



Residual current circuit breaker (RCCB), 40A, 4p, 300mA, type A



Part no. FRCMM-40/4/03-A-NA-110
Catalog No. 167703

Similar to illustration

Delivery program

| | | | |
|------------------------------|----------------|------|-----------------------------------|
| Basic function | | | Residual current circuit-breakers |
| Number of poles | | | 4 pole |
| Application | | | Switchgear for 110-V systems |
| Rated current | I_n | A | 40 |
| Rated short-circuit strength | I_{cn} | kA | 10 with back-up fuse |
| Rated fault current | $I_{\Delta N}$ | A | 0.3 |
| Type | | | Type A |
| Tripping | | s... | non-delayed |
| Product range | | | FRCmM-NA-110 |
| Sensitivity | | | Pulse-current sensitive |
| Impulse withstand current | | | Partly surge-proof 250 A |
| Contact sequence | | | |

Technical data

Electrical

| | | | |
|--|----------------------|------|-----------------------------|
| Types conform to | | | IEC/EN 61008 ÖVE E 8601 |
| Current test marks | | | As per inscription |
| Tripping | | s... | non-delayed |
| Rated voltage according to IEC/EN 60947-2 | U_n | V AC | 110/190 |
| Rated frequency | f | Hz | 50/60 |
| Limit values of the operating voltage | | | |
| Test circuit | | V AC | 100 - 210 |
| Rated fault current | $I_{\Delta n}$ | mA | 300 |
| Sensitivity | | | Pulse-current sensitive |
| Rated insulation voltage | U_i | V | 440 |
| Rated impulse withstand voltage | U_{imp} | kV | 4 (1.2/50µs) |
| Rated short-circuit strength | I_{cn} | kA | 10 with back-up fuse |
| Impulse withstand current | | | 250 A (8/20 µs) surge-proof |
| Max. admissible back-up fuse | | | |
| Short-circuit | gG/gL | A | 63 |
| Overload | gG/gL | A | 40 |
| Rated making and breaking capacity / Rated residual making and breaking capacity | $I_m / I_{\Delta m}$ | A | 500 |
| lifespan | | | |
| Electrical | Operations | | ≥ 4000 |
| Mechanical | Operations | | ≥ 10000 |

Electrical

| | | | |
|---------------------------------------|-------|------|--------------------|
| Types conform to | | | UL1053 |
| Current test marks | | | As per inscription |
| Tripping | | | non-delayed |
| Rated voltage according to UL | U_n | V AC | 208/120 V, 60 Hz |
| Limit values of the operating voltage | | | |

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|--|----------------------|------|--|
| Test circuit | | V AC | 94 - 230 |
| Pick-up current | | mA | 200 |
| Sensitivity | | | Pulse-current sensitive |
| Overvoltage-tested | | V | 530 |
| Rated impulse withstand voltage | U_{imp} | kV | 4 (1.2/50 μ s) |
| Rated short-circuit strength | I_{cn} | kA | 5 as per CSA |
| Max. admissible back-up fuse | | | |
| Short-circuit | | | 70 A class J fuse |
| Overload | | | The maximum operating current must not exceed the residual current circuit-breaker's rated operational current |
| Rated making and breaking capacity / Rated residual making and breaking capacity | $I_m / I_{\Delta m}$ | A | 500 |
| lifespan | | | |
| Electrical | Operations | | ≥ 4000 |
| Mechanical | Operations | | ≥ 10000 |

Mechanical

| | | | |
|--|--|-----------------|---|
| Standard front dimension | | mm | 45 |
| Device height | | mm | 80 |
| Built-in width | | mm | 70 (4TE) |
| Mounting | | | Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715 |
| Degree of Protection | | | IP40, IP54 (with moisture-proof enclosure) |
| Terminals top and bottom | | | Lift terminals |
| Terminal protection | | | Busbar tag shroud to BGV A3, ÖVE-EN 6 |
| Terminal cross-section | | | |
| Solid | | mm ² | 1.5 - 35 |
| Stranded | | mm ² | 2 x 16 |
| Terminal cross-section | | | M5 (with cross-recessed screw as defined in EN ISO 4757-Z2, Pozidriv PZ2) |
| Admissible ambient temperature range | | °C | -25 - +40 |
| Permissible storage and transport temperatures | | °C | -35 - +60 |
| Climatic proofing | | | 25-55°C/90-95% relative humidity according to IEC 60068-2 |
| Humidity | | % | 5 - 95 |
| Pollution degree | | | 2 |
| Mounting position | | | As required |
| Contact position indicator | | | red / green |
| Trip indication | | | white / blue |

Design verification as per IEC/EN 61439

| | | | |
|--|-----------|----|---|
| Technical data for design verification | | | |
| Rated operational current for specified heat dissipation | I_n | A | 40 |
| Heat dissipation per pole, current-dependent | P_{vid} | W | 2.2 |
| Equipment heat dissipation, current-dependent | P_{vid} | W | 8.8 |
| Operating ambient temperature min. | | °C | -25 |
| Operating ambient temperature max. | | °C | 75 |
| | | | Starting at 40 °C, the max. permissible continuous current decreases by 2.5% for every 1 °C |
| IEC/EN 61439 design verification | | | |
| 10.2 Strength of materials and parts | | | |
| 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 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric 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. |

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| 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 Insulation properties | | |
| 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. |

Technical data ETIM 7.0

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|---|-----------------|----------|
| 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) (ec1@ss10.0.1-27-14-22-01 [AAB906014]) | | |
| Number of poles | | 4 |
| Rated voltage | V | 190 |
| Rated current | A | 40 |
| Rated fault current | mA | 300 |
| Rated insulation voltage Ui | V | 440 |
| Rated impulse withstand voltage Uimp | kV | 4 |
| Mounting method | | DIN rail |
| Leakage current type | | A |
| Selective protection | | No |
| Short-time delayed tripping | | No |
| Short-circuit breaking capacity (Icw) | kA | 10 |
| Surge current capacity | kA | 0.25 |
| Frequency | | 50/60 Hz |
| Additional equipment possible | | Yes |
| With interlocking device | | 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 |

Dimensions

