

Circuit-breaker, 3p, 160A 1000V

Part no. **NZMH2-A160-S1**
 Catalog No. **290364**

EL-Nummer
 (Norway) **4359040**



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	Thermomagnetic release		
Construction size	NZM2		
Description	NZM...S1 terminal type: NZM...XKSA cover required		
Number of poles	3 pole		
Standard equipment	Screw connection		
Rated current = rated uninterrupted current	$I_n = I_u$	A	160
Switching capacity			
1000 V 50/60 Hz	I_{cu}	kA	10
Setting range			
Overload trip			
	I_r	A	125 - 160
Short-circuit releases			
Non-delayed		$I_i = I_n \times \dots$	6 - 10

Technical data

Circuit-breakers

Rated surge voltage invariability	U_{imp}		
Main contacts		V	8000
Auxiliary contacts		V	6000
Rated operational voltage	U_e	V AC	1000
Rated current = rated uninterrupted current	$I_n = I_u$	A	160
Overvoltage category/pollution degree			III/3
Rated insulation voltage	U_i	V	1000
Utilization category			A
Ambient temperature			
Ambient temperature, storage		°C	- 40 - + 70
Operation		°C	- 25 - + 70

Rated short-circuit making capacity

240 V 50/60 Hz	I_{cm}	kA	330
400/415 V 50/60 Hz	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	I_c	kA	40
1000 V 50/60 Hz	I_{cm}	kA	17

Rated short-circuit breaking capacity I_{cn}

I _{cu} to IEC/EN 60947 test cycle 0-t-CO	I _{cu}	kA	
240 V 50/60 Hz	I _{cu}	kA	150
400/415 V 50 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	I _{cu}	kA	20
1000 V 50/60 Hz	I _{cu}	kA	10
I _{cs} to IEC/EN 60947 test cycle 0-t-CO-t-CO	I _{cs}	kA	
230 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	I _{cs}	kA	5
1000 V AC	I _{cs}	kA	3

Rated short-time withstand current

t = 0.3 s	I _{cw}	kA	1.9
t = 1 s	I _{cw}	kA	1.9
Lifespan, mechanical	Operations		20000
Max. operating frequency	Ops/h		120
Lifespan, mechanical: of which max. 50 % trip by shunt/undervoltage release			

Lifespan, electrical

1000 V 50/60 Hz	Operations	3000
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Terminal capacity

Standard equipment			Screw connection
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		
Stranded	mm ²		1 x (25 - 185)
Bolt terminal and rear-side connection			
Direct on the switch			
Solid	mm ²		1 x (10 - 16) 2 x (10 - 16)
Stranded	mm ²		1 x (25 - 50) 2 x (25 - 50)
Al conductors, Cu cable			
Tunnel terminal			
Solid	mm ²		1 x 16
Stranded	mm ²		
Stranded	mm ²		1 x (25 - 185) ²⁾
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 16 x 0.8
Copper busbar (width x thickness)	mm		

²⁾ Up to 240 mm² can be connected depending on the cable manufacturer.

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)

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I _n	A	160
Equipment heat dissipation, current-dependent	P _{vid}	W	38.4
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 _n	A	160	
Rated voltage	V	1000 - 1000	
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz	kA	150	
Overload release current setting	A	125 - 160	
Adjustment range short-term delayed short-circuit release	A	0 - 0	
Adjustment range undelayed short-circuit release	A	960 - 1600	
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		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 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