

Circuit-breaker, 3p, 20A 1000V

Part no. NZMH2-A20-S1
290355
EL Number 4359031
(Norway)

General specifications	
Product name	Eaton Moeller series NZM molded case circuit breaker thermo-magnetic
Part no.	NZMH2-A20-S1
EAN	4015082903558
Product Length/Depth	149 millimetre
Product height	184 millimetre
Product width	105 millimetre
Product weight	2.345 kilogram
Compliances	RoHS conform
Certifications	IEC
Product Tradename	NZM
Product Type	Molded case circuit breaker
Product Sub Type	Thermo-magnetic
Delivery program	
Type	Circuit breaker
Circuit breaker frame type	NZM2
Number of poles	Three-pole
Amperage Rating	20 A
Release system	Thermomagnetic release
Features	Protection unit Motor drive optional
Special features	Lifespan, mechanical: of which max. 50 % trip by shunt/undervoltage release NZM...S1 terminal type: NZM...XKSA cover required Rated current = rated uninterrupted current: 20 A Terminal capacity hint: Up to 240 mm ² can be connected depending on the cable manufacturer.
Technical Data - Electrical	
Voltage rating	1000 V - 1000 V
Rated insulation voltage (Ui)	1000 V AC
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)	1.9 kA
Rated short-time withstand current (t = 1 s)	1.9 kA
Instantaneous current setting (Ii) - min	350 A
Instantaneous current setting (Ii) - max	350 A
Overload current setting (Ir) - min	15 A
Overload current setting (Ir) - max	20 A
Short delay current setting (Isd) - min	0 A
Short delay current setting (Isd) - max	0 A
Short-circuit release non-delayed setting - min	350 A
Short-circuit release non-delayed setting - max	350 A
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 230 V, 50/60 Hz	150 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 400/415 V, 50/60 Hz	150 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 440 V, 50/60 Hz	130 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 525 V, 50/60 Hz	37.5 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 690 V, 50/60 Hz	5 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 1000 V, 50/60 Hz	3 kA
Rated short-circuit making capacity Icm at 240 V, 50/60 Hz	330 kA
Rated short-circuit making capacity Icm at 400/415 V, 50/60 Hz	330 kA
Rated short-circuit making capacity Icm at 440 V, 50/60 Hz	286 kA

Rated short-circuit making capacity I _{cm} at 525 V, 50/60 Hz		105 kA
Rated short-circuit making capacity I _{cm} at 690 V, 50/60 Hz		40 kA
Rated short-circuit making capacity I _{cm} at 1000 V, 50/60 Hz		17 kA
Electrical connection type of main circuit		Screw connection
Number of operations per hour - max		120
Handle type		Rocker lever
Utilization category		A
Overvoltage category		III
Pollution degree		3
Lifespan, electrical		3000 operations at 1000 V AC-1

Technical Data - Mechanical

Mounting Method		DIN rail (top hat rail) mounting optional Built-in device fixed built-in technique Fixed
Degree of protection		IP20
Number of auxiliary contacts (change-over contacts)		0
Number of auxiliary contacts (normally closed contacts)		0
Number of auxiliary contacts (normally open contacts)		0
Position of connection for main current circuit		Front side
Special features		Lifespan, mechanical: of which max. 50 % trip by shunt/undervoltage release NZM...S1 terminal type: NZM...XKSA cover required Rated current – rated uninterrupted current: 20 A Terminal capacity hint: Up to 240 mm ² can be connected depending on the cable manufacturer.
Lifespan, mechanical		20000 operations

Technical Data - Mechanical - Terminals

Standard terminals		Screw 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)		16 mm ² (1x) at tunnel terminal
Terminal capacity (aluminum stranded conductor/cable)		25 mm ² - 185 mm ² (1x) at tunnel terminal
Terminal capacity (copper busbar)		Max. 24 mm x 8 mm direct at switch rear-side connection Min. 16 mm x 5 mm direct at switch rear-side connection M8 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 (2x) 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
Terminal capacity (copper stranded conductor/cable)		25 mm ² - 185 mm ² (1x) at tunnel terminal 25 mm ² - 185 mm ² (1x) at box terminal 25 mm ² - 70 mm ² (2x) at box terminal 25 mm ² - 50 mm ² (2x) direct at switch rear-side connection
Terminal capacity (copper strip)		Max. 8 segments of 24 mm x 1 mm (2x) at box terminal Max. 10 segments of 16 mm x 0.8 mm at rear-side connection (punched) Min. 2 segments of 9 mm x 0.8 mm at box terminal Max. 10 segments of 16 mm x 0.8 mm at box terminal Min. 2 segments of 16 mm x 0.8 mm at rear-side connection (punched)

Design verification as per IEC/EN 61439 - technical data

Rated operational current for specified heat dissipation (I _n)		20 A
Equipment heat dissipation, current-dependent		5.1 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

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		System and cable protection

Technical data ETIM 9.0

Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation protection (EC000228)		
Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Circuit breaker for power transformer, generator and system protection (ecl@ss13-27-37-04-09 [AJZ716018])		
Rated permanent current I _u	A	20
Rated voltage	V	1000 - 1000
Rated short-circuit breaking capacity I _{cu} at 400 V, 50 Hz	kA	150
Overload release current setting	A	15 - 20
Adjustment range short-term delayed short-circuit release	A	0 - 0
Adjustment range undelayed short-circuit release	A	350 - 350
Power loss	W	5.1
Device construction		Built-in device fixed built-in technique
Integrated earth fault protection		No
Type of electrical connection of main circuit		Screw connection
Suitable for DIN rail (top hat rail) mounting		No
DIN rail (top hat rail) mounting optional		Yes
Number of auxiliary contacts as normally closed contact		0
Number of auxiliary contacts as normally open contact		0
Number of auxiliary contacts as change-over contact		0
With switched-off indicator		No
With integrated under voltage release		No
Number of poles		3
Position of connection for main current circuit		Front side
Type of control element		Rocker lever
Complete device with protection unit		Yes
Motor drive integrated		No
Motor drive optional		Yes
Degree of protection (IP)		IP20