



## NZM4 PXR10 circuit breaker, 1600A, 3p, screw terminal

Part no. **NZMN4-AX1600**  
 Catalog No. **191422**

**EATON**  
 Powering Business Worldwide™

Similar to illustration

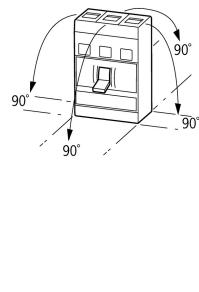
## Delivery program

Product range	Circuit-breaker			
Protective function	System and cable protection			
Standard/Approval	IEC			
Installation type	Fixed			
Release system	Electronic release			
Construction size	NZM4			
Description	Overload and short-circuit protection LI R.m.s. value measurement and "thermal memory" USB interface for configuration and test function with Power Xpert Protection Manager software			
Number of poles	3 pole			
Standard equipment	Screw connection			
Rated operational voltage	Ue	V AC	690	
<b>Switching capacity</b>				
400/415 V 50 Hz	$I_{cu}$	kA	50	
<b>Rated current = rated uninterrupted current</b>				
Rated current = rated uninterrupted current	$I_n = I_u$	A	1600	
<b>Setting range</b>				
Overload trip		$I_r$	A	640 - 1600
Short-circuit releases				
Non-delayed		$I_i = I_n \times \dots$		2 - 12

## Technical data

<b>General</b>			
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	$^{\circ}\text{C}$	- 40 - + 70	
Operation	$^{\circ}\text{C}$	- 25 - + 70	
Mechanical shock resistance (10 ms half-sinusoidal shock) according to IEC 60068-2-27	g	15 (half-sinusoidal shock 11 ms)	
Safe isolation to EN 61140			
Between auxiliary contacts and main contacts	V AC	500	
between the auxiliary contacts	V AC	300	
Mounting position	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)
Enclosures	With insulating surround: IP40 With door coupling rotary handle: IP66
Terminations	Tunnel terminal: IP10 Phase isolator and strip terminal: IP00
Other technical data (sheet catalogue)	Weight Temperature dependency, Derating Effective power loss



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

## Circuit-breakers

Rated current = rated uninterrupted current	$I_n = I_u$	A	1600
Rated surge voltage invariability	$U_{imp}$		
Main contacts		V	8000
Auxiliary contacts		V	6000
Rated operational voltage	$U_e$	V AC	690
Overvoltage category/pollution degree			III/3
Rated insulation voltage	$U_i$	V	690
Use in unearthing supply systems		V	$\leq 415$

## Switching capacity

Rated short-circuit making capacity	$I_{cm}$		
240 V	$I_{cm}$	kA	110
400/415 V	$I_{cm}$	kA	110
440 V 50/60 Hz	$I_{cm}$	kA	77
525 V 50/60 Hz	$I_{cm}$	kA	55
690 V 50/60 Hz	$I_c$	kA	40
Rated short-circuit breaking capacity $I_{cn}$	$I_{cn}$		
Icu to IEC/EN 60947 test cycle 0-t-C0	$I_{cu}$	kA	
240 V 50/60 Hz	$I_{cu}$	kA	50
400/415 V 50/60 Hz	$I_{cu}$	kA	50
440 V 50/60 Hz	$I_{cu}$	kA	35
525 V 50/60 Hz	$I_{cu}$	kA	25
690 V 50/60 Hz	$I_{cu}$	kA	20
Ics to IEC/EN 60947 test cycle 0-t-C0-t-C0	$I_{cs}$	kA	
240 V 50/60 Hz	$I_{cs}$	kA	37
400/415 V 50/60 Hz	$I_{cs}$	kA	37
440 V 50/60 Hz	$I_{cs}$	kA	26
525 V 50/60 Hz	$I_{cs}$	kA	19
690 V 50/60 Hz	$I_{cs}$	kA	15
			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			
$t = 0.3 \text{ s}$	$I_{cw}$	kA	19.2
$t = 1 \text{ s}$	$I_{cw}$	kA	19.2
Utilization category to IEC/EN 60947-2			A
Lifespan, mechanical (of which max. 50 % trip by shunt/undervoltage release)	Operations		10000
Lifespan, electrical			
AC-1			

400 V 50/60 Hz	Operations	3000
415 V 50/60 Hz	Operations	3000
690 V 50/60 Hz	Operations	20000
Max. operating frequency	Ops/h	60
Total break time at short-circuit	ms	< 25 ≤ 415 V; < 35 > 415 V
<b>Terminal capacity</b>		
Standard equipment		Screw connection
Optional accessories		Tunnel terminal connection on rear Strip terminal
Round copper conductor		
Tunnel terminal		
Stranded		
4-hole	mm <sup>2</sup>	4 x (50 - 240)
Bolt terminal and rear-side connection		
Direct on the switch		
Stranded	mm <sup>2</sup>	1 x (120 - 185) 4 x (50 - 185)
Module plate		
Single hole	min.	mm <sup>2</sup> 1 x (120 - 300)
Single hole	max.	mm <sup>2</sup> 2 x (95 - 300)
Module plate		
Double hole	min.	mm <sup>2</sup> 2 x (95 - 185)
Double hole	max.	mm <sup>2</sup> 4 x (35 - 185)
Connection width extension		mm <sup>2</sup>
Connection width extension	mm <sup>2</sup>	4 x 300 6 x (95 - 240)
Al circular conductor		
Tunnel terminal		
Stranded		
4-hole	mm <sup>2</sup>	4 x (50 - 240)
Cu strip (number of segments x width x segment thickness)		
Flat conductor terminal		
Flat copper strip, with holes	min.	mm 6 x 16 x 0.8
Flat copper strip, with holes	max.	mm (2 x) 10 x 32 x 1.0
Module plate		
Single hole		mm (2 x) 10 x 50 x 1.0
Bolt terminal and rear-side connection		
Flat copper strip, with holes	min.	mm 5 x 25 x 1.0
Flat copper strip, with holes	max.	mm (2 x) 10 x 50 x 1.0
Connection width extension		mm (2 x) 10 x 80 x 1.0
Copper busbar (width x thickness)	mm	
Bolt terminal and rear-side connection		
Screw connection		M10
Direct on the switch		
	min.	mm 25 x 5
	max.	mm 2 x (50 x 10)
Module plate		
Single hole	min.	mm 25 x 5
Single hole	max.	mm 2 x (50 x 10)
Module plate		
Double hole		mm 2 x (50 x 10)
Connection width extension		mm
Connection width extension	min.	mm 60 x 10
Connection width extension	max.	mm 2 x (80 x 10)
Control cables		

	mm <sup>2</sup>	1 x (0.75 - 2.5) 2 x (0.75 - 1.5)
--	-----------------	--------------------------------------

## Design verification as per IEC/EN 61439

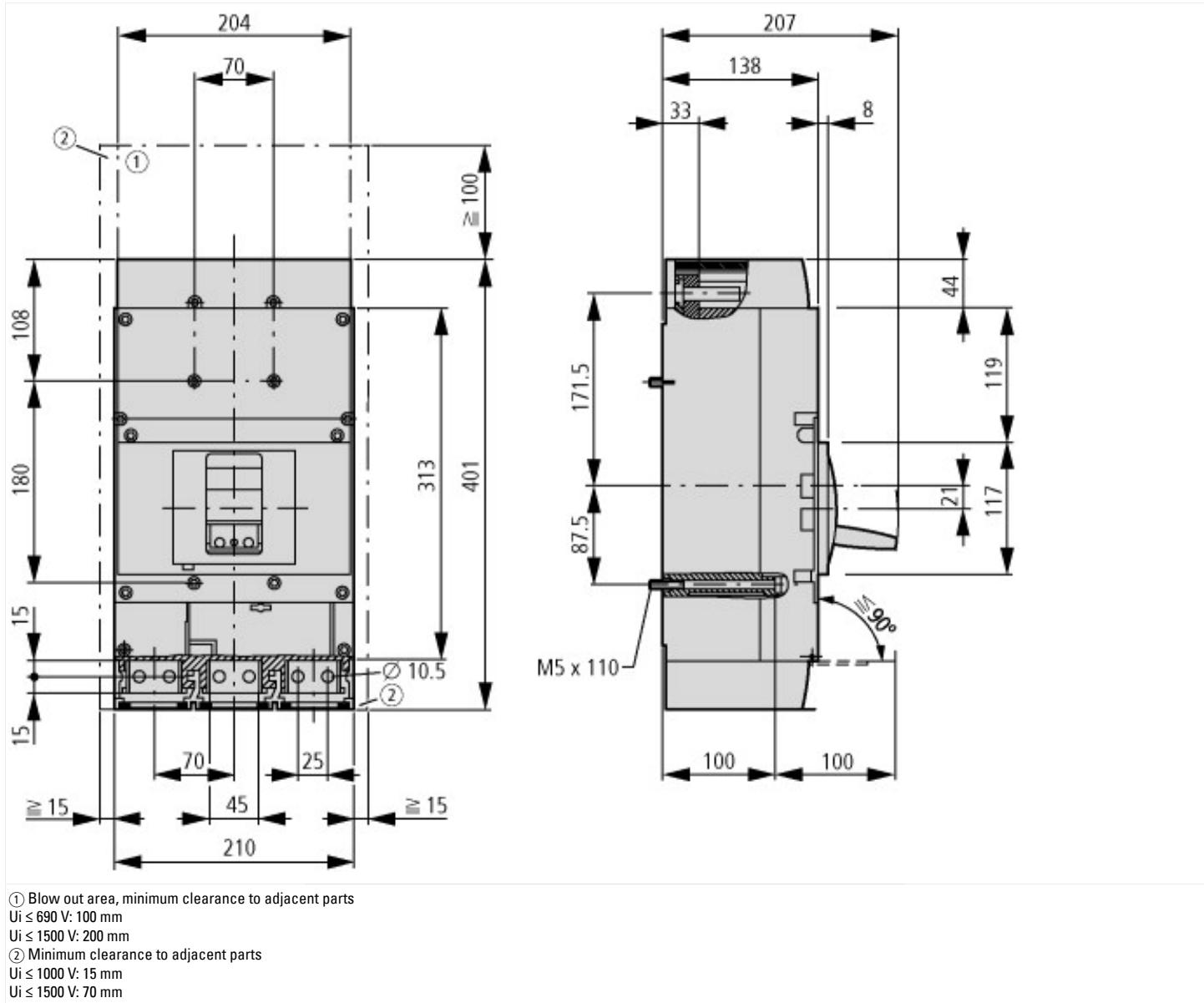
Technical data for design verification		
Rated operational current for specified heat dissipation	I <sub>n</sub>	A 1600
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W 284
Operating ambient temperature min.		°C -25
Operating ambient temperature max.		°C 70
IEC/EN 61439 design verification		
10.2 Strength of materials and parts		
10.2.2 Corrosion resistance		Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures		Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat		Meets the product standard's requirements.
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.
10.2.4 Resistance to ultra-violet (UV) radiation		Meets the product standard's requirements.
10.2.5 Lifting		Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact		Does not apply, since the entire switchgear needs to be evaluated.
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.
10.9.3 Impulse withstand voltage		Is the panel builder's responsibility.
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 8.0

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 <sub>n</sub>	A 1600
Rated voltage	V 690 - 690
Rated short-circuit breaking capacity I <sub>cu</sub> at 400 V, 50 Hz	kA 37
Overload release current setting	A 640 - 1600
Adjustment range short-term delayed short-circuit release	A 0 - 0
Adjustment range undelayed short-circuit release	A 3200 - 38400
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	No
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 integrated 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

## Dimensions



## Additional product information (links)

### IL012101ZU NZM4-PXR circuit-breaker, basic device, NZM4-PXR Circuit-Breaker, basic unit

IL012101ZU NZM4-PXR circuit-breaker, basic device, NZM4-PXR Circuit-Breaker, basic unit	<a href="https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL012101ZU2022_01.pdf">https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL012101ZU2022_01.pdf</a>
Weight	<a href="http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.171">http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.171</a>
Temperature dependency, Derating	<a href="http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.172">http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.172</a>
Effective power loss	<a href="http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.174">http://ecat.moeller.net/flip-cat/?edition=HPLEN&amp;startpage=17.174</a>
additional technical information for NZM power switch	<a href="https://es-assets.eaton.com/DOCUMENTATION/PDF/nzm_technic_de_en.pdf">https://es-assets.eaton.com/DOCUMENTATION/PDF/nzm_technic_de_en.pdf</a>