

Circuit-breaker, 3p, 80A

Part no. **NZMC1-S80**
271406

General specifications		
Product name		Eaton Moeller series NZM molded case circuit breaker magnetic
Part no.		NZMC1-S80
EAN		4015082714062
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		Magnetic
Delivery program		
Application		Use in unearthed supply systems at 690 V
Type		Circuit breaker
Circuit breaker frame type		NZM1
Number of poles		Three-pole
Amperage Rating		80 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 _{cn}) Motor protection in conjunction with overload relay With short-circuit release Without overload release I _r IEC/EN 60947-4-1, IEC/EN 60947-2 The circuit-breaker fulfills all requirements for AC-3 switching category. Rated current = rated uninterrupted current: 80 A Terminal capacity hint: Up to 95 mm ² can be connected depending on the cable manufacturer.
Technical Data - Electrical		
Voltage rating		690 V - 690 V
Rated insulation voltage (U _i)		690 V
Rated impulse withstand voltage (U _{imp}) at auxiliary contacts		6000 V
Rated impulse withstand voltage (U _{imp}) at main contacts		6000 V
Rated operational current		68 A (400 V AC-3)
Instantaneous current setting (I _i) - min		8 A
Instantaneous current setting (I _i) - max		44328 A
Overload current setting (I _r) - min		0 A
Overload current setting (I _r) - max		0 A
Short-circuit release non-delayed setting - min		640 A
Short-circuit release non-delayed setting - max		1120 A
Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 230 V, 50/60 Hz		55 kA
Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 400/415 V, 50/60 Hz		22.5 kA
Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 440 V, 50/60 Hz		22.5 kA
Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 525 V, 50/60 Hz		6 kA
Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 690 V, 50/60 Hz		4 kA
Rated short-circuit making capacity I _{cm} at 240 V, 50/60 Hz		121 kA
Rated short-circuit making capacity I _{cm} at 400/415 V, 50/60 Hz		76 kA
Rated short-circuit making capacity I _{cm} at 440 V, 50/60 Hz		63 kA
Rated short-circuit making capacity I _{cm} at 525 V, 50/60 Hz		24 kA

Rated short-circuit making capacity I _{cm} at 690 V, 50/60 Hz		14 kA
Rated operating power at AC-3, 230 V		22 kW
Rated operating power at AC-3, 400 V		37 kW
Short-circuit total breaktime		< 10 ms
Electrical connection type of main circuit		Other
Isolation		500 V AC (between auxiliary contacts and main contacts) 300 V AC (between the auxiliary 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
Technical Data - Mechanical		
Mounting Method		Built-in device fixed built-in technique Fixed
Degree of protection		IP20 (basic degree of protection, in the operating controls area) IP20
Degree of protection (IP), front side		IP66 (with door coupling rotary handle) IP40 (with insulating surround)
Degree of protection (terminations)		IP10 (tunnel terminal) IP00 (terminations, phase isolator and strip 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		Magnetic
Climatic proofing		Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
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 _{cn}) Motor protection in conjunction with overload relay With short-circuit release Without overload release I _r IEC/EN 60947-4-1, IEC/EN 60947-2 The circuit-breaker fulfills all requirements for AC-3 switching category. Rated current = rated uninterrupted current: 80 A Terminal capacity hint: Up to 95 mm ² can be connected depending on the cable manufacturer.
Lifespan, mechanical		20000 operations
Technical Data - Mechanical - Terminals		
Standard terminals		Box terminal
Optional terminals		Connection on rear. Screw terminal. Tunnel terminal
Terminal capacity (control cable)		0.75 mm ² - 1.5 mm ² (2x) 0.75 mm ² - 2.5 mm ² (1x)
Terminal capacity (aluminum solid conductor/cable)		10 mm ² - 16 mm ² (2x) direct at switch rear-side connection 10 mm ² - 16 mm ² (1x) direct at switch rear-side connection 16 mm ² (1x) at tunnel terminal
Terminal capacity (aluminum stranded conductor/cable)		25 mm ² - 35 mm ² (1x) direct at switch rear-side connection 25 mm ² - 95 mm ² (1x) at tunnel terminal 25 mm ² - 35 mm ² (2x) direct at switch rear-side connection
Terminal capacity (copper busbar)		Max. 16 mm x 5 mm direct at switch rear-side connection Min. 12 mm x 5 mm direct at switch rear-side connection M6 at rear-side screw connection
Terminal capacity (copper solid conductor/cable)		10 mm ² - 16 mm ² (1x) direct at switch rear-side connection 10 mm ² - 16 mm ² (1x) at box terminal 6 mm ² - 16 mm ² (2x) at box terminal 6 mm ² - 16 mm ² (2x) direct at switch rear-side connection 16 mm ² (1x) at tunnel terminal
Terminal capacity (copper stranded conductor/cable)		10 mm ² - 70 mm ² (1x) at box terminal 25 mm ² - 95 mm ² (1x) at 1-hole tunnel terminal 6 mm ² - 25 mm ² (2x) at box terminal 25 mm ² (2x) direct at switch rear-side connection 10 mm ² - 70 mm ² (1x) direct at switch rear-side connection
Terminal capacity (copper strip)		Max. 9 segments of 9 mm x 0.8 mm at box terminal Min. 2 segments of 9 mm x 0.8 mm at box terminal
Design verification as per IEC/EN 61439 - technical data		

Rated operational current for specified heat dissipation (In)		80 A
Equipment heat dissipation, current-dependent		16.32 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
Design verification as per IEC/EN 61439		
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.
Additional information		
Functions		Short-circuit protection

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 [AGZ529021])		
Overload release current setting	A	0 - 0
Adjustment range undelayed short-circuit release	A	8 - 44328
With thermal overload protection		No
Phase failure sensitive		No
Switch off technique		Magnetic
Rated operating voltage	V	690 - 690
Rated permanent current Iu	A	80
Rated operation power at AC-3, 230 V	kW	22
Rated operation power at AC-3, 400 V	kW	37
Power loss	W	10.8
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 Icu at 400 V, AC	kA	22.5
Degree of protection (IP)		IP20

Height	mm	145
Width	mm	90
Depth	mm	88