

Specifications

Photo is representative

Eaton 187421

Eaton Moeller series xEffect - FRCmM Type F RCCB. Residual current circuit breaker (RCCB), 40A, 4p, 300mA, type G/F

General specifications

PRODUCT NAME	Eaton Moeller series xEffect - FRCmM Type F RCCB
CATALOG NUMBER	187421
MODEL CODE	FRCMM-40/4/03-G/F
EAN	4015081824793
PRODUCT LENGTH/DEPTH	76 mm
PRODUCT HEIGHT	80 mm
PRODUCT WIDTH	70 mm
PRODUCT WEIGHT	0.373 kg
COMPLIANCES	RoHS conform
CERTIFICATIONS	IEC/EN 62423 EN45545-2 IEC 61373 IEC/EN 61008

Delivery program

APPLICATION

- Switchgear for industrial and advanced commercial applications
- xEffect - Switchgear for industrial and advanced commercial applications

NUMBER OF POLES	Four-pole
TRIPPING TIME	10 ms delayed
AMPERAGE RATING	40 A
RATED SHORT-CIRCUIT STRENGTH	10 kA with back-up fuse
FAULT CURRENT RATING	300 mA
SENSITIVITY TYPE	Pulse-current sensitive
IMPULSE WITHSTAND CURRENT	3 kA (8/20 µs) surge-proof

TYPE

- Current test marks as per inscription
- Maximum operating temperature is 75 °C: Starting at 40 °C, the max. permissible continuous current decreases by 2.5% for every 1 °C

Technical data - electrical

VOLTAGE RATING (IEC/EN 60947-2) 240 V AC / 415 V AC

RATED OPERATIONAL VOLTAGE (UE) - MAX 240 V

RATED INSULATION VOLTAGE (UI) 440 V

RATED IMPULSE WITHSTAND VOLTAGE (UIMP) 4 kV

RATED FAULT CURRENT - MIN 0.3 A

RATED FAULT CURRENT - MAX 0.3 A

FREQUENCY RATING 50 Hz / 60 Hz

SHORT-CIRCUIT RATING 63 A (max. admissible back-up fuse)

LEAKAGE CURRENT TYPE Other

RATED RESIDUAL MAKING AND BREAKING CAPACITY 500 A

ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX 40 A gG/gL

RATED SHORT-TIME WITHSTAND CURRENT (ICW) 10 kA

SURGE CURRENT CAPACITY 3 kA

TEST CIRCUIT RANGE 184 V AC - 440 V AC

POLLUTION DEGREE 2

RADIATION RESISTANCE Frequency mix (10 Hz, 50 Hz, 1000 Hz) enhanced sensitivity

LIFESPAN, ELECTRICAL 4000 operations

Technical data - mechanical

FRAME	45 mm
WIDTH IN NUMBER OF MODULAR SPACINGS	4
BUILT-IN WIDTH (NUMBER OF UNITS)	70 mm (4 SU)
BUILT-IN DEPTH	70.5 mm
MOUNTING METHOD	DIN rail Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715
MOUNTING POSITION	As required
DEGREE OF PROTECTION	IP20, IP40 with suitable enclosure IP20
STATUS INDICATION	White / blue
TERMINALS (TOP AND BOTTOM)	Twin-purpose terminals
TERMINAL CAPACITY (SOLID WIRE)	1.5 mm ² - 35 mm ²
CONNECTABLE CONDUCTOR CROSS SECTION (SOLID-CORE) - MIN	1.5 mm ²
CONNECTABLE CONDUCTOR CROSS SECTION (SOLID-CORE) - MAX	35 mm ²
TERMINAL CAPACITY (STRANDED CABLE)	16 mm ² (2x)
CONNECTABLE CONDUCTOR CROSS SECTION (MULTI-WIRED) - MIN	1.5 mm ²
CONNECTABLE CONDUCTOR CROSS SECTION (MULTI-WIRED) - MAX	16 mm ²
TERMINAL CAPACITY (CABLE)	M5 (with cross-recessed screw as defined in EN ISO 4757-Z2, PZ2)
TERMINAL PROTECTION	Finger and hand touch safe, DGUV VS3, EN 50274
TIGHTENING TORQUE	2 Nm - 2.4 Nm
CONTACT POSITION INDICATOR COLOR	Red / green
BUSBAR MATERIAL THICKNESS	0.8 mm - 2 mm

Design verification as per IEC/EN 61439 - technical data

RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	40 A
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT	3.275 W
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT	13.1 W
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT	0 W
HEAT DISSIPATION CAPACITY	0 W
AMBIENT OPERATING TEMPERATURE - MIN	-25 °C
AMBIENT OPERATING TEMPERATURE - MAX	40 °C

LIFESPAN, MECHANICAL	20000 operations
PERMITTED STORAGE AND TRANSPORT TEMPERATURE - MIN	-35 °C
PERMITTED STORAGE AND TRANSPORT TEMPERATURE - MAX	60 °C
CLIMATIC PROOFING	25-55 °C / 90-95% relative humidity according to IEC 60068-2

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.
10.2.3.2 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.
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.
10.9.2 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	Is the panel builder's responsibility.

Additional information

FEATURES	Additional equipment possible Residual current circuit breaker
FITTED WITH:	Interlocking device
FUNCTIONS	Short-time delayed tripping
SPECIAL FEATURES	<ul style="list-style-type: none"> • FRCmM • Residual current circuit breakers • Type G/F (ÖVE E 8601)

INSULATING MATERIAL

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.

Resources

APPLICATION NOTES	eaton-rcd-application-guide-br019003en-en-us.pdf
BROCHURES	eaton-pdd-railrolling-stock-brochure-br011002en-en-us.pdf
CATALOGUES	eaton-xeffect-frcmm-rccb-catalog-ca003018en-en-us.pdf
DECLARATIONS OF CONFORMITY	DA-DC-03_FRCm
DRAWINGS	eaton-circuit-breaker-xeffect-frcmm-na-rccb-dimensions.eps
ECAD MODEL	DA-CE-ETN.FRCMM-40_4_03-G_F
	eaton-187407-3d-model.stp
	eaton-187407-drawing.dwg
MCAD MODEL	eaton-residual-current-circuit-breakers-3d-models-frcmm-rccb-4p.stp
	eaton-residual-current-circuit-breakers-drawings-frcmm-rccb-4p.dwg
WIRING DIAGRAMS	eaton-xeffect-frcmm-rccb-wiring-diagram-002.jpg

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



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