

# Eaton 191641

Catalog Number: 191641

Eaton Moeller series NZM - Molded Case Circuit Breaker. NZM2 PXR20 circuit breaker, 250A, 4p, box terminal

General specifications



| Product Name                                                    | Catalog Number       |
|-----------------------------------------------------------------|----------------------|
| Eaton Moeller series NZM molded case circuit breaker electronic | 191641               |
|                                                                 | EAN<br>4015081921539 |
| Product Length/Depth                                            | Product Height       |
| 190 mm                                                          | 160 mm               |
| Product Width                                                   | Product Weight       |
| 145 mm                                                          | 2.9 kg               |
| Compliances                                                     | Certifications       |
| RoHS conform                                                    | IEC/EN 60947<br>IEC  |

## Product specifications

### 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  $I_{cn}$ )  
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

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

## 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-059.eps](#)

[eaton-circuit-breaker-nzm-mccb-characteristic-curve-060.eps](#)

### Declarations of conformity

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

### Drawings

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

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

### Installation instructions

[eaton-circuit-breakers-nzmb-nzmn-basic-unit-bg2-instruction-leaflet-il012099zu.pdf](#)

### Installation videos

[The new digital NZM Range](#)

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

### Technical data sheets

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

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

Fixed

Built-in device fixed built-in technique

DIN rail (top hat rail) mounting optional

#### 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

IP66 (with door coupling rotary handle)

IP40 (with insulating surround)

Degree of protection (terminations)

IP10 (tunnel terminal)

IP00 (terminations, phase isolator and strip terminal)

Number of poles

Four-pole

Terminal capacity (copper strip)

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

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 400 V AC-1

7500 operations at 690 V AC-1

10000 operations at 415 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

**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**

200 A

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

3000 A

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

500 A

**Terminal capacity (control cable)**

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

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

**Terminal capacity (copper busbar)**

M8 at rear-side screw connection

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

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

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

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

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

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

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> - 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 box 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) at 1-hole tunnel 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

10 A

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

2 A

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

12 A

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

2 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

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<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  $I_{cm}$  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

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 ( $U_i$ )

690 V AC



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