

# Eaton 147393

Catalog Number: 147393

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 4p, 160A, box terminals



Photo is representative

## General specifications

Product Name	Catalog Number
Eaton Moeller series NZM molded case circuit breaker thermo-magnetic	147393
	Model Code
	NZMN2-4-A160-BT
EAN	Product Length/Depth
4015081438938	149 mm
Product Height	Product Width
184 mm	140 mm
Product Weight	Compliances
3.523 kg	RoHS conform
Certifications	
IEC/EN 60947	
IEC	

## 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<sub>cn</sub>)

Rated current = rated uninterrupted current: 160 A

Set value in neutral conductor is synchronous with set value I<sub>r</sub> of main pole.

## Application

Use in unearthed supply systems at 690 V

## Amperage Rating

160 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.

### 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

## 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-nzm-mccb-characteristic-curve-050.eps](#)

[eaton-circuit-breaker-characteristic-power-defense-mccb-characteristic-curve-036.eps](#)

## Drawings

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

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

## Installation videos

[The new digital NZM Range](#)

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

## mCAD model

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

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

## 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

Fixed

DIN rail (top hat rail) mounting optional

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

38.4 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

IP66 (with door coupling rotary handle)

IP40 (with insulating surround)

#### 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)

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

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

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

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

#### Lifespan, electrical

10000 operations at 400 V AC-1

6500 operations at 400 V AC-3

5000 operations at 690 V AC-3

10000 operations at 415 V AC-1

6500 operations at 415 V AC-3

7500 operations at 690 V AC-1

#### 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)

160 A

#### Power loss

38.4 W

#### Release system

Thermomagnetic 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 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)

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

M8 at rear-side screw connection

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

#### Terminal capacity (copper solid conductor/cable)

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

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

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> - 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

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

#### 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

0 A

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

0 A

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

10 A

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

6 A

Number of operations per hour - max

120

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

160 A

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

125 A

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

125 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<sub>cs</sub> (IEC/EN 60947) at 690 V, 50/60 Hz

5 kA

Rated short-circuit making capacity I<sub>cm</sub> at 400/415 V, 50/60 Hz

105 kA

Rated short-circuit making capacity I<sub>cm</sub> at 440 V, 50/60 Hz

74 kA

Rated short-circuit making capacity I<sub>cm</sub> at 525 V, 50/60 Hz

53 kA

Rated short-circuit making capacity I<sub>cm</sub> 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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