

Eaton 284469

Catalog Number: 284469

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 3p, 450A, H3-ME450



General specifications

Product Name	Catalog Number
Eaton Moeller series NZM molded case circuit breaker electronic	284469
	Model Code
	NZMH3-ME450
EAN	Product Length/Depth
4015082844691	166 mm
Product Height	Product Width
275 mm	140 mm
Product Weight	Compliances
6.34 kg	RoHS conform
Certifications	
IEC	
IEC/EN 60947	

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_{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: 450 A
Terminal capacity hint: Up to 240 mm² 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](#)

Characteristic curve

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

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

[eaton-circuit-breaker-nzm-mccb-characteristic-curve-028.eps](#)

Drawings

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

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

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

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

eCAD model

[ETN.284469.edz](#)

[DA-CE-ETN.NZMH3-ME450](#)

Installation instructions

[IL01208009Z](#)

Installation videos

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

[The new digital NZM Range](#)

mCAD model

[DA-CS-nzm3_3p](#)

[DA-CD-nzm3_3p](#)

Technical data sheets

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

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

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)

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 (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

Rated operational current

446 A (690 V AC-3)

437 A (400 V AC-3)

Degree of protection (IP), front side

IP40 (with insulating surround)

IP66 (with door coupling rotary handle)

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

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. 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

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

2000 operations at 400 V AC-3

5000 operations at 415 V AC-1

Functions

Motor protection

Phase failure sensitive

Shock resistance

20 g (half-sinusoidal shock 20 ms)

Rated operational current for specified heat dissipation (I_n)

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_i) - max

6300 A

Instantaneous current setting (I_i) - min

450 A

Number of operations per hour - max

60

Overload current setting (I_r) - max

450 A

Overload current setting (I_r) - min

225 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

33 kA

Rated short-circuit breaking capacity I_{cs} (IEC/EN 60947) at 690 V, 50/60 Hz

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

10 mm² - 16 mm² (2x) direct at switch rear-side connection

16 mm² (1x) at tunnel terminal

Terminal capacity (aluminum stranded conductor/cable)

25 mm² - 185 mm² (1x) at tunnel terminal

50 mm² - 240 mm² (1x) at 2-hole tunnel terminal

50 mm² - 240 mm² (2x) at 2-hole tunnel terminal

25 mm² - 120 mm² (2x) direct at switch rear-side connection

25 mm² - 120 mm² (1x) direct at switch rear-side connection

Terminal capacity (control cable)

0.75 mm² - 1.5 mm² (2x)

0.75 mm² - 2.5 mm² (1x)

Terminal capacity (copper busbar)

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

M10 at rear-side screw connection

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

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

Terminal capacity (copper solid conductor/cable)

16 mm² (2x) at box terminal
16 mm² (1x) at tunnel terminal
16 mm² (1x) direct at switch rear-side connection
16 mm² (2x) direct at switch rear-side connection
300 mm² (2x) at rear-side width extension

Terminal capacity (copper stranded conductor/cable)

25 mm² - 240 mm² (1x) direct at switch rear-side connection
25 mm² - 240 mm² (2x) direct at switch rear-side connection
16 mm² - 185 mm² (1x) at 1-hole tunnel terminal
25 mm² - 120 mm² (2x) at box terminal
50 mm² - 240 mm² (2x) at 2-hole tunnel terminal
35 mm² - 240 mm² (1x) at box terminal

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

130 kA

Rated short-circuit making capacity I_{cm} at 400/415 V, 50/60 Hz

330 kA

Rated short-circuit making capacity I_{cm} at 440 V, 50/60 Hz

286 kA

Rated short-circuit making capacity I_{cm} at 525 V, 50/60 Hz

143 kA

Rated short-circuit making capacity I_{cm} at 690 V, 50/60 Hz

74 kA

Rated short-circuit making capacity I_{cm} at 240 V, 50/60 Hz

330 kA

Rated impulse withstand voltage (U_{imp}) at auxiliary contacts

6000 V

Rated impulse withstand voltage (U_{imp}) at main contacts

8000 V



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