

Circuit-breaker, 3p, 40A



**Part no.**                      **NZMB1-AF40-NA**  
**272205**

| <b>General specifications</b>   |  |  |
|---|--|--|
| Product name  |  | Eaton Moeller series NZM molded case circuit breaker thermo-magnetic   |
| Part no.  |  | NZMB1-AF40-NA  |
| EAN   |  | 4015082722050  |
| Product Length/Depth  |  | 88 millimetre  |
| Product height  |  | 165.5 millimetre   |
| Product width   |  | 90 millimetre  |
| Product weight  |  | 1.046 kilogram   |
| Compliances   |  | RoHS conform   |
| Certifications  |  | CSA-C22.2 No. 5-09<br>IEC<br>CSA certified<br>UL (Category Control Number DIV0)<br>CE marking<br>IEC 60947-2<br>UL (File No. E31593)<br>UL 489<br>UL/CSA<br>IEC/EN 60947<br>CSA (File No. 22086)<br>UL listed<br>Specially designed for North America<br>CSA (Class No. 1432-01)   |
| Product Tradename   |  | NZM  |
| Product Type  |  | Molded case circuit breaker  |
| Product Sub Type  |  | Thermo-magnetic  |
| <b>Delivery program</b>   |  |  |
| Application   |  | Branch circuits, feeder circuits<br>Use in unearthed supply systems at 440 V   |
| Type  |  | Circuit breaker  |
| Circuit breaker frame type  |  | NZM1   |
| Number of poles   |  | Three-pole   |
| Amperage Rating   |  | 40 A   |
| Release system  |  | Thermomagnetic release   |
| Features  |  | Protection unit  |
| 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 <sub>cn</sub> )<br>Rated current = rated uninterrupted current: 40 A<br>Switches conform to UL/CSA as well as the IEC regulations. IEC switching performance values are contained on the rating plate.<br>Fixed overload releases I <sub>r</sub> |
| <b>Technical Data - Electrical</b>  |  |  |
| Voltage rating  |  | 440 V - 440 V  |
| Rated operating voltage U <sub>e</sub> (UL) - max                         |  | 480 Y / 277 V  |
| Rated insulation voltage (U <sub>i</sub> )                                |  | 690 V AC   |
| Rated impulse withstand voltage (U <sub>imp</sub> ) at auxiliary contacts |  | 6000 V   |
| Rated impulse withstand voltage (U <sub>imp</sub> ) at main contacts      |  | 6000 V   |
| Rated operational current   |  | 160 A (380/400 V AC-1, making and breaking capacity)<br>125 A (415 V AC-1, making and breaking capacity)   |
| Instantaneous current setting (I <sub>i</sub> ) - min                     |  | 320 A  |
| Instantaneous current setting (I <sub>i</sub> ) - max                     |  | 400 A  |
| Overload current setting (I <sub>r</sub> ) - min                          |  | 40 A   |
| Overload current setting (I <sub>r</sub> ) - max                          |  | 40 A   |
| Short delay current setting (I <sub>sd</sub> ) - min                      |  | 0 A  |
| Short delay current setting (I <sub>sd</sub> ) - max                      |  | 0 A  |
| Short-circuit release non-delayed setting - min                           |  | 320 A  |

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| Short-circuit release non-delayed setting - max                                 |  | 400 A   |
| Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 230 V, 50/60 Hz     |  | 30 kA   |
| Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 400/415 V, 50/60 Hz |  | 25 kA   |
| Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 440 V, 50/60 Hz     |  | 18.5 kA   |
| Rated short-circuit making capacity Icm at 240 V, 50/60 Hz                      |  | 63 kA   |
| Rated short-circuit making capacity Icm at 400/415 V, 50/60 Hz                  |  | 53 kA   |
| Rated short-circuit making capacity Icm at 440 V, 50/60 Hz                      |  | 53 kA   |
| Short-circuit total breaktime   |  | < 10 ms   |
| Low-voltage HBC fuse - max  |  | 200 A gG/gL   |
| Electrical connection type of main circuit                                      |  | Frame clamp   |
| Isolation   |  | 300 V AC (between the auxiliary contacts)<br>500 V AC (between auxiliary contacts and main 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  |  | 7500 operations at 400 V AC-1   |
| Direction of incoming supply  |  | As required   |
| <b>Technical Data - Mechanical</b>  |  |   |
| Mounting Method   |  | Built-in device fixed built-in technique<br>Fixed<br>DIN rail (top hat rail) mounting optional  |
| Degree of protection  |  | IP20<br>IP20 (basic degree of protection, in the operating controls area)   |
| Degree of protection (IP), front side   |  | IP40 (with insulating surround)<br>IP66 (with door coupling rotary handle)  |
| Degree of protection (terminations)   |  | IP10 (tunnel terminal)<br>IP00 (terminations, phase isolator and strip terminal)  |
| Protection against direct contact   |  | Finger and back-of-hand proof to DIN EN 50274/VDE 0106 part 110   |
| Shock resistance  |  | 20 g (half-sinusoidal shock 20 ms)  |
| 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  |
| Climatic proofing   |  | Damp heat, cyclic, to IEC 60068-2-30<br>Damp heat, constant, to IEC 60068-2-78  |
| 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 Icn)<br>Rated current = rated uninterrupted current: 40 A<br>Switches conform to UL/CSA as well as the IEC regulations. IEC switching performance values are contained on the rating plate.<br>Fixed overload releases Ir |
| Lifespan, mechanical  |  | 20000 operations  |
| <b>Technical Data - Mechanical - Terminals</b>                                  |  |   |
| Standard terminals  |  | Box terminal  |
| Terminal capacity (control cable)   |  | 14 mm <sup>2</sup> - 18 mm <sup>2</sup> (1x)<br>16 mm <sup>2</sup> - 18 mm <sup>2</sup> (2x)  |
| Terminal capacity (aluminum solid conductor/cable)                              |  | 16 mm <sup>2</sup> (1x) at tunnel terminal  |
| Terminal capacity (copper busbar)   |  | Max. 16 mm x 5 mm direct at switch rear-side connection<br>M8 at rear-side screw connection<br>Min. 12 mm x 5 mm direct at switch rear-side connection  |
| Terminal capacity (copper solid conductor/cable)                                |  | 6 mm <sup>2</sup> - 12 mm <sup>2</sup> (1x) direct at switch rear-side connection<br>6 mm <sup>2</sup> - 12 mm <sup>2</sup> (1x) at box terminal<br>16 mm <sup>2</sup> - 95 mm <sup>2</sup> (1x) at tunnel terminal<br>6 mm <sup>2</sup> - 9 mm <sup>2</sup> (2x) direct at switch rear-side connection   |
| Terminal capacity (copper stranded conductor/cable)                             |  | 4 mm <sup>2</sup> - 2/0 mm <sup>2</sup> (1x) direct at switch rear-side connection<br>4 mm <sup>2</sup> - 3/0 mm <sup>2</sup> (1x) at tunnel terminal<br>25 mm <sup>2</sup> (2x) at box terminal<br>25 mm <sup>2</sup> - 70 mm <sup>2</sup> (1x) at box terminal  |
| Terminal capacity (copper strip)  |  | Max. 9 segments of 9 mm x 0.8 mm at box terminal<br>Min. 2 segments of 9 mm x 0.8 mm at box terminal  |
| <b>Design verification as per IEC/EN 61439 - technical data</b>                 |  |   |

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| Rated operational current for specified heat dissipation (In)                    |  | 40 A   |
| Equipment heat dissipation, current-dependent                                    |  | 10.66 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  |
| <b>Design verification as per IEC/EN 61439</b>                                   |  |  |
| 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.                         |
| <b>Additional information</b>  |  |  |
| Functions  |  | Current limiting circuit breaker<br>System and cable protection  |

## Technical data ETIM 9.0

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|---|----|--|
| 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 Iu  | A  | 40                                       |
| Rated voltage   | V  | 440 - 440                                |
| Rated short-circuit breaking capacity Icu at 400 V, 50 Hz   | kA | 25                                       |
| Overload release current setting  | A  | 40 - 40                                  |
| Adjustment range short-term delayed short-circuit release   | A  | 0 - 0                                    |
| Adjustment range undelayed short-circuit release  | A  | 320 - 400                                |
| Power loss  | W  | 10.7                                     |
| Device construction   |    | Built-in device fixed built-in technique |
| Integrated earth fault protection   |    | No                                       |
| Type of electrical connection of main circuit   |    | Frame clamp                              |
| 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                                       |

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|---|--|--|--------------|
| 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                            |  |  | No           |
| Degree of protection (IP)                       |  |  | IP20         |