

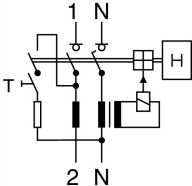


## Digital residual current circuit-breaker, 40A, 4p, 30mA, type U

**Part no.** FRCDM-40/4/003-U  
**Article no.** 168643  
**Catalog No.** FRCDM-40/4/003-U

Similar to illustration

## Delivery program

Basic function			Residual current circuit breakers , digital
Number of poles			4 pole
Application			Residual current circuit-breaker - frequency converter-proof
Rated current	$I_n$	A	40
Rated short-circuit strength	$I_{cn}$	kA	10 with back-up fuse
Rated fault current	$I_{\Delta N}$	A	0.03
Type			Type U
Tripping		A	Short time-delayed
Product range			FRCDM
Sensitivity			pulse-current sensitive, suitable for variable frequency drives
Impulse withstand current			Surge-proof, 3 kA
Contact sequence			

## Technical data

### Electrical

Types conform to			IEC/EN 61008
Current test marks			As per inscription
Tripping		A	10 ms delayed
Rated operating voltage	$U_n$	V AC	240/415
Rated frequency	f	Hz	50
Limit values of the operating voltage			
electronic		V AC	50 - 264
Test circuit		V AC	196 - 264
Rated fault current	$I_{\Delta n}$	mA	30
Sensitivity			pulse-current sensitive, suitable for variable frequency drives
Enhanced sensitivity			Suitable for variable frequency drives
Rated insulation voltage	$U_i$	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			3 kA (8/20 μs) surge-proof
Max. admissible back-up fuse			
Short-circuit	gG/gL	A	63
Overload	gG/gL	A	63
Rated making and breaking capacity / Rated residual making and breaking capacity	$I_m / I_{\Delta m}$	A	500
lifespan			
Electrical		Operations	2000
Mechanical		Operations	10000

### Dry auxiliary contact

Rated switching capacity			
30 VDC (resistive load)		A	2

240 VAC (resistive load)	A	0.25
Max. switching duty (resistive load)	W	60
Max. switching voltage AC	V	240
Max. switching voltage DC	V	220
Maximum switching current	A	2
Min. switching capacity (reference value)		10 µA, 10 mV DC
lifespan		
Electrical (at 20 switching operations per minute) 2 A 30 VDC resistive load	Operations	10 <sup>5</sup>
Electrical (at 20 switching operations per minute) 1 A 30 VDC resistive load	Operations	5 x 10 <sup>5</sup>
Terminal capacity	mm <sup>2</sup>	0.25 - 1.5

### 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		IP20 switches IP 40 enclosed
Terminals top and bottom		Twin-purpose terminals
Terminal protection		Busbar tag shroud to BGV A3, ÖVE-EN 6
Terminal cross-section		
Solid	mm <sup>2</sup>	1.5 - 35
Stranded	mm <sup>2</sup>	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		according to IEC/EN 61008
Mounting position		As required
Contact position indicator		red / green
Trip indication		white / blue
Internal resistance (at room temperature, single-pole, 50 Hz)		
Complete unit	R <sub>i</sub>	mΩ 0.64

### Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I <sub>n</sub>	A	40
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	6.2
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	40
			0
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.

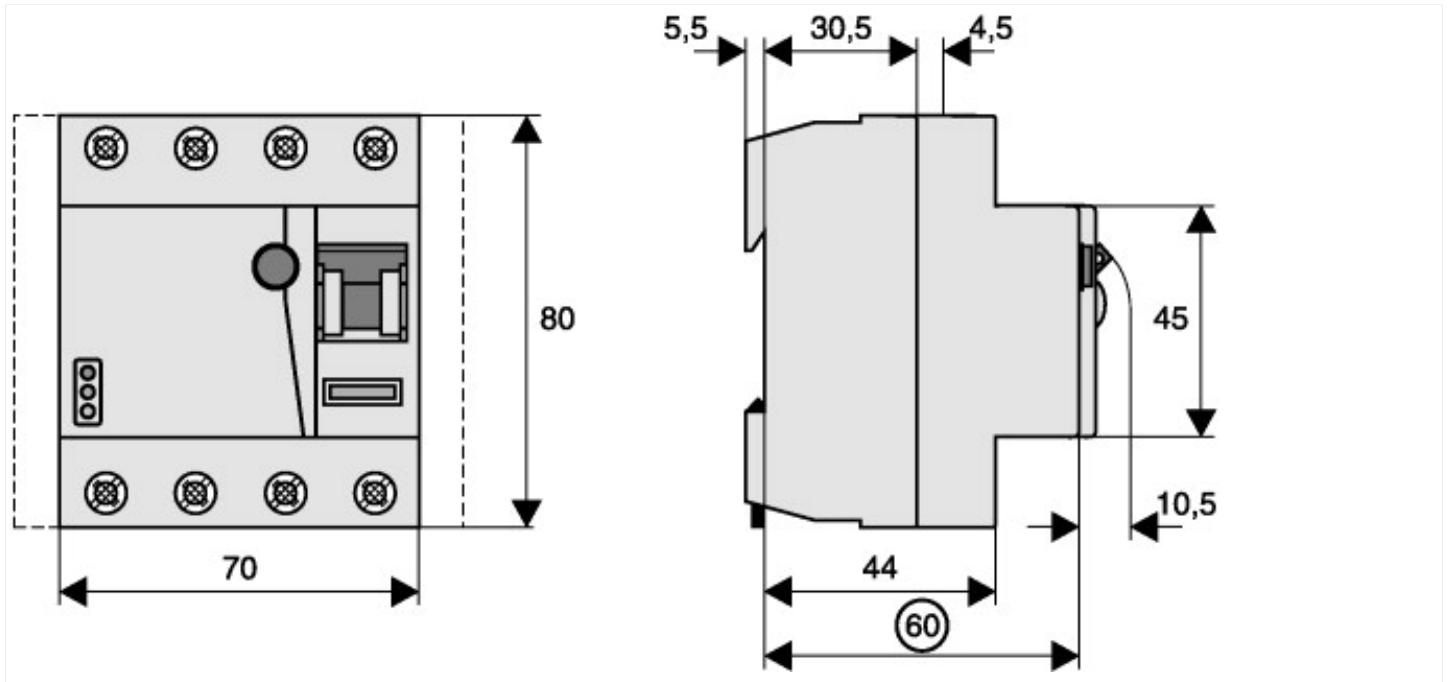
## Technical data ETIM 6.0

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@ss8.1-27-14-22-01 [AAB906011])

Number of poles		4
Nominal rated voltage	V	415
Nominal rated current	A	40
Rated fault current	A	0.03
Mounting method		DIN rail
Leakage current type		A
Selective protection		No
Short-circuit breaking capacity (I <sub>cn</sub> )	kA	10
Surge current capacity	kA	3
Frequency		50 Hz
Additional equipment possible		Yes
Degree of protection (IP)		IP20
Construction size (in accordance with DIN 43880)		1
Width in number of modular spacings		4
Built-in depth	mm	70.5
Short-time delayed tripping		Yes

## Dimensions



## Additional product information (links)

Product overview (Web)

<http://www.eaton.eu/Europe/Electrical/ProductsServices/CircuitProtection/DigitalCircuitBreakers/index.htm>