Specifications

# Eaton 193308

## Catalog Number: 193308

Eaton Moeller series NZM - Molded Case Circuit Breaker. NZM2 PXR20 circuit breaker, 160A, 4p, Screw terminal, earth-fault protection, H, 2




### General specifications

**Product Name**
Eaton Moeller series NZM molded case circuit breaker electronic

**Catalog Number**
193308

**EAN**
9010238016538

**Product Length/Depth**
190 mm

**Product Height**
160 mm

**Product Width**
145 mm

**Product Weight**
2.9 kg

**Compliances**
RoHS conform

**Certifications**
IEC
IEC/EN 60947

Powering Business Worldwide

## 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 Icn)
Rated current = rated uninterrupted current: 160 A

### Amperage Rating

160 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 devices.

### 10.11 Short-circuit rating

## 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-010.eps

eaton-circuit-breaker-nzm-mccb-characteristic-curve-014.eps

### Drawings

eaton-circuit-breaker-nzm-mccb-dimensions-035.eps

eaton-circuit-breaker-switch-nzm-mccb-dimensions-017.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

### mCAD model

DA-CS-nzm2_4p

DA-CD-nzm2_4p

### Technical data sheets

eaton-nzm-technical-information-sheet

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

Built-in device fixed built-in technique

Fixed

DIN rail (top hat rail) mounting optional

### 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

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

Screw connection

### 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)

Min. 2 segements 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. 8 segments of 24 mm x 1 mm (2x) 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)

### Lifespan, electrical

10000 operations at 400 V AC-1

6500 operations at 415 V AC-3

7500 operations at 690 V AC-1

5000 operations at 690 V AC-3

10000 operations at 415 V AC-1

6500 operations at 400 V AC-3

### Functions

Earth-fault protection

Systems, cable, selectivity and generator protection

Integrated earth fault protection

### Earth-fault current setting (Ig) - max

160 x In

### Shock resistance

20 g (half-sinusoidal shock 20 ms)

### Earth-fault current setting (Ig) - min

32 x In

### Position of connection for main current circuit

Front side

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

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

320 A

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

2880 A

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

320 A

### Terminal capacity (control cable)

0.75 $mm^2$ - 1.5 $mm^2$ (2x)

0.75 $mm^2$ - 2.5 $mm^2$ (1x)

### 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 mm² - 16 mm² (2x) at box terminal

6 mm² - 16 mm² (2x) direct at switch rear-side connection

10 mm² - 16 mm² (1x) direct at switch rear-side connection

10 mm² - 16 mm² (1x) at box terminal

16 mm² (1x) at tunnel terminal

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

16 mm² (1x) at tunnel terminal

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

25 mm² - 185 mm² (1x) at box terminal

25 mm² - 70 mm² (2x) direct at switch rear-side connection

25 mm² - 70 mm² (2x) at box terminal

25 mm² - 185 mm² (1x) at 1-hole tunnel terminal

25 mm² - 185 mm² (1x) direct at switch rear-side connection

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

25 mm² - 185 mm² (1x) at tunnel terminal

### Handle type

Rocker lever

### Short delay current setting (Isd) - max

10 A

### Short delay current setting (Isd) - min

2 A

### Instantaneous current setting (Ii) - max

18 A

### Instantaneous current setting (Ii) - min

2 A

### Number of operations per hour - max

120

### Overload current setting (Ir) - max

160 A

### Overload current setting (Ir) - min

64 A

### Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 230 V, 50/60 Hz

150 kA

### Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 400/415 V, 50/60 Hz

150 kA

### Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 440

V, 50/60 Hz

130 kA

Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 525 V, 50/60 Hz

37.5 kA

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

3 kA

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

330 kA

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

286 kA

Rated short-circuit making capacity Icm at 525 V, 50/60 Hz

105 kA

Rated short-circuit making capacity Icm 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 Icm at 240 V, 50/60 Hz

330 kA

Rated impulse withstand voltage (Uimp) at auxiliary contacts

6000 V

Rated impulse withstand voltage (Uimp) at main contacts

8000 V

Rated insulation voltage (Ui)

690 V AC

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