

# Eaton 191593

Catalog Number: 191593

Eaton Moeller series NZM - Molded Case Circuit Breaker. NZM3 PXR20 circuit breaker, 250A, 3p, plug-in technology, N, 3

## General specifications



Photo is representative

|                                                                 |                      |
|-----------------------------------------------------------------|----------------------|
| Product Name                                                    | Catalog Number       |
| Eaton Moeller series NZM molded case circuit breaker electronic | 191593               |
|                                                                 | Model Code           |
|                                                                 | NZMN3-VX250-SVE      |
| EAN                                                             | Product Length/Depth |
| 4015081921058                                                   | 335 mm               |
| Product Height                                                  | Product Width        |
| 215.2 mm                                                        | 140 mm               |
| Product Weight                                                  | Compliances          |
| 7.72 kg                                                         | RoHS conform         |
| Certifications                                                  |                      |
| IEC                                                             |                      |
| IEC/EN 60947                                                    |                      |

## Type

Circuit breaker

## Special features

LSI overload protection and delayed and non-delayed short-circuit protective device

R.m.s. value measurement and "thermal memory"

USB interface for configuration and test function with Power Xpert

Protection Manager software

Optionally communication-capable with interface module and internal Modbus

RTU module or CAM

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: 250 A

Terminal capacity hint: Up to 240 mm<sup>2</sup> can be connected depending on the cable manufacturer.

## Application

Use in unearthed supply systems at 690 V

## Amperage Rating

250 A

## Voltage rating

690 V - 690 V

## Circuit breaker frame type

NZM3

## Features

Protection unit

## 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\\_N3](#)

## Characteristic curve

[eaton-circuit-breaker-nzm-mccb-characteristic-curve-015.eps](#)

[eaton-circuit-breaker-nzm-mccb-characteristic-curve-029.eps](#)

[eaton-circuit-breaker-nzm-mccb-characteristic-curve-011.eps](#)

## Drawings

[eaton-circuit-breaker-nzm-mccb-dimensions-020.eps](#)

[eaton-circuit-breaker-switch-nzm-mccb-dimensions-016.eps](#)

[eaton-circuit-breaker-nzm-mccb-dimensions-016.eps](#)

## Installation instructions

[IL01219023Z](#)

[eaton-circuit-breaker-basic-unit-bg3-il012100zu.pdf](#)

## Installation videos

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

[The new digital NZM Range](#)

## Technical data sheets

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

Motor drive optional

#### Accessories required

NZM3-XSVS

#### 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

Plug-in unit

Built-in device plug-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

18.75 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

Other

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)

IP00 (terminations, phase isolator and strip terminal)

IP10 (tunnel terminal)

Number of poles

Three-pole

Terminal capacity (copper strip)

10 segments of 50 mm x 1 mm (2x) at rear-side width extension

Max. 10 segments of 24 mm x 1 mm + 5 segments of 24 mm x 1 mm

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

Min. 6 segments of 16 mm x 0.8 mm at rear-side connection (punched)

Max. 10 segments of 32 mm x 1 mm + 5 segments of 32 mm x 1 mm at rear-side connection (punched)

#### Lifespan, electrical

5000 operations at 415 V AC-1

3000 operations at 690 V AC-1

5000 operations at 400 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 (In)

250 A

#### Release system

Electronic 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 delayed setting - max

2500 A

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

200 A

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

4500 A

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

500 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)

M10 at rear-side screw 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

Max. 30 mm x 10 mm + 30 mm x 5 mm direct at switch rear-side connection

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

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

16 mm<sup>2</sup> (2x) direct at switch rear-side connection  
16 mm<sup>2</sup> (2x) at box terminal  
16 mm<sup>2</sup> (1x) direct at switch rear-side connection  
300 mm<sup>2</sup> (2x) at rear-side width extension

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

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

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

16 mm<sup>2</sup> - 185 mm<sup>2</sup> (1x) at 1-hole tunnel terminal  
35 mm<sup>2</sup> - 240 mm<sup>2</sup> (1x) at box terminal  
25 mm<sup>2</sup> - 120 mm<sup>2</sup> (2x) at box terminal  
25 mm<sup>2</sup> - 240 mm<sup>2</sup> (2x) direct at switch rear-side connection  
25 mm<sup>2</sup> - 240 mm<sup>2</sup> (1x) 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  
50 mm<sup>2</sup> - 240 mm<sup>2</sup> (1x) at 2-hole tunnel terminal  
50 mm<sup>2</sup> - 240 mm<sup>2</sup> (2x) at 2-hole tunnel terminal

#### Handle type

Rocker lever

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

10 A

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

2 A

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

18 A

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

2 A

#### Number of operations per hour - max

60

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

250 A

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

100 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  $I_{cs}$  (IEC/EN 60947) at 525 V, 50/60 Hz

13 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

110 kA

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

77 kA

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

55 kA

Rated short-circuit making capacity  $I_{cm}$  at 690 V, 50/60 Hz

40 kA

Standard terminals

Screw terminal

Optional terminals

Box terminal. Connection on rear. 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 ( $U_i$ )

690 V AC