Specifications

Eaton 110304

Catalog Number: 110304

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 3p, 500A, box terminals, N, frame 3, A500-BT



General specifications

Product Name	**Catalog Number**
Eaton Moeller series NZM - Molded case circuit breaker	110304
	EAN
	4015081098521
Product Length/Depth	**Product Height**
166 mm	275 mm
Product Width	**Product Weight**
140 mm	6.067 kg
Compliances	**Certifications**
RoHS conform	IEC/EN 60947 IEC

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: 500 A
Terminal capacity hint: Up to 240 mm² can be connected depending on the cable manufacturer.

Application

Use in unearthed supply systems at 690 V

Amperage Rating

500 A

Voltage rating

690 V - 690 V

Circuit breaker frame type

NZM3

Features

Protection unit
Motor drive optional

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

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

Characteristic curve

eaton-circuit-breaker-nzm-mccb-characteristic-curve-031.eps

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

eaton-circuit-breaker-nzm-mccb-characteristic-curve-034.eps

Drawings

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

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

eCAD model

ETN.110304.edz

Installation instructions

eaton-circuit-breaker-basic-device-nzmn-b-il01208009z.pdf

Installation videos

Introduction of the new digital circuit breaker NZM

The new digital NZM Range

mCAD model

DA-CS-nzm3_3p

DA-CD-nzm3_3p

Technical data sheets

eaton-nzm-technical-information-sheet

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

Built-in device fixed built-in technique

Fixed

Climatic proofing

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

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

Equipment heat dissipation, current-dependent

93 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

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

IP20

Direction of incoming supply

As required

Electrical connection type of main circuit

Frame clamp

Lifespan, mechanical

15000 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)

10 segments of 50 mm x 1 mm (2x) at rear-side width extension
Min. 6 segments of 16 mm x 0.8 mm at rear-side connection (punched)
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 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

Lifespan, electrical

2000 operations at 500 V DC-3
5000 operations at 415 V AC-1
2000 operations at 690 V AC-3
3000 operations at 690 V AC-1
5000 operations at 750 V DC-1
2000 operations at 400 V AC-3
2000 operations at 415 V AC-3
5000 operations at 500 V DC-1
5000 operations at 400 V AC-1
2000 operations at 750 V DC-3

Functions

System and cable 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)

500 A

Release system

Thermomagnetic release

Short-circuit total breaktime

< 10 ms

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

5000 A

Short-circuit release non-delayed setting - min

3000 A

Terminal capacity (control cable)

0.75 mm² - 1.5 mm² (2x)
0.75 mm² - 2.5 mm² (1x)

Terminal capacity (copper busbar)

M10 at rear-side screw connection
Max. 30 mm x 10 mm + 30 mm x 5 mm direct at switch rear-side 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 mm² (1x) direct at switch rear-side connection
300 mm² (2x) at rear-side width extension
16 mm² (2x) direct at switch rear-side connection
16 mm² (1x) at tunnel terminal
16 mm² (2x) at box terminal

Terminal capacity (aluminum solid conductor/cable)

16 mm² (1x) at tunnel terminal

Terminal capacity (copper stranded conductor/cable)

16 mm² - 185 mm² (1x) at 1-hole tunnel terminal
25 mm² - 240 mm² (2x) direct at switch rear-side connection
25 mm² - 120 mm² (2x) at box terminal
35 mm² - 240 mm² (1x) at box terminal
25 mm² - 240 mm² (1x) direct at switch rear-side connection

Terminal capacity (aluminum stranded conductor/cable)

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

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

50 mm² - 240 mm² (2x) at 2-hole 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

5000 A

Instantaneous current setting (Ii) - min

3000 A

Number of operations per hour - max

60

Overload current setting (Ir) - max

500 A

Overload current setting (Ir) - min

400 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

50 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 500 V DC

30 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

Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 750 V DC

30 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

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

187 kA

Rated impulse withstand voltage (Uimp) at auxiliary contacts

6000 V

Rated impulse withstand voltage (Uimp) at main contacts

8000 V

Voltage rating (DC)

750 VDC

Rated insulation voltage (Ui)

1000 V AC

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