

Eaton 191591

Catalog Number: 191591

Eaton Moeller series NZM - Molded Case Circuit Breaker. NZM3 PXR20 circuit breaker, 400A, 3p, earth-fault protection, withdrawable unit, N, 3



Photo is representative

General specifications

Product Name	Catalog Number
Eaton Moeller series NZM molded case circuit breaker electronic	191591
	Model Code
	NZMN3-VX400-T-AVE
EAN	Product Length/Depth
4015081921034	346 mm
Product Height	Product Width
260 mm	185 mm
Product Weight	Compliances
11.214 kg	RoHS conform
Certifications	
IEC/EN 60947	
IEC	

Type

Circuit breaker

Special features

LSI overload protection and delayed and non-delayed short-circuit protective device

R.m.s. value measurement and "thermal memory"

USB interface for configuration and test function with Power Xpert

Protection Manager software

Optionally communication-capable with interface module and internal Modbus

RTU module or CAM

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: 400 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

400 A

Voltage rating

690 V - 690 V

Circuit breaker frame type

NZM3

Features

Motor drive optional

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](#)

Certification reports

[DA-DC-03_N3](#)

Characteristic curve

[eaton-circuit-breaker-nzm-mccb-characteristic-curve-015.eps](#)

[eaton-circuit-breaker-nzm-mccb-characteristic-curve-029.eps](#)

[eaton-circuit-breaker-nzm-mccb-characteristic-curve-011.eps](#)

Drawings

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

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

Installation instructions

[eaton-circuit-breaker-basic-unit-bg3-il012100zu.pdf](#)

Installation videos

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

[The new digital NZM Range](#)

mCAD model

[DA-CD-nzm3_xave](#)

[DA-CS-nzm3_xave](#)

Technical data sheets

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

Protection unit

Accessories required

NZM3-XAVS

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.

Pollution degree

3

Mounting Method

Withdrawable

Built-in device slide-in technique (withdrawable)

Climatic proofing

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

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

Equipment heat dissipation, current-dependent

48 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

Other

Lifespan, mechanical

15000 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. 10 segments of 24 mm x 1 mm + 5 segments of 24 mm x 1
mm

Min. 6 segments of 16 mm x 0.8 mm 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)

Max. 8 segments of 24 mm x 1 mm (2x) at box terminal

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)

Lifespan, electrical

5000 operations at 400 V AC-1

3000 operations at 690 V AC-1

5000 operations at 415 V AC-1

Functions

Integrated earth fault protection

Earth-fault protection

Systems, cable, selectivity and generator protection

Earth-fault current setting (Ig) - max

400 x In

Shock resistance

20 g (half-sinusoidal shock 20 ms)

Earth-fault current setting (Ig) - min

80 x In

Position of connection for main current circuit

Front side

Rated operational current for specified heat dissipation (In)

400 A

Release system

Electronic release

Short-circuit total breaktime

< 10 ms

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 delayed setting - max

4000 A

Short-circuit release delayed setting - min

320 A

Short-circuit release non-delayed setting - max

4800 A

Short-circuit release non-delayed setting - min

800 A

Terminal capacity (control cable)

0.75 mm² - 2.5 mm² (1x)

0.75 mm² - 1.5 mm² (2x)

Terminal capacity (copper busbar)

Min. 20 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
Max. 30 mm x 10 mm + 30 mm x 5 mm direct at switch rear-side connection

Terminal capacity (copper solid conductor/cable)

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

Terminal capacity (aluminum solid conductor/cable)

16 mm² (1x) at tunnel terminal

Terminal capacity (copper stranded conductor/cable)

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

Terminal capacity (aluminum stranded conductor/cable)

50 mm² - 240 mm² (2x) at 2-hole tunnel terminal
25 mm² - 185 mm² (1x) at tunnel terminal
50 mm² - 240 mm² (1x) at 2-hole tunnel terminal

Handle type

Rocker lever

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

10 A

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

2 A

Instantaneous current setting (I_i) - max

4800 A

Instantaneous current setting (I_i) - min

800 A

Number of operations per hour - max

60

Overload current setting (I_r) - max

400 A

Overload current setting (I_r) - min

160 A

Rated short-circuit breaking capacity I_{cs} (IEC/EN 60947) at 230 V, 50/60 Hz

85 kA

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

50 kA

Rated short-circuit breaking capacity I_{cs} (IEC/EN 60947) at 440 V, 50/60 Hz

35 kA

Rated short-circuit breaking capacity I_{cs} (IEC/EN 60947) at 525 V, 50/60 Hz

13 kA

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

5 kA

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

110 kA

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

77 kA

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

55 kA

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

187 kA

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

6000 V

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

8000 V

Rated insulation voltage (U_i)

690 V AC



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