

RCD/MCB combination switch, 10A, 100mA, miniature circuit-br. type D trip characteristic, 2p, residual current circuit-br. trip characteristic: A



Part no. Article no. Catalog No. FRBDM-D10/2/01-G/A 168223 PDC-TBD6566

Similar to illustration

#### **Delivery program**

Basic function			Combined RCD/MCB devices
Number of poles			2 pole
Tripping characteristic			D
Application			Switchgear for industrial and advanced commercial applications
Rated current	In	А	10
Rated switching capacity according to IEC/EN 61009		kA	10
Rated fault current	$I_{\Delta N}$	А	0.1
Tripping		А	Short time-delayed
Product range			FRBdM
Sensitivity			Pulse-current sensitive
Impulse withstand current			Surge-proof, 3 kA
Contact sequence			

## **Technical data**

Electrical			
Sensitivity			Pulse-current sensitive
Rated current	I <sub>n</sub>	А	10
Tripping characteristic			D

### **Design verification as per IEC/EN 61439**

Rated operational current for specified heat dissipation   In   A   10     Heat dissipation per pole, current-dependent   Pvid   W   0     Equipment heat dissipation, current-dependent   Pvid   W   3.2     Static heat dissipation, non-current-dependent   Pvis   W   0     Heat dissipation capacity   Pdiss   W   0     Operating ambient temperature min.   °C   25     Operating ambient temperature max.   M   0	Design vernication as per 120/214 01455			
Heat dissipation per pole, current-dependent   Pvid   W   0     Equipment heat dissipation, current-dependent   Pvid   W   0     Static heat dissipation, non-current-dependent   Pvs   W   0     Iteat dissipation capacity   Paiss   W   0     Operating ambient temperature min.   Pdiss   V   0     Operating ambient temperature max.   °C   -5     Iteact dissipation of materials and parts   0   -0     102.52 tength of materials and parts   °C   40     102.23 Verification of tensistance of insulating materials to normal heat   Mest the product standard's requirements.     102.33 Verification of resistance of insulating materials to abnormal heat dirft due to internal electric effects   Mest the product standard's requirements.     102.24 Resistance to ultra-violet (UV) radiation   Mest the product standard's requirements.     102.52 Lifting   Nees the product standard's requirements.     102.52 Lift	Technical data for design verification			
Equipment heat dissipation, current-dependent     Pvid     We     Second	Rated operational current for specified heat dissipation	In	А	10
It is the it dissipation, non-current-dependent   Pus   We   0     Iteat dissipation, capacity   Paiss   We   0     Operating ambient temperature min.   °C   -5     Operating ambient temperature max.   °C   40     IteCFN 61439 design verification   °C   40     IteL2 Strength of materials and parts   Fers   6     10.2.3 Uverification of tersistance   Fers   Meets the product standard's requirements.     10.2.3.1 Verification of resistance of insulating materials to normal heat   Fers   Meets the product standard's requirements.     10.2.3.2 Verification of resistance of insulating materials to abnormal heat   Fers   Meets the product standard's requirements.     10.2.3.1 Verification of resistance of insulating materials to abnormal heat   Fers   Meets the product standard's requirements.     10.2.3.2 Verification of resistance of insulating materials to abnormal heat   Fers   Meets the product standard's requirements.     10.2.4 Resistance to ultra-violet (UV) radiation   Fers   Meets the product standard's requirements.     10.2.5 Lifting   Des not apply, since the entire switchgear needs to be evaluated.   Des not apply, since the entire switchgear needs to be evaluated.     10.2.7 Inscriptions   Meets the product standard's r	Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Heat dissipation capacity   Pdiss   W   0     Operating ambient temperature min.   °C   -5     Operating ambient temperature max.   °C   40     IEC/EN 61439 design verification   °C   6     IEC/EN 61439 design verification   Feeto   6     10.2.2 Corrosion resistance   Feeto   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 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.	Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	3.2
Operating ambient temperature min.     occ     25       Operating ambient temperature max.     °C     40       °C     40     40       ID2 Strength of materials and parts     6     6       10.2 Strength of materials and parts     6     6       10.2.3 Corrosion resistance     Meets the product standard's requirements.     6       10.2.3.1 Verification of thermal stability of enclosures     Meets the product standard's requirements.     6       10.2.3.2 Verification of resistance of insulating materials to normal heat and fire due to internal electric effects     Meets the product standard's requirements.     6       10.2.4 Resistance to ultra-violet (UV) radiation     Feets the product standard's requirements.     6     6       10.2.5 Lifting     Does not apply, since the entire switchgear needs to be evaluated.     6     6     6       10.2.6 Mechanical impact     Does not apply, since the entire switchgear needs to be evaluated.     6	Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Operating ambient temperature max.   °C   40     IEC/EN 61439 design verification   0     10.2 Strength of materials and parts   Image: Control of thermal stability of enclosures   Meets the product standard's requirements.     10.2.2 Corrosion resistance   Image: Control of thermal stability of enclosures   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   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   Des not apply, since the entire switchgear needs to be evaluated.     10.2.6 Mechanical impact   Des not apply, since the entire switchgear needs to be evaluated.     10.2.7 Inscriptions   Meets the product standard's requirements.	Heat dissipation capacity	P <sub>diss</sub>	W	0
Interview	Operating ambient temperature min.		°C	-25
IEC/EN 61439 design verification   Image: Comparison of materials and parts   Image: Comparison resistance   Image: Comparison resistance of insulating materials to normal heat   Image: Comparison resistance of insulating materials to abnormal heat   Image: Comparison resistance of insulating materials to abnormal heat   Image: Comparison resistance of insulating materials to abnormal heat   Image: Comparison resistance of insulating materials to abnormal heat   Image: Comparison resistance of insulating materials to abnormal heat   Image: Comparison resistance of insulating materials to abnormal heat   Image: Comparison resistance of insulating materials to abnormal heat   Image: Comparison resistance of insulating materials to abnormal heat   Image: Comparison resistance of insulating materials to abnormal heat   Image: Comparison resistance of insulating materials to abnormal heat   Image: Comparison resistance of insulating materials to abnormal heat   Image: Comparison resistance of insulating materials to abnormal heat   Image: Comparison resistance of insulating materials to abnormal heat   Image: Comparison resistance of insulating materials to abnormal heat   Image: Comparison resistance of insulating materials to abnormal heat   Image: Comparison resista	Operating ambient temperature max.		°C	40
10.2 Strength of materials and parts   Image: Construct of the mail stability of enclosures   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 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   Meets the product standard's requirements.     10.2.6 Mechanical impact   Des not apply, since the entire switchgear needs to be evaluated.     10.2.7 Inscriptions   Meets the product standard's requirements.				0
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10.2.3.1 Verification of thermal stability of enclosuresMeets the product standard's requirements.10.2.3.2 Verification of resistance of insulating materials to normal heat and fire due to internal electric effectsMeets the product standard's requirements.10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effectsMeets the product standard's requirements.10.2.4 Resistance to ultra-violet (UV) radiationMeets the product standard's requirements.10.2.5 LiftingMeets the product standard's requirements.10.2.6 Mechanical impactDoes not apply, since the entire switchgear needs to be evaluated.10.2.7 InscriptionsMeets the product standard's requirements.	10.2 Strength of materials and parts			
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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.	10.2.4 Resistance to ultra-violet (UV) radiation			Meets the product standard's requirements.
10.2.7 Inscriptions 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.
10.3 Degree of protection of ASSEMBLIES 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.

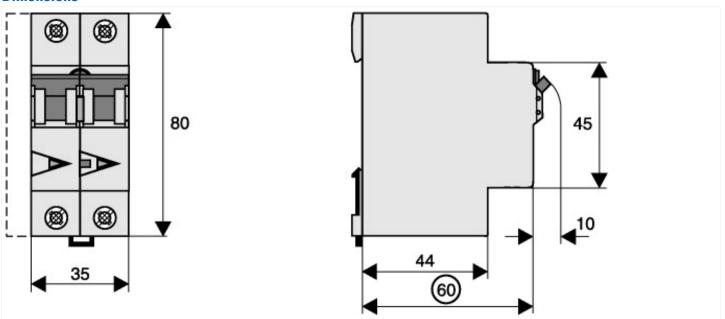
#### **Technical data ETIM 6.0**

Circuit breakers and fuses (EG000020) / Earth leakage circuit breaker (EC000905)

Electric engineering, automation, process control engineering / Electrical installation, device / Residual current protection system / MCB/RCCB combination (ecl@ss8.1-27-14-22-07 [AFZ810012])

Number of protected poles2Number of protected poles2Nominal rated voltageV20Nominal rated voltageV20Nominal rated currentA0Rated fault currentA0Leakage current typeA3Current limiting classBARated short-circuit breaking capacity EN 60998A0Rated short-circuit breaking capacity EN 60997-20A0Release characteristicBA0Rourent typeDStateStateVor voltage categoryBA0Pollution degreeSStateStateVoltage tridust-mounded installationCStateStateState for fush-mounded installationCNStateVoltage typeCStateStateStateState for fush-mounded installationCNStateVoltage typeCStateStateStateNameer capacityCStateStateStateNameer capacityCStateStateStateNameer capacityCStateStateStateNameer capacityCStateStateStateNameer capacityCStateStateStateNameer capacityCStateStateStateNameer capacityCStateStateStateNameer capacityCStateStateStateNameer capa			
Nominal rated voltageV40Nominal rated currentIIRated fault currentIILeakage current typeIICurrent limiting classIIRated short-circuit breaking capacity EN 60898IIRated short-circuit breaking capacity EN 60898IIRoless characteristicIIIRoless characteristicIIIRoless characteristicIIIRoless characteristicIIIRoless characteristicIIIRoless characteristicIIIRoless characteristicIIIRoless characteristicIIIRoless c	Number of poles (total)		2
Nominal rated current   A   0     Rated fault current   A   0     Leakage current type   A   A     Current limiting class   A   A     Rated short-circuit breaking capacity EN 60898   KA   0     Rated short-circuit breaking capacity EC 60947-2   KA   0     Frequency   KA   0     Release characteristic   KA   0     Concurrently switching N-neutral   M   0     Over voltage category   M   0     Pollution degree   M   0     Suitable for flush-mounted installation   M   0     Suitable for flush-mounted installation   M   M     Degree of protection (IP)   M   M     Suitage type   KA   3	Number of protected poles		2
Rated fault current   A   0     Leakage current type   A   0     Current limiting class   3   0     Rated short-circuit breaking capacity EN 60998   FA   0     Rated short-circuit breaking capacity IEC 60947-2   FA   0     Frequency   50 Hz   50 Hz     Release characteristic   50 Hz   50 Hz     Concurrently switching N-neutral   50 Hz   50 Hz     Over voltage category   50 Hz   50 Hz     Pollution degree   50 Hz   50 Hz     Suitable for flush-mounted installation   50 Hz   50 Hz	Nominal rated voltage	V	240
Leakage current type Image: second	Nominal rated current	А	10
Current limiting class   Image: Section of the secti	Rated fault current	А	0.1
Rated short-circuit breaking capacity EN 60898   kA   0     Rated short-circuit breaking capacity IEC 60947-2   KA   0     Frequency   SO Hz   50 Hz     Release characteristic   M   M     Concurrently switching N-neutral   M   M     Over voltage category   M   S     Pollution degree   M   2     With in number of modular spacings   M   2     Suitable for flush-mounted installation   M   No     Degree of protection (IP)   M   No     Surge current capacity   M   S     Voltage type   M   A	Leakage current type		A
Rated short-circuit breaking capacity IEC 60947-2   KA   0     Frequency   50 Hz     Release characteristic   0   0     Concurrently switching N-neutral   6   6   0     Over voltage category   6   3   3     Pollution degree   2   2   2     Width in number of modular spacings   6   6   2     Suitable for flush-mounted installation   6   7   0     Degree of protection (IP)   70   120   120     Surge current capacity   6   6   120   120     Voltage type   6   6   6   120   120	Current limiting class		3
Frequency50 HzRelease characteristicDConcurrently switching N-neutralNoOver voltage category3Pollution degree2Width in number of modular spacingsMonSuitable for flush-mounted installationMonDegree of protection (IP)Image categorySurge current capacityMonVoltage typeMange category	Rated short-circuit breaking capacity EN 60898	kA	10
Release characteristic   D     Concurrently switching N-neutral   No     Over voltage category   Image: Sector	Rated short-circuit breaking capacity IEC 60947-2	kA	0
Concurrently switching N-neutralNoOver voltage category3Pollution degree2Width in number of modular spacingsMBuilt-in depth70Suitable for flush-mounted installationMDegree of protection (IP)IP20Surge current capacityKAVoltage typeAC	Frequency		50 Hz
Over voltage categoryImage: Constraint of the section of	Release characteristic		D
Pollution degree2Width in number of modular spacingsMPBuilt-in depthM70Suitable for flush-mounted installationMNoDegree of protection (IP)IP20Surge current capacityAAVoltage typeAAC	Concurrently switching N-neutral		No
Width in number of modular spacingsImage: Space of protection (IP)Image: Space of protection	Over voltage category		3
Built-in depth mm 70   Suitable for flush-mounted installation Mo No   Degree of protection (IP) IP20   Surge current capacity KA 3   Voltage type IC AC	Pollution degree		2
Suitable for flush-mounted installationImage: Suitable for flush-mounted installationNoDegree of protection (IP)Image: Suitable for flush-mounted installationIP20Surge current capacityImage: Suitable for flush-mounted installationImage: Suitable for flush-mounted installationVoltage typeImage: Suitable for flush-mounted installationImage: Suitable for flush-mounted installation	Width in number of modular spacings		2
Degree of protection (IP) IP20   Surge current capacity KA 3   Voltage type KA AC	Built-in depth	mm	70
Surge current capacity kA 3   Voltage type AC	Suitable for flush-mounted installation		No
Voltage type AC	Degree of protection (IP)		IP20
	Surge current capacity	kA	3
Antinuisance tripping version Yes	Voltage type		AC
	Antinuisance tripping version		Yes

## **Dimensions**



# Additional product information (links)

Product overview (Web)

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