# DATASHEET - FRBMM-C20/2/003-A

**RCD/MCB combination, 20 A, 30 mA, MCB trip characteristic: C, 2p, RCD trip characteristic: A**

**Part no.** **FRBMM-C20/2/003-A**
**170789**

Similar to illustration

| | |
|---|---|
| **General specifications** | |
| Product name | Eaton Moeller series xEffect - FRBm6/M RCBO - residual-current circuit breaker with overcurrent protection |
| Part no. | FRBMM-C20/2/003-A |
| EAN | 4015081674749 |
| Product Length/Depth | 80 millimetre |
| Product height | 75.5 millimetre |
| Product width | 35 millimetre |
| Product weight | 0.25 kilogram |
| Compliances | RoHS conform<br>CE Marked |
| Certifications | IEC 61373<br>EN45545-2<br>CE |
| Product Tradename | xEffect - FRBm6/M |
| Product Type | RCBO - Residual-current circuit breaker with overcurrent protection |
| Product Sub Type | None |
| **Delivery program** | |
| Application | Switchgear for industrial and advanced commercial applications |
| Product range | FRBmM |
| Basic function | Combined RCD/MCB devices |
| Number of poles | Two-pole |
| Number of poles (protected) | 2 |
| Number of poles (total) | 2 |
| Tripping characteristic | C |
| Release characteristic | C |
| Amperage Rating | 20 A |
| Rated current | 20 A |
| Fault current rating | 0.03 A |
| Sensitivity type | Pulse-current sensitive |
| Type | RCBO |
| **Technical Data - Electrical** | |
| Voltage type | AC |
| Voltage rating | 240 V - 240 V |
| Rated operational voltage (Ue) - max | 240 V |
| Rated insulation voltage (Ui) | 500 V |
| Rated impulse withstand voltage (Uimp) | 4 kV |
| Rated fault currents of product range | 10, 30, 100, 300 MilliAmpere |
| Impulse withstand current | Partly surge-proof, 250 A |
| Frequency rating | 50 Hz |
| Leakage current type | A |
| Rated switching capacity | 10 kA |
| Rated switching capacity (IEC/EN 61009) | 10 kA |
| Rated short-circuit breaking capacity (EN 60947-2) | 0 kA |
| Rated short-circuit breaking capacity (EN 61009) | 10 kA |
| Rated short-circuit breaking capacity (EN 61009-1) | 10 kA |
| Rated short-circuit breaking capacity (IEC 60947-2) | 0 kA |

| | | |
|---|---|---|
| Surge current capacity | | 0.25 kA |
| Disconnection characteristic | | Undelayed |
| Tripping | | Non-delayed |
| Pollution degree | | 2 |

## Technical Data - Mechanical

| | | |
|---|---|---|
| Width in number of modular spacings | | 2 |
| Built-in depth | | 75.5 mm |
| Degree of protection | | IP20 |
| Connectable conductor cross section (solid-core) - min | | 1 $mm^2$ |
| Connectable conductor cross section (solid-core) - max | | 25 $mm^2$ |
| Connectable conductor cross section (multi-wired) - min | | 1 $mm^2$ |
| Connectable conductor cross section (multi-wired) - max | | 25 $mm^2$ |

## Design verification as per IEC/EN 61439 - technical data

| | | |
|---|---|---|
| Rated operational current for specified heat dissipation (In) | | 20 A |
| Heat dissipation per pole, current-dependent | | 0 W |
| Equipment heat dissipation, current-dependent | | 5.9 W |
| Static heat dissipation, non-current-dependent | | 0 W |
| Heat dissipation capacity | | 0 W |
| Ambient operating temperature - max | | 40 °C |
| Ambient operating temperature - min | | -25 °C |

## Design verification as per IEC/EN 61439

| | | |
|---|---|---|
| 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. |
| 10.2.3.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. 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. |
| 10.6 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. |
| 10.9.2 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. |

## Additional information

| | | |
|---|---|---|
| Current limiting class | | 3 |

# Technical data ETIM 9.0

Circuit breakers and fuses (EG000020) / Earth leakage circuit breaker (EC000905)

Electric engineering, automation, process control engineering / Electrical installation, device / Residual current protection system / MCB/RCCB combination (ecl@ss13-27-14-22-07 [AFZ810020])

| | | |
|---|---|---|
| Number of poles (total) | | 2 |
| Number of protected poles | | 2 |
| Rated voltage | V | 240 |
| Rated insulation voltage Ui | V | 500 |
| Rated impulse withstand voltage Uimp | kV | 4 |
| Rated current | A | 20 |

| | | |
|---|---|---|
| Rated fault current | A | 0.03 |
| Leakage current type | | A |
| Current limiting class | | 3 |
| Power loss | W | |
| Rated short-circuit breaking capacity according to EN 61009 | kA | 10 |
| Rated short-circuit breaking capacity according to IEC 60947-2 | kA | 0 |
| Rated short-circuit breaking capacity Icn according to EN 61009-1 | kA | 10 |
| Disconnection characteristic | | Undelayed |
| Surge current capacity | kA | 0.25 |
| Voltage type | | AC |
| Frequency | | 50 Hz |
| Release characteristic | | C |
| Concurrently switching neutral conductor | | No |
| With interlocking device | | No |
| Over voltage category | | 3 |
| Pollution degree | | 2 |
| Ambient temperature during operating | °C | -25 - 40 |
| Width in number of modular spacings | | 2 |
| Built-in depth | mm | 75.5 |
| Flush-mounted installation | | No |
| Anti-nuisance tripping version | | No |
| Degree of protection (IP) | | IP20 |
| Connectable conductor cross section solid-core | $mm^2$ | 1 - 25 |
| Connectable conductor cross section multi-wired | $mm^2$ | 1 - 25 |


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