

Circuit-breaker, 4p, 400A



Part no. NZMN3-4-AE400
265891
EL Number 4358857
(Norway)

General specifications		
Product name		Eaton Moeller series NZM molded case circuit breaker electronic
Part no.		NZMN3-4-AE400
EAN		4015082658915
Product Length/Depth		166 millimetre
Product height		275 millimetre
Product width		185 millimetre
Product weight		8.938 kilogram
Compliances		RoHS conform
Certifications		IEC IEC/EN 60947
Product Tradename		NZM
Product Type		Molded case circuit breaker
Product Sub Type		Electronic
Delivery program		
Application		Use in unearthed supply systems at 690 V
Type		Circuit breaker
Circuit breaker frame type		NZM3
Number of poles		Four-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 Set value in neutral conductor is synchronous with set value I _r of main pole. R.m.s. value measurement and "thermal memory" Terminal capacity hint: Up to 240 mm ² can be connected depending on the cable manufacturer.
Technical Data - Electrical		
Voltage rating		690 V - 690 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
Current rating of neutral conductor		200% of phase conductor
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)		200 A - 400 A
Overload current setting (I _r) - min		200 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 Ics (IEC/EN 60947) at 525 V, 50/60 Hz		13 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 690 V, 50/60 Hz		5 kA
Rated short-circuit making capacity Icm at 240 V, 50/60 Hz		187 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		< 10 ms
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		3000 operations at 690 V AC-1 2000 operations at 400 V AC-3 5000 operations at 400 V AC-1 2000 operations at 415 V AC-3 2000 operations at 690 V AC-3 5000 operations at 415 V AC-1
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		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, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
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) Rated current = rated uninterrupted current: 400 A Set value in neutral conductor is synchronous with set value Ir of main pole. R.m.s. value measurement and "thermal memory" Terminal capacity hint: Up to 240 mm ² can be connected depending on the cable manufacturer.
Lifespan, mechanical		15000 operations

Technical Data - Mechanical - Terminals

Standard terminals		Screw terminal
Optional terminals		Box terminal. Connection on rear. Tunnel terminal
Terminal capacity (control cable)		0.75 mm ² - 2.5 mm ² (1x) 0.75 mm ² - 1.5 mm ² (2x)
Terminal capacity (aluminum solid conductor/cable)		10 mm ² - 16 mm ² (2x) direct at switch rear-side connection 16 mm ² (1x) at tunnel terminal 16 mm ² (1x) direct at switch rear-side connection
Terminal capacity (aluminum stranded conductor/cable)		50 mm ² - 240 mm ² (2x) at 2-hole tunnel terminal 25 mm ² - 120 mm ² (1x) direct at switch rear-side connection 50 mm ² - 240 mm ² (1x) at 2-hole tunnel terminal 25 mm ² - 120 mm ² (2x) direct at switch rear-side connection 25 mm ² - 185 mm ² (1x) at tunnel terminal
Terminal capacity (copper busbar)		Min. 20 mm x 5 mm direct at switch rear-side connection Max. 30 mm x 10 mm + 30 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)		300 mm ² (2x) at rear-side width extension

		16 mm ² (2x) at box terminal 16 mm ² (1x) direct at switch rear-side connection 16 mm ² (1x) at tunnel terminal 16 mm ² (2x) direct at switch rear-side connection
Terminal capacity (copper stranded conductor/cable)		25 mm ² - 120 mm ² (2x) at box terminal 16 mm ² - 185 mm ² (1x) at 1-hole tunnel terminal 35 mm ² - 240 mm ² (1x) at box terminal 25 mm ² - 240 mm ² (1x) direct at switch rear-side connection 50 mm ² - 240 mm ² (2x) at 2-hole tunnel terminal 25 mm ² - 240 mm ² (2x) direct at switch rear-side connection
Terminal capacity (copper strip)		10 segments of 50 mm x 1 mm (2x) at rear-side width extension Min. 6 segments of 16 mm x 0.8 mm at rear-side connection (punched) Max. 10 segments of 32 mm x 1 mm + 5 segments of 32 mm x 1 mm at rear-side connection (punched) 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
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		72 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	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	200 - 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			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