

## Circuit-breaker, 3p, 80A

Part no. **NZMB1-S80**  
Catalog No. **265729**



Powering Business Worldwide™

Similar to illustration

## Delivery program

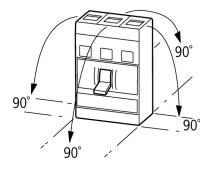
Product range		Circuit-breaker
Protective function		Short-circuit protection
Standard/Approval		IEC
Installation type		Fixed
Release system		Thermomagnetic release
Construction size		NZM1
Description		Motor protection in conjunction with overload relay With short-circuit release Without overload release Ir IEC/EN 60947-4-1, IEC/EN 60947-2  The circuit-breaker fulfills all requirements for AC-3 switching category.
Number of poles		3 pole
Standard equipment		Box terminal
Rated current = rated uninterrupted current	$I_n = I_u$	A 80
<b>Switching capacity</b>		
400/415 V 50 Hz	$I_{cu}$	kA 25
<b>Setting range</b>		
Short-circuit releases		
Non-delayed	$I_i = I_n \times \dots$	8 - 14
<b>Motor rating AC-3 at 400 V 50/60 Hz</b>		
380 V 400 V	P	kW 37
<b>Rated operational current AC-3 at 400 V 50/60 Hz</b>		
400 V	$I_e$	A 68

## 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

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



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

### Circuit-breakers

Rated current = rated uninterrupted current	$I_n = I_u$	A	80
Rated surge voltage invariability	$U_{imp}$		
Main contacts		V	6000
Auxiliary contacts		V	6000
Rated operational voltage	$U_e$	V AC	440
Overtoltage category/pollution degree			III/3
Rated insulation voltage	$U_i$	V	690
Use in unearthing supply systems		V	$\leq 440$

### Switching capacity

Rated short-circuit making capacity	$I_{cm}$		
240 V	$I_{cm}$	kA	63
400/415 V	$I_{cm}$	kA	53
440 V 50/60 Hz	$I_{cm}$	kA	53
Rated short-circuit breaking capacity $I_{cn}$	$I_{cn}$		
Icu to IEC/EN 60947 test cycle 0-t-CO	$I_{cu}$	kA	
240 V 50/60 Hz	$I_{cu}$	kA	30
400/415 V 50/60 Hz	$I_{cu}$	kA	25
440 V 50/60 Hz	$I_{cu}$	kA	25
Ics to IEC/EN 60947 test cycle 0-t-CO-t-CO	$I_{cs}$	kA	
240 V 50/60 Hz	$I_{cs}$	kA	30
400/415 V 50/60 Hz	$I_{cs}$	kA	25
440 V 50/60 Hz	$I_{cs}$	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		A	
Lifespan, mechanical (of which max. 50 % trip by shunt/undervoltage release)	Operations		20000
Lifespan, electrical			
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
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 (10 - 70) <sup>3)</sup> 2 x (6-25)	
			<sup>3)</sup> Up to 95 mm <sup>2</sup> can be connected depending on the cable manufacturer.
Tunnel terminal			
Solid	mm <sup>2</sup>	1 x 16	
Stranded			
1-hole	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 (6 - 16)	
Stranded	mm <sup>2</sup>	1 x (10 - 70) <sup>3)</sup> 2 x 25	
			<sup>3)</sup> Up to 95 mm <sup>2</sup> can be connected depending on the cable manufacturer.
Al circular conductor			
Tunnel terminal			
Solid	mm <sup>2</sup>	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)	
Cu 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
Copper 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
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	80
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	16.32
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) / Motor protection circuit-breaker (EC000074)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Motor protection circuit-breaker (ecl@ss10.0.1-27-37-04-01 [AGZ529016])

Overload release current setting	A	0 - 0
Adjustment range undelayed short-circuit release	A	8 - 44328
With thermal protection		No
Phase failure sensitive		No
Switch off technique		Magnetic
Rated operating voltage	V	440 - 440
Rated permanent current $I_{\text{p}}$	A	80
Rated operation power at AC-3, 230 V	kW	22
Rated operation power at AC-3, 400 V	kW	45
Type of electrical connection of main circuit		Other
Type of control element		Rocker lever
Device construction		Built-in device fixed built-in technique
With integrated auxiliary switch		No
With integrated under voltage release		No
Number of poles		3
Rated short-circuit breaking capacity $I_{\text{cu}}$ at 400 V, AC	kA	18.5
Degree of protection (IP)		IP20
Height	mm	145
Width	mm	90
Depth	mm	88