

# Eaton 191451

Catalog Number: 191451

NZMH4-AX1600. NZM4 PXR10 circuit breaker, 1600A, 3p, screw terminal



## General specifications

### Product Name

Eaton Moeller series NZM molded case  
circuit breaker electronic

### Catalog Number

191451

### Model Code

NZMH4-AX1600

### EAN

4015081919635

### Product Length/Depth

375 mm

### Product Height

170 mm

### Product Width

210 mm

### Product Weight

19 kg

### Certifications

IEC/EN 60947  
IEC

## Product specifications

### Rated operational current for specified heat dissipation (In)

1600 A

### 10.11 Short-circuit rating

Is the panel builder's responsibility. The specifications for the switchgear must be observed.

### Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 690 V, 50/60 Hz

37 kA

### 10.4 Clearances and creepage distances

Meets the product standard's requirements.

### 10.12 Electromagnetic compatibility

Is the panel builder's responsibility. The specifications for the switchgear must be observed.

### Mounting Method

Built-in device fixed built-in technique

Fixed

### Amperage Rating

1600 A

### 10.2.5 Lifting

Does not apply, since the entire switchgear needs to be evaluated.

### Terminal capacity (copper strip)

10 segments of 80 mm x 1 mm (2x) at rear-side width extension

Min. 6 segments of 16 mm x 0.8 mm at flat conductor terminal

Max. 10 segments of 50 mm x 1 mm (2x) at rear-side connection (punched)

Max. 10 segments of 32 mm x 1 mm (2x) at flat conductor terminal

Min. 5 segments of 25 mm x 1 mm at rear-side connection (punched)

10 segments of 50 mm x 1 mm (2x) at 1-hole module plate

### Handle type

Rocker lever

### 10.2.3.1 Verification of thermal stability of enclosures

Meets the product standard's requirements.

### Ambient storage temperature - min

40 °C

### Protection against direct contact

Finger and back-of-hand proof to DIN EN 50274/VDE 0106 part

## 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](#)

### Drawings

[eaton-circuit-breaker-nzm-mccb-dimensions-022.eps](#)

### Installation instructions

[IL012101ZU](#)

### Installation videos

[The new digital NZM Range](#)

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

### mCAD model

[DA-CS-nzm4\\_3p](#)

[DA-CD-nzm4\\_3p](#)

### Technical data sheets

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

#### Terminal capacity (copper busbar)

Max. 50 mm x 10 mm (2x) direct at switch rear-side connection

Min. 25 mm x 5 mm direct at switch rear-side connection

Min. 25 mm x 5 mm at rear-side 1-hole module plate

Max. 50 mm x 10 mm (2x) at rear-side 1-hole module plate

Max. 80 mm x 10 mm (2x) at rear-side width extension

Min. 60 mm x 10 mm at rear-side width extension

M10 at rear-side screw connection

50 mm x 10 mm (2x) at rear-side 2-hole module plate

#### 10.8 Connections for external conductors

Is the panel builder's responsibility.

#### 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  $I_{cn}$ )

Overload and short-circuit protection LI R.m.s. value measurement and "thermal memory" USB interface for configuration and test function with Power Xpert Protection

Manager software Rated current = rated uninterrupted current:

1600 A

#### Ambient operating temperature - max

70 °C

#### Position of connection for main current circuit

Front side

#### Rated insulation voltage ( $U_i$ )

690 V AC

#### Climatic proofing

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

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

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

50 mm<sup>2</sup> - 185 mm<sup>2</sup> (4x) direct at switch rear-side connection

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

#### Features

Protection unit

Motor drive optional

#### Lifespan, electrical

20000 operations at 690 V AC-1

3000 operations at 400 V AC-1

3000 operations at 415 V AC-1

#### Electrical connection type of main circuit

Screw connection

#### Short-circuit total breaktime

< 25 ms ( ≤ 415 V); < 35 ms (> 415 V)

#### Rated impulse withstand voltage (U<sub>imp</sub>) at main contacts

8000 V

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

50 kA

#### 10.9.3 Impulse withstand voltage

Is the panel builder's responsibility.

#### Utilization category

A (IEC/EN 60947-2)

#### Number of poles

Three-pole

#### Ambient operating temperature - min

-25 °C

#### 10.6 Incorporation of switching devices and components

Does not apply, since the entire switchgear needs to be evaluated.

#### 10.5 Protection against electric shock

Does not apply, since the entire switchgear needs to be evaluated.

#### 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)

#### Equipment heat dissipation, current-dependent

284 W

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

3200 A

#### 10.13 Mechanical function

The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

#### 10.2.6 Mechanical impact

Does not apply, since the entire switchgear needs to be evaluated.

#### 10.9.4 Testing of enclosures made of insulating material

Is the panel builder's responsibility.

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

63 kA

## Application

Use in unearthed supply systems at 525 V

## 10.3 Degree of protection of assemblies

Does not apply, since the entire switchgear needs to be evaluated.

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

275 kA

Rated short-circuit breaking capacity  $I_{cs}$  (IEC/EN 60947) at 440 V, 50/60 Hz

50 kA

Degree of protection (IP), front side

IP66 (with door coupling rotary handle)

IP40 (with insulating surround)

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

143 kA

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

100 kA

Instantaneous current setting ( $I_i$ ) - max

38400 A

Overload current setting ( $I_r$ ) - min

640 A

Short delay current setting ( $I_{sd}$ ) - min

0 A

Number of auxiliary contacts (normally closed contacts)

0

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.

Lifespan, mechanical

10000 operations

Overload current setting ( $I_r$ ) - max

1600 A

Voltage rating

690 V - 690 V

Terminal capacity (copper solid conductor/cable)

95 mm<sup>2</sup> - 300 mm<sup>2</sup> (2x) at rear-side 1-hole module plate

300 mm<sup>2</sup> (4x) at rear-side width extension  
120 mm<sup>2</sup> - 300 mm<sup>2</sup> (1x) at rear-side 1-hole module plate  
50 mm<sup>2</sup> - 240 mm<sup>2</sup> (4x) at 4-hole tunnel terminal  
95 mm<sup>2</sup> - 240 mm<sup>2</sup> (6x) at rear-side width extension  
95 mm<sup>2</sup> - 185 mm<sup>2</sup> (2x) at rear-side 2-hole module plate  
35 mm<sup>2</sup> - 185 mm<sup>2</sup> (4x) at rear-side 2-hole module plate

#### Degree of protection (terminations)

IP00 (terminations, phase isolator and strip terminal)  
IP10 (tunnel terminal)

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

50 mm<sup>2</sup> - 240 mm<sup>2</sup> (4x) at 4-hole tunnel terminal

#### 10.9.2 Power-frequency electric strength

Is the panel builder's responsibility.

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

3200 A

#### Degree of protection

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

#### Overvoltage category

III

#### Rated short-time withstand current (t = 1 s)

19.2 kA

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

0 A

#### Rated impulse withstand voltage (U<sub>imp</sub>) at auxiliary contacts

6000 V

#### Number of auxiliary contacts (change-over contacts)

0

#### Rated short-time withstand current (t = 0.3 s)

19.2 kA

#### Ambient storage temperature - max

70 °C

#### Release system

Electronic release

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

50 kA

#### Optional terminals

Connection on rear. Strip terminal. Tunnel terminal

## Pollution degree

3

## 10.7 Internal electrical circuits and connections

Is the panel builder's responsibility.

## 10.10 Temperature rise

The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.

## Functions

System and cable protection

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

19200 A

## Rated short-circuit making capacity Icm at 400/415 V, 50/60 Hz

187 kA

## Standard terminals

Screw terminal

## Type

Circuit breaker

## 10.2.2 Corrosion resistance

Meets the product standard's requirements.

## 10.2.4 Resistance to ultra-violet (UV) radiation

Meets the product standard's requirements.

## 10.2.7 Inscriptions

Meets the product standard's requirements.

## Rated short-circuit making capacity Icm at 440 V, 50/60 Hz

187 kA

## Number of auxiliary contacts (normally open contacts)

0

## Isolation

300 V AC (between the auxiliary contacts)

500 V AC (between auxiliary contacts and main contacts)

## Number of operations per hour - max

60

## Circuit breaker frame type

NZM4

## Direction of incoming supply

As required

## Shock resistance

15 g (half-sinusoidal shock 11 ms)



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