DATASHEET - NZMN4-4-AE1600

Circuit-breaker, 4p, 1600A

Part no. **NZMN4-4-AE1600**
265918

Powering Business Worldwide™

General specifications

Product name	Eaton Moeller series NZM molded case circuit breaker electronic
Part no.	NZMN4-4-AE1600
EAN	4015082659189
Product Length/Depth	401 millimetre
Product height	207 millimetre
Product width	280 millimetre
Product weight	27 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	Four-pole
Amperage Rating	1600 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 Icn) Rated current = rated uninterrupted current: 1600 A Set value in neutral conductor is synchronous with set value Ir of main pole. R.m.s. value measurement and “thermal memory”

Technical Data - Electrical

Voltage rating	690 V - 690 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
Current rating of neutral conductor	200% of phase conductor
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	3200 A
Instantaneous current setting (Ii) - max	19200 A
Overload current setting (Ir)	800 A - 1600 A
Overload current setting (Ir) - min	800 A
Overload current setting (Ir) - max	1600 A
Short delay current setting (Isd) - min	0 A
Short delay current setting (Isd) - max	0 A
Short-circuit release non-delayed setting - min	3200 A
Short-circuit release non-delayed setting - max	19200 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 (≦ 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	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 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
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	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	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, 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: 1600 A Set value in neutral conductor is synchronous with set value Ir of main pole. R.m.s. value measurement and “thermal memory”
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)	50 mm^2 (4x) at rear-side 2-hole module plate 240 mm^2 (2x) at rear-side width extension 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)	M10 at rear-side screw connection Min. 25 mm x 5 mm at rear-side 1-hole module plate Max. 80 mm x 10 mm (2x) at rear-side width extension 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. 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. 60 mm x 10 mm at rear-side width extension
Terminal capacity (copper solid conductor/cable)	95 mm^2 - 300 mm^2 (2x) at rear-side 1-hole module plate 35 mm^2 - 185 mm^2 (4x) at rear-side 2-hole module plate 95 mm^2 - 185 mm^2 (2x) at rear-side 2-hole module plate 50 mm^2 - 240 mm^2 (4x) at 4-hole tunnel terminal

			120 mm² - 300 mm² (1x) at rear-side 1-hole module plate 300 mm² (4x) at rear-side width extension 95 mm² - 240 mm² (6x) at rear-side width extension
Terminal capacity (copper stranded conductor/cable)			50 mm² - 185 mm² (4x) direct at switch rear-side connection 120 mm² - 185 mm² (1x) direct at switch rear-side connection
Terminal capacity (copper strip)			Max. 10 segments of 32 mm x 1 mm (2x) at flat conductor terminal 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 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
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			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 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	0 - 0
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	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