Specifications

# Eaton 107650

## Catalog Number: 107650

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 3p, 250A, box terminals, N2-AF250-BT-NA




### General specifications

**Product Name**
Eaton Moeller series NZM molded case circuit breaker thermo-magnetic

**Catalog Number**
107650

**EAN**
4015081073160

**Product Length/Depth**
149 mm

**Product Height**
195 mm

**Product Width**
105 mm

**Product Weight**
2.345 kg

**Compliances**
RoHS conform

**Certifications**
UL/CSA
CSA certified
UL (File No. E31593)
IEC 60947-2
CSA (File No. 22086)
CE marking
CSA-C22.2 No. 5-09
CSA (Class No. 1432-01)
UL (Category Control Number DIVQ)
UL listed
IEC
IEC/EN 60947
UL 489
Specially designed for North America

Powering Business Worldwide

## Product specifications

### 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 Icn)
Rated current = rated uninterrupted current: 250 A
Switches conform to UL/CSA as well as the IEC regulations. IEC switching performance values are contained on the rating plate.
Fixed overload releases Ir

### Application

Branch circuits, feeder circuits
Use in unearthed supply systems at 690 V

### Amperage Rating

250 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 devices.

### 10.11 Short-circuit rating

Is the panel builder's responsibility. The specifications 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-current-nzm-mccb-characteristic-curve-004.eps

eaton-circuit-breaker-nzm-mccb-characteristic-curve-039.eps

eaton-circuit-breaker-nzm-mccb-characteristic-curve-050.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

eaton-circuit-breaker-switch-nzm-mccb-3d-drawing.eps

### Installation videos

Introduction of the new digital circuit breaker NZM

The new digital NZM Range

### mCAD model

DA-CS-nzm2_3p

DA-CD-nzm2_3p

### Technical data sheets

eaton-nzm-technical-information-sheet

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

DIN rail (top hat rail) mounting optional

Built-in device fixed built-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

58.13 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

### Low-voltage HBC fuse - max

355 A gG/gL

### 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

Frame clamp

### Lifespan, mechanical

20000 operations

### Overvoltage category

III

### Rated operational current

250 A (690 V AC-1, making and breaking capacity)
300 A (380/400 V AC-1, making and breaking capacity)
250 A (660-690 V AC-3, making and breaking capacity)
300 A (415 V AC-1, making and breaking capacity)

### 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)

Min. 2 segments of 9 mm x 0.8 mm at box terminal
Max. 10 segments of 16 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)
Max. 10 segments of 16 mm x 0.8 mm at box terminal

### Lifespan, electrical

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

10000 operations at 400 V AC-1

### Functions

System and cable protection

Current limiting circuit breaker

### 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 (In)

250 A

### Power loss

58.1 W

### Release system

Thermomagnetic 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 non-delayed setting - max

2500 A

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

1500 A

### Terminal capacity (control cable)

16 mm² - 18 mm² (2x)

14 mm² - 18 mm² (1x)

### Terminal capacity (copper busbar)

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

M8 at rear-side screw connection

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

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

6 mm² - 11 mm² (1x) direct at switch rear-side connection

6 mm² - 12 mm² (1x) at box terminal

16 mm² (1x) at tunnel terminal

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

16 mm² (1x) at tunnel terminal

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

4 mm² - 350 mm² (1x) at tunnel terminal

4 mm² - 350 mm² (1x) at box terminal

4 mm² - 3/0 mm² (1x) direct at switch rear-side connection

### Handle type

Rocker lever

### Short delay current setting (Isd) - max

0 A

### Short delay current setting (Isd) - min

0 A

### Instantaneous current setting (Ii) - max

10 A

### Instantaneous current setting (Ii) - min

6 A

### Number of operations per hour - max

120

### Overload current setting (Ir) - max

250 A

### Overload current setting (Ir) - min

250 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

Box terminal

Rated operating voltage Ue (UL) - max

600Y/347 V, 480 V

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)

1000 V AC

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Eaton Corporation plc
Eaton House
30 Pembroke Road
Dublin 4, Ireland
Eaton.com

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