# DATASHEET - NZMB2-4-AF80-BT-NA

**Circuit-breaker, 4p, 80A, box terminals**

**Part no.** **NZMB2-4-AF80-BT-NA**
**153382**

## General specifications

| | |
|---|---|
| Product name | Eaton Moeller series NZM molded case circuit breaker thermo-magnetic |
| Part no. | NZMB2-4-AF80-BT-NA |
| EAN | 4015081501526 |
| Product Length/Depth | 149 millimetre |
| Product height | 206 millimetre |
| Product width | 140 millimetre |
| Product weight | 3.755 kilogram |
| Compliances | RoHS conform |
| Certifications | UL/CSA<br>IEC 60947-2<br>Specially designed for North America<br>CE marking<br>IEC<br>IEC/EN 60947<br>UL (File No. E31593)<br>CSA-C22.2 No. 5-09<br>UL (Category Control Number DIVQ)<br>UL 489<br>UL listed |
| Product Tradename | NZM |
| Product Type | Molded case circuit breaker |
| Product Sub Type | Thermo-magnetic |

## Delivery program

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|---|---|
| Application | Use in unearthed supply systems at 440 V<br>Branch circuits, feeder circuits |
| Type | Circuit breaker |
| Circuit breaker frame type | NZM2 |
| Number of poles | Four-pole |
| Amperage Rating | 80 A |
| Release system | Thermomagnetic release |
| Features | Motor drive optional<br>Protection unit |
| Special features | Fixed overload releases Ir<br>Switches conform to UL/CSA as well as the IEC regulations. IEC switching performance values are contained on the rating plate.<br>Rated current = rated uninterrupted current: 80 A<br>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) |

## Technical Data - Electrical

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|---|---|
| Voltage rating | 440 V - 440 V |
| Rated operating voltage Ue (UL) - max | 480 V |
| Rated insulation voltage (Ui) | 690 V AC |
| Rated impulse withstand voltage (Uimp) at auxiliary contacts | 6000 V |
| Rated impulse withstand voltage (Uimp) at main contacts | 8000 V |
| Current rating of neutral conductor | 200% of phase conductor |
| Instantaneous current setting (Ii) - min | 6 A |
| Instantaneous current setting (Ii) - max | 10 A |
| Overload current setting (Ir) | 80 A - 80 A |
| Overload current setting (Ir) - min | 80 A |
| Overload current setting (Ir) - max | 80 A |
| Short delay current setting (Isd) - min | 0 A |
| Short delay current setting (Isd) - max | 0 A |
| Short-circuit release non-delayed setting - min | 480 A |
| Short-circuit release non-delayed setting - max | 800 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 | 355 A gG/gL |
| Electrical connection type of main circuit | Frame clamp |
| Isolation | 500 V AC (between auxiliary contacts and main contacts)<br>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 | 7500 operations at 400 V AC-1 |
| Direction of incoming supply | As required |

## Technical Data - Mechanical

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|---|---|
| Mounting Method | Fixed<br>Built-in device fixed built-in technique<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) | IP00 (terminations, phase isolator and strip terminal)<br>IP10 (tunnel 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, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30 |
| Special features | Fixed overload releases Ir<br>Switches conform to UL/CSA as well as the IEC regulations. IEC switching performance values are contained on the rating plate.<br>Rated current = rated uninterrupted current: 80 A<br>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) |
| Lifespan, mechanical | 20000 operations |

## Technical Data - Mechanical - Terminals

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|---|---|
| Standard terminals | Box terminal |
| Terminal capacity (aluminum solid conductor/cable) | 16 $mm^2$ (1x) at tunnel terminal |

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

| | |
|---|---|
| Rated operational current for specified heat dissipation (In) | 80 A |
| Equipment heat dissipation, current-dependent | 20.54 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 |

## Design verification as per IEC/EN 61439

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|---|---|
| 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. |

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|---|---|---|---|
| 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. |
| **Additional information** | | | |
| Functions | | | Current limiting circuit breaker<br>System and cable protection |

## Technical data ETIM 9.0

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 | 80 |
| Rated voltage | | V | 440 - 440 |
| Rated short-circuit breaking capacity Icu at 400 V, 50 Hz | | kA | 25 |
| Overload release current setting | | A | 80 - 80 |
| Adjustment range short-term delayed short-circuit release | | A | 0 - 0 |
| Adjustment range undelayed short-circuit release | | A | 6 - 10 |
| Power loss | | W | 20.5 |
| 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 |
| Number of poles | | | 4 |
| 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 | | | Yes |
| Degree of protection (IP) | | | IP20 |


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