### **DATASHEET - NZMB1-4-A100**



Circuit-breaker, 4p, 100A

NZMB1-4-A100 Part no. Catalog No. 265807

**EL-Nummer** (Norway)

4358819





# **Delivery program**

Delivery program			
Product range			Circuit-breaker
Protective function			System and cable protection
Standard/Approval			IEC
Installation type			Fixed
Release system			Thermomagnetic release
Construction size			NZM1
Description			Set value in neutral conductor is synchronous with set value Ir of main pole.
Number of poles			4 pole
Standard equipment			Box terminal
Switching capacity			
400/415 V 50 Hz	I <sub>cu</sub>	kA	25
Rated current = rated uninterrupted current			
Rated current = rated uninterrupted current	$\boldsymbol{I}_n = \boldsymbol{I}_u$	Α	100
Neutral conductor	% of phase conductor	%	100
Setting range			
Overload trip			
4	l <sub>r</sub>	Α	80 - 100
Main pole	I <sub>r</sub>	Α	80 - 100
Short-circuit releases			
Non-delayed	$I_i = I_n x \dots$		6 - 10
Short-circuit releases	I <sub>rm</sub>	Α	600 - 1000

### **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	°C	- 40 - + 70
Operation	°C	-25 - +70
Mechanical shock resistance (10 ms half-sinusoidal shock) according to IEC 60068-2-27	g	20 (half-sinusoidal shock 20 ms)
Safe isolation to EN 61140		
Between auxiliary contacts and main contacts	V AC	500

		V AC	300
between the auxiliary contacts  Mounting position		V AU	Vertical and 90° in all directions
Mounting position			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)
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)			Temperature dependency, Derating
Circuit-breakers Rated current = rated uninterrupted current	$I_n = I_u$	Α	100
· · · · · · · · · · · · · · · · · · ·		^	100
Rated surge voltage invariability	U <sub>imp</sub>	V	2000
Main contacts  Applicant contacts		V	6000
Auxiliary contacts		V	6000
Rated operational voltage	U <sub>e</sub>	V AC	440
Overvoltage category/pollution degree		.,	III/3
Rated insulation voltage	Ui	V	690
Use in unearthed supply systems Switching capacity		V	≦ 440
Rated short-circuit making capacity	I <sub>cm</sub>		
240 V	I <sub>cm</sub>	kA	63
400/415 V	I <sub>cm</sub>	kA	53
440 V 50/60 Hz		kA	53
·	I <sub>cm</sub>	NA.	33
Rated short-circuit breaking capacity I <sub>cn</sub>	I <sub>cn</sub>	LΑ	
Icu to IEC/EN 60947 test cycle 0-t-C0	lcu	kA	20
240 V 50/60 Hz	I <sub>cu</sub>	kA	30
400/415 V 50/60 Hz	I <sub>cu</sub>	kA	25
440 V 50/60 Hz	I <sub>cu</sub>	kA	25
Ics to IEC/EN 60947 test cycle 0-t-C0-t-C0	Ics	kA	
240 V 50/60 Hz	I <sub>cs</sub>	kA	30
400/415 V 50/60 Hz	I <sub>cs</sub>	kA	25
440 V 50/60 Hz	I <sub>cs</sub>	kA	18.5
			Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit-breaker.
Utilization category to IEC/EN 60947-2			А
Lifespan, mechanical(of which max. 50 % trip by shunt/undervoltage release)  Lifespan, electrical	Operations		20000
AC-1			
400 V 50/60 Hz	Operations		7500
415 V 50/60 Hz	Operations		7500
Max. operating frequency		Ops/h	120
Total break time at short-circuit		ms	< 10
Terminal capacity			
Standard equipment			Box terminal
Optional accessories			Screw connection Tunnel terminal connection on rear

Box terminal			
Solid		mm <sup>2</sup>	1 x (10 - 16) 2 x (6 - 16)
Stranded		mm <sup>2</sup>	1 x (10 - 70) <sup>3)</sup> 2 x (6-25)
			<sup>3)</sup> Up to 95 mm² can be connected depending on the cable manufacturer.
Tunnel terminal			
Solid		mm <sup>2</sup>	1 x 16
Stranded			
1-hole		$\text{mm}^2$	1 x (25 - 95)
Bolt terminal and rear-side connection			
Direct on the switch			
Solid		mm <sup>2</sup>	1 x (10 - 16) 2 x (6 - 16)
Stranded		mm <sup>2</sup>	1 x (10 - 70) <sup>3)</sup> 2 x 25
			<sup>3)</sup> Up to 95 mm² can be connected depending on the cable manufacturer.
circular conductor			
Tunnel terminal			
Solid		$mm^2$	1 x 16
Stranded			
Stranded		mm <sup>2</sup>	1 x (25 - 95)
Bolt terminal and rear-side connection			
Direct on the switch			
Solid		mm <sup>2</sup>	1 x (10 - 16) 2 x (10 - 16)
Stranded		mm <sup>2</sup>	1 x (25 - 35) 2 x (25 - 35)
strip (number of segments x width x segment thickness)			
Box terminal			
	min.	mm	2 x 9 x 0.8
	max.	mm	9 x 9 x 0.8
opper busbar (width x thickness)	mm		
Bolt terminal and rear-side connection			
Screw connection			M6
Direct on the switch			
	min.	mm	12 x 5
	max.	mm	16 x 5
ontrol cables			
		mm <sup>2</sup>	1 x (0.75 - 2.5) 2 x (0.75 - 1.5)

## Design verification as per IEC/EN 61439

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Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	100
Equipment heat dissipation, current-dependent	$P_{vid}$	W	21.9
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.

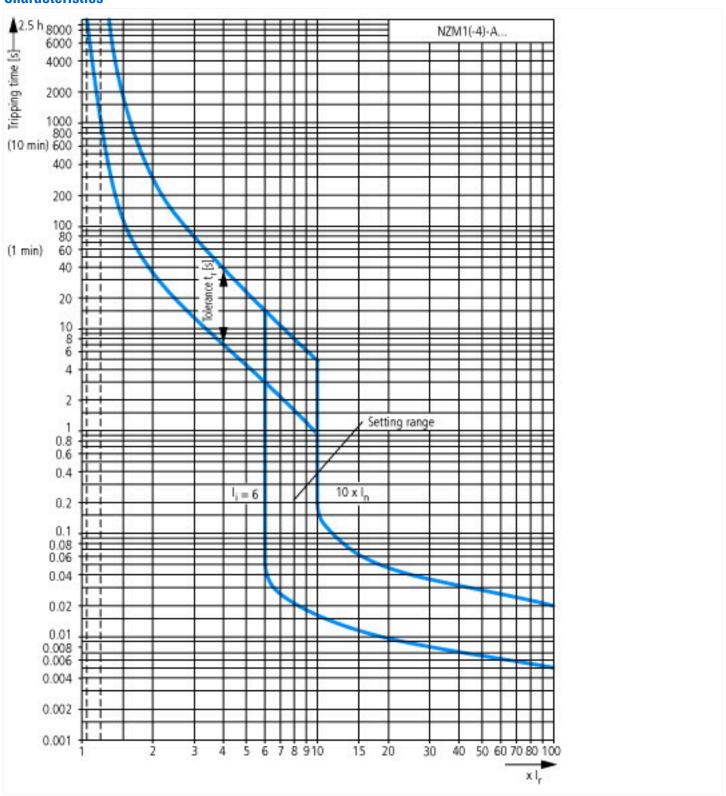
#### **Technical data ETIM 7.0**

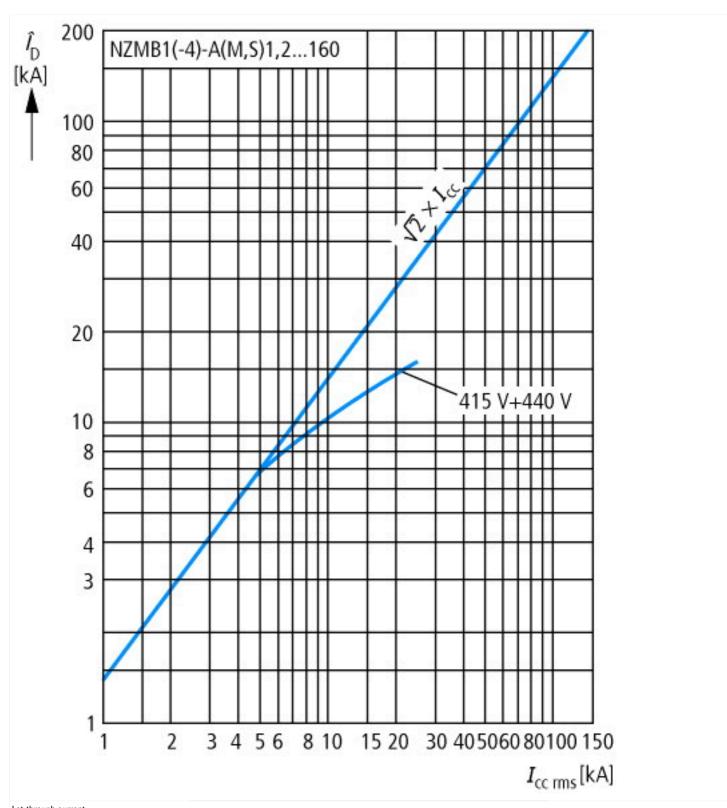
Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation protection (EC000228)

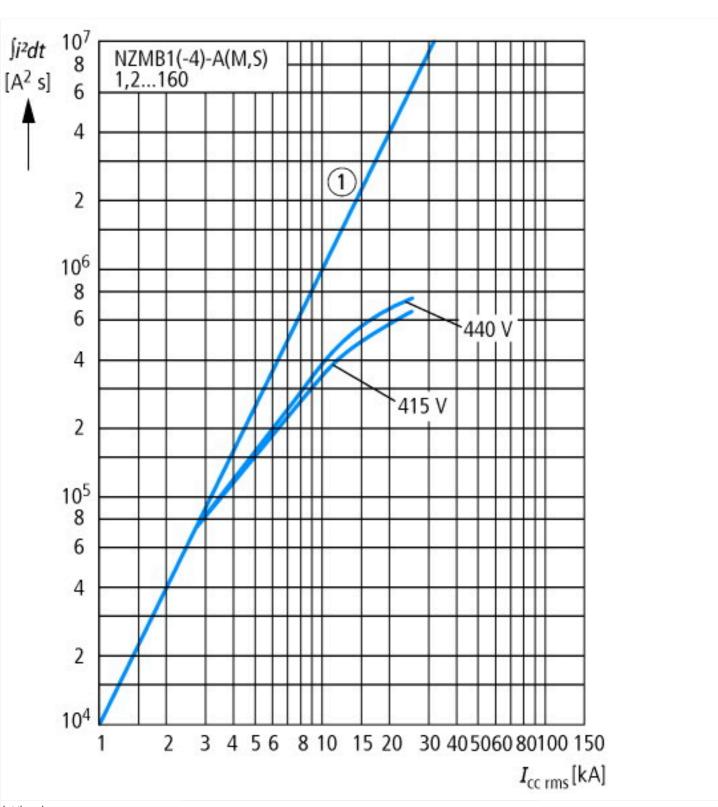
Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Circuit breaker for power transformer, generator and system protection (ecl@ss10.0.1-27-37-04-09 [AJZ716013])

Rated permanent current lu  Rated voltage  V 440 - 440  Rated short-circuit breaking capacity lcu at 400 V, 50 Hz  Noverload release current setting  A 80 - 100  Adjustment range short-term delayed short-circuit release  A 0 - 0  Adjustment range undelayed short-circuit release  A 6 - 10  Integrated earth fault protection  Type of electrical connection of main circuit  Pevice construction  Built-in device  Suitable for DIN rail (top hat rail) mounting  DIN rail (top hat rail) mounting optional  Number of auxiliary contacts as normally closed contact  Number of auxiliary contacts as normally open contact	fixed built-in technique
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz  National Rated short-circuit breaking capacity Icu at 400 V, 50 Hz  A 80 - 100  Adjustment range short-term delayed short-circuit release  A 0 - 0  Adjustment range undelayed short-circuit release  A 6 - 10  Integrated earth fault protection  No  Type of electrical connection of main circuit  Frame clamp  Device construction  Built-in device  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  O	fixed built-in technique
Overload release current setting  A 80 - 100  Adjustment range short-term delayed short-circuit release  A 0 - 0  Adjustment range undelayed short-circuit release  A 6 - 10  Integrated earth fault protection  Type of electrical connection of main circuit  Perime clamp  Device construction  Suitable for DIN rail (top hat rail) mounting  DIN rail (top hat rail) mounting optional  No  No  No  No  O  O  O  O  O  O  O  O  O  O  O  O  O	fixed built-in technique
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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	fixed built-in technique
DIN rail (top hat rail) mounting optional  Yes  Number of auxiliary contacts as normally closed contact  0	
Number of auxiliary contacts as normally closed contact 0	
Number of auxiliary contacts as normally onen contact	
realists of duximary contacts as normally open contact	
Number of auxiliary contacts as change-over contact 0	
With switched-off indicator	
With under voltage release No	
Number of poles 4	
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 No	
Degree of protection (IP)	

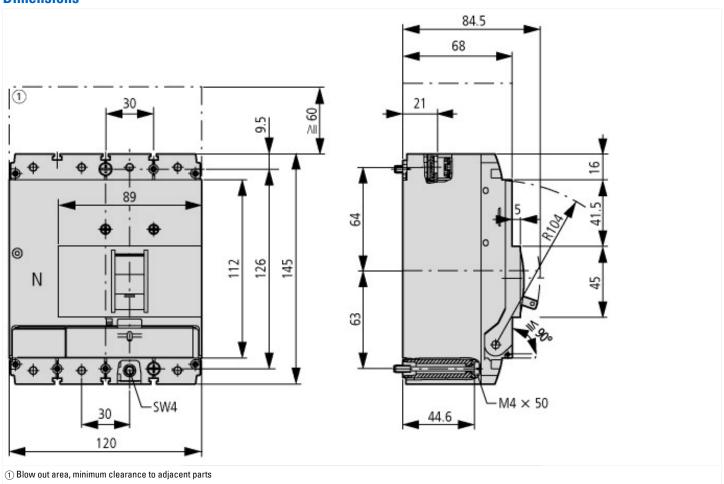
#### **Characteristics**

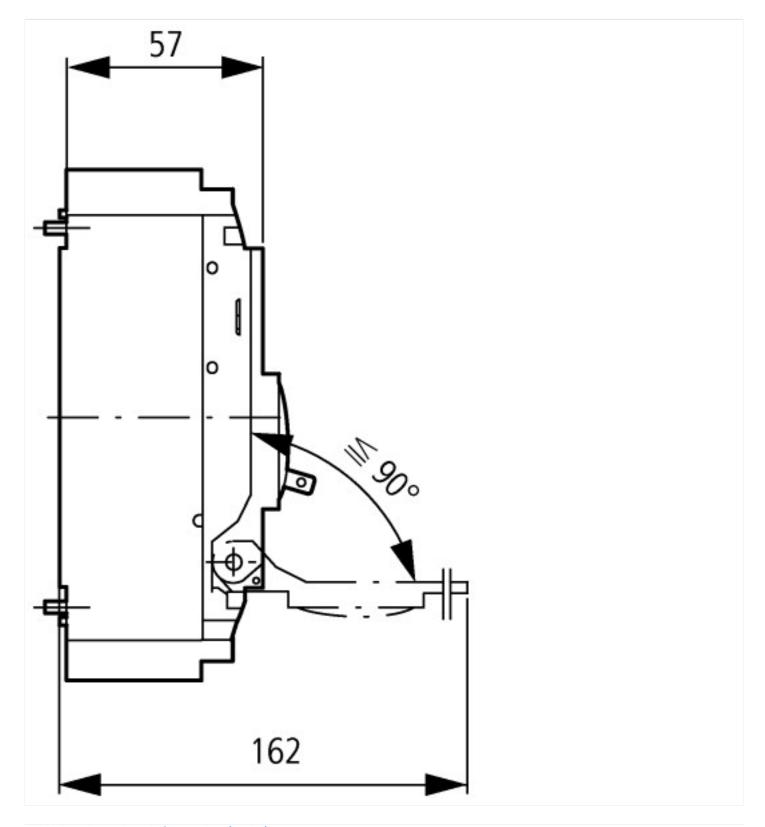






## **Dimensions**





## Additional product information (links)

Temperature dependency, Derating	http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=17.172
CurveSelect characteristics program	http://www.eaton.eu/DE/Europe/Electrical/CustomerSupport/ConfigurationTools/CharacteristicsProgram/index.htm
additional technical information for NZM power switch	https://es-assets.eaton.com/DOCUMENTATION/PDF/nzm_technic_de_en.pdf