

# Eaton 284468

Catalog Number: 284468

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 3p, 450A, NZMN3-ME450



Photo is representative

## General specifications

Product Name	Catalog Number
Eaton Moeller series NZM molded case circuit breaker electronic	284468
	Model Code
	NZMN3-ME450
EAN	Product Length/Depth
4015082844684	166 mm
Product Height	Product Width
275 mm	140 mm
Product Weight	Compliances
7.07 kg	RoHS conform
Certifications	
IEC/EN 60947	
IEC	

## Type

Circuit breaker

## Special features

IEC/EN 60947-4-1, IEC/EN 60947-2

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: 450 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

450 A

## Voltage rating

690 V - 690 V

## 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](#)

## Certification reports

[DA-DC-03\\_N3](#)

## Characteristic curve

[eaton-circuit-breaker-nzm-mccb-characteristic-curve-056.eps](#)

[eaton-circuit-breaker-let-through-current-nzm-mccb-characteristic-curve-006.eps](#)

[eaton-circuit-breaker-nzm-mccb-characteristic-curve-017.eps](#)

## Drawings

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

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

[eaton-circuit-breaker-switch-nzm-mccb-3d-drawing-002.eps](#)

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

## eCAD model

[ETN.NZMN3-ME450](#)

[ETN.284468.edz](#)

## Installation instructions

[IL01208009Z](#)

## Installation videos

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

[The new digital NZM Range](#)

## mCAD model

[DA-CD-nzm3\\_3p](#)

[DA-CS-nzm3\\_3p](#)

## Technical data sheets

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

## Wiring diagrams

[eaton-manual-motor-starters-starter-msc-r-reversing-starter-wiring-diagram.eps](#)

[eaton-manual-motor-starters-starter-nzm-mccb-wiring-diagram.eps](#)

## Circuit breaker frame type

NZM3

### 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

Fixed

Built-in device fixed built-in technique

#### Climatic proofing

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

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

#### Equipment heat dissipation, current-dependent

60.75 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

Protection against direct contact

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

Rated insulation voltage (Ui)

1000 V

Rated operating power at AC-3, 230 V

132 kW

Rated operating power at AC-3, 400 V

250 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

Screw connection

Lifespan, mechanical

15000 operations

Overvoltage category

III

Rated operational current

437 A (400 V AC-3)

446 A (690 V AC-3)

Degree of protection (IP), front side

IP40 (with insulating surround)

IP66 (with door coupling rotary handle)

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

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

450 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

5400 A

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

900 A

#### Handle type

Rocker lever

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

6300 A

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

450 A

#### Number of operations per hour - max

60

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

450 A

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

225 A

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

85 kA

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

35 kA

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

35 kA

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

13 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

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

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

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

25 mm<sup>2</sup> - 120 mm<sup>2</sup> (2x) direct at switch rear-side connection

25 mm<sup>2</sup> - 120 mm<sup>2</sup> (1x) direct at switch rear-side connection

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

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

#### 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)

M10 at rear-side screw connection

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

Max. 30 mm x 10 mm + 30 mm x 5 mm direct at switch rear-side 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  
16 mm<sup>2</sup> (1x) direct at switch rear-side connection  
16 mm<sup>2</sup> (2x) direct at switch rear-side connection  
300 mm<sup>2</sup> (2x) at rear-side width extension  
16 mm<sup>2</sup> (2x) at box terminal

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

50 mm<sup>2</sup> - 240 mm<sup>2</sup> (2x) at 2-hole tunnel terminal  
25 mm<sup>2</sup> - 120 mm<sup>2</sup> (2x) at box terminal  
35 mm<sup>2</sup> - 240 mm<sup>2</sup> (1x) at box terminal  
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  
25 mm<sup>2</sup> - 240 mm<sup>2</sup> (1x) 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

35 kA

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

105 kA

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

74 kA

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

53 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

187 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





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Dublin 4, Ireland  
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