# DATASHEET - FRCMM-40/4/003-G/A-NA-110

**Residual current circuit breaker (RCCB), 40A, 4p, 30mA, type G/A**

**Part no.** **FRCMM-40/4/003-G/A-NA-110**
**167706**

## General specifications

| | |
|---|---|
| Product name | Eaton Moeller series xEffect - FRCmM-NA RCCB |
| Part no. | FRCMM-40/4/003-G/A-NA-110 |
| EAN | 4015081642472 |
| Product Length/Depth | 80 millimetre |
| Product height | 71 millimetre |
| Product width | 70 millimetre |
| Product weight | 0.32 kilogram |
| Compliances | RoHS conform |
| Certifications | IEC 61373<br>EN45545-2<br>ÖVE E 8601<br>IEC/EN 61008<br>UL 1053 |
| Product Tradename | xEffect - FRCmM-NA |
| Product Type | RCCB |
| Product Sub Type | None |
| Catalog Notes | Additionally protects against special forms of residual pulsating DC which have not been smoothed. |

## Delivery program

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| Application | Switchgear for 110-V systems |
| Number of poles | Four-pole |
| Tripping time | 10 ms delay at 50 Hz<br>8 ms delay at 60 Hz<br>Short time-delayed |
| Amperage Rating | 40 A |
| Rated short-circuit strength | 10 kA with back-up fuse<br>5 kA (UL, as per CSA) |
| Fault current rating | 30 mA |
| Sensitivity type | Pulse-current sensitive |
| Impulse withstand current | 3 kA (8/20 µs) surge-proof |
| Type | The maximum operating current of back-up fuse must not exceed the residual current circuit breaker's rated operational current<br>Maximum operating temperature is 75 °C: Starting at 40 °C, the max. permissible continuous current decreases by 2.5% for every 1 °C<br>Current test marks as per inscription |

## Technical Data - Electrical

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|---|---|
| Voltage rating (IEC/EN 60947-2) | 110/190 V |
| Voltage rating (UL) | 208/120 V, 60 Hz |
| Rated operational voltage (Ue) - max | 190 V |
| Rated insulation voltage (Ui) | 440 V |
| Rated impulse withstand voltage (Uimp) | 4 kV |
| Overvoltage tested - max | 530 V |
| Rated fault current - min | 0.03 A |
| Rated fault current - max | 0.03 A |
| Frequency rating | 50 Hz / 60 Hz |
| Short-circuit rating | Max. admissible back-up fuse: 63 A gG/gL, 70 A class J fuse (UL) |
| Leakage current type | A |
| Rated residual making and breaking capacity | 500 A |
| Admissible back-up fuse overload - max | 40 A gG/gL |
| Rated short-time withstand current (Icw) | 10 kA |
| Surge current capacity | 3 kA |
| Pick-up current | 22 mA |

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|---|---|
| Test circuit range | 100 V AC - 210 V AC, 94 V AC - 132 V AC (UL) |
| Pollution degree | 2 |
| Lifespan, electrical | 4000 operations |
| **Technical Data - Mechanical** | |
| Frame | 45 mm |
| Width in number of modular spacings | 4 |
| Built-in width (number of units) | 70 mm (4 SU) |
| Built-in depth | 70.5 mm |
| Mounting Method | Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715<br>DIN rail |
| Mounting position | As required |
| Degree of protection | IP20<br>IP20, IP40 with suitable enclosure |
| Status indication | White / blue |
| Terminals (top and bottom) | Lift terminals |
| Terminal capacity (solid wire) | 1.5 $mm^2$ - 35 $mm^2$ |
| Connectable conductor cross section (solid-core) - min | 1.5 $mm^2$ |
| Connectable conductor cross section (solid-core) - max | 35 $mm^2$ |
| Terminal capacity (stranded cable) | 16 $mm^2$ (2x) |
| Connectable conductor cross section (multi-wired) - min | 1.5 $mm^2$ |
| Connectable conductor cross section (multi-wired) - max | 16 $mm^2$ |
| Terminal capacity (cable) | M5 (with cross-recessed screw as defined in EN ISO 4757-Z2, PZ2) |
| Terminal protection | Finger and hand touch safe, DGUV VS3, EN 50274 |
| Contact position indicator color | Red / green |
| Lifespan, mechanical | 10000 operations |
| Permitted storage and transport temperature - min | -35 °C |
| Permitted storage and transport temperature - max | 60 °C |
| Ambient humdity range | 5 - 95 % |
| Climatic proofing | 25-55 °C / 90-95% relative humidity according to IEC 60068-2 |
| **Design verification as per IEC/EN 61439 - technical data** | |
| Rated operational current for specified heat dissipation (In) | 40 A |
| Heat dissipation per pole, current-dependent | 3.275 W |
| Equipment heat dissipation, current-dependent | 13.1 W |
| Ambient operating temperature - min | -25 °C |
| Ambient operating temperature - max | 40 °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. |

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|---|---|---|---|
| 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

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| Features | | | Additional equipment possible<br>Residual current circuit breaker |
| Fitted with: | | | Interlocking device |
| Functions | | | Short-time delayed tripping |
| Special features | | | Type G/A (ÖVE E 8601)<br>Residual current circuit breakers<br>FRCmM-NA-110 |
| Used with | | | Residual current circuit breakers<br>Type G/A (#VE E 8601)<br>FRCmM-NA-110 |

## Technical data ETIM 9.0

Circuit breakers and fuses (EG000020) / Residual current circuit breaker (RCCB) (EC000003)

Electric engineering, automation, process control engineering / Electrical installation, device / Residual current protection system / Residual current circuit breaker (RCCB) (ecl@ss13-27-14-22-01 [AAB906019])

| | | | |
|---|---|---|---|
| Number of poles | | | 4 |
| Rated voltage | | V | 190 |
| Rated current | | A | 40 |
| Rated fault current | | A | 0.03 |
| Rated insulation voltage Ui | | V | 440 |
| Rated impulse withstand voltage Uimp | | kV | 4 |
| Power loss | | W | |
| Mounting method | | | DIN rail |
| Leakage current type | | | A |
| Selective protection | | | No |
| Short-time delayed tripping | | | Yes |
| Short-circuit breaking capacity (Icw) | | kA | 10 |
| Surge current capacity | | kA | 3 |
| Voltage type | | | AC |
| With interlocking device | | | Yes |
| Frequency | | | 50/60 Hz |
| Additional equipment possible | | | Yes |
| Degree of protection (IP) | | | IP20 |
| Width in number of modular spacings | | | 4 |
| Built-in depth | | mm | 70.5 |
| Ambient temperature during operating | | °C | -25 - 40 |
| Pollution degree | | | 2 |
| Connectable conductor cross section multi-wired | | $mm^2$ | 1.5 - 16 |
| Connectable conductor cross section solid-core | | $mm^2$ | 1.5 - 35 |
| RAL-number (similar) | | | 7035 |
| Explosion-proof | | | No |


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