

M-Frame

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M-Frame



Typical M-Frame Circuit Breaker

Product Description

- All 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.
- M-Frame circuit breakers with non-interchangeable trip units are suitable for reverse feed use.

Technical Data and Specifications

Table 12-107. UL489/CSA Interrupting Capacity Ratings ^①

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

^① Utilization category A circuit breakers.

^② 2-pole or two poles of 3-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.

Table 12-108. IEC 947-2 Interrupting Capacity Ratings ^④

Circuit Breaker Type	Number of Poles	Interrupting Capacity — RMS Symmetrical Amperes (kA) $I_{cu} = I_{cs}$			
		Volts AC (50/60 Hz)			Volts DC ^{⑤⑥}
		240	480	600	
MDL	2, 3	85	50	20	20
CMDL	2, 3	85	50	20	20
HMDL	2, 3	100	65	25	20
CHMDL	2, 3	100	65	25	20

^④ Utilization category A circuit breakers.

^⑤ 2-pole or two poles of 3-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.

MDL-Frame Digitrip Specifications

Table 12-109. Specifications

Trip Unit Type	Digitrip RMS 310	
RMS Sensing	Yes	
Breaker Type		
Frame	MDL, CMDL, HMDL, CHMDL	
Ampere Range	400 – 800A	
Interrupting Rating @ 480V	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	Varies by Frame	Varies by Frame
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	Yes
System Monitoring		
Digital Display	No	No
Current	No	No
Power and Energy	No	No
Power Quality — Harmonics	No	No
Power Factor	No	No
Communications		
Cutler-Hammer PowerNet	No	No
Testing		
Testing Method	Test Set	

① Adjust by rating plug.

I_n = Rating Plug

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Dimensions/Weights

Table 12-110. Dimensions in Inches (mm)

Number of Poles	Width	Height	Depth
2, 3	8.250 (210)	16.000 (406)	4.062 (103)

Table 12-111. Approximate Shipping Weight in Lbs. (Kg)

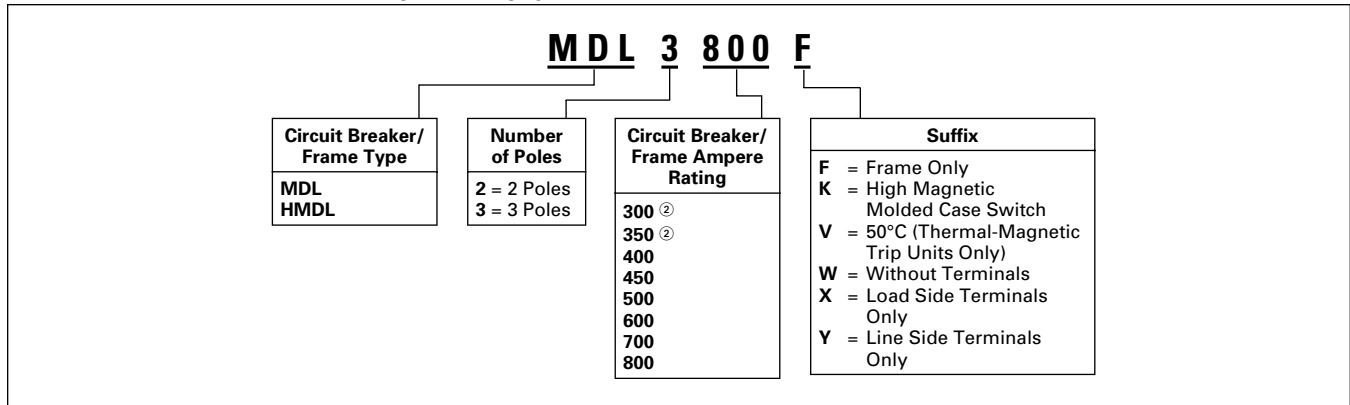
Breaker Type	Complete Breaker		Frame Only		Trip Unit ①	
	Number of Poles					
	2	3	2	3	2	3
MDL, HMDL (T/M T.U.)	26.5 (12.0)	29 (13.2)	24.5 (11.1)	26 (11.8)	2.5 (1.1)	3 (1.4)
MDL, HMDL (Elec. T.U.)	—	30 (13.6)	—	26 (11.8)	—	4 (1.8)

① Thermal-magnetic only.

Product Selection

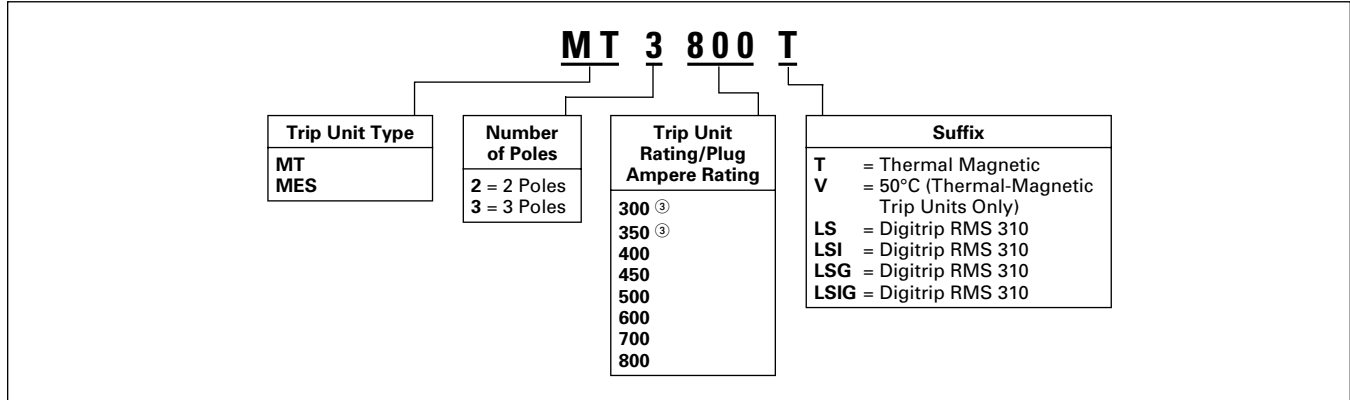
This information is presented only as an aid to understanding Catalog Numbers. It is not to be used to build Catalog Numbers for circuit breakers or trip units.

Table 12-112. Circuit Breaker/Frame Catalog Numbering System



② Thermal-magnetic only.

Table 12-113. Thermal-Magnetic Trip Unit Catalog Numbering System



③ Thermal-magnetic only.

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Product Selection

Table 12-114. Types MDL and HMDL Thermal-Magnetic Circuit Breakers with Interchangeable Trip Units

Maximum Continuous Ampere Rating @ 40°C	Standard Interrupting Capacity 600V AC Rated 50 kAIC @ 480V AC				High Interrupting Capacity 600V AC Rated 65 kAIC @ 480V AC				Thermal Magnetic Trip Unit Only		Standard Terminals Only ①	
	Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals		Frame Only		Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals		Frame Only		For Use with Standard or High or Ultra High Interrupting Frames		See Page 12-74 for Optional Terminals	
	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$

2-Pole

300	MDL2300	5,290.00	MDL2800F	2,980.00	HMDL2300	7,620.00	HMDL2800F	5,300.00	MT2300T	2,135.00	TA700MA1	44.75
350	MDL2350	5,290.00			HMDL2350	7,620.00			MT2350T	2,135.00	TA700MA1	44.75
400	MDL2400	5,290.00			HMDL2400	7,620.00			MT2400T	2,135.00	TA700MA1	44.75
450	MDL2450	5,290.00			HMDL2450	7,620.00			MT2450T	2,135.00	TA700MA1	44.75
500	MDL2500	5,290.00			HMDL2500	7,620.00			MT2500T	2,135.00	TA700MA1	44.75
600	MDL2600	5,290.00			HMDL2600	7,620.00			MT2600T	2,135.00	TA700MA1	44.75
700	MDL2700	5,290.00			HMDL2700	7,620.00			MT2700T	2,135.00	TA700MA1	44.75
800	MDL2800	5,350.00			HMDL2800	7,680.00			MT2800T	2,135.00	TA800MA2	60.00

3-Pole

300	MDL3300	6,550.00	MDL3800F	3,665.00	HMDL3300	8,480.00	HMDL3800F	5,590.00	MT3300T	2,620.00	TA700MA1	44.75
350	MDL3350	6,550.00			HMDL3350	8,480.00			MT3350T	2,620.00	TA700MA1	44.75
400	MDL3400	6,550.00			HMDL3400	8,480.00			MT3400T	2,620.00	TA700MA1	44.75
450	MDL3450	6,550.00			HMDL3450	8,480.00			MT3450T	2,620.00	TA700MA1	44.75
500	MDL3500	6,550.00			HMDL3500	8,480.00			MT3500T	2,620.00	TA700MA1	44.75
600	MDL3600	6,550.00			HMDL3600	8,480.00			MT3600T	2,620.00	TA700MA1	44.75
700	MDL3700	6,550.00			HMDL3700	8,480.00			MT3700T	2,620.00	TA700MA1	44.75
800	MDL3800	6,550.00			HMDL3800	8,480.00			MT3800T	2,620.00	TA800MA2	60.00

① Two terminals are required per pole.

Note: Instruction Leaflet/FRED Number 29C111 for Breaker

Table 12-115. Types MDLB and HMDLB Thermal-Magnetic Circuit Breakers with Non-interchangeable Trip Units ②

Maximum Continuous Ampere Rating @ 40°C	Standard Interrupting Capacity 600V AC Rated 50 kAIC @ 480V AC		High Interrupting Capacity 600V AC Rated 65 kAIC @ 480V AC		Standard Terminals Only ③	
	Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals		Factory Assembled Circuit Consisting of Frame, Trip Unit and Terminals		See Page 12-74 for Optional Terminals	
	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$

2-Pole

300	MDLB2300	5,290.00	HMDLB2300	7,620.00	TA700MA1	44.75
350	MDLB2350	5,290.00	HMDLB2350	7,620.00	TA700MA1	44.75
400	MDLB2400	5,290.00	HMDLB2400	7,620.00	TA700MA1	44.75
450	MDLB2450	5,290.00	HMDLB2450	7,620.00	TA700MA1	44.75
500	MDLB2500	5,290.00	HMDLB2500	7,620.00	TA700MA1	44.75
600	MDLB2600	5,290.00	HMDLB2600	7,620.00	TA700MA1	44.75
700	MDLB2700	5,290.00	HMDLB2700	7,620.00	TA700MA1	44.75
800	MDLB2800	5,350.00	HMDLB2800	7,680.00	TA800MA2	60.00

3-Pole

300	MDLB3300	6,550.00	HMDLB3300	8,480.00	TA700MA1	44.75
350	MDLB3350	6,550.00	HMDLB3350	8,480.00	TA700MA1	44.75
400	MDLB3400	6,550.00	HMDLB3400	8,480.00	TA700MA1	44.75
450	MDLB3450	6,550.00	HMDLB3450	8,480.00	TA700MA1	44.75
500	MDLB3500	6,550.00	HMDLB3500	8,480.00	TA700MA1	44.75
600	MDLB3600	6,550.00	HMDLB3600	8,480.00	TA700MA1	44.75
700	MDLB3700	6,550.00	HMDLB3700	8,480.00	TA700MA1	44.75
800	MDLB3800	6,640.00	HMDLB3800	8,480.00	TA800MA2	60.00

② Factory sealed for reverse feed application.

③ Two terminals are required per pole.

Note: Instruction Leaflet/FRED Number 29C111 for Breaker

Discount Symbol CB-2