

Circuit-breaker, 3p, 700A



Part no. **NZMH4-AEF700-NA**
271115

General specifications		
Product name		Eaton Moeller series NZM molded case circuit breaker electronic
Part no.		NZMH4-AEF700-NA
EAN		4015082711153
Product Length/Depth		401 millimetre
Product height		207 millimetre
Product width		210 millimetre
Product weight		21 kilogram
Compliances		RoHS conform
Certifications		UL 489 UL listed UL/CSA CSA (Class No. 1432-01) IEC/EN 60947 UL (Category Control Number DIVQ) Specially designed for North America CE marking CSA-C22.2 No. 5-09 IEC CSA (File No. 22086) IEC 60947-2 CSA certified UL (File No. E31593)
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 690 V
Type		Circuit breaker
Circuit breaker frame type		NZM4
Number of poles		Three-pole
Amperage Rating		700 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: 700 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		2000 A (380/400 V AC-1, making and breaking capacity) 700 A (660-690 V AC-3, making and breaking capacity) 700 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		1400 A
Instantaneous current setting (Ii) - max		8400 A
Overload current setting (Ir) - min		700 A

Overload current setting (I _r) - max	700 A
Short delay current setting (I _{sd}) - min	0 A
Short delay current setting (I _{sd}) - max	0 A
Short-circuit release non-delayed setting - min	1400 A
Short-circuit release non-delayed setting - max	8400 A
Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 230 V, 50/60 Hz	63 kA
Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 400/415 V, 50/60 Hz	50 kA
Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 440 V, 50/60 Hz	50 kA
Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 525 V, 50/60 Hz	50 kA
Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 690 V, 50/60 Hz	37 kA
Rated short-circuit making capacity I _{cm} at 240 V, 50/60 Hz	275 kA
Rated short-circuit making capacity I _{cm} at 400/415 V, 50/60 Hz	187 kA
Rated short-circuit making capacity I _{cm} at 440 V, 50/60 Hz	187 kA
Rated short-circuit making capacity I _{cm} at 525 V, 50/60 Hz	143 kA
Rated short-circuit making capacity I _{cm} at 690 V, 50/60 Hz	100 kA
Short-circuit total breaktime	< 25 ms (≤ 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	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 400 V AC-3 2000 operations at 690 V AC-1 3000 operations at 400 V AC-1 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 DIN rail (top hat rail) mounting optional
Degree of protection	IP20 (basic degree of protection, in the operating controls area) IP20
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 I _{cn}) Rated current = rated uninterrupted current: 700 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 I _r 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

		<p>Max. 70 mm² - 185 mm² (2x) at rear-side 1-hole module plate 50 mm² (4x) at rear-side 2-hole module plate 240 mm² (2x) at rear-side width extension 70 mm² - 240 mm² (6x) at rear-side width extension NA: aluminum conductor not applicable</p>
Terminal capacity (copper busbar)		<p>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</p>
Terminal capacity (copper stranded conductor/cable)		<p>50 mm² - 240 mm² (4x) at 4-hole tunnel terminal 120 mm² - 185 mm² (1x) direct at switch rear-side connection 50 mm² - 185 mm² (4x) direct at switch rear-side connection Min. 120 mm² - 300 mm² (1x) at rear-side 1-hole module plate Max. 95 mm² - 300 mm² (2x) at rear-side 1-hole module plate Min. 95 mm² - 185 mm² (2x) at rear-side 2-hole module plate Max. 35 mm² - 185 mm² (4x) at rear-side 2-hole module plate 300 mm² (4x) at rear-side width extension 95 mm² - 240 mm² (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</p>
Terminal capacity (copper strip)		<p>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</p>
Design verification as per IEC/EN 61439 - technical data		
Rated operational current for specified heat dissipation (In)		700 A
Equipment heat dissipation, current-dependent		54.39 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 (ecl@ss13-27-37-04-09 [AJZ716018])		
Rated permanent current I _u	A	700
Rated voltage	V	690 - 690
Rated short-circuit breaking capacity I _{cu} at 400 V, 50 Hz	kA	50
Overload release current setting	A	700 - 700
Adjustment range short-term delayed short-circuit release	A	0 - 0
Adjustment range undelayed short-circuit release	A	1400 - 8400
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		Yes
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