Specifications

Eaton 191598

Catalog Number: 191598

Eaton Moeller series NZM - Molded Case Circuit Breaker. NZM3 PXR20 circuit breaker, 450A, 3p, plug-in technology, N, 3



General specifications

Product Name
Eaton Moeller series NZM molded case circuit breaker electronic

Catalog Number
191598

EAN
4015081921102

Product Length/Depth
335 mm

Product Height
215.2 mm

Product Width
140 mm

Product Weight
7.72 kg

Compliances
RoHS conform

Certifications
IEC/EN 60947
IEC

Powering Business Worldwide

Product specifications

Type

Circuit breaker

Special features

IEC/EN 60947-2 with characteristic conforming to IEC/EN 60947-4-1 with phase failure sensitivity
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 tr at 6 x Ir 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, In = Iu.
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: 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

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-nzm-mccb-characteristic-curve-015.eps

eaton-circuit-breaker-nzm-mccb-characteristic-curve-011.eps

eaton-circuit-breaker-nzm-mccb-characteristic-curve-029.eps

Declarations of conformity

DA-DC-03_N3

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

Installation instructions

eaton-circuit-breaker-plug-in-adapter-nzm2-il01219023z.pdf

eaton-circuit-breaker-basic-unit-bg3-il012100zu.pdf

Installation videos

Introduction of the new digital circuit breaker NZM

The new digital NZM Range

Technical data sheets

eaton-nzm-technical-information-sheet

Voltage rating

690 V - 690 V

Circuit breaker frame type

NZM3

Accessories required

NZM3-XSVS

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 plug-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

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)

690 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

IP20 (basic degree of protection, in the operating controls area)

Direction of incoming supply

As required

Electrical connection type of main circuit

Other

Lifespan, mechanical

15000 operations

Overvoltage category

III

Rated operational current

437 A (400 V AC-3)

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)

Max. 8 segments of 24 mm x 1 mm (2x) at box terminal
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 rear-side connection (punched)
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 box terminal

Lifespan, electrical

3000 operations at 690 V AC-1
2000 operations at 400 V AC-3
5000 operations at 400 V AC-1
5000 operations at 415 V AC-1
2000 operations at 415 V AC-3
2000 operations at 690 V AC-3

Functions

Phase failure sensitive
Motor protection

Shock resistance

20 g (half-sinusoidal shock 20 ms)

Rated operational current for specified heat dissipation (In)

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 (Ii) - max

12 A

Instantaneous current setting (Ii) - min

2 A

Number of operations per hour - max

60

Overload current setting (Ir) - max

450 A

Overload current setting (Ir) - min

180 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

35 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

13 kA

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

5 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) 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

Terminal capacity (control cable)

0.75 mm² - 1.5 mm² (2x)

0.75 mm² - 2.5 mm² (1x)

Terminal capacity (copper busbar)

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

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

connection

M10 at rear-side screw 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 (2x) direct at switch rear-side connection

300 mm² (2x) at rear-side width extension

16 mm² (1x) at tunnel terminal

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

Terminal capacity (copper stranded conductor/cable)

35 mm² - 240 mm² (1x) at box terminal

16 mm² - 185 mm² (1x) at 1-hole tunnel terminal

25 mm² - 240 mm² (2x) direct at switch rear-side connection

25 mm² - 120 mm² (2x) at box terminal

25 mm² - 240 mm² (1x) direct at switch rear-side connection

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

35 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

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



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