

Eaton 284416

Catalog Number: 284416

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 4p, 20A, H, frame 1, 4-A20



Photo is representative

General specifications

Product Name	Catalog Number
Eaton Moeller series NZM molded case circuit breaker thermo-magnetic	284416
	Model Code
	NZMH1-4-A20
EAN	Product Length/Depth
4015082844165	84.5 mm
Product Height	Product Width
145 mm	120 mm
Product Weight	Compliances
1.325 kg	RoHS conform
Certifications	
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})

Rated current = rated uninterrupted current: 20 A

Set value in neutral conductor is synchronous with set value I_r of main pole.

Terminal capacity hint: Up to 95 mm² can be connected depending on the cable manufacturer.

Application

Use in unearthed supply systems at 690 V

Amperage Rating

20 A

Voltage rating

690 V - 690 V

Circuit breaker frame type

NZM1

Features

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 switchgear must be observed.

10.12 Electromagnetic compatibility

Is the panel builder's responsibility. The specifications for the

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-let-through-current-nzm-mccb-characteristic-curve-003.eps](#)

[eaton-circuit-breaker-nzm-mccb-characteristic-curve-051.eps](#)

[eaton-circuit-breaker-nzm-mccb-characteristic-curve-002.eps](#)

Drawings

[eaton-circuit-breaker-switch-nzm-mccb-dimensions-014.eps](#)

[eaton-circuit-breaker-nzm-mccb-dimensions-018.eps](#)

eCAD model

[DA-CE-ETN.NZMH1-4-A20](#)

[ETN.284416.edz](#)

Installation instructions

[eaton-circuit-breaker-switch-disconnector-nzmb-il01203004z.pdf](#)

Installation videos

[The new digital NZM Range](#)

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

mCAD model

[DA-CS-nzm1_4p](#)

[DA-CD-nzm1_4p](#)

Technical data sheets

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

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

9.82 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

Frame clamp

Current rating of neutral conductor

200% of phase conductor

Lifespan, mechanical

20000 operations

Overvoltage category

III

Degree of protection (IP), front side

IP66 (with door coupling rotary handle)

IP40 (with insulating surround)

Degree of protection (terminations)

IP10 (tunnel terminal)

IP00 (terminations, phase isolator and strip terminal)

Number of poles

Four-pole

Terminal capacity (copper strip)

Max. 9 segments of 9 mm x 0.8 mm at box terminal

Min. 2 segments of 9 mm x 0.8 mm at box terminal

Lifespan, electrical

10000 operations at 415 V AC-1

10000 operations at 400 V AC-1

7500 operations at 690 V AC-1

Functions

System and cable 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)

20 A

Power loss

9.8 W

Release system

Thermomagnetic release

Short-circuit total breaktime

< 10 ms

Short-circuit release non-delayed setting - max

350 A

Short-circuit release non-delayed setting - min

350 A

Terminal capacity (control cable)

0.75 mm² - 2.5 mm² (1x)

0.75 mm² - 1.5 mm² (2x)

Terminal capacity (copper busbar)

M6 at rear-side screw connection

Min. 12 mm x 5 mm direct at switch rear-side connection

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

Terminal capacity (copper solid conductor/cable)

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

6 mm² - 16 mm² (1x) at box terminal

6 mm² - 16 mm² (1x) direct at switch rear-side connection

4 mm² - 16 mm² (2x) at box terminal

16 mm² (1x) at tunnel terminal

Terminal capacity (aluminum solid conductor/cable)

10 mm² - 16 mm² (1x) direct at switch rear-side connection

16 mm² (1x) at tunnel terminal

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

Terminal capacity (copper stranded conductor/cable)

6 mm² - 70 mm² (1x) direct at switch rear-side connection

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

25 mm² - 95 mm² (1x) at 1-hole tunnel terminal

4 mm² - 25 mm² (2x) at box terminal

6 mm² - 70 mm² (1x) at box terminal

Terminal capacity (aluminum stranded conductor/cable)

25 mm² - 95 mm² (1x) at tunnel terminal

25 mm² - 35 mm² (1x) direct at switch rear-side connection

25 mm² - 35 mm² (2x) direct at switch rear-side connection

Handle type

Rocker lever

Short delay current setting (I_{sd}) - max

0 A

Short delay current setting (I_{sd}) - min

0 A

Instantaneous current setting (Ii) - max

350 A

Instantaneous current setting (Ii) - min

350 A

Number of operations per hour - max

120

Overload current setting (Ir) - max

20 A

Overload current setting (Ir) - min

15 A

Overload current setting (Ir)

15 A - 20 A

Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 230 V, 50/60 Hz

100 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

10 kA

Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 690 V, 50/60 Hz

7.5 kA

Rated short-circuit making capacity Icm at 400/415 V, 50/60 Hz

220 kA

Rated short-circuit making capacity Icm at 440 V, 50/60 Hz

154 kA

Rated short-circuit making capacity Icm at 525 V, 50/60 Hz

40 kA

Rated short-circuit making capacity Icm at 690 V, 50/60 Hz

17 kA

Standard terminals

Box terminal

Optional terminals

Connection on rear. Screw terminal. Tunnel terminal

Rated short-circuit making capacity Icm at 240 V, 50/60 Hz

220 kA

Rated impulse withstand voltage (Uimp) at auxiliary contacts

6000 V

Rated impulse withstand voltage (Uimp) at main contacts

6000 V

Rated insulation voltage (Ui)

690 V AC



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