DATASHEET - NZMH2-A250-BT



Circuit-breaker, 3p, 250A, box terminals

Part no. NZMH2-A250-BT Catalog No. 110295

4358762

EL-Nummer (Norway)



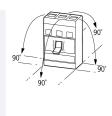
Similar to illustration

Delivery program			
Product range			Circuit-breaker
Protective function			System and cable protection
Standard/Approval			IEC
Installation type			Fixed
Release system			Thermomagnetic release
Construction size			NZM2
Number of poles			3 pole
Standard equipment			Box terminal
Switching capacity			
400/415 V 50 Hz	I _{cu}	kA	150
Rated current = rated uninterrupted current			
Rated current = rated uninterrupted current	$I_n = I_u$	Α	250
Setting range			
Overload trip			
中	I _r	Α	200 - 250
Short-circuit releases			
Non-delayed	$I_i = I_n x \dots$		6 - 10
Short-circuit releases	I _{rm}	Α	1500 - 2500

Technical data

Conoral

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	C - 40 - + 70
Operation	°C	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	VA	/ AC 500
between the auxiliary contacts	VA	/ AC 300
Weight	kg	g 2.345
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)
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	250
Rated surge voltage invariability	U_{imp}		
Main contacts		V	8000
Auxiliary contacts		V	6000
Rated operational voltage	U _e	V AC	690
Rated operational voltage	U _e	V DC	750

The following settings are required in order to ensure correct tripping:

The fast-response release will take longer to respond when used for DC applications. Because of this, the setting on the trip block inscription, which is specified for AC currents, must be set to a lower value for DC currents.

DC correction factor for instantaneous release response value:

o NZM1: 1.25

o NZM2: 1.35

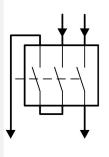
o NZM3: 1.45

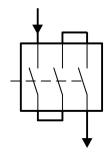
Example: NZM3 Ie = 500A. Desired DC tripping current: 10 * Ie = 5000A.

Calculation:

- Desired DC value / correction factor = AC setting on trip block
- \bullet 5000A / 1.45 = 3448 A \sim 7 * Ie = Value that needs to be set on the trip block

Permitted circuit configurations:





Rated insulation voltage U_i V 1000 Use in unearthed supply systems $V \le 690$	Overvoltage category/pollution degree			III/3
Use in unearthed supply systems V ≤ 690	Rated insulation voltage	Ui	V	1000
	Use in unearthed supply systems		V	≦ 690

Switching capacity

Rated short-circuit making capacity	I _{cm}		
240 V	I _{cm}	kA	330
400/415 V	I _{cm}	kA	330
440 V 50/60 Hz	I _{cm}	kA	286
525 V 50/60 Hz	I _{cm}	kA	105
690 V 50/60 H	Ic	kA	40
Rated short-circuit breaking capacity I _{cn}	I _{cn}		

Icu to IEC/EN 60947 test cycle 0-t-C0	lcu	kA	
240 V 50/60 Hz	I _{cu}	kA	150
400/415 V 50/60 Hz	I _{cu}	kA	150
440 V 50/60 Hz	I _{cu}	kA	130
525 V 50/60 Hz	I _{cu}	kA	50
690 V 50/60 Hz	Icu	kA	20
500 V DC	I _{cu}	kA	60
750 V DC	I _{cu}	kA	60
Ics to IEC/EN 60947 test cycle 0-t-C0-t-C0	lcs	kA	
240 V 50/60 Hz	I _{cs}	kA	150
400/415 V 50/60 Hz	I _{cs}	kA	150
440 V 50/60 Hz	I _{cs}	kA	130
525 V 50/60 Hz	I _{cs}	kA	37.5
690 V 50/60 Hz		kA	5
	I _{cs}		
500 V DC	I _{cs}	kA	15
750 V DC	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			Q PA 7
t = 0.3 s	I _{cw}	kA	1.9
t = 1 s	I _{cw}	kA	1.9
Utilization category to IEC/EN 60947-2	·cw		A
Lifespan, mechanical(of which max. 50 % trip by shunt/undervoltage release)	Operations		20000
Lifespan, electrical	Operations		2000
AC-1			
400 V 50/60 Hz	Operations		10000
415 V 50/60 Hz	Operations		10000
690 V 50/60 Hz	Operations		7500
AC3	oporation:		
400 V 50/60 Hz	Operations		6500
415 V 50/60 Hz	Operations		6500
690 V 50/60 Hz	Operations		5000
DC-1	·		
500 V DC	Operations		7500
750 V DC	Operations		7500
DC - 3	·		
500 V DC	Operations		3000
750 V DC	Operations		3000
Max. operating frequency		Ops/h	120
Total break time at short-circuit		ms	<10
Terminal capacity			
Standard equipment			Box terminal
Optional accessories			Screw terminal Tunnel terminal connection on rear
Round copper conductor			
Box terminal			
Solid		mm ²	1 x (10 - 16) 2 x (6 - 16)
Stranded		mm ²	1 x (25 - 185) 2 x (25 - 70)
Tunnel terminal			
Solid		mm ²	1 x 16
Stranded			
		mm ²	1 x (25 - 185)

Direct on the switch			
Solid		mm ²	1 x (10 - 16) 2 x (6 - 16)
Stranded		mm^2	1 x (25 - 185) 2 x (25 - 70)
Al circular conductor			
Tunnel terminal			
Solid		mm^2	1 x 16
Stranded			
Stranded		mm^2	1 x (25 - 185)
Cu strip (number of segments x width x segment thickness)			
Box terminal			
	min.	mm	2 x 9 x 0.8
	max.	mm	10 x 16 x 0.8 (2x) 8 x 15.5 x 0,8
Bolt terminal and rear-side connection			
Flat copper strip, with holes	min.	mm	2 x 16 x 0.8
Flat copper strip, with holes	max.	mm	10 x 24 x 0.8
Copper busbar (width x thickness)	mm		
Bolt terminal and rear-side connection			
Screw connection			M8
Direct on the switch			
	min.	mm	16 x 5
	max.	mm	24 x 8
Control cables			
		mm ²	1 x (0.75 - 2.5) 2 x (0.75 - 1.5)
Flat copper strip, with holes Flat copper strip, with holes Copper busbar (width x thickness) Bolt terminal and rear-side connection Screw connection Direct on the switch	min. max. mm	mm mm	(2x) 8 x 15.5 x 0,8 2 x 16 x 0.8 10 x 24 x 0.8 M8 16 x 5 24 x 8

Design verification as per IEC/EN 61439

Design verification as per IEG/EIN 61439			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	250
Equipment heat dissipation, current-dependent	P _{vid}	W	58.13
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	70
EC/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

Motor drive integrated

Degree of protection (IP)

Motor drive optional

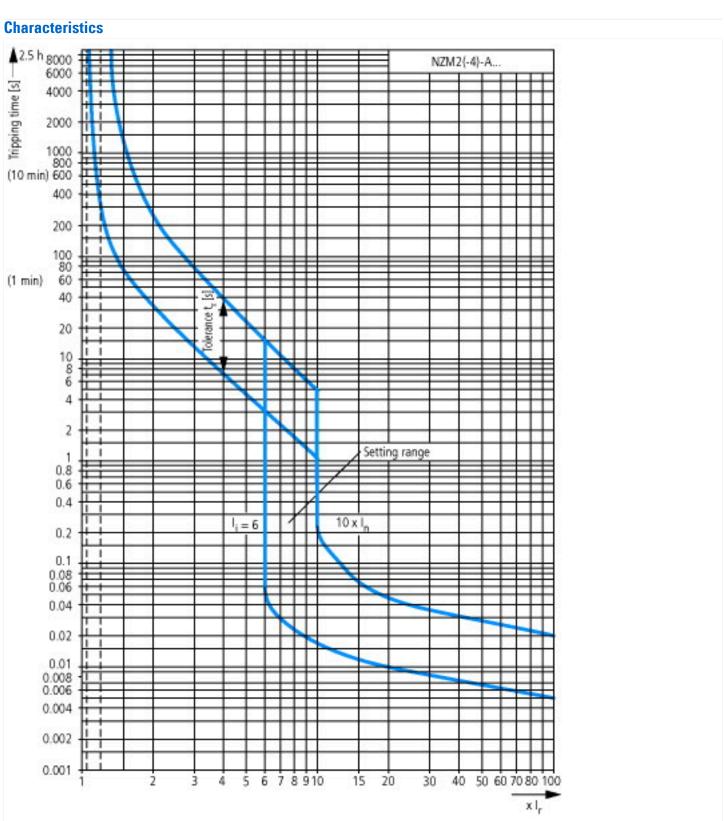
Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation protection (EC000228)						
$Electric \ engineering, \ automation, \ process \ control \ engineering \ / \ Low-voltage \ switch \ technology \ / \ Circuit \ breaker \ (LV < 1 \ kV) \ / \ Circuit \ breaker \ for \ power \ transformer, \ generator \ and \ system \ protection \ (ecl@ss10.0.1-27-37-04-09 \ [AJZ716013])$						
Rated permanent current lu A 250						
Rated voltage	V	690 - 690				
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz	kA	150				

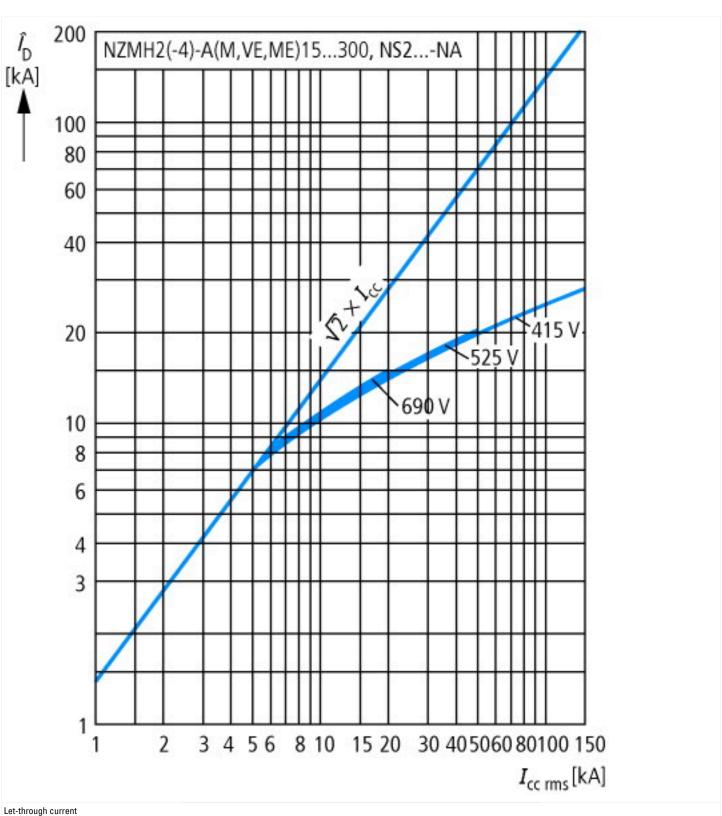
Rated voltage	,	V	690 - 690
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz	ı	kA	150
Overload release current setting		A	200 - 250
Adjustment range short-term delayed short-circuit release		A	0 - 0
Adjustment range undelayed short-circuit release		A	1500 - 2500
Integrated earth fault protection			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

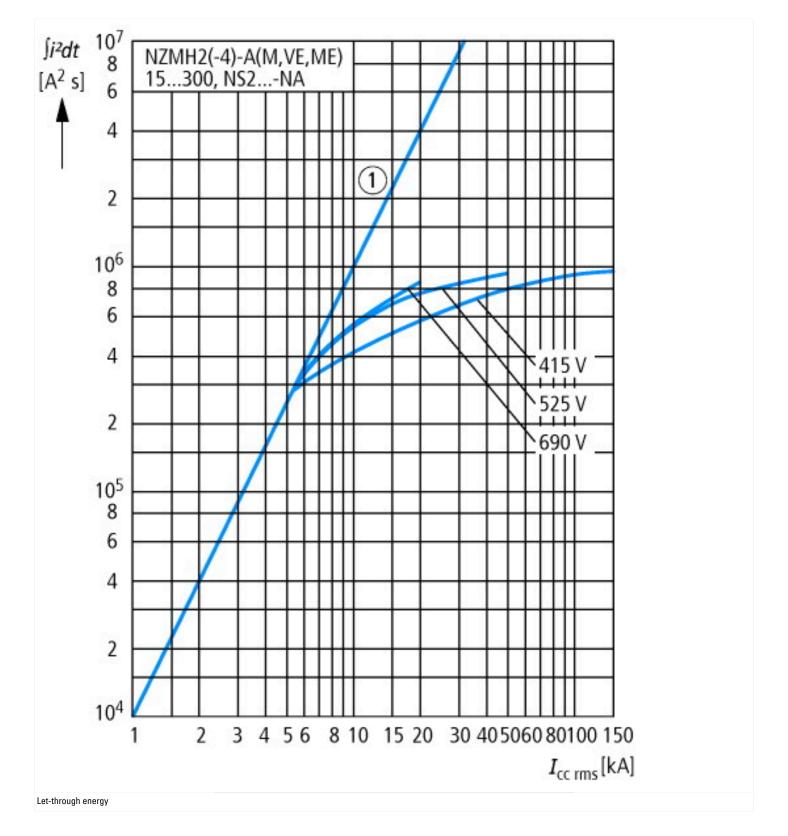
No

Yes

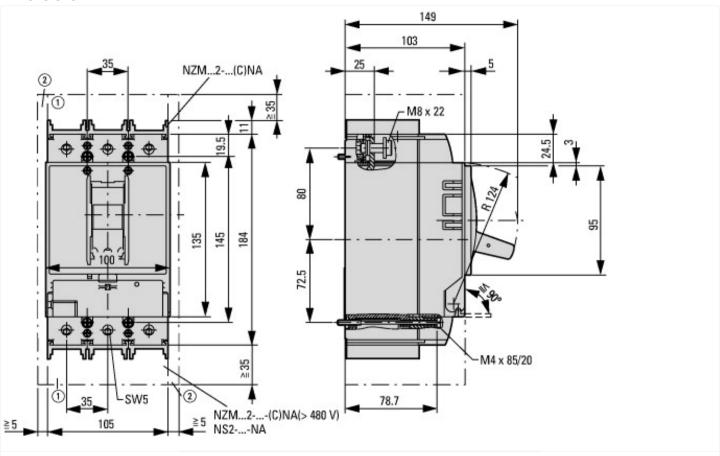
IP20



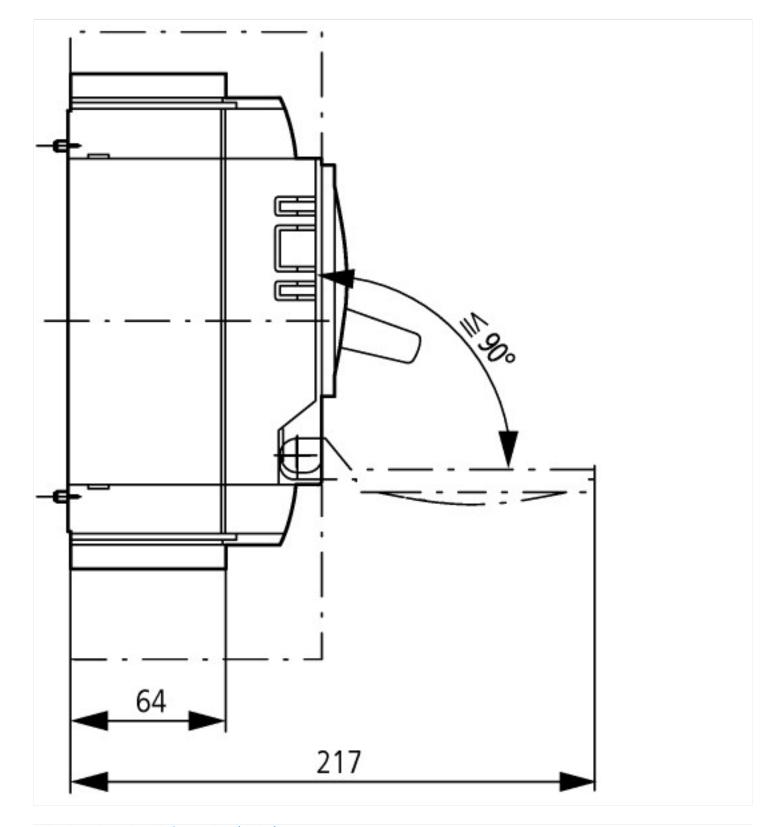




Dimensions



Blow out area, minimum clearance to adjacent parts
 Minimum clearance to adjacent parts



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	ftp://ftp.moeller.net/DOCUMENTATION/PDF/nzm_technic_de_en.pdf