

Circuit-breaker, 3p, 1000A

Part no. NZMH4-VE1000 Article no. 265775



Similar to illustration

Delivery programme			
Product range			Circuit-breaker
Protective function			Systems, cable, selectivity and generator protection
Standard/Approval			IEC
Installation type			Fixed
Release system			Electronic release
Construction size			NZM4
Description			R.m.s. value measurement and "thermal memory" adjustable time delay setting to overcome current peaks tr: $2-20\mathrm{s}$ at $6\mathrm{x}$ Ir also infinity (without overload releases) Adjustable delay time tsd: Steps: 0, 20, 60, 100, 200, 300, 500, 750, 1000 ms i^2t constant function: switchable
Number of poles			3 pole
Standard equipment			Screw connection
Switching capacity			
400/415 V 50/60 Hz	I _{cu}	kA	85
Rated current = rated uninterrupted current			
Rated current = rated uninterrupted current	$I_n = I_u$	Α	1000
Setting range			
Overload trip			
中	I _r	Α	500 - 1000
Short-circuit releases			
Non-delayed	$I_i = I_n \times \dots$		2 - 12
Delayed	$I_{sd} = I_r \times \dots$		2 - 10

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 - + 80
Operation	°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

Weight		kg	21
Mounting position			Vertical and 90° in all directions With residual-current release XFI: - NZM1, N1, NZM2, N2: vertical and 90° in all directions with plug-in adapter elements - NZM1, N1, NZM2, N2: vertical, 90° right/left with withdrawable unit: - NZM3, N3: vertical, 90° 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)			Weight Temperature dependency, Derating Effective power loss
Circuit-breakers		٨	1000
Rated current = rated uninterrupted current	$I_n = I_u$	Α	1000
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		V	111/3
Rated insulation voltage	Ui	V	1000
Use in unearthed supply systems		V	≦ ₅₂₅
Switching capacity			
Rated short-circuit making capacity	I _{cm}		
240 V	I _{cm}	kA	275
400/415 V	I _{cm}	kA	187
440 V 50/60 Hz	I _{cm}	kA	187
525 V 50/60 Hz	I _{cm}	kA	143
690 V 50/60 H	Ic	kA	105
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	125
400/415 V 50/60 Hz	I _{cu}	kA	85
440 V 50/60 Hz	I _{cu}	kA	85
525 V 50/60 Hz	I _{cu}	kA	65
Ics to IEC/EN 60947 test cycle 0-t-C0-t-C0	lcs	kA	
240 V 50/60 Hz	I _{cs}	kA	63
400/415 V 50/60 Hz	I _{cs}	kA	43
440 V 50/60 Hz	I _{cs}	kA	43
525 V 50/60 Hz	I _{cs}	kA	49
690 V 50/60 Hz	Ics	kA	37 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 s	I _{cw}	kA	19.2
t = 1 s	I _{cw}	kA	19.2
Utilization category to IEC/EN 60947-2			A
Rated making and breaking capacity			
Rated operational current	l _e	Α	

Connection width extension				
15 V 66 V 7	AC-1			
	380 V 400 V	l _e	Α	1000
16-3 16-3	415 V	l _e	Α	1000
1	690 V	l _e	Α	1000
415 V 90 V	AC3			
	380 V 400 V	le	Α	1000
Ulregam, mechanicaliof which max. 20 % vig by absurquintervaltage released by the persistent of the pe	415 V	I _e	Α	1000
Telephan, michamical of which max 59 % trig by shundhandernollage released Clergons, nichtrical	660 V 690 V	l _e	Α	1000
Cleapon, mechanically which max. \$9 % top by abunduandervoltage reisease) Cleapon, mechanically which max. \$9 % top by abunduandervoltage reisease) Cleapon, mechanically which max. \$9 % top by abunduandervoltage reisease) Cleapon, mechanically which max. \$9 % top by abunduandervoltage reisease) Cleapon, mechanically which max. \$9 % top by abunduandervoltage reisease) Cleapon, mechanically which max. \$9 % top by abunduandervoltage reisease) Cleapon				For AC3 rated operational current with NZM4 the following applies: 400 V: max.
Class on submitted				
AD-1 410 V \$300 114 410 V \$300 114 415 V \$300 114 410 V \$300 114 4		Operations		10000
450 V 9509 1 Pt				
195				
Resol V \$080 Hz				
A00				
A60 V 5050 Hz		Uperations		2000
15 15 15 16 16 16 16 16		0		2000
6800 V S0180 it v Operating frequency 0 (9ah) 60 (10 cmm) that losse per pole at lu are based on the maximum rated operational current of the frame size. 6 (2 cmm) that losse per pole the specificasion refers to the maximum rated operational current of the frame size. Total downtine in a short-circuit c s s ≤ ≤ 15 s v < 35 × 415 v				
Max. operating frequency				
Current heat losse pur pole at I _u are based on the maximum rated operational current of the frame size. Total downtime in a short circuit Total downtime in a short circuit Standard equipment Overview Standard equipment Overview Round copper conductor Tunnel terminal Stranded Round copper conductor Tunnel terminal Stranded Module plate Single hole Minoule plate Single hole Minoule plate Module plate Connection width extension Double hole Minoule plate Connection width extension Monute plate Connection width extension Minoule plate Connection width ex		Operations		
couront of the frame size. Total downtime in a short-circuit Terminal capacity Terminal and capacity Saladida Coperational Couront of the frame size. Standard aguipment Devrniew Accessionise Basic Guipment Basic Connection Screw Connection Conne				
Total downtime in a short-circuit ms 25			W	97
Total downtine in a short-circuit Total downtine in a short-c	current of the fruite 322.			For current heat loss per note the specification refers to the maximum rated
Connection width extension Connection Connection Connectio				operational current of the frame size.
Standard equipment Overview Overview Round copper conductor Tunnel terminal Standard Standard expenses on the conductor Tunnel terminal Standard Standard on more 4 -	Total downtime in a short-circuit		ms	< 25 ≤ 415 V: < 35 > 415 V
Standard equipment Overview Overvi	Terminal capacity			110 1, 100 / 110 1
Round copper conductor Tunnel torminal Stranded A-bole A-hole Box terminal Stranded A-bole Box terminal Accessories Box a a a a a a a a a a a a a a a a a a a	Standard equipment			Screw connection
Box	Overview			Basic
Round cosper conductor Tunnel terminal Stranded A-hole Box terminal Connection				terminal
Box				
Round copper conductor Tunnel terminal Stranded 4 -hole Ahole Bolt terminal and rear-side connection Module plate Single hole Single hole Single hole Double hole Double hole Double hole Connection width extension Connection width extension Round copper conductor Tunnel terminal A -				
Round copper conductor Tunnel terminal Stranded 4-hole A-hole Bolt terminal and rear-side connection Module plate Single hole Single hole Single hole Double hole Double hole Module plate Connection width extension max max max 4 x 50 2 x 70 3 x 50 4 x 50 5 x 50 6 x 70 7 x 70 8 x 50				terminal
Round copper conductor Tunnel terminal Stranded 4-hole 4-hole Bolt terminal and rear-side connection Module plate Single hole Single hole Module plate Module plate Module plate Module plate Module plate Module plate Mona Max max max max ax (70 - 240) xx (70 - 185)				
Round copper conductor Tunnel terminal Stranded 4-hole Bolt terminal and rear-side connection Module plate Single hole Single hole Double hole Double hole Double hole Bolt terminal Module plate min. mm² 2 x (70 - 185) x (35 - 185) mm² 4 x (55 - 240) x (70 - 185) x (70 - 185				
Round copper conductor Tunnel terminal Stranded 4-hole Abole Bolt terminal and rear-side connection Module plate Single hole Single hole Single hole Module plate Double hole Double hole Double hole Double hole Connection width extension Connection width extension Round copper conductor ***Bell*** Fear Flat on Park Flat Conductor terminal and rear side connection ***March ***Image: Park Flat of Sample School				Connection ● • • •
Flat				
Round copper conductor Female terminal Tunnel terminal mm²				Flat
Tunnel terminal mm² mm² 4-hole mm² 4x (50 - 240) Bolt terminal and rear-side connection mm² 4x (50 - 240) Module plate min. mm² 1x (185 - 240) Single hole max. mm² 2x (70 - 185) Module plate min. mm² 4x 50 Double hole max. mm² 4x (35 - 185) Connection width extension mm² 2x 2x 240 (2x - 240) Connection width extension mm² 2x 2x 240 (2x - 240)				
Stranded mm² mm² 4-hole mm² 4 x (50 - 240) Bolt terminal and rear-side connection y x Module plate min. mm² 1 x (185 - 240) Single hole max. mm² 2 x (70 - 185) Module plate min. mm² 4 x 50 Double hole max. mm² 4 x (35 - 185) Connection width extension mm² 2 x 240 (x - 240) Connection width extension mm² 2 x 240 (x - 240)	Round copper conductor			
4-hole	Tunnel terminal			
4-hole mm² 4 x (50 - 240) Bolt terminal and rear-side connection The state of	Stranded		mm ²	
Bolt terminal and rear-side connection Image: Module plate Image:	4-hole			4 x (50 - 240)
Module plate min. mm² 1 x (185 - 240) Single hole max. mm² 2 x (70 - 185) Module plate min. mm² 4 x 50 Double hole max. mm² 4 x (35 - 185) Connection width extension mm² 2 x 240 Connection width extension mm² 2 x 240 Connection width extension mm² 2 x 240 6 x (70 - 240) 6 x (70 - 240)	Bolt terminal and rear-side connection			
Single hole min. mm² 1 x (185 - 240) Module plate Double hole min. mm² 2 x (70 - 185) Module plate Double hole min. mm² 4 x 50 Double hole max. mm² 4 x (35 - 185) Connection width extension mm² Connection width extension mm² 2 x 240 6 x (70 - 240)				
Single hole max. mm² 2 x (70 - 185) Module plate Double hole min. mm² 4 x 50 Double hole max. mm² 4 x (35 - 185) Connection width extension mm² 2 x (240) 6 x (70 - 240)		min.	mm ²	1 x (185 - 240)
Module plate Double hole min. mm² 4 x 50 Double hole max. mm² 4 x (35 - 185) Connection width extension mm² Connection width extension mm² 2 x 240 6 x (70 - 240)				
Double hole min. mm^2 4×50 Double hole max. mm^2 $4 \times (35 - 185)$ Connection width extension mm^2 Connection width extension mm^2 mm^2 mm^2 mm^2 mm^2		IIIaA.	mm²	2.4(10 100)
Double hole max. mm² 4 x (35 - 185) Connection width extension mm² Connection width extension mm² 2 x 240 6 x (70 - 240)				
Connection width extension mm ² Connection width extension mm ² 2 x 240 6 x (70 - 240)	Double hole	min.	mm ²	4 x 50
Connection width extension mm² 2 x 240 6 x (70 - 240)	Double hole	max.	mm^2	4 x (35 - 185)
Connection width extension $mm^2 = 2 \times 240 \\ 6 \times (70 - 240)$	Connection width extension		mm^2	
6 x (70 - 240)	Connection width extension			2 x 240
Al conductors, Cu cable			111111	
	Al conductors, Cu cable			

Stranded		mm ²	
4-hole		mm ²	4 x (50 - 240)
Bolt terminal and rear-side connection			
Flat copper strip, with holes	min.	mm	(2 x) 10 x 50 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
Cu strip (number of segments x width x segment thickness)			
Flat conductor terminal			
	min.	mm	6 x 16 x 0.8
	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	(2 x) 10 x 50 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) 2 x (80 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 ²	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 _n	A	1000
Equipment heat dissipation, current-dependent		W	111
	P _{vid}		
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.

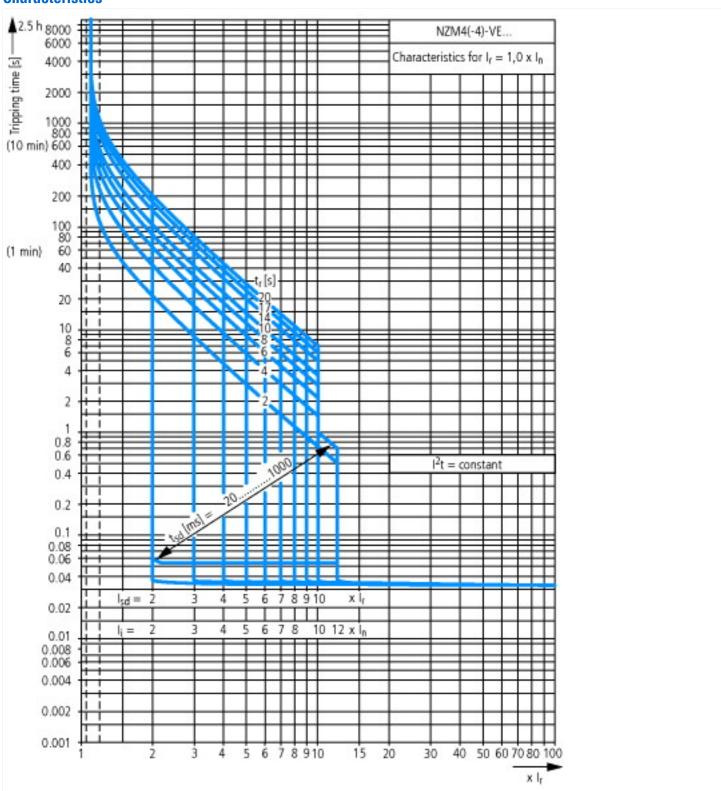
Technical data ETIM 6.0

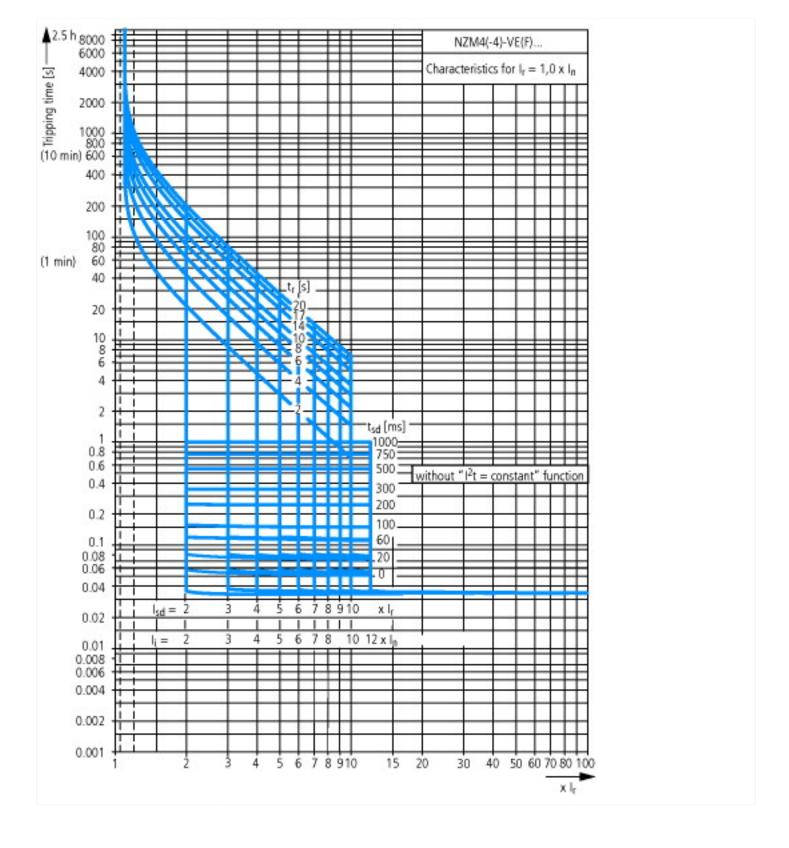
Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation prot. (EC000228)

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@ss8.1-27-37-04-09 [AJZ716010])

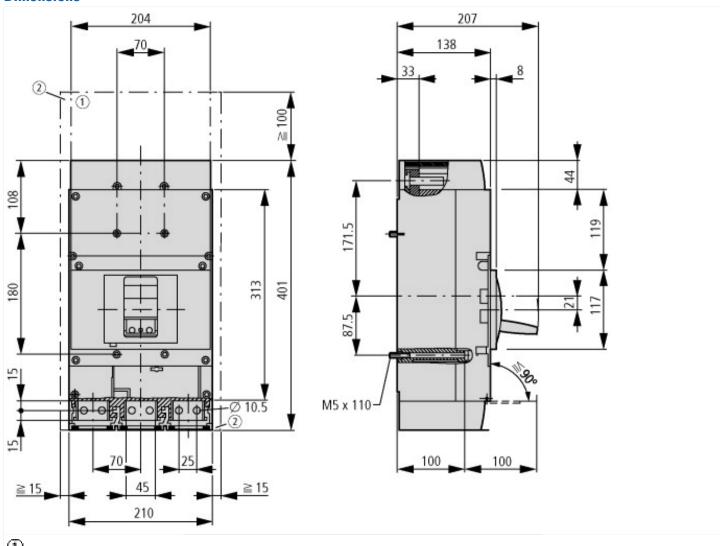
protection (ecl@ss8.1-27-37-04-09 [AJZ716010])		
Rated permanent current lu	Α	1000
Rated voltage	V	690 - 690
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz	kA	A 85
Overload release current setting	А	500 - 1000
Adjustment range short-term delayed short-circuit release	А	1000 - 10000
Adjustment range undelayed short-circuit release	А	2000 - 12000
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
Switched-off indicator available		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





Dimensions



Blow out area, minimum clearance to adjacent parts Ui \leq 690 V: 100 mm Ui \leq 1500 V: 200 mm

Minimum clearance to adjacent parts
Ui ≤ 1000 V: 15 mm
Ui ≤ 1500 V: 70 mm

Additional product information (links)

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Weight	http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=17.171
Temperature dependency, Derating	http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=17.172
Effective power loss	http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=17.174
Setting-Specific Representation of Tripping Characteristics and Competent Assessment of their Interaction	http://www.moeller.net/binary/ver_techpapers/ver943en.pdf
Busbar Component Adapters for modern Industrial control panels	http://www.moeller.net/binary/ver_techpapers/ver960en.pdf