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NZMB1-M50-SVE - Circuit-breaker, 3p, 50A, plug-in module



112720 NZMB1-M50-SVE

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112720 NZMB1-M50-SVE

Circuit-breaker, 3p, 50A, plug-in module

EL-Nummer (Norway)

4363469

Series NZM.-M circuit-breakers cover all application cases with just four compact sizes and are suitable for the IEC market. Modular function groups always make mounting flexible. With thermomagnetic releases for motor protection. Notes: With phase-failure sensitivity, tripping class 10A, IEC/EN 60947-4-1, IEC/EN 60947-2 circuit-breakers fulfill all requirements of the switching category AC-3.

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• [Design verification as per IEC/EN 61439](#)

• [Technical data ETIM 7.0](#)

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Delivery program

Product range

Circuit-breaker

Protective function

Motor protection



Standard/Approval

IEC

Installation type

Plug-in units

Release system

Thermomagnetic release

Construction size

NZM1

Description

With phase-failure sensitivity

Tripping class 10 A

IEC/EN 60947-4-1, IEC/EN 60947-2

The circuit-breaker fulfills all requirements for AC-3 switching category.

Number of poles

3 pole

Standard equipment

Box terminal

Switching capacity


400/415 V 50 Hz [I_{cu}]

25 kA

Rated current = rated uninterrupted current [$I_n = I_u$]

50 A

Setting range

Overload trip  [I_t]

40 - 50 A

Short-circuit releases  [I_{rm}] Non-delayed  [$I_k = I_n \times \dots$]

8 - 14

Motor rating AC-3 50/60 Hz [P]

380 V 400 V [P]

22 kW

Motor rating AC-3 50/60 Hz [P]

400 V [P]

22 kW

Rated operational current AC-3 50/60 Hz [I_e]

400 V [I_e]

41 A

Technical data

General

Standards

IEC/EN 60947

Protection against direct contact

Finger and back of hand proof to VDE 0106 Part 100

Climatic proofing

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

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

Ambient temperature Ambient temperature, storage

- 40 - + 70 °C

Ambient temperature Operation

-25 - +70 °C

Mechanical shock resistance (10 ms half-sinusoidal shock) according to IEC 60068-2-27

20 (half-sinusoidal shock 20 ms) g

Safe isolation to EN 61140 Between auxiliary contacts and main contacts

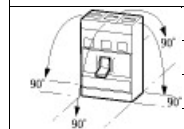
500 V AC

Safe isolation to EN 61140 between the auxiliary contacts

300 V AC

Mounting position

Vertical and 90° in all directions



With XFI earth-fault release:

- NZM1, N1, NZM2, N2: vertical and 90° in all directions

with plug-in unit

- NZM1, N1, NZM2, N2: vertical, 90° right/left

with withdrawable unit:

- NZM3, N3: vertical, 90° right/left

- NZM4, N4: vertical

with remote operator:

- NZM2, N(S)2, NZM3, N(S)3, NZM4, N(S)4: vertical and 90° in all directions

Direction of incoming supply

as required

Degree of protection Device

In the operating controls area: IP20 (basic degree of protection)

Degree of protection Enclosures

With insulating surround: IP40

With door coupling rotary handle: IP66

Degree of protection Terminations

Tunnel terminal: IP10

Phase isolator and strip terminal: IP00

Other technical data (sheet catalogue)

[Temperature dependency, Derating](#)

Circuit-breakers

Rated current = rated uninterrupted current [$I_n = I_u$]

50 A

Rated surge voltage invariability [U_{imp}] Main contacts

6000 V

Rated surge voltage invariability [U_{imp}]Auxiliary contacts

6000 V

Rated operational voltage [U_e]

440 V AC

Overvoltage category/pollution degree

III/3

Rated insulation voltage [U_i]

690 V

Use in unearthed supply systems

□ 440 V

Switching capacity

Rated short-circuit making capacity [I_{cm}]240 V [I_{cm}]

63 kA

Rated short-circuit making capacity [I_{cm}]400/415 V [I_{cm}]

53 kA

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

53 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}] I_{cu} to IEC/EN 60947 test cycle O-t-OO [I_{cu}]240 V 50/60 Hz [I_{cu}]

30 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}] I_{cu} to IEC/EN 60947 test cycle O-t-OO [I_{cu}]400/415 V 50/60 Hz [I_{cu}]

25 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}] I_{cu} to IEC/EN 60947 test cycle O-t-OO [I_{cu}]440 V 50/60 Hz [I_{cu}]

25 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}] I_{cs} to IEC/EN 60947 test cycle O-t-OO-t-OO [I_{cs}]240 V 50/60 Hz [I_{cs}]

30 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}] I_{cs} to IEC/EN 60947 test cycle O-t-OO-t-OO [I_{cs}]400/415 V 50/60 Hz [I_{cs}]

25 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}] I_{cs} to IEC/EN 60947 test cycle O-t-OO-t-OO [I_{cs}]440 V 50/60 Hz [I_{cs}]

18.5 kA

Rated short-circuit breaking capacity I_{cn} [I_{cn}]

Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit-breaker.

Utilization category to IEC/EN 60947-2

A

Lifespan, mechanical(of which max. 50 % trip by shunt/undervoltage release) [Operations]

20000

Lifespan, electricalAC-1400 V 50/60 Hz [Operations]

7500

Lifespan, electricalAC-1415 V 50/60 Hz [Operations]

7500

Lifespan, electricalMax. operating frequency

120 Ops/h

Total break time at short-circuit

< 10 ms

Terminal capacity

Standard equipment

Box terminal

Accessories required

NZM1-XSVS

Optional accessories

Screw connection

Tunnel terminal

connection on rear

Round copper conductorBox terminalSolid

1 x (10 - 16)

2 x (6 - 16) mm²

Round copper conductorBox terminalStranded

1 x (10 - 70) ³⁾

2 x (6-25) mm²

Round copper conductorBox terminal

³⁾ Up to 95 mm² can be connected depending on the cable manufacturer.

Round copper conductorTunnel terminalSolid

1 x 16 mm²

Round copper conductorTunnel terminalStranded1-hole

1 x (25 - 95) mm²

Round copper conductorBolt terminal and rear-side connectionDirect on the switchSolid

1 x (10 - 16)

2 x (6 - 16) mm²

Round copper conductorBolt terminal and rear-side connectionDirect on the switchStranded

1 x (10 - 70) ³⁾

2 x 25 mm²

Round copper conductor Bolt terminal and rear-side connection Direct on the switch

³⁾ Up to 95 mm² can be connected depending on the cable manufacturer.

Al circular conductor Tunnel terminal Solid

1 x 16 mm²

Al circular conductor Tunnel terminal Stranded Stranded

1 x (25 - 95) mm²

Al circular conductor Bolt terminal and rear-side connection Direct on the switch Solid

1 x (10 - 16)

2 x (10 - 16) mm²

Al circular conductor Bolt terminal and rear-side connection Direct on the switch Stranded

1 x (25 - 35)

2 x (25 - 35) mm²

Cu strip (number of segments x width x segment thickness) Box terminal [min.]

2 x 9 x 0.8 mm

Cu strip (number of segments x width x segment thickness) Box terminal [max.]

9 x 9 x 0.8 mm

Copper busbar (width x thickness) [mm] Bolt terminal and rear-side connection Screw connection

M6

Copper busbar (width x thickness) [mm] Bolt terminal and rear-side connection Direct on the switch [min.]

12 x 5 mm

Copper busbar (width x thickness) [mm] Bolt terminal and rear-side connection Direct on the switch [max.]

16 x 5 mm

Control cables

1 x (0.75 - 2.5)

2 x (0.75 - 1.5) mm²

Design verification as per IEC/EN 61439

Technical data for design verification

Rated operational current for specified heat dissipation [I_n]

50 A

Equipment heat dissipation, current-dependent [P_{ed}]

14.1 W

Operating ambient temperature min.

-25 °C

Operating ambient temperature max.

+70 °C

IEC/EN 61439 design verification

10.2 Strength of materials and parts 10.2.2 Corrosion resistance

Meets the product standard's requirements.

10.2 Strength of materials and parts 10.2.3.1 Verification of thermal stability of enclosures

Meets the product standard's requirements.

10.2 Strength of materials and parts 10.2.3.2 Verification of resistance of insulating materials to normal heat

Meets the product standard's requirements.

10.2 Strength of materials and parts 10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects

Meets the product standard's requirements.

10.2 Strength of materials and parts 10.2.4 Resistance to ultra-violet (UV) radiation

Meets the product standard's requirements.

10.2 Strength of materials and parts 10.2.5 Lifting

Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts 10.2.6 Mechanical impact

Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts 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 Insulation properties 10.9.2 Power-frequency electric strength

Is the panel builder's responsibility.

10.9 Insulation properties 10.9.3 Impulse withstand voltage

Is the panel builder's responsibility.

10.9 Insulation properties 10.9.4 Testing of enclosures made of insulating material

Is the panel builder's responsibility.

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.

Technical data ETIM 7.0

Low-voltage industrial components (EG000017) / Motor protection circuit-breaker (EC000074)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Motor protection circuit-breaker (ecl@ss10.0.1-27-37-04-01 [AGZ529016])

Overload release current setting

40 - 50 A

Adjustment range undelayed short-circuit release

400 - 700 A

With thermal protection

Yes

Phase failure sensitive

Yes

Switch off technique

Thermomagnetic

Rated operating voltage

440 - 440 V

Rated permanent current I_n

50 A

Rated operation power at AC-3, 230 V

15 kW

Rated operation power at AC-3, 400 V

22 kW

Type of electrical connection of main circuit

Other

Type of control element

Rocker lever

Device construction

Built-in device plug-in technique

With integrated auxiliary switch

No

With integrated under voltage release

No

Number of poles

3

Rated short-circuit breaking capacity I_{cu} at 400 V, AC

25 kA

Degree of protection (IP)

IP20

Height

201 mm

Width

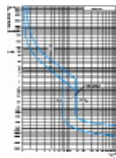
95 mm

Depth

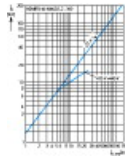
90 mm

Characteristics

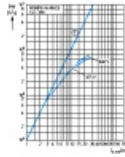
Characteristic curve



Characteristic curve

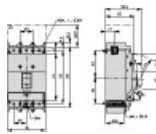


Let-through current
Characteristic curve

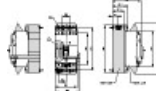


Let-through energy

Dimensions



☐ Blow out area, minimum clearance to adjacent parts



☐ Up to 2 padlocks

CAD data

- [Product-specific CAD data](#)
(Web)
- [3D Preview](#)
(Web)

DWG files

- [DA-CD-nzm1_xsve](#)
File
(Web)

edz files

- [DA-CE-ETN.NZMB1-M50-SVE](#)
File
(Web)

Step files

- [DA-CS-nzm1_xsve](#)
File
(Web)

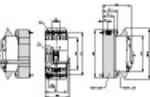
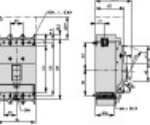

Additional product information

- [Temperature dependency, Derating](#)
(Web)
- [additional technical information for NZM power switch](#)
(PDF)

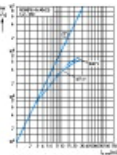
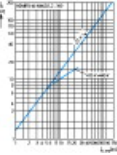
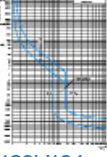
Product photo

- 
1230PIC-850
Photo

Dimensions single product

- 
1230DIM-224
Line drawing
Plug-in adapter size 1
☐ Up to 2 padlocks
- 
123X039
Line drawing
Circuit-breaker NZM...1-...-(C)NA
☐ Blow out area, minimum clearance to adjacent parts
- 
123X506
Line drawing
Circuit-breakers, switch-disconnectors

Characteristic curve

- 
1230DIA-51
Coordinate visualization
Let-through characteristics
- 
1230DIA-58
Coordinate visualization
Let-through characteristics
- 
123U184
Coordinate visualization
NZM1-IV40...100 tripping characteristic

Symbol

- New

0000SPC-173

Graphic
Logo new yellow small

Standards

- 
0000SPC-571
Logo
IE3-ready logo 4c
(Int)

Instruction Leaflet

- [IL01203004Z](#)
Asset
(PDF, Language independent)

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