

Specifications



Photo is representative

Eaton 168887

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 4p, 400A, withdrawable unit, H3-4-VE400-SVE

General specifications

PRODUCT NAME	Eaton Moeller series NZM molded case circuit breaker electronic
CATALOG NUMBER	168887
MODEL CODE	NZMH3-4-VE400-SVE
EAN	4015081653799
PRODUCT LENGTH/DEPTH	335 mm
PRODUCT HEIGHT	215.2 mm
PRODUCT WIDTH	185 mm
PRODUCT WEIGHT	10.04 kg
COMPLIANCES	RoHS conform
CERTIFICATIONS	IEC/EN 60947 IEC

Additional information

FUNCTIONS

Systems, cable, selectivity
and generator protection

Delivery programme

ACCESSORIES REQUIRED NZM3-4-XSVS

AMPERAGE RATING 400 A

APPLICATION Use in unearthed supply
systems at 690 V

**CIRCUIT BREAKER FRAME
TYPE** NZM3

FEATURES Protection unit
Motor drive optional

NUMBER OF POLES Four-pole

RELEASE SYSTEM Electronic release

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_{tr} at $6 \times I_r$ also infinity (without overload releases)
- Adjustable delay time t_{sd}
- Rated current = rated uninterrupted current: 400 A
- Terminal capacity hint: Up to 240 mm² can be connected depending on the cable manufacturer.

TYPE Circuit breaker

Design verification to IEC/EN 61439

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.
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	Does not apply, since the

Design verification to IEC/EN 61439 - technical data

AMBIENT OPERATING TEMPERATURE - MAX	70 °C
AMBIENT STORAGE TEMPERATURE - MAX	70 °C
AMBIENT OPERATING TEMPERATURE - MIN	-25 °C
AMBIENT STORAGE TEMPERATURE - MIN	40 °C
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT	72 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	400 A

AGAINST ELECTRIC SHOCK	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.

Technical data - electrical

AMPERAGE RATING	400 A
CURRENT RATING OF NEUTRAL CONDUCTOR	200% of phase conductor
DIRECTION OF INCOMING SUPPLY	As required
ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT	Screw connection
HANDLE TYPE	Rocker lever
INSTANTANEOUS CURRENT SETTING (II) - MAX	4400 A
INSTANTANEOUS CURRENT SETTING (II) - MIN	800 A
ISOLATION	300 V AC (between the auxiliary contacts) 500 V AC (between auxiliary contacts and main contacts)
LIFESPAN, ELECTRICAL	5000 operations at 400 V AC-1 5000 operations at 415 V AC-1 2000 operations at 415 V AC-3 3000 operations at 690 V AC-1 2000 operations at 400 V AC-3 2000 operations at 690 V AC-3
NUMBER OF OPERATIONS PER HOUR - MAX	60
OVERLOAD CURRENT SETTING (IR) - MAX	400 A
OVERLOAD CURRENT SETTING (IR) - MIN	200 A
OVERVOLTAGE CATEGORY	III
POLLUTION DEGREE	3
RATED IMPULSE WITHSTAND VOLTAGE (UIMP) AT AUXILIARY CONTACTS	6000 V
RATED IMPULSE WITHSTAND VOLTAGE (UIMP) AT MAIN CONTACTS	8000 V
RATED INSULATION	1000 V AC

Technical data - mechanical

CLIMATIC PROOFING	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
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)	IP10 (tunnel terminal) IP00 (terminations, phase isolator and strip terminal)
LIFESPAN, MECHANICAL	15000 operations
MOUNTING METHOD	Plug-in unit Built-in device plug-in technique
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
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)
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"

VOLTAGE (UI)	
RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 230 V, 50/60 HZ	150 kA
RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 400/415 V, 50/60 HZ	150 kA
RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 440 V, 50/60 HZ	130 kA
RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 525 V, 50/60 HZ	33 kA
RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 690 V, 50/60 HZ	9 kA
RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 240 V, 50/60 HZ	330 kA
RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 400/415 V, 50/60 HZ	330 kA
RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 440 V, 50/60 HZ	286 kA
RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 525 V, 50/60 HZ	143 kA
RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 690 V, 50/60 HZ	74 kA
RATED SHORT-TIME WITHSTAND CURRENT (T = 0.3 S)	3.3 kA
RATED SHORT-TIME WITHSTAND CURRENT (T = 1 S)	3.3 kA
SHORT DELAY CURRENT SETTING (ISD) - MAX	4000 A
SHORT DELAY CURRENT SETTING (ISD) - MIN	400 A
SHORT-CIRCUIT TOTAL BREAKTIME	< 10 ms
UTILIZATION CATEGORY	A (IEC/EN 60947-2)
VOLTAGE RATING	690 V - 690 V

- Adjustable time delay setting to overcome current peaks t_r at $6 \times I_r$ also infinity (without overload releases)
- Adjustable delay time t_{sd}
- Rated current = rated uninterrupted current: 400 A
- Terminal capacity hint: Up to 240 mm² can be connected depending on the cable manufacturer.

Technical data - mechanical - terminals

OPTIONAL TERMINALS	Box terminal. Connection on rear. Tunnel terminal
STANDARD TERMINALS	Screw terminal
TERMINAL CAPACITY (ALUMINUM SOLID CONDUCTOR/CABLE)	16 mm ² (1x) at tunnel terminal
TERMINAL CAPACITY (ALUMINUM STRANDED CONDUCTOR/CABLE)	50 mm ² - 240 mm ² (1x) at 2-hole tunnel terminal 50 mm ² - 240 mm ² (2x) at 2-hole tunnel terminal 25 mm ² - 185 mm ² (1x) at 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 (COPPER BUSBAR)	Max. 30 mm x 10 mm + 30 mm x 5 mm direct at switch rear-side connection M10 at rear-side screw connection Min. 20 mm x 5 mm direct at switch rear-side connection Max. 10 mm x 50 mm (2x) at rear-side width extension
TERMINAL CAPACITY (COPPER SOLID CONDUCTOR/CABLE)	16 mm ² (1x) at tunnel terminal 16 mm ² (1x) direct at switch rear-side connection 16 mm ² (2x) at box terminal 300 mm ² (2x) at rear-side width extension 16 mm ² (2x) direct at switch rear-side connection
TERMINAL CAPACITY (COPPER STRANDED CONDUCTOR/CABLE)	35 mm ² - 240 mm ² (1x) at box terminal 16 mm ² - 185 mm ² (1x) at 1-hole tunnel terminal 25 mm ² - 120 mm ² (2x) at box terminal 25 mm ² - 240 mm ² (1x) direct at switch rear-side connection 25 mm ² - 240 mm ² (2x) direct at switch rear-side connection
TERMINAL CAPACITY (COPPER STRIP)	Max. 10 segments of 24 mm x 1 mm + 5 segments of 24 mm x 1 mm Max. 10 segments of 32 mm x 1 mm + 5 segments

Resources

BROCHURES	eaton-digital-nzm-brochure-br013003en-en-us.pdf eaton-feerum-the-whole-grain-solution-success-story-en-us.pdf
CATALOGUES	eaton-digital-nzm-catalog-ca013003en-en-us.pdf
DECLARATIONS OF CONFORMITY	eaton-molded-case-circuit-breaker-declaration-of-conformity-eu250293en.pdf
DRAWINGS	eaton-circuit-breaker-nzm-mccb-dimensions-021.eps eaton-circuit-breaker-nzm-mccb-dimensions-016.eps eaton-circuit-breaker-switch-nzm-mccb-dimensions-016.eps
ECAD MODEL	DA-CE-ETN.NZMH3-4-VE400-SVE
INSTALLATION INSTRUCTIONS	eaton-circuit-breaker-plug-in-adapter-nzm2-il01219023z.pdf
INSTALLATION VIDEOS	The new digital NZM Range Introduction of the new digital circuit breaker NZM
MCAD MODEL	eaton-molded-case-switch-mcad-drawings-nzmn3-4-a320-sve.dwg nzmn3_4_a320_sve.stp
PEP ECO-PASSPORT	eaton-molded-case-switches-pep-eato-00219-v0101-en.pdf
TECHNICAL DATA SHEETS	eaton-nzm-technical-information-sheet

of 32 mm x 1 mm at rear-side connection (punched)

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

Min. 6 segments of 16 mm x 0.8 mm at rear-side connection (punched)

10 segments of 50 mm x 1 mm (2x) at rear-side width extension

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



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