

# Eaton 147391

Catalog Number: 147391

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 3p, 160A, 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	147391
	<b>Model Code</b>
	NZMN2-VE160-BT
<b>EAN</b>	<b>Product Length/Depth</b>
4015081438914	149 mm
<b>Product Height</b>	<b>Product Width</b>
184 mm	105 mm
<b>Product Weight</b>	<b>Compliances</b>
2.942 kg	RoHS conform
<b>Certifications</b>	
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  $I_{cn}$ )

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

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

Adjustable delay time  $t_{sd}$

$i^2t$  constant function: fixed

OFF

Rated current = rated uninterrupted current: 160 A

## 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.

## 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](#)

## Certification reports

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

## Characteristic curve

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

[eaton-circuit-breaker-nzm-mccb-characteristic-curve-054.eps](#)

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

## Drawings

[eaton-circuit-breaker-nzm-mccb-dimensions-019.eps](#)

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

[eaton-circuit-breaker-switch-nzm-mccb-3d-drawing.eps](#)

## Installation videos

[The new digital NZM Range](#)

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

## mCAD model

[DA-CD-nzm2\\_3p](#)

[DA-CS-nzm2\\_3p](#)

## Technical data sheets

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

#### 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, constant, to IEC 60068-2-78

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

#### Equipment heat dissipation, current-dependent

21.12 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 (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

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

#### Lifespan, electrical

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

#### 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<sub>n</sub>)

160 A

#### Power loss

21.12 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

1600 A

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

160 A

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

1920 A

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

1920 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

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

M8 at rear-side screw connection

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

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

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

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

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

25 mm<sup>2</sup> - 185 mm<sup>2</sup> (1x) at 1-hole tunnel terminal  
25 mm<sup>2</sup> - 70 mm<sup>2</sup> (2x) at box terminal  
25 mm<sup>2</sup> - 185 mm<sup>2</sup> (1x) direct at switch rear-side connection  
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

1600 A

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

160 A

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

1920 A

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

1920 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

80 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  $I_{cm}$  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



Eaton Corporation plc  
Eaton House  
30 Pembroke Road  
Dublin 4, Ireland  
Eaton.com

© 2024 Eaton. All Rights Reserved.

Eaton is a registered trademark.

All other trademarks are property of their respective owners.



[Eaton.com/socialmedia](https://www.eaton.com/socialmedia)