

# Specifications



Photo is representative

## Eaton 259094

Eaton Moeller series NZM - Molded Case Circuit Breaker. Circuit-breaker, 3p, 250A, N, frame2, A250

### General specifications

|                             |                                                                      |
|-----------------------------|----------------------------------------------------------------------|
| <b>PRODUCT NAME</b>         | Eaton Moeller series NZM molded case circuit breaker thermo-magnetic |
| <b>CATALOG NUMBER</b>       | 259094                                                               |
| <b>MODEL CODE</b>           | NZMN2-A250                                                           |
| <b>EAN</b>                  | 4015082590949                                                        |
| <b>PRODUCT LENGTH/DEPTH</b> | 149 mm                                                               |
| <b>PRODUCT HEIGHT</b>       | 184 mm                                                               |
| <b>PRODUCT WIDTH</b>        | 105 mm                                                               |
| <b>PRODUCT WEIGHT</b>       | 2.359 kg                                                             |
| <b>COMPLIANCES</b>          | RoHS conform                                                         |
| <b>CERTIFICATIONS</b>       | IEC/EN 60947<br>IEC                                                  |
| <b>GLOBAL CATALOG</b>       | 259094                                                               |
| <b>PRODUCT TYPE</b>         | Molded case circuit breaker                                          |

## Product specifications

|                                                                                         |                                                                                                                                  |
|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>AMPERAGE RATING</b>                                                                  | 250 A                                                                                                                            |
| <b>VOLTAGE RATING</b>                                                                   | 690 V - 690 V                                                                                                                    |
| <b>CIRCUIT BREAKER FRAME TYPE</b>                                                       | NZM2                                                                                                                             |
| <b>FEATURES</b>                                                                         | Protection unit<br>Motor drive optional                                                                                          |
| <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.                                                                                       |

## Resources

|                                   |                                                                                                                                                                                                                       |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>BROCHURES</b>                  | <a href="#">eaton-digital-nzm-brochure-br013003en-en-us.pdf</a><br><a href="#">eaton-feerum-the-whole-grain-solution-success-story-en-us.pdf</a>                                                                      |
| <b>CATALOGS</b>                   | <a href="#">eaton-digital-nzm-catalog-ca013003en-en-us.pdf</a><br><a href="#">eaton-circuit-breaker-characteristic-power-defense-mccb-characteristic-curve-036.eps</a>                                                |
| <b>CHARACTERISTIC CURVE</b>       | <a href="#">eaton-circuit-breaker-let-through-current-nzm-mccb-characteristic-curve-004.eps</a><br><a href="#">eaton-circuit-breaker-nzm-mccb-characteristic-curve-050.eps</a>                                        |
| <b>DECLARATIONS OF CONFORMITY</b> | <a href="#">eaton-molded-case-circuit-breaker-declaration-of-conformity-uk251452en.pdf</a><br><a href="#">eaton-molded-case-circuit-breaker-declaration-of-conformity-eu250290en.pdf</a>                              |
| <b>DRAWINGS</b>                   | <a href="#">eaton-circuit-breaker-switch-nzm-mccb-dimensions-017.eps</a><br><a href="#">eaton-circuit-breaker-nzm-mccb-dimensions-019.eps</a><br><a href="#">eaton-circuit-breaker-switch-nzm-mccb-3d-drawing.eps</a> |
| <b>ECAD MODEL</b>                 | <a href="#">ETN.259094.edz</a>                                                                                                                                                                                        |
| <b>INSTALLATION INSTRUCTIONS</b>  | <a href="#">eaton-circuit-breakers-basic-device-nzm2-il01206006z.pdf</a>                                                                                                                                              |
| <b>INSTALLATION VIDEOS</b>        | <a href="#">The new digital NZM Range</a><br><a href="#">Introduction of the new digital circuit breaker NZM</a>                                                                                                      |
| <b>MCAD MODEL</b>                 | <a href="#">eaton-molded-case-switches-mcad-drawings-nzm2-3p.dwg</a>                                                                                                                                                  |

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| <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 AGAINST ELECTRIC SHOCK</b>                   | Does not apply, since the 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.                                                               |
| <b>POLLUTION DEGREE</b>                                         | 3                                                                                                    |
| <b>LIFESPAN, MECHANICAL</b>                                     | 20000 operations                                                                                     |
| <b>UTILIZATION CATEGORY</b>                                     | A (IEC/EN 60947-2)                                                                                   |
| <b>MOUNTING METHOD</b>                                          | Built-in device fixed built-in technique<br>DIN rail (top hat rail)<br>mounting optional<br>Fixed    |
| <b>CLIMATIC PROOFING</b>                                        | Damp heat, cyclic, to IEC 60068-2-30<br>Damp heat, constant, to IEC 60068-2-78                       |
| <b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT</b>            | 58.13 W                                                                                              |
| <b>ISOLATION</b>                                                | 500 V AC (between auxiliary contacts and main contacts)<br>300 V AC (between the auxiliary contacts) |
| <b>AMBIENT OPERATING TEMPERATURE - MAX</b>                      | 70 °C                                                                                                |
| <b>AMBIENT OPERATING TEMPERATURE - MIN</b>                      | -25 °C                                                                                               |
| <b>AMBIENT STORAGE TEMPERATURE - MAX</b>                        | 70 °C                                                                                                |
| <b>AMBIENT STORAGE TEMPERATURE - MIN</b>                        | 40 °C                                                                                                |

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|-----------------------|------------------------------------------------------------------------|
|                       | <a href="#">eaton-molded-case-switches-mcad-3d-models-nzm2-3p.stp</a>  |
| PEP ECO-PASSPORT      | <a href="#">eaton-molded-case-switches-pep-eato-00207-v0101-en.pdf</a> |
| TECHNICAL DATA SHEETS | <a href="#">eaton-nzm-technical-information-sheet</a>                  |

|                                                                |                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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>PROTECTION AGAINST DIRECT CONTACT</b>                       | Finger and back-of-hand proof to DIN EN 50274/VDE 0106 part 110                                                                                                                                                                                                                                               |
| <b>CONNECTION</b>                                              | Screw                                                                                                                                                                                                                                                                                                         |
| <b>DEGREE OF PROTECTION</b>                                    | IP20 (basic degree of protection, in the operating controls area)<br>IP20                                                                                                                                                                                                                                     |
| <b>DIRECTION OF INCOMING SUPPLY</b>                            | As required                                                                                                                                                                                                                                                                                                   |
| <b>ELECTRICAL CONNECTION TYPE OF MAIN CIRCUIT</b>              | Screw connection                                                                                                                                                                                                                                                                                              |
| <b>OVERVOLTAGE CATEGORY</b>                                    | III                                                                                                                                                                                                                                                                                                           |
| <b>DEGREE OF PROTECTION (IP), FRONT SIDE</b>                   | IP66 (with door coupling rotary handle)<br>IP40 (with insulating surround)                                                                                                                                                                                                                                    |
| <b>DEGREE OF PROTECTION (TERMINATIONS)</b>                     | IP00 (terminations, phase isolator and strip terminal)<br>IP10 (tunnel terminal)                                                                                                                                                                                                                              |
| <b>NUMBER OF POLES</b>                                         | Three-pole                                                                                                                                                                                                                                                                                                    |
| <b>TERMINAL CAPACITY (COPPER STRIP)</b>                        | Max. 10 segments of 16 mm x 0.8 mm at box terminal<br>Max. 8 segments of 24 mm x 1 mm (2x) at box terminal<br>Max. 10 segments of 24 mm x 0.8 mm at rear-side connection (punched)<br>Min. 2 segments of 9 mm x 0.8 mm at box terminal<br>Min. 2 segments of 16 mm x 0.8 mm at rear-side connection (punched) |
| <b>LIFESPAN, ELECTRICAL</b>                                    | 6500 operations at 400 V AC-3<br>3000 operations at 750 V DC-3<br>7500 operations at 690 V AC-1<br>7500 operations at 750 V                                                                                                                                                                                   |

|  |                                                                                                                                                                                                                                |
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|  | DC-1<br>10000 operations at 400 V<br>AC-1<br>10000 operations at 415 V<br>AC-1<br>3000 operations at 500 V<br>DC-3<br>6500 operations at 415 V<br>AC-3<br>5000 operations at 690 V<br>AC-3<br>7500 operations at 500 V<br>DC-1 |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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| <b>FUNCTIONS</b> | System and cable protection |
| <b>TYPE</b>      | Circuit breaker             |

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| <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 <math>I_{cn}</math>)</li> <li>Rated current = rated uninterrupted current: 250 A</li> </ul> |
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| <b>APPLICATION</b> | Use in unearthed supply systems at 690 V |
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| <b>SHOCK RESISTANCE</b> | 20 g (half-sinusoidal shock 20 ms) |
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| <b>POSITION OF CONNECTION FOR MAIN CURRENT CIRCUIT</b> | Front side |
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|                                                                      |       |
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| <b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b> | 250 A |
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|-------------------|--------|
| <b>POWER LOSS</b> | 58.1 W |
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| <b>RELEASE SYSTEM</b> | Thermomagnetic release |
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| <b>SHORT-CIRCUIT TOTAL BREAKTIME</b> | < 10 ms |
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|                                                       |        |
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| <b>RATED SHORT-TIME WITHSTAND CURRENT (T = 0.3 S)</b> | 1.9 kA |
|-------------------------------------------------------|--------|

|                                                     |        |
|-----------------------------------------------------|--------|
| <b>RATED SHORT-TIME WITHSTAND CURRENT (T = 1 S)</b> | 1.9 kA |
|-----------------------------------------------------|--------|

|                              |        |
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| <b>SHORT-CIRCUIT RELEASE</b> | 2500 A |
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| <b>NON-DELAYED SETTING - MAX</b>                             |                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>SHORT-CIRCUIT RELEASE NON-DELAYED SETTING - MIN</b>       | 1500 A                                                                                                                                                                                                                                                                                                                                                                                |
| <b>TERMINAL CAPACITY (CONTROL CABLE)</b>                     | 0.75 mm <sup>2</sup> - 2.5 mm <sup>2</sup> (1x)<br>0.75 mm <sup>2</sup> - 1.5 mm <sup>2</sup> (2x)                                                                                                                                                                                                                                                                                    |
| <b>TERMINAL CAPACITY (COPPER BUSBAR)</b>                     | M8 at rear-side screw connection<br>Max. 24 mm x 8 mm direct at switch rear-side connection<br>Min. 16 mm x 5 mm direct at switch rear-side connection                                                                                                                                                                                                                                |
| <b>TERMINAL CAPACITY (COPPER SOLID CONDUCTOR/CABLE)</b>      | 16 mm <sup>2</sup> (1x) at tunnel terminal<br>10 mm <sup>2</sup> - 16 mm <sup>2</sup> (1x) at box terminal<br>10 mm <sup>2</sup> - 16 mm <sup>2</sup> (1x) direct at switch rear-side connection<br>6 mm <sup>2</sup> - 16 mm <sup>2</sup> (2x) direct at switch rear-side connection<br>6 mm <sup>2</sup> - 16 mm <sup>2</sup> (2x) at box terminal                                  |
| <b>TERMINAL CAPACITY (ALUMINUM SOLID CONDUCTOR/CABLE)</b>    | 10 mm <sup>2</sup> - 16 mm <sup>2</sup> (1x) direct at switch rear-side connection<br>16 mm <sup>2</sup> (1x) at tunnel terminal<br>10 mm <sup>2</sup> - 16 mm <sup>2</sup> (2x) direct at switch rear-side connection                                                                                                                                                                |
| <b>TERMINAL CAPACITY (COPPER STRANDED CONDUCTOR/CABLE)</b>   | 25 mm <sup>2</sup> - 70 mm <sup>2</sup> (2x) at box terminal<br>25 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) direct at switch rear-side connection<br>25 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) at box terminal<br>25 mm <sup>2</sup> - 70 mm <sup>2</sup> (2x) direct at switch rear-side connection<br>25 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) at 1-hole tunnel terminal |
| <b>TERMINAL CAPACITY (ALUMINUM STRANDED CONDUCTOR/CABLE)</b> | 25 mm <sup>2</sup> - 50 mm <sup>2</sup> (1x) direct at switch rear-side connection<br>25 mm <sup>2</sup> - 50 mm <sup>2</sup> (2x) direct at switch rear-side connection<br>25 mm <sup>2</sup> - 185 mm <sup>2</sup> (1x) at tunnel terminal                                                                                                                                          |
| <b>HANDLE TYPE</b>                                           | Rocker lever                                                                                                                                                                                                                                                                                                                                                                          |

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| <b>INSTANTANEOUS<br/>CURRENT SETTING (II) -<br/>MAX</b>                                            | 2500 A |
| <b>INSTANTANEOUS<br/>CURRENT SETTING (II) -<br/>MIN</b>                                            | 1500 A |
| <b>NUMBER OF<br/>OPERATIONS PER HOUR -<br/>MAX</b>                                                 | 120    |
| <b>OVERLOAD CURRENT<br/>SETTING (IR) - MAX</b>                                                     | 250 A  |
| <b>OVERLOAD CURRENT<br/>SETTING (IR) - MIN</b>                                                     | 200 A  |
| <b>RATED SHORT-CIRCUIT<br/>BREAKING CAPACITY ICS<br/>(IEC/EN 60947) AT 230 V,<br/>50/60 HZ</b>     | 85 kA  |
| <b>RATED SHORT-CIRCUIT<br/>BREAKING CAPACITY ICS<br/>(IEC/EN 60947) AT<br/>400/415 V, 50/60 HZ</b> | 50 kA  |
| <b>RATED SHORT-CIRCUIT<br/>BREAKING CAPACITY ICS<br/>(IEC/EN 60947) AT 440 V,<br/>50/60 HZ</b>     | 35 kA  |
| <b>RATED SHORT-CIRCUIT<br/>BREAKING CAPACITY ICS<br/>(IEC/EN 60947) AT 500 V<br/>DC</b>            | 7.5 kA |
| <b>RATED SHORT-CIRCUIT<br/>BREAKING CAPACITY ICS<br/>(IEC/EN 60947) AT 525 V,<br/>50/60 HZ</b>     | 25 kA  |
| <b>RATED SHORT-CIRCUIT<br/>BREAKING CAPACITY ICS<br/>(IEC/EN 60947) AT 690 V,<br/>50/60 HZ</b>     | 5 kA   |
| <b>RATED SHORT-CIRCUIT<br/>BREAKING CAPACITY ICS<br/>(IEC/EN 60947) AT 750 V<br/>DC</b>            | 7.5 kA |
| <b>RATED SHORT-CIRCUIT<br/>MAKING CAPACITY ICM<br/>AT 400/415 V, 50/60 HZ</b>                      | 105 kA |
| <b>RATED SHORT-CIRCUIT<br/>MAKING CAPACITY ICM<br/>AT 440 V, 50/60 HZ</b>                          | 74 kA  |
| <b>RATED SHORT-CIRCUIT<br/>MAKING CAPACITY ICM<br/>AT 525 V, 50/60 HZ</b>                          | 53 kA  |
| <b>RATED SHORT-CIRCUIT<br/>MAKING CAPACITY ICM<br/>AT 690 V, 50/60 HZ</b>                          | 40 kA  |

|                                                                     |                                                   |
|---------------------------------------------------------------------|---------------------------------------------------|
| <b>STANDARD TERMINALS</b>                                           | Screw terminal                                    |
| <b>OPTIONAL TERMINALS</b>                                           | Box terminal. Connection on rear. Tunnel terminal |
| <b>RATED SHORT-CIRCUIT MAKING CAPACITY ICM AT 240 V, 50/60 HZ</b>   | 187 kA                                            |
| <b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP) AT AUXILIARY CONTACTS</b> | 6000 V                                            |
| <b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP) AT MAIN CONTACTS</b>      | 8000 V                                            |
| <b>VOLTAGE RATING (DC)</b>                                          | 750 VDC                                           |
| <b>RATED INSULATION VOLTAGE (UI)</b>                                | 1000 V AC                                         |

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| <b>PROJECT NAME:</b>   |
| <b>PROJECT NUMBER:</b> |
| <b>PREPARED BY:</b>    |
| <b>DATE:</b>           |



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