

## Circuit-breaker, 3p, 40A



Powering Business Worldwide™

Part no.	<b>NZMN1-M40</b>
Catalog No.	<b>265718</b>
EL-Nummer (Norway)	<b>4358897</b>

Similar to illustration

## Delivery program

Product range	Circuit-breaker		
Protective function	Motor protection		
Standard/Approval	IEC		
Installation type	Fixed		
Release system	Thermomagnetic release		
Construction size	NZM1		
Description	With phase-failure sensitivity Tripping class 10 A 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		
<b>Switching capacity</b>			
400/415 V 50 Hz	$I_{cu}$	kA	50
Rated current = rated uninterrupted current	$I_n = I_u$	A	40
<b>Setting range</b>			
Overload trip		$I_r$	A
			32 - 40
Short-circuit releases			
Non-delayed		$I_i = I_n \times \dots$	8 - 14
<b>Motor rating AC-3 50/60 Hz</b>			
380 V 400 V	P	kW	18.5
<b>Motor rating AC-3 50/60 Hz</b>			
400 V	P	kW	18.5
<b>Rated operational current AC-3 50/60 Hz</b>			
400 V	$I_e$	A	36

## 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	$^{\circ}C$	- 40 - + 70	
Operation	$^{\circ}C$	-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		<p>Vertical and 90° in all directions</p> <p>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</p>
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	$I_h = I_u$	A	40
Rated surge voltage invariability	$U_{imp}$		
Main contacts		V	6000
Auxiliary contacts		V	6000
Rated operational voltage	$U_e$	V AC	690
Overvoltage category/pollution degree			III/3
Rated insulation voltage	$U_i$	V	690
Use in unearthing supply systems		V	$\leq 690$

### Switching capacity

Rated short-circuit making capacity	$I_{cm}$		
240 V	$I_{cm}$	kA	187
400/415 V	$I_{cm}$	kA	105
440 V 50/60 Hz	$I_{cm}$	kA	74
525 V 50/60 Hz	$I_{cm}$	kA	40
690 V 50/60 Hz	$I_c$	kA	17
Rated short-circuit breaking capacity $I_{cn}$	$I_{cn}$		
$I_{cu}$ to IEC/EN 60947 test cycle 0-t-CO	$I_{cu}$	kA	
240 V 50/60 Hz	$I_{cu}$	kA	85
400/415 V 50/60 Hz	$I_{cu}$	kA	50
440 V 50/60 Hz	$I_{cu}$	kA	35
525 V 50/60 Hz	$I_{cu}$	kA	20
690 V 50/60 Hz	$I_{cu}$	kA	10
$I_{cs}$ to IEC/EN 60947 test cycle 0-t-CO-t-CO	$I_{cs}$	kA	
240 V 50/60 Hz	$I_{cs}$	kA	85
400/415 V 50/60 Hz	$I_{cs}$	kA	50
440 V 50/60 Hz	$I_{cs}$	kA	35
525 V 50/60 Hz	$I_{cs}$	kA	10
690 V 50/60 Hz	$I_{cs}$	kA	7.5
Utilization category to IEC/EN 60947-2			Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit-breaker.
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	7500
415 V 50/60 Hz	Operations	7500
690 V 50/60 Hz	Operations	5000
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	mm <sup>2</sup>		
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	mm <sup>2</sup>		
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	40
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	13.49
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	32 - 40
Adjustment range undelayed short-circuit release	A	320 - 560
With thermal protection		Yes
Phase failure sensitive		Yes
Switch off technique		Thermomagnetic
Rated operating voltage	V	690 - 690
Rated permanent current I <sub>n</sub>	A	40
Rated operation power at AC-3, 230 V	kW	11
Rated operation power at AC-3, 400 V	kW	18.5
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 <sub>cu</sub> at 400 V, AC	kA	35
Degree of protection (IP)		IP20
Height	mm	145
Width	mm	90

