DATASHEET - FRCMM-40/2/003-G/A-NA-110

Part no. Catalog No.



Residual current circuit breaker (RCCB), 40A, 2p, 30mA, type G/A

FRCMM-40/2/003-G/A-NA-110 167694



Similar to illustration

| Delivery program | | | |
|------------------------------|-----------------|----|-----------------------------------|
| Basic function | | | Residual current circuit-breakers |
| Number of poles | | | 2 pole |
| Application | | | Switchgear for 110-V systems |
| Rated current | In | Α | 40 |
| Rated short-circuit strength | I _{cn} | kA | 10 with back-up fuse |
| Rated fault current | $I_{\Delta N}$ | Α | 0.03 |
| Туре | | | Type G/A (ÖVE E 8601) |
| Tripping | | s | Short time-delayed |
| Product range | | | FRCmM-NA-110 |
| Sensitivity | | | Pulse-current sensitive |
| Impulse withstand current | | | Surge-proof, 3 kA |
| Contact sequence | | | T N H H |

Technical data

Tripping

| Electrical | | | |
|--|-----------------------|------|----------------------------|
| Types conform to | | | IEC/EN 61008 ÖVE E 8601 |
| Current test marks | | | As per inscription |
| Tripping | | s | 10 ms delay at 50 Hz |
| Rated voltage according to IEC/EN 60947-2 | Un | V AC | 110/190 |
| Rated frequency | f | Hz | 50/60 |
| Limit values of the operating voltage | | | |
| Test circuit | | V AC | 100 - 121 |
| Rated fault current | $I_{\Delta n}$ | mA | 30 |
| Sensitivity | | | Pulse-current sensitive |
| Rated insulation voltage | Ui | 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 | | | 3 kA (8/20 μs) surge-proof |
| Max. admissible back-up fuse | | | |
| Short-circuit | gG/gL | Α | 63 |
| Overload | gG/gL | Α | 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 |
| | | | |

8 ms delay at 60 Hz

| Rated voltage according to UL | U_{n} | V AC | 208/120 V, 60 Hz |
|--|--------------------|---------------|--|
| Limit values of the operating voltage | | | |
| Test circuit | | V AC | 94 - 132 |
| Pick-up current | | mA | 22 |
| Sensitivity | | | Pulse-current sensitive |
| Overvoltage-tested | | V | 530 |
| Rated impulse withstand voltage | U_{imp} | kV | 4 (1.2/50µs) |
| 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 | $I_m/I_{\Delta m}$ | Α | 500 |
| lifespan | | | |
| Electrical | Operations | | ≧ 4000 |
| Mechanical | Operations | | ≧ 10000 |
| Mechanical | | | |
| Standard front dimension | | mm | 45 |
| Device height | | mm | 80 |
| Built-in width | | mm | 35 (2TE) |
| 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

| besign vermoution as per 120/214 01-103 | | | |
|--|------------------|----|---|
| Technical data for design verification | | | |
| Rated operational current for specified heat dissipation | In | Α | 40 |
| Heat dissipation per pole, current-dependent | P _{vid} | W | 3.9 |
| Equipment heat dissipation, current-dependent | P _{vid} | W | 7.8 |
| 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. |
| 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

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) (pc/@ss10.01-77-14-29-01 [AAR906014])

| Rated voltage V 110 Rated current A 40 Rated fault current mA 30 Rated insulation voltage Ui V 440 Rated impulse withstand voltage Uimp kV 4 Mounting method Leakage current type A Selective protection No Yes Short-time delayed tripping Yes Short-circuit breaking capacity (lcw) kA 10 Surge current capacity kA 3 Frequency Yes Yes Additional equipment possible Yes With interlocking device Yes Yes Degree of protection (IP) Yes Yes Width in number of modular spacings P20 Yes Bull-in depth mm 70.5 Ambient temperature during operating "C 25 - 40 Pollution degree Temperature during operating Temperature | (ecl@ss10.0.1-27-14-22-01 [AAB906014]) | | |
|--|---|-----|----------|
| Rated current A 40 Rated fault current mA 30 Rated insulation voltage Ui V 440 Rated impulse withstand voltage Uimp kV 4 Mounting method kV 4 Leakage current type A DIN reil Selective protection No Yes Short-circuit breaking capacity (lcw) kA 10 Surge current capacity kA 3 Frequency kA 3 Additional equipment possible Yes With interlocking device Yes Degree of protection (IP) IP20 Width in number of modular spacings IP20 Bull-in depth mm 70.5 Ambient temperature during operating "C 25-40 Pollution degree IP20 25-40 Connectable conductor cross section multi-wired IP20 25-40 | Number of poles | | 2 |
| Rated fault current mA 30 Rated insulation voltage Ui V 440 Rated impulse withstand voltage Uimp kV 4 Mounting method IDIN rail Leakage current type A No Selective protection No Yes Short-circuit breaking capacity (lew) kA 10 Short-circuit breaking capacity (lew) kA 3 Surge current capacity KA 3 Frequency Ves Ves Additional equipment possible Yes Yes With interlocking device Yes Yes Degree of protection (IP) P20 P20 With in number of modular spacings mm 70.5 Built-in depth mm 70.5 Ambient temperature during operating "C 25 - 40 Connectable conductor cross section multi-wired "mm" 1.5 - 16 | Rated voltage | V | 110 |
| Rated insulation voltage Uin Rated inpulse withstand voltage Uinp Mounting method Leakage current type Leakage current type Selective protection Solver-circuit breaking capacity (Icw) Source current capacity Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating Pollution degree Connectable conductor cross section multi-wired V | Rated current | Α | 40 |
| Rated impulse withstand voltage Uimp Mounting method Leakage current type Selective protection Short-time delayed tripping Short-circuit breaking capacity (lcw) Short-circuit breaking capacity (lcw) Surge current capacity Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating Connectable conductor cross section multi-wired KV 4 Connectable conductor cross section multi-wired DIN rail A | Rated fault current | mA | 30 |
| Mounting method Leakage current type Selective protection Short-time delayed tripping Short-circuit breaking capacity (Icw) Surge current capacity Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating Pollution degree Connectable conductor cross section multi-wired DIN rail A A A A A A A A A A A A A | Rated insulation voltage Ui | V | 440 |
| Leakage current type Selective protection Short-time delayed tripping Short-circuit breaking capacity (Icw) Surge current capacity Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating Pollution degree Connectable conductor cross section multi-wired A Connectable conductor cross section multi-wired No No Yes Occurrent capacity No KA 10 Connectable conductor cross section multi-wired No No Yes Ves Yes Pollution degree 2 15 - 16 | Rated impulse withstand voltage Uimp | kV | 4 |
| Selective protection Short-time delayed tripping Short-circuit breaking capacity (Icw) Short-circuit breaking capacity (Icw) Surge current capacity Frequency Additional equipment possible With interlocking device With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating Pollution degree Connectable conductor cross section multi-wired No Yes So/60 Hz Yes Yes Pollution degree 2 Connectable conductor cross section multi-wired No Yes Connectable conductor cross section multi-wired No Xes Connectable conductor cross section multi-wired | Mounting method | | DIN rail |
| Short-time delayed tripping Short-circuit breaking capacity (Icw) Surge current capacity Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating Pollution degree Connectable conductor cross section multi-wired Yes Yes 12 2 2 3 4 7 7 7 7 7 7 7 7 7 7 7 7 | Leakage current type | | A |
| Short-circuit breaking capacity (Icw) Surge current capacity Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating Pollution degree Connectable conductor cross section multi-wired KA 10 10 10 10 10 10 10 10 10 1 | Selective protection | | No |
| Surge current capacity KA 50/60 Hz Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating Pollution degree Connectable conductor cross section multi-wired KA 3 50/60 Hz Yes Yes Pos Pos 1P20 2 2 2 2 2 2 2 3 3 5 5 6 7 5 6 7 7 7 7 7 7 7 7 7 7 7 7 | Short-time delayed tripping | | Yes |
| Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating Pollution degree Connectable conductor cross section multi-wired 50/60 Hz Yes Yes Yes Protection (IP) IP20 IP20 POLICE POL | Short-circuit breaking capacity (Icw) | kA | 10 |
| Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating Pollution degree Connectable conductor cross section multi-wired Yes Yes Protection Protection (IP) Protection (IP | Surge current capacity | kA | 3 |
| With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating Pollution degree Connectable conductor cross section multi-wired Yes 1P20 2 2 2 2 10.5 | Frequency | | 50/60 Hz |
| Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating Pollution degree Connectable conductor cross section multi-wired Pollution IP20 Pollution mm 70.5 -25 - 40 2 Connectable conductor cross section multi-wired mm² 1.5 - 16 | Additional equipment possible | | Yes |
| Width in number of modular spacings 2 Built-in depth mm 70.5 Ambient temperature during operating °C -25 - 40 Pollution degree 2 Connectable conductor cross section multi-wired mm² 1.5 - 16 | With interlocking device | | Yes |
| Built-in depth mm 70.5 Ambient temperature during operating °C -25 - 40 Pollution degree 2 Connectable conductor cross section multi-wired mm² 1.5 - 16 | Degree of protection (IP) | | IP20 |
| Ambient temperature during operating °C -25 - 40 Pollution degree 2 Connectable conductor cross section multi-wired mm² 1.5 - 16 | Width in number of modular spacings | | 2 |
| Pollution degree 2 Connectable conductor cross section multi-wired mm² 1.5 - 16 | Built-in depth | mm | 70.5 |
| Connectable conductor cross section multi-wired mm ² 1.5 - 16 | Ambient temperature during operating | °C | -25 - 40 |
| | Pollution degree | | 2 |
| Connectable conductor cross section solid-core mm ² 1.5 - 35 | Connectable conductor cross section multi-wired | mm² | 1.5 - 16 |
| | Connectable conductor cross section solid-core | mm² | 1.5 - 35 |

Dimensions

