

## Circuit-breaker, 4p, 400A

Part no. **NZMN3-4-A400**  
 Catalog No. **109696**



Powering Business Worldwide™

Similar to illustration

## Delivery program

Product range	Circuit-breaker		
Protective function	System and cable protection		
Standard/Approval	IEC		
Installation type	Fixed		
Release system	Thermomagnetic release		
Construction size	NZM3		
Description	Set value in neutral conductor is synchronous with set value $I_r$ of main pole.		
Number of poles	4 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	400
Neutral conductor	% of phase conductor	%	100

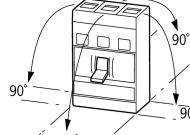
## Setting range

Overload trip	$I_r$	A	320 - 400
Main pole	$I_r$	A	320 - 400
Short-circuit releases			
Non-delayed	$I_i = I_n \times \dots$		6 - 10
Short-circuit releases	$I_{rm}$	A	2400 - 4000

## 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	$^{\circ}\text{C}$	- 40 - + 70	
Operation	$^{\circ}\text{C}$	- 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	Vertical and 90° in all directions	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
Mounting position				
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	
<b>Circuit-breakers</b>				
Rated current = rated uninterrupted current	$I_n = I_u$	A	400	
Rated surge voltage invariability	$U_{imp}$			
Main contacts		V	8000	
Auxiliary contacts		V	6000	
Rated operational voltage	$U_e$	V AC	690	
Overvoltage category/pollution degree			III/3	
Rated insulation voltage	$U_i$	V	1000	
Use in unearthing supply systems		V	$\leq 690$	
<b>Switching capacity</b>				
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 $I_{cn}$	$I_{cn}$			
$I_{cu}$ 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	
$I_{cs}$ 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				
$t = 0.3 \text{ s}$	$I_{cw}$	kA	3.3	
$t = 1 \text{ s}$	$I_{cw}$	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	mm <sup>2</sup>		
1-hole	mm <sup>2</sup>	1 x (16 - 185)	
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	mm <sup>2</sup>		
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.
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>	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	400
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	96.48
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	400
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	320 - 400
Adjustment range short-term delayed short-circuit release		A	0 - 0
Adjustment range undelayed short-circuit release		A	6 - 10
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	4
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