

Circuit-breaker, 3p, 600A

Part no. **NZMN4-AEF600-NA**
271108

General specifications		
Product name		Eaton Moeller series NZM molded case circuit breaker electronic
Part no.		NZMN4-AEF600-NA
EAN		4015082711085
Product Length/Depth		401 millimetre
Product height		207 millimetre
Product width		210 millimetre
Product weight		21 kilogram
Compliances		RoHS conform
Certifications		CE marking Specially designed for North America CSA (Class No. 1432-01) UL (File No. E31593) IEC/EN 60947 IEC 60947-2 IEC CSA-C22.2 No. 5-09 CSA (File No. 22086) UL listed UL/CSA UL 489 UL (Category Control Number DIVQ) CSA certified
Product Tradename		NZM
Product Type		Molded case circuit breaker
Product Sub Type		Electronic
Delivery program		
Application		Branch circuits, feeder circuits Use in unearthed supply systems at 525 V
Type		Circuit breaker
Circuit breaker frame type		NZM4
Number of poles		Three-pole
Amperage Rating		600 A
Release system		Electronic release
Features		Protection unit Motor drive optional
Special features		For AC-3 rated operational current with NZM4 the following applies: 400 V: max. 650 kW; 690 V: max. 600 kW (switching capacity, rated making and breaking capacity) 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) Rated current = rated uninterrupted current: 600 A Switches conform to UL/CSA as well as the IEC regulations. IEC switching performance values are contained on the rating plate. Fixed overload releases Ir R.m.s. value measurement and "thermal memory"
Technical Data - Electrical		
Voltage rating		690 V - 690 V
Rated operating voltage Ue (UL) - max		600 V
Rated insulation voltage (Ui)		1000 V AC
Rated impulse withstand voltage (Uimp) at auxiliary contacts		6000 V
Rated impulse withstand voltage (Uimp) at main contacts		8000 V
Rated operational current		600 A (660-690 V AC-3, making and breaking capacity) 2000 A (380/400 V AC-1, making and breaking capacity) 600 A (690 V AC -1, making and breaking capacity) 1600 A (415 V AC-1, making and breaking capacity)
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 (Ii) - min		1200 A
Instantaneous current setting (Ii) - max		7200 A
Overload current setting (Ir) - min		600 A

Overload current setting (Ir) - max		600 A
Short delay current setting (Isd) - min		0 A
Short delay current setting (Isd) - max		0 A
Short-circuit release non-delayed setting - min		1200 A
Short-circuit release non-delayed setting - max		7200 A
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 230 V, 50/60 Hz		37 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 400/415 V, 50/60 Hz		37 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 440 V, 50/60 Hz		26 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 525 V, 50/60 Hz		19 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 690 V, 50/60 Hz		15 kA
Rated short-circuit making capacity Icm at 240 V, 50/60 Hz		105 kA
Rated short-circuit making capacity Icm at 400/415 V, 50/60 Hz		105 kA
Rated short-circuit making capacity Icm 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)
Low-voltage HBC fuse - max		2 x 630 A gG/gL
Electrical connection type of main circuit		Screw connection
Isolation		300 V AC (between the auxiliary contacts) 500 V AC (between auxiliary contacts and main 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		3000 operations at 400 V AC-1 2000 operations at 690 V AC-1 2000 operations at 400 V AC-3 1000 operations at 690 V AC-3 2000 operations at 415 V AC-3
Direction of incoming supply		As required
Technical Data - Mechanical		
Mounting Method		Built-in device fixed built-in technique Fixed
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		20 g (half-sinusoidal shock 20 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		For AC-3 rated operational current with NZM4 the following applies: 400 V: max. 650 kW; 690 V: max. 600 kW (switching capacity, rated making and breaking capacity) 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) Rated current = rated uninterrupted current: 600 A Switches conform to UL/CSA as well as the IEC regulations. IEC switching performance values are contained on the rating plate. Fixed overload releases Ir R.m.s. value measurement and "thermal memory"
Lifespan, mechanical		10000 operations
Technical Data - Mechanical - Terminals		
Standard terminals		Screw connection,Optional:Tunnel terminal,Rear-side connection,Strip connection
Terminal capacity (control cable)		14 mm ² - 18 mm ² (1x) 16 mm ² - 18 mm ² (2x)
Terminal capacity (aluminum stranded conductor/cable)		Min. 185 mm ² - 240 mm ² (1x) at rear-side 1-hole module plate Max. 70 mm ² - 185 mm ² (2x) at rear-side 1-hole module plate

		50 mm ² (4x) at rear-side 2-hole module plate 240 mm ² (2x) at rear-side width extension 70 mm ² - 240 mm ² (6x) at rear-side width extension NA: aluminum conductor not applicable
Terminal capacity (copper busbar)		M10 at rear-side screw connection Min. 25 mm x 5 mm direct at switch rear-side connection Max. 50 mm x 10 mm (2x) direct at switch rear-side connection Min. 25 mm x 5 mm at rear-side 1-hole module plate Max. 50 mm x 10 mm (2x) at rear-side 1-hole module plate 50 mm x 10 mm (2x) at rear-side 2-hole module plate Min. 60 mm x 10 mm at rear-side width extension Max. 80 mm x 10 mm (2x) at rear-side width extension NA: same as for IEC
Terminal capacity (copper stranded conductor/cable)		50 mm ² - 240 mm ² (4x) at 4-hole tunnel terminal 120 mm ² - 185 mm ² (1x) direct at switch rear-side connection 50 mm ² - 185 mm ² (4x) direct at switch rear-side connection Min. 120 mm ² - 300 mm ² (1x) at rear-side 1-hole module plate Max. 95 mm ² - 300 mm ² (2x) at rear-side 1-hole module plate Min. 95 mm ² - 185 mm ² (2x) at rear-side 2-hole module plate Max. 35 mm ² - 185 mm ² (4x) at rear-side 2-hole module plate 300 mm ² (4x) at rear-side width extension 95 mm ² - 240 mm ² (6x) at rear-side width extension NA: AWG 0 - kcmil 500 (4x) at 4-hole tunnel terminal NA: kcmil 250 - kcmil 350 (1x) direct at switch rear-side connection NA: AWG 0 - kcmil 350 (4x) direct at switch rear-side connection NA: min. kcmil 250 - kcmil 600 (1x) at rear-side 1-hole module plate NA: max. AWG 3/0 - kcmil 600 (2x) at rear-side 1-hole module plate NA: min. AWG 3/0 - kcmil 350 (2x) at rear-side 2-hole module plate NA: max. AWG 2 - kcmil 350 (4x) at rear-side 2-hole module plate NA: kcmil 600 (4x) at rear-side width extension NA: AWG 3/0 - kcmil 500 (6x) at rear-side width extension
Terminal capacity (copper strip)		Min. 6 segments of 16 mm x 0.8 mm at flat conductor terminal Max. 10 segments of 32 mm x 1 mm (2x) at flat conductor terminal 10 segments of 50 mm x 1 mm (2x) at 1-hole module plate Min. 10 segments of 50 mm x 1 mm (2x) 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 NA: same as for IEC
Design verification as per IEC/EN 61439 - technical data		
Rated operational current for specified heat dissipation (In)		600 A
Equipment heat dissipation, current-dependent		39.96 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
Design verification as per IEC/EN 61439		
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.

Additional information			
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	600
Rated voltage		V	690 - 690
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz		kA	37
Overload release current setting		A	600 - 600
Adjustment range short-term delayed short-circuit release		A	0 - 0
Adjustment range undelayed short-circuit release		A	1200 - 7200
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