### DATASHEET - FRCMM-25/4/03-G/A-NA-110



Residual current circuit breaker (RCCB), 25A, 4p, 300mA, type G/A

Part no. Catalog No. FRCMM-25/4/03-G/A-NA-110 167708



Similar to illustration

#### **Delivery program**

Basic function			Residual current circuit-breakers
Number of poles			4 pole
Application			Switchgear for 110-V systems
Rated current	In	А	25
Rated short-circuit strength	I <sub>cn</sub>	kA	10 with back-up fuse
Rated fault current	$I_{\Delta N}$	А	0.3
Туре			Type G/A (ÖVE E 8601)
Tripping		s	Short time-delayed
Product range			FRCmM-NA-110
Sensitivity			Pulse-current sensitive
Impulse withstand current			Surge-proof, 3 kA
Contact sequence			

# Technical data

Electrical			
Types conform to			IEC/EN 61008 ÖVE E 8601
Current test marks			As per inscription
Tripping		s	10 ms delay at 50 Hz
Rated voltage according to IEC/EN 60947-2	Un	V AC	110/190
Rated frequency	f	Hz	50/60
Limit values of the operating voltage			
Test circuit		V AC	100 - 210
Rated fault current	$I_{\Delta n}$	mA	300
Sensitivity			Pulse-current sensitive
Rated insulation voltage	Ui	V	440
Rated impulse withstand voltage	U <sub>imp</sub>	kV	4 (1.2/50µs)
Rated short-circuit strength	I <sub>cn</sub>	kA	10 with back-up fuse
Impulse withstand current			3 kA (8/20 μs) surge-proof
Max. admissible back-up fuse			
Short-circuit	gG/gL	А	63
Overload	gG/gL	А	25
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			8 ms delay at 60 Hz
Rated voltage according to UL	Un	V AC	208/120 V, 60 Hz
Limit values of the operating voltage			

SensityImage: static statuteImage:	Test circuit		V AC	94 - 230
Overlage-testedInVSidRet wholesVmpVM(250)Ret wholesVmpVmpSa par CSAShert-circuit strengthVmmVmmVmmOverlageVmmVmmVmmOverlageVmmVmmVmmRet wholesVmmVmmVmmRetworking capacity/Retarcisation and wholesVmmVmmRetworking and wholesVmmVmmVmmRetworking and wholesVmmVmm <td< td=""><td>Pick-up current</td><td></td><td>mA</td><td>200</td></td<>	Pick-up current		mA	200
Rated impulse withstand voltage     Vanue     Kall     Stand     <	Sensitivity			Pulse-current sensitive
Rated short-circuit strength     en     KA     spec SA       Max. admissible back-up fuse     70. class J fuse     70. class J fuse       Bott-circuit     70. class J fuse     70. class J fuse       Overlad     Temazinum operating current must not exceed the residual current circuit-c	Overvoltage-tested		V	530
Max. admissible back-up fuse     Image: Second Sec	Rated impulse withstand voltage	U <sub>imp</sub>	kV	4 (1.2/50µs)
Short-circuit     An answer of the section of the sectin of the sectin of the section of the sectin of the section of th	Rated short-circuit strength	I <sub>cn</sub>	kA	5 as per CSA
Derivation     The maximum operating current must not exceed the residual current circuit- braked making and braking and braking apactry in the second of the seco	Max. admissible back-up fuse			
Radar days and praking capacity / Rated raisdual making and breaking capacity     Markan / Markan issue     Markan / Markan issue     Markan / Markan issue     Markan / Markan issue     Markan / Markan issue     Markan / Markan / Markan issue     Markan / Ma	Short-circuit			70 A class J fuse
capacity	Overload			
Electrical     Operations     Peratoms	Rated making and breaking capacity / Rated residual making and breaking capacity	$I_m / I_{\Delta m}$	A	500
Mechanical     Operations     1000       Mechanical     Sinter S	lifespan			
Mechanical       Standard front dimension     mm     4       Device height     mm     80       Built-in width     mm     70 (4TE)       Mounting     0 (4TE)     0uick attachment with 2 latch positions for DIN-rail IEC/EN 60715       Degree of Protection     Idick attachment with 2 latch positions for DIN-rail IEC/EN 60715       Terminal protection     Idick attachment with 2 latch positions for DIN-rail IEC/EN 60715       Terminal protection     Idick attachment with 2 latch positions for DIN-rail IEC/EN 60715       Terminal protection     Idick attachment with 2 latch positions for DIN-rail IEC/EN 60715       Solid     Idick attachment with 2 latch positions for DIN-rail IEC/EN 60715       Solid     Idick attachment with 2 latch positions for DIN-rail IEC/EN 60715       Solid     Idick attachment with 2 latch positions for DIN-rail IEC/EN 60715       Solid     Idick attachment with 2 latch positions for DIN-rail IEC/EN 60715       Solid     Idick attachment with 2 latch positions for DIN-rail IEC/EN 60715       Solid     Imm     Idick attachment with 2 latch positions for DIN-rail IEC/EN 60715       Solid     Imm     Idick attachment with 2 latch positions for DIN-rail IEC/EN 60715       Solid     Imm     Idick attachment w	Electrical	Operations		≧ 4000
Shadard ford dimension   Imm   §     Device height   Imm   80     Buit-in width   Mmm   70 (HE)     Mounting   Wick attachment with 2 latch positions for DIN-rail IEC/EN 60715   140 (P54 (with moisture-proof enclosure)     Degree of Protection   How IPS4 (with moisture-proof enclosure)   141 (P54 (with moisture-proof enclosure)     Terminal protection   How IPS4 (with moisture-proof enclosure)   141 (P54 (with moisture-proof enclosure)     Terminal protection   How IPS4 (With moisture-proof enclosure)   141 (P54 (with moisture-proof enclosure)     Terminal cross-section   How IPS4 (With moisture-proof enclosure)   141 (P54 (With moisture-proof enclosure)     Solid   Imme   151 (P54 (With moisture-proof enclosure)   151 (P54 (With moisture-proof enclosure)     Solid   Imme   151 (P54 (With moisture-proof enclosure)   151 (P54 (With moisture-proof enclosure)     Solid   Imme   Imme   151 (P54 (With moisture-proof enclosure)   151 (P54 (With moisture-proof enclosure)     Solid   Imme   Imme   151 (P54 (With moisture-proof enclosure)   151 (P54 (With moisture-proof enclosure)     Solid   Imme   Imme   151 (P54 (With moisture-proof enclosure)   151 (P54 (With moisture-proof enclosure)	Mechanical	Operations		≧ 10000
Device height     nm     8       Buit-in width     NM     04(F)       Buotning     Darked protection     NM     Nack attachment with 2 latch positions for DIN-rail IEC/EN 60715       Baree of Protection     PAOL PS4 (with moisture-proof enclosure)     PAOL PS4 (with moisture-proof enclosure)       Terminal protection     Subset tag should to BGV A3, ÖVE-EN 6     Subset tag should to BGV A3, ÖVE-EN 6       Stranded     Mm     15-35       Terminal cross-section     Mm     2 x 16       Stranded     Mm     16/(With cross-recessed screw as defined in EN ISO 4757-22, Pozidriv PZ2, Dozidriv PZ2, DozidrivPZ2, DozidrivPZ2, Dozidriv PZ2, DozidrivPZ2, Dozidriv PZ2, Dozid	Mechanical			
Built-in width     Mounting     70 (4TE)       Mounting     Guick attachment with 2 latch positions for DIN-rail IEC/EN 60715       Degree of Protection     H40, IP54 (with moisture-proof enclosure)       Terminals top and bottom     H40, IP54 (with moisture-proof enclosure)       Terminal protection     H40, IP54 (with moisture-proof enclosure)       Terminal cross-section     Herminal       Solid     Mmm <sup>2</sup> Stranded     Mm <sup>2</sup> Terminal cross-section     Mm <sup>2</sup> Stranded     Mm <sup>2</sup> Ruminal cross-section     Mm <sup>2</sup> Terminal cross-section     Mm <sup>2</sup> Admissible ambient temperature range     Mm <sup>2</sup> Permissible storage and transport temperatures     Minitity       Climatic proofing     Solid       Humidity     Solid       Pollution degree     Solid       Noutring position     Solid       Autore strain officient     Solid       Rumidity     Solid       Rumidity     Solid       Rumidity position     Solid       Rumidity position     Solid       Rumidity position <t< td=""><td>Standard front dimension</td><td></td><td>mm</td><td>45</td></t<>	Standard front dimension		mm	45
Mounting     Mounting     Mukk Attachment with 2 latch positions for DIN-rail IEC/EN 60715       Degree of Protection     F40, IP54 (with moisture-proof enclosure)       Terminals top and bottom     F40, IP54 (with moisture-proof enclosure)       Terminal protection     F40, IP54 (with moisture-proof enclosure)       Solid     F40, IP54 (with moisture-proof enclosure)       Terminal cross-section     F40, IP54 (with moisture-proof enclosure)       Solid     F40, IP54 (with moisture-proof enclosure)       Terminal cross-section     F40, IP54 (with moisture-proof enclosure)       Solid     F40, IP54 (with moisture-proof enclosure)       Terminal cross-section     F40, IP54 (with moisture-proof enclosure)       Admissible ambient temperature range     F40, IP54 (with cross-recessed screw as defined in EN IS0 4757-22, Pozidriv PZ2)       Permissible storage and transport temperatures     F40, IP54 (with cross-recessed screw as defined in EN IS0 4757-22, Pozidriv PZ2)       Pundity     F50, IP54 (with cross-recessed screw as defined in EN IS0 4757-22, Pozidriv PZ2)       Pollution degree	Device height		mm	80
Degree of Protection   Image: Protection <td< td=""><td>Built-in width</td><td></td><td>mm</td><td>70 (4TE)</td></td<>	Built-in width		mm	70 (4TE)
Terminal stop and bottom   Image: Standad bottom bottom   Image: Standad bottom bo	Mounting			Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715
Terminal protection   Image: Protection   Busbart ag shroud to BGV A3, ÖVE-EN 6     Solid   mm2   1     Solid   mm2   1     Stranded   mm2   2     Terminal cross-section   mm2   2     Admissible ambient temperature range   C   2     Permissible storage and transport temperatures   C   2     Rundid protection   °C   3     Humidity   F   2     Pollution degree   Mu   5     Mounting position   Mu   S     Mundit position indicator   Mu   S     Mu   Mu   S   S     Mu   S   S   S	Degree of Protection			IP40, IP54 (with moisture-proof enclosure)
Terminal cross-section   Image: Provide section   I	Terminals top and bottom			Lift terminals
Solid   mm <sup>2</sup> 15-35     Stranded   mm <sup>2</sup> 2x16     Terminal cross-section   Mm <sup>2</sup> Mix (stross-recessed screw as defined in EN ISO 4757-22, Pozidriv PZ2)     Admissible ambient temperature range   Mm <sup>2</sup> -25 - 440     Permissible storage and transport temperatures   C   -25 - 490     Rumidity   -25 - 5009-95% relative humidity according to IEC 60068-2     Pollution degree   Mounting position   -5 - 50     Nounting position indicator   -26   -26     Rumidity   -26   -26     Pollution degree   -26   -26     Nounting position indicator   -26   -26     Rumidity   -26   -26     Pollution degree   -26   -26     Nounting position indicator   -26   -26     Pollution degree   -26   -26     Polution degree   -26 <t< td=""><td>Terminal protection</td><td></td><td></td><td>Busbar tag shroud to BGV A3, ÖVE-EN 6</td></t<>	Terminal protection			Busbar tag shroud to BGV A3, ÖVE-EN 6
Stranded   mm <sup>n</sup> x has been expected in the person of t	Terminal cross-section			
Terminal cross-section   Image: Section se	Solid		mm <sup>2</sup>	1.5 - 35
Admissible ambient temperature rangePC Permissible storage and transport temperaturesPC Permissible storage and temperaturesPC Permissible stor	Stranded		mm <sup>2</sup>	2 x 16
Permissible storage and transport temperatures °C -55°C/90-95% relative humidity according to IEC 60068-2   Lumidity S -55°C/90-95% relative humidity according to IEC 60068-2   Pollution degree % 5   Mounting position % 6   Contact position indicator % 6	Terminal cross-section			M5 (with cross-recessed screw as defined in EN ISO 4757-Z2, Pozidriv PZ2)
Climatic proofing Mathematic proofing   Humidity 5-55°C/90-95% relative humidity according to IEC 60068-2   Humidity 5-95   Pollution degree %   Mounting position 6   Contact position indicator %	Admissible ambient temperature range		°C	-25 - +40
Humidity % 5 - 95   Pollution degree % 2   Mounting position Kas required As required   Contact position indicator Model Fed/green	Permissible storage and transport temperatures		°C	-35 - +60
Pollution degree 2   Mounting position Image: Contact position indicator Image: Contact position indicator	Climatic proofing			25-55°C/90-95% relative humidity according to IEC 60068-2
Mounting position As required   Contact position indicator Image: Contact position indicator	Humidity		%	5 - 95
Contact position indicator red / green	Pollution degree			2
	Mounting position			As required
Trip indication white / blue	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 <sub>n</sub>	А	25
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0.7
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	2.8
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	55
			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 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			4
Rated voltage	V	/	190
Rated current	A	4	25
Rated fault current	m	nA	300
Rated insulation voltage Ui	V	/	440
Rated impulse withstand voltage Uimp	k	٢V	4
Mounting method			DIN rail
Leakage current type			A
Selective protection			No
Short-time delayed tripping			Yes
Short-circuit breaking capacity (Icw)	k	A	10
Surge current capacity	k/	A	3
Frequency			50/60 Hz
Additional equipment possible			Yes
With interlocking device			Yes
Degree of protection (IP)			IP20
Width in number of modular spacings			4
Built-in depth	m	nm	70.5
Ambient temperature during operating	°(	С	-25 - 40
Pollution degree			2
Connectable conductor cross section multi-wired	m	nm²	1.5 - 16
Connectable conductor cross section solid-core	m	nm²	1.5 - 35

