

Circuit-breaker, 3p, 40A

Part no. **NZMH2-M40**
281302

| General specifications | |
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| Product name | Eaton Moeller series NZM molded case circuit breaker thermo-magnetic |
| Part no. | NZMH2-M40 |
| EAN | 4015082813024 |
| Product Length/Depth | 149 millimetre |
| Product height | 184 millimetre |
| Product width | 105 millimetre |
| Product weight | 2.345 kilogram |
| Compliances | RoHS conform |
| Certifications | IEC/EN 60947 IEC |
| Product Tradename | NZM |
| Product Type | Molded case circuit breaker |
| Product Sub Type | Thermo-magnetic |
| Delivery program | |
| Application | Use in unearthed supply systems at 690 V |
| Type | Circuit breaker |
| Circuit breaker frame type | NZM2 |
| Number of poles | Three-pole |
| Amperage Rating | 40 A |
| Release system | Thermomagnetic release |
| 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: 40 A Tripping class 10 A IEC/EN 60947-4-1, IEC/EN 60947-2 The circuit-breaker fulfills all requirements for AC-3 switching category. |
| Fitted with: | Thermal protection |
| Technical Data - Electrical | |
| Voltage rating | 690 V - 690 V |
| Rated insulation voltage (U _i) | 1000 V |
| 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 | 36 A (400 V AC-3) |
| 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 (I _i) - min | 320 A |
| Instantaneous current setting (I _i) - max | 560 A |
| Overload current setting (I _r) - min | 32 A |
| Overload current setting (I _r) - max | 40 A |
| Short-circuit release non-delayed setting - min | 320 A |
| Short-circuit release non-delayed setting - max | 560 A |
| Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 230 V, 50/60 Hz | 150 kA |
| Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 400/415 V, 50/60 Hz | 130 kA |
| Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 440 V, 50/60 Hz | 130 kA |
| Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 525 V, 50/60 Hz | 37.5 kA |
| Rated short-circuit breaking capacity I _{cs} (IEC/EN 60947) at 690 V, 50/60 Hz | 5 kA |
| Rated short-circuit making capacity I _{cm} at 240 V, 50/60 Hz | 330 kA |
| Rated short-circuit making capacity I _{cm} at 400/415 V, 50/60 Hz | 330 kA |
| Rated short-circuit making capacity I _{cm} 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 operating power at AC-3, 230 V | | 11 kW |
| Rated operating power at AC-3, 400 V | | 18.5 kW |
| Short-circuit total breaktime | | < 10 ms |
| Electrical connection type of main circuit | | Screw connection |
| Isolation | | 500 V AC (between auxiliary contacts and main contacts) 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 | | 10000 operations at 415 V AC-1 6500 operations at 415 V AC-3 5000 operations at 690 V AC-3 6500 operations at 400 V AC-3 10000 operations at 400 V AC-1 7500 operations at 690 V AC-1 |
| Direction of incoming supply | | As required |
| Technical Data - Mechanical | | |
| Mounting Method | | Fixed Built-in device fixed built-in technique |
| Degree of protection | | IP20 IP20 (basic degree of protection, in the operating controls area) |
| 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 VDE 0106 part 100 |
| Shock resistance | | 20 g (half-sinusoidal shock 20 ms) |
| Switch off technique | | Thermomagnetic |
| Climatic proofing | | Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30 |
| 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: 40 A Tripping class 10 A IEC/EN 60947-4-1, IEC/EN 60947-2 The circuit-breaker fulfills all requirements for AC-3 switching category. |
| Lifespan, mechanical | | 20000 operations |
| Technical Data - Mechanical - Terminals | | |
| Standard terminals | | Screw terminal |
| Optional terminals | | Box terminal. Connection on rear. Tunnel 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) | | 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 16 mm ² (1x) at tunnel terminal |
| Terminal capacity (aluminum stranded conductor/cable) | | 25 mm ² - 50 mm ² (1x) direct at switch rear-side connection 25 mm ² - 50 mm ² (2x) direct at switch rear-side connection 25 mm ² - 185 mm ² (1x) at tunnel terminal |
| Terminal capacity (copper busbar) | | Min. 16 mm x 5 mm direct at switch rear-side connection Max. 24 mm x 8 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 6 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 1-hole tunnel terminal 25 mm ² - 185 mm ² (1x) direct at switch rear-side connection 25 mm ² - 70 mm ² (2x) at box terminal 25 mm ² - 185 mm ² (1x) at box terminal 25 mm ² - 70 mm ² (2x) direct at switch rear-side connection |
| Terminal capacity (copper strip) | | 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) Min. 2 segments of 9 mm x 0.8 mm at box terminal Max. 10 segments of 24 mm x 0.8 mm at rear-side connection (punched) |

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| | | Max. 8 segments of 24 mm x 1 mm (2x) at box terminal |
| Design verification as per IEC/EN 61439 - technical data | | |
| Rated operational current for specified heat dissipation (In) | | 40 A |
| Equipment heat dissipation, current-dependent | | 13.44 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 | | Motor protection |

Technical data ETIM 9.0

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| Low-voltage industrial components (EG000017) / Motor protection circuit-breaker (EC000074) | | |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Motor protection circuit-breaker (ecl@ss13-27-37-04-01 [AGZ529021]) | | |
| Overload release current setting | A | 32 - 40 |
| Adjustment range undelayed short-circuit release | A | 320 - 560 |
| With thermal overload protection | | Yes |
| Phase failure sensitive | | No |
| Switch off technique | | Thermomagnetic |
| Rated operating voltage | V | 690 - 690 |
| Rated permanent current Iu | A | 40 |
| Rated operation power at AC-3, 230 V | kW | 11 |
| Rated operation power at AC-3, 400 V | kW | 18.5 |
| Power loss | W | 13.4 |
| Type of electrical connection of main circuit | | Screw connection |
| Type of control element | | Rocker lever |
| Device construction | | Built-in device fixed built-in technique |
| With integrated auxiliary switch | | No |
| With integrated under voltage release | | No |
| Number of poles | | 3 |

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| Rated short-circuit breaking capacity I _{cu} at 400 V, AC | kA | 130 |
| Degree of protection (IP) | | IP20 |
| Height | mm | 184 |
| Width | mm | 105 |
| Depth | mm | 149 |