

# Specifications



## Eaton 167706

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

### General specifications

<b>PRODUCT NAME</b>	Eaton Moeller series xEffect - FRCmM-NA RCCB
<b>CATALOG NUMBER</b>	167706
<b>MODEL CODE</b>	FRCMM-40/4/003-G/A-NA-110
<b>EAN</b>	4015081642472
<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 ÖVE E 8601 IEC/EN 61008 EN45545-2 IEC 61373
<b>CATALOG NOTES</b>	Additionally protects against special forms of residual pulsating DC which have not been smoothed.
<b>GLOBAL CATALOG</b>	167706

## Product specifications

<b>USED WITH</b>	FRCmM-NA-110 Type G/A (☞VE E 8601) Residual current circuit breakers
<b>AMPERAGE RATING</b>	40 A
<b>FEATURES</b>	Residual current circuit breaker Additional equipment possible
<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.
<b>10.2.6 MECHANICAL IMPACT</b>	Does not apply, since the entire switchgear needs to

## Resources

APPLICATION NOTES	<a href="#">eaton-rcd-application-guide-br019003en-en-us.pdf</a>
CATALOGS	<a href="#">eaton-xeffect-frcmm-na-rcb-catalog-ca003019en-en-us.pdf</a>  <a href="#">eaton-xeffect-industrial-switchgear-range-catalog-ca003002en-en-us.pdf</a>  <a href="#">Circuit Protection, Miniature Circuit Breakers and Supplementary Protectors, Volume 4, Tab 1</a>
DECLARATIONS OF CONFORMITY	<a href="#">eaton-rcb-declaration-of-conformity-eu250057en.pdf</a>
DRAWINGS	<a href="#">eaton-circuit-breaker-xeffect-frcmm-na-rcb-dimensions.eps</a>
ECAD MODEL	<a href="#">ETN.FRCMM-40_4_003-G_A-NA-110.edz</a>
INSTALLATION INSTRUCTIONS	<a href="#">MA180503312</a>
MCAD MODEL	<a href="#">eaton-residual-current-circuit-breakers-3d-models-f9-ul1053-4p.stp</a>  <a href="#">eaton-residual-current-circuit-breakers-drawings-f9-ul1053-4p.dwg</a>
PEP ECO-PASSPORT	<a href="#">eaton-residual-current-circuit-breakers-pep-eato-00109-v0101-en.pdf</a>
SPECIFICATIONS AND DATASHEETS	<a href="#">Eaton Specification Sheet - 167706</a>
WIRING DIAGRAMS	<a href="#">eaton-circuit-breaker-xeffect-frcmm-rcb-wiring-diagram-002.eps</a>  <a href="#">eaton-xeffect-frcmm-rcb-wiring-diagram-002.jpg</a>

	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>LIFESPAN, MECHANICAL</b>	10000 operations
<b>MOUNTING METHOD</b>	DIN rail 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</b>	5 - 95 %

RANGE	
<b>BUILT-IN WIDTH (NUMBER OF UNITS)</b>	70 mm (4 SU)
<b>SHORT-CIRCUIT RATING</b>	Max. admissible back-up fuse: 63 A gG/gL, 70 A class J fuse (UL)
<b>STATUS INDICATION</b>	White / blue
<b>TERMINAL PROTECTION</b>	Finger and hand touch safe, DGUV VS3, EN 50274
<b>TERMINALS (TOP AND BOTTOM)</b>	Lift terminals
<b>TEST CIRCUIT RANGE</b>	100 V AC - 210 V AC, 94 V AC - 132 V AC (UL)
<b>AMBIENT OPERATING TEMPERATURE - MAX</b>	40 °C
<b>AMBIENT OPERATING TEMPERATURE - MIN</b>	-25 °C
<b>BUILT-IN DEPTH</b>	70.5 mm
<b>CONNECTABLE CONDUCTOR CROSS SECTION (MULTI-WIRED) - MAX</b>	16 mm <sup>2</sup>
<b>CONNECTABLE CONDUCTOR CROSS SECTION (MULTI-WIRED) - MIN</b>	1.5 mm <sup>2</sup>
<b>CONNECTABLE CONDUCTOR CROSS SECTION (SOLID-CORE) - MAX</b>	35 mm <sup>2</sup>
<b>CONNECTABLE CONDUCTOR CROSS SECTION (SOLID-CORE) - MIN</b>	1.5 mm <sup>2</sup>
<b>FAULT CURRENT RATING</b>	30 mA
<b>HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT</b>	3.275 W
<b>OVERVOLTAGE TESTED - MAX</b>	530 V
<b>PERMITTED STORAGE AND TRANSPORT TEMPERATURE - MAX</b>	60 °C
<b>PERMITTED STORAGE AND TRANSPORT TEMPERATURE - MIN</b>	-35 °C
<b>CONTACT POSITION INDICATOR COLOR</b>	Red / green
<b>MOUNTING POSITION</b>	As required
<b>DEGREE OF PROTECTION</b>	IP20, IP40 with suitable 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 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>	110/190 V
<b>VOLTAGE RATING (UL)</b>	208/120 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>	Short time-delayed 8 ms delay at 60 Hz 10 ms delay at 50 Hz
<b>RATED SHORT-CIRCUIT STRENGTH</b>	5 kA (UL, as per CSA) 10 kA with back-up fuse
<b>TERMINAL CAPACITY (STRANDED CABLE)</b>	16 mm <sup>2</sup> (2x)
<b>RAL-NUMBER</b>	7035
<b>COLOR</b>	Gray

<b>PROJECT NAME:</b>
<b>PROJECT NUMBER:</b>
<b>PREPARED BY:</b>
<b>DATE:</b>