Specifications

Eaton 116304



Catalog Number: 116304

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 3p, 160A, box terminals, +residual current circuit-breaker, 30mA, AC/DC sensitive

General specifications

Product Name
Eaton Moeller series NZM molded case circuit breaker thermo-magnetic

Catalog Number
116304

EAN
4015081160440

Product Length/Depth
293 mm

Product Height
145 mm

Product Width
140 mm

Product Weight
5.58 kg

Compliances
RoHS conform

Certifications
EN 62423: Type B
IEC
IEC/EN 60947
VDE 0660

Powering Business Worldwide

Product specifications

Type

Circuit breaker

Special features

For equipment with power electronics, such as inverters and variable frequency drives
Ready-to-connect combination consisting of type B circuit-breaker and residual current circuit-breaker and type A passive section
Suitability for the application in three-phase systems without neutral conductor
Personnel protection and preventive fire protection for 0 - 100 kHz fault current frequency
Operational voltage range Type B 50 - 400 V AC (+ 10 %)
Type A functionality even without operational voltage for rated frequency of 50 Hz
Not UL/CSA approved
Adjusting buttons can be sealed.
Rated operating voltage 400 V AC (+/- 10 %)
Rated frequency 50 Hz
Rated fault current IΔn = 0.03 A
Depending on the cable manufacturer up to 240 mm² can be connected
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)

Resources

Brochures

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

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

Catalogs

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

Characteristic curve

eaton-circuit-breaker-nzm-mccb-characteristic-curve-050.eps

eaton-circuit-breaker-let-through-current-nzm-mccb-characteristic-curve-005.eps

eaton-circuit-breaker-nzm-mccb-characteristic-curve-003.eps

eaton-circuit-breaker-characteristic-power-defense-mccb-characteristic-curve-037.eps

Drawings

eaton-circuit-breaker-switch-nzm-mccb-dimensions-017.eps

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

eaton-circuit-breaker-nzm-mccb-dimensions-019.eps

eaton-general-nzm-mccb-symbol.eps

eaton-circuit-breaker-nzm-mccb-3d-drawing-003.eps

eaton-circuit-breaker-symbol-nzm-earth-fault-release-symbol.eps

Installation instructions

eaton-residual-current-device-3-pole-nzm2-il01219040z.pdf

Installation videos

The new digital NZM Range

Introduction of the new digital circuit breaker NZM

mCAD model

DA-CS-nzm2_3p

DA-CD-nzm2_3p

Technical data sheets

eaton-nzm-technical-information-sheet

Rated current = rated
uninterrupted current: 160 A

Application

Use in unearthed supply systems at 690 V

Amperage Rating

160 A

Voltage rating

400 V - 400 V

Circuit breaker frame type

NZM2

Features

Motor drive optional
Protection unit

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 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

DIN rail (top hat rail) mounting optional

Climatic proofing

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

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

Equipment heat dissipation, current-dependent

38.4 W

Utilization category

A (IEC/EN 60947-2)

Isolation

500 V AC (between auxiliary contacts and main contacts)

300 V AC (between the auxiliary 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

Number of auxiliary contacts (change-over contacts)

0

Number of auxiliary contacts (normally closed contacts)

0

Number of auxiliary contacts (normally open contacts)

0

Protection against direct contact

Finger and back-of-hand proof to DIN EN 50274/VDE 0106 part 110

Degree of protection

IP20

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

Direction of incoming supply

Bottom

Electrical connection type of main circuit

Frame clamp

Lifespan, mechanical

20000 operations

Overvoltage category

III

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)

Number of poles

Three-pole

Terminal capacity (copper strip)

Max. 8 segments of 24 mm x 1 mm (2x) at box terminal
Min. 2 segements of 16 mm x 0.8 mm at rear-side connection (punched)
Max. 10 segments of 24 mm x 0.8 mm at rear-side connection (punched)
Max. 10 segments of 16 mm x 0.8 mm at box terminal
Min. 2 segments of 9 mm x 0.8 mm at box terminal

Lifespan, electrical

6500 operations at 400 V AC-3
5000 operations at 690 V AC-3
6500 operations at 415 V AC-3
7500 operations at 690 V AC-1
10000 operations at 400 V AC-1
10000 operations at 415 V AC-1

Functions

System and cable protection, fire protection, personnel protection

Shock resistance

20 g (half-sinusoidal shock 20 ms)

Position of connection for main current circuit

Front side

Rated operational current for specified heat dissipation (In)

160 A

Power loss

38.4 W

Release system

Thermomagnetic release, AC/DC sensitive earth-fault release

Short-circuit total breaktime

< 10 ms

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

1.9 kA

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

1.9 kA

Short-circuit release non-delayed setting - max

1600 A

Short-circuit release non-delayed setting - min

960 A

Terminal capacity (control cable)

0.75 mm² - 1.5 mm² (2x)

0.75 mm² - 2.5 mm² (1x)

Terminal capacity (copper busbar)

Min. 16 mm x 5 mm direct at switch rear-side connection

Max. 24 mm x 8 mm direct at switch rear-side connection

M8 at rear-side screw connection

Terminal capacity (copper solid conductor/cable)

16 mm² (1x) at tunnel terminal

6 mm² - 16 mm² (2x) at box terminal

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

10 mm² - 16 mm² (1x) at box terminal

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

Terminal capacity (aluminum solid conductor/cable)

16 mm² (1x) at tunnel terminal

Terminal capacity (copper stranded conductor/cable)

25 mm² - 185 mm² (1x) direct at switch rear-side connection

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

25 mm² - 70 mm² (2x) at box terminal

25 mm² - 185 mm² (1x) at box terminal

25 mm² - 70 mm² (2x) direct at switch rear-side connection

Terminal capacity (aluminum stranded conductor/cable)

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

Handle type

Rocker lever

Short delay current setting (Isd) - max

0 A

Short delay current setting (Isd) - min

0 A

Instantaneous current setting (Ii) - max

1600 A

Instantaneous current setting (Ii) - min

960 A

Number of operations per hour - max

120

Overload current setting (Ir) - max

160 A

Overload current setting (Ir) - min

125 A

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

37.5 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 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

105 kA

Rated short-circuit making capacity Icm at 690 V, 50/60 Hz

40 kA

Standard terminals

Box terminal

Optional terminals

Connection on rear. Screw terminal. Tunnel terminal

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

330 kA

Rated impulse withstand voltage (Uimp) at auxiliary contacts

6000 V

Rated impulse withstand voltage (Uimp) at main contacts

8000 V

Rated insulation voltage (Ui)

1000 V AC



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