DATASHEET - FRCMM-40/2/003-110



Residual current circuit breaker (RCCB), 40A, 2p, 30mA, type AC, 110V

Powering Business Worldwide

FRCMM-40/2/003-110 Part no. Catalog No. 180587

Similar to illustration

Delivery program			
Basic function			Residual current circuit-breakers
Number of poles			2 pole
Application			Switchgear for industrial and advanced commercial applications
Rated current	In	Α	40
Rated short-circuit strength	I _{cn}	kA	10 with back-up fuse
Rated fault current	$I_{\Delta N}$	Α	0.03
Туре			Type AC
Tripping		s	non-delayed
Product range			FRCmM
Sensitivity			AC current sensitive
Impulse withstand current			Partly surge-proof 250 A

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	Un	V AC	110
Rated frequency	f	Hz	50
Limit values of the operating voltage			
Test circuit		V AC	94 - 121
Rated fault current	$I_{\Delta n}$	mA	30
Sensitivity			AC current sensitive
Rated insulation voltage	Ui	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	Α	63
Overload	gG/gL	Α	40
Rated making and breaking capacity / Rated residual making and breaking capacity	$I_m/I_{\Delta m}$	Α	500
lifespan			
Electrical	Operations		≧ 4000
Mechanical	Operations		≧ 20000
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			Twin-purpose 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)
Tightening torque of fixing screws	N/m	2 - 2.4
Thickness of busbar material	mm	0.8 - 2
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
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	In	Α	40
Heat dissipation per pole, current-dependent	P _{vid}	W	3.9
Equipment heat dissipation, current-dependent	P _{vid}	W	7.8
Static heat dissipation, non-current-dependent	P _{vs}	W	0
Heat dissipation capacity	P _{diss}	W	0
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 switch gear must be observed. $\label{eq:constraint}$
10.12 Electromagnetic compatibility			Is the panel builder's responsibility. The specifications for the switch gear must be observed. $\label{eq:constraint}$
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])

Rated voltage V 110 Rated current A 40 Rated fault current mA 30 Rated insulation voltage Ui V 440 Rated impulse withstand voltage Uimp kV 4 Mounting method DIN rail Leakage current type AC No Selective protection No No Short-time delayed tripping KA 10 Surge current capacity (Icw) KA 0.25 Surge current capacity KA 0.25 Frequency Yes Yes Additional equipment possible Yes Yes With interlocking device Pegree of protection (IP) IP20 Width in number of modular spacings 2 Pegree of protection (IP) Width in number of modular spacings 2 Pegree of protection (IP) Ambient temperature during operating °C -25 -40			
Rated current A 4 40 Rated fault current mA 30 Rated insulation voltage Ui Rated impulse withstand voltage Uimp	Number of poles		2
Rated fault current Rated insulation voltage Ui Rated insulation voltage Uimp KV 440 Mounting method Leakage current type Selective protection Short-time delayed tripping Short-circuit breaking capacity (Icw) Surge current capacity Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating	Rated voltage	V	110
Rated insulation voltage Uimp Rated impulse withstand voltage Uimp Mounting method Leakage current type Selective protection Short-time delayed tripping Short-circuit breaking capacity (Icw) Short-circuit breaking capacity (Icw) Surge current capacity Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating V 440 440 440 440 440 440 Above the manual imporation in plant and in	Rated current	Α	40
Rated impulse withstand voltage Uimp Mounting method Leakage current type Selective protection Short-time delayed tripping Short-circuit breaking capacity (Icw) Surge current capacity Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating KV 4 DIN rail AC No No No No Surge Via 10 25 Via 10 10 10 10 10 10 10 10 10 1	Rated fault current	mA	30
Mounting method Leakage current type AC Selective protection Short-time delayed tripping Short-circuit breaking capacity (Icw) Surge current capacity Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth AC AC No No Surge current value (Icw) AA 10 50 10 10 10 10 10 10 10 10 10 10 10 10 10	Rated insulation voltage Ui	V	440
Leakage current type Selective protection Short-time delayed tripping Short-circuit breaking capacity (Icw) Short-circuit breaking capacity (Icw) Surge current capacity Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth AC AC No No No Short-circuit breaking capacity (Icw) AA 10 50 Hz 50 Hz 70 S 10 Hz 10 P2 10 P3 10	Rated impulse withstand voltage Uimp	kV	4
Selective protection Short-time delayed tripping No Short-circuit breaking capacity (Icw) Surge current capacity KA 10 Surge current capacity KA 0.25 Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating No No No No No No No No No N	Mounting method		DIN rail
Short-time delayed tripping Short-circuit breaking capacity (Icw) Surge current capacity KA 0.25 Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating No No No No No No No No No N	Leakage current type		AC
Short-circuit breaking capacity (Icw) Surge current capacity kA 0.25 Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating kA 10 0.25 Frequency 50 Hz Yes Yes IP20 IP20 2 Built-in depth mm 70.5 Ambient temperature during operating	Selective protection		No
Surge current capacity kA 0.25 Frequency 50 Hz Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating kA 0.25 Yes Yes Yes 120 170 170 170 170 170 170 170	Short-time delayed tripping		No
Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating 50 Hz Yes Yes Yes 2 2 4 7 7 7 7 7 7 7 7 7 7 7 7	Short-circuit breaking capacity (Icw)	kA	10
Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating Yes Yes IP20 2 2 3 4 7 7 7 7 7 7 7 7 7 7 7 7	Surge current capacity	kA	0.25
With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating Yes IP20 2 2 4 CC -25 - 40	Frequency		50 Hz
Degree of protection (IP) Width in number of modular spacings Built-in depth mm 70.5 Ambient temperature during operating P20 mm 70.5	Additional equipment possible		Yes
Width in number of modular spacings 2 Built-in depth mm 70.5 Ambient temperature during operating °C -25 - 40	With interlocking device		Yes
Built-in depth mm 70.5 Ambient temperature during operating °C -25 - 40	Degree of protection (IP)		IP20
Ambient temperature during operating °C -25 - 40	Width in number of modular spacings		2
	Built-in depth	mm	70.5
Pollution degree 2	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 multi-wired	mm²	1.5 - 16
Connectable conductor cross section solid-core mm ² 1.5 - 35	Connectable conductor cross section solid-core	mm²	1.5 - 35