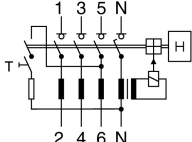



**Residual current circuit breaker (RCCB), 40A, 4p, 300mA, type G/A**
**Part no.**
**FRCMM-40/4/03-G/A-NA-110**
**Catalog No.**
**167709**

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 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             |                |      |  |

## Technical data

### Electrical

|                                                                                  |                      |      |                            |
|----------------------------------------------------------------------------------|----------------------|------|----------------------------|
| Types conform to                                                                 |                      |      | IEC/EN 61008<br>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                                        | $U_n$                | 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                                                        |                      |      | 3 kA (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                              |       |      | 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 - 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 $\mu$ 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           |      | $\geq 4000$                                                                                                    |
| Mechanical                                                                       | Operations           |      | $\geq 10000$                                                                                                   |

## 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                           |  |                 | IP20, IP40 with suitable enclosure                                        |
| Terminals top and bottom                       |  |                 | Lift terminals                                                            |
| Terminal protection                            |  |                 | Busbar tag shroud to BGV A3, ÖVE-EN 6                                     |
| Terminal cross-section                         |  |                 |                                                                           |
| Solid                                          |  | mm <sup>2</sup> | 1.5 - 35                                                                  |
| Stranded                                       |  | mm <sup>2</sup> | 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 - +75                                                                 |
| 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  | 3.275                                                                                       |
| Equipment heat dissipation, current-dependent                                                                          | $P_{vid}$ | W  | 13.1                                                                                        |
| 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) (ec@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                     |                 | Yes      |
| Short-circuit breaking capacity (Icw)           | kA              | 10       |
| Surge current capacity                          | kA              | 3        |
| 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 - 75 |
| Pollution degree                                |                 | 2        |
| Connectable conductor cross section multi-wired | mm <sup>2</sup> | 1.5 - 16 |
| Connectable conductor cross section solid-core  | mm <sup>2</sup> | 1.5 - 35 |

## Dimensions

