

Circuit-breaker, 3p, 160A



Part no. **NZMB2-A160-NA**
269215

| General specifications | | |
|---|--|--|
| Product name | | Eaton Moeller series NZM molded case circuit breaker thermo-magnetic |
| Part no. | | NZMB2-A160-NA |
| EAN | | 4015082692155 |
| Product Length/Depth | | 149 millimetre |
| Product height | | 195 millimetre |
| Product width | | 105 millimetre |
| Product weight | | 2.386 kilogram |
| Compliances | | RoHS conform |
| Certifications | | IEC CSA certified UL listed UL 489 CSA-C22.2 No. 5-09 UL (Category Control Number DIVQ) CSA (File No. 22086) UL/CSA CE marking UL (File No. E31593) IEC/EN 60947 Specially designed for North America IEC 60947-2 CSA (Class No. 1432-01) |
| Product Tradename | | NZM |
| Product Type | | Molded case circuit breaker |
| Product Sub Type | | Thermo-magnetic |
| Delivery program | | |
| Application | | Branch circuits, feeder circuits Use in unearthed supply systems at 440 V |
| Type | | Circuit breaker |
| Circuit breaker frame type | | NZM2 |
| Number of poles | | Three-pole |
| Amperage Rating | | 160 A |
| Release system | | Thermomagnetic release |
| Features | | Protection unit Motor drive optional |
| 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: 160 A Switches conform to UL/CSA as well as the IEC regulations. IEC switching performance values are contained on the rating plate. Adjustable overload releases I _r |
| Technical Data - Electrical | | |
| Voltage rating | | 440 V - 440 V |
| Rated operating voltage U _e (UL) - max | | 600Y/347 V, 480 V |
| Rated insulation voltage (U _i) | | 690 V AC |
| Rated impulse withstand voltage (U _{imp}) at auxiliary contacts | | 6000 V |
| Rated impulse withstand voltage (U _{imp}) at main contacts | | 8000 V |
| Rated operational current | | 300 A (380/400 V AC-1, making and breaking capacity) 300 A (415 V AC-1, making and breaking capacity) |
| Instantaneous current setting (I _i) - min | | 960 A |
| Instantaneous current setting (I _i) - max | | 1600 A |
| Overload current setting (I _r) - min | | 125 A |
| Overload current setting (I _r) - max | | 160 A |
| Short delay current setting (I _{sd}) - min | | 0 A |
| Short delay current setting (I _{sd}) - max | | 0 A |

| | | |
|---|--|---|
| Short-circuit release non-delayed setting - min | | 960 A |
| Short-circuit release non-delayed setting - max | | 1600 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 | | Screw connection |
| Isolation | | 300 V AC (between the auxiliary contacts) 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 6500 operations at 415 V AC-3 |
| Direction of incoming supply | | As required |
| Technical Data - Mechanical | | |
| Mounting Method | | DIN rail (top hat rail) mounting optional 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 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 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) Rated current = rated uninterrupted current: 160 A Switches conform to UL/CSA as well as the IEC regulations. IEC switching performance values are contained on the rating plate. Adjustable overload releases Ir |
| Lifespan, mechanical | | 20000 operations |
| Technical Data - Mechanical - Terminals | | |
| Standard terminals | | Screw terminal |
| Terminal capacity (control cable) | | 16 mm ² - 18 mm ² (2x) 14 mm ² - 18 mm ² (1x) |
| Terminal capacity (aluminum solid conductor/cable) | | 16 mm ² (1x) at tunnel terminal |
| Terminal capacity (copper busbar) | | M8 at rear-side screw connection Max. 20 mm x 5 mm direct at switch rear-side connection Min. 16 mm x 5 mm direct at switch rear-side connection |
| Terminal capacity (copper solid conductor/cable) | | 16 mm ² (1x) at tunnel terminal 6 mm ² - 12 mm ² (1x) at box terminal 6 mm ² - 11 mm ² (1x) direct at switch rear-side connection |
| Terminal capacity (copper stranded conductor/cable) | | 4 mm ² - 350 mm ² (1x) at tunnel terminal 4 mm ² - 3/0 mm ² (1x) direct at switch rear-side connection 4 mm ² - 350 mm ² (1x) at box terminal |
| Terminal capacity (copper strip) | | Max. 10 segments of 16 mm x 0.8 mm at box terminal Max. 10 segments of 16 mm x 0.8 mm at rear-side connection (punched) Min. 2 segments of 16 mm x 0.8 mm at rear-side connection (punched) Min. 2 segments of 9 mm x 0.8 mm at box terminal |

Design verification as per IEC/EN 61439 - technical data

| | | |
|--|--|--|
| Rated operational current for specified heat dissipation (In) | | 160 A |
| Equipment heat dissipation, current-dependent | | 38.4 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 | | |
| 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. |
| Additional information | | |
| Functions | | System and cable protection Current limiting circuit breaker |

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 (ecf@ss13-27-37-04-09 [AJZ716018]) | | |
| Rated permanent current Iu | A | 160 |
| Rated voltage | V | 440 - 440 |
| Rated short-circuit breaking capacity Icu at 400 V, 50 Hz | kA | 25 |
| Overload release current setting | A | 125 - 160 |
| Adjustment range short-term delayed short-circuit release | A | 0 - 0 |
| Adjustment range undelayed short-circuit release | A | 960 - 1600 |
| Power loss | W | 38.4 |
| Device construction | | Built-in device fixed built-in technique |
| Integrated earth fault protection | | No |
| Type of electrical connection of main circuit | | Screw connection |
| 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 | | 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 | | Yes |
| Degree of protection (IP) | | IP20 |