

Specifications



Eaton 167909

Eaton Moeller series xEffect - FRCdM Type B, B+, Bfq RCCB, 40 A, 4p, 300 mA, type S/BFQ

General specifications

PRODUCT NAME	Eaton Moeller series xEffect - FRCdM Type B, B+, Bfq RCCB
CATALOG NUMBER	167909
MODEL CODE	FRCdM-40/4/03-S/BFQ
EAN	4015081644841
PRODUCT LENGTH/DEPTH	76 mm
PRODUCT HEIGHT	80 mm
PRODUCT WIDTH	70 mm
PRODUCT WEIGHT	0.32 kg
COMPLIANCES	RoHS conform
CERTIFICATIONS	IEC/EN 61008 IEC/EN 62423 EN45545-2 IEC 61373

Additional information

FEATURES

Residual current circuit-breakers, digital
Selective protection
Additional equipment possible

FITTED WITH:

Interlocking device

SPECIAL FEATURES

- Current test marks as per inscription
- Dry auxiliary contact: > 100,000 electrical switching operations per minute at 2 A 30 VDC resistive load
- Dry auxiliary contact: > 5 x 100,000 electrical switching operations per minute at 1 A 30 VDC resistive load
- Maximum operating temperature is 60 °C in accordance with the de-rating table

USED WITH

Residual current circuit-breakers, digital
Type S/Bfq
FRCdM

Delivery programme

AMPERAGE RATING

40 A

APPLICATION

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

SENSITIVITY TYPE

All current sensitive - frequency converter-proof

TRIPPING TIME

Selective switch off
40 ms delayed - selective switch off

TYPE

- FRCdM
- Residual current circuit-breakers, digital
- Type S/Bfq

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	60 °C
AMBIENT OPERATING TEMPERATURE - MIN	-25 °C
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT	6.2 W
HEAT DISSIPATION CAPACITY	6.2 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT	0 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	63 A gG/gL
ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX	40 A gG/gL
FREQUENCY RATING	50 Hz
LEAKAGE CURRENT TYPE	B
LIFESPAN, ELECTRICAL	4000 operations
POLLUTION DEGREE	2
RADIATION RESISTANCE	Suitable for variable frequency drives (enhanced sensitivity)
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	196 V AC - 456 V AC
VOLTAGE RATING - MAX	456 VAC
VOLTAGE RATING - MIN	50 VAC
VOLTAGE RATING (IEC/EN 60947-2)	240 V AC / 415 V AC

Technical Data - electrical - dry auxiliary contact

RATED SWITCHING CAPACITY (RESISTIVE LOAD) OF AUXILIARY CONTACT AT 240 V AC	0.25 A
RATED SWITCHING CAPACITY (RESISTIVE LOAD) OF AUXILIARY CONTACT AT 30 V DC	2 A
SWITCHING CAPACITY OF AUXILIARY CONTACT - MIN	10 µA, 10 mV DC
SWITCHING CURRENT OF AUXILIARY CONTACT - MAX	2 A
SWITCHING DUTY WITH RESISTIVE LOAD OF AUXILIARY CONTACT - MAX	60 W
SWITCHING VOLTAGE AT AC OF AUXILIARY CONTACT - MAX	240 V
SWITCHING VOLTAGE AT DC OF AUXILIARY CONTACT - MAX	220 V
TERMINAL CAPACITY OF AUXILIARY CONTACT	0.25 mm ² - 1.5 mm ²

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	DIN rail Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715
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)

Resources

APPLICATION NOTES	eaton-quality-standards-for-railway-applications-application-paper-ap003005en-en-us.pdf
BROCHURES	eaton-xeffect-digital-switchgear-brochure-br003004en-en-us.pdf
CATALOGUES	eaton-xeffect-frcdm-rccb-catalog-ca003017en-en-us.pdf
CHARACTERISTIC CURVE	eaton-mcb-xeffect-frcdm-rccb-characteristic-curve.eps eaton-current-xeffect-frcdm-rccb-characteristic-curve-004.jpg
DECLARATIONS OF CONFORMITY	eaton-rccb-declaration-of-conformity-eu250054en.pdf eaton-rccb-declaration-of-conformity-uk251416en.pdf
DRAWINGS	eaton-current-xeffect-frcdm-rccb-dimensions.jpg
ECAD MODEL	DA-CE-ETN.FRCDM-40 4 03-S BFO
INSTALLATION INSTRUCTIONS	eaton-residual-current-circuit-breakers-frcdm-instruction-leaflet-il019013zu.pdf
INSTALLATION VIDEOS	xEffect Digital Switchgear
MCAD MODEL	eaton-residual-current-circuit-breakers-3d-models-frcdm-rccb-4p.stp eaton-rccb-mcad-drawings-167880.dwg eaton-rccb-mcad-drawings-frcdm-rccb-4p.dwg
PEP ECO-PASSPORT	eaton-residual-current-circuit-breakers-pep-eato-00110-v0101-en.pdf
WIRING DIAGRAMS	eaton-xeffect-frcdm-rccb-wiring-diagram.jpg eaton-xeffect-frcdm-rccb-wiring-diagram-002.jpg eaton-current-xeffect-frcdm-rccb-wiring-diagram.jpg

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

PROJECT NAME:
PROJECT NUMBER:
PREPARED BY:
DATE:



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