

NZM3 PXR20 circuit breaker, 220A, 3p, withdrawable unit



**Part no. NZMS3-MX220-AVE
191507**

Product name	Eaton Moeller series NZM - Molded Case Circuit Breaker
Part no.	NZMS3-MX220-AVE
EAN	4015081920198
Product Length/Depth	346 millimetre
Product height	260 millimetre
Product width	185 millimetre
Product weight	10.54 kilogram
Compliances	RoHS conform
Certifications	IEC/EN 60947 IEC
Product Tradename	NZM
Product Type	Molded Case Circuit Breaker
Product Sub Type	None
Application	Use in unearthed supply systems at 690 V
Type	Circuit breaker
Circuit breaker frame type	NZM3
Accessories required	NZM3-XAVS
Number of poles	Three-pole
Amperage Rating	220 A
Release system	Electronic release
Special features	IEC/EN 60947-2 with characteristic conforming to IEC/EN 60947-4-1 with phase failure sensitivity The circuit-breaker fulfills all requirements for AC-3 switching category. R.m.s. value measurement and "thermal memory" Adjustable time delay setting to overcome current peaks tr at 6 x Ir also infinity (without overload releases) All AC-3 rating data applies to direct switching by the circuit-breaker under normal operating conditions. If, for example, a contactor takes over AC-3 switching under normal operating conditions, the full rated uninterrupted current applies to the circuit-breaker, In = lu. 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: 220 A Terminal capacity hint: Up to 240 mm ² can be connected depending on the cable manufacturer.
Fitted with:	Thermal protection
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	8000 V
Rated operational current	196 A (400 V AC-3)
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 (Ii) - min	2 A
Instantaneous current setting (Ii) - max	18 A
Overload current setting (Ir) - min	88 A
Overload current setting (Ir) - max	220 A
Short-circuit release non-delayed setting - min	440 A
Short-circuit release non-delayed setting - max	3960 A
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 230 V, 50/60 Hz	100 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 400/415 V, 50/60 Hz	65 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 440 V, 50/60 Hz	65 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 525 V, 50/60 Hz	18 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 690 V, 50/60 Hz	6 kA

Rated short-circuit making capacity I _{cm} at 240 V, 50/60 Hz		220 kA
Rated short-circuit making capacity I _{cm} at 400/415 V, 50/60 Hz		154 kA
Rated short-circuit making capacity I _{cm} at 440 V, 50/60 Hz		143 kA
Rated short-circuit making capacity I _{cm} at 525 V, 50/60 Hz		80 kA
Rated short-circuit making capacity I _{cm} at 690 V, 50/60 Hz		50 kA
Rated operating power at AC-3, 230 V		55 kW
Rated operating power at AC-3, 400 V		110 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		60
Handle type		Rocker lever
Utilization category		A (IEC/EN 60947-2)
Overvoltage category		III
Pollution degree		3
Lifespan, electrical		3000 operations at 690 V AC-1 2000 operations at 690 V AC-3 2000 operations at 400 V AC-3 5000 operations at 415 V AC-1 2000 operations at 415 V AC-3 5000 operations at 400 V AC-1
Direction of incoming supply		As required
Mounting Method		Built-in device slide-in technique (withdrawable) Withdrawable
Degree of protection		IP20 IP20 (basic degree of protection, in the operating controls area)
Degree of protection (IP), front side		IP66 (with door coupling rotary handle) IP40 (with insulating surround)
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		Electronic
Climatic proofing		Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78
Special features		IEC/EN 60947-2 with characteristic conforming to IEC/EN 60947-4-1 with phase failure sensitivity The circuit-breaker fulfills all requirements for AC-3 switching category. R.m.s. value measurement and "thermal memory" Adjustable time delay setting to overcome current peaks t_r at $6 \times I_r$ also infinity (without overload releases) All AC-3 rating data applies to direct switching by the circuit-breaker under normal operating conditions. If, for example, a contactor takes over AC-3 switching under normal operating conditions, the full rated uninterrupted current applies to the circuit-breaker, $I_n = I_u$. 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}) Rated current = rated uninterrupted current: 220 A Terminal capacity hint: Up to 240 mm ² can be connected depending on the cable manufacturer.
Lifespan, mechanical		15000 operations
Standard terminals		Screw terminal
Optional terminals		Box terminal. Connection on rear. 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)		16 mm ² (1x) at tunnel terminal
Terminal capacity (aluminum stranded conductor/cable)		50 mm ² - 240 mm ² (2x) at 2-hole tunnel terminal 25 mm ² - 185 mm ² (1x) at tunnel terminal 50 mm ² - 240 mm ² (1x) at 2-hole tunnel terminal
Terminal capacity (copper busbar)		M10 at rear-side screw connection Max. 30 mm x 10 mm + 30 mm x 5 mm direct at switch rear-side connection Min. 20 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)		300 mm ² (2x) at rear-side width extension 16 mm ² (2x) at box terminal 16 mm ² (1x) at tunnel terminal 16 mm ² (1x) direct at switch rear-side connection 16 mm ² (2x) direct at switch rear-side connection
Terminal capacity (copper stranded conductor/cable)		16 mm ² - 185 mm ² (1x) at 1-hole tunnel terminal

		25 mm ² - 240 mm ² (1x) direct at switch rear-side connection 25 mm ² - 240 mm ² (2x) direct at switch rear-side connection 35 mm ² - 240 mm ² (1x) at box terminal 25 mm ² - 120 mm ² (2x) at box terminal
Terminal capacity (copper strip)		Min. 6 segments of 16 mm x 0.8 mm at box terminal Max. 8 segments of 24 mm x 1 mm (2x) at box terminal Min. 6 segments of 16 mm x 0.8 mm at rear-side connection (punched) 10 segments of 50 mm x 1 mm (2x) at rear-side width extension Max. 10 segments of 24 mm x 1 mm + 5 segments of 24 mm x 1 mm at box terminal Max. 10 segments of 32 mm x 1 mm + 5 segments of 32 mm x 1 mm at rear-side connection (punched)
Rated operational current for specified heat dissipation (In)		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
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.
Functions		Motor protection Phase failure sensitive

Technical data ETIM 8.0

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@ss10.0.1-27-37-04-01 [AGZ529016])		
Overload release current setting	A	88 - 220
Adjustment range undelayed short-circuit release	A	2 - 18
With thermal protection		Yes
Phase failure sensitive		Yes
Switch off technique		Electronic
Rated operating voltage	V	690 - 690
Rated permanent current Iu	A	220
Rated operation power at AC-3, 230 V	kW	55
Rated operation power at AC-3, 400 V	kW	110
Type of electrical connection of main circuit		Other

Type of control element			Rocker lever
Device construction			Built-in device slide-in technique (withdrawable)
With integrated auxiliary switch			No
With integrated under voltage release			No
Number of poles			3
Rated short-circuit breaking capacity I _{cu} at 400 V, AC		kA	65
Degree of protection (IP)			IP20
Height		mm	260
Width		mm	185
Depth		mm	346