



## Circuit-breaker, 3p, 220A, motor protection, 1000 V

Part no. **NZMH3-ME220-S1**  
**119364**  
**EL Number** **4363146**  
**(Norway)**



Powering Business Worldwide™

## General specifications

Product name	Eaton Moeller series NZM molded case circuit breaker electronic
Part no.	NZMH3-ME220-S1
EAN	4015081175000
Product Length/Depth	166 millimetre
Product height	275 millimetre
Product width	140 millimetre
Product weight	6.34 kilogram
Compliances	RoHS conform
Certifications	IEC
Product Tradename	NZM
Product Type	Molded case circuit breaker
Product Sub Type	Electronic

## Delivery program

Type	Circuit breaker
Circuit breaker frame type	NZM3
Number of poles	Three-pole
Amperage Rating	220 A
Release system	Electronic release
Special features	Lifespan, mechanical: of which max. 50% trip by shunt/undervoltage release Phase-failure sensitivity IEC/EN 60947-4-1, IEC/EN 60947-2 R.m.s. value measurement and "thermal memory" adjustable time delay setting to overcome current peaks $tr: 2 - 20$ s at $6 \times I_r$ also infinity (without overload releases) NZM...S1 terminal type: NZM...XKSA cover required NZM4...S1 terminal type: Insulated busbar connection (NZM4-XKS screw connection) Rated current = rated uninterrupted current: 220 A Terminal capacity hint: Up to 240 mm <sup>2</sup> can be connected depending on the cable manufacturer.
Fitted with:	Thermal protection

## Technical Data - Electrical

Voltage rating	1000 V - 1000 V
Rated insulation voltage (Ui)	1000 V
Rated impulse withstand voltage (Uimp) at auxiliary contacts	6000 V
Rated impulse withstand voltage (Uimp) at main contacts	8000 V
Rated short-time withstand current ( $t = 0.3$ s)	3.3 kA
Rated short-time withstand current ( $t = 1$ s)	3.3 kA
Instantaneous current setting ( $li$ ) - min	220 A
Instantaneous current setting ( $li$ ) - max	3080 A
Overload current setting ( $lr$ ) - min	110 A
Overload current setting ( $lr$ ) - max	220 A
Short-circuit release non-delayed setting - min	220 A
Short-circuit release non-delayed setting - max	3080 A
Rated short-circuit breaking capacity $I_{cs}$ (IEC/EN 60947) at 230 V, 50/60 Hz	150 kA
Rated short-circuit breaking capacity $I_{cs}$ (IEC/EN 60947) at 400/415 V, 50/60 Hz	130 kA
Rated short-circuit breaking capacity $I_{cs}$ (IEC/EN 60947) at 440 V, 50/60 Hz	130 kA
Rated short-circuit breaking capacity $I_{cs}$ (IEC/EN 60947) at 525 V, 50/60 Hz	33 kA
Rated short-circuit breaking capacity $I_{cs}$ (IEC/EN 60947) at 690 V, 50/60 Hz	9 kA
Rated short-circuit breaking capacity $I_{cs}$ (IEC/EN 60947) at 1000 V, 50/60 Hz	10 kA
Rated short-circuit making capacity $I_{cm}$ at 240 V, 50/60 Hz	330 kA

Rated short-circuit making capacity $I_{cm}$ at 400/415 V, 50/60 Hz	330 kA
Rated short-circuit making capacity $I_{cm}$ at 440 V, 50/60 Hz	286 kA
Rated short-circuit making capacity $I_{cm}$ at 525 V, 50/60 Hz	143 kA
Rated short-circuit making capacity $I_{cm}$ at 690 V, 50/60 Hz	74 kA
Rated short-circuit making capacity $I_{cm}$ at 1000 V, 50/60 Hz	17 kA
Rated operating power at AC-3, 230 V	55 kW
Rated operating power at AC-3, 400 V	110 kW
Electrical connection type of main circuit	Screw connection
Number of operations per hour - max	60
Handle type	Rocker lever
Utilization category	A
Overvoltage category	III
Pollution degree	3
Lifespan, electrical	1000 operations at 1000 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
Switch off technique	Electronic
Special features	Lifespan, mechanical: of which max. 50% trip by shunt/undervoltage release Phase-failure sensitivity IEC/EN 60947-4-1, IEC/EN 60947-2 R.m.s. value measurement and "thermal memory" adjustable time delay setting to overcome current peaks $tr$ : 2 – 20 s at $6 \times I_r$ also infinity (without overload releases) NZM...S1 terminal type: NZM...XKSA cover required NZM4...S1 terminal type: Insulated busbar connection (NZM4-XKS screw connection) Rated current = rated uninterrupted current: 220 A Terminal capacity hint: Up to 240 mm <sup>2</sup> can be connected depending on the cable manufacturer.
Lifespan, mechanical	15000 operations

### Technical Data - Mechanical - Terminals

Standard terminals	Screw terminal
Terminal capacity (control cable)	0.75 mm <sup>2</sup> - 2.5 mm <sup>2</sup> (1x) 0.75 mm <sup>2</sup> - 1.5 mm <sup>2</sup> (2x)
Terminal capacity (aluminum solid conductor/cable)	16 mm <sup>2</sup> (1x) at tunnel terminal
Terminal capacity (aluminum stranded conductor/cable)	50 mm <sup>2</sup> - 240 mm <sup>2</sup> (2x) at 2-hole tunnel terminal 50 mm <sup>2</sup> - 240 mm <sup>2</sup> (1x) at 2-hole tunnel terminal 25 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) at tunnel terminal
Terminal capacity (copper busbar)	M10 at rear-side screw connection Min. 20 mm x 5 mm direct at switch rear-side connection Max. 30 mm x 10 mm + 30 mm x 5 mm direct at switch rear-side connection Max. 10 mm x 50 mm (2x) at rear-side width extension
Terminal capacity (copper solid conductor/cable)	16 mm <sup>2</sup> (2x) at box terminal 10 mm <sup>2</sup> - 16 mm <sup>2</sup> (2x) direct at switch rear-side connection 16 mm <sup>2</sup> (1x) direct at switch rear-side connection
Terminal capacity (copper stranded conductor/cable)	25 mm <sup>2</sup> - 120 mm <sup>2</sup> (1x) direct at switch rear-side connection 25 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) at tunnel terminal 35 mm <sup>2</sup> - 240 mm <sup>2</sup> (1x) at box terminal 25 mm <sup>2</sup> - 120 mm <sup>2</sup> (2x) at box terminal 25 mm <sup>2</sup> - 120 mm <sup>2</sup> (2x) direct at switch rear-side connection
Terminal capacity (copper strip)	Max. 10 segments of 32 mm x 1 mm + 5 segments of 32 mm x 1 mm at rear-side connection (punched) Max. 8 segments of 24 mm x 1 mm (2x) at box terminal Max. 10 segments of 24 mm x 1 mm + 5 segments of 24 mm x 1 mm at box terminal 10 segments of 50 mm x 1 mm (2x) at rear-side width extension Min. 6 segments of 16 mm x 0.8 mm at rear-side connection (punched) Min. 6 segments of 16 mm x 0.8 mm at box terminal

### Design verification as per IEC/EN 61439 - technical data

Rated operational current for specified heat dissipation ( $I_{n}$ )	220 A
Equipment heat dissipation, current-dependent	14.52 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.
<b>Additional information</b>	
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	110 - 220
Adjustment range undelayed short-circuit release	A	220 - 3080
With thermal overload protection		Yes
Phase failure sensitive		Yes
Switch off technique		Electronic
Rated operating voltage	V	1000 - 1000
Rated permanent current $I_{\text{p}}$	A	220
Rated operation power at AC-3, 230 V	kW	55
Rated operation power at AC-3, 400 V	kW	110
Power loss	W	
Type of electrical connection of main circuit		Screw connection
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	130
Degree of protection (IP)		IP20
Height	mm	275
Width	mm	140
Depth	mm	166