

Typical N-Frame Breaker

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N-Frame (400–1200 Amperes)

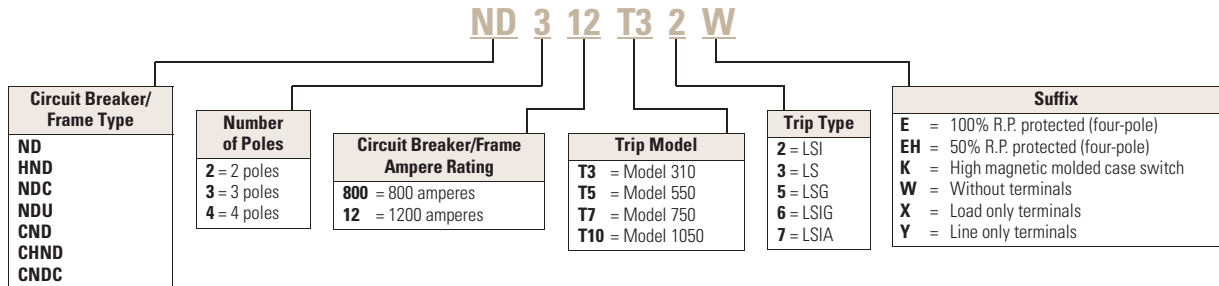
Product Description

- 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



2.3

Molded Case Circuit Breakers

Series C

Type HND Electronic Circuit Breakers with Non-Interchangeable Trip Units

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

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Type HND Electronic Circuit Breakers with Non-Interchangeable Trip Units

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				Digitrip RMS 310 Rating Plug Only		Adjustable Rating Plug	Standard Terminals Only ①
	Standard	Options			Ampere Rating	Fixed Rating Plugs Catalog Number	Adjustable Ampere Ratings	See Page V4-T2-254 for Optional Terminals
	Adjustable Short Time Pickup with I ² t Short Delay Ramp Catalog Number	Independently Adjustable Short Time Pickup and Delay	Adjustable Short Time Pickup with I ² t Short Delay and Ground Fault Protection	Independently Adjustable Short Time Pickup and Delay and Ground Fault Protection				
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.



Technical Data and Specifications

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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 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

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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.

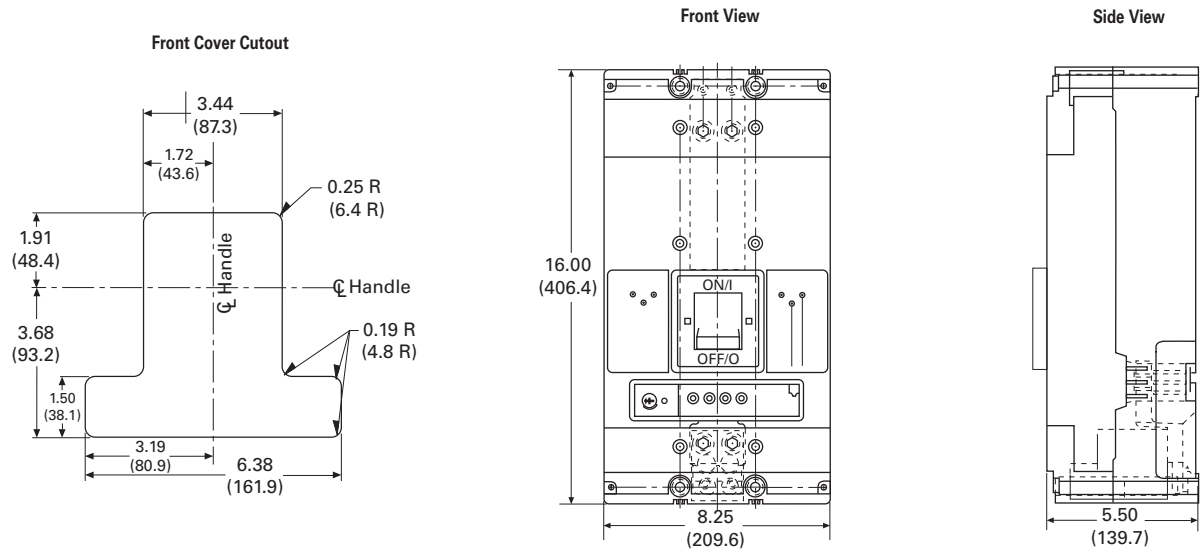
Dimensions and Weights

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



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)