

RCD/MCB combination switch, 6A, 10mA, miniature circuit-br. type D trip characteristic, 1-phase+N, residual current circuit-br. trip characteristic: A



Part no. Article no. Catalog No. FRBDM-D6/1N/001-G/A 168258 PDC-TBD6490

Similar to illustration

#### **Delivery program**

Basic function			Combined RCD/MCB devices
Number of poles			1 pole+N
Tripping characteristic			D
Application			Switchgear for industrial and advanced commercial applications
Rated current	In	А	6
Rated switching capacity according to IEC/EN 61009		kA	10
Rated fault current	$I_{\Delta N}$	А	0.01
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	6
Tripping characteristic			D

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

Rated operational current for specified heat dissipation   In   A   6     Heat dissipation per pole, current-dependent   Pvid   Ve   0     Equipment heat dissipation, current-dependent   Pvid   Ve   2.1     Static heat dissipation, non-current-dependent   Pvis   Ve   0     Heat dissipation capacity   Pdiss   Ve   0     Operating ambient temperature min.   Pdiss   Ve   25     Operating ambient temperature max.   In   In   In	Design vernication as per illo/liv 01455			
Hard dissipation per pole, current-dependent     Pwid     We       Equipment heat dissipation, current-dependent     Pwid     We     2.1       Static heat dissipation, non-current-dependent     Pwid     We     0       Petat dissipation capacity     Pdiss     We     0       Operating ambient temperature min.     Pdiss     %C     2.5       Operating ambient temperature max.     *C     40       ID2 Strength of materials and parts     *C     40       102.2 Corrosion resistance     *C     40       102.3 I Verification     *C     40       102.3 Verification of thermal stability of enclosures     *C     40       102.3.1 Verification of resistance of insulating materials to normal heat     *C     40       102.3.3 Verification of resistance of insulating materials to abnormal heat     *C     40       102.3.3 Verification of resistance of insulating materials to abnormal heat     *C     Meets the product standard's requirements.       102.3.1 Verification of resistance of insulating materials to abnormal heat     *C     Meets the product standard's requirements.       102.2.2 Corrosion resistance of insulating materials to abnormal heat     *C     Meets	Technical data for design verification			
Equipment heat dissipation, current-dependent     Pvid     We     2.1       Static heat dissipation, non-current-dependent     Pvid     We     0       Heat dissipation capacity     Paiss     We     0       Operating ambient temperature min.     Paiss     °C     40       Operating ambient temperature max.     °C     40     6       ID2 Strength of materials and parts     Ve     40     6       102.23 Corrosion resistance     Ve     Mets the product standard's requirements.     Ve       102.31 Verification of termial stability of enclosures     Mets the product standard's requirements.     Mets the product standard's requirements.       102.32 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects     Mets the product standard's requirements.       10.2.3.1 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects     Mets the product standard's requirements.       10.2.3.2 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects     Mets the product standard's requirements.       10.2.4 Resistance to ultra-violet (UV) radiation     Mets the product standard's requirements.     Dees not apply, since the entire switchgear needs to be evaluated. </td <td>Rated operational current for specified heat dissipation</td> <td>In</td> <td>А</td> <td>6</td>	Rated operational current for specified heat dissipation	In	А	6
Number of the function of the second secon	Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Heat dissipation capacity   Pdiss   W   O     Operating ambient temperature min.   °C   -5     Operating ambient temperature max.   °C   40     ID2 parting ambient temperature max.   °C   40     IEC/EN 61439 design verification   °C   40     ID2.2 Strength of materials and parts   Ferto   6     ID2.3.1 Verification of thermal stability of enclosures   Ferto   Mets the product standard's requirements.     ID2.3.2 Verification of resistance of insulating materials to normal heat and fire due to internal electric effects   Mets the product standard's requirements.     ID2.4 Resistance to ultra-violet (UV) radiation   Ferto   Mets the product standard's requirements.     ID2.5 Lifting   Does not apply, since the entire switchgear needs to be evaluated.   Does not apply, since the entire switchgear needs to be evaluated.     ID2.7 Inscriptions   Mets the product standard's requirements.   Mets the product standard's requirements.	Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	2.1
Operating ambient temperature min.   °C   -25     Operating ambient temperature max.   °C   40     °C   40   0     ICE/KN 61439 design verification   0   0     10.2 Strength of materials and parts   Meets the product standard's requirements.   0     10.2.3 Corrosion resistance   Meets the product standard's requirements.   0     10.2.3.1 Verification of thermal stability of enclosures   Meets the product standard's requirements.   0     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.   Meets the product standard's requirements.     10.2.4 Resistance to ultra-violet (UV) radiation   Meets the product standard's requirements.   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.   Does not apply, since the entire switchgear needs to be evaluated.     10.2.7 Inscriptions   Meets the product standard's requirements.   Does not apply, since the entire switchgear needs to be evaluated.	Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Operating ambient temperature max.   °C   40     Operating ambient temperature max.   °C   40     ICC   ICC   0     IEC/EN 61439 design verification   ICC   0     ID2.5 Strength of materials and parts   ICC   ICC     ID2.2 Corrosion resistance   ICC   Meets the product standard's requirements.     ID2.3.1 Verification of thermal stability of enclosures   ICC   Meets the product standard's requirements.     ID2.3.2 Verification of resistance of insulating materials to normal heat   Meets the product standard's requirements.   Meets the product standard's requirements.     ID2.3.3 Verification of resistance of insulating materials to abnormal heat   Meets the product standard's requirements.   Meets the product standard's requirements.     ID2.4 Resistance to ultra-violet (UV) radiation   ICCE   Meets the product standard's requirements.   Meets the product standard's requirements.     ID2.5 Lifting   Dees not apply, since the entire switchgear needs to be evaluated.   Dees not apply, since the entire switchgear needs to be evaluated.     ID2.7 Inscriptions   Meets the product standard's requirements.   Meets the product standard's requirements.	Heat dissipation capacity	P <sub>diss</sub>	W	0
Index status   Index status	Operating ambient temperature min.		°C	-25
Intervention   Image: stand parts   Image: stand pa	Operating ambient temperature max.		°C	40
10.2 Strength of materials and partsImage: Construct of the mail stability of enclosuresImage: Construct of the mail stability of enclosuresImage: Construct of the mail stability of enclosures10.2.3.1 Verification of thermal stability of enclosuresImage: Construct of the mail stability of enclosuresImage: Construct of the product standard's requirements.10.2.3.2 Verification of resistance of insulating materials to normal heatImage: Construct of the product standard's requirements.10.2.3.3 Verification of resistance of insulating materials to abnormal heatImage: Construct of the product standard's requirements.10.2.4 Resistance to ultra-violet (UV) radiationImage: Construct of the product standard's requirements.10.2.5 LiftingImage: Construct of the entire switchgear needs to be evaluated.10.2.6 Mechanical impactImage: Construct of the product standard's requirements.10.2.7 InscriptionsImage: Construct of the product standard's requirements.				0
10.2.2 Corrosion resistanceMeets the product standard's requirements.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.10.2.4 Resistance to ultra-violet (UV) radiationMeets the product standard's requirements.10.2.5 LiftingMeets the product standard's requirements.10.2.6 Mechanical impactMeets the product standard's requirements.10.2.7 InscriptionsMeets the product standard's requirements.	IEC/EN 61439 design verification			
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.10.2.4 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			
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 LiftingDoes not apply, since the entire switchgear needs to be evaluated.10.2.6 Mechanical impactDoes not apply, since the entire switchgear needs to be evaluated.10.2.7 InscriptionsMeets the product standard's requirements.	10.2.2 Corrosion resistance			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 effectsMeets the product standard's requirements.10.2.4 Resistance to ultra-violet (UV) radiationMeets the product standard's requirements.10.2.5 LiftingDoes not apply, since the entire switchgear needs to be evaluated.10.2.6 Mechanical impactDoes not apply, since the entire switchgear needs to be evaluated.10.2.7 InscriptionsMeets the product standard's requirements.	10.2.3.1 Verification of thermal stability of enclosures			Meets the product standard's requirements.
and fire due to internal electric effects   and fire due to internal electric effects     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.	10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
10.2.5 LiftingDoes not apply, since the entire switchgear needs to be evaluated.10.2.6 Mechanical impactDoes not apply, since the entire switchgear needs to be evaluated.10.2.7 InscriptionsMeets the product standard's requirements.				Meets the product standard's requirements.
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.

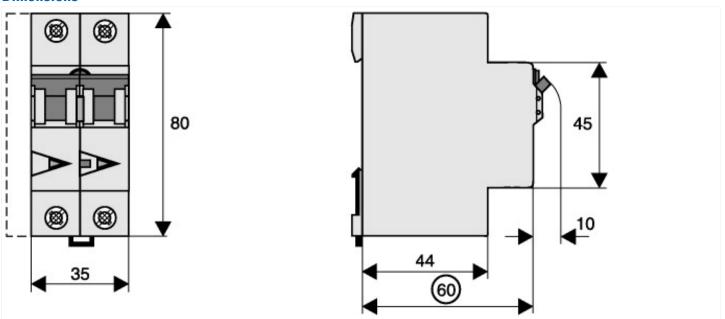
### **Technical data ETIM 6.0**

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 poles (total)		2
Number of protected poles		1
Nominal rated voltage	V	240
Nominal rated current	А	6
Rated fault current	А	0.01
Leakage current type		A
Current limiting class		3
Rated short-circuit breaking capacity EN 60898	kA	10
Rated short-circuit breaking capacity IEC 60947-2	kA	0
Frequency		50 Hz
Release characteristic		D
Concurrently switching N-neutral		Yes
Over voltage category		3
Pollution degree		2
Width in number of modular spacings		2
Built-in depth	mm	70
Suitable for flush-mounted installation		No
Degree of protection (IP)		IP20
Surge current capacity	kA	3
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