# DATASHEET - FRCDM-40/4/03-G/B+

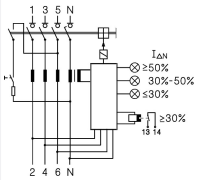
Similar to illustration

**Digital residual current circuit-breaker, 40A, 4p, 300mA, type G/B+**

| | |
|---|---|
| **Part no.** | **FRCDM-40/4/03-G/B+** |
| **Catalog No.** | **167885** |
| **Alternate Catalog No.** | **FRCDM-40/4/03-G/B.** |
| **EL-Nummer (Norway)** | **0001664174** |

Powering Business Worldwide™

## Delivery program

| | | | |
|---|---|---|---|
| Basic function | | | Residual current circuit-breakers , digital |
| Number of poles | | | 4 pole |
| Application | | | Switchgear for industrial and advanced commercial applications |
| Rated current | $I_n$ | A | 40 |
| Rated short-circuit strength | $I_{cn}$ | kA | 10 |
| Rated fault current | $I_{\Delta N}$ | A | 0.3 |
| Type | | | Type G/B+ (ÖVE E 8601) |
| Tripping | | s… | Short time-delayed |
| Product range | | | FRCdM |
| Sensitivity | | | All current sensitive |
| Impulse withstand current | | | Surge-proof, 3 kA |
| Contact sequence | | |  |



## Technical data

### Electrical

| | | | |
|---|---|---|---|
| Types conform to | | | VDE 0664-400<br>ÖVE E 8601 |
| 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 | | | |
| electronic | | V AC | 50 - 456 |
| Test circuit | | V AC | 184 - 440 |
| Rated fault current | $I_{\Delta n}$ | mA | 300 |
| Sensitivity | | | All current sensitive |
| Rated insulation voltage | $U_i$ | V | 440 |
| Rated impulse withstand voltage | $U_{imp}$ | kV | 4 |
| Rated short-circuit strength | $I_{cn}$ | kA | 10 |
| 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 | 63 |
| Rated making and breaking capacity / Rated residual making and breaking capacity | $I_m$ / $I_{\Delta m}$ | A | 500 |
| lifespan | | | |
| Electrical | Operations | | ≧ 4000 |
| Mechanical | Operations | | ≧ 20000 |

### Dry auxiliary contact

| | | | |
|---|---|---|---|
| Rated switching capacity | | | |

| | | | |
|---|---|---|---|
| 30 VDC (resistive load) | | A | 2 |
| 240 VAC (resistive load) | | A | 0.25 |
| Max. switching duty (resistive load) | | W | 60 |
| Max. switching voltage AC | | V | 240 |
| Max. switching voltage DC | | V | 220 |
| Maximum switching current | | A | 2 |
| Min. switching capacity (reference value) | | | 10 µA, 10 mV DC |
| lifespan | | | |
| Electrical (at 20 switching operations per minute) 2 A 30 VDC resistive load | | Operations | $>10^5$ |
| Electrical (at 20 switching operations per minute) 1 A 30 VDC resistive load | | Operations | $>5 \times 10^5$ |
| Terminal capacity | | $mm^2$ | 0.25 - 1.5 |

### 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 | | | finger and hand touch safe, DGUV VS3, EN 50274 |
| 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) |
| Tightening torque of fixing screws | | N/m | 2 - 2.4 |
| Thickness of busbar material | | mm | 0.8 - 2 |
| Admissible ambient temperature range | | °C | -25 - +50 |
| 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

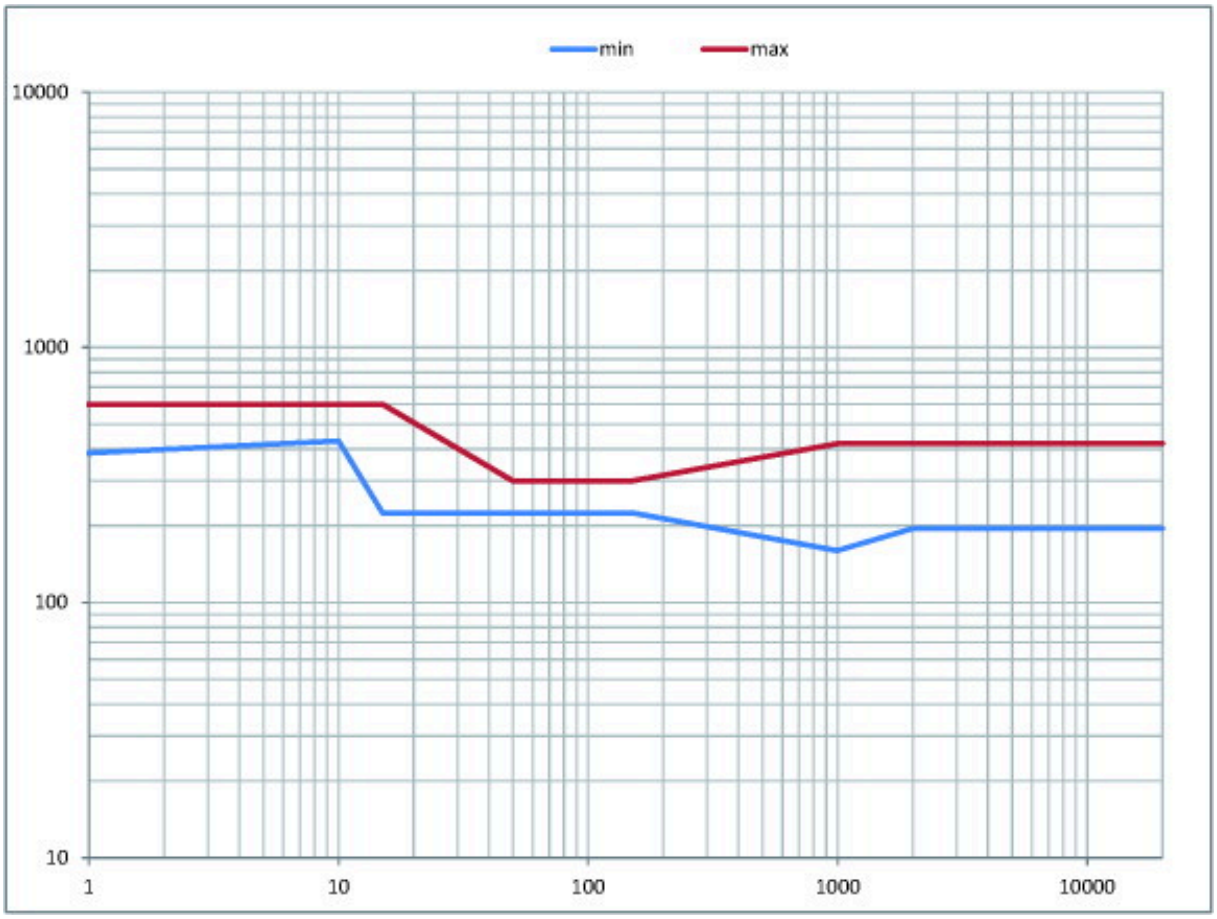
| | | | |
|---|---|---|---|
| Technical data for design verification | | | |
| Rated operational current for specified heat dissipation | $I_n$ | A | 40 |
| Heat dissipation per pole, current-dependent | $P_{vid}$ | W | 1.55 |
| Equipment heat dissipation, current-dependent | $P_{vid}$ | W | 6.2 |
| Static heat dissipation, non-current-dependent | $P_{vs}$ | W | 0 |
| Heat dissipation capacity | $P_{diss}$ | W | 0 |
| Operating ambient temperature min. | | °C | -25 |
| Operating ambient temperature max. | | °C | 50 |
| | | | Maximum operating temperature is 60 °C in accordance with the de-rating table |
| 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) (ecl@ss10.0.1-27-14-22-01 [AAB906014]) | | | |
| Number of poles | | | 4 |
| Rated voltage | | V | 415 |
| 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 | | | B+ |
| 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 - 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 |

## Characteristics




Tripping current frequency range: | FRCdM, 300 mA, type B+

| Influence of the ambient temperature to the maximum continuous current (A) | | | |
|---|---|---|---|
| Range | **FRCdM type B, Bfq, B+** | | |
| | Amperage | | |
| Ambient temperature | RCCB rating 25A | RCCB rating 40A | RCCB rating 63A |
| 40° | 25 | 40 | 63 |
| 45° | 25 | 40 | 56 |
| 50° | 25 | 40 | 50 |
| 55° | 25 | 35 | 45 |
| 60° | 25 | 30 | 40 |

Derating - table FRCdM_B

## Dimensions