DATASHEET - NZMC1-M80-SVE

Circuit-breaker, 3p, 80A, plug-in module

Part no. **NZMC1-M80-SVE**
112746

Powering Business Worldwide™

General specifications

Product name	Eaton Moeller series NZM - Molded Case Circuit Breaker
Part no.	NZMC1-M80-SVE
EAN	4015081122868
Product Length/Depth	90 millimetre
Product height	201 millimetre
Product width	95 millimetre
Product weight	1.227 kilogram
Compliances	RoHS conform
Certifications	IEC/EN 60947 IEC
Product Tradename	NZM
Product Type	Molded Case Circuit Breaker
Product Sub Type	None

Delivery program

Application	Use in unearthed supply systems at 690 V
Type	Circuit breaker
Circuit breaker frame type	NZM1
Accessories required	NZM1-XSVS
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 Icn) Rated current = rated uninterrupted current: 80 A Terminal capacity hint: Up to 95 mm^2 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

Technical Data - Electrical

Voltage rating	690 V - 690 V
Rated insulation voltage (Ui)	690 V
Rated impulse withstand voltage (Uimp) at auxiliary contacts	6000 V
Rated impulse withstand voltage (Uimp) at main contacts	6000 V
Rated operational current	68 A (400 V AC-3)
Instantaneous current setting (Ii) - min	640 A
Instantaneous current setting (Ii) - max	1120 A
Overload current setting (Ir) - min	63 A
Overload current setting (Ir) - max	80 A
Short-circuit release non-delayed setting - min	640 A
Short-circuit release non-delayed setting - max	1120 A
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 230 V, 50/60 Hz	55 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 400/415 V, 50/60 Hz	22.5 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 440 V, 50/60 Hz	22.5 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 525 V, 50/60 Hz	6 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 690 V, 50/60 Hz	4 kA
Rated short-circuit making capacity Icm at 240 V, 50/60 Hz	121 kA
Rated short-circuit making capacity Icm at 400/415 V, 50/60 Hz	76 kA

Rated short-circuit making capacity Icm 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	22 kW
Rated operating power at AC-3, 400 V	45 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	10000 operations at 400 V AC-1 7500 operations at 415 V AC-1 5000 operations at 690 V AC-1
Direction of incoming supply	As required

Technical Data - Mechanical

Mounting Method	Plug-in unit Built-in device plug-in technique
Degree of protection	IP20 (basic degree of protection, in the operating controls area) IP20
Degree of protection (IP), front side	IP40 (with insulating surround) IP66 (with door coupling rotary handle)
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	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: 80 A Terminal capacity hint: Up to 95 mm^2 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

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 - 2.5 mm^2 (1x) 0.75 mm^2 - 1.5 mm^2 (2x)
Terminal capacity (aluminum solid conductor/cable)	10 mm^2 - 16 mm^2 (1x) direct at switch rear-side connection 16 mm^2 (1x) at tunnel terminal 10 mm^2 - 16 mm^2 (2x) direct at switch rear-side connection
Terminal capacity (aluminum stranded conductor/cable)	25 mm^2 - 35 mm^2 (2x) direct at switch rear-side connection 25 mm^2 - 95 mm^2 (1x) at tunnel terminal 25 mm^2 - 35 mm^2 (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^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 16 mm^2 (1x) at tunnel terminal 6 mm^2 - 16 mm^2 (2x) direct at switch rear-side connection
Terminal capacity (copper stranded conductor/cable)	10 mm^2 - 70 mm^2 (1x) direct at switch rear-side connection 25 mm^2 (2x) direct at switch rear-side connection 6 mm^2 - 25 mm^2 (2x) at box terminal 10 mm^2 - 70 mm^2 (1x) at box terminal 25 mm^2 - 95 mm^2 (1x) at 1-hole tunnel 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

Design verification as per IEC/EN 61439 - technical data			
Rated operational current for specified heat dissipation (In)			80 A
Equipment heat dissipation, current-dependent			20.83 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			Phase failure sensitive Motor 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	63 - 80
Adjustment range undelayed short-circuit release		A	640 - 1120
With thermal overload protection			Yes
Phase failure sensitive			Yes
Switch off technique			Thermomagnetic
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	45
Power loss		W	20.8
Type of electrical connection of main circuit			Other
Type of control element			Rocker lever
Device construction			Built-in device plug-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	201
Width		mm	95
Depth		mm	90