DATASHEET - FRCDM-25/4/03-G/B



Digital residual current circuit-breaker, 25A, 4p, 300mA, type G/B

Powering Business Worldwide*

Part no. FRCDM-25/4/03-G/B Catalog No. FRCDM-25/4/03-G/B

Alternate Catalog

lo.

FRCDM-25/4/03-G/B

0001664165

EL-Nummer (Norway)

Similar to illustration

Delivery program

| Delivery program | | | |
|------------------------------|-----------------|----|--|
| Basic function | | | Residual current circuit-breakers , digital |
| Number of poles | | | 4 pole |
| Application | | | Switchgear for industrial and advanced commercial applications |
| Rated current | In | Α | 25 |
| Rated short-circuit strength | I _{cn} | kA | 10 with back-up fuse |
| Rated fault current | $I_{\Delta N}$ | Α | 0.3 |
| Туре | | | 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 | | | 1 3 5 N 1 A 5 N 1 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A |

Technical data Electrical

| Types conform to | | | IEC/EN 61008 IEC/EN 62423 ÖVE E 8601 |
|--|--------------------|------|--|
| Current test marks | | | As per inscription |
| Tripping | | s | 10 ms delayed |
| Rated voltage according to IEC/EN 60947-2 | Un | 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 | Ui | V | 440 |
| Rated impulse withstand voltage | U _{imp} | kV | 4 |
| 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 | 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 auviliary contact | | | |

Dry auxiliary contact

Rated switching capacity

| Mechanical Standard front dimension Device height Built-in width Mounting Degree of Protection Terminal protection Solid Solid Terminal cross-section | 240 VAC (resistive load) | Α | 0.25 |
|--|--|-----------------|---|
| Max. switching voltage DC V 20 Maximum switching current A 2 Min. switching capacity (reference value) I I I (µA, 10 mV DC Iffeepan I I (µA, 10 mV DC I Electrical (at 20 switching operations per minute) 2 A 30 VDC resistive load Operations 3.5 x 105 I Electrical (at 20 switching operations per minute) 1 A 30 VDC resistive load Operations 3.5 x 105 I Electrical (at 20 switching operations per minute) 1 A 30 VDC resistive load Operations 3.5 x 105 I Tarminal capacity mm² 0 25 - 1.5 Mounting mm² 4 3 Bevice height mm² 0 10 TE Mounting mm² 0 10 TE Bull-in width mm² 0 10 TE Degree of Protection mm² 0 10 TE I (with purpose terminals per and bottom mm² 10 TE I (with purpose terminals per and hand touch safe, DGUV VS3. EN 50274 I (with purpose terminals per and hand touch safe, DGUV VS3. EN 50274 I (with purpose terminals per and hand touch safe, DGUV VS3. EN 50274 I (with purpose terminals per and hand touch safe, DGUV VS3. EN 50274 I (with purpose terminals per and hand t | Max. switching duty (resistive load) | W | 60 |
| Maximum switching current Min. switching apacity (reference value) Iffespan Electrical (at 20 switching operations per minute) 2 A 30 VDC resistive load Electrical (at 20 switching operations per minute) 1 A 30 VDC resistive load Operators 5 x 10 5 Terminal capacity Mechanical Standard front dimension Munting Built-in width Mounting Built-in width Built-in width Mounting Built-in width Mounting Built-in width Built-in width Built-in width Built-in width Mounting Built-in width Built-in w | Max. switching voltage AC | V | 240 |
| Min. switching capacity/reference value) Iffespan Electrical (at 20 switching operations per minute) 2 A 30 VDC resistive load Electrical (at 20 switching operations per minute) 1 A 30 VDC resistive load Electrical (at 20 switching operations per minute) 1 A 30 VDC resistive load Parmiant capacity Mechanical Sundard front dimension Built-in width Munting Built-in width Built-in width Munting Built-in width Built-i | Max. switching voltage DC | V | 220 |
| If Electrical (at 20 switching operations per minute) 1 A 30 VDC resistive load Electrical (at 20 switching operations per minute) 1 A 30 VDC resistive load Electrical (at 20 switching operations per minute) 1 A 30 VDC resistive load Terminal capacity Mochanical Standard front dimension Built-in width Mounting Built-in width Mounting Begree of Protection Terminals top and bottom Terminals protection Terminal cross-section Solid Standard Standard Terminal cross-section Solid Stranded Terminal cross-section Stranded Terminal cross-section Solid | Maximum switching current | Α | 2 |
| Electrical (at 20 switching operations per minute) 2 A 30 VDC resistive load Electrical (at 20 switching operations per minute) 1 A 30 VDC resistive load Electrical (at 20 switching operations per minute) 1 A 30 VDC resistive load Terminal capacity Mechanical Standard front dimension Device height Built-in width Mounting Built-in width Mounting Bure Protection Ereminals top and bottom Terminal cross-section Solid Stranded Terminal cross-section Terminal cross-secti | Min. switching capacity (reference value) | | 10 μA, 10 mV DC |
| Electrical (at 20 switching operations per minute) 1 A 30 VDC resistive load mm² 0.25 - 1.5 | lifespan | | |
| Terminal cross-section Standard from fixing screws Tightening torque of fixing screws | Electrical (at 20 switching operations per minute) 2 A 30 VDC resistive load | Operation | 1\$ ₁₀ 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 1 P40, IP54 (with moisture-proof enclosure) Terminals top and bottom Twin-purpose terminals Terminal cross-section Time and hand touch safe, DGUV VS3, EN 50274 Solid mm² 1.5 - 35 Stranded mm² 2 x 16 Terminal cross-section M5 (with cross-recessed screw as defined in EN ISO 4757-22, Pozidriv PZ2) 1 Tightening torque of fixing screws Tightening torque of fixing screws N/m 2 - 24 Thickness of busbar material mm 0.8 - 2 Admissible ambient temperature range °C -25 - +60 Permissible storage and transport temperatures °C -35 - +60 Climatic proofing S-55°C/90-95% relative humidity according to IEC 6008-2 Mounting position As required Contact position indicator red / green | Electrical (at 20 switching operations per minute) 1 A 30 VDC resistive load | Operation | ¹ \$5 x 10 ⁵ |
| Standard front dimension mm 80 Device height midth month month midth midth month month midth month midth month midth month midth month midth midth month midth month midth midth midth month midth midth midth midth midth month midth mid | Terminal capacity | mm² | 0.25 - 1.5 |
| Device height Built-in width Mounting Degree of Protection Terminal | Mechanical | | |
| Built-in width mounting 0uick attachment with 2 latch positions for DIN-rail IEC/EN 60715 Degree of Protection 1 P40, IP54 (with moisture-proof enclosure) Terminals top and bottom 1 Ferninals top and bottom 1 Ferninal protection 1 Ferninal protection 1 Ferninal protection 1 Ferninal cross-section 2 Ferninal cross-section 3 Ferninal cross-section 3 Ferninal cross-section 4 Ferninal cross-section 5 Ferninal cross-section 5 Ferninal cross-section 6 Ferninal cross-section 7 Ferninal cross-section 8 Ferninal cross-section 8 Ferninal cross-section 8 Ferninal cross-section 9 Ferninals 9 | Standard front dimension | mm | 45 |
| Mounting Degree of Protection | Device height | mm | 80 |
| Degree of Protection Terminals top and bottom Terminal protection Terminal protection Terminal cross-section Solid | Built-in width | mm | 70 (4TE) |
| Terminals top and bottom Terminal protection Terminal protection Solid Solid mm² 1.5 - 35 Stranded mm² 2 × 16 M5 (with cross-recessed screw as defined in EN ISO 4757-Z2, Pozidriv PZ2) Tightening torque of fixing screws Thickness of busbar material Admissible ambient temperature range Permissible storage and transport temperatures Climatic proofing Mounting position Contact position indicator | Mounting | | Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715 |
| Terminal protection Terminal cross-section Solid mm² 1.5 - 35 Stranded mm² 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 Admissible ambient temperature range Permissible storage and transport temperatures Climatic proofing Mounting position Contact position indicator | Degree of Protection | | IP40, IP54 (with moisture-proof enclosure) |
| Terminal cross-section Solid mm² 1.5 - 35 Stranded mm² 2 x 16 M5 (with cross-recessed screw as defined in EN ISO 4757-Z2, Pozidriv PZ2) Tightening torque of fixing screws N/m Thickness of busbar material Admissible ambient temperature range "C" -25 - +60 Climatic proofing Mounting position Contact position indicator Agents Age | Terminals top and bottom | | Twin-purpose terminals |
| Solid Stranded mm² 1.5 - 35 Stranded mm² 2 x 16 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 rec -25 - 60 Climatic proofing Mounting position Contact position indicator | Terminal protection | | finger and hand touch safe, DGUV VS3, EN 50274 |
| Stranded mm² 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 - +60 Permissible storage and transport temperatures °C -35 - +60 Climatic proofing Climatic proofing As required As required Contact position indicator red / green | Terminal cross-section | | |
| Terminal cross-section M5 (with cross-recessed screw as defined in EN ISO 4757-22, Pozidriv PZ2) Tightening torque of fixing screws N/m 2 - 2.4 Admissible ambient temperature range nm 0.8 - 2 Admissible ambient temperature range nm 0.8 - 2 Admissible storage and transport temperatures nm 0.8 - 2 - 25 - +60 Permissible storage and transport temperatures nm 0.8 - 2 - 25 - +60 Permissible storage and transport temperatures nm 0.8 - 2 - 25 - +60 As required Contact position indicator nm 0.8 - 2 - 25 - 55° C/90-95% relative humidity according to IEC 60068-2 As required red / green | Solid | mm ² | 1.5 - 35 |
| Tightening torque of fixing screws N/m 2 - 2.4 Thickness of busbar material mm 0.8 - 2 Admissible ambient temperature range °C -25 - +60 Permissible storage and transport temperatures Climatic proofing Mounting position Contact position indicator | Stranded | mm^2 | 2 x 16 |
| Thickness of busbar material mm 0.8 - 2 Admissible ambient temperature range °C -25 - +60 Permissible storage and transport temperatures °C -35 - +60 Climatic proofing 25-55°C/90-95% relative humidity according to IEC 60068-2 Mounting position Contact position indicator red / green | Terminal cross-section | | M5 (with cross-recessed screw as defined in EN ISO 4757-Z2, Pozidriv PZ2) |
| Admissible ambient temperature range C -25 - +60 Permissible storage and transport temperatures C -35 - +60 Climatic proofing Mounting position Contact position indicator C -25 - +60 25-55° C/90-95% relative humidity according to IEC 60068-2 As required red / green | Tightening torque of fixing screws | N/m | 2 - 2.4 |
| Permissible storage and transport temperatures Climatic proofing Mounting position Contact position indicator | Thickness of busbar material | mm | 0.8 - 2 |
| Climatic proofing 25-55°C/90-95% relative humidity according to IEC 60068-2 Mounting position As required Contact position indicator red / green | Admissible ambient temperature range | °C | -25 - +60 |
| Mounting position As required Contact position indicator red / green | Permissible storage and transport temperatures | °C | -35 - +60 |
| Contact position indicator red / green | Climatic proofing | | 25-55°C/90-95% relative humidity according to IEC 60068-2 |
| | Mounting position | | As required |
| Trip indication white / blue | Contact position indicator | | red / green |
| | Trip indication | | white / blue |

Design verification as per IEC/EN 61439

30 VDC (resistive load)

| Fechnical data for design verification | | | |
|---|------------------|----|---|
| Rated operational current for specified heat dissipation | In | Α | 25 |
| Heat dissipation per pole, current-dependent | P _{vid} | W | 1.15 |
| Equipment heat dissipation, current-dependent | P _{vid} | W | 4.6 |
| 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 | 60 |
| | | | Maximum operating temperature is 60 °C in accordance with the de-rating table |
| C/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. |

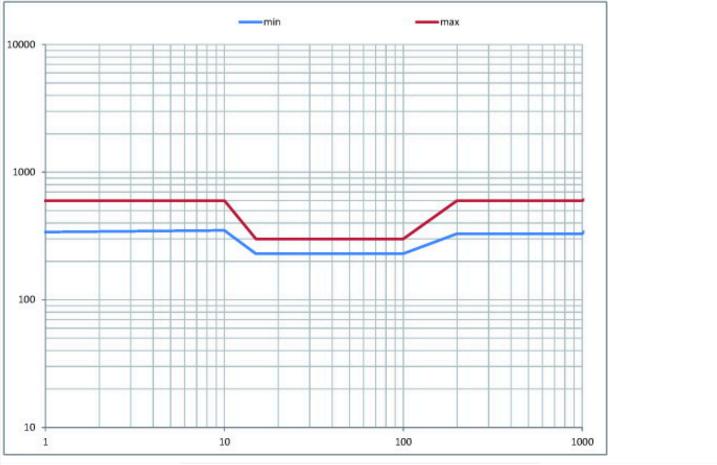
Technical data ETIM 7.0

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])

| Rated voltage V 415 Rated current A 25 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 8 Selective protection No Yes Short-time delayed tripping Yes 10 Short-circuit breaking capacity (lcw) kA 10 Surge current capacity KA 3 Frequency 50/60 Hz Yes Additional equipment possible Yes Yes With interlocking device Yes Yes Degree of protection (IP) 100 Yes | (ecl@ss10.0.1-27-14-22-01 [AAB906014]) | | |
|--|---|-----------------|----------|
| Rated current A 5 Rated fault current mA 300 Rated insulation voltage Uin V 440 Rated impulse withstand voltage Uimp IV 4 Mounting method IV B Leakage current type IV B Selective protection IV Ve Short-time delayed tripping V Ves Short-circuit breaking capacity (Icw) IV A Surge current capacity V Yes Frequency V Yes Additional equipment possible Yes Yes With interlocking device Yes Yes United in number of modular spacings Yes Yes Built-in depth Yes Yes Ambient temperature during operating Yes Yes Ambient temperature during operating Yes Yes Pollution degree Yes Yes Connectable conductor cross section multi-wired Yes Yes | Number of poles | | 4 |
| Rated fault current Rated insulation voltage Ui Rated insulation voltage Uimp Rounting method Rounting 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) With in number of modular spacings Built-in depth Built-in depth Built-in depth Ambient temperature during operating Short-direction degree Connectable conductor cross section multi-wired May 4 4 4 5 6 6 7 7 8 7 9 7 9 7 9 7 9 7 9 7 9 7 9 7 9 7 9 7 9 7 9 7 9 7 9 9 9 9 9 9 9 9 | Rated voltage | V | 415 |
| Rated insulation voltage Uin Rated impulse withstand voltage Uimp 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 Ambient temperature during operating Ambient temperature during operating Rated insulation voltage Way Surge current capacity Solo Rate Rate (Insulation voltage Uimp Rate) Rate (Insulation voltage Uimp Rate) Rate (Insulation voltage Uimp Rate) Rate (Insulation voltage Vice) Rate (Insulatio | Rated current | Α | 25 |
| Rated impulse withstand voltage Ulimp Mounting method Leakage current type Selective protection Short-ime 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 Ambient temperature during operating Ambient temperature during operating Surge current capacity Rate Ambient temperature during operating Surge current capacity Sur | Rated fault current | mA | 300 |
| 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 Mounting method DIN rail BUILT-IN TEMPORATION OF TEMP | Rated insulation voltage Ui | V | 440 |
| Leakage current type B Selective protection No Short-time delayed tripping Yes Short-circuit breaking capacity (lcw) kA 10 Surge current capacity kA 3 Frequency KA 360 Hz Additional equipment possible Yes With interlocking device Yes Degree of protection (IP) IP20 Width in number of modular spacings Yes Built-in depth mm 70.5 Ambient temperature during operating C 25-40 Pollution degree mm² 15-16 Connectable conductor cross section multi-wired mm² 15-16 | Rated impulse withstand voltage Uimp | kV | 4 |
| Selective protection Short-time delayed tripping 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 Width in number of modular spacings Built-in depth Ambient temperature during operating Pollution degree Connectable conductor cross section multi-wired No No Yes No No 1 1 1 1 1 1 1 1 1 1 1 1 1 | Mounting method | | DIN rail |
| 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 Yes Prequency Prequency Pollution degree Tequency Pollution degree Yes Prequency Prequ | Leakage current type | | В |
| 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 Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Abhient temperature during operating Pollution degree Connectable conductor cross section multi-wired KA Solo60 Hz Yes Yes Ves Ves Ves Ves Ves Ves Ves Ves Ves V | 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 Frequency Solfon Hz S | 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 Width in number of modular spacings I P20 I P | Surge current capacity | kA | 3 |
| With interlocking device Section Multi-wired Section S | 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 Poly Poly Poly Poly Poly Poly Poly Pol | Additional equipment possible | | Yes |
| Width in number of modular spacings 4 Built-in depth 70.5 Ambient temperature during operating C2 -25 -40 Pollution degree 2 Connectable conductor cross section multi-wired 7mm² 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 Connectable conductor cross section multi-wired mm² 1.5 - 16 | Width in number of modular spacings | | 4 |
| 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 mm² 1.5 - 35 | Connectable conductor cross section multi-wired | mm² | 1.5 - 16 |
| | Connectable conductor cross section solid-core | mm ² | 1.5 - 35 |

Characteristics



Influence of the ambient temperature to the maximum continuous current (A)

| Range | FRCdM type B, Bfq, B+ | | | | |
|-------------|-----------------------|-----------|--------|--|--|
| | Amperage | | | | |
| | RCCB | RCCB RCCB | | | |
| Ambient | rating | rating | rating | | |
| temperature | 25A | 40A | 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

