



**Residual current circuit breaker (RCCB), 16A, 4p, 30mA, type U**



**Part no.** FRCMM-16/4/003-U  
**Catalog No.** 170452  
**Alternate Catalog No.** FRCMM-16/4/003-U

Similar to illustration

**Delivery program**

|                              |                |      |  |
|------------------------------|----------------|------|--|
| Basic function               |                |      | Residual current circuit-breakers                            |
| Number of poles              |                |      | 4 pole   |
| Application                  |                |      | Residual current circuit-breaker - frequency converter-proof |
| Rated current                | $I_n$          | A    | 16   |
| Rated short-circuit strength | $I_{cn}$       | kA   | 10 with back-up fuse   |
| Rated fault current          | $I_{\Delta N}$ | A    | 0.03   |
| Type                         |                |      | Type U   |
| Tripping                     |                | s... | Short time-delayed   |
| Product range                |                |      | FRCmM  |
| Sensitivity                  |                |      | Pulse-current sensitive                                      |
| Impulse withstand current    |                |      | Surge-proof, 3 kA  |
| Contact sequence             |                |      |  |

**Technical data**

**Electrical**

|  |                      |      |  |
|--|----------------------|------|--|
| Types conform to   |                      |      | IEC/EN 61008                           |
| Current test marks   |                      |      | As per inscription                     |
| Tripping   |                      | s... | 10 ms delayed                          |
| Rated voltage according to IEC/EN 60947-2  | $U_n$                | V AC | 240/415                                |
| Rated frequency  | f                    | Hz   | 50/60                                  |
| Limit values of the operating voltage  |                      |      |  |
| Test circuit   |                      | V AC | 196 - 264                              |
| Rated fault current  | $I_{\Delta n}$       | mA   | 30                                     |
| Sensitivity  |                      |      | Pulse-current sensitive                |
| Enhanced sensitivity   |                      |      | Suitable for variable frequency drives |
| Rated insulation voltage   | $U_i$                | V    | 440                                    |
| Rated impulse withstand voltage  | $U_{imp}$            | kV   | 4 (1.2/50 $\mu$ s)                     |
| Rated short-circuit strength   | $I_{cn}$             | kA   | 10 with back-up fuse                   |
| Impulse withstand current  |                      |      | 3 kA (8/20 $\mu$ s) surge-proof        |
| Max. admissible back-up fuse   |                      |      |  |
| Short-circuit  | gG/gL                | A    | 63                                     |
| Overload   | gG/gL                | A    | 16                                     |
| 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           |      | $\geq$ 20000                           |

**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                       |  |                 | Twin-purpose 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) |
| Tightening torque of fixing screws             |  | N/m             | 2 - 2.4   |
| Thickness of busbar material                   |  | mm              | 0.8 - 2   |
| 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                 |
| 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 <sub>n</sub>   | A  | 16   |
| Heat dissipation per pole, current-dependent   | P <sub>vid</sub> | W  | 0.725  |
| Equipment heat dissipation, current-dependent  | P <sub>vid</sub> | W  | 2.9  |
| Operating ambient temperature min.   |                  | °C | -25  |
| Operating ambient temperature max.   |                  | °C | 55   |
|  |                  |    | Starting at 40 °C, the max. permissible continuous current decreases by 3% 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)

|   |                 |          |
|---|-----------------|----------|
| Number of poles                                 |                 | 4        |
| Rated voltage                                   | V               | 415      |
| Rated current                                   | A               | 16       |
| Rated fault current                             | mA              | 30       |
| Rated insulation voltage $U_i$                  | V               | 440      |
| Rated impulse withstand voltage $U_{imp}$       | kV              | 4        |
| Mounting method                                 |                 | DIN rail |
| Leakage current type                            |                 | A        |
| Selective protection                            |                 | No       |
| Short-time delayed tripping                     |                 | Yes      |
| Short-circuit breaking capacity ( $I_{cw}$ )    | 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 - 40 |
| 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

