

Specifications

Eaton 168648

Eaton Moeller series xEffect - FRCdM Type AC, A, U, R RCCB, 40A, 4p, 30mA, type G/A

General specifications

PRODUCT NAME	Eaton Moeller series xEffect - FRCdM Type AC, A, U, R RCCB
CATALOG NUMBER	168648
MODEL CODE	FRCdM-40/4/003-G/A
EAN	4015081651351
PRODUCT LENGTH/DEPTH	76 mm
PRODUCT HEIGHT	80 mm
PRODUCT WIDTH	70 mm
PRODUCT WEIGHT	0.32 kg
COMPLIANCES	RoHS conform
CERTIFICATIONS	ÖVE E 8601 EN45545-2 IEC 61373 IEC/EN 61008



Powering Business Worldwide

Additional information

FEATURES

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

FITTED WITH:

Interlocking device

FUNCTIONS

Short-time delayed tripping

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: Starting at 40 °C, the max. permissible continuous current decreases by 2.5% for every 1 °C

USED WITH

FRCdM
Residual current circuit-breakers, digital
Type G/A (ÖVE E 8601)

Delivery programme

AMPERAGE RATING

40 A

APPLICATION

xEffect - Switchgear for industrial and advanced commercial applications

FAULT CURRENT RATING

30 mA

IMPULSE WITHSTAND CURRENT

3 kA (8/20 µs) surge-proof

NUMBER OF POLES

Four-pole

RATED SHORT-CIRCUIT STRENGTH

10 kA

SENSITIVITY TYPE

Pulse-current sensitive

TRIPPING TIME

Short time-delayed
10 ms delayed

TYPE

- FRCdM
- Residual current circuit-breakers, digital
- Type G/A (ÖVE E 8601)

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 A

LIFESPAN, ELECTRICAL 4000 operations

POLLUTION DEGREE 2

RATED FAULT CURRENT - MAX 0.03 A

RATED FAULT CURRENT - MIN 0.03 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 3 kA

TEST CIRCUIT RANGE 196 V AC - 264 V AC

VOLTAGE RATING - MAX 264 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 mm² - 1.5 mm²

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 IP20, IP40 with suitable enclosure
FRAME	45 mm
INTERNAL RESISTANCE AT ROOM TEMPERATURE AND 50HZ	0.64 mΩ
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	1.5 mm ² - 35 mm ²

Resources

APPLICATION NOTES	eaton-rcd-application-guide-br019003en-en-us.pdf
BROCHURES	eaton-xeffect-digital-switchgear-brochure-br003004en-en-us.pdf
CATALOGUES	eaton-xeffect-industrial-switchgear-range-catalog-ca003002en-en-us.pdf
DECLARATIONS OF CONFORMITY	eaton-rccb-declaration-of-conformity-eu250052en.pdf eaton-rccb-declaration-of-conformity-uk251417en.pdf
DRAWINGS	eaton-current-xeffect-frcdm-rccb-dimensions.jpg
ECAD MODEL	DA-CE-ETN.FRCDM-40_4_003-G_A
INSTALLATION INSTRUCTIONS	IL019007ZU
INSTALLATION VIDEOS	xEffect Digital Switchgear
	eaton-residual-current-circuit-breakers-3d-models-frcdm-rccb-4p.stp
MCAD MODEL	eaton-rccb-mcad-drawings-167880.dwg eaton-rccb-mcad-drawings-frcdm-rccb-4p.dwg
WIRING DIAGRAMS	eaton-current-xeffect-frcdm-rccb-wiring-diagram-002.jpg eaton-current-xeffect-frcdm-rccb-wiring-diagram.jpg eaton-xeffect-frcdm-rccb-wiring-diagram-004.jpg eaton-xeffect-frcdm-rccb-wiring-diagram-003.jpg

(SOLID WIRE)	
TERMINAL CAPACITY (STRANDED CABLE)	16 mm² (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

PROJECT NAME:
PROJECT NUMBER:
PREPARED BY:
DATE:



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