Powering Business Worldwide

NZMN2-MX140-SVE - NZM2 PXR20 circuit breaker, 140A, 3p, plug-in technology

191623 NZMN2-MX140-SVE

Overview Specifications Resources

- 

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

191623 NZMN2-MX140-SVE

NZM2 PXR20 circuit breaker, 140A, 3p, plug-in technology

EL-Nummer (Norway) 4362648

The xEffect NZM..-MX circuit breaker range with power expert release (PXR) electronic triggering system covers use cases for motor 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

Product range
Circuit-breaker
Protective function
Motor protection

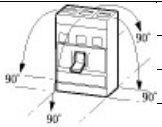
IE3

Standard/Approval
IEC
Installation type
Plug-in units
Release system
Electronic release
Construction size
NZM2
Description
IEC/EN 60947-2 with characteristic conforming to IEC/EN 60947-4-1 with phase failure sensitivity
The circuit-breaker fulfills all requirements for AC-3 switching category.

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)
All AC-3 rating data applies to direct switching by the circuit-breaker under normal operating conditions. If, for example, a contactor takes over AC-3 switching under normal operating conditions, the full rated uninterrupted current applies to the circuit-breaker, In = Iu.
Number of poles
3 pole
Standard equipment
Screw connection
Switching capacity
400/415 V 50 Hz [I_{cu}]
50 kA
Rated current = rated uninterrupted current [$I_n = I_u$]
140 A
Setting range
Overload trip [I_r]
56 - 140 A
Short-circuit releases [I_{rm}]Non-delayed [$I_i = I_n$ x …]
2 – 18
Motor rating AC-3 50/60 Hz [P]
380 V 400 V [P]
75 kW
660 V 690 V [P]
132 kW
Motor rating AC-3 50/60 Hz [P]
400 V [P]
75 kW
660 V 690 V [P]
132 kW
Rated operational current AC-3 50/60 Hz [I_e]
400 V [I_e]
134 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 temperatureAmbient temperature, storage
- 40 - + 70 °C
Ambient temperatureOperation
-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 61140Between auxiliary contacts and main contacts
500 V AC
Safe isolation to EN 61140between 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 protectionDevice
In the operating controls area: IP20 (basic degree of protection)
Degree of protectionEnclosures
With insulating surround: IP40
With door coupling rotary handle: IP66
Degree of protectionTerminations
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 [$I_n = I_u$]
140 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
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]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]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
Screw connection
Accessories required
NZM2-XSVS
Optional accessories
Box 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) mm^2
Round copper conductorBolt terminal and rear-side connectionDirect on the switchSolid
1 x (10 - 16)
2 x (6 - 16) mm^2
Round copper conductorBolt terminal and rear-side connectionDirect on the switchStranded
1 x (25 - 185)
2 x (25 - 70) mm^2
Al circular conductor Tunnel terminalSolid
1 x 16 mm^2
Al circular conductor Tunnel terminalStrandedStranded
1 x (25 - 185) mm^2
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) mm^2

Design verification as per IEC/EN 61439

Technical data for design verification
Rated operational current for specified heat dissipation [I_n]
140 A
Equipment heat dissipation, current-dependent [P_{vid}]
16.17 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.

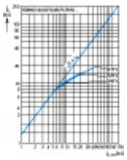
Technical data ETIM 7.0

Low-voltage industrial components (EG000017) / 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
56 - 140 A
Adjustment range undelayed short-circuit release
2 - 18 A
With thermal protection
Yes
Phase failure sensitive
Yes
Switch off technique
Electronic
Rated operating voltage
690 - 690 V
Rated permanent current Iu
140 A

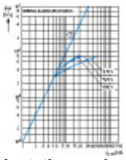
Rated operation power at AC-3, 230 V
37 kW
Rated operation power at AC-3, 400 V
75 kW
Type of electrical connection of main circuit
Other
Type of control element
Rocker lever
Device construction
Built-in device plug-in technique
With integrated auxiliary switch
No
With integrated under voltage release
No
Number of poles
3
Rated short-circuit breaking capacity Icu at 400 V, AC
50 kA
Degree of protection (IP)
IP20
Height
245 mm
Width
105 mm
Depth
180 mm

Characteristics

Characteristic curve

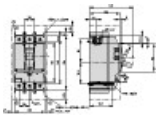


Let-through current
Characteristic curve

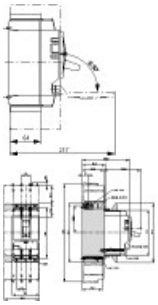


Let-through energy

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_xsve
  File
  (Web)

Step files

- DA-CS-nzm2_xsve
  File
  (Web)

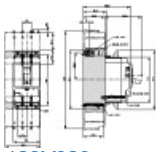
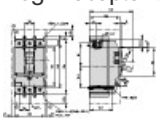
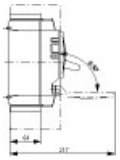
Additional product information

- Weight
  (Web)
- Temperature dependency, Derating
  (Web)
- Effective power loss
  (Web)
- additional technical information for NZM power switch
  (PDF)

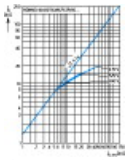
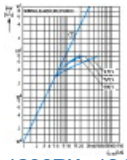
Product photo

- 
  wa_ren_00518_c
  Photo
- 
  wa_ren_00518_r
  Photo

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

Characteristic curve

- 
  1230DIA-176
  Coordinate visualization
- 
  1230DIA-184
  Coordinate visualization

Standards

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

Instruction Leaflet

- IL012099ZU
  Asset
  (PDF, Language independent)

Download-Center

- Download-Center (this item)
  Eaton EMEA Download-Center - download data for this item
- Download-Center
  Eaton EMEA Download-Center

Generate data sheet in PDF format

Generate data sheet in Excel format

Write a comment