NZMN2-VE100-BT - Circuit-breaker, 3p, 100A, box terminals, selectivity protection

147390 NZMN2-VE100-BT

147390 NZMN2-VE100-BT

Circuit-breaker, 3p, 100A, box terminals, selectivity protection

EL-Nummer (Norway) 4358751

Circuit-breaker NZM2, 3 pole, Switching capacity 400/415 V 50 Hz(Icu): 50 kA, Rated current = rated uninterrupted current Rated current = rated uninterrupted current(In = Iu): 100 A, Installation type: Fixed, Box terminal, Standard/Approval: IEC, Protective function: Systems, cable, selectivity and generator protection

Delivery program

Product range
Circuit-breaker
Protective function
Systems, cable, selectivity and generator protection
Standard/Approval
IEC
Installation type
Fixed
Release system
Electronic release
Construction size
NZM2
Description
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)
Adjustable delay time tsd
i^2t constant function: fixed OFF
Number of poles
3 pole
Standard equipment
Box terminal
Switching capacity
400/415 V 50 Hz [I_{cu}]
50 kA
Rated current = rated uninterrupted current [$I_n = I_u$]
Rated current = rated uninterrupted current [$I_n = I_u$]
100 A
Setting range
Overload trip [I_r]
50 - 100 A

Short-circuit releases [I_{rm}] Non-delayed [$I_i = I_n$ x ...]

1200 fixed

Short-circuit releases [I_{rm}] Delayed [$I_{sd} = I_r$ x ...]

2 - 10

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

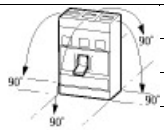
Safe isolation to EN 61140 Between auxiliary contacts and main contacts

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 [$I_n = I_u$]

100 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_e]

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}]

187 kA

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

105 kA
Rated short-circuit making capacity [I_{cm}]440 V 50/60 Hz [I_{cm}]
74 kA
Rated short-circuit making capacity [I_{cm}]525 V 50/60 Hz [I_{cm}]
53 kA
Rated short-circuit making capacity [I_{cm}]690 V 50/60 H[Ic]
40 kA
Rated short-circuit breaking capacity I_{cn} [I_{cn}]Icu to IEC/EN 60947 test cycle O-t-CO [Icu]240 V 50/60 Hz [I_{cu}]
85 kA
Rated short-circuit breaking capacity I_{cn} [I_{cn}]Icu to IEC/EN 60947 test cycle O-t-CO [Icu]400/415 V 50/60 Hz [I_{cu}]
50 kA
Rated short-circuit breaking capacity I_{cn} [I_{cn}]Icu to IEC/EN 60947 test cycle O-t-CO [Icu]440 V 50/60 Hz [I_{cu}]
35 kA
Rated short-circuit breaking capacity I_{cn} [I_{cn}]Icu to IEC/EN 60947 test cycle O-t-CO [Icu]525 V 50/60 Hz [I_{cu}]
25 kA
Rated short-circuit breaking capacity I_{cn} [I_{cn}]Icu to IEC/EN 60947 test cycle O-t-CO [Icu]690 V 50/60 Hz [I_{cu}]
20 kA
Rated short-circuit breaking capacity I_{cn} [I_{cn}]Ics to IEC/EN 60947 test cycle O-t-CO-t-CO [Ics]240 V 50/60 Hz [I_{cs}]
85 kA
Rated short-circuit breaking capacity I_{cn} [I_{cn}]Ics to IEC/EN 60947 test cycle O-t-CO-t-CO [Ics]400/415 V 50/60 Hz [I_{cs}]
50 kA
Rated short-circuit breaking capacity I_{cn} [I_{cn}]Ics to IEC/EN 60947 test cycle O-t-CO-t-CO [Ics]440 V 50/60 Hz [I_{cs}]
35 kA
Rated short-circuit breaking capacity I_{cn} [I_{cn}]Ics to IEC/EN 60947 test cycle O-t-CO-t-CO [Ics]525 V 50/60 Hz [I_{cs}]
25 kA
Rated short-circuit breaking capacity I_{cn} [I_{cn}]Ics to IEC/EN 60947 test cycle O-t-CO-t-CO [Ics]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 currentt = 0.3 s [I_{cw}]
1.9 kA
Rated short-time withstand currentt = 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, electricalAC-1400 V 50/60 Hz [Operations]
10000
Lifespan, electricalAC-1415 V 50/60 Hz [Operations]
10000
Lifespan, electricalAC-1690 V 50/60 Hz [Operations]
7500
Lifespan, electricalAC--3400 V 50/60 Hz [Operations]
6500
Lifespan, electricalAC--3415 V 50/60 Hz [Operations]
6500
Lifespan, electricalAC--3690 V 50/60 Hz [Operations]
5000
Lifespan, electricalMax. operating frequency
120 Ops/h
Total break time at short-circuit
< 10 ms

Terminal capacity

Standard equipment
Box terminal
Optional accessories
Screw terminal
Tunnel terminal
connection on rear
Round copper conductorBox terminalSolid
1 x (10 - 16)
2 x (6 - 16) mm^2
Round copper conductorBox terminalStranded
1 x (25 - 185)
2 x (25 - 70) mm^2
Round copper conductorTunnel terminalSolid
1 x 16 mm^2

Round copper conductorTunnel terminalStranded1-hole
1 x (25 - 185) 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 (25 - 185)
2 x (25 - 70) mm²
Al circular conductor Tunnel terminalSolid
1 x 16 mm²
Al circular conductor Tunnel terminalStrandedStranded
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 connectionFlat 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 connectionFlat copper strip, with holes [max.]
10 x 24 x 0.8 mm
Copper busbar (width x thickness) [mm]Bolt terminal and rear-side connectionScrew connection
M8
Copper busbar (width x thickness) [mm]Bolt terminal and rear-side connectionDirect on the switch [min.]
16 x 5 mm
Copper busbar (width x thickness) [mm]Bolt terminal and rear-side connectionDirect 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_n]
100 A
Equipment heat dissipation, current-dependent [P_{vid}]
8.25 W
Operating ambient temperature min.
-25 °C
Operating ambient temperature max.
+70 °C
IEC/EN 61439 design verification
10.2 Strength of materials and parts10.2.2 Corrosion resistance
Meets the product standard's requirements.
10.2 Strength of materials and parts10.2.3.1 Verification of thermal stability of enclosures
Meets the product standard's requirements.
10.2 Strength of materials and parts10.2.3.2 Verification of resistance of insulating materials to normal heat
Meets the product standard's requirements.
10.2 Strength of materials and parts10.2.3.3 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 parts10.2.4 Resistance to ultra-violet (UV) radiation
Meets the product standard's requirements.
10.2 Strength of materials and parts10.2.5 Lifting
Does not apply, since the entire switchgear needs to be evaluated.
10.2 Strength of materials and parts10.2.6 Mechanical impact
Does not apply, since the entire switchgear needs to be evaluated.
10.2 Strength of materials and parts10.2.7 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 properties10.9.2 Power-frequency electric strength
Is the panel builder's responsibility.
10.9 Insulation properties10.9.3 Impulse withstand voltage
Is the panel builder's responsibility.
10.9 Insulation properties10.9.4 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.

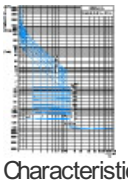
Technical data ETIM 7.0

Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation protection (EC000228)
Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Circuit breaker for power transformer, generator and system protection (ecl@ss10.0.1-27-37-04-09 [AJZ716013])
Rated permanent current Iu
100 A
Rated voltage
690 - 690 V
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz
50 kA
Overload release current setting
50 - 100 A
Adjustment range short-term delayed short-circuit release
100 - 1000 A
Adjustment range undelayed short-circuit release
1200 - 1200 A
Integrated earth fault protection
No
Type of electrical connection of main circuit
Frame clamp
Device construction
Built-in device fixed built-in technique
Suitable for DIN rail (top hat rail) mounting
No
DIN rail (top hat rail) mounting optional
Yes
Number of auxiliary contacts as normally closed contact
0
Number of auxiliary contacts as normally open contact
0
Number of auxiliary contacts as change-over contact
0
With switched-off indicator
No
With under voltage release
No
Number of poles
3
Position of connection for main current circuit
Front side
Type of control element
Rocker lever
Complete device with protection unit
Yes
Motor drive integrated

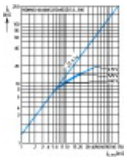
No
Motor drive optional
Yes
Degree of protection (IP)
IP20

Characteristics

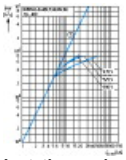
Characteristic curve



Characteristic curve

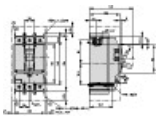


Let-through current
Characteristic curve



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_3p
  File
  (Web)

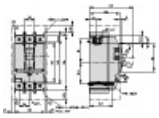
Step files

- DA-CS-nzm2_3p
  File
  (Web)

Additional product information

- Temperature dependency, Derating
  (Web)
- CurveSelect characteristics program
  (Web)
- Eaton configurator
  (Web)
- additional technical information for NZM power switch
  (PDF)

Dimensions single product

- 
  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

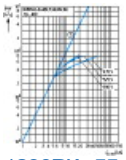
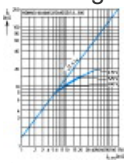
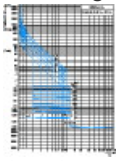
3D drawing

- □
  123I247
  Line drawing
  Circuit-breakers, switch-disconnectors

Product photo

- 
  1230PIC-806
  Photo

Characteristic curve

- 
  1230DIA-55
  Coordinate visualization
  Let-through characteristics
- 
  1230DIA-6
  Coordinate visualization
  Let-through current
- 
  123U180
  Coordinate visualization
  NZM2-VE100...250 tripping characteristic

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