

Circuit-breaker, 3p, 20A 1000V

Part no. NZMH2-A20-S1
290355
EL Number 4359031
(Norway)

| General specifications | |
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| Product name | Eaton Moeller series NZM molded case circuit breaker thermo-magnetic |
| Part no. | NZMH2-A20-S1 |
| EAN | 4015082903558 |
| Product Length/Depth | 149 millimetre |
| Product height | 184 millimetre |
| Product width | 105 millimetre |
| Product weight | 2.345 kilogram |
| Compliances | RoHS conform |
| Certifications | IEC |
| Product Tradename | NZM |
| Product Type | Molded case circuit breaker |
| Product Sub Type | Thermo-magnetic |
| Delivery program | |
| Type | Circuit breaker |
| Circuit breaker frame type | NZM2 |
| Number of poles | Three-pole |
| Amperage Rating | 20 A |
| Release system | Thermomagnetic release |
| Features | Protection unit Motor drive optional |
| Special features | Lifespan, mechanical: of which max. 50 % trip by shunt/undervoltage release NZM...S1 terminal type: NZM...XKSA cover required Rated current = rated uninterrupted current: 20 A Terminal capacity hint: Up to 240 mm ² can be connected depending on the cable manufacturer. |
| Technical Data - Electrical | |
| Voltage rating | 1000 V - 1000 V |
| Rated insulation voltage (Ui) | 1000 V AC |
| Rated impulse withstand voltage (Uimp) at auxiliary contacts | 6000 V |
| Rated impulse withstand voltage (Uimp) at main contacts | 8000 V |
| Rated short-time withstand current (t = 0.3 s) | 1.9 kA |
| Rated short-time withstand current (t = 1 s) | 1.9 kA |
| Instantaneous current setting (Ii) - min | 350 A |
| Instantaneous current setting (Ii) - max | 350 A |
| Overload current setting (Ir) - min | 15 A |
| Overload current setting (Ir) - max | 20 A |
| Short delay current setting (Isd) - min | 0 A |
| Short delay current setting (Isd) - max | 0 A |
| Short-circuit release non-delayed setting - min | 350 A |
| Short-circuit release non-delayed setting - max | 350 A |
| Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 230 V, 50/60 Hz | 150 kA |
| Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 400/415 V, 50/60 Hz | 150 kA |
| Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 440 V, 50/60 Hz | 130 kA |
| Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 525 V, 50/60 Hz | 37.5 kA |
| Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 690 V, 50/60 Hz | 5 kA |
| Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 1000 V, 50/60 Hz | 3 kA |
| Rated short-circuit making capacity Icm at 240 V, 50/60 Hz | 330 kA |
| Rated short-circuit making capacity Icm at 400/415 V, 50/60 Hz | 330 kA |
| Rated short-circuit making capacity Icm at 440 V, 50/60 Hz | 286 kA |

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| Rated short-circuit making capacity I _{cm} at 525 V, 50/60 Hz | | 105 kA |
| Rated short-circuit making capacity I _{cm} at 690 V, 50/60 Hz | | 40 kA |
| Rated short-circuit making capacity I _{cm} at 1000 V, 50/60 Hz | | 17 kA |
| Electrical connection type of main circuit | | Screw connection |
| Number of operations per hour - max | | 120 |
| Handle type | | Rocker lever |
| Utilization category | | A |
| Overvoltage category | | III |
| Pollution degree | | 3 |
| Lifespan, electrical | | 3000 operations at 1000 V AC-1 |

Technical Data - Mechanical

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| Mounting Method | | DIN rail (top hat rail) mounting optional Built-in device fixed built-in technique Fixed |
| Degree of protection | | IP20 |
| 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 |
| Special features | | Lifespan, mechanical: of which max. 50 % trip by shunt/undervoltage release NZM...S1 terminal type: NZM...XKSA cover required Rated current – rated uninterrupted current: 20 A Terminal capacity hint: Up to 240 mm ² can be connected depending on the cable manufacturer. |
| Lifespan, mechanical | | 20000 operations |

Technical Data - Mechanical - Terminals

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| Standard terminals | | Screw terminal |
| Terminal capacity (control cable) | | 0.75 mm ² - 1.5 mm ² (2x) 0.75 mm ² - 2.5 mm ² (1x) |
| Terminal capacity (aluminum solid conductor/cable) | | 16 mm ² (1x) at tunnel terminal |
| Terminal capacity (aluminum stranded conductor/cable) | | 25 mm ² - 185 mm ² (1x) at tunnel terminal |
| Terminal capacity (copper busbar) | | Max. 24 mm x 8 mm direct at switch rear-side connection Min. 16 mm x 5 mm direct at switch rear-side connection M8 at rear-side screw connection |
| Terminal capacity (copper solid conductor/cable) | | 10 mm ² - 16 mm ² (1x) direct at switch rear-side connection 10 mm ² - 16 mm ² (2x) direct at switch rear-side connection 10 mm ² - 16 mm ² (1x) at box terminal 6 mm ² - 16 mm ² (2x) at box terminal 16 mm ² (1x) at tunnel terminal |
| Terminal capacity (copper stranded conductor/cable) | | 25 mm ² - 185 mm ² (1x) at tunnel terminal 25 mm ² - 185 mm ² (1x) at box terminal 25 mm ² - 70 mm ² (2x) at box terminal 25 mm ² - 50 mm ² (2x) direct at switch rear-side connection |
| Terminal capacity (copper strip) | | Max. 8 segments of 24 mm x 1 mm (2x) at box terminal Max. 10 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 Max. 10 segments of 16 mm x 0.8 mm at box terminal Min. 2 segments of 16 mm x 0.8 mm at rear-side connection (punched) |

Design verification as per IEC/EN 61439 - technical data

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| Rated operational current for specified heat dissipation (I _n) | | 20 A |
| Equipment heat dissipation, current-dependent | | 5.1 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. |
| 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. |

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| 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 |

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 I _u | A | 20 |
| Rated voltage | V | 1000 - 1000 |
| Rated short-circuit breaking capacity I _{cu} at 400 V, 50 Hz | kA | 150 |
| Overload release current setting | A | 15 - 20 |
| Adjustment range short-term delayed short-circuit release | A | 0 - 0 |
| Adjustment range undelayed short-circuit release | A | 350 - 350 |
| Power loss | W | 5.1 |
| 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 |