Specifications

Eaton 284465

Catalog Number: 284465

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 3p, 450A, NZMN3-SE450-CNA



General specifications

Product Name
Eaton Moeller series NZM molded case circuit breaker electronic

Catalog Number
284465

EAN
4015082844653

Product Length/Depth
166 mm

Product Height
297 mm

Product Width
140 mm

Product Weight
6.34 kg

Compliances
RoHS conform

Certifications
IEC 60947-2
UL listed
UL/CSA
CSA (Class No. 1432-01)
UL (File No. E31593)
CSA (File No. 22086)
CE marking
UL 489
IEC
IEC/EN 60947
CSA-C22.2 No. 5-09
CSA certified
Specially designed for North America
UL (Category Control Number DKPU2)

Powering Business Worldwide

Product specifications

Type

Circuit breaker

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: 450 A
Switches conform to UL/CSA as well as the IEC regulations. IEC switching performance values are contained on the rating plate.
Motor protection in conjunction with contactor and overload relay
With short-circuit release
Without overload release Ir

Application

Branch circuits, feeder circuits
Use in unearthed supply systems at 690 V

Amperage Rating

450 A

Voltage rating

690 V - 690 V

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

Resources

Brochures

eaton-digital-nzm-brochure-br013003en-en-us.pdf

eaton-feerum-the-whole-grain-solution-success-story-en-us.pdf

Catalogs

eaton-digital-nzm-catalog-ca013003en-en-us.pdf

Declarations of conformity

DA-DC-03_N3

Drawings

eaton-circuit-breaker-nzm-mccb-dimensions-020.eps

eaton-circuit-breaker-switch-nzm-mccb-dimensions-016.eps

eaton-circuit-breaker-switch-nzm-mccb-3d-drawing-002.eps

eCAD model

ETN.284465.edz

Installation videos

The new digital NZM Range

Introduction of the new digital circuit breaker NZM

mCAD model

DA-CS-nzm3_3p

DA-CD-nzm3_3p

Technical data sheets

eaton-nzm-technical-information-sheet

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 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.

Pollution degree

3

Mounting Method

Fixed

Built-in device fixed built-in technique

Climatic proofing

Damp heat, cyclic, to IEC 60068-2-30

Damp heat, constant, to IEC 60068-2-78

Equipment heat dissipation, current-dependent

60.75 W

Utilization category

A (IEC/EN 60947-2)

Isolation

300 V AC (between the auxiliary contacts)

500 V AC (between auxiliary contacts and main contacts)

Ambient operating temperature - max

70 °C

Ambient operating temperature - min

-25 °C

Ambient storage temperature - max

70 °C

Ambient storage temperature - min

40 °C

Protection against direct contact

Finger and back-of-hand proof to VDE 0106 part 100

Rated insulation voltage (Ui)

1000 V

Rated operating power at AC-3, 230 V

132 kW

Rated operating power at AC-3, 400 V

250 kW

Switch off technique

Electronic

Degree of protection

IP20

IP20 (basic degree of protection, in the operating controls area)

Direction of incoming supply

As required

Electrical connection type of main circuit

Screw connection

Lifespan, mechanical

15000 operations

Overvoltage category

III

Rated operational current

630 A (400 V AC-1, making and breaking capacity)

450 A (660-690 V AC-3, making and breaking capacity)

500 A (415 V AC-1, making and breaking capacity)

450 A (690 V AC-1, making and breaking capacity)

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)

Number of poles

Three-pole

Terminal capacity (copper strip)

Min. 6 segments of 16 mm x 0.8 mm at box terminal

Max. 10 segments of 24 mm x 1 mm + 5 segments of 24 mm x 1 mm

8 segments of 24 mm x 1 mm (2x) at box terminal

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)

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

NA: same as for IEC

Lifespan, electrical

2000 operations at 690 V AC-3

2000 operations at 400 V AC-3

2000 operations at 415 V AC-3

3000 operations at 690 V AC-1

5000 operations at 400 V AC-1

Functions

Short-circuit protection

Shock resistance

20 g (half-sinusoidal shock 20 ms)

Rated operational current for specified heat dissipation (In)

450 A

Rated short-time withstand current (t = 0.3 s)

3.3 kA

Rated short-time withstand current (t = 1 s)

3.3 kA

Short-circuit release non-delayed setting - max

5400 A

Short-circuit release non-delayed setting - min

900 A

Handle type

Rocker lever

Instantaneous current setting (Ii) - max

5400 A

Instantaneous current setting (Ii) - min

900 A

Number of operations per hour - max

60

Overload current setting (Ir) - max

0 A

Overload current setting (Ir) - min

0 A

Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 230 V, 50/60 Hz

85 kA

Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 400/415 V, 50/60 Hz

35 kA

Rated short-circuit breaking capacity Ics (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

Standard terminals

Screw connection, Optional: Box terminal, Tunnel terminal, Rear-side connection

Rated operating voltage Ue (UL) - max

600 V

Release system

Electronic release

Short-circuit total breaktime

< 10 ms

Terminal capacity (aluminum solid conductor/cable)

16 mm² (1x) direct at switch rear-side connection

10 mm² - 16 mm² (2x) direct at switch rear-side connection

NA: aluminum conductor not applicable

Terminal capacity (aluminum stranded conductor/cable)

25 mm² - 120 mm² (1x) direct at switch rear-side connection

25 mm² - 120 mm² (2x) direct at switch rear-side connection

NA: aluminum conductor not applicable

Terminal capacity (control cable)

14 mm² - 18 mm² (1x)

16 mm² - 18 mm² (2x)

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

Max. 30 mm x 10 mm + 30 mm x 5 mm direct at switch rear-side connection

NA: same as for IEC

Terminal capacity (copper solid conductor/cable)

16 mm² (2x) at box terminal

16 mm² (1x) at 1-hole tunnel terminal

16 mm² (1x) direct at switch rear-side connection

16 mm² (2x) direct at switch rear-side connection

NA: AWG 6 (2x) at box terminal

NA: AWG 6 (1x) at 1-hole tunnel terminal

NA: AWG 6 (1x) at 2-hole tunnel terminal

NA: AWG 6 (2x) at 2-hole tunnel terminal

NA: AWG 6 (2x) direct at switch rear-side connection

Terminal capacity (copper stranded conductor/cable)

35 mm² - 240 mm² (1x) at box terminal

25 mm² - 120 mm² (2x) at box terminal

25 mm² - 185 mm² (1x) at 1-hole tunnel terminal

50 mm² - 240 mm² (1x) at 2-hole tunnel terminal

50 mm² - 240 mm² (2x) at 2-hole tunnel terminal

25 mm² - 240 mm² (1x) direct at switch rear-side connection

25 mm² - 240 mm² (2x) direct at switch rear-side connection

300 mm² (2x) at rear-side width extension

NA: AWG 2 - kcmil 500 (1x) at box terminal

NA: AWG 4 - kcmil 250 (2x) at box terminal

NA: AWG 4 - kcmil 350 (1x) at 1-hole tunnel terminal

NA: AWG 0 - kcmil 500 (1x) at 2-hole tunnel terminal

NA: AWG 0 - kcmil 500 (2x) at 2-hole tunnel terminal

NA: AWG 4 - kcmil 350 (1x) direct at switch rear-side connection

NA: AWG 4 - kcmil 350 (2x) direct at switch rear-side connection

NA: kcmil 500 (2x) at rear-side width extension

Rated short-circuit breaking capacity Icu (IEC/EN 60947) at 400/415 V, 50/60 Hz

35 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

Rated short-circuit making capacity Icm at 240 V, 50/60 Hz

187 kA

Rated impulse withstand voltage (Uimp) at auxiliary contacts

6000 V

Rated impulse withstand voltage (Uimp) at main contacts

8000 V



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