specification W-C-375b	UL Listed Interrupting Ratings (rms Symmetrical Amperes)								Page Number
			AC	DC			AC (kA)				DC (kA) ②				
							120	120/240	240	277	480	600	125	250	
JDB	70–250	2, 3	600	250	N.I.T.U.	22a	—	—	65	—	35	18	—	10	V4-T2-156
JD	70–250	2, 3, 4	600	250	I.T.U.	22a	—	—	65	—	35	18	—	10	V4-T2-155
HJD	70–250	2, 3, 4	600	250	I.T.U.	22a	—	—	100	—	65	25	—	22	V4-T2-155
JDC ③	70–250	2, 3, 4	600	250	I.T.U.	22a	—	—	200	—	100	35	—	22	V4-T2-155

K-Frame

Circuit Breaker Type	Continuous Ampere Rating at 40 °C	No. of Poles	Volts		Type of Trip ①	Federal Specification W-C-375b	UL Listed Interrupting Ratings (rms Symmetrical Amperes)								Page Number
			AC	DC			AC (kA)				DC (kA) ②				
							120	120/240	240	277	480	600	125	250	
DK	250–400	2, 3	240	250	N.I.T.U.	14b	—	—	65	—	—	—	—	10	V4-T2-167
KDB	100–400	2, 3	600	250	N.I.T.U.	23a	—	—	65	—	35	25	—	10	V4-T2-167
KD	100–400	2, 3, 4	600	250	I.T.U.	23a	—	—	65	—	35	25	—	10	V4-T2-164, V4-T2-165, V4-T2-169, V4-T2-172
CKD	100–400	2, 3, 4	600	250	I.T.U.	23a	—	—	65	—	35	25	—	—	V4-T2-166, V4-T2-175, V4-T2-177
HKD	100–400	2, 3, 4	600	250	I.T.U.	23a	—	—	100	—	65	35	—	22	V4-T2-164, V4-T2-165, V4-T2-169, V4-T2-172
CHKD	100–400	2, 3, 4	600	250	I.T.U.	23a	—	—	100	—	65	35	—	—	V4-T2-166, V4-T2-175, V4-T2-177
KDC ③	100–400	2, 3, 4	600	250	I.T.U.	23a	—	—	200	—	100	65	—	22	V4-T2-164, V4-T2-165, V4-T2-169, V4-T2-172

L-Frame

Circuit Breaker Type	Continuous Ampere Rating at 40 °C	No. of Poles	Volts		Type of Trip ①	Federal Specification W-C-375b	UL Listed Interrupting Ratings (rms Symmetrical Amperes)								Page Number
			AC	DC			AC (kA)				DC (kA) ②				
							120	120/240	240	277	480	600	125	250	
LDB	300–600	2, 3	600	250	N.I.T.U.	23a	—	—	65	—	35	25	—	22	V4-T2-190
LD	300–600	2, 3, 4	600	250	I.T.U.	23a	—	—	65	—	35	25	—	22	V4-T2-188, V4-T2-189, V4-T2-194
CLD	300–600	2, 3, 4	600	250	I.T.U.	23a	—	—	65	—	35	25	—	—	V4-T2-190, V4-T2-200
HLD	300–600	2, 3, 4	600	250	I.T.U.	23a	—	—	100	—	65	35	—	25	V4-T2-188, V4-T2-189, V4-T2-194
CHLD	300–600	2, 3, 4	600	250	I.T.U.	23a	—	—	100	—	65	35	—	—	V4-T2-190, V4-T2-200
LDC ③	300–600	2, 3, 4	600	250	I.T.U.	23a	—	—	200	—	100	50	—	30	V4-T2-188, V4-T2-189, V4-T2-196
CLDC ③	300–600	2, 3, 4	600	250	I.T.U.	23a	—	—	200	—	100	50	—	30	V4-T2-190, V4-T2-202

M-Frame

Circuit Breaker Type	Continuous Ampere Rating at 40 °C	No. of Poles	Volts		Type of Trip ①	Federal Specification W-C-375b	UL Listed Interrupting Ratings (rms Symmetrical Amperes)								Page Number
			AC	DC			AC (kA)				DC (kA) ②				
							120	120/240	240	277	480	600	125	250	
MDL	300–800	2, 3	600	250	I.T.U.	23a	—	—	65	—	50	25	—	22	V4-T2-213, V4-T2-215
CMDL	300–800	2, 3	600	250	I.T.U.	23a	—	—	65	—	50	25	—	—	V4-T2-215
HMDL	300–800	2, 3	600	250	I.T.U.	23a	—	—	100	—	65	35	—	25	V4-T2-213, V4-T2-215
CHMDL	300–800	2, 3	600	250	I.T.U.	23a	—	—	100	—	65	35	—	—	V4-T2-215

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.

Typical M-Frame Circuit Breaker



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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



2.3

Molded Case Circuit Breakers

Series C

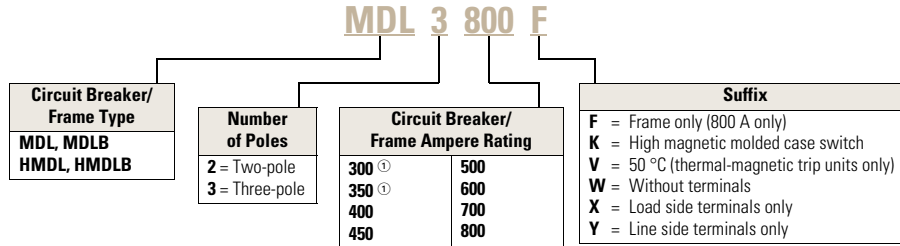
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Catalog Number Selection

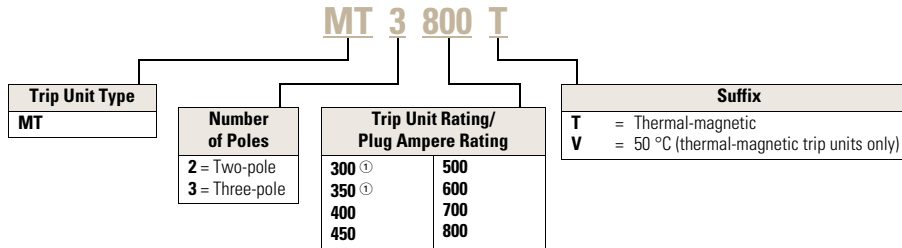
This information is presented only as an aid to understanding catalog numbers. It is not to be used to build catalog numbers for circuit breakers or trip units.

MDL Frame with Thermal-Magnetic Trip Unit Technology

Thermal-Magnetic Breakers and Frame ①

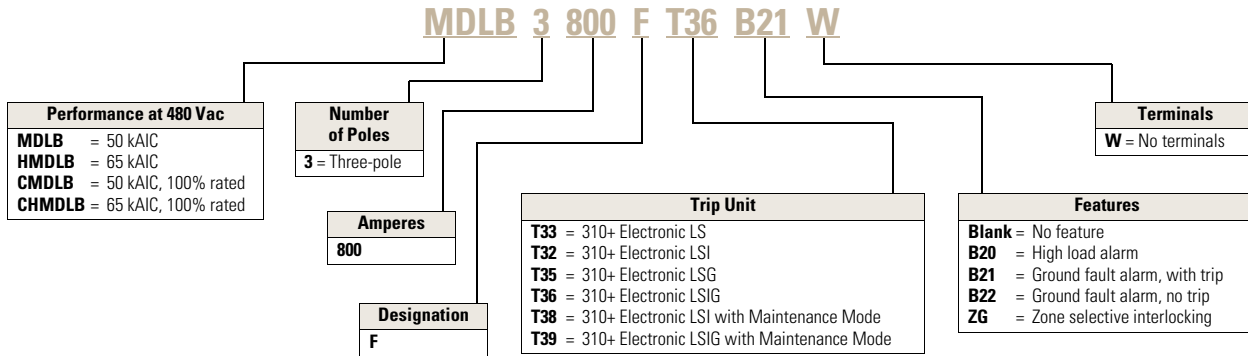


Thermal-Magnetic Trip Unit ①

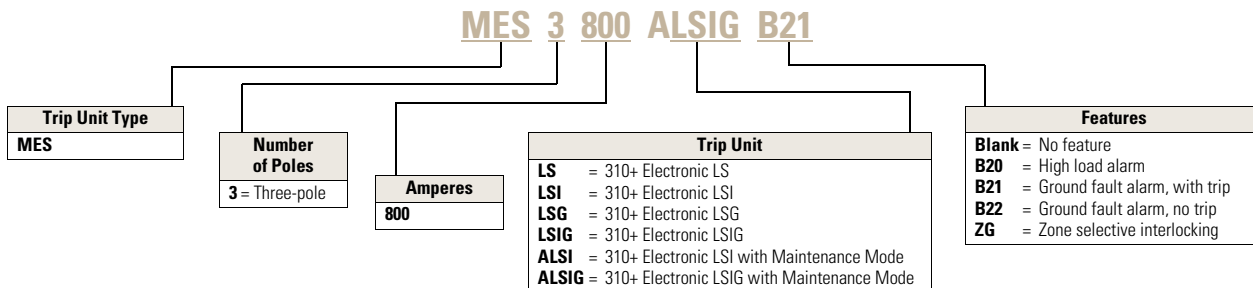


MDL Frame with 310+ Electronic Trip Unit Technology

310+ Circuit Breaker



310+ Electronic Trip Unit ①



Note

① Frames are the same for thermal-magnetic or 310+ electronic trip units, e.g., MDL3800F, HMDL3800F, etc.

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		High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac		Thermal-Magnetic Trip Unit Only	Standard Terminals Only ^① See Page V4-T2-217 for Optional Terminals Catalog Number
	Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals Catalog Number	Frame Only Catalog Number	Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals Catalog Number	Frame Only Catalog Number	For Use with Standard or High or Ultra High Interrupting Frames	
					Magnetic Trip Range is 5–10 Up Through 600 A; 4–8 on 700 and 800 A x Continuous Ampere Rating 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		High Interrupting Capacity 600 Vac Rated 65 kAIC at 480 Vac		Thermal-Magnetic Trip Unit Only	Standard Terminals Only ^① See Page V4-T2-217 for Optional Terminals Catalog Number
	Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals Catalog Number	Frame Only Catalog Number	Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals Catalog Number	Frame Only Catalog Number	For Use with Standard or High or Ultra High Interrupting Frames	
					Magnetic Trip Range is 5–10 Up Through 600 A; 4–8 on 700 and 800 A x Continuous Ampere Rating 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.

310+ Electronic Trip Unit Accessories

Description	Catalog Number
Electronic portable test kit	MTST230V ①
Trip unit tamper protection wire seal	5108A03H01
External neutral sensor	LGFACT600 ②
Breaker-mount cause-of-trip indication	TRIP-LED
Breaker-mount ammeter module	DIGIVIEW
Remote-mount ammeter module	DIGIVIEWR06 ③

Technical Data and Specifications

UL 489/CSA Interrupting Capacity Ratings ④

Circuit Breaker Type	Number of Poles	Interrupting Capacity (kA Symmetrical Amperes)			Volts DC ⑤⑥
		Volts AC (50/60 Hz)			
		240	480	600	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 ④

Circuit Breaker Type	Number of Poles	Interrupting Capacity rms (kA Symmetrical Amperes) $I_{cu} \neq I_{cs}$			Volts DC ⑤⑥
		Volts AC (50/60 Hz)			
		240	415	690	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 MTST230V applies to 100–230 Vac.
- ② Included with all LD LSG and LSG trip units and breakers.
- ③ Includes 6 ft cable for remote mounting; NEMA 3R rated.
- ④ Utilization Category A circuit breakers.
- ⑤ 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.
- ⑥ Time constant is 3 milliseconds minimum at 10 kA and 8 milliseconds at 22 kA.

310+ Specifications

Description	Specification
Trip Unit Type	Digitrip RMS 310+
Breaker Type	
Frame designation	MDL
Frames available	800 A
Continuous current range (A)	320–800 A
Ground fault pickup (A)	160–800 A
Interrupting capacities at 480 Vac (kAIC)	50, 65
100% rated	Yes
Protection	
Ordering options	LS, LSI, LSG, LSIG, ALSI, ALSIG
Arcflash Reduction Maintenance System (or Maintenance Mode)	Remote enabled on ALSI, ALSIG
Interchangeable trip unit	Yes
High load alarm (suffix B20) ①	Yes
Ground fault alarm with trip (suffix B21) ①	LSG, LSIG, ALSIG
Ground fault alarm, no trip (suffix B22) ①	LSG, LSIG, ALSIG
Zone selective interlocking (suffix ZG)	LSI, LSIG, ALSI, ALSIG
Cause of trip indication	Yes (via TRIP-LED or DIGIVIEW)
Thru-cover accessories	No

310+ Adjustability Specifications

Description	MDL Frame Specification	
310+ settings	800 A	
I_r = continuous current or long delay pickup (amperes) (All 310+)	I_r	
	A	320
	B	400
	C	450
	D	500
	E	600
	F	630
	G	700
	H (= I_n)	800
t_r = long delay time (seconds) (All 310+)	2	2
	4	4
	7	7
	10	10
	12	12
	15	15
	20	20
	24	24
I_{sd} (x I_r) = short delay pickup (All 310+)	Position 1	2x
	Position 2	3x
	Position 3	4x
	Position 4	5x
	Position 5	6x
	Position 6	7x
	Position 7	8x
	Position 8	8x
	Position 9	8x
t_{sd} = short delay time I^2t (milliseconds) (LS and LSG)	Fixed	67 @10x
t_{sd} = short delay time flat (milliseconds) (LSI, LSIG, ALSI, ALSIG)	Position 1	Inst
	Position 2	120
	Position 3	300
I_g (x I_n) = ground fault pickup (amperes) (310+ w/ ground fault)	Position 1	160
	Position 2	240
	Position 3	320
	Position 4	480
	Position 5	640
	Position 6	800
t_g = ground fault delay time (milliseconds) (LSG, LSIG, ALSIG)	Position 1	Inst
	Position 2	120
	Position 3	300
Independently adjustable Instantaneous (Ii) setting	②	
Maintenance Mode pickup (2.5 x I_n) (amperes) (310+ with Maintenance Mode—ALSI and ALSIG)	Fixed	2000

Notes

- ① B2x suffixes cannot be combined with B2x suffixes.
- ② Not available for MDL. Independently adjustable Ii setting available in LG, NG, and RG ALSI and ALSIG trip units.