

Circuit-breaker, 3p, 50A



**Part no.**                      **NZMC1-M50**  
**271399**

<b>General specifications</b>	
Product name	Eaton Moeller series NZM molded case circuit breaker thermo-magnetic
Part no.	NZMC1-M50
EAN	4015082713997
Product Length/Depth	88 millimetre
Product height	145 millimetre
Product width	90 millimetre
Product weight	1.046 kilogram
Compliances	RoHS conform
Certifications	IEC IEC/EN 60947
Product Tradename	NZM
Product Type	Molded case circuit breaker
Product Sub Type	Thermo-magnetic
<b>Delivery program</b>	
Application	Use in unearthed supply systems at 690 V
Type	Circuit breaker
Circuit breaker frame type	NZM1
Number of poles	Three-pole
Amperage Rating	50 A
Release system	Thermomagnetic release
Special features	Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit breaker (Rated short-circuit breaking capacity I <sub>cn</sub> ) Rated current = rated uninterrupted current: 50 A Terminal capacity hint: Up to 95 mm <sup>2</sup> can be connected depending on the cable manufacturer. 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.
Fitted with:	Thermal protection
<b>Technical Data - Electrical</b>	
Voltage rating	690 V - 690 V
Rated insulation voltage (U <sub>i</sub> )	690 V
Rated impulse withstand voltage (U <sub>imp</sub> ) at auxiliary contacts	6000 V
Rated impulse withstand voltage (U <sub>imp</sub> ) at main contacts	6000 V
Rated operational current	41 A (400 V AC-3)
Instantaneous current setting (I <sub>i</sub> ) - min	400 A
Instantaneous current setting (I <sub>i</sub> ) - max	700 A
Overload current setting (I <sub>r</sub> ) - min	40 A
Overload current setting (I <sub>r</sub> ) - max	50 A
Short-circuit release non-delayed setting - min	400 A
Short-circuit release non-delayed setting - max	700 A
Rated short-circuit breaking capacity I <sub>cs</sub> (IEC/EN 60947) at 230 V, 50/60 Hz	55 kA
Rated short-circuit breaking capacity I <sub>cs</sub> (IEC/EN 60947) at 400/415 V, 50/60 Hz	22.5 kA
Rated short-circuit breaking capacity I <sub>cs</sub> (IEC/EN 60947) at 440 V, 50/60 Hz	22.5 kA
Rated short-circuit breaking capacity I <sub>cs</sub> (IEC/EN 60947) at 525 V, 50/60 Hz	6 kA
Rated short-circuit breaking capacity I <sub>cs</sub> (IEC/EN 60947) at 690 V, 50/60 Hz	4 kA
Rated short-circuit making capacity I <sub>cm</sub> at 240 V, 50/60 Hz	121 kA
Rated short-circuit making capacity I <sub>cm</sub> at 400/415 V, 50/60 Hz	76 kA
Rated short-circuit making capacity I <sub>cm</sub> at 440 V, 50/60 Hz	63 kA

Rated short-circuit making capacity Icm at 525 V, 50/60 Hz		24 kA
Rated short-circuit making capacity Icm at 690 V, 50/60 Hz		14 kA
Rated operating power at AC-3, 230 V		15 kW
Rated operating power at AC-3, 400 V		22 kW
Short-circuit total breaktime		< 10 ms
Electrical connection type of main circuit		Other
Isolation		300 V AC (between the auxiliary contacts) 500 V AC (between auxiliary contacts and main contacts)
Number of operations per hour - max		120
Handle type		Rocker lever
Utilization category		A (IEC/EN 60947-2)
Overvoltage category		III
Pollution degree		3
Lifespan, electrical		7500 operations at 415 V AC-1 10000 operations at 400 V AC-1 5000 operations at 690 V AC-1
Direction of incoming supply		As required
<b>Technical Data - Mechanical</b>		
Mounting Method		Fixed Built-in device fixed built-in technique
Degree of protection		IP20 IP20 (basic degree of protection, in the operating controls area)
Degree of protection (IP), front side		IP40 (with insulating surround) IP66 (with door coupling rotary handle)
Degree of protection (terminations)		IP00 (terminations, phase isolator and strip terminal) IP10 (tunnel terminal)
Protection against direct contact		Finger and back-of-hand proof to VDE 0106 part 100
Shock resistance		20 g (half-sinusoidal shock 20 ms)
Switch off technique		Thermomagnetic
Climatic proofing		Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78
Special features		Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit breaker (Rated short-circuit breaking capacity Icn) Rated current = rated uninterrupted current: 50 A Terminal capacity hint: Up to 95 mm <sup>2</sup> can be connected depending on the cable manufacturer. 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.
Lifespan, mechanical		20000 operations
<b>Technical Data - Mechanical - Terminals</b>		
Standard terminals		Box terminal
Optional terminals		Connection on rear. Screw terminal. Tunnel terminal
Terminal capacity (control cable)		0.75 mm <sup>2</sup> - 1.5 mm <sup>2</sup> (2x) 0.75 mm <sup>2</sup> - 2.5 mm <sup>2</sup> (1x)
Terminal capacity (aluminum solid conductor/cable)		16 mm <sup>2</sup> (1x) at tunnel terminal 10 mm <sup>2</sup> - 16 mm <sup>2</sup> (1x) direct at switch rear-side connection 10 mm <sup>2</sup> - 16 mm <sup>2</sup> (2x) direct at switch rear-side connection
Terminal capacity (aluminum stranded conductor/cable)		25 mm <sup>2</sup> - 95 mm <sup>2</sup> (1x) at tunnel terminal 25 mm <sup>2</sup> - 35 mm <sup>2</sup> (2x) direct at switch rear-side connection 25 mm <sup>2</sup> - 35 mm <sup>2</sup> (1x) direct at switch rear-side connection
Terminal capacity (copper busbar)		M6 at rear-side screw connection Max. 16 mm x 5 mm direct at switch rear-side connection Min. 12 mm x 5 mm direct at switch rear-side connection
Terminal capacity (copper solid conductor/cable)		10 mm <sup>2</sup> - 16 mm <sup>2</sup> (1x) direct at switch rear-side connection 10 mm <sup>2</sup> - 16 mm <sup>2</sup> (1x) at box terminal 6 mm <sup>2</sup> - 16 mm <sup>2</sup> (2x) at box terminal 6 mm <sup>2</sup> - 16 mm <sup>2</sup> (2x) direct at switch rear-side connection 16 mm <sup>2</sup> (1x) at tunnel terminal
Terminal capacity (copper stranded conductor/cable)		10 mm <sup>2</sup> - 70 mm <sup>2</sup> (1x) direct at switch rear-side connection 10 mm <sup>2</sup> - 70 mm <sup>2</sup> (1x) at box terminal 25 mm <sup>2</sup> - 95 mm <sup>2</sup> (1x) at 1-hole tunnel terminal 25 mm <sup>2</sup> (2x) direct at switch rear-side connection 6 mm <sup>2</sup> - 25 mm <sup>2</sup> (2x) at box terminal
Terminal capacity (copper strip)		Min. 2 segments of 9 mm x 0.8 mm at box terminal Max. 9 segments of 9 mm x 0.8 mm at box terminal

<b>Design verification as per IEC/EN 61439 - technical data</b>		
Rated operational current for specified heat dissipation (In)		50 A
Equipment heat dissipation, current-dependent		14.1 W
Ambient operating temperature - min		-25 °C
Ambient operating temperature - max		70 °C
Ambient storage temperature - min		-40 °C
Ambient storage temperature - max		70 °C
<b>Design verification as per IEC/EN 61439</b>		
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 Resist. of insul. mat. to abnormal heat/fire by internal elect. 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.
10.9.2 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.
<b>Additional information</b>		
Functions		Motor protection Phase failure sensitive

## Technical data ETIM 9.0

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@ss13-27-37-04-01 [AG2529021])		
Overload release current setting	A	40 - 50
Adjustment range undelayed short-circuit release	A	400 - 700
With thermal overload protection		Yes
Phase failure sensitive		Yes
Switch off technique		Thermomagnetic
Rated operating voltage	V	690 - 690
Rated permanent current Iu	A	50
Rated operation power at AC-3, 230 V	kW	15
Rated operation power at AC-3, 400 V	kW	22
Power loss	W	14.1
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	22.5
Degree of protection (IP)		IP20
Height	mm	145
Width	mm	90
Depth	mm	88