

NZM 7, 10 Molded Case Circuit Breakers

Technical Data

Molded Case Circuit Breakers			NZM7(A)...N-NA	NZM7(A)...S-NA
Frame Size	A		150	150
IEC 60 947-2 circuit breaker electrical ratings				
Rated impulse withstand voltage Uimp	V		8000	8000
Rated operational voltage Ue 50/60 Hz	V		690	690
Overvoltage category/pollution degree			III/3	III/3
Short-circuit interrupting ratings				
Rated short-circuit making capacity Icm	kA		94.5	220
Rated short-circuit breaking capacity Icn				
Icu IEC/EN 60 947 Test cycle O-t-CO				
Ics IEC/EN 60 947 Test cycle O-t-CO-t-CO				
230 V AC	Icu	kA	45	100
	Ics	kA	45	75
400/415 V AC	Icu	kA	35	65
	Ics	kA	35	49
440 V AC	Icu	kA	25	40
	Ics	kA	19	20
500 V AC	Icu	kA	12	20
	Ics	kA	9	10
690 V AC	Icu	kA	6	8
	Ics	kA	6	6
UL 489/CSA 5 short circuit interrupting ratings				
240V 60Hz		kA	65	100
480V 60Hz		kA	25	50
600V 60Hz		kA	14	22

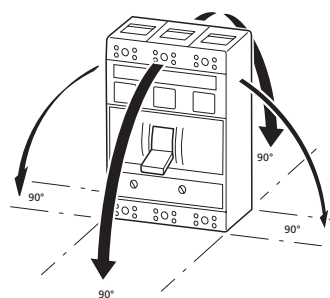
NZM 7, 10 Molded Case Circuit Breakers

Technical Data

NZM10...N-NA	NZM10...S-NA	NZM10...H-NA
600	600	600
8000	8000	8000
690	690	690
III/3	III/3	III/3
143	220	440
65	100	200
33	50	100
45	65	100
23	33	50
45	55	85
23	28	43
30	42	65
15	21	33
20	25	30
10	13	15
65	100	200
42	65	100
35	42	50

General technical data

Standards	UL 489, CSA 22.2 & 5.1 IEC/EN 60 947, VDE 0660
Shock hazard protection	finger and back of hand safe to VDE 0106, part 100
Climatic proofing	Damp heat, constant to IEC 60 068-2-3 Damp heat, cyclical to IEC 60 068-2-30
Ambient temperature min./max. °C	-25/+40 (at 100% loading)
Shock resistance	20g (shock duration 20 ms)
Dimensions	→ page 09/103
Weights	→ page 14/020
Mounting position	90° in any direction



NZM 7, 10 Molded Case Circuit Breakers

Technical Data

Molded Case Circuit Breakers				AC = 50/60 Hz		NZM7...		NZM 10...	
Auxiliary contact types						EK...(NHI/RHI)		VHI	
IEC/EN 60 947 electrical ratings								NHI/RHI/VHI	
Rated operational current I _e									
AC-15		115 V	A	6	4	6		6	
		230 V	A	6	4	6		6	
		400 V	A	4	2	4		3	
		500 V	A	2	1	2		1.5	
DC-13		24 V	A	6	3	6		1	
		60 V	A	3	1.5	3		0.8	
		110 V	A	1	0.5	1		0.7	
		220 V	A	0.5	0.2	0.5		0.3	
Short-circuit protection									
max. fuse, IEC type			A	10	10		6		
max. miniature circuit breaker			A	10	6		6		
Terminal capacity	IEC/EN: 1 or 2 conductors, solid or stranded	mm ²		0.75 - 2.5	0.75 - 2.5	0.5 - 2.5			
		AWG		18 - 14	18 - 14	18 - 14			
UL/CSA electrical ratings									
Pilot duty rating		AC/DC		A 600 / P 300	C 300 / Q 300	-			
Current ratings				-	-	10A @ 600 V AC 0.5A @ 125 V DC 0.25A @ 250 V DC ¹⁾			
Voltage trips, shunt trip									
Operational voltage rating U _e			V AC	12 - 480		24 - 600			
			V DC	12 - 125		24 - 600			
Operating range (U _s = rated control voltage)		AC		0.7 - 1.1 x U _s		0.7 - 1.1 x U _s			
		DC		0.7 - 1.1 x U _s		0.85 - 1.1 x U _s			
Rating	pull-in	AC/DC	VA/W	2/2		5/3			
			sealing	VA/W	-		3/3		
Undervoltage trips									
Operational voltage rating U _e			V AC	24 - 480		24 - 600			
			V DC	24 - 125		24 - 600			
Operating range	dropout		AC/DC	0.7 - 0.35 x U _s		0.7 - 0.35 x U _s			
	pickup		DC/DC	0.85 - 1.1 x U _s		0.85 - 1.1 x U _s			
Rating	pull-in	AC/DC	VA/W	2/2		5/3			
			sealing	VA/W	2/2		5/3		
Terminal capacity	IEC/EN: 1 or 2 conductors, solid or stranded	mm ²		0.75 - 2.5		0.5 - 2.5			
		AWG		18 - 14		18 - 14			
Remote control drives									
Rated control voltage U _s			V AC	48 - 240		110 - 415			
			V DC	24 - 240		24 - 240			
Operating range		AC		0.8 - 1.1 x U _s		0.8 - 1.1 x U _s			
		DC		0.85 - 1.1 x U _s		0.85 - 1.1 x U _s			
Power draw	110/120 V AC		VA	400		240			
	220/240 V AC		VA	400		320			
	380/415 V AC		VA	1000		440			
	24 V DC		W	350		240			
	48/60 V DC		W	400		240			
	100/130 V DC		W	-		240			
	110/120 V DC		W	400		-			
	220/240 V DC		W	400		240			
Total closing/opening time			ms	100		60/30			
Mechanical lifespan			operations	ops.	20000	10000			
Max. operating frequency				ops./h	20	20			
Terminal capacity	IEC/EN: 1 or 2 conductors, solid or stranded	mm ²		0.75 - 2.5		0.5 - 2.5			
		AWG		18 - 14		18 - 14			

Notes: ¹⁾ above 150 V DC, same polarity

NZM 7, 10 Molded Case Switches

Technical Data

UL/CSA Molded case switches				
IEC/EN Switch-disconnectors			NZM 7-...-NA	NZM 10-...N/B-NA
Frame Size	A		200	600
General technical data				
UL 489 / CSA 22.2 # 5.2 molded case switches			→ page 09/013	→ page 09/039
IEC/EN 60 947-3 switch disconnecter ratings				
Rated impulse withstand voltage	V		8000	8000
Rated short-time withstand current I_{cw} (1 s current)	kA		3.5	8
Overvoltage category / pollution degree			III/3	III/3
Mechanical lifespan	ops.		20000	20000
Maximum operating frequency	ops./h		120	60
Electrical lifespan AC-1400V / 690V	ops.		3000 / 2000	10000

Terminal Capacity

Type		NZM 7(A)-...N-NA	NZM 7(A)-...S-NA	NZM 7-...-NA	NZM 10...-NA
Maximum continuous current	A	Molded case circuit breaker 150	Molded case circuit breaker 150	Molded case switch 200	Molded case circuit breakers and switches
Field wiring terminals					
Conductor cross section		1 conductor AWG 14 ... 250 kcmil CU only	1 conductor AWG 14 ... 250 kcmil CU only	1 conductor AWG 14 ... 250 kcmil CU only	→ page 09/051
Terminal torque rating	Nm	14	14	14	
Bolt-on connection size					
		NZM 7(A)-...N-NA-M8 Molded case circuit breaker M8	NZM 7(A)-...S-NA-M8 Molded case circuit breaker M8	NZM 7-...-NA-M8 Molded case switch M8	

Let-through Values for UL/CSA Fuseless Current-limiting Circuit Breakers

Type		NZMH6-.../ZM6A-...-NA			NZM7...S-NA			NZMH9-.../ZM9A-...-NA			NZM10H-.../ZM10(A)-...-NA		
Max. continuous current	A	125			150			250			600		
Current limiting values	at	240 V	480 V	600 V	240 V	480 V	600 V	240 V	480 V	600 V	240 V	480 V	600 V
Threshold Current													
RMS sym.	kA	7.5	7.5	7.5	9.75	9.75	9.75	16.25	16.25	16.25	39	39	39
Peak	kA	9	10	10.6	11.5	12	13	18	21	23	34	42	40
$I^2t \times 10^3$	A ² s	350	430	468	400	550	700	1500	2000	2204	2800	5500	5500
Intermediate Current													
RMS sym.	kA	50	42	14	100	35	14	100	50	30	125	65	42
Peak	kA	22	26	16	30	12	20	36	38	32	50	52	45
$I^2t \times 10^3$	A ² s	800	1300	1000	900	300	1200	1800	5000	5000	3500	6600	7200
High Interrupting Capacity													
RMS sym.	kA	100	65	25	200	50	22	200	85	42	200	100	50
Peak	kA	30	35	21	35	32	23	42	48	39	55	61	48
$I^2t \times 10^3$	A ² s	1000	2100	1590	920	1800	1800	3200	6000	6300	4000	8000	8000