## **DATASHEET - FRBMM-B20/2/03**



RCD/MCB combination, 20 A, 300 mA, MCB trip characteristic: B, 2p, RCD trip characteristic: AC  $\,$ 

Part no. FRBMM-B20/2/03 170840

Similar to illustration

General specifications	
Product name	Eaton Moeller series xEffect - FRBm6/M RCBO - residual-current circuit breake with overcurrent protection
Part no.	FRBMM-B20/2/03
EAN	4015081674046
Product Length/Depth	80 millimetre
Product height	75.5 millimetre
Product width	35 millimetre
Product weight	0.25 kilogram
Compliances	CE Marked RoHS conform
Certifications	EN45545-2 CE IEC 61373
Product Tradename	xEffect - FRBm6/M
Product Type	RCBO - Residual-current circuit breaker with overcurrent protection
Product Sub Type	None
Delivery program	
Application	Switchgear for industrial and advanced commercial applications
Product range	FRBmM
Basic function	Combined RCD/MCB devices
Number of poles	Two-pole
Number of poles (protected)	2
Number of poles (total)	2
Tripping characteristic	В
Release characteristic	В
Rated current	20 A
Fault current rating	0.3 A
Sensitivity type	AC current sensitive
Type	RCB0
echnical Data - Electrical	
Voltage type	AC
Voltage rating	240 V - 240 V
Rated operational voltage (Ue) - max	240 V
Rated insulation voltage (Ui)	500 V
Rated impulse withstand voltage (Uimp)	4 kV
Rated fault currents of product range	10, 30, 100, 300 MilliAmpere
Impulse withstand current	Partly surge-proof, 250 A
Frequency rating	50 Hz
Leakage current type	AC
Rated switching capacity	10 kA
Rated switching capacity (IEC/EN 61009)	10 kA
Rated short-circuit breaking capacity (EN 60947-2)	0 kA
Rated short-circuit breaking capacity (EN 61009)	10 kA
Rated short-circuit breaking capacity (EN 61009-1)	10 kA
Rated short-circuit breaking capacity (IEC 60947-2)	0 kA
Surge current capacity	0.25 kA

Disconnection characteristic	Undelayed
	Non-delayed
Tripping Pollution degree	2
Technical Data - Mechanical	2
	2
Width in number of modular spacings  Built-in depth	75.5 mm
	1P20
Degree of protection	
Connectable conductor cross section (solid-core) - min	1 mm²
Connectable conductor cross section (solid-core) - max	25 mm <sup>2</sup>
Connectable conductor cross section (multi-wired) - min	1 mm²
Connectable conductor cross section (multi-wired) - max	25 mm <sup>2</sup>
Design verification as per IEC/EN 61439 - technical data	
Rated operational current for specified heat dissipation (In)	20 A
Heat dissipation per pole, current-dependent	0 W
Equipment heat dissipation, current-dependent	5.9 W
Static heat dissipation, non-current-dependent	0 W
Heat dissipation capacity	0 W
Ambient operating temperature - max	40 °C
Ambient operating temperature - min	-25 °C
Design verification as per IEC/EN 61439	
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.
10.2.3.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. 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.
10.6 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.
10.9.2 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.
Additional information	
Current limiting class	3

## **Technical data ETIM 9.0**

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@ss13-27-14-22-07 [AFZ810020])

Number of poles (total)

Number of protected poles

2

Number of protocour points		-
Rated voltage	V	240
Rated insulation voltage Ui	V	500
Rated impulse withstand voltage Uimp	kV	4
Rated current	А	20
Rated fault current	А	0.3

Current limiting class Power loss W Rated short-circuit breaking capacity according to EN 61009 Rated short-circuit breaking capacity according to IEC 60947-2 Rated short-circuit breaking capacity los according to IEC 60947-2 Rated short-circuit breaking capacity los according to IEN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity los according to EN 61009-1 Rated short-circuit breaking capacity			
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Rated short-circuit breaking capacity according to EN 61009 Rated short-circuit breaking capacity according to EN 61009-1 Rated short-circuit breaking capacity lcn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to	Current limiting class		3
Rated short-circuit breaking capacity according to EC 60947-2 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to EN 61009-1 Rated short-circuit breaking capacity Icn according to	Power loss	W	
Rated short-circuit breaking capacity Icn according to EN 61009-1  As Disconnection characteristic  Live Undelayed  Live Undel	Rated short-circuit breaking capacity according to EN 61009	kA	10
Disconnection characteristic  Surge current capacity  Voltage type  Voltage type  Voltage type  Selease characteristic  Concurrently switching neutral conductor  With interlocking device  Over voltage category  Pollution degree  Ambient temperature during operating  Voltage type  Ambient temperature during operating  Voltage and the management of modular spacings  Sulit-in depth  Mind  Anti-nuisance tripping version  Connectable conductor cross section solid-core  Mind  VA  AC  Concurrently switching neutral conductor  No  No  Concernently switching neutral conductor  No  No  No  No  No  No  No  No  Connectable conductor cross section solid-core  mm²  1 - 25	Rated short-circuit breaking capacity according to IEC 60947-2	kA	0
Surge current capacity  AC  Frequency  Aclelease characteristic  Concurrently switching neutral conductor  With interlocking device  Over voltage category  Pollution degree  Ambient temperature during operating  With in number of modular spacings  Built-in depth  Flush-mounted installation  Anti-nuisance tripping version  Connectable conductor cross section solid-core  RA  AC  AC  AC  B  AC  No  No  No  No  Pollution degree  2  Anti-nuisance tripping version  No  No  No  No  No  No  No  No  No	Rated short-circuit breaking capacity Icn according to EN 61009-1	kA	10
Voltage type Frequency Release characteristic Release characteristic Routerently switching neutral conductor With interlocking device No Diver voltage category Rollution degree Rombient temperature during operating Rollution under of modular spacings Rollution depth Rollution	Disconnection characteristic		Undelayed
Frequency Release characteristic  Release characteristic  Routerently switching neutral conductor  With interlocking device  No  Over voltage category  Pollution degree  Ambient temperature during operating  °C  -25 - 40  Width in number of modular spacings  Built-in depth  mm  75.5  Fush-mounted installation  Anti-nuisance tripping version  No  Connectable conductor cross section solid-core  mm²  1 - 25	Surge current capacity	kA	0.25
Release characteristic Concurrently switching neutral conductor With interlocking device No Over voltage category Sollution degree Consider temperature during operating With in number of modular spacings Suilt-in depth Solution Consider temperature during operating Midth in number of modular spacings Solution Consider temperature during operating Midth in number of modular spacings Solution Consider temperature during operating Midth in number of modular spacings Solution Midth in number of modular spacings Solution Midth in temperature during operating Midth in number of modular spacings Solution Solution Solution Solution Midth in number of modular spacings Solution S	Voltage type		AC
Concurrently switching neutral conductor  With interlocking device  No Over voltage category  Pollution degree  Ambient temperature during operating  Concurrently switching neutral conductor  CC -25 - 40  Width in number of modular spacings  Built-in depth  Flush-mounted installation  Anti-nuisance tripping version  Connectable conductor cross section solid-core  No Degree of protection (IP)  Connectable conductor cross section solid-core  No	Frequency		50 Hz
With interlocking device  Over voltage category  Pollution degree  Ambient temperature during operating  °C -25 - 40  Width in number of modular spacings  Built-in depth  Flush-mounted installation  Anti-nuisance tripping version  Overgree of protection (IP)  Connectable conductor cross section solid-core  No  No  No  No  Polyment of modular spacings  No  Polyment of modular sp	Release characteristic		В
Over voltage category  Over voltage category  2 Ambient temperature during operating  °C -25 - 40  Width in number of modular spacings  Built-in depth  Flush-mounted installation  Anti-nuisance tripping version  Ougree of protection (IP)  Connectable conductor cross section solid-core  3  C -25 - 40  No  No  No  No  No  IP20  Connectable conductor cross section solid-core  mm² 1 - 25	Concurrently switching neutral conductor		No
Pollution degree 2 Ambient temperature during operating °C -25 - 40 Width in number of modular spacings 2 Built-in depth mm 75.5 Flush-mounted installation No Anti-nuisance tripping version No Degree of protection (IP) IP20 Connectable conductor cross section solid-core mm² 1 - 25	With interlocking device		No
Ambient temperature during operating  C -25 - 40  Width in number of modular spacings  2  Built-in depth  mm 75.5  Flush-mounted installation  No  Anti-nuisance tripping version  Degree of protection (IP)  Connectable conductor cross section solid-core  mm² 1 - 25	Over voltage category		3
Width in number of modular spacings  Built-in depth  mm  75.5  Flush-mounted installation  Anti-nuisance tripping version  Degree of protection (IP)  Connectable conductor cross section solid-core  mm²  1 - 25	Pollution degree		2
Built-in depth mm 75.5 Flush-mounted installation No Anti-nuisance tripping version No Degree of protection (IP) IP20 Connectable conductor cross section solid-core mm² 1 - 25	Ambient temperature during operating	°C	-25 - 40
Flush-mounted installation  Anti-nuisance tripping version  Degree of protection (IP)  Connectable conductor cross section solid-core  mm²  1 - 25	Width in number of modular spacings		2
Anti-nuisance tripping version  No Degree of protection (IP)  Connectable conductor cross section solid-core  No IP20  1 - 25	Built-in depth	mm	75.5
Degree of protection (IP)  Connectable conductor cross section solid-core mm² 1 - 25	Flush-mounted installation		No
Connectable conductor cross section solid-core mm² 1 - 25	Anti-nuisance tripping version		No
	Degree of protection (IP)		IP20
Connectable conductor cross section multi-wired mm <sup>2</sup> 1 - 25	Connectable conductor cross section solid-core	mm²	1 - 25
	Connectable conductor cross section multi-wired	mm <sup>2</sup>	1 - 25