

# Eaton 147398

Catalog Number: 147398

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 4p, 250A, box terminals, selectivity protection



Photo is representative

## General specifications

<b>Product Name</b>	<b>Catalog Number</b>
Eaton Moeller series NZM molded case circuit breaker electronic	147398
	<b>Model Code</b>
	NZMN2-4-VE250-BT
<b>EAN</b>	<b>Product Length/Depth</b>
4015081438983	149 mm
<b>Product Height</b>	<b>Product Width</b>
184 mm	140 mm
<b>Product Weight</b>	<b>Compliances</b>
3.846 kg	RoHS conform
<b>Certifications</b>	
IEC IEC/EN 60947	

## 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  $I_{cn}$ )

R.m.s. value measurement and “thermal memory”

Adjustable time delay setting to overcome current peaks  $t_r$  at  $6 \times I_r$  also infinity (without overload releases)

Adjustable delay time  $t_{sd}$

$i^2t$  constant function: fixed OFF

Set value in neutral conductor is synchronous with set value  $I_r$  of main pole.

Rated current = rated uninterrupted current: 250 A

## Application

Use in unearthed supply systems at 690 V

## Amperage Rating

250 A

## Voltage rating

690 V - 690 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.

## 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](#)

## Certification reports

[DA-DC-03\\_N2](#)

## Characteristic curve

[eaton-circuit-breaker-let-through-current-nzm-mccb-characteristic-curve-004.eps](#)  
[eaton-circuit-breaker-characteristic-power-defense-mccb-characteristic-curve-036.eps](#)  
[eaton-circuit-breaker-nzm-mccb-characteristic-curve-054.eps](#)

## Drawings

[eaton-circuit-breaker-switch-nzm-mccb-dimensions-017.eps](#)  
[eaton-circuit-breaker-nzm-mccb-dimensions-035.eps](#)

## Installation videos

[Introduction of the new digital circuit breaker NZM](#)  
[The new digital NZM Range](#)

## mCAD model

[DA-CD-nzm2\\_4p](#)  
[DA-CS-nzm2\\_4p](#)

## Technical data sheets

[eaton-nzm-technical-information-sheet](#)

#### 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

DIN rail (top hat rail) mounting optional

Built-in device fixed built-in technique

Fixed

#### Climatic proofing

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

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

#### Equipment heat dissipation, current-dependent

51.56 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

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

Direction of incoming supply

As required

Electrical connection type of main circuit

Frame clamp

Current rating of neutral conductor

200% of phase conductor

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)

IP00 (terminations, phase isolator and strip terminal)

IP10 (tunnel terminal)

Number of poles

Four-pole

Terminal capacity (copper strip)

Min. 2 segments of 16 mm x 0.8 mm at rear-side connection (punched)

Max. 10 segments of 16 mm x 0.8 mm at box terminal

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

Min. 2 segments of 9 mm x 0.8 mm at box terminal

Max. 10 segments of 24 mm x 0.8 mm at rear-side connection (punched)

Lifespan, electrical

5000 operations at 690 V AC-3

10000 operations at 415 V AC-1

6500 operations at 415 V AC-3

10000 operations at 400 V AC-1

6500 operations at 400 V AC-3

7500 operations at 690 V AC-1

## Functions

Systems, cable, selectivity and generator 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 ( $I_n$ )

250 A

## Power loss

51.56 W

## Release system

Electronic 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 delayed setting - max

2500 A

## Short-circuit release delayed setting - min

250 A

## Short-circuit release non-delayed setting - max

3000 A

## Short-circuit release non-delayed setting - min

3000 A

## Terminal capacity (control cable)

0.75 mm<sup>2</sup> - 2.5 mm<sup>2</sup> (1x)

0.75 mm<sup>2</sup> - 1.5 mm<sup>2</sup> (2x)

## Terminal capacity (copper busbar)

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

M8 at rear-side screw connection

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

## Terminal capacity (copper solid conductor/cable)

6 mm<sup>2</sup> - 16 mm<sup>2</sup> (2x) at box terminal

10 mm<sup>2</sup> - 16 mm<sup>2</sup> (1x) direct at switch rear-side connection

6 mm<sup>2</sup> - 16 mm<sup>2</sup> (2x) direct at switch rear-side connection

10 mm<sup>2</sup> - 16 mm<sup>2</sup> (1x) at box terminal

16 mm<sup>2</sup> (1x) at tunnel terminal

Terminal capacity (aluminum solid conductor/cable)

16 mm<sup>2</sup> (1x) at tunnel terminal

Terminal capacity (copper stranded conductor/cable)

25 mm<sup>2</sup> - 185 mm<sup>2</sup> (1x) direct at switch rear-side connection

25 mm<sup>2</sup> - 185 mm<sup>2</sup> (1x) at 1-hole tunnel terminal

25 mm<sup>2</sup> - 185 mm<sup>2</sup> (1x) at box terminal

25 mm<sup>2</sup> - 70 mm<sup>2</sup> (2x) at box terminal

25 mm<sup>2</sup> - 70 mm<sup>2</sup> (2x) direct at switch rear-side connection

Terminal capacity (aluminum stranded conductor/cable)

25 mm<sup>2</sup> - 185 mm<sup>2</sup> (1x) at tunnel terminal

Handle type

Rocker lever

Short delay current setting (I<sub>sd</sub>) - max

2500 A

Short delay current setting (I<sub>sd</sub>) - min

250 A

Instantaneous current setting (I<sub>i</sub>) - max

3000 A

Instantaneous current setting (I<sub>i</sub>) - min

3000 A

Number of operations per hour - max

120

Overload current setting (I<sub>r</sub>) - max

250 A

Overload current setting (I<sub>r</sub>) - min

125 A

Overload current setting (I<sub>r</sub>)

80 A - 160 A

Rated short-circuit breaking capacity I<sub>cs</sub> (IEC/EN 60947) at 230 V, 50/60 Hz

85 kA

Rated short-circuit breaking capacity I<sub>cs</sub> (IEC/EN 60947) at 400/415 V, 50/60 Hz

50 kA

Rated short-circuit breaking capacity I<sub>cs</sub> (IEC/EN 60947) at 440 V, 50/60 Hz

35 kA

Rated short-circuit breaking capacity I<sub>cs</sub> (IEC/EN 60947) at 525 V, 50/60 Hz

25 kA

Rated short-circuit breaking capacity  $I_{cs}$  (IEC/EN 60947) at 690 V, 50/60 Hz

5 kA

Rated short-circuit making capacity  $I_{cm}$  at 400/415 V, 50/60 Hz

105 kA

Rated short-circuit making capacity  $I_{cm}$  at 440 V, 50/60 Hz

74 kA

Rated short-circuit making capacity  $I_{cm}$  at 525 V, 50/60 Hz

53 kA

Rated short-circuit making capacity  $I_{cm}$  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  $I_{cm}$  at 240 V, 50/60 Hz

187 kA

Rated impulse withstand voltage ( $U_{imp}$ ) at auxiliary contacts

6000 V

Rated impulse withstand voltage ( $U_{imp}$ ) at main contacts

8000 V

Rated insulation voltage ( $U_i$ )

1000 V AC



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