### **DATASHEET - FRCMM-16/4/03-S**



### Residual current circuit breaker (RCCB), 16A, 4p, 300mA, type S

Powering Business Worldwide\*

Part no. FRCMM-16/4/03-S Catalog No. 170324 Alternate Catalog FRCMM-16/4/03-S

No.

Similar to illustration

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	16
Rated short-circuit strength	I <sub>cn</sub>	kA	10 with back-up fuse
Rated fault current	$I_{\Delta N}$	Α	0.3
Туре			Type S
Tripping		s	selective switch off
Product range			FRCmM
Sensitivity			AC current sensitive
Impulse withstand current			surge-proof 5 kA
Contact sequence			1 3 5 N T -

## **Technical data**

Degree of Protection

Electrical			
Types conform to			IEC/EN 61008
Current test marks			As per inscription
Tripping		s	40 ms delay - selective switch off
Rated voltage according to IEC/EN 60947-2	Un	V AC	240/415
Rated frequency	f	Hz	50/60
Limit values of the operating voltage			
Test circuit		V AC	184 - 440
Rated fault current	$I_{\Delta n}$	mA	300
Sensitivity			AC 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			5 kA (8/20 μs) surge-proof
Max. admissible back-up fuse			
Short-circuit	gG/gL	Α	63
Overload	gG/gL	Α	16
Rated making and breaking capacity / Rated residual making and breaking capacity	$I_m/I_{\Delta m}$	A	500
lifespan			
Electrical	Operations		≧ 4000
Mechanical	Operations		≧ 20000
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

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	$\text{mm}^2$	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	16
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0.725
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	2.9
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 switch gear must b observed.
10.12 Electromagnetic compatibility			Is the panel builder's responsibility. The specifications for the switch gear must b 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)

Number of poles         4           Rated voltage         V         415           Rated current         A         16           Rated fault current         mA         300           Rated insulation voltage Ui         V         440           Rated impulse withstand voltage Uimp         kV         4           Mounting method         DIN rail         AC           Selective protection         AC         Yes           Short-time delayed tripping         No         No           Short-eimet delayed tripping         KA         10           Surge current capacity (lcw)         KA         10           Surge current capacity         KA         10           Frequency         50/60 Hz           Additional equipment possible         Yes           With interlocking device         Yes           Degree of protection (IP)         Yes           With in number of modular spacings         Yes           Built-in depth         Mm         70.5           Ambient temperature during operating         "C"         -25 - 40           Pollution degree         2         -25 - 40           Connectable conductor cross section multi-wired         mm         15 - 16				
Rated voltage         V         415           Rated current         A         16           Rated fault current         mA         300           Rated insulation voltage Ui         V         440           Rated impulse withstand voltage Uimp         kV         4           Mounting method         Leakage current type         AC           Selective protection         Yes         AC           Short-time delayed tripping         No         No           Short-circuit breaking capacity (lcw)         kA         10           Surge current capacity         kA         5           Frequency         Ves         Ves           Additional equipment possible         Yes         Ves           With interlocking device         Yes         Percentage           Degree of protection (IP)         Yes         Percentage           Width in number of modular spacings         4         Percentage           Built-in depth         mm         70.5           Ambient temperature during operating         "C         25 - 40           Pollution degree         "C         25 - 40           Connectable conductor cross section multi-wired         mm*         1.5 - 16	Electric engineering, automation, process control engineering / Electrical installati (ecl@ss10.0.1-27-14-22-01 [AAB906014])	on, device / Residu	ual curr	ent protection system / Residual current circuit breaker (RCCB)
Rated current         A         16           Rated fault current         mA         300           Rated insulation voltage Ui         V         440           Rated impulse withstand voltage Uimp         kV         4           Mounting method         kV         4           Leakage current type         C         AC           Selective protection         Ves         AC           Short-time delayed tripping         No         No           Short-circuit breaking capacity (lew)         kA         10           Surge current capacity         kA         5           Frequency         kA         5           Additional equipment possible         Ves         Ves           With interlocking device         Yes         Precuency         Precuenc	Number of poles			4
Rated fault current Rated insulation voltage Ui Rated insulation voltage Uimp Rated impulse withstand voltage Uimp Rated impulse withstand voltage Uimp Rounting method Leakage current type Reselective protection Reselective protection Rounting method Rounting device Rou	Rated voltage	V		415
Rated insulation voltage Uimp Rated impulse withstand voltage Uimp Rated impulse view Pes Rated impulse view Rated Ra	Rated current	А		16
Rated impulse withstand voltage Uimp  Mounting method  Leakage current type  Selective protection  Short-time delayed tripping  Short-circuit breaking capacity (lcw)  Surge current capacity  Frequency  Additional equipment possible  With interlocking device  With interlocking device  Degree of protection (IP)  Width in number of modular spacings  Built-in depth  Ambient temperature during operating  Connectable conductor cross section multi-wired    Vel   Ve	Rated fault current	m	ıΑ	300
Mounting method Leakage current type Selective protection 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 Middle of the selection (Interlocking device  Built-in depth Ambient temperature during operating  Connectable conductor cross section multi-wired  DIN rail  AC  Yes  Yes  10  10  10  10  10  10  10  10  10  1	Rated insulation voltage Ui	V		440
Leakage current type Selective protection Yes Short-time delayed tripping No Short-circuit breaking capacity (Icw) Surge current capacity KA 5 Frequency Additional equipment possible With interlocking device Degree of protection (IP) Width in number of modular spacings Built-in depth Ambient temperature during operating Pollution degree Connectable conductor cross section multi-wired  AC  Yes  AC  Yes  No  10  10  10  10  10  10  10  10  10  1	Rated impulse withstand voltage Uimp	kV	V	4
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 Pollution degree Connectable conductor cross section multi-wired  Yes  Yes  Yes  Yes  Yes  Yes  Yes  Y	Mounting method			DIN rail
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 Pollution degree Connectable conductor cross section multi-wired  No Surge current capacity (Icw) KA  AB  Built-in depth Ambient temperature during operating  No Sort  10  10  10  10  10  10  10  10  10  1	Leakage current type			AC
Short-circuit breaking capacity (Icw)  Surge current capacity  kA  5  Frequency  Additional equipment possible  With interlocking device  Degree of protection (IP)  Width in number of modular spacings  Built-in depth  mm  70.5  Ambient temperature during operating  Pollution degree  Connectable conductor cross section multi-wired  kA  10  10  10  10  10  10  10  10  10  1	Selective protection			Yes
Surge current capacity  kA  5  Frequency  Additional equipment possible  With interlocking device  Degree of protection (IP)  Width in number of modular spacings  Built-in depth  Ambient temperature during operating  Pollution degree  Connectable conductor cross section multi-wired  kA  5  6060 Hz  Yes  Yes  Pos  Pos  Pos  4  A  70.5  2  Connectable conductor cross section multi-wired  mm²  1.5 - 16	Short-time delayed tripping			No
Frequency Additional equipment possible With interlocking device Ves Degree of protection (IP) Width in number of modular spacings With interlocking device Width in number of modular spacings  Width in number of modular spacings  Midth in number of modular spacings  Midth in depth  Midth in depth  Midth in depth  Ambient temperature during operating  CC  -25 - 40  Pollution degree  Connectable conductor cross section multi-wired  Midth in number of modular spacings  A   1.5 - 16	Short-circuit breaking capacity (Icw)	k.A	A	10
Additional equipment possible  With interlocking device  Degree of protection (IP)  Width in number of modular spacings  Wilt-in depth  Ambient temperature during operating  Pollution degree  Connectable conductor cross section multi-wired  Yes  Yes  1P20  1P20  1P20  4  4  2  1.5 - 16	Surge current capacity	k.A	A	5
With interlocking device  Degree of protection (IP)  Width in number of modular spacings  Width in number of modular spacings  Width in number of modular spacings  Min 70.5  Ambient temperature during operating  Connectable conductor cross section multi-wired  Min 70.5  25 - 40  20 - 25 - 40  30 - 25 - 40  41 - 25 - 40  42 - 25 - 40  43 - 25 - 40  44 - 25 - 40  45 - 25 - 40  56 - 25 - 40  67 - 25 - 40  68 - 25 - 40  69 - 25 - 40  60 - 25 - 40  60 - 25 - 40  60 - 25 - 40  60 - 25 - 40	Frequency			50/60 Hz
Degree of protection (IP) Width in number of modular spacings  Built-in depth Ambient temperature during operating Pollution degree Connectable conductor cross section multi-wired  Pollution degree  IP20  ### ### ### ### ####################	Additional equipment possible			Yes
Width in number of modular spacings  Built-in depth  mm 70.5  Ambient temperature during operating  °C -25 - 40  Pollution degree  Connectable conductor cross section multi-wired  mm² 1.5 - 16	With interlocking device			Yes
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	Degree of protection (IP)			IP20
Ambient temperature during operating  °C -25 - 40  Pollution degree  2  Connectable conductor cross section multi-wired  mm² 1.5 - 16	Width in number of modular spacings			4
Pollution degree 2 Connectable conductor cross section multi-wired mm² 1.5 - 16	Built-in depth	mı	ım	70.5
Connectable conductor cross section multi-wired mm <sup>2</sup> 1.5 - 16	Ambient temperature during operating	°C	С	-25 - 40
	Pollution degree			2
	Connectable conductor cross section multi-wired	mı	ım²	1.5 - 16
Connectable conductor cross section solid-core mm <sup>2</sup> 1.5 - 35	Connectable conductor cross section solid-core	mı	ım²	1.5 - 35

## **Dimensions**

