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Worldwide English



NZMH2-VX250-T - NZM2 PXR20 circuit breaker, 250A, 3p, Screw terminal, earth-fault protection



193297 NZMH2-VX250-T

[Overview](#) [Specifications](#) [Resources](#)



193297 NZMH2-VX250-T

NZM2 PXR20 circuit breaker, 250A, 3p, Screw terminal, earth-fault protection

EL-Nummer (Norway)

4362659

The xEffect NZM...-VX circuit breaker range with power expert release (PXR) electronic triggering system covers use cases for full range protection with only four compact sizes and is suitable for the IEC market. Test function and settings via micro USB port directly on the switch. Modular function groups always make mounting flexible and may be supplemented by the comprehensive range of accessories. R.m.s. value measurement and thermal memory.

•

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

Systems, cable, selectivity and generator protection

Earth-fault protection

Standard/Approval

IEC

Installation type

Fixed

Release system

Electronic release

Construction size

NZM2

Description






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

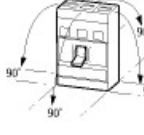
Optionally communication-capable with interface module and internal Modbus RTU module or CAM

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 [$I_n = I_u$]
 Rated current = rated uninterrupted current [$I_n = I_u$]
 250 A
Setting range
 Overload trip  [I_t]
 100 - 250 A
 Short-circuit releases  [I_{rm}] Non-delayed  [$I_k = I_n \times \dots$]
 2 - 12
 Short-circuit releases  [I_{rm}] Delayed  [$I_{sd} = I_t \times \dots$]
 2 - 10
 Setting range of earth fault release min. [$I_g = I_{nx} \dots$]
 50
 Setting range of earth fault release max. [$I_g = I_{nx} \dots$]
 250

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)

[Weight](#)

[Temperature dependency, Derating](#)

[Effective power loss](#)

Circuit-breakers

Rated current = rated uninterrupted current [$I_n = I_u$]
 250 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]
 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 Hz [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

Optional accessories

Box terminal

Tunnel terminal

connection on rear

Round copper conductorBox terminalSolid

1 x (10 - 16)

2 x (6 - 16) mm²

Round copper conductorBox terminalStranded

1 x (25 - 185)

2 x (25 - 70) mm²

Round copper conductorTunnel terminalSolid

1 x 16 mm²

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

MB

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]

250 A

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

51.56 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 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) / 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 I_n
250 A

Rated voltage
690 - 690 V

Rated short-circuit breaking capacity I_{cu} at 400 V, 50 Hz
150 kA

Overload release current setting
100 - 250 A

Adjustment range short-term delayed short-circuit release
2 - 10 A

Adjustment range undelayed short-circuit release
2 - 12 A

Integrated earth fault protection
No

Type of electrical connection of main circuit
Screw connection

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

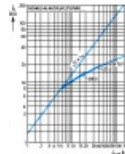
Number of auxiliary contacts as normally closed contact
0

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

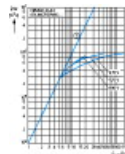
Characteristics

Characteristic curve



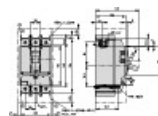
Let-through current

Characteristic curve

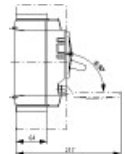


Let-through energy

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](#)

Additional product information

- [Weight](#)
(Web)
- [Temperature dependency, Derating](#)
(Web)
- [Effective power loss](#)
(Web)
- [additional technical information for NZMpower switch](#)
(PDF)

Product photo

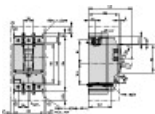


[wa_ren_00218_c](#)
Photo

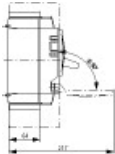


[wa_ren_00218_r](#)
Photo

Dimensions single product

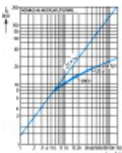


[123X312](#)
Line drawing
Circuit-breaker, switch-disconnector, 3-pole
☐ Blow out area, minimum clearance to adjacent parts
☐ Minimum clearance to adjacent parts

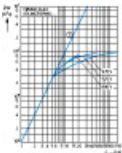


[123X341](#)
Line drawing
Circuit-breakers, switch-disconnectors

Characteristic curve



[1230DIA-178](#)
Coordinate visualization



[1230DIA-185](#)
Coordinate visualization

Instruction Leaflet

- [IL012099ZU](#)
Asset