DATASHEET - FRCMM-40/2/03-G/A-NA

Residual current circuit breaker (RCCB), 40A, 2p, 300mA, type G/A

Part no. **FRCMM-40/2/03-G/A-NA**
167123

General specifications

Product name	Eaton Moeller series xEffect - FRCmM-NA RCCB
Part no.	FRCMM-40/2/03-G/A-NA
EAN	4015081636242
Product Length/Depth	80 millimetre
Product height	71 millimetre
Product width	35 millimetre
Product weight	0.22 kilogram
Compliances	RoHS conform
Certifications	IEC 61373 EN45545-2 ÖVE E 8601 IEC 61008 EN 61008 UL 1053
Product Tradename	xEffect - FRCmM-NA
Product Type	RCCB
Product Sub Type	None
Catalog Notes	Additionally protects against special forms of residual pulsating DC which have not been smoothed.

Delivery program

Application	Switchgear for export to North America (UL-listed)
Number of poles	Two-pole
Tripping time	8 ms delay at 60 Hz 10 ms delay at 50 Hz Short time-delayed
Amperage Rating	40 A
Rated short-circuit strength	5 kA (UL, as per CSA) 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	The maximum operating current of back-up fuse must not exceed the residual current circuit breaker's rated operational current Maximum operating temperature is 75 °C: Starting at 40 °C, the max. permissible continuous current decreases by 2.5% for every 1 °C Current test marks as per inscription

Technical Data - Electrical

Voltage rating (IEC/EN 60947-2)	240 V AC / 415 V AC
Voltage rating (UL)	480Y/277 V, 60 Hz
Rated operational voltage (Ue) - max	277 V
Rated insulation voltage (Ui)	440 V
Rated impulse withstand voltage (Uimp)	4 kV
Overvoltage tested - max	530 V
Rated fault current - min	0.3 A
Rated fault current - max	0.3 A
Frequency rating	50 Hz / 60 Hz
Short-circuit rating	Max. admissible back-up fuse: 63 A gG/gL, 70 A class J fuse (UL)
Leakage current type	A
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
Pick-up current	200 mA

Test circuit range	184 V AC - 250 V AC, 196 V AC - 305 V AC (UL)
Pollution degree	2
Lifespan, electrical	4000 operations

Technical Data - Mechanical

Frame	45 mm
Width in number of modular spacings	2
Built-in width (number of units)	35 mm (2 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 IP20, IP40 with suitable enclosure
Status indication	White / blue
Terminals (top and bottom)	Lift 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
Contact position indicator color	Red / green
Lifespan, mechanical	10000 operations
Permitted storage and transport temperature - min	-35 °C
Permitted storage and transport temperature - max	60 °C
Ambient humdity range	5 - 95 %
Climatic proofing	25-55 °C / 90-95% relative humidity according to IEC 60068-2

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	3.9 W
Equipment heat dissipation, current-dependent	7.8 W
Ambient operating temperature - min	-25 °C
Ambient operating temperature - max	40 °C

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 insulating material	Is the panel builder's responsibility.
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.

Additional information

Features			Additional equipment possible Residual current circuit breaker
Fitted with:			Interlocking device
Functions			Short-time delayed tripping
Special features			Type G/A (ÖVE E 8601) Residual current circuit breakers FRCmM-NA
Used with			Type G/A (#VE E 8601) Residual current circuit breakers FRCmM-NA

Technical data ETIM 9.0

Circuit breakers and fuses (EG000020) / Residual current circuit breaker (RCCB) (EC000003)

Electric engineering, automation, process control engineering / Electrical installation, device / Residual current protection system / Residual current circuit breaker (RCCB) (ecl@ss13-27-14-22-01 [AAB906019])

Number of poles			2
Rated voltage		V	277
Rated current		A	40
Rated fault current		A	0.3
Rated insulation voltage Ui		V	440
Rated impulse withstand voltage Uimp		kV	4
Power loss		W	
Mounting method			DIN rail
Leakage current type			A
Selective protection			No
Short-time delayed tripping			Yes
Short-circuit breaking capacity (Icw)		kA	10
Surge current capacity		kA	3
Voltage type			AC
With interlocking device			Yes
Frequency			50/60 Hz
Additional equipment possible			Yes
Degree of protection (IP)			IP20
Width in number of modular spacings			2
Built-in depth		mm	70.5
Ambient temperature during operating		°C	-25 - 40
Pollution degree			2
Connectable conductor cross section multi-wired		mm^2	1.5 - 16
Connectable conductor cross section solid-core		mm^2	1.5 - 35
RAL-number (similar)			7035
Explosion-proof			No

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