

**Circuit-breaker, 3p, 1600A****Part no.****NZMN4-AE1600  
265762**

<b>General specifications</b>		
Product name		Eaton Moeller series NZM molded case circuit breaker electronic
Part no.		NZMN4-AE1600
EAN		4015082657628
Product Length/Depth		401 millimetre
Product height		207 millimetre
Product width		210 millimetre
Product weight		19.44 kilogram
Compliances		RoHS conform
Certifications		IEC/EN 60947 IEC
Product Tradename		NZM
Product Type		Molded case circuit breaker
Product Sub Type		Electronic
<b>Delivery program</b>		
Application		Use in unearthed supply systems at 525 V
Type		Circuit breaker
Circuit breaker frame type		NZM4
Number of poles		Three-pole
Amperage Rating		1600 A
Release system		Electronic release
Features		Motor drive optional Protection unit
Special features		Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit breaker (Rated short-circuit breaking capacity I <sub>cn</sub> ) R.m.s. value measurement and "thermal memory" Rated current = rated uninterrupted current: 1600 A
<b>Technical Data - Electrical</b>		
Voltage rating		690 V - 690 V
Rated insulation voltage (U <sub>i</sub> )		1000 V AC
Rated impulse withstand voltage (U <sub>imp</sub> ) at auxiliary contacts		6000 V
Rated impulse withstand voltage (U <sub>imp</sub> ) at main contacts		8000 V
Rated short-time withstand current (t = 0.3 s)		19.2 kA
Rated short-time withstand current (t = 1 s)		19.2 kA
Instantaneous current setting (I <sub>i</sub> ) - min		3200 A
Instantaneous current setting (I <sub>i</sub> ) - max		19200 A
Overload current setting (I <sub>r</sub> ) - min		800 A
Overload current setting (I <sub>r</sub> ) - max		1600 A
Short delay current setting (I <sub>sd</sub> ) - min		0 A
Short delay current setting (I <sub>sd</sub> ) - max		0 A
Short-circuit release non-delayed setting - min		3200 A
Short-circuit release non-delayed setting - max		19200 A
Rated short-circuit breaking capacity I <sub>cs</sub> (IEC/EN 60947) at 230 V, 50/60 Hz		37 kA
Rated short-circuit breaking capacity I <sub>cs</sub> (IEC/EN 60947) at 400/415 V, 50/60 Hz		37 kA
Rated short-circuit breaking capacity I <sub>cs</sub> (IEC/EN 60947) at 440 V, 50/60 Hz		26 kA
Rated short-circuit breaking capacity I <sub>cs</sub> (IEC/EN 60947) at 525 V, 50/60 Hz		19 kA
Rated short-circuit breaking capacity I <sub>cs</sub> (IEC/EN 60947) at 690 V, 50/60 Hz		15 kA
Rated short-circuit making capacity I <sub>cm</sub> at 240 V, 50/60 Hz		105 kA
Rated short-circuit making capacity I <sub>cm</sub> at 400/415 V, 50/60 Hz		105 kA
Rated short-circuit making capacity I <sub>cm</sub> at 440 V, 50/60 Hz		74 kA

Rated short-circuit making capacity Icm at 525 V, 50/60 Hz			53 kA
Rated short-circuit making capacity Icm at 690 V, 50/60 Hz			40 kA
Short-circuit total breaktime			< 25 ms ( $\leq$ 415 V); < 35 ms (> 415 V)
Electrical connection type of main circuit			Screw connection
Isolation			500 V AC (between auxiliary contacts and main contacts) 300 V AC (between the auxiliary contacts)
Number of operations per hour - max			60
Handle type			Rocker lever
Utilization category			A (IEC/EN 60947-2)
Overvoltage category			III
Pollution degree			3
Lifespan, electrical			1000 operations at 690 V AC-3 2000 operations at 690 V AC-1 3000 operations at 400 V AC-1 3000 operations at 415 V AC-1 2000 operations at 400 V AC-3 2000 operations at 415 V AC-3
Direction of incoming supply			As required
<b>Technical Data - Mechanical</b>			
Mounting Method			Fixed Built-in device fixed built-in technique
Degree of protection			IP20 IP20 (basic degree of protection, in the operating controls area)
Degree of protection (IP), front side			IP66 (with door coupling rotary handle) IP40 (with insulating surround)
Degree of protection (terminations)			IP00 (terminations, phase isolator and strip terminal) IP10 (tunnel terminal)
Protection against direct contact			Finger and back-of-hand proof to DIN EN 50274/VDE 0106 part 110
Shock resistance			15 g (half-sinusoidal shock 11 ms)
Number of auxiliary contacts (change-over contacts)			0
Number of auxiliary contacts (normally closed contacts)			0
Number of auxiliary contacts (normally open contacts)			0
Position of connection for main current circuit			Front side
Climatic proofing			Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78
Special features			Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit breaker (Rated short-circuit breaking capacity Icn) R.m.s. value measurement and “thermal memory” Rated current = rated uninterrupted current: 1600 A
Lifespan, mechanical			10000 operations
<b>Technical Data - Mechanical - Terminals</b>			
Standard terminals			Screw terminal
Optional terminals			Connection on rear. Strip terminal. Tunnel terminal
Terminal capacity (control cable)			0.75 mm <sup>2</sup> - 2.5 mm <sup>2</sup> (1x) 0.75 mm <sup>2</sup> - 1.5 mm <sup>2</sup> (2x)
Terminal capacity (aluminum solid conductor/cable)			185 mm <sup>2</sup> - 240 mm <sup>2</sup> (1x) at rear-side 1-hole module plate 70 mm <sup>2</sup> - 240 mm <sup>2</sup> (6x) at rear-side width extension 240 mm <sup>2</sup> (2x) at rear-side width extension 50 mm <sup>2</sup> (4x) at rear-side 2-hole module plate 70 mm <sup>2</sup> - 185 mm <sup>2</sup> (2x) at rear-side 1-hole module plate
Terminal capacity (aluminum stranded conductor/cable)			50 mm <sup>2</sup> - 240 mm <sup>2</sup> (4x) at 4-hole tunnel terminal
Terminal capacity (copper busbar)			50 mm x 10 mm (2x) at rear-side 2-hole module plate Max. 50 mm x 10 mm (2x) at rear-side 1-hole module plate Min. 25 mm x 5 mm direct at switch rear-side connection Max. 80 mm x 10 mm (2x) at rear-side width extension Min. 60 mm x 10 mm at rear-side width extension Max. 50 mm x 10 mm (2x) direct at switch rear-side connection M10 at rear-side screw connection Min. 25 mm x 5 mm at rear-side 1-hole module plate
Terminal capacity (copper solid conductor/cable)			300 mm <sup>2</sup> (4x) at rear-side width extension 95 mm <sup>2</sup> - 240 mm <sup>2</sup> (6x) at rear-side width extension 50 mm <sup>2</sup> - 240 mm <sup>2</sup> (4x) at 4-hole tunnel terminal 95 mm <sup>2</sup> - 185 mm <sup>2</sup> (2x) at rear-side 2-hole module plate 35 mm <sup>2</sup> - 185 mm <sup>2</sup> (4x) at rear-side 2-hole module plate 120 mm <sup>2</sup> - 300 mm <sup>2</sup> (1x) at rear-side 1-hole module plate 95 mm <sup>2</sup> - 300 mm <sup>2</sup> (2x) at rear-side 1-hole module plate
Terminal capacity (copper stranded conductor/cable)			50 mm <sup>2</sup> - 185 mm <sup>2</sup> (4x) direct at switch rear-side connection 120 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) direct at switch rear-side connection

Terminal capacity (copper strip)			10 segments of 50 mm x 1 mm (2x) at 1-hole module plate Max. 10 segments of 32 mm x 1 mm (2x) at flat conductor terminal Min. 5 segments of 25 mm x 1 mm at rear-side connection (punched) Max. 10 segments of 50 mm x 1 mm (2x) at rear-side connection (punched) 10 segments of 80 mm x 1 mm (2x) at rear-side width extension Min. 6 segments of 16 mm x 0.8 mm at flat conductor terminal
<b>Design verification as per IEC/EN 61439 - technical data</b>			
Rated operational current for specified heat dissipation (In)			1600 A
Equipment heat dissipation, current-dependent			284 W
Ambient operating temperature - min			-25 °C
Ambient operating temperature - max			70 °C
Ambient storage temperature - min			40 °C
Ambient storage temperature - max			70 °C
<b>Design verification as per IEC/EN 61439</b>			
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 Resist. of insul. mat. to abnormal heat/fire by internal elect. 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.
10.9.2 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.
<b>Additional information</b>			
Functions			System and cable protection

## Technical data ETIM 9.0

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 (ecI@ss13-27-37-04-09 [AJZ716018])			
Rated permanent current Iu	A		1600
Rated voltage	V		690 - 690
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz	kA		37
Overload release current setting	A		800 - 1600
Adjustment range short-term delayed short-circuit release	A		0 - 0
Adjustment range undelayed short-circuit release	A		3200 - 19200
Power loss	W		
Device construction			Built-in device fixed built-in technique
Integrated earth fault protection			No
Type of electrical connection of main circuit			Screw connection
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