

# Eaton 191580

Catalog Number: 191580

Eaton Moeller series NZM - Molded Case Circuit Breaker. NZM3 PXR20 circuit breaker, 220A, 3p, withdrawable unit, N, 3

## General specifications



Photo is representative

Product Name	Catalog Number
Eaton Moeller series NZM - Molded case circuit breaker	191580
Model Code	NZMN3-MX220-AVE
EAN	Product Length/Depth
4015081920921	260 mm
Product Height	Product Width
346 mm	185 mm
Product Weight	Compliances
17.887 kg	RoHS conform
Certifications	
IEC/EN 60947	
IEC	

## defaultTaxonomyAttributeLabel

### Type

Circuit breaker

### Special features

IEC/EN 60947-2 with  
characteristic conforming to

IEC/EN 60947-4-1 with  
phase failure sensitivity

The circuit-breaker fulfills all  
requirements for AC-3  
switching category.

R.m.s. value measurement  
and “thermal memory”

Adjustable time delay setting  
to overcome current peaks tr  
at  $6 \times I_r$  also infinity (without  
overload releases)

All AC-3 rating data applies  
to direct switching by the  
circuit-breaker under normal  
operating conditions. If, for  
example, a contactor takes  
over AC-3 switching under  
normal operating conditions,  
the full rated uninterrupted  
current applies to the circuit-  
breaker,  $I_n = I_u$ .

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

### Application

Use in unearthing supply systems at 690 V

### Amperage Rating

220 A

## 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](#)

### 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-switch-nzm-mccb-dimensions-016.eps](#)

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

[eaton-general-ie-ready-dilm-contactor-standards.eps](#)

### Installation instructions

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

### Installation videos

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

[The new digital NZM Range](#)

### mCAD model

[DA-CD-nzm3\\_xave](#)

[DA-CS-nzm3\\_xave](#)

### Technical data sheets

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

**Voltage rating**

690 V - 690 V

**Circuit breaker frame type**

NZM3

**Accessories required**

NZM3-XAVS

#### **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.

Fitted with:

Thermal protection

Pollution degree

3

Mounting Method

Built-in device slide-in technique (withdrawable)

Withdrawable

Climatic proofing

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

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

Equipment heat dissipation, current-dependent

14.52 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

Protection against direct contact

Finger and back-of-hand proof to VDE 0106 part 100

Rated insulation voltage (Ui)

690 V

Rated operating power at AC-3, 230 V

55 kW

Rated operating power at AC-3, 400 V

110 kW

Switch off technique

Electronic

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

Other

Lifespan, mechanical

15000 operations

Overvoltage category

III

Rated operational current

196 A (400 V AC-3)

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

Three-pole

## Terminal capacity (copper strip)

Max. 10 segments of 24 mm x 1 mm + 5 segments of 24 mm x 1 mm at box terminal

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

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)

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

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

## Lifespan, electrical

2000 operations at 415 V AC-3

5000 operations at 400 V AC-1

2000 operations at 690 V AC-3

3000 operations at 690 V AC-1

5000 operations at 415 V AC-1

2000 operations at 400 V AC-3

## Functions

Phase failure sensitive

Motor protection

## Shock resistance

20 g (half-sinusoidal shock 20 ms)

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

220 A

## 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 non-delayed setting - max

3960 A

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

440 A

## Handle type

Rocker lever

## Instantaneous current setting (li) - max

18 A

## Instantaneous current setting (li) - min

2 A

Number of operations per hour - max

60

Overload current setting (Ir) - max

220 A

Overload current setting (Ir) - min

88 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

235 kA

Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 440 V, 50/60 Hz

235 kA

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

13 kA

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

5 kA

Standard terminals

Screw terminal

Optional terminals

Box terminal. Connection on rear. Tunnel terminal

Release system

Electronic release

Short-circuit total breaktime

< 10 ms

Terminal capacity (aluminum solid conductor/cable)

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

Terminal capacity (aluminum stranded conductor/cable)

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

25 mm<sup>2</sup> - 185 mm<sup>2</sup> (1x) at tunnel terminal

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)

Max. 10 mm x 50 mm (2x) at rear-side width extension

Min. 20 mm x 5 mm direct at switch rear-side connection

M10 at rear-side screw connection

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

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

300 mm<sup>2</sup> (2x) at rear-side width extension

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

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

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

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

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

16 mm<sup>2</sup> - 185 mm<sup>2</sup> (1x) at 1-hole tunnel 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

35 mm<sup>2</sup> - 240 mm<sup>2</sup> (1x) at box terminal

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

235 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

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

187 kA

**Rated impulse withstand voltage (Uiimp) at auxiliary contacts**

6000 V

**Rated impulse withstand voltage (Uiimp) at main contacts**

8000 V



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