

Circuit-breaker, 3p, 400A



Part no. **NZMN3-AEF400-NA**
269278

General specifications		
Product name		Eaton Moeller series NZM molded case circuit breaker electronic
Part no.		NZMN3-AEF400-NA
EAN		4015082692780
Product Length/Depth		166 millimetre
Product height		297 millimetre
Product width		140 millimetre
Product weight		7.052 kilogram
Compliances		RoHS conform
Certifications		IEC 60947-2 CSA (File No. 22086) CSA-C22.2 No. 5-09 IEC CSA certified UL/CSA UL (Category Control Number DIVQ) UL (File No. E31593) UL listed CE marking CSA (Class No. 1432-01) UL 489 IEC/EN 60947 Specially designed for North America
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		NZM3
Number of poles		Three-pole
Amperage Rating		400 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 _{cn}) Rated current = rated uninterrupted current: 400 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"
Technical Data - Electrical		
Voltage rating		690 V - 690 V
Rated operating voltage U _e (UL) - max		600 V
Rated insulation voltage (U _i)		1000 V AC
Rated impulse withstand voltage (U _{imp}) at auxiliary contacts		6000 V
Rated impulse withstand voltage (U _{imp}) at main contacts		8000 V
Rated operational current		630 A (380/400 V AC-1, making and breaking capacity) 500 A (415 V AC-1, making and breaking capacity) 400 A (690 V AC -1, making and breaking capacity) 400 A (660-690 V AC-3, making and breaking capacity)
Rated short-time withstand current (t = 0.3 s)		3.3 kA
Rated short-time withstand current (t = 1 s)		3.3 kA
Instantaneous current setting (I _i) - min		800 A
Instantaneous current setting (I _i) - max		4400 A
Overload current setting (I _r) - min		400 A

Overload current setting (I _r) - max	400 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	800 A
Short-circuit release non-delayed setting - max	4400 A
Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 230 V, 50/60 Hz	85 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	35 kA
Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 525 V, 50/60 Hz	13 kA
Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 690 V, 50/60 Hz	5 kA
Rated short-circuit making capacity I _{cm} at 240 V, 50/60 Hz	187 kA
Rated short-circuit making capacity I _{cm} at 400/415 V, 50/60 Hz	105 kA
Rated short-circuit making capacity I _{cm} at 440 V, 50/60 Hz	74 kA
Rated short-circuit making capacity I _{cm} at 525 V, 50/60 Hz	53 kA
Rated short-circuit making capacity I _{cm} at 690 V, 50/60 Hz	40 kA
Short-circuit total breaktime	< 10 ms
Low-voltage HBC fuse - max	400 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	120
Handle type	Rocker lever
Utilization category	A (IEC/EN 60947-2)
Overvoltage category	III
Pollution degree	3
Lifespan, electrical	5000 operations at 400 V AC-1 2000 operations at 400 V AC-3 3000 operations at 690 V AC-1 2000 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 (basic degree of protection, in the operating controls area) IP20
Degree of protection (IP), front side	IP40 (with insulating surround) IP66 (with door coupling rotary handle)
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	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: 400 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	15000 operations
Technical Data - Mechanical - Terminals	
Standard terminals	Screw terminal
Terminal capacity (control cable)	14 mm ² - 18 mm ² (1x) 16 mm ² - 18 mm ² (2x)
Terminal capacity (aluminum solid conductor/cable)	16 mm ² (1x) at tunnel terminal
Terminal capacity (aluminum stranded conductor/cable)	Max. 500 mm ² (1x) at 2-hole tunnel terminal

		Max. 500 mm ² (2x) at 2-hole tunnel terminal
Terminal capacity (copper busbar)		Min. 20 mm x 5 mm direct at switch rear-side connection Max. 10 mm x 50 mm (2x) at rear-side width extension M10 at rear-side screw connection
Terminal capacity (copper solid conductor/cable)		16 mm ² - 185 mm ² (1x) at tunnel terminal 500 mm ² (2x) at rear-side width extension
Terminal capacity (copper stranded conductor/cable)		350 mm ² (2x) direct at switch rear-side connection 4 mm ² - 350 mm ² (1x) direct at switch rear-side connection 2 mm ² - 500 mm ² (1x) at box terminal 4 mm ² - 350 mm ² (1x) at tunnel terminal
Terminal capacity (copper strip)		10 segments of 50 mm x 1 mm (2x) at rear-side width extension Max. 10 segments of 24 mm x 1 mm + 5 segments of 24 mm x 1 mm Max. 8 segments of 24 mm x 1 mm (2x) at box terminal Min. 6 segments of 16 mm x 0.8 mm at box terminal Max. 10 segments of 32 mm x 1 mm + 5 segments of 32 mm x 1 mm at rear-side connection (punched) Min. 6 segments of 16 mm x 0.8 mm at rear-side connection (punched)
Design verification as per IEC/EN 61439 - technical data		
Rated operational current for specified heat dissipation (I _n)		400 A
Equipment heat dissipation, current-dependent		48 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 Current limiting circuit breaker

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	400
Rated voltage	V	690 - 690
Rated short-circuit breaking capacity I _{cu} at 400 V, 50 Hz	kA	50
Overload release current setting	A	400 - 400

Adjustment range short-term delayed short-circuit release	A	0 - 0
Adjustment range undelayed short-circuit release	A	800 - 4400
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