

## Circuit-breaker, 3p, 63A

Part no. **NZMH2-A63**  
Catalog No. **259097**



Powering Business Worldwide™

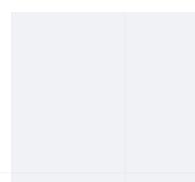
Similar to illustration

## 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		
Number of poles	3 pole		
Standard equipment	Screw connection		
<b>Switching capacity</b>			
400/415 V 50 Hz	$I_{CU}$	kA	150
<b>Rated current = rated uninterrupted current</b>	$I_n = I_u$	A	63
<b>Setting range</b>			
Overload trip	$I_r$	A	50 - 63
Short-circuit releases	$I_{rm}$	A	380 - 630
Non-delayed	$I_i = I_n \times \dots$		6 - 10
Short-circuit releases	$I_{rm}$	A	380 - 630

## 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			
between the auxiliary contacts	V AC	300			
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	$I_n = I_u$	A	63
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
			<p>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 <math>I_e = 500A</math>. Desired DC tripping current: <math>10 * I_e = 5000A</math>.            Calculation:            • Desired DC value / correction factor = AC setting on trip block            • <math>5000A / 1.45 = 3448 A \sim 7 * I_e =</math> Value that needs to be set on the trip block            Permitted circuit configurations:</p>
Overvoltage category/pollution degree			III/3
Rated insulation voltage	$U_i$	V	1000
Use in unearthing supply systems		V	$\leq 690$

### 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 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	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	$I_{cu}$	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-CO-t-CO	$I_{cs}$	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	$I_{cs}$	kA	5
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			
$t = 0.3 \text{ s}$	$I_{cw}$	kA	1.9
$t = 1 \text{ s}$	$I_{cw}$	kA	1.9
Utilization category to IEC/EN 60947-2			A
Lifespan, mechanical (of which max. 50 % trip by shunt/undervoltage release)	Operations		20000
Lifespan, electrical			
AC-1			
400 V 50/60 Hz	Operations		10000
415 V 50/60 Hz	Operations		10000
690 V 50/60 Hz	Operations		7500
AC-3			
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			Screw connection
Optional accessories			Box terminal Tunnel terminal connection on rear
Round copper conductor			
Box terminal			
Solid		mm <sup>2</sup>	1 x (10 - 16) 2 x (6 - 16)
Stranded		mm <sup>2</sup>	1 x (25 - 185) 2 x (25 - 70)
Tunnel terminal			
Solid		mm <sup>2</sup>	1 x 16
Stranded			
1-hole		mm <sup>2</sup>	1 x (25 - 185)
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 (25 - 185) 2 x (25 - 70)

Al circular conductor			
Tunnel terminal			
Solid	mm <sup>2</sup>	1 x 16	
Stranded	mm <sup>2</sup>	1 x (25 - 185)	
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 - 50) 2 x (25 - 50)	
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 <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	63
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	20.24
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 $I_p$	A	63
Rated voltage	V	690 - 690
Rated short-circuit breaking capacity $I_{cu}$ at 400 V, 50 Hz	kA	150
Overload release current setting	A	50 - 63
Adjustment range short-term delayed short-circuit release	A	0 - 0
Adjustment range undelayed short-circuit release	A	380 - 630
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