



## Eaton 167706

Eaton Moeller series xEffect - FRCmM-NA  
RCCB. Residual current circuit breaker  
(RCCB), 40A, 4p, 30mA, type G/A, UL, 110V

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|                                 |                                                                                                                |
|---------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>PRODUCT NAME</b>             | Eaton Moeller series<br>xEffect - FRCmM-NA RCCB                                                                |
| <b>CATALOG NUMBER</b>           | 167706                                                                                                         |
| <b>PRODUCT<br/>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>ÖVE E 8601<br>IEC/EN 61008<br>EN45545-2<br>IEC 61373                                                |
| <b>CATALOG NOTES</b>            | Additionally protects<br>against special forms of<br>residual pulsating DC<br>which have not been<br>smoothed. |

**USED WITH**

FRCmM-NA-110  
Type G/A (◆VE E 8601)  
Residual current circuit  
breakers

**AMPERAGE RATING**

40 A

**FEATURES**

Residual current circuit  
breaker  
Additional equipment  
possible

**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.

**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 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.                                                                 |
| <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>                                          | DIN rail<br>Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715 |
| <b>CLIMATIC PROOFING</b>                                        | 25-55 °C / 90-95% relative humidity according to IEC 60068-2                  |
| <b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT</b>            | 13.1 W                                                                        |
| <b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b>                   | 4 kV                                                                          |
| <b>RATED SHORT-TIME WITHSTAND CURRENT (ICW)</b>                 | 10 kA                                                                         |
| <b>ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX</b>                   | 40 A gG/gL                                                                    |
| <b>AMBIENT HUMDITY 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>                                                  | 100 V AC - 210 V AC, 94 V<br>AC - 132 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>               | 3.275 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, IP40 with suitable<br>enclosure                                  |

|                                                                      |                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                      | IP20                                                                                                                                                                                                                                                                                                                                                                               |
| <b>IMPULSE WITHSTAND 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 75 °C: Starting at 40 °C, the max. permissible continuous current decreases by 2.5% 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-110</li> <li>• Residual current circuit breakers</li> <li>• Type G/A (ÖVE E 8601)</li> </ul>                                                                                                                                                                                                                                     |
| <b>APPLICATION</b>                                                   | Switchgear for 110-V systems                                                                                                                                                                                                                                                                                                                                                       |
| <b>FUNCTIONS</b>                                                     | Short-time delayed tripping                                                                                                                                                                                                                                                                                                                                                        |
| <b>PICK-UP CURRENT</b>                                               | 22 mA                                                                                                                                                                                                                                                                                                                                                                              |
| <b>SENSITIVITY TYPE</b>                                              | Pulse-current sensitive                                                                                                                                                                                                                                                                                                                                                            |
| <b>TERMINAL CAPACITY (CABLE)</b>                                     | M5 (with cross-recessed screw as defined in EN ISO 4757-Z2, PZ2)                                                                                                                                                                                                                                                                                                                   |
| <b>RATED FAULT CURRENT - 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> | 40 A                                                                                                                                                                                                                                                                                                                                                                               |
| <b>RATED OPERATIONAL VOLTAGE (UE) - MAX</b>                          | 190 V                                                                                                                                                                                                                                                                                                                                                                              |

|                                                            |                                                                   |
|------------------------------------------------------------|-------------------------------------------------------------------|
| <b>RATED RESIDUAL<br/>MAKING AND BREAKING<br/>CAPACITY</b> | 500 A                                                             |
| <b>SURGE CURRENT<br/>CAPACITY</b>                          | 3 kA                                                              |
| <b>WIDTH IN NUMBER OF<br/>MODULAR SPACINGS</b>             | 4                                                                 |
| <b>VOLTAGE RATING (IEC/EN<br/>60947-2)</b>                 | 110/190 V                                                         |
| <b>VOLTAGE RATING (UL)</b>                                 | 208/120 V, 60 Hz                                                  |
| <b>VOLTAGE TYPE</b>                                        | AC                                                                |
| <b>TERMINAL CAPACITY<br/>(SOLID WIRE)</b>                  | 1.5 mm <sup>2</sup> - 35 mm <sup>2</sup>                          |
| <b>TRIPPING TIME</b>                                       | Short time-delayed<br>8 ms delay at 60 Hz<br>10 ms delay at 50 Hz |
| <b>RATED SHORT-CIRCUIT<br/>STRENGTH</b>                    | 5 kA (UL, as per CSA)<br>10 kA with back-up fuse                  |
| <b>TERMINAL CAPACITY<br/>(STRANDED CABLE)</b>              | 16 mm <sup>2</sup> (2x)                                           |
| <b>RAL-NUMBER</b>                                          | 7035                                                              |
| <b>COLOR</b>                                               | Gray                                                              |

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|------------------------|
| <b>PROJECT NAME:</b>   |
| <b>PROJECT NUMBER:</b> |
| <b>PREPARED BY:</b>    |
|                        |



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