Specifications

Eaton 281230

Catalog Number: 281230

Eaton Moeller series NZM - Molded Case Circuit Breaker. NZM1, 3 pole, Switching capacity 400/415 V 50 Hz(Icu): 25 kA, 160 A, Fixed, Box terminal, IEC



General specifications

Product Name	**Catalog Number**
Eaton Moeller series NZM molded case circuit breaker thermo-magnetic	281230
	EAN
	4015082812300
Product Length/Depth	**Product Height**
88 mm	145 mm
Product Width	**Product Weight**
90 mm	1.123 kg
Compliances	**Certifications**
RoHS conform	IEC/EN 60947 IEC

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

Application

Use in unearthed supply systems at 440 V

Amperage Rating

160 A

Voltage rating

440 V - 440 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 switchgear must be observed.

10.13 Mechanical function

The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

Resources

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-characteristic-power-defense-mccb-characteristic-curve-038.eps

eaton-circuit-breaker-nzm-mccb-characteristic-curve-051.eps

eaton-circuit-breaker-characteristic-power-defense-mccb-characteristic-curve-032.eps

Drawings

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

eaton-circuit-breaker-switch-nzm-mccb-dimensions-014.eps

eCAD model

ETN.281230.edz

Installation instructions

eaton-cirucit-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_3p

DA-CD-nzm1_3p

Technical data sheets

eaton-nzm-technical-information-sheet

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, constant, to IEC 60068-2-78

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

Equipment heat dissipation, current-dependent

36.1 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

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

Three-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

7500 operations at 400 V AC-1

7500 operations at 415 V AC-1

5000 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 (In)

160 A

Power loss

36.1 W

Release system

Thermomagnetic release

Short-circuit total breaktime

< 10 ms

Short-circuit release non-delayed setting - max

1280 A

Short-circuit release non-delayed setting - min

1280 A

Terminal capacity (control cable)

0.75 mm² - 1.5 mm² (2x)

0.75 mm² - 2.5 mm² (1x)

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)

10 mm² - 16 mm² (1x) at box terminal

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

6 mm² - 16 mm² (2x) at box terminal

16 mm² (1x) at tunnel terminal

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

Terminal capacity (aluminum solid conductor/cable)

16 mm² (1x) at tunnel terminal

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

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

Terminal capacity (copper stranded conductor/cable)

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

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

6 mm² - 25 mm² (2x) at box terminal

10 mm² - 70 mm² (1x) at box terminal

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

Terminal capacity (aluminum stranded conductor/cable)

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

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

25 mm² - 35 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

1280 A

Instantaneous current setting (Ii) - min

1280 A

Number of operations per hour - max

120

Overload current setting (Ir) - max

160 A

Overload current setting (Ir) - min

125 A

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

30 kA

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

25 kA

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

18.5 kA

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

53 kA

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

53 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

63 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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