

# Specifications

## Eaton 167107

Eaton Moeller series xEffect - FRCmM-NA RCCB. Residual current circuit breaker (RCCB), 25A, 4p, 30mA, type G/A, UL

### General specifications

|                             |                                                                                                    |
|-----------------------------|----------------------------------------------------------------------------------------------------|
| <b>PRODUCT NAME</b>         | Eaton Moeller series xEffect - FRCmM-NA RCCB                                                       |
| <b>CATALOG NUMBER</b>       | 167107                                                                                             |
| <b>MODEL CODE</b>           | FRCMM-25/4/003-G/A-NA                                                                              |
| <b>EAN</b>                  | 4015081636075                                                                                      |
| <b>PRODUCT LENGTH/DEPTH</b> | 76 mm                                                                                              |
| <b>PRODUCT HEIGHT</b>       | 80 mm                                                                                              |
| <b>PRODUCT WIDTH</b>        | 70 mm                                                                                              |
| <b>PRODUCT WEIGHT</b>       | 0.32 kg                                                                                            |
| <b>COMPLIANCES</b>          | RoHS conform                                                                                       |
| <b>CERTIFICATIONS</b>       | UL 1053<br>IEC 61008<br>EN 61008<br>ÖVE E 8601<br>EN45545-2<br>IEC 61373                           |
| <b>CATALOG NOTES</b>        | Additionally protects against special forms of residual pulsating DC which have not been smoothed. |
| <b>GLOBAL CATALOG</b>       | 167107                                                                                             |



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## Product specifications

|                                                                                         |                                                                                                                                  |
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| <b>USED WITH</b>                                                                        | Residual current circuit breakers<br>Type G/A (⚡VE E 8601)<br>FRCmM-NA                                                           |
| <b>AMPERAGE RATING</b>                                                                  | 25 A                                                                                                                             |
| <b>FEATURES</b>                                                                         | Additional equipment possible<br>Residual current circuit breaker                                                                |
| <b>10.10 TEMPERATURE RISE</b>                                                           | The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices. |
| <b>10.11 SHORT-CIRCUIT RATING</b>                                                       | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| <b>10.12 ELECTROMAGNETIC COMPATIBILITY</b>                                              | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| <b>10.13 MECHANICAL FUNCTION</b>                                                        | The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.                         |
| <b>10.2.2 CORROSION RESISTANCE</b>                                                      | Meets the product standard's requirements.                                                                                       |
| <b>10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES</b>                         | Meets the product standard's requirements.                                                                                       |
| <b>10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT</b>       | Meets the product standard's requirements.                                                                                       |
| <b>10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS</b> | Meets the product standard's requirements.                                                                                       |
| <b>10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION</b>                                 | Meets the product standard's requirements.                                                                                       |
| <b>10.2.5 LIFTING</b>                                                                   | Does not apply, since the entire switchgear needs to be evaluated.                                                               |

## Resources

|                                      |                                                                                                                                                                                                                                                                                                                                         |
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| <b>APPLICATION NOTES</b>             | <a href="#">eaton-rcd-application-guide-br019003en-en-us.pdf</a>                                                                                                                                                                                                                                                                        |
| <b>BROCHURES</b>                     | <a href="#">UL 1053 DIN rail RCCB</a><br><br><a href="#">eaton-xeffect-frcmm-na-rccb-catalog-ca003019en-en-us.pdf</a><br><br><a href="#">Circuit Protection, Miniature Circuit Breakers and Supplementary Protectors, Volume 4, Tab 1</a><br><br><a href="#">eaton-xeffect-industrial-switchgear-range-catalog-ca003002en-en-us.pdf</a> |
| <b>CATALOGS</b>                      |                                                                                                                                                                                                                                                                                                                                         |
| <b>DECLARATIONS OF CONFORMITY</b>    | <a href="#">03_FRCm.-NA 181019</a><br><a href="#">DA-DC-03_FRCm</a>                                                                                                                                                                                                                                                                     |
| <b>DRAWINGS</b>                      | <a href="#">eaton-circuit-breaker-xeffect-frcmm-na-rccb-dimensions.eps</a>                                                                                                                                                                                                                                                              |
| <b>ECAD MODEL</b>                    | <a href="#">ETN.FRCMM-25_4_003-G_A-NA</a>                                                                                                                                                                                                                                                                                               |
| <b>INSTALLATION INSTRUCTIONS</b>     | <a href="#">MA180503312</a>                                                                                                                                                                                                                                                                                                             |
| <b>MCAD MODEL</b>                    | <a href="#">eaton-residual-current-circuit-breakers-3d-models-f9-ul1053-4p.stp</a><br><br><a href="#">eaton-residual-current-circuit-breakers-drawings-f9-ul1053-4p.dwg</a>                                                                                                                                                             |
| <b>SPECIFICATIONS AND DATASHEETS</b> | <a href="#">Eaton Specification Sheet - 167107</a>                                                                                                                                                                                                                                                                                      |
| <b>WIRING DIAGRAMS</b>               | <a href="#">eaton-xeffect-frcmm-rccb-wiring-diagram-002.jpg</a><br><br><a href="#">eaton-circuit-breaker-xeffect-frcmm-rccb-wiring-diagram-002.eps</a>                                                                                                                                                                                  |

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| <b>10.2.6 MECHANICAL IMPACT</b>                                 | Does not apply, since the entire switchgear needs to be evaluated.               |
| <b>10.2.7 INSCRIPTIONS</b>                                      | Meets the product standard's requirements.                                       |
| <b>10.3 DEGREE OF PROTECTION OF ASSEMBLIES</b>                  | Does not apply, since the entire switchgear needs to be evaluated.               |
| <b>10.4 CLEARANCES AND CREEPAGE DISTANCES</b>                   | Meets the product standard's requirements.                                       |
| <b>10.5 PROTECTION AGAINST ELECTRIC SHOCK</b>                   | Does not apply, since the entire switchgear needs to be evaluated.               |
| <b>10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS</b>   | Does not apply, since the entire switchgear needs to be evaluated.               |
| <b>10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS</b>        | Is the panel builder's responsibility.                                           |
| <b>10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS</b>                 | Is the panel builder's responsibility.                                           |
| <b>10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH</b>                 | Is the panel builder's responsibility.                                           |
| <b>10.9.3 IMPULSE WITHSTAND VOLTAGE</b>                         | Is the panel builder's responsibility.                                           |
| <b>10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL</b> | Is the panel builder's responsibility.                                           |
| <b>FITTED WITH:</b>                                             | Interlocking device                                                              |
| <b>FRAME</b>                                                    | 45 mm                                                                            |
| <b>FREQUENCY RATING</b>                                         | 50 Hz / 60 Hz                                                                    |
| <b>POLLUTION DEGREE</b>                                         | 2                                                                                |
| <b>MOUNTING METHOD</b>                                          | Quick attachment with 2 latch positions for DIN-rail<br>IEC/EN 60715<br>DIN rail |
| <b>CLIMATIC PROOFING</b>                                        | 25-55 °C / 90-95% relative humidity according to IEC 60068-2                     |
| <b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT</b>            | 3.1 W                                                                            |
| <b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b>                   | 4 kV                                                                             |
| <b>RATED SHORT-TIME WITHSTAND CURRENT (ICW)</b>                 | 10 kA                                                                            |

|                                                                            |                                                                        |
|----------------------------------------------------------------------------|------------------------------------------------------------------------|
| <b>ADMISSIBLE BACK-UP<br/>FUSE OVERLOAD - MAX</b>                          | 25 A gG/gL                                                             |
| <b>AMBIENT HUMDITY<br/>RANGE</b>                                           | 5 - 95 %                                                               |
| <b>BUILT-IN WIDTH<br/>(NUMBER OF UNITS)</b>                                | 70 mm (4 SU)                                                           |
| <b>SHORT-CIRCUIT RATING</b>                                                | Max. admissible back-up<br>fuse: 63 A gG/gL, 70 A<br>class J fuse (UL) |
| <b>STATUS INDICATION</b>                                                   | White / blue                                                           |
| <b>TERMINAL PROTECTION</b>                                                 | Finger and hand touch<br>safe, DGUV VS3, EN 50274                      |
| <b>TERMINALS (TOP AND<br/>BOTTOM)</b>                                      | Lift terminals                                                         |
| <b>TEST CIRCUIT RANGE</b>                                                  | 184 V AC - 440 V AC, 196 V<br>AC - 305 V AC (UL)                       |
| <b>AMBIENT OPERATING<br/>TEMPERATURE - MAX</b>                             | 40 °C                                                                  |
| <b>AMBIENT OPERATING<br/>TEMPERATURE - MIN</b>                             | -25 °C                                                                 |
| <b>BUILT-IN DEPTH</b>                                                      | 70.5 mm                                                                |
| <b>CONNECTABLE<br/>CONDUCTOR CROSS<br/>SECTION (MULTI-WIRED)<br/>- MAX</b> | 16 mm <sup>2</sup>                                                     |
| <b>CONNECTABLE<br/>CONDUCTOR CROSS<br/>SECTION (MULTI-WIRED)<br/>- MIN</b> | 1.5 mm <sup>2</sup>                                                    |
| <b>CONNECTABLE<br/>CONDUCTOR CROSS<br/>SECTION (SOLID-CORE) -<br/>MAX</b>  | 35 mm <sup>2</sup>                                                     |
| <b>CONNECTABLE<br/>CONDUCTOR CROSS<br/>SECTION (SOLID-CORE) -<br/>MIN</b>  | 1.5 mm <sup>2</sup>                                                    |
| <b>FAULT CURRENT RATING</b>                                                | 30 mA                                                                  |
| <b>HEAT DISSIPATION PER<br/>POLE, CURRENT-<br/>DEPENDENT</b>               | 0.775 W                                                                |
| <b>OVERVOLTAGE TESTED -<br/>MAX</b>                                        | 530 V                                                                  |
| <b>PERMITTED STORAGE<br/>AND TRANSPORT<br/>TEMPERATURE - MAX</b>           | 60 °C                                                                  |
| <b>PERMITTED STORAGE<br/>AND TRANSPORT<br/>TEMPERATURE - MIN</b>           | -35 °C                                                                 |

|                                             |                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CONTACT POSITION<br/>INDICATOR COLOR</b> | Red / green                                                                                                                                                                                                                                                                                                                                                                      |
| <b>MOUNTING POSITION</b>                    | As required                                                                                                                                                                                                                                                                                                                                                                      |
| <b>LIFESPAN, MECHANICAL</b>                 | 10000 operations                                                                                                                                                                                                                                                                                                                                                                 |
| <b>DEGREE OF PROTECTION</b>                 | IP20<br>IP20, IP40 with suitable enclosure                                                                                                                                                                                                                                                                                                                                       |
| <b>IMPULSE WITHSTAND<br/>CURRENT</b>        | 3 kA (8/20 µs) surge-proof                                                                                                                                                                                                                                                                                                                                                       |
| <b>NUMBER OF POLES</b>                      | Four-pole                                                                                                                                                                                                                                                                                                                                                                        |
| <b>LEAKAGE CURRENT TYPE</b>                 | A                                                                                                                                                                                                                                                                                                                                                                                |
| <b>LIFESPAN, ELECTRICAL</b>                 | 4000 operations                                                                                                                                                                                                                                                                                                                                                                  |
| <b>TYPE</b>                                 | <ul style="list-style-type: none"> <li>• Current test marks as per inscription</li> <li>• Maximum operating temperature is 55 °C: Starting at 40 °C, the max. permissible continuous current decreases by 3% for every 1 °C</li> <li>• The maximum operating current of back-up fuse must not exceed the residual current circuit breaker's rated operational current</li> </ul> |
| <b>SPECIAL FEATURES</b>                     | <ul style="list-style-type: none"> <li>• FRCmM-NA</li> <li>• Residual current circuit breakers</li> <li>• Type G/A (ÖVE E 8601)</li> </ul>                                                                                                                                                                                                                                       |
| <b>APPLICATION</b>                          | Switchgear for export to North America (UL-listed)                                                                                                                                                                                                                                                                                                                               |
| <b>FUNCTIONS</b>                            | Short-time delayed tripping                                                                                                                                                                                                                                                                                                                                                      |
| <b>PICK-UP CURRENT</b>                      | 22 mA                                                                                                                                                                                                                                                                                                                                                                            |
| <b>SENSITIVITY TYPE</b>                     | Pulse-current sensitive                                                                                                                                                                                                                                                                                                                                                          |
| <b>TERMINAL CAPACITY<br/>(CABLE)</b>        | M5 (with cross-recessed screw as defined in EN ISO 4757-Z2, PZ2)                                                                                                                                                                                                                                                                                                                 |
| <b>RATED FAULT CURRENT -<br/>MAX</b>        | 0.03 A                                                                                                                                                                                                                                                                                                                                                                           |

|                                                                      |                                                                   |
|----------------------------------------------------------------------|-------------------------------------------------------------------|
| <b>RATED FAULT CURRENT - MIN</b>                                     | 0.03 A                                                            |
| <b>RATED INSULATION VOLTAGE (UI)</b>                                 | 440 V                                                             |
| <b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b> | 25 A                                                              |
| <b>RATED OPERATIONAL VOLTAGE (UE) - MAX</b>                          | 480 V                                                             |
| <b>RATED RESIDUAL MAKING AND BREAKING CAPACITY</b>                   | 500 A                                                             |
| <b>SURGE CURRENT CAPACITY</b>                                        | 3 kA                                                              |
| <b>WIDTH IN NUMBER OF MODULAR SPACINGS</b>                           | 4                                                                 |
| <b>VOLTAGE RATING (IEC/EN 60947-2)</b>                               | 240 V AC / 415 V AC                                               |
| <b>VOLTAGE RATING (UL)</b>                                           | 480Y/277 V, 60 Hz                                                 |
| <b>VOLTAGE TYPE</b>                                                  | AC                                                                |
| <b>TERMINAL CAPACITY (SOLID WIRE)</b>                                | 1.5 mm <sup>2</sup> - 35 mm <sup>2</sup>                          |
| <b>TRIPPING TIME</b>                                                 | 10 ms delay at 50 Hz<br>Short time-delayed<br>8 ms delay at 60 Hz |
| <b>RATED SHORT-CIRCUIT STRENGTH</b>                                  | 10 kA with back-up fuse<br>5 kA (UL, as per CSA)                  |
| <b>TERMINAL CAPACITY (STRANDED CABLE)</b>                            | 16 mm <sup>2</sup> (2x)                                           |
| <b>RAL-NUMBER</b>                                                    | 7035                                                              |
| <b>COLOR</b>                                                         | Gray                                                              |

**PROJECT NAME:**

**PROJECT NUMBER:**

**PREPARED BY:**

**DATE:**



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