

Circuit-breaker, 3p, 1600A



Part no. NZMN4-VE1600
265772
EL Number 4358941
(Norway)

General specifications	
Product name	Eaton Moeller series NZM molded case circuit breaker electronic
Part no.	NZMN4-VE1600
EAN	4015082657727
Product Length/Depth	401 millimetre
Product height	207 millimetre
Product width	210 millimetre
Product weight	17.28 kilogram
Compliances	RoHS conform
Certifications	IEC/EN 60947 IEC
Product Tradename	NZM
Product Type	Molded case circuit breaker
Product Sub Type	Electronic
Delivery program	
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	Protection unit Motor drive optional
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}) R.m.s. value measurement and "thermal memory" Adjustable time delay setting to overcome current peaks I_r at 6 x I_r also infinity (without overload releases) Adjustable delay time t_{sd} i^2t constant function: switchable Rated current = rated uninterrupted current: 1600 A
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
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 _i) - min	3200 A
Instantaneous current setting (I _i) - max	19200 A
Overload current setting (I _r) - min	800 A
Overload current setting (I _r) - max	1600 A
Short delay current setting (I _{sd}) - min	1600 A
Short delay current setting (I _{sd}) - max	16000 A
Short-circuit release delayed setting - min	1600 A
Short-circuit release delayed setting - max	16000 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 _{cs} (IEC/EN 60947) at 230 V, 50/60 Hz	37 kA
Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 400/415 V, 50/60 Hz	37 kA
Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 440 V, 50/60 Hz	26 kA
Rated short-circuit breaking capacity I _{cs} (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)
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		B (IEC/EN 60947-2)
Overvoltage category		III
Pollution degree		3
Lifespan, electrical		3000 operations at 415 V AC-1 2000 operations at 415 V AC-3 2000 operations at 690 V AC-1 3000 operations at 400 V AC-1 1000 operations at 690 V AC-3 2000 operations at 400 V AC-3
Direction of incoming supply		As required
Technical Data - Mechanical		
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		IP40 (with insulating surround) IP66 (with door coupling rotary handle)
Degree of protection (terminations)		IP10 (tunnel terminal) IP00 (terminations, phase isolator and strip 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" Adjustable time delay setting to overcome current peaks I_{tr} at $6 \times I_r$ also infinity (without overload releases) Adjustable delay time t_{sd} I_{tr} constant function: switchable Rated current = rated uninterrupted current: 1600 A
Lifespan, mechanical		10000 operations
Technical Data - Mechanical - Terminals		
Standard terminals		Screw terminal
Optional terminals		Connection on rear. Strip terminal. Tunnel terminal
Terminal capacity (control cable)		0.75 mm ² - 1.5 mm ² (2x) 0.75 mm ² - 2.5 mm ² (1x)
Terminal capacity (aluminum solid conductor/cable)		240 mm ² (2x) at rear-side width extension 50 mm ² (4x) at rear-side 2-hole module plate 70 mm ² - 185 mm ² (2x) at rear-side 1-hole module plate 70 mm ² - 240 mm ² (6x) at rear-side width extension 185 mm ² - 240 mm ² (1x) at rear-side 1-hole module plate
Terminal capacity (aluminum stranded conductor/cable)		50 mm ² - 240 mm ² (4x) at 4-hole tunnel terminal
Terminal capacity (copper busbar)		Min. 25 mm x 5 mm at rear-side 1-hole module plate M10 at rear-side screw connection Max. 50 mm x 10 mm (2x) at rear-side 1-hole module plate Max. 50 mm x 10 mm (2x) direct at switch rear-side connection Min. 60 mm x 10 mm at rear-side width extension 50 mm x 10 mm (2x) at rear-side 2-hole module plate Max. 80 mm x 10 mm (2x) at rear-side width extension Min. 25 mm x 5 mm direct at switch rear-side connection
Terminal capacity (copper solid conductor/cable)		120 mm ² - 300 mm ² (1x) at rear-side 1-hole module plate 95 mm ² - 185 mm ² (2x) at rear-side 2-hole module plate 35 mm ² - 185 mm ² (4x) at rear-side 2-hole module plate

		50 mm ² - 240 mm ² (4x) at 4-hole tunnel terminal 300 mm ² (4x) at rear-side width extension 95 mm ² - 240 mm ² (6x) at rear-side width extension 95 mm ² - 300 mm ² (2x) at rear-side 1-hole module plate
Terminal capacity (copper stranded conductor/cable)		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
Terminal capacity (copper strip)		10 segments of 50 mm x 1 mm (2x) at 1-hole module plate 10 segments of 80 mm x 1 mm (2x) at rear-side width extension Max. 10 segments of 50 mm x 1 mm (2x) at rear-side connection (punched) Min. 5 segments of 25 mm x 1 mm at rear-side connection (punched) 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
Design verification as per IEC/EN 61439 - technical data		
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
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		Systems, cable, selectivity and generator 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 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	1600 - 16000	
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