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

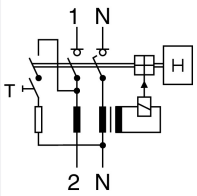
Similar to illustration

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

Part no. FRCMM-40/2/03-A-NA
Catalog No. 167117

Powering Business Worldwide

Delivery program

Basic function			Residual current circuit-breakers
Number of poles			2 pole
Application			Switchgear for export to North America (UL-listed)
Rated current	I_n	A	40
Rated short-circuit strength	I_{cn}	kA	10 with back-up fuse
Rated fault current	$I_{\Delta N}$	A	0.3
Type			Type A
Tripping		s…	non-delayed
Product range			FRCmM-NA
Sensitivity			Pulse-current sensitive
Impulse withstand current			Partly surge-proof 250 A
Contact sequence			

Technical data

Electrical

Types conform to			IEC/EN 61008
Current test marks			As per inscription
Tripping		s…	non-delayed
Rated voltage according to IEC/EN 60947-2	U_n	V AC	240/415
Rated frequency	f	Hz	50/60
Limit values of the operating voltage			
Test circuit		V AC	184 - 250
Rated fault current	$I_{\Delta n}$	mA	300
Sensitivity			Pulse-current sensitive
Rated insulation voltage	U_i	V	440
Rated impulse withstand voltage	U_{imp}	kV	4 (1.2/50µs)
Rated short-circuit strength	I_{cn}	kA	10 with back-up fuse
Impulse withstand current			250 A (8/20 µs) surge-proof
Max. admissible back-up fuse			
Short-circuit	gG/gL	A	63
Overload	gG/gL	A	40
Rated making and breaking capacity / Rated residual making and breaking capacity	I_m / $I_{\Delta m}$	A	500
lifespan			
Electrical	Operations		≧ 4000
Mechanical	Operations		≧ 10000

Electrical

Types conform to			UL1053
Current test marks			As per inscription
Tripping			non-delayed

Rated voltage according to UL	U_n	V AC	480Y/277 V, 60 Hz
Limit values of the operating voltage			
Test circuit		V AC	196 - 305
Pick-up current		mA	200
Sensitivity			Pulse-current sensitive
Overvoltage-tested		V	530
Rated impulse withstand voltage	U_{imp}	kV	4 (1.2/50µs)
Rated short-circuit strength	I_{cn}	kA	5 as per CSA
Max. admissible back-up fuse			
Short-circuit			70 A class J fuse
Overload			The maximum operating current must not exceed the residual current circuit-breaker's rated operational current
Rated making and breaking capacity / Rated residual making and breaking capacity	I_m / $I_{\Delta m}$	A	500
lifespan			
Electrical	Operations		≧ 4000
Mechanical	Operations		≧ 10000

Mechanical

Standard front dimension		mm	45
Device height		mm	80
Built-in width		mm	35 (2TE)
Mounting			Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715
Degree of Protection			IP40, IP54 (with moisture-proof enclosure)
Terminals top and bottom			Lift terminals
Terminal protection			Busbar tag shroud to BGV A3, ÖVE-EN 6
Terminal cross-section			
Solid		mm^2	1.5 - 35
Stranded		mm^2	2 x 16
Terminal cross-section			M5 (with cross-recessed screw as defined in EN ISO 4757-Z2, Pozidriv PZ2)
Admissible ambient temperature range		°C	-25 - +40
Permissible storage and transport temperatures		°C	-35 - +60
Climatic proofing			25-55°C/90-95% relative humidity according to IEC 60068-2
Humidity		%	5 - 95
Pollution degree			2
Mounting position			As required
Contact position indicator			red / green
Trip indication			white / blue

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	40
Heat dissipation per pole, current-dependent	P_{vid}	W	3.9
Equipment heat dissipation, current-dependent	P_{vid}	W	7.8
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	75
			Starting at 40 °C, the max. permissible continuous current decreases by 2.5% for every 1 °C
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
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 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric 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 Insulation properties			
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.

Technical data ETIM 7.0

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@ss10.0.1-27-14-22-01 [AAB906014])

Number of poles			2
Rated voltage		V	277
Rated current		A	40
Rated fault current		mA	300
Rated insulation voltage Ui		V	440
Rated impulse withstand voltage Uimp		kV	4
Mounting method			DIN rail
Leakage current type			A
Selective protection			No
Short-time delayed tripping			No
Short-circuit breaking capacity (Icw)		kA	10
Surge current capacity		kA	0.25
Frequency			50/60 Hz
Additional equipment possible			Yes
With interlocking device			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

Dimensions