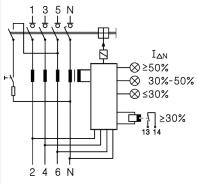
Digital residual current circuit-breaker, 40A, 4p, 30mA, type G/B+

Part no. FRCDM-40/4/003-G/B+
Article no. 167881
Catalog No. FRCDM-40/4/003-G/B.

Powering Business Worldwide

Delivery programme

Basic function			Residual current circuit breakers , digital
Pole			4 pole
Application			Switchgear for industrial and commercial applications
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 G/B+ (ÖVE E 8601)
Tripping		A	Short time-delayed
Product range			FRCdM
Sensitivity			All current sensitive
Impulse withstand current			Surge-proof, 3 kA
Contact sequence			

Technical data

Electrical

Types conform to			VDE 0664-400 ÖVE E 8601
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 - 456
Test circuit		V AC	196 - 264
Rated fault current	$I_{\Delta n}$	mA	30
Sensitivity			All current sensitive
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	$>10^5$
Electrical (at 20 switching operations per minute) 1 A 30 VDC resistive load		Operations	$>5 \times 10^5$
Terminal capacity		mm^2	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^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 - +55
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

Design verification as per IEC/EN 61439

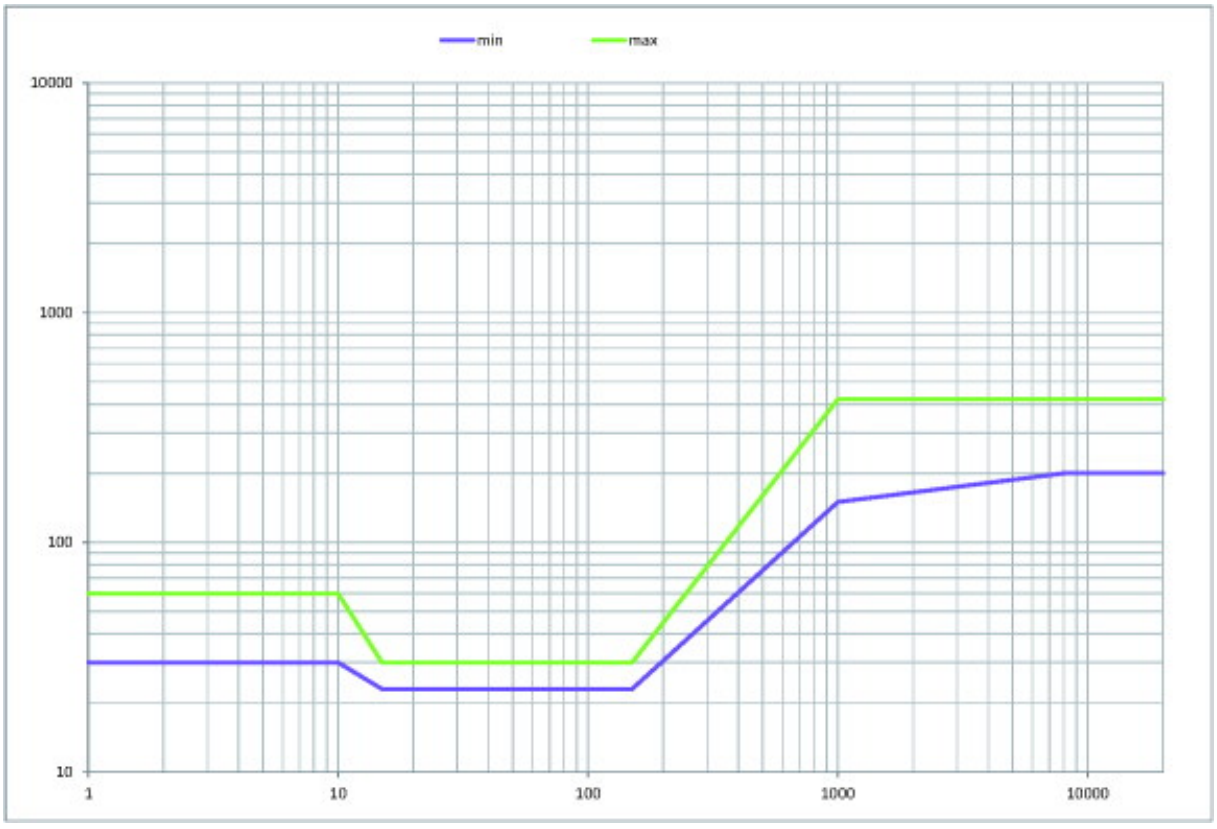
Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	40
Heat dissipation per pole, current-dependent	P_{vid}	W	0
Equipment heat dissipation, current-dependent	P_{vid}	W	6.2
Static heat dissipation, non-current-dependent	P_{vs}	W	0
Heat dissipation capacity	P_{diss}	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	55
			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

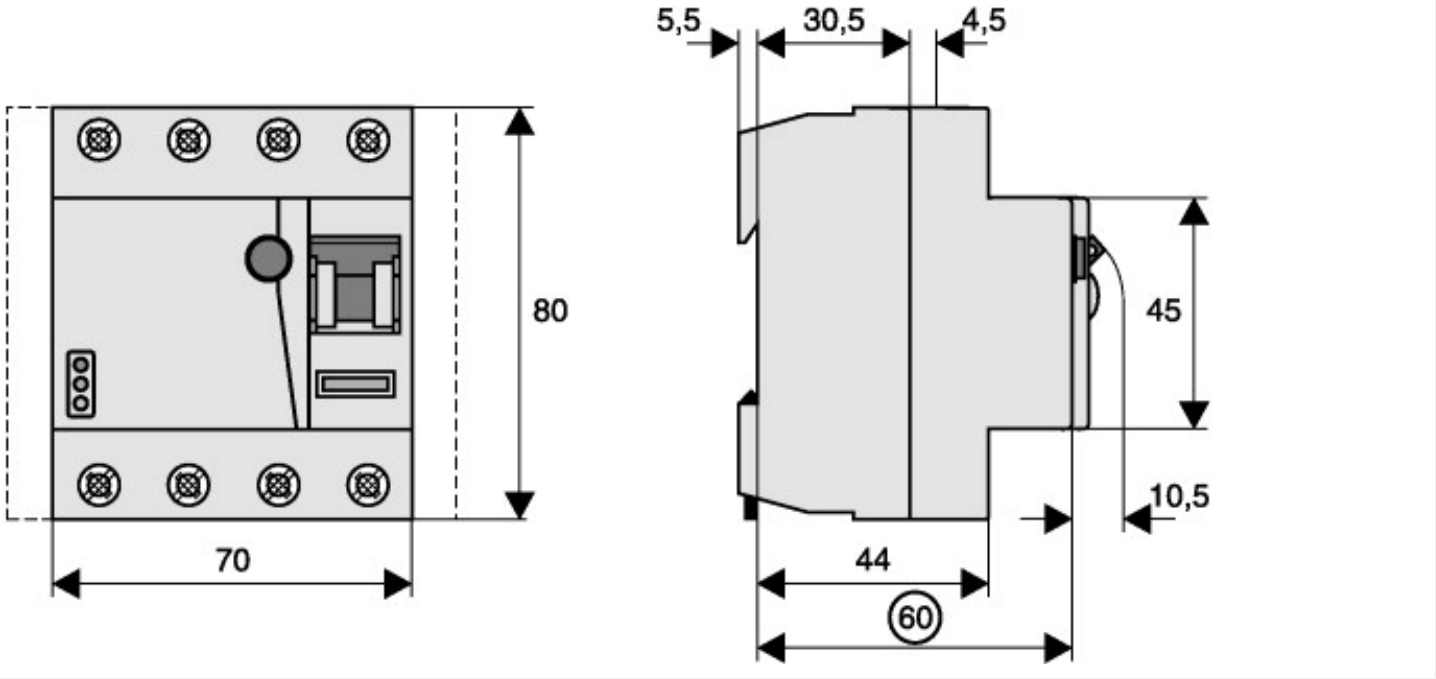
Circuit breakers and fuses (EG000020) / Residual current circuit breaker (RCCB) (EC000003)			
Electric engineering, automation, process control engineering / Electrical installation, device / Residual current protection system / Residual current circuit breaker (RCCB) (ecl@ss8.1-27-14-22-01 [AAB906011])			
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			B+
Selective protection			No
Short-circuit breaking capacity (Icw)		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

Characteristics



Tripping current frequency range:	FRCdM, 30 mA, type B+

Dimensions



Additional product information (links)

Product overview (Web)	http://www.eaton.eu/Europe/Electrical/ProductsServices/CircuitProtection/DigitalCircuitBreakers/index.htm