DATASHEET - FRCMM-100/4/01



Residual current circuit breaker (RCCB), 100A, 4p, 100mA, type AC

Powering Business Worldwide

FRCMM-100/4/01 Part no. Catalog No. 180782 Alternate Catalog FRCMM-100/4/01

Delivery program

Basic function			Residual current circuit-breakers
Number of poles			4 pole
Application			Switchgear for industrial and advanced commercial applications
Rated current	In	Α	100
Rated short-circuit strength	I _{cn}	kA	10 with back-up fuse
Rated fault current	$I_{\Delta N}$	Α	0.1
Туре			Type AC
Tripping		s	non-delayed
Product range			FRCmM
Sensitivity			AC current sensitive
Impulse withstand current			Partly surge-proof 250 A

Technical data

Types conform to Current text marks Feet Substitution IECEN 51088 Current text marks 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 1.0 4.0 4.0 1.0 4.0 1.0	Electrical			
Tripping s on-delayed Rated voltage according to IEC/EN 60947-2 Un VAC 240/415 Rated frequency f Hz 5 Limit values of the operating voltage VAC 184-440 Test circuit Jan MA 100 Rated fault current Jan WA 100 Sensitivity AC current sensitive Rated insulation voltage U, V 40 Rated insulation voltage U, V 40 Rated short-circuit strength U, V 40 Impulse withstand current By Cy V 40 Max. admissible back-up fuse By Cy X 100 Short-circuit By Cy A 100 Overload By Cy A 100 Rated making and breaking capacity / Rated residual making and breaking Portations 2000 Research By Cy A 100 Machanical Operations 2000 Devisional 2000	Types conform to			IEC/EN 61008
Rated voltage according to IEC/EN 60947-2 Un V AC 2040145 Rated frequency f HZ 50 Tost circuit V AC 184 - 440 Rated foult current Jan M D AC current sensitive Rated insulation voltage U _i V AC 40 Rated insulation voltage U _i V AC 41 Rated short-circuit strength U _i V AC 41 Mox. admissible back-up fuse U _i V AC 90 Short-circuit strength GG/gL A 10 Mox. admissible back-up fuse GG/gL A 10 Short-circuit strength GG/gL A 10 Overload GG/gL A 10 Rated making and breaking capacity/ Rated residual making and breaking gG/gL A 100 Rated making and breaking capacity/ Rated residual making and breaking Gg/gL A 100 Rated making and breaking capacity/ Rated residual making and breaking Town town town town town town town town t	Current test marks			As per inscription
Rated frequency f Hz between the operating voltage Test circuit V AC 184 - 440 Rated fault current I_An MA 100 Rated fault current V AC 184 - 440 Rated insulation voltage U _I V AC 440 Rated impulse withstand voltage U _{III} V V 440 Rated short-circuit strength I _{II} K V 12,250μs) Rated short-circuit strength I _{II} K V 410,250μs Max. admissible back-up fuse I _{II} K A 100 Angeography Overload gG/gL A 100 Rated making and breaking capacity / Rated residual making and breaking I _{II} / I _{Am} A 100 Rated making and breaking capacity / Rated residual making and breaking I _{II} / I _{Am} A 100 Reterrical O perations V 20000 Mechanical V 20000 Mochanical S 20000 Standard front dimension m 5 Built-in width	Tripping		s	non-delayed
Limit values of the operating voltage VAC VAC 44-440 Rated fault current Ian mA 100 Sonsitivis AC current sensitive AC current sensitive Rated insulation voltage U _{II} V 4C current sensitive Rated insulation voltage U _{III} V 4C current sensitive Rated insulation voltage U _{III} V 4C current sensitive Rated insulation voltage U _{III} V 4C (1.250µs) Rated short-circuit strength U _{III} V 4 (1.250µs) Impulse withstand current Son (A)	Rated voltage according to IEC/EN 60947-2	Un	V AC	240/415
Test circuit V AC 184 - 440 Rated fault current Jan mA 100 Sensitivity AC current sensitive Rated insulation voltage Ui V 400 Rated insulation voltage Uimp kV 412.750µs) Rated short-circuit strength In kA 10 with back-up fuse Impulse withstand current Impulse withstand current 250 A (870 µs) surge-proof Max. admissible back-up fuse 96/9L A 100 Overload 96/9L A 100 Rated making and breaking capacity / Rated residual making and breaking 1m/ Jan A 100 Rated making and breaking capacity / Rated residual making and breaking 1m/ Jan A 1000 Rated making and breaking capacity / Rated residual making and breaking 2 20000 2 20000 Machanical 0 peratons 2 20000 Mechanical mm 45 Sulfi-in width mm 45 Mouring 70 (4FE) Quick attachment with 2 latch positions for DIN-rail [Ec/En 86715 <tr< td=""><td>Rated frequency</td><td>f</td><td>Hz</td><td>50</td></tr<>	Rated frequency	f	Hz	50
Rated fault current Sensitivity Rated insulation voltage Rated insulati	Limit values of the operating voltage			
Sensitivity Rated insulation voltage Rated insulation voltage Rated insulation voltage Rated insulation voltage Rated short-circuit strength Rated making back-up fuse Short-circuit 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 making and breaking capacity / Rated residual making and breaking Rated function Rated making and breaking capacity / Rated residual making and breaking Rated function Rated making and breaking capacity / Rated residual making and breaking Rated function	Test circuit		V AC	184 - 440
Rated insulation voltage Rated inspulse withstand voltage Rated short-circuit strength Rated making and breaking capacity / Rated residual making and breaking Qs/gL A Querload 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 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 and breaking Rated Making and breaking and breaking Rated Making and Breaking and Breaking and Breaking Rated Making and Breaking and Breaking Rated Making and Breaking and Breaking and Breaking Rated Making and Breaking and Breaking and Breaking and Breaking and Breakin	Rated fault current	$I_{\Delta n}$	mA	100
Rated impulse withstand voltage Rated short-circuit strength Impulse withstand current Max. admissible back-up fuse Short-circuit Short-circuit Overload Rated making and breaking capacity/ Rated residual making and breaking capacity Electrical Operations Electrical Operations Mechanical Operations Standard front dimension Device height Built-in width Mounting Device Protection Eurimals protection Erminal protection Erminal protection Erminal protection Erminal cross-section Solid Mechanical Out 0 100 100 100 100 100 100 100	Sensitivity			AC current sensitive
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 Operations Mechanical Operations Standard front dimension Device height Built-in width Mounting Degree of Protection Terminals top and bottom Terminal protection Terminal cross-section Solid Mechanical Device height Mounting Degree of Protection Terminal cross-section Solid	Rated insulation voltage	Ui	V	440
Impulse withstand current Max. admissible back-up fuse Short-circuit Overload Rated making and breaking capacity / Reted residual making and breaking capaci	Rated impulse withstand voltage	U _{imp}	kV	4 (1.2/50μs)
Max. admissible back-up fuse Short-circuit Overload Rated making and breaking capacity / Rated residual making and breaking capacity Iifespan Electrical Mechanical Operations Standard front dimension Device height Built-in width Mounting Degree of Protection Terminal protection Terminal protection Terminal protection Terminal protection Terminal protection Terminal cross-section Short-circuit gg/gL A 100 100 100 100 24000 44000 240	Rated short-circuit strength	I _{cn}	kA	10 with back-up fuse
Short-circuit Overload Rated making and breaking capacity / Rated residual making and breaking capacity Iffespan Electrical Operations Mechanical Operations Standard front dimension Device height Mounting Built-in width Mounting Degree of Protection Terminals top and bottom Terminal cross-section Solid Mechanical Overload A 1000 A 80 A 1000 A 4000 A	Impulse withstand current			250 A (8/20 μs) surge-proof
Overload g6/gL A 80 Rated making and breaking capacity / Rated residual making and breaking and breaking capacity lifespan Electrical Operations 2 20000 Mechanical Operations 2 20000 Mechanical Operations 3 20000 Mechanical Operations 4 5 20000 Mechanical Operations 6 2 20000 Mechanical Operations 7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Max. admissible back-up fuse			
Rated making and breaking capacity / Rated residual making and breaking capacity lifespan Electrical Operations Operati	Short-circuit	gG/gL	Α	100
tifespan Electrical Operations Operations Mechanical Operations Operations Mechanical Mechanical Mechanical Standard front dimension Device height Mounting Mounting Mounting Degree of Protection Terminals top and bottom Terminal protection Terminal protection Solid Solid Menanical Mounting	Overload	gG/gL	Α	80
Electrical Operations		$I_m / I_{\Delta m}$	Α	1000
Mechanical Operations ≥ 20000 Mechanical Mechanical Standard front dimension mm 45 Device height mm 80 Built-in width mm 70 (4TE) 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 mm² 1.5 - 35	lifespan			
Mechanical Standard front dimension mm 45 Device height mm 80 Built-in width mm 70 (4TE) 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 mm² 1.5 - 35	Electrical	Operations		≧ 4000
Standard front dimension mm 45 Device height mm 80 Built-in width mm 70 (4TE) Mounting Ouick attachment with 2 latch positions for DIN-rail IEC/EN 60715 Degree of Protection Iteminals top and bottom Terminal protection Terminal cross-section mm² 15 - 35	Mechanical	Operations		≧ 20000
Device height Built-in width Mounting Degree of Protection Terminals top and bottom Terminal protection Terminal cross-section Solid Mm 80 Autility Autilit	Mechanical			
Built-in width Mounting Degree of Protection Terminals top and bottom Terminal protection Terminal cross-section Solid Minuma To (4TE) Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715 IP40, IP54 (with moisture-proof enclosure) Twin-purpose terminals Twin-purpose terminals Busbar tag shroud to BGV A3, ÖVE-EN 6 mm² 15-35			mm	
Mounting Degree of Protection Terminals top and bottom Terminal protection Terminal cross-section Solid Degree of Protection Solid Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715 IP40, IP54 (with moisture-proof enclosure) Twin-purpose terminals Busbar tag shroud to BGV A3, ÖVE-EN 6 mm² 1.5 - 35			mm	
Degree of Protection Terminals top and bottom Terminal protection Terminal cross-section Solid IP40, IP54 (with moisture-proof enclosure) Twin-purpose terminals Busbar tag shroud to BGV A3, ÖVE-EN 6 mm² 1.5 - 35	Built-in width		mm	70 (4TE)
Terminals top and bottom Terminal protection Terminal cross-section Solid Terminal cross-section Solid Terminal cross-section				Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715
Terminal protection Terminal cross-section Solid Busbar tag shroud to BGV A3, ÖVE-EN 6 mm² 1.5 - 35	Degree of Protection			IP40, IP54 (with moisture-proof enclosure)
Terminal cross-section Solid mm² 1.5 - 35	Terminals top and bottom			• •
Solid mm ² 1.5 - 35				Busbar tag shroud to BGV A3, ÖVE-EN 6
Stranded mm ² 2 x 16	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

Design vermication as per illo/liv 01433			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	100
Heat dissipation per pole, current-dependent	P _{vid}	W	0
Equipment heat dissipation, current-dependent	P _{vid}	W	18.8
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 1.2% 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) (eci@ss10.0.1-27-14-22-01 [AAB906014])

(eci@ss10.0.1-2/-14-22-01 [AAB900014])			
Number of poles			4
Rated voltage	V		415
Rated current	А		100

Rated fault current	mA	100
Rated insulation voltage Ui	V	440
Rated impulse withstand voltage Uimp	kV	4
Mounting method		DIN rail
Leakage current type		AC
Selective protection		No
Short-time delayed tripping		No
Short-circuit breaking capacity (Icw)	kA	10
Surge current capacity	kA	0.25
Frequency		50 Hz
Additional equipment possible		Yes
With interlocking device		Yes
Degree of protection (IP)		IP20
Width in number of modular spacings		4
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