Specifications

# Eaton 193290

## Catalog Number: 193290

Eaton Moeller series NZM - Molded Case Circuit Breaker. NZM2 PXR20 circuit breaker, 160A, 3p, Screw terminal, earth-fault protection, N, 2




### General specifications

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

**Catalog Number**
193290

**EAN**
9010238016354

**Product Length/Depth**
190 mm

**Product Height**
160 mm

**Product Width**
115 mm

**Product Weight**
2.3 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

### 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

## 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-060.eps

eaton-circuit-breaker-nzm-mccb-characteristic-curve-059.eps

### Declarations of conformity

DA-DC-03_N2

### Drawings

eaton-circuit-breaker-nzm-mccb-dimensions-019.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_3p

DA-CD-nzm2_3p

### 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

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

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

Direction of incoming supply

As required

Electrical connection type of main circuit

Screw connection

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)

IP00 (terminations, phase isolator and strip terminal)

IP10 (tunnel terminal)

Number of poles

Three-pole

Terminal capacity (copper strip)

Max. 10 segments of 16 mm x 0.8 mm at box terminal

Max. 8 segments of 24 mm x 1 mm (2x) at box terminal

Min. 2 segments of 9 mm x 0.8 mm at box terminal

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

Min. 2 segements of 16 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

6500 operations at 400 V AC-3

7500 operations at 690 V AC-1

10000 operations at 415 V AC-1

5000 operations at 690 V AC-3

### Functions

Systems, cable, selectivity and generator protection

Earth-fault 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 $mm^2$ - 2.5 $mm^2$ (1x)

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

### Terminal capacity (copper busbar)

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

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

M8 at rear-side screw connection

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

16 mm² (1x) at tunnel terminal

10 mm² - 16 mm² (1x) at box terminal

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

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

6 mm² - 16 mm² (2x) at box terminal

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

16 mm² (1x) at tunnel terminal

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

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

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

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

25 mm² - 185 mm² (1x) at box terminal

25 mm² - 70 mm² (2x) at box terminal

### 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

85 kA

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

50 kA

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

V, 50/60 Hz

35 kA

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

25 kA

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

5 kA

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

105 kA

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

74 kA

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

53 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

187 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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