

## Circuit-breaker, 3p, 250A



Powering Business Worldwide™

Part no. **NZMN3-AE250**  
 Catalog No. **259113**

EL-Nummer  
 (Norway) **4358786**

Similar to illustration

## Delivery program

Product range	Circuit-breaker		
Protective function	System and cable protection		
Standard/Approval	IEC		
Installation type	Fixed		
Release system	Electronic release		
Construction size	NZM3		
Description	R.m.s. value measurement and "thermal memory"		
Number of poles	3 pole		
Standard equipment	Screw connection		

## Switching capacity

400/415 V 50 Hz	$I_{cu}$	kA	50
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## Rated current = rated uninterrupted current

Rated current = rated uninterrupted current	$I_n = I_u$	A	250
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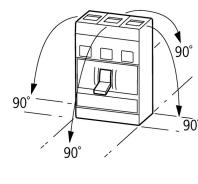
## Setting range

Overload trip		$I_r$	A	125 - 250
Short-circuit releases				
Non-delayed		$I_i = I_n \times \dots$		2 - 11
Short-circuit releases		$I_{rm}$	A	250 - 2750

## Technical data

General			
Standards			IEC/EN 60947
Protection against direct contact			Finger and back of hand proof to VDE 0106 Part 100
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature			
Ambient temperature, storage		°C	-40 - +70
Operation		°C	-25 - +70
Mechanical shock resistance (10 ms half-sinusoidal shock) according to IEC 60068-2-27		g	20 (half-sinusoidal shock 20 ms)
Safe isolation to EN 61140			
Between auxiliary contacts and main contacts		V AC	500
between the auxiliary contacts		V AC	300
Mounting position			Vertical and 90° in all directions

Direction of incoming supply	as required
Degree of protection	
Device	In the operating controls area: IP20 (basic degree of protection)
Enclosures	With insulating surround: IP40 With door coupling rotary handle: IP66
Terminations	Tunnel terminal: IP10 Phase isolator and strip terminal: IP00
Other technical data (sheet catalogue)	Temperature dependency, Derating



With XFI earth-fault release:  
 - NZM1, N1, NZM2, N2: vertical and 90° in all directions with plug-in unit  
 - NZM1, N1, NZM2, N2: vertical, 90° right/left with withdrawable unit:  
 - NZM3, N3: vertical, 90° right/left  
 - NZM4, N4: vertical with remote operator:  
 - NZM2, N(S)2, NZM3, N(S)3, NZM4, N(S)4: vertical and 90° in all directions

### Circuit-breakers

Rated current = rated uninterrupted current	$I_n = I_u$	A	250
Rated surge voltage invariability	$U_{imp}$		
Main contacts		V	8000
Auxiliary contacts		V	6000
Rated operational voltage	$U_e$	V AC	690
Overtoltage category/pollution degree			III/3
Rated insulation voltage	$U_i$	V	1000
Use in unearthing supply systems		V	$\leq 690$

### Switching capacity

Rated short-circuit making capacity	$I_{cm}$		
240 V	$I_{cm}$	kA	187
400/415 V	$I_{cm}$	kA	105
440 V 50/60 Hz	$I_{cm}$	kA	74
525 V 50/60 Hz	$I_{cm}$	kA	53
690 V 50/60 Hz	$I_c$	kA	40
Rated short-circuit breaking capacity $I_{cn}$	$I_{cn}$		
Icu to IEC/EN 60947 test cycle 0-t-CO	$I_{cu}$	kA	
240 V 50/60 Hz	$I_{cu}$	kA	85
400/415 V 50/60 Hz	$I_{cu}$	kA	50
440 V 50/60 Hz	$I_{cu}$	kA	35
525 V 50/60 Hz	$I_{cu}$	kA	25
690 V 50/60 Hz	$I_{cu}$	kA	20
Ics to IEC/EN 60947 test cycle 0-t-CO-t-CO	$I_{cs}$	kA	
240 V 50/60 Hz	$I_{cs}$	kA	85
400/415 V 50/60 Hz	$I_{cs}$	kA	50
440 V 50/60 Hz	$I_{cs}$	kA	35
525 V 50/60 Hz	$I_{cs}$	kA	13
690 V 50/60 Hz	$I_{cs}$	kA	5
			Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit-breaker.
Rated short-time withstand current	$I_{cw}$		
t = 0.3 s	$I_{cw}$	kA	3.3
t = 1 s	$I_{cw}$	kA	3.3
Utilization category to IEC/EN 60947-2			A
Lifespan, mechanical (of which max. 50 % trip by shunt/undervoltage release)	Operations		15000
Lifespan, electrical			
AC-1			
400 V 50/60 Hz	Operations		5000

415 V 50/60 Hz	Operations	5000
690 V 50/60 Hz	Operations	3000
AC--3		
400 V 50/60 Hz	Operations	2000
415 V 50/60 Hz	Operations	2000
690 V 50/60 Hz	Operations	2000
Max. operating frequency	Ops/h	60
Total break time at short-circuit	ms	< 10

### Terminal capacity

Standard equipment			Screw connection
Optional accessories			Box terminal Tunnel terminal connection on rear
Round copper conductor			
Box terminal			
Solid	mm <sup>2</sup>	2 x 16	
Stranded	mm <sup>2</sup>	1 x (35 - 240) 2 x (25-120)	
Tunnel terminal			
Solid	mm <sup>2</sup>	1 x 16	
Stranded			
1-hole	mm <sup>2</sup>	1 x (16 - 185)	
Double hole fitting	mm <sup>2</sup>	2 x (50 - 240)	
Bolt terminal and rear-side connection			
Direct on the switch			
Solid	mm <sup>2</sup>	1 x 16 2 x 16	
Stranded	mm <sup>2</sup>	1 x (25 - 240) 2 x (25 - 240)	
Connection width extension	mm <sup>2</sup>		
Connection width extension	mm <sup>2</sup>	2 x 300	
Al circular conductor			
Tunnel terminal			
Solid	mm <sup>2</sup>	1 x 16	
Stranded			
Stranded	mm <sup>2</sup>	1 x (25 - 185) <sup>2)</sup>	
Double hole	mm <sup>2</sup>	1 x (50 - 240) 2 x (50 - 240)	
			<sup>2)</sup> Up to 240 mm <sup>2</sup> can be connected depending on the cable manufacturer.
Bolt terminal and rear-side connection			
Direct on the switch			
Solid	mm <sup>2</sup>	1 x 16 2 x (10 - 16)	
Stranded	mm <sup>2</sup>	1 x (25 - 120) 2 x (25 - 120)	
Cu strip (number of segments x width x segment thickness)			
Box terminal			
	min.	mm	6 x 16 x 0.8
	max.	mm	10 x 24 x 1.0 + 5 x 24 x 1.0 (2 x) 8 x 24 x 1.0
Bolt terminal and rear-side connection			
Flat copper strip, with holes	min.	mm	6 x 16 x 0.8
Flat copper strip, with holes	max.	mm	10 x 32 x 1.0 + 5 x 32 x 1.0
Connection width extension		mm	(2 x) 10 x 50 x 1.0
Copper busbar (width x thickness)	mm		
Bolt terminal and rear-side connection			
Screw connection			M10

Direct on the switch	min.	mm	20 x 5
	max.	mm	30 x 10 + 30 x 5
Connection width extension		mm	
Connection width extension	max.	mm	2 x (10 x 50)
Control cables		mm <sup>2</sup>	
		mm <sup>2</sup>	1 x (0.75 - 2.5) 2 x (0.75 - 1.5)

## Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I <sub>n</sub>	A	250
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	18.75
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	70
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			Meets the product standard's requirements.
10.2.5 Lifting			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			Meets the product standard's requirements.
10.5 Protection against electric shock			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			Is the panel builder's responsibility.
10.8 Connections for external conductors			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			Is the panel builder's responsibility.
10.10 Temperature rise			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## Technical data ETIM 8.0

Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation protection (EC000228)		
Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Circuit breaker for power transformer, generator and system protection (ecl:ss10.0.1-27-37-04-09 [AJZ716013])		
Rated permanent current I <sub>n</sub>	A	250
Rated voltage	V	690 - 690
Rated short-circuit breaking capacity I <sub>cu</sub> at 400 V, 50 Hz	kA	50
Overload release current setting	A	125 - 250
Adjustment range short-term delayed short-circuit release	A	0 - 0
Adjustment range undelayed short-circuit release	A	500 - 2750
Integrated earth fault protection		No
Type of electrical connection of main circuit		Screw connection

Device construction		Built-in device fixed built-in technique
Suitable for DIN rail (top hat rail) mounting		No
DIN rail (top hat rail) mounting optional		No
Number of auxiliary contacts as normally closed contact		0
Number of auxiliary contacts as normally open contact		0
Number of auxiliary contacts as change-over contact		0
With switched-off indicator		No
With integrated under voltage release		No
Number of poles		3
Position of connection for main current circuit		Front side
Type of control element		Rocker lever
Complete device with protection unit		Yes
Motor drive integrated		No
Motor drive optional		Yes
Degree of protection (IP)		IP20