

# Specifications



Photo is representative



## Eaton 259085

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 3p, 100A, N, frame1, A100

### General specifications

<b>PRODUCT NAME</b>	Eaton Moeller series NZM molded case circuit breaker thermo-magnetic
<b>CATALOG NUMBER</b>	259085
<b>MODEL CODE</b>	NZMN1-A100
<b>EAN</b>	4015082590857
<b>PRODUCT LENGTH/DEPTH</b>	88 mm
<b>PRODUCT HEIGHT</b>	145 mm
<b>PRODUCT WIDTH</b>	90 mm
<b>PRODUCT WEIGHT</b>	1.073 kg
<b>COMPLIANCES</b>	RoHS conform
<b>CERTIFICATIONS</b>	IEC/EN 60947 IEC



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## Additional information

<b>FUNCTIONS</b>	System and cable protection
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## Delivery program

<b>AMPERAGE RATING</b>	100 A
<b>APPLICATION</b>	Use in unearthed supply systems at 690 V
<b>CIRCUIT BREAKER FRAME TYPE</b>	NZM1
<b>FEATURES</b>	Protection unit
<b>NUMBER OF POLES</b>	Three-pole
<b>RELEASE SYSTEM</b>	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  $I_{cn}$ )
- Rated current = rated uninterrupted current: 100 A
- Terminal capacity hint: Up to 95 mm<sup>2</sup> can be connected depending on the cable manufacturer.

<b>TYPE</b>	Circuit breaker
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## Design verification as per IEC/EN 61439

<b>10.10 TEMPERATURE RISE</b>	The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
<b>10.11 SHORT-CIRCUIT RATING</b>	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
<b>10.12 ELECTROMAGNETIC COMPATIBILITY</b>	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
<b>10.13 MECHANICAL FUNCTION</b>	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.
<b>10.2.2 CORROSION RESISTANCE</b>	Meets the product standard's requirements.
<b>10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES</b>	Meets the product standard's requirements.
<b>10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT</b>	Meets the product standard's requirements.
<b>10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS</b>	Meets the product standard's requirements.
<b>10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION</b>	Meets the product standard's requirements.
<b>10.2.5 LIFTING</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.2.6 MECHANICAL IMPACT</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.2.7 INSCRIPTIONS</b>	Meets the product standard's requirements.
<b>10.3 DEGREE OF PROTECTION OF ASSEMBLIES</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.4 CLEARANCES AND CREEPAGE DISTANCES</b>	Meets the product standard's requirements.
<b>10.5 PROTECTION</b>	Does not apply, since the

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

<b>AMBIENT OPERATING TEMPERATURE - MAX</b>	70 °C
<b>AMBIENT STORAGE TEMPERATURE - MAX</b>	70 °C
<b>AMBIENT OPERATING TEMPERATURE - MIN</b>	-25 °C
<b>AMBIENT STORAGE TEMPERATURE - MIN</b>	-40 °C
<b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT</b>	21.9 W
<b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b>	100 A

<b>AGAINST ELECTRIC SHOCK</b>	entire switchgear needs to be evaluated.
<b>10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS</b>	Is the panel builder's responsibility.
<b>10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS</b>	Is the panel builder's responsibility.
<b>10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH</b>	Is the panel builder's responsibility.
<b>10.9.3 IMPULSE WITHSTAND VOLTAGE</b>	Is the panel builder's responsibility.
<b>10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL</b>	Is the panel builder's responsibility.

## Technical Data - Electrical

<b>AMPERAGE RATING</b>	100 A
<b>DIRECTION OF INCOMING SUPPLY</b>	As required
<b>ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT</b>	Frame clamp
<b>HANDLE TYPE</b>	Rocker lever
<b>INSTANTANEOUS CURRENT SETTING (II) - MAX</b>	1000 A
<b>INSTANTANEOUS CURRENT SETTING (II) - MIN</b>	600 A
<b>ISOLATION</b>	500 V AC (between auxiliary contacts and main contacts) 300 V AC (between the auxiliary contacts)
<b>LIFESPAN, ELECTRICAL</b>	10000 operations at 415 V AC-1 10000 operations at 400 V AC-1 7500 operations at 690 V AC-1
<b>NUMBER OF OPERATIONS PER HOUR - MAX</b>	120
<b>OVERLOAD CURRENT SETTING (IR) - MAX</b>	100 A
<b>OVERLOAD CURRENT SETTING (IR) - MIN</b>	80 A
<b>OVERVOLTAGE CATEGORY</b>	III
<b>POLLUTION DEGREE</b>	3
<b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP) AT AUXILIARY CONTACTS</b>	6000 V
<b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP) AT MAIN CONTACTS</b>	6000 V
<b>RATED INSULATION VOLTAGE (UI)</b>	690 V AC
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 230 V, 50/60 HZ</b>	85 kA
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT</b>	50 kA

## Technical Data - Mechanical

<b>CLIMATIC PROOFING</b>	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
<b>DEGREE OF PROTECTION</b>	IP20 IP20 (basic degree of protection, in the operating controls area)
<b>DEGREE OF PROTECTION (IP), FRONT SIDE</b>	IP66 (with door coupling rotary handle) IP40 (with insulating surround)
<b>DEGREE OF PROTECTION (TERMINATIONS)</b>	IP00 (terminations, phase isolator and strip terminal) IP10 (tunnel terminal)
<b>LIFESPAN, MECHANICAL</b>	20000 operations
<b>MOUNTING METHOD</b>	Built-in device fixed built-in technique Fixed DIN rail (top hat rail) mounting optional
<b>NUMBER OF AUXILIARY CONTACTS (CHANGE-OVER CONTACTS)</b>	0
<b>NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)</b>	0
<b>NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)</b>	0
<b>POSITION OF CONNECTION FOR MAIN CURRENT CIRCUIT</b>	Front side
<b>PROTECTION AGAINST DIRECT CONTACT</b>	Finger and back-of-hand proof to DIN EN 50274/VDE 0106 part 110
<b>SHOCK RESISTANCE</b>	20 g (half-sinusoidal shock 20 ms)
<b>SPECIAL FEATURES</b>	<ul style="list-style-type: none"> <li>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<sub>cn</sub>)</li> </ul>

<b>400/415 V, 50/60 HZ</b>	
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 440 V, 50/60 HZ</b>	35 kA
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 525 V, 50/60 HZ</b>	10 kA
<b>RATED SHORT-CIRCUIT BREAKING CAPACITY ICS (IEC/EN 60947) AT 690 V, 50/60 HZ</b>	7.5 kA
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 240 V, 50/60 HZ</b>	187 kA
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 400/415 V, 50/60 HZ</b>	105 kA
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 440 V, 50/60 HZ</b>	74 kA
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 525 V, 50/60 HZ</b>	40 kA
<b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 690 V, 50/60 HZ</b>	17 kA
<b>SHORT-CIRCUIT RELEASE NON-DELAYED SETTING - MAX</b>	1000 A
<b>SHORT-CIRCUIT RELEASE NON-DELAYED SETTING - MIN</b>	600 A
<b>SHORT-CIRCUIT TOTAL BREAKTIME</b>	< 10 ms
<b>UTILIZATION CATEGORY</b>	A (IEC/EN 60947-2)
<b>VOLTAGE RATING</b>	690 V - 690 V
<b>VOLTAGE RATING (DC)</b>	450 VDC

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- Rated current = rated uninterrupted current: 100 A
  - Terminal capacity hint: Up to 95 mm<sup>2</sup> can be connected depending on the cable manufacturer.
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## Technical Data - Mechanical - Terminals

**OPTIONAL TERMINALS** Connection on rear. Screw terminal. Tunnel terminal

**STANDARD TERMINALS** Box terminal

**TERMINAL CAPACITY (ALUMINUM SOLID CONDUCTOR/CABLE)**  
 16 mm<sup>2</sup> (1x) at tunnel terminal  
 10 mm<sup>2</sup> - 16 mm<sup>2</sup> (2x) direct at switch rear-side connection  
 10 mm<sup>2</sup> - 16 mm<sup>2</sup> (1x) direct at switch rear-side connection

**TERMINAL CAPACITY (ALUMINUM STRANDED CONDUCTOR/CABLE)**  
 25 mm<sup>2</sup> - 95 mm<sup>2</sup> (1x) at tunnel terminal  
 25 mm<sup>2</sup> - 35 mm<sup>2</sup> (1x) direct at switch rear-side connection  
 25 mm<sup>2</sup> - 35 mm<sup>2</sup> (2x) direct at switch rear-side connection

**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 (COPPER BUSBAR)**  
 Min. 12 mm x 5 mm direct at switch rear-side connection  
 M6 at rear-side screw connection  
 Max. 16 mm x 5 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  
 16 mm<sup>2</sup> (1x) at tunnel terminal  
 10 mm<sup>2</sup> - 16 mm<sup>2</sup> (1x) direct at switch rear-side connection  
 6 mm<sup>2</sup> - 16 mm<sup>2</sup> (2x) direct at switch rear-side connection

**TERMINAL CAPACITY (COPPER STRANDED CONDUCTOR/CABLE)**  
 25 mm<sup>2</sup> - 95 mm<sup>2</sup> (1x) at 1-hole tunnel terminal  
 6 mm<sup>2</sup> - 25 mm<sup>2</sup> (2x) at box terminal  
 25 mm<sup>2</sup> (2x) direct at switch rear-side connection  
 10 mm<sup>2</sup> - 70 mm<sup>2</sup> (1x) at box terminal  
 10 mm<sup>2</sup> - 70 mm<sup>2</sup> (1x) direct at switch rear-side connection

**TERMINAL CAPACITY (COPPER STRIP)**  
 Min. 2 segments of 9 mm x 0.8 mm at box terminal

## Resources

**BROCHURES**  
[eaton-feerum-the-whole-grain-solution-success-story-en-us.pdf](#)

[eaton-digital-nzm-brochure-br013003en-en-us.pdf](#)

**CATALOGUES**  
[eaton-digital-nzm-catalog-ca013003en-en-us.pdf](#)

[eaton-circuit-breaker-nzm-mccb-characteristic-curve-051.eps](#)

**CHARACTERISTIC CURVE**  
[eaton-circuit-breaker-nzm-mccb-characteristic-curve.eps](#)

[eaton-circuit-breaker-let-through-current-nzm-mccb-characteristic-curve-002.eps](#)

**DECLARATIONS OF CONFORMITY**  
[eaton-molded-case-circuit-breaker-declaration-of-conformity-uk251450en.pdf](#)

[eaton-molded-case-circuit-breaker-declaration-of-conformity-eu250289en.pdf](#)

[eaton-circuit-breaker-switch-nzm-mccb-dimensions-014.eps](#)

**DRAWINGS**  
[eaton-circuit-breaker-nzm-mccb-dimensions-017.eps](#)

[eaton-circuit-breaker-switch-nzm-mccb-3d-drawing-006.eps](#)

**ECAD MODEL**  
[ETN.259085.edz](#)

**INSTALLATION INSTRUCTIONS**  
[eaton-circuit-breaker-switch-disconnector-nzmb-il01203004z.pdf](#)

**INSTALLATION VIDEOS**  
[The new digital NZM Range](#)  
[Introduction of the new digital circuit breaker NZM](#)

**MCAD MODEL**  
[eaton-molded-case-switches-mcad-drawings-nzm1-3p.dwg](#)

[eaton-molded-case-switches-mcad-3d-models-nzm1-3p.stp](#)

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Max. 9 segments of 9 mm  
x 0.8 mm at box terminal

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[DA-CD-nzm1\\_3p](#)

PEP ECO-PASSPORT

[eaton-molded-case-switches-pep-eato-00225-v0101-en.pdf](#)

TECHNICAL DATA SHEETS

[eaton-nzm-technical-information-sheet](#)

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**PROJECT NAME:**

**PROJECT NUMBER:**

**PREPARED BY:**

**DATE:**

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