

# Eaton 191677

Catalog Number: 191677

Eaton Moeller series NZM - Molded Case Circuit Breaker. NZM2 PXR20 circuit breaker, 220A, 3p, plug-in technology, H, 2



## General specifications

Product Name	Catalog Number
Eaton Moeller series NZM molded case circuit breaker electronic	191677
	Model Code
	NZMH2-MX220-SVE
EAN	Product Length/Depth
4015081921898	190 mm
Product Height	Product Width
160 mm	115 mm
Product Weight	Compliances
2.3 kg	RoHS conform
Certifications	
IEC	
IEC/EN 60947	

## 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  $I_r$  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

## Application

Use in unearthed supply systems at 690 V

## Amperage Rating

220 A

## Voltage rating

690 V - 690 V

## Circuit breaker frame type

## Brochures

[eaton-feerum-the-whole-grain-solution-success-story-en-us.pdf](#)

[eaton-digital-nzm-brochure-br013003en-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-010.eps](#)

[eaton-circuit-breaker-nzm-mccb-characteristic-curve-014.eps](#)

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

## Drawings

[eaton-circuit-breaker-adapter-nzm-mccb-dimensions-002.eps](#)

[eaton-circuit-breaker-nzm-mccb-dimensions-019.eps](#)

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

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

## Installation instructions

[IL01219023Z](#)

[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\\_xsve](#)

[DA-CD-nzm2\\_xsve](#)

## Technical data sheets

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

NZM2

#### Accessories required

NZM2-XSVS

#### 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 plug-in technique

Plug-in unit

#### Climatic proofing

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

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

#### Equipment heat dissipation, current-dependent

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

IP20

Direction of incoming supply

As required

Electrical connection type of main circuit

Other

Lifespan, mechanical

20000 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)

IP00 (terminations, phase isolator and strip terminal)

IP10 (tunnel terminal)

Number of poles

Three-pole

Terminal capacity (copper strip)

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

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 segments of 16 mm x 0.8 mm at rear-side connection  
(punched)

#### Lifespan, electrical

10000 operations at 400 V AC-1  
7500 operations at 690 V AC-1  
6500 operations at 415 V AC-3  
6500 operations at 400 V AC-3  
10000 operations at 415 V AC-1  
5000 operations at 690 V AC-3

#### Functions

Motor protection  
Phase failure sensitive

#### Shock resistance

20 g (half-sinusoidal shock 20 ms)

#### Rated operational current for specified heat dissipation (I<sub>n</sub>)

220 A

#### 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 non-delayed setting - max

3080 A

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

440 A

#### Handle type

Rocker lever

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

14 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

220 A

#### Overload current setting (I<sub>r</sub>) - min

88 A

Rated short-circuit breaking capacity  $I_{cs}$  (IEC/EN 60947) at 230 V, 50/60 Hz

150 kA

Rated short-circuit breaking capacity  $I_{cs}$  (IEC/EN 60947) at 400/415 V, 50/60 Hz

130 kA

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

130 kA

Rated short-circuit breaking capacity  $I_{cs}$  (IEC/EN 60947) at 525 V, 50/60 Hz

37.5 kA

Rated short-circuit breaking capacity  $I_{cs}$  (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)

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

#### 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)

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)

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) direct at switch rear-side connection

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) at box terminal

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

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  
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) direct at switch rear-side connection

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

Rated short-circuit making capacity I<sub>cm</sub> at 400/415 V, 50/60 Hz  
330 kA

Rated short-circuit making capacity I<sub>cm</sub> at 440 V, 50/60 Hz  
286 kA

Rated short-circuit making capacity I<sub>cm</sub> at 525 V, 50/60 Hz  
105 kA

Rated short-circuit making capacity I<sub>cm</sub> at 690 V, 50/60 Hz  
40 kA

Rated short-circuit making capacity I<sub>cm</sub> at 240 V, 50/60 Hz  
330 kA

Rated impulse withstand voltage (U<sub>imp</sub>) at auxiliary contacts  
6000 V

Rated impulse withstand voltage (U<sub>imp</sub>) at main contacts  
8000 V

Power loss  
39.93 W



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