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NZMH2-M80-SVE - Circuit-breaker, 3p, 80A, plug-in module



113360 NZMH2-M80-SVE

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113360 NZMH2-M80-SVE

Circuit-breaker, 3p, 80A, plug-in module

EL-Nummer (Norway)

4357048

Circuit-breakers of the NZM.-Mseries cover all applications with only four compact sizes and are suitable for the IEC market. The mounting is always flexible due to the modular function groups. With thermomagnetic release for the motor protection. Notes: tripping class 10A, IEC/EN 60947-4-1, IEC/EN 60947-2 circuit-breakers fulfill all requirements of the switching category AC-3.

- Delivery program
- Technical data
- Design verification as per IEC/EN 61439
- Technical data ETIM 7.0
- Characteristics
- Dimensions

Delivery program

Product range

Circuit-breaker

Protective function

Motor protection



Standard/Approval

IEC

Installation type

Plug-in units

Release system

Thermomagnetic release

Construction size

NZM2

Description

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

Screw connection

Switching capacity

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

150 kA
 Rated current = rated uninterrupted current [$I_n = I_u$]
 80 A
Setting range
 Overload trip  [I_t]
 63 - 80 A
 Short-circuit releases  [I_{rm}] Non-delayed  [$I_t = I_n \times \dots$]
 8 - 14
 Motor rating AC-3 50/60 Hz [P]
 380 V 400 V [P]
 37 kW
 Motor rating AC-3 50/60 Hz [P]
 400 V [P]
 37 kW
 Rated operational current AC-3 50/60 Hz [I_b]
 400 V [I_b]
 68 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

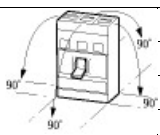
Safe isolation to EN 61140 Between auxiliary contacts and main contacts

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 [$I_n = I_u$]

80 A

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

8000 V

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

6000 V
 Rated operational voltage [U_b]
 690 V AC
 Overvoltage category/pollution degree
 III/3
 Rated insulation voltage [U_i]
 1000 V
 Use in unearthed supply systems
 690 V
 Switching capacity
 Rated short-circuit making capacity [I_{cm}]240 V [I_{cm}]
 330 kA
 Rated short-circuit making capacity [I_{cm}]400/415 V [I_{cm}]
 330 kA
 Rated short-circuit making capacity [I_{cm}]440 V 50/60 Hz [I_{cm}]
 286 kA
 Rated short-circuit making capacity [I_{cm}]525 V 50/60 Hz [I_{cm}]
 105 kA
 Rated short-circuit making capacity [I_{cm}]690 V 50/60 H [I_{cm}]
 40 kA
 Rated short-circuit breaking capacity I_{cn} [I_{cn}] I_{cu} to IEC/EN 60947 test cycle O-t-CO [I_{cu}]240 V 50/60 Hz [I_{cu}]
 150 kA
 Rated short-circuit breaking capacity I_{cn} [I_{cn}] I_{cu} to IEC/EN 60947 test cycle O-t-CO [I_{cu}]400/415 V 50/60 Hz [I_{cu}]
 150 kA
 Rated short-circuit breaking capacity I_{cn} [I_{cn}] I_{cu} to IEC/EN 60947 test cycle O-t-CO [I_{cu}]440 V 50/60 Hz [I_{cu}]
 130 kA
 Rated short-circuit breaking capacity I_{cn} [I_{cn}] I_{cu} to IEC/EN 60947 test cycle O-t-CO [I_{cu}]525 V 50/60 Hz [I_{cu}]
 50 kA
 Rated short-circuit breaking capacity I_{cn} [I_{cn}] I_{cu} to IEC/EN 60947 test cycle O-t-CO [I_{cu}]690 V 50/60 Hz [I_{cu}]
 20 kA
 Rated short-circuit breaking capacity I_{cn} [I_{cn}] I_{cs} to IEC/EN 60947 test cycle O-t-CO-t-CO [I_{cs}]240 V 50/60 Hz [I_{cs}]
 150 kA
 Rated short-circuit breaking capacity I_{cn} [I_{cn}] I_{cs} to IEC/EN 60947 test cycle O-t-CO-t-CO [I_{cs}]400/415 V 50/60 Hz [I_{cs}]
 150 kA
 Rated short-circuit breaking capacity I_{cn} [I_{cn}] I_{cs} to IEC/EN 60947 test cycle O-t-CO-t-CO [I_{cs}]440 V 50/60 Hz [I_{cs}]
 130 kA
 Rated short-circuit breaking capacity I_{cn} [I_{cn}] I_{cs} to IEC/EN 60947 test cycle O-t-CO-t-CO [I_{cs}]525 V 50/60 Hz [I_{cs}]
 37.5 kA
 Rated short-circuit breaking capacity I_{cn} [I_{cn}] I_{cs} to IEC/EN 60947 test cycle O-t-CO-t-CO [I_{cs}]690 V 50/60 Hz [I_{cs}]
 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.
 Rated short-time withstand current I_{cw} = 0.3 s [I_{cw}]
 1.9 kA
 Rated short-time withstand current I_{cw} = 1 s [I_{cw}]
 1.9 kA
 Utilization category to IEC/EN 60947-2
 A
 Lifespan, mechanical (of which max. 50 % trip by shunt/undervoltage release) [Operations]
 20000
 Lifespan, electrical AC-1400 V 50/60 Hz [Operations]
 10000
 Lifespan, electrical AC-1415 V 50/60 Hz [Operations]
 10000
 Lifespan, electrical AC-1690 V 50/60 Hz [Operations]
 7500
 Lifespan, electrical AC--3400 V 50/60 Hz [Operations]
 6500
 Lifespan, electrical AC--3415 V 50/60 Hz [Operations]
 6500
 Lifespan, electrical AC--3690 V 50/60 Hz [Operations]
 5000
 Lifespan, electrical Max. operating frequency
 120 Ops/h
 Total break time at short-circuit
 < 10 ms
Terminal capacity
 Standard equipment

Screw connection
 Accessories required
 NZM2-XSVS
 Optional accessories
 Box terminal
 Tunnel terminal
 connection on rear
 Round copper conductor Box terminal Solid
 1 x (10 - 16)
 2 x (6 - 16) mm²
 Round copper conductor Box terminal Stranded
 1 x (25 - 185)
 2 x (25 - 70) mm²
 Round copper conductor Tunnel terminal Solid
 1 x 16 mm²
 Round copper conductor Tunnel terminal Stranded 1-hole
 1 x (25 - 185) mm²
 Round copper conductor Bolt terminal and rear-side connection Direct on the switch Solid
 1 x (10 - 16)
 2 x (6 - 16) mm²
 Round copper conductor Bolt terminal and rear-side connection Direct on the switch Stranded
 1 x (25 - 185)
 2 x (25 - 70) mm²
 Al circular conductor Tunnel terminal Solid
 1 x 16 mm²
 Al circular conductor Tunnel terminal Stranded Stranded
 1 x (25 - 185) 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.]
 10 x 16 x 0.8
 (2x) 8 x 15.5 x 0,8 mm
 Cu strip (number of segments x width x segment thickness) Bolt terminal and rear-side connection Flat copper strip,
 with holes [min.]
 2 x 16 x 0.8 mm
 Cu strip (number of segments x width x segment thickness) Bolt terminal and rear-side connection Flat copper strip,
 with holes [max.]
 10 x 24 x 0.8 mm
 Copper busbar (width x thickness) [mm] Bolt terminal and rear-side connection Screw connection
 MB
 Copper busbar (width x thickness) [mm] Bolt terminal and rear-side connection Direct on the switch [min.]
 16 x 5 mm
 Copper busbar (width x thickness) [mm] Bolt terminal and rear-side connection Direct on the switch [max.]
 24 x 8 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_r]
 80 A
 Equipment heat dissipation, current-dependent [P_{id}]
 20.54 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.

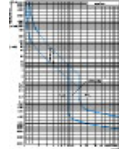
Technical data ETIM 7.0

Low-voltage industrial components (EG000017) / Mtor protection circuit-breaker (EC000074)
Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Mtor protection circuit-breaker (ecl@ss10.0.1-27-37-04-01 [AGZ529016])
Overload release current setting
63 - 80 A
Adjustment range undelayed short-circuit release
640 - 1120 A
With thermal protection
Yes
Phase failure sensitive
No
Switch off technique
Thermomagnetic
Rated operating voltage
690 - 690 V
Rated permanent current I_n
80 A
Rated operation power at AC-3, 230 V
22 kW
Rated operation power at AC-3, 400 V
45 kW
Type of electrical connection of main circuit
Screw connection
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

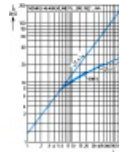
Number of poles
3
Rated short-circuit breaking capacity I_{cu} at 400 V, AC
150 kA
Degree of protection (IP)
IP20
Height
245 mm
Width
105 mm
Depth
180 mm

Characteristics

Characteristic curve

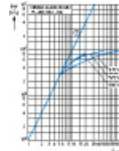


Characteristic curve



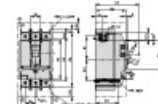
Let-through current

Characteristic curve

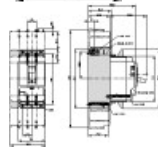
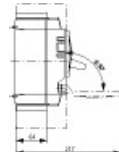


Let-through energy

Dimensions



- Blow out area, minimum clearance to adjacent parts
- Minimum clearance to adjacent parts



CAD data

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

DWG files

- [DA-CD-nzm2_xsve](#)
File
(Web)

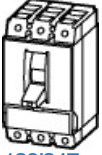
Step files

- [DA-CS-nzm2_xsve](#)
File
(Web)

Additional product information

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

3D drawing

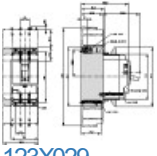


[123I247](#)

Line drawing

Circuit-breakers, switch-disconnectors

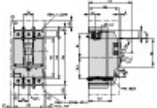
Dimensions single product



[123X029](#)

Line drawing

Plug-in adapter elements



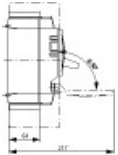
[123X312](#)

Line drawing

Circuit-breaker, switch-disconnector, 3-pole

Blow out area, minimum clearance to adjacent parts

Minimum clearance to adjacent parts



[123X341](#)

Line drawing

Circuit-breakers, switch-disconnectors

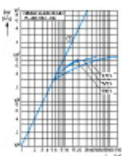
Product photo



[1230PIC-877](#)

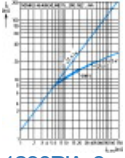
Photo

Characteristic curve



[1230DIA-57](#)

Coordinate visualization
Let-through characteristics



1230DIA-8

Coordinate visualization