DATASHEET - FRCMM-40/2/05-S/F

Part no. Catalog No.



Residual current circuit breaker (RCCB), 40A, 2p, 500mA, type S/F

187403

FRCMM-40/2/05-S/F



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	I_n	Α	40
Rated short-circuit strength	I _{cn}	kA	10 with back-up fuse
Rated fault current	$I_{\Delta N}$	Α	0.5
Туре			Type S/F
Tripping		s	selective switch off
Product range			FRCmM
Sensitivity			Pulse-current sensitive
Impulse withstand current			surge-proof 5 kA

Technical data

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Types conform to Current test marks Current test marks Current test marks Tripping Rated voltage according to IEC/EN 60947-2 Rated frequency Imit values of the operating voltage Test circuit Rated fact current Sensitivity Rated faut current Enhanced sensitivity Rated insulation voltage Rated insulation voltage Rated short-circuit strength Impulse withstand voltage Max. admissible back-up fuse Short-circuit Rated faut current Max. admissible back-up fuse Short-circuit Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated Max. admiscible calcuit (Rated Short-circuit stength Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated making and breaking capacity / Rated residual making and breaking Rated Max. admissible dack unter the same part of the same	Electrical			
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Rated voltage according to IEC/EN 60947-2 Rated frequency f Hz 50/60 Limit values of the operating voltage Test circuit Rated fault current Sensitivity Enhanced sensitivity Rated insulation voltage Rated insulation voltage Rated insulation voltage Rated insulation voltage Rated sont-circuit strength Inpulse withstand current Max. admissible back-up fuse Short-circuit Gg/gL A 63 Overload Qg/gL A 63 Overload Netad making and breaking capacity / Rated residual making and breaking capacity / Rated residua	Current test marks			As per inscription
Rated frequency Limit values of the operating voltage Test circuit Rated fault current Sensitivity Enhanced sensitivity Enhanced sensitivity Rated insulation voltage Rated short-circuit strength Impulse withstand current Max. admissible back-up fuse Short-circuit Overload Overload Rated making and breaking capacity / Rated residual making and breaking capacity / Rated residual making and breaking capacity Electrical Mechanical Mechanical V AC 184 - 250 V AC 184 - 25	Tripping		s	40 ms delay - selective switch off
Limit values of the operating voltage Test circuit Rated fault current Sensitivity Enhanced sensitivity Rated insulation voltage Rated impulse withstand voltage Rated short-circuit strength Impulse withstand current Short-circuit Short-circuit Short-circuit Overload Rated making and breaking capacity / Rated residual making and breaking capacity Iifespan Electrical Mechanical Mechanical V AC 184 - 250 194 Pulse-current sensitive Pulse-current sensitive Frequency mix (10 Hz, 50 Hz, 1000 Hz) Frequen	Rated voltage according to IEC/EN 60947-2	U_n	V AC	240
Test circuit Rated fault current Sensitivity Enhanced sensitivity Enhanced sensitivity Rated insulation voltage Rated impulse withstand voltage Rated short-circuit strength Impulse withstand current Max. admissible back-up fuse Short-circuit Overload Rated making and breaking capacity / Rated residual making and breaking capacity Iffespan Electrical Mechanical V AC 184 - 250 Pulse-current sensitive Pulse-current sensitive Frequency mix (10 Hz, 50 Hz, 1000 Hz) A40 4 (1.2/50µs) Rated (1.2/50µs) Short-circuit strength Impulse with back-up fuse 5 kA (8/20 µs) surge-proof 6 3 6 3 6 3 6 0 6 3 6 0 6 0 6 3 6 0 6 0	Rated frequency	f	Hz	50/60
Rated fault current Sensitivity Enhanced sensitivity Rated insulation voltage Rated short-circuit strength Impulse withstand current Max. admissible back-up fuse Short-circuit Overload Rated making and breaking capacity / Rated residual making and breaking capacity Iffespan Electrical Mechanical Mechanical Mechanical Pulse-current sensitive Frequency mix (10 Hz, 50 Hz, 1000 Hz) A 40 63 63 63 60 60 60 60 60 60 6	Limit values of the operating voltage			
Sensitivity Enhanced sensitivity Rated insulation voltage Rated short-circuit strength Impulse withstand current Max. admissible back-up fuse Short-circuit Overload Rated making and breaking capacity / Rated residual making and breaking capacity Electrical Mechanical Mechanical Pulse-current sensitive Frequency mix (10 Hz, 50 Hz, 1000 Hz) Frequency mix	Test circuit		V AC	184 - 250
Enhanced sensitivity Frequency mix (10 Hz, 50 Hz, 1000 Hz) Rated insulation voltage Ui V 440 Rated impulse withstand voltage Uimp kV 4 (1.2/50μs) Rated short-circuit strength Icn kA 10 with back-up fuse Impulse withstand current Frequency mix (10 Hz, 50 Hz, 1000 Hz) Max. admissible back-up fuse 5 kA (8/20 μs) surge-proof Short-circuit gG/gL A 63 Overload gG/gL A 40 Rated making and breaking capacity / Rated residual making and breaking capacity Im/ I _{Δm} A 500 lifespan Electrical Operations ≤ 4000 Mechanical Operations ≥ 20000 Mechanical	Rated fault current	$I_{\Delta n}$	mA	500
Rated insulation voltage Rated impulse withstand voltage Rated short-circuit strength Inpulse withstand current Max. admissible back-up fuse Short-circuit Overload Rated making and breaking capacity / Rated residual making and breaking capacity Iffespan Electrical Mechanical Vi 440 440 4(1.2/50µs) 10 with back-up fuse 5 kA (8/20 µs) surge-proof 5 kA (8/20 µs) surge-proof 63 63 60 63 500 60 60 60 60 60 60 60 60 6	Sensitivity			Pulse-current sensitive
Rated impulse withstand voltage Rated short-circuit strength Inpulse withstand current Max. admissible back-up fuse Short-circuit Overload Rated making and breaking capacity / Rated residual making and breaking capacity Iffespan Electrical Mechanical Mechanical V	Enhanced sensitivity			Frequency mix (10 Hz, 50 Hz, 1000 Hz)
Rated short-circuit strength Inpulse withstand current Max. admissible back-up fuse Short-circuit Short-circuit Ge/gL A 63 Overload Rated making and breaking capacity / Rated residual making and breaking capacity Iifespan Electrical Mechanical Nechanical	Rated insulation voltage	Ui	V	440
Impulse withstand current Max. admissible back-up fuse Short-circuit Overload Rated making and breaking capacity / Rated residual making and breaking capacity Iifespan Electrical Operations Mechanical S kA (8/20 μs) surge-proof 5 kA (8/20 μs) surge-proof 63 40 63 70 70 70 70 70 70 70 70 70 7	Rated impulse withstand voltage	U_{imp}	kV	4 (1.2/50µs)
Max. admissible back-up fuse gG/gL A 63 Overload gG/gL A 40 Rated making and breaking capacity / Rated residual making and breaking capacity Im / IΔm A 500 lifespan Electrical Operations ≥ 4000 Mechanical Operations ≥ 20000	Rated short-circuit strength	I _{cn}	kA	10 with 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 lifespan Electrical Operations \supseteq 4000 Mechanical Operations \supseteq 20000 Mechanical	Impulse withstand current			5 kA (8/20 μs) surge-proof
Overload QG/gL Rated making and breaking capacity / Rated residual making and breaking capacity Iifespan Electrical Mechanical Operations Operations ≥ 4000 ≥ 20000 Mechanical	Max. admissible back-up fuse			
Rated making and breaking capacity / Rated residual making and breaking capacity Iifespan Electrical Operations Mechanical Operations ≥ 4000 Mechanical	Short-circuit	gG/gL	Α	63
capacity lifespan Electrical Mechanical Operations ≥ 4000 Operations ≥ 20000 Mechanical	Overload	gG/gL	Α	40
Electrical Operations ≥ 4000 Mechanical Operations ≥ 20000 Mechanical		$I_m/I_{\Delta m}$	Α	500
Mechanical Operations ≥ 20000 Mechanical	lifespan			
Mechanical	Electrical	Operations		≧ 4000
		Operations		≧ 20000
Chandral front discounting	Mechanical			
Standard front dimension mm 45	Standard front dimension		mm	45

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	0
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	40
			Starting at 40 °C, the max. permissible continuous current decreases by 3% 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 b observed.
10.12 Electromagnetic compatibility			Is the panel builder's responsibility. The specifications for the switch gear must b observed. $\label{eq:builder}$
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	240
Rated current		Α	40
Rated fault current		mA	500
Rated insulation voltage Ui		V	440
Rated impulse withstand voltage Uimp		kV	4
Mounting method			DIN rail
Leakage current type			Other
Selective protection			Yes
Short-time delayed tripping			No
Short-circuit breaking capacity (Icw)		kA	10
Surge current capacity		kA	5
Frequency			50 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		mm²	1.5 - 16
Connectable conductor cross section solid-core		mm²	1.5 - 35