

RCD/MCB combination switch, 20A, 100mA, miniature circuit-br. type B trip characteristic, 2p, residual current circuit-br. trip characteristic: A

**Powering Business Worldwide** 

Part no. Article no. Catalog No. FRBMM-B20/2/01-LIA 170813 FRBMM-B20/2/01-LIA

Similar to illustration

#### **Delivery program**

Basic function			Combined RCD/MCB devices
Number of poles			2 pole
Tripping characteristic			В
Application			Switchgear for industrial and advanced commercial applications
Rated current	In	А	20
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			FRBmM
Sensitivity			Pulse-current sensitive
Impulse withstand current			Partly surge-proof 250 A
Contact sequence			

## **Technical data**

Electrical			
Sensitivity			Pulse-current sensitive
Rated current	I <sub>n</sub>	А	20
Tripping characteristic			В

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

Rated operational current for specified heat dissipation   In   A   20     Heat dissipation per pole, current-dependent   Pvid   W   0     Equipment heat dissipation, current-dependent   Pvid   W   5.9     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 ieu/en 01455			
Hatd dissipation per pole, current-dependent     Pvid     We       Equipment heat dissipation, current-dependent     Pvid     We     5.9       Static heat dissipation, non-current-dependent     Pvis     We     0       Heat dissipation capacity     Pdiss     We     0       Operating ambient temperature min.     Pdiss     Ve     25       Operating ambient temperature max.     *C     30     30       ID2 Strength of materials and parts     *C     40     30       1D2 Strength of materials and parts     *C     40     30       1D2 Strength of materials and parts     *C     *C     40       1D2 Strength of materials and parts     *C     *C     40       1D2 Strength of materials and parts     *C     *C     *C       1D2 Strength of materials and parts     *C     *C     *C     *C       1D2 Strength of materials and parts     *C     *C     *C     *C     *C       1D2 Strength of materials and parts     *C     *C     *C     *C     *C     *C     *C     *C     *C     *C <td>Technical data for design verification</td> <td></td> <td></td> <td></td>	Technical data for design verification			
Equipment heat dissipation, current-dependent     Pvid     We     5-       Static heat dissipation, non-current-dependent     Pvid     We     0       Heat dissipation capacity     Pdiss     We     0       Operating ambient temperature min.     Pdiss     C     -25       Operating ambient temperature max.     Pdiss     We     0       ID2 Strength of materials and parts     Pdiss     Mest the product standard's requirements.       1D2 Strength of materials and parts     Mest the product standard's requirements.     Mest the product standard's requirements.       1D2.31 Verification of resistance of insulating materials to normal head and fire due to internal electric effects     Mest the product standard's requirements.       1D2.4 Resistance to ultra-violet (UV) radiation     Mest the product standard's requirements.       1D2.5 Lifting     Des not apply, since the entire switchgear needs to be evaluated.       1D2.5 Lifting     Des not apply, since the entire switchgear needs to be evaluated.       1D2.5 Lifting     Des not apply, since the entire switchgear needs to be evaluated.       1D2.5 Lifting     Des not apply, since the entire switchgear needs to be evaluated.       1D2.5 Lifting     Des not apply, since the entire switchgear needs to be evaluated.	Rated operational current for specified heat dissipation	In	А	20
Number of the dissipation, non-current-dependent   Pus   We   0     Iteat dissipation capacity   Pdiss   We   0     Operating ambient temperature min.   Pdiss   Ce   25     Operating ambient temperature max.   "Ce   40     IteC/EN 61439 design verification   "Ce   0     IteC/EN 61439 design verification   "Ce   6     Ite2 Strength of materials and parts   Fee   Fee     Ite2.3 Verification of tersistance   Fee   Meets the product standard's requirements.     Ite2.3 Verification of resistance of insulating materials to normal heat and fire due to intermal electric effects   Fee   Meets the product standard's requirements.     Ite2.4 Resistance to ultra-violet (UV) radiation   Fee   Meets the product standard's requirements.     Ite2.5 Lifting   Des not apply, since the entire switchgear needs to be evaluated.   Des not apply, since the entire switchgear needs to be evaluated.     Ite2.4 Resistance to ultra-violet (UV) radiation   Fee   Des not apply, since the entire switchgear needs to be evaluated.     Ite2.4 Resistance to ultra-violet (UV) radiation   Fee   Meets the product standard's requirements.     Ite2.5 Lifting   Fee   Des not apply, since the entire switchgear needs to be evaluated. </td <td>Heat dissipation per pole, current-dependent</td> <td>P<sub>vid</sub></td> <td>W</td> <td>0</td>	Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Heat dissipation capacity   Pdiss   W   0     Operating ambient temperature min.   *C   -25     Operating ambient temperature max.   *C   40     IEC/EN 61439 design verification   *C   -0     IEC/EN 61439 design verification   *C   -0     ID.2.2 Corrosion resistance   *C   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	5.9
Operating ambient temperature min.     ors     -25       Operating ambient temperature max.     °C     40       °C     40     -       ID2 Strength of materials and parts     °C     -       102.2 Corrosion resistance     Meets the product standard's requirements.     -       102.3.1 Verification of thermal stability of enclosures     Meets the product standard's requirements.     -       102.3.2 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.       102.4 Resistance to ultra-violet (UV) radiation     Meets the product standard's requirements.     Does not apply, since the entire switchgear needs to be evaluated.       102.6 Mechanical impact     Does not apply, since the entire switchgear needs to be evaluated.     Does not apply, since the entire switchgear needs to be evaluated.       102.7 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   0   0     IEC/EN 61439 design verification   0   0     10.2 Strength of materials and parts   0   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   Meets the product standard's requirements.   0     10.2.3.3 Verification of resistance of insulating materials to abnormal heat   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.   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 requirements.   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: Strength of materials and parts   Image: Strength of materials and parts     10.2 Strength of materials and parts   Image: Strength of materials and parts   Meets the product standard's requirements.     10.2.2 Corrosion resistance   Image: Strength of thermal stability of enclosures   Meets the product standard's requirements.     10.2.3.1 Verification of resistance of insulating materials to normal heat   Image: Strength of thermal stability of enclosures   Meets the product standard's requirements.     10.2.3.3 Verification of resistance of insulating materials to abnormal heat   Image: Strength of thermal electric effects   Meets the product standard's requirements.     10.2.3.3 Verification of resistance of insulating materials to abnormal heat   Image: Strength of thermal electric effects   Meets the product standard's requirements.     10.2.4 Resistance to ultra-violet (UV) radiation   Image: Strength of the product standard's requirements.   Meets the product standard's requirements.     10.2.5 Lifting   Image: Strength of the entire switchgear needs to be evaluated.   Dees not apply, since the entire switchgear needs to be evaluated.     10.2.7 Inscriptions   Image: Strength of the product standard's requirements.   Meets the product standard's requirements.	Operating ambient temperature max.		°C	40
10.2 Strength of materials and parts   Mets     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 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   Dees not apply, since the entire switchgear needs to be evaluated.     10.2.6 Mechanical impact   Dees not apply, since the entire switchgear needs to be evaluated.     10.2.7 Inscriptions   Meets 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 LiftingDees not apply, since the entire switchgear needs to be evaluated.10.2.6 Mechanical impactDees not apply, since the entire switchgear needs to be evaluated.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 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   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		2
Nominal rated voltage	۷	240
Nominal rated current	А	20
Rated fault current	А	0.1
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		В
Concurrently switching N-neutral		No
Over voltage category		3
Pollution degree		2
Width in number of modular spacings		2
Built-in depth	mm	75.5
Suitable for flush-mounted installation		No
Degree of protection (IP)		IP20
Surge current capacity	kA	0.25
Voltage type		AC
Antinuisance tripping version		No

# Dimensions

