

# Eaton 168907

Catalog Number: 168907

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 3p, 250A, withdrawable unit, H3-VE250-SVE



Photo is representative

## General specifications

<b>Product Name</b>	<b>Catalog Number</b>
Eaton Moeller series NZM molded case circuit breaker electronic	168907
	<b>Model Code</b>
	NZMH3-VE250-SVE
<b>EAN</b>	<b>Product Length/Depth</b>
4015081654024	335 mm
<b>Product Height</b>	<b>Product Width</b>
215.2 mm	140 mm
<b>Product Weight</b>	<b>Compliances</b>
7.72 kg	RoHS conform
<b>Certifications</b>	
IEC IEC/EN 60947	

## Type

Circuit breaker

## 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  $I_{cn}$ )  
R.m.s. value measurement and "thermal memory"  
Adjustable time delay setting to overcome current peaks  $I_{tr}$  at  $6 \times I_r$  also infinity (without overload releases)  
Adjustable delay time  $t_{sd}$   
Rated current = rated uninterrupted current: 250 A  
Terminal capacity hint: Up to 240 mm<sup>2</sup> can be connected depending on the cable manufacturer.

## Application

Use in unearthed supply systems at 690 V

## Amperage Rating

250 A

## Voltage rating

690 V - 690 V

## Circuit breaker frame type

NZM3

## Features

Motor drive optional  
Protection unit

## Accessories required

NZM3-XSVS

## 10.10 Temperature rise

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

## 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-020.eps](#)  
[eaton-circuit-breaker-nzm-mccb-dimensions-016.eps](#)  
[eaton-circuit-breaker-switch-nzm-mccb-dimensions-016.eps](#)

## eCAD model

[DA-CE-ETN.NZMH3-VE250-SVE](#)

## Installation instructions

[IL01219023Z](#)

## Installation videos

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

## mCAD model

[nzmh3\\_me220\\_sve.dwg](#)  
[nzmh3\\_me220\\_sve.stp](#)

## Technical data sheets

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

#### 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

Plug-in unit

Built-in device plug-in technique

#### Climatic proofing

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

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

#### Equipment heat dissipation, current-dependent

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

#### Direction of incoming supply

As required

#### Electrical connection type of main circuit

Screw connection

#### Lifespan, mechanical

15000 operations

#### Overvoltage category

III

#### 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)

10 segments of 50 mm x 1 mm (2x) at rear-side width extension  
Min. 6 segments of 16 mm x 0.8 mm at rear-side connection (punched)  
Max. 8 segments of 24 mm x 1 mm (2x) at box terminal  
Min. 6 segments of 16 mm x 0.8 mm at box terminal  
Max. 10 segments of 24 mm x 1 mm + 5 segments of 24 mm x 1 mm  
Max. 10 segments of 32 mm x 1 mm + 5 segments of 32 mm x 1 mm at rear-side connection (punched)

#### Lifespan, electrical

5000 operations at 415 V AC-1  
2000 operations at 400 V AC-3  
3000 operations at 690 V AC-1  
2000 operations at 690 V AC-3  
5000 operations at 400 V AC-1  
2000 operations at 415 V AC-3

## Functions

Systems, cable, selectivity and generator protection

## Shock resistance

20 g (half-sinusoidal shock 20 ms)

## Position of connection for main current circuit

Front side

## Rated operational current for specified heat dissipation ( $I_n$ )

250 A

## Release system

Electronic release

## Short-circuit total breaktime

< 10 ms

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

3.3 kA

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

3.3 kA

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

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

M10 at rear-side screw connection

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

## Terminal capacity (copper solid conductor/cable)

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

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

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

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

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

## Terminal capacity (aluminum solid conductor/cable)

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

## Terminal capacity (copper stranded conductor/cable)

25 mm<sup>2</sup> - 120 mm<sup>2</sup> (2x) at box terminal

25 mm<sup>2</sup> - 240 mm<sup>2</sup> (1x) direct at switch rear-side connection

25 mm<sup>2</sup> - 240 mm<sup>2</sup> (2x) direct at switch rear-side connection

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

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

#### Handle type

Rocker lever

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

2500 A

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

250 A

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

2750 A

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

500 A

#### Number of operations per hour - max

60

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

250 A

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

125 A

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

150 kA

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

150 kA

#### Rated short-circuit breaking capacity I<sub>cs</sub> (IEC/EN 60947) at 440 V, 50/60 Hz

130 kA

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

33 kA

#### Rated short-circuit breaking capacity I<sub>cs</sub> (IEC/EN 60947) at 690 V, 50/60 Hz

9 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

143 kA

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

70 kA

#### Standard terminals

Screw terminal

#### Optional terminals

Box terminal. Connection on rear. Tunnel terminal

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

Rated insulation voltage (U<sub>i</sub>)

1000 V AC



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