Specifications

# Eaton 281291

## Catalog Number: 281291

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 4p, 32A, H, frame 2, 4-A32




### General specifications

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

**Catalog Number**
281291

**EAN**
4015082812911

**Product Length/Depth**
149 mm

**Product Height**
184 mm

**Product Width**
140 mm

**Product Weight**
3 kg

**Compliances**
RoHS conform

**Certifications**
IEC
IEC/EN 60947

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: 32 A
Set value in neutral conductor is synchronous with set value Ir of main pole.

### Application

Use in unearthed supply systems at 690 V

### Amperage Rating

32 A

### Voltage rating

690 V - 690 V

### Circuit breaker frame type

NZM2

### Features

Protection unit
Motor drive optional

### 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

## Resources

### Brochures

eaton-feerum-the-whole-grain-solution-success-story-en-us.pdf

eaton-digital-nzm-brochure-br013003en-en-us.pdf

eaton-nas-network-and-system-protection-brochure-br01301001zen-en-us.pdf

### Catalogs

eaton-digital-nzm-catalog-ca013003en-en-us.pdf

### Characteristic curve

eaton-circuit-breaker-characteristic-power-defense-mccb-characteristic-curve-037.eps

eaton-circuit-breaker-let-through-current-nzm-mccb-characteristic-curve-005.eps

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

### Drawings

eaton-circuit-breaker-switch-nzm-mccb-dimensions-017.eps

eaton-circuit-breaker-nzm-mccb-dimensions-035.eps

### eCAD model

ETN.281291.edz

### Installation videos

Introduction of the new digital circuit breaker NZM

The new digital NZM Range

### mCAD model

DA-CD-nzm2_4p

DA-CS-nzm2_4p

### Technical data sheets

eaton-nzm-technical-information-sheet

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

DIN rail (top hat rail) mounting optional

Built-in device fixed built-in technique

Fixed

### Climatic proofing

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

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

### Equipment heat dissipation, current-dependent

9.65 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

### 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

### Current rating of neutral conductor

200% of phase conductor

### Lifespan, mechanical

20000 operations

### Overvoltage category

III

### 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

Four-pole

### Terminal capacity (copper strip)

Min. 2 segements 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. 2 segments of 9 mm x 0.8 mm at box terminal
Max. 10 segments of 24 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

5000 operations at 690 V AC-3
7500 operations at 690 V AC-1
6500 operations at 415 V AC-3
10000 operations at 415 V AC-1
6500 operations at 400 V AC-3
10000 operations at 400 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 (In)

32 A

### 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

350 A

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

350 A

### Terminal capacity (control cable)

0.75 mm² - 1.5 mm² (2x)
0.75 mm² - 2.5 mm² (1x)

### Terminal capacity (copper busbar)

Min. 16 mm x 5 mm direct at switch rear-side connection
Max. 24 mm x 8 mm direct at switch rear-side connection
M8 at rear-side screw connection

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

10 mm² - 16 mm² (1x) at box terminal
6 mm² - 16 mm² (2x) at box terminal
6 mm² - 16 mm² (2x) direct at switch rear-side connection
16 mm² (1x) at tunnel terminal
10 mm² - 16 mm² (1x) direct at switch rear-side connection

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

10 mm² - 16 mm² (2x) direct at switch rear-side connection
16 mm² (1x) at tunnel terminal
10 mm² - 16 mm² (1x) direct at switch rear-side connection

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

25 mm² - 185 mm² (1x) direct at switch rear-side connection
25 mm² - 70 mm² (2x) direct at switch rear-side connection
25 mm² - 70 mm² (2x) at box terminal
25 mm² - 185 mm² (1x) at 1-hole tunnel terminal
25 mm² - 185 mm² (1x) at box terminal

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

25 mm² - 185 mm² (1x) at tunnel terminal
25 mm² - 50 mm² (2x) direct at switch rear-side connection
25 mm² - 50 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

350 A

Instantaneous current setting (Ii) - min

350 A

Number of operations per hour - max

120

Overload current setting (Ir) - max

32 A

Overload current setting (Ir) - min

25 A

Overload current setting (Ir)

25 A - 32 A

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

150 kA

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

150 kA

Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 440 V, 50/60 Hz

130 kA

Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 525 V, 50/60 Hz

37.5 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

330 kA

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

286 kA

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

105 kA

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

40 kA

Standard terminals

Screw terminal

Optional terminals

Box terminal. Connection on rear. Tunnel terminal

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

330 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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