## Circuit-breaker, 3p, 90A

Part no. NZMN2-ME90 265778



General specifications	
Product name	Eaton Moeller series NZM molded case circuit breaker electronic
Part no.	NZMN2-ME90
EAN	4015082657789
Product Length/Depth	149 millimetre
Product height	184 millimetre
Product width	105 millimetre
Product weight	2.444 kilogram
Compliances	RoHS conform
Certifications	IEC/EN 60947
	IEC
Product Tradename	NZM
Product Type	Molded case circuit breaker
Product Sub Type	Electronic
Delivery program	
Application	Use in unearthed supply systems at 690 V
Туре	Circuit breaker
Circuit breaker frame type	NZM2
Number of poles	Three-pole
Amperage Rating	90 A
Release system	Electronic release
Special features	IEC/EN 60947-4-1, IEC/EN 60947-2 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 norma 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 = Iu.  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: 90 A
Fitted with:	Thermal protection
Technical Data - Electrical	
Voltage rating	690 V - 690 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 operational current  Peted short time withstend current (t = 0.3 c)	81 A (400 V AC-3) 78 A (690 V AC-3)
Rated short-time withstand current (t = 0.3 s)  Rated short-time withstand current (t = 1 s)	1.9 kA
Instantaneous current setting (li) - min	90 A
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Instantaneous current setting (Ii) - max	1260 A
Overload current setting (Ir) - min	45 A
Overload current setting (Ir) - max	90 A
Short-circuit release non-delayed setting - min	180 A
Short-circuit release non-delayed setting - max	1260 A
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 230 V, 50/60 Hz	85 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 400/415 V, 50/60 Hz	35 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 440 V, 50/60 Hz	35 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 525 V, 50/60 Hz	25 kA

Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 690 V, 50/60 Hz	5 kA
Rated short-circuit making capacity Icm at 240 V, 50/60 Hz	187 kA
Rated short-circuit making capacity Icm at 400/415 V, 50/60 Hz	105 kA
Rated short-circuit making capacity Icm at 440 V, 50/60 Hz	74 kA
Rated short-circuit making capacity Icm at 525 V, 50/60 Hz	53 kA
Rated short-circuit making capacity Icm at 690 V, 50/60 Hz	40 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	Screw connection
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	6500 operations at 400 V AC-3 10000 operations at 400 V AC-1 10000 operations at 415 V AC-1 5000 operations at 690 V AC-3 6500 operations at 415 V AC-3 7500 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	IP40 (with insulating surround) IP66 (with door coupling rotary handle)
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, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Special features	IEC/EN 60947-4-1, IEC/EN 60947-2 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 lr also infinity (without overload releases) All AC-3 rating data applies to direct switching by the circuit-breaker under norma 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 = Iu.  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: 90 A
Lifespan, mechanical	20000 operations
Technical Data - Mechanical - Terminals	
Standard terminals	Screw terminal
Optional terminals	Box terminal. Connection on rear. Tunnel terminal
Terminal capacity (control cable)	0.75 mm <sup>2</sup> - 1.5 mm <sup>2</sup> (2x) 0.75 mm <sup>2</sup> - 2.5 mm <sup>2</sup> (1x)
Terminal capacity (aluminum 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 16 mm $^2$ (1x) at tunnel terminal
Terminal capacity (aluminum stranded conductor/cable)	25 mm <sup>2</sup> - 50 mm <sup>2</sup> (1x) direct at switch rear-side connection 25 mm <sup>2</sup> - 50 mm <sup>2</sup> (2x) direct at switch rear-side connection 25 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) at tunnel terminal
Terminal capacity (copper busbar)	M8 at rear-side screw connection Min. 16 mm x 5 mm direct at switch rear-side connection Max. 24 mm x 8 mm direct at switch rear-side connection
Terminal capacity (copper solid conductor/cable)	10 mm <sup>2</sup> - 16 mm <sup>2</sup> (1x) at box terminal 10 mm <sup>2</sup> - 16 mm <sup>2</sup> (1x) direct at switch rear-side connection

Seminar   16 mar   16 mar   12 at about externinal   Seminar   16 mar   12 direct as which have aside connection   Terminal capacity (copper strended conductor/cable)   25 mar   15 mar   115 mar   114 at hout terminal   25 mar   15 mar   115 mar   114 at hout terminal   25 mar   15 mar   115 mar   114 at hout terminal   25 mar   15 mar   115 mar   114 at hout terminal   25 mar   115 mar   114 mar   214 at hout terminal   25 mar   115 mar   114 mar   214 mar		
Terminal capacity (copper stranded canductor/cable)    25 mart   15 mart   1		
Min. 2 segments of 16 mm x 8.8 mm at rear-aide connection (jumbhed) Max. 10 segments of 24 mm x 18 mm at rear-aide connection (jumbhed) Max. 10 segments of 24 mm x 18 mm at rear-aide connection (jumbhed) Max. 10 segments of 24 mm x 1 mm (20 at box terminal Max. 10 segments of 25 mm x 1 mm (20 at	Terminal capacity (copper stranded conductor/cable)	25 mm² - 185 mm² (1x) at box terminal 25 mm² - 70 mm² (2x) at box terminal 25 mm² - 185 mm² (1x) at 1-hole tunnel terminal 25 mm² - 70 mm² (2x) direct at switch rear-side connection
Rated operational current for specified heat dissipation (in)  Equipment heat dissipation, current-dependent  Ambient opperating temperature - min  Ambient opperating temperature - min  Ambient storage temperature - max  Ambient storage temperature rese  To see the product standard's requirements.  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 Longeroration of switching devices and components  10.7 Internal electric al cricuits and connections  Is the panel builder's responsibility.  10.8 Connections for external conductors  Is the panel builder's responsibility.  10.9.2 Prower-frequency electric storagth  10.9.2 Prower-frequency electric storagth  10.1 Storage frequency electric storage temperatur	Terminal capacity (copper strip)	Min. 2 segements of 16 mm x 0.8 mm at rear-side connection (punched) Max. 10 segments of 16 mm x 0.8 mm at box terminal Max. 10 segments of 24 mm x 0.8 mm at rear-side connection (punched)
Equipment heat dissipation, current-dependent Ambient operating temperature - min Ambient operating temperature - max 70 °C Ambient storage temperature - max 70 °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 Resists, of insul, mat, to abnormal heat/fire by internal elect. effects Meets the product standard's requirements.  10.2.4 Resistance to ultra-violat (UV) rediation Meets the product standard's requirements.  10.2.5 Lifting Does not apply, since the entire switchgear needs to be evaluated.  10.2.7 Inscriptions Meets the product standard's requirements.  10.2.8 Protection of assemblies Does not apply, since the entire switchgear needs to be evaluated.  10.4.1 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 Interporation of switching devices and components Meets the product standard's requirements.  10.7 Internal electrical circuits and connections Is the panel builder's responsibility.  10.8 Temperature rise Does not apply, since the entire switchgear needs to be evaluated.  10.9 Power-frequency electric strock Does not apply, since the entire switchgear needs to be evaluated.  10.1 Internal electrical circuits and connections Is the panel builder's responsibility.  10.9 Power-frequency electric strock Does not apply, since the entire switchgear needs to be evaluated.  10.1 Internal electrical circuits and connections Is the panel builder's responsibility.  10.9 Power-frequency electric strock Internal period of the switchgear must be observed.  10.1 Strenger rise period of the switchgear must be observed.  10.1 Strenger rise period da	Design verification as per IEC/EN 61439 - technical data	
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10.2.6 Mechanical impact  10.2.7 Inscriptions  Meets the product standard's requirements.  10.3 Degree of protection of assemblies  10.4 Clearances and creepage distances  Meets the product standard's requirements.  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Functions  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  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 leaflett (IL) is observed.  Additional information  Functions  Motor protection	10.2.4 Resistance to ultra-violet (UV) radiation	Meets the product standard's requirements.
10.2.7 Inscriptions  10.3 Degree of protection of assemblies  10.4 Clearances and creepage distances  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.1 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Functions  Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  In the panel builder's responsibility.  Is the panel builder's responsibility.  In the specifications for the switchgear must be observed.  In the device meets the requirements, provided the information in the instruction leaflet (IL) is observed.  Additional information  Functions  Motor protection	10.2.5 Lifting	Does not apply, since the entire switchgear needs to be evaluated.
10.3 Degree of protection of assemblies  10.4 Clearances and creepage distances  Meets the product standard's requirements.  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.  Additional information  Functions  Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  Is the panel builder is responsibility. The specifications for the switchgear must be observed.  In the device meets the requirements, provided the information in the instruction leaflet (IL) is observed.	10.2.6 Mechanical impact	Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.10 Temperature rise  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  10.13 Mechanical function  Functions  Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  Is the panel builder is responsibility.  The panel builder is responsibility.  Is the panel builder is responsibility. The specifications for the switchgear must be observed.  In the panel builder's responsibility. The specifications for the switchgear must be observed.  Motor protection  Motor protection	10.2.7 Inscriptions	Meets the product standard's requirements.
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10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Functions  10.7 Internal electrical circuits and connections  1 Is the panel builder's responsibility.  1 Is the panel builder's responsibility.  1 Is the panel builder is responsibility.  1 Is the panel builder is responsibility.  1 Is the panel builder is responsibility.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.  1 Is the panel builder's responsibility. The specifications for the switchgear must be observed.	10.5 Protection against electric shock	Does not apply, since the entire switchgear needs to be evaluated.
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10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  10.13 Mechanical information  Functions  10.9.4 Testing of enclosures made of insulating material  10.14 the panel builder's responsibility.  10.15 the panel builder is responsibility. The temperature rise calculation. Eaton will provide heat dissipation data for the devices.  10.15 the panel builder's responsibility. The specifications for the switchgear must be observed.  10.15 the panel builder's responsibility. The specifications for the switchgear must be observed.  10.16 the panel builder's responsibility. The specifications for the switchgear must be observed.  10.17 the device meets the requirements, provided the information in the instruction leaflet (IL) is observed.  10.18 Motor protection	10.7 Internal electrical circuits and connections	Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Functions  10.13 Motor protection  Is the panel builder's responsibility.  The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.  Is the panel builder's responsibility. The specifications for the switchgear must be observed.  Is the panel builder's responsibility. The specifications for the switchgear must be observed.  Motor protection	10.8 Connections for external conductors	Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Functions  10.15 The panel builder's responsibility. The specifications for the switchgear must be observed.  10.14 Short-circuit rating  15 the panel builder's responsibility. The specifications for the switchgear must be observed.  16.15 The panel builder's responsibility. The specifications for the switchgear must be observed.  17 The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.  18 the panel builder's responsibility. The specifications for the switchgear must be observed.  19 The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.  10 The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.	10.9.2 Power-frequency electric strength	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  Motor protection	10.9.3 Impulse withstand voltage	Is the panel builder's responsibility.
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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  Motor protection	10.10 Temperature rise	
observed.  10.13 Mechanical function  The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.  Additional information  Functions  Motor protection	10.11 Short-circuit rating	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
Additional information Functions    leaflet (IL) is observed.	10.12 Electromagnetic compatibility	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
Functions Motor protection		
	Additional information	
	Functions	

## **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	Α	45 - 90		
Adjustment range undelayed short-circuit release	А	90 - 1260		
With thermal overload protection		Yes		
Phase failure sensitive		Yes		
Switch off technique		Electronic		
Rated operating voltage	V	690 - 690		
Rated permanent current lu	А	90		

Rated operation power at AC-3, 230 V	kW	22
Rated operation power at AC-3, 400 V	kW	45
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 Icu at 400 V, AC	kA	35
Degree of protection (IP)		IP20
Height	mm	184
Width	mm	105
Depth	mm	149