

Specifications



Eaton 170448

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

General specifications

PRODUCT NAME	Eaton Moeller series xEffect - FRCmM Type AC, A, U, R RCCB
CATALOG NUMBER	170448
MODEL CODE	FRCMM-40/4/03-S/A
EAN	4015081669332
PRODUCT LENGTH/DEPTH	76 mm
PRODUCT HEIGHT	80 mm
PRODUCT WIDTH	70 mm
PRODUCT WEIGHT	0.341 kg
COMPLIANCES	RoHS conform
CERTIFICATIONS	IEC/EN 61008 EN45545-2 IEC 61373



Powering Business Worldwide

Additional information

FEATURES

Selective protection
Residual current circuit
breaker
Additional equipment
possible

FITTED WITH:

Interlocking device

SPECIAL FEATURES

- 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

USED WITH

Type S/A
Residual current circuit
breakers
FRCmM

Delivery programme

AMPERAGE RATING

40 A

APPLICATION

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

FAULT CURRENT RATING

300 mA

IMPULSE WITHSTAND CURRENT

5 kA (8/20 µs) surge-proof

NUMBER OF POLES

Four-pole

RATED SHORT-CIRCUIT STRENGTH

10 kA with back-up fuse

SENSITIVITY TYPE

Pulse-current sensitive

TRIPPING TIME

40 ms delayed - selective
switch off
Selective switch off

TYPE

- FRCmM
- Residual current circuit breakers
- Type S/A

Design verification to IEC/EN 61439

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.
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	Does not apply, since the

Design verification to IEC/EN 61439 - technical data

AMBIENT OPERATING TEMPERATURE - MAX	40 °C
AMBIENT OPERATING TEMPERATURE - MIN	-25 °C
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT	8.8 W
HEAT DISSIPATION CAPACITY	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT	2.2 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	40 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT	0 W

AGAINST ELECTRIC SHOCK	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 INSULATING MATERIAL	Is the panel builder's responsibility.

Technical data - electrical

ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX	40 A gG/gL
FREQUENCY RATING	50 Hz / 60 Hz
LEAKAGE CURRENT TYPE	A
LIFESPAN, ELECTRICAL	4000 operations
POLLUTION DEGREE	2
RATED FAULT CURRENT - MAX	0.3 A
RATED FAULT CURRENT - MIN	0.3 A
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	4 kV
RATED INSULATION VOLTAGE (UI)	440 V
RATED OPERATIONAL VOLTAGE (UE) - MAX	415 V
RATED RESIDUAL MAKING AND BREAKING CAPACITY	500 A
RATED SHORT-TIME WITHSTAND CURRENT (ICW)	10 kA
SHORT-CIRCUIT RATING	63 A (max. admissible back-up fuse)
SURGE CURRENT CAPACITY	5 kA
TEST CIRCUIT RANGE	184 V AC - 440 V AC
VOLTAGE RATING (IEC/EN 60947-2)	240 V AC / 415 V AC

Technical data - mechanical

BUILT-IN DEPTH	70.5 mm
BUILT-IN WIDTH (NUMBER OF UNITS)	70 mm (4 SU)
BUSBAR MATERIAL THICKNESS	0.8 mm - 2 mm
CLIMATIC PROOFING	25-55 °C / 90-95% relative humidity according to IEC 60068-2
CONNECTABLE CONDUCTOR CROSS SECTION (MULTI-WIRED) - MAX	16 mm ²
CONNECTABLE CONDUCTOR CROSS SECTION (MULTI-WIRED) - MIN	1.5 mm ²
CONNECTABLE CONDUCTOR CROSS SECTION (SOLID-CORE) - MAX	35 mm ²
CONNECTABLE CONDUCTOR CROSS SECTION (SOLID-CORE) - MIN	1.5 mm ²
CONTACT POSITION INDICATOR COLOR	Red / green
DEGREE OF PROTECTION	IP20, IP40 with suitable enclosure IP20
FRAME	45 mm
LIFESPAN, MECHANICAL	20000 operations
MOUNTING METHOD	Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715 DIN rail
MOUNTING POSITION	As required
PERMITTED STORAGE AND TRANSPORT TEMPERATURE - MAX	60 °C
PERMITTED STORAGE AND TRANSPORT TEMPERATURE - MIN	-35 °C
STATUS INDICATION	White / blue
TERMINAL CAPACITY (CABLE)	M5 (with cross-recessed screw as defined in EN ISO 4757-Z2, PZ2)
TERMINAL CAPACITY (SOLID WIRE)	1.5 mm ² - 35 mm ²
TERMINAL CAPACITY (STRANDED CABLE)	16 mm ² (2x)

TERMINAL PROTECTION	Finger and hand touch safe, DGUV VS3, EN 50274
TERMINALS (TOP AND BOTTOM)	Twin-purpose terminals
TIGHTENING TORQUE	2 Nm - 2.4 Nm
WIDTH IN NUMBER OF MODULAR SPACINGS	4

Resources

BROCHURES	eaton-pdd-railrolling-stock-brochure-br011002en-en-us.pdf
DECLARATIONS OF CONFORMITY	eaton-rccb-declaration-of-conformity-eu250057en.pdf eaton-rccb-declaration-of-conformity-uk251420en.pdf
DRAWINGS	eaton-xeffect-faz-na-mcb-dimensions.jpg eaton-circuit-breaker-xeffect-frcmm-na-rccb-dimensions.eps eaton-circuit-breaker-xeffect-frcmm-rccb-dimensions.jpg
ECAD MODEL	ETN.FRCMM-40 4 03-S A.edz
INSTALLATION INSTRUCTIONS	eaton-mcb-rccb-rcbo-g9-il019140zu.pdf
MCAD MODEL	eaton-residual-current-circuit-breakers-3d-models-frcmm-4p.stp
PEP ECO-PASSPORT	eaton-residual-current-circuit-breakers-pep-eato-00109-v0101-en.pdf
WIRING DIAGRAMS	eaton-xeffect-frcmm-rccb-wiring-diagram-002.jpg eaton-circuit-breaker-xeffect-frcmm-rccb-wiring-diagram-002.eps

PROJECT NAME:
PROJECT NUMBER:
PREPARED BY:
DATE:



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