

## Eaton 170456

Eaton Moeller series xEffect - FRCmM Type AC, A, U, R RCCB. Residual current circuit breaker (RCCB), 80A, 4p, 30mA, type U

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PRODUCT NAME	Eaton Moeller series xEffect - FRCmM Type AC, A, U, R RCCB
CATALOG NUMBER	170456
PRODUCT LENGTH/DEPTH	80 mm
PRODUCT HEIGHT	76 mm
PRODUCT WIDTH	70 mm
PRODUCT WEIGHT	0.386 kg
COMPLIANCES	RoHS conform
CERTIFICATIONS	IEC/EN 61008



USED WITH	Type U Residual current circuit breakers FRCmM
AMPERAGE RATING	80 A
FEATURES	Residual current circuit breaker Additional equipment possible
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.
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 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

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to evaluated.  10.2.7 INSCRIPTIONS  10.3 DEGREE OF PROTECTION OF ASSEMBLIES  10.4 CLEARANCES AND CREEPAGE DISTANCES  10.5 PROTECTION AGAINST ELECTRIC SHOCK  10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS  10.7 INTERNAL ELECTRICAL CIRCUITS AND COMPONENTS  10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS  10.9.2 POWER-REQUENCY ELECTRIC STRENGTH  10.9.3 IMPULSE WITHSTAND VOLTAGE  10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL  FITTED WITH: Interlocking device  MOUNTING METHOD  10.1 Ret evaluated.  10.1 INTERNAL Is the panel builder's responsibility.  10.2 POWER-REQUENCY ELECTRIC STRENGTH  10.3 IMPULSE Is the panel builder's responsibility.  10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL  FITTED WITH: Interlocking device  POLLUTION DEGREE  2  MOUNTING METHOD  CLIMATIC PROOFING  ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX  BUILT-IN WIDTH  70 mm (4 SU)  MOUNTING WITH  10 kA  BUILT-IN WIDTH  70 mm (4 SU)		
10.3. DEGREE OF PROTECTION OF ASSEMBLIES  10.4 CLEARANCES AND CREEPAGE DISTANCES  10.5 PROTECTION AGAINST ELECTRIC SHOCK  10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS  10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS  10.8 CONNECTIONS  10.9.2 POWER- REQUENCY ELECTRIC STRENGTH  10.9.3 IMPULSE WITHSTAND VOLTAGE  FRAME  45 mm  FREQUENCY RATING  FREQUENCY FREATING		
PROTECTION OF ASSEMBLIES  10.4 CLEARANCES AND CREEPAGE DISTANCES  10.5 PROTECTION AGAINST ELECTRIC SHOCK  10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS  10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS  10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS  10.9.2 POWER- FREQUENCY ELECTRIC STRENGTH  10.9.3 IMPULSE WITHSTAND VOLTAGE FRAME  45 mm  FREQUENCY RATING  FREQUENCY RATING  FOR LUCISURES MADE OF INSULATING MATERIAL  FITTED WITH:  Interlocking device  FRAME  45 mm  FREQUENCY RATING  FOLLOTIONS  CLIMATIC PROOFING  EQUIPMENT HEAT DISSIPATION, CURRENT- DEPENDENT  RATED SHORT-TIME WITHSTAND VOLTAGE (UIMP)  RATED SHORT-TIME WITHSTAND CURRENT (ICV)  ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX  Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated.  Is the panel builder's responsibility.  Interlocking device  FRAME  45 mm  FO Hz / 60 Hz 50 Hz  POLLUTION DEGREE  2  DIN rail Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715  25-55 °C / 90-95% relative humidity according to IEC 60068-2  EQUIPMENT HEAT DISSIPATION, CURRENT- DEPENDENT  RATED IMPULSE WITHSTAND VOLTAGE (UIMP)  RATED SHORT-TIME WITHSTAND VOLTAGE (UIMP)  RATED SHORT-TIME WITHSTAND CURRENT (ICV)  ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX  80 A gG/gL	10.2.7 INSCRIPTIONS	•
CREEPAGE DISTANCES       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.         10.9.2 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.         FITTED WITH:       Interlocking device         FRAME       45 mm         FREQUENCY RATING       50 Hz / 60 Hz 50 Hz         POLLUTION DEGREE       2         MOUNTING METHOD       Unit rail Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715         CLIMATIC PROOFING       25-55 °C / 90-95% relative humidity according to IEC 60068-2         EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT       18.8 W         RATED IMPULSE WITHSTAND VOLTAGE (UIMP)       4 kV (1.2/50 μ s) 4 kV         RATED SHORT-TIME WITHSTAND CURRENT (ICW)       4 kV         ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX       80 A	PROTECTION OF	entire switchgear needs to
AGAINST ELECTRIC SHOCK  10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS  10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS  10.8 CONNECTIONS  10.8 CONNECTIONS  10.9.2 POWER- FREQUENCY ELECTRIC STRENGTH  10.9.3 IMPULSE WITHSTAND VOLTAGE  FITTED WITH:  FITTED WITH:  FREQUENCY RATING  FREQUENCY RATING  POLLUTION DEGREE  MOUNTING METHOD  CLIMATIC PROOFING  ENCLOSURES MADE OF INSULATING METHOD  CLIMATIC PROOFING  CLIMATIC PROOFING  CLIMATIC PROOFING  RATED IMPULSE WITHSTAND VOLTAGE  WITHSTAND VOLTAGE  AS mm  FREQUENCY RATING  FREQUENCY RATING  CLIMATIC PROOFING  CLIMATIC PROOFING  A kV (1.2/50 \mu s) 4 kV  A bMISSIBLE BACK-UP FUSE OVERLOAD - MAX  BO A gG/gL  BOSSIBLE BACK-UP FUSE OVERLOAD - MAX  BO A gG/gL		•
SWITCHING DEVICES AND COMPONENTS  10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS  10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS  10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH  10.9.3 IMPULSE Is the panel builder's responsibility.  10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL  FITTED WITH: Interlocking device  FRAME 45 mm  FREQUENCY RATING  FREQUENCY RATING  FREQUENCY RATING  FREQUENCY RATING  FREQUENCY RATING  FOLLUTION DEGREE  DIN rail Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715  CLIMATIC PROOFING  CLIMATIC PROOFING  CLIMATIC PROOFING  CLIMATIC PROOFING  A kV (1.2/50 \mu s) 4 kV  ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX  BO A gG/gL	AGAINST ELECTRIC	entire switchgear needs to
ELECTRICAL CIRCUITS AND CONNECTIONS  10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS  10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH  10.9.3 IMPULSE WITHSTAND VOLTAGE  10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL  FITTED WITH: Interlocking device  FRAME 45 mm  FREQUENCY RATING  FREQUENCY RATING  FREQUENCY RATING  FOLLUTION DEGREE  MOUNTING METHOD  CLIMATIC PROOFING  CLIMATIC PROOFING  CLIMATIC PROOFING  CLIMATIC PROOFING  CLIMATIC PROOFING  A kV (1.2/50 \mu s) 4 kV  A kV (1.2/50 \mu s) 4 kV  FRATED SHORT-TIME WITHSTAND CURRENT (ICW)  RATED SHORT-TIME WITHSTAND CURRENT (ICW)  ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX  Is the panel builder's responsibility.  Is the panel builder's responsible to panel builder's responsibility.  Is the panel builder's responsibil	SWITCHING DEVICES AND	entire switchgear needs to
TEXTERNAL CONDUCTORS  10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH  10.9.3 IMPULSE Is the panel builder's responsibility.  10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL  FITTED WITH: Interlocking device  FRAME 45 mm  FREQUENCY RATING 50 Hz / 60 Hz / 50 Hz  POLLUTION DEGREE 2  MOUNTING METHOD UICk attachment with 2 latch positions for DIN-rail lEC/EN 60715  CLIMATIC PROOFING 25-55 °C / 90-95% relative humidity according to IEC 60068-2  EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT  RATED IMPULSE WITHSTAND VOLTAGE (UIMP)  RATED SHORT-TIME WITHSTAND CURRENT (ICW)  ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX  10 kA gG/gL	ELECTRICAL CIRCUITS	•
FREQUENCY ELECTRIC STRENGTH  10.9.3 IMPULSE WITHSTAND VOLTAGE  10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL  FITTED WITH: Interlocking device  FRAME 45 mm  FREQUENCY RATING 50 Hz / 60 Hz 50 Hz  POLLUTION DEGREE 2  MOUNTING METHOD 21 DIN rail Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715  CLIMATIC PROOFING 25-55 °C / 90-95% relative humidity according to IEC 60068-2  EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT RATED IMPULSE WITHSTAND VOLTAGE (UIMP)  RATED SHORT-TIME WITHSTAND CURRENT (ICW)  ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX  10 kA  80 A gG/gL		•
WITHSTAND VOLTAGE         10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL         FITTED WITH:       Interlocking device         FRAME       45 mm         FREQUENCY RATING       50 Hz / 60 Hz / 50 Hz         POLLUTION DEGREE       2         MOUNTING METHOD       DIN rail Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715         CLIMATIC PROOFING       25-55 °C / 90-95% relative humidity according to IEC 60068-2         EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT       18.8 W         RATED IMPULSE WITHSTAND VOLTAGE (UIMP)       4 kV (1.2/50 μ s) 4 kV         RATED SHORT-TIME WITHSTAND CURRENT (ICW)       10 kA         ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX       80 A gG/gL	FREQUENCY ELECTRIC	
Is the panel builder's responsibility.  FITTED WITH: Interlocking device  FRAME 45 mm  FREQUENCY RATING 50 Hz / 60 Hz 50 Hz  POLLUTION DEGREE 2  MOUNTING METHOD 2 DIN rail Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715  CLIMATIC PROOFING 25-55 °C / 90-95% relative humidity according to IEC 60068-2  EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT 18.8 W  RATED IMPULSE WITHSTAND VOLTAGE (UIMP) 4 kV (1.2/50 µ s) 4 kV  ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX 80 A gG/gL		•
FRAME  FREQUENCY RATING  FREQUENCY RATING  FREQUENCY RATING  50 Hz / 60 Hz 50 Hz  POLLUTION DEGREE  2  MOUNTING METHOD  DIN rail Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715  25-55 °C / 90-95% relative humidity according to IEC 60068-2  EQUIPMENT HEAT DISSIPATION, CURRENT- DEPENDENT  RATED IMPULSE WITHSTAND VOLTAGE (UIMP)  RATED SHORT-TIME WITHSTAND CURRENT (ICW)  ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX  80 A gG/gL	ENCLOSURES MADE OF	•
FREQUENCY RATING  50 Hz / 60 Hz 50 Hz  POLLUTION DEGREE  2  MOUNTING METHOD  DIN rail Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715  25-55 °C / 90-95% relative humidity according to IEC 60068-2  EQUIPMENT HEAT DISSIPATION, CURRENT- DEPENDENT  RATED IMPULSE WITHSTAND VOLTAGE (UIMP)  RATED SHORT-TIME WITHSTAND CURRENT (ICW)  ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX  80 A gG/gL	FITTED WITH:	Interlocking device
POLLUTION DEGREE  POLLUTION DEGREE  DIN rail Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715  CLIMATIC PROOFING  CLIMATIC PROOFING  25-55 °C / 90-95% relative humidity according to IEC 60068-2  EQUIPMENT HEAT DISSIPATION, CURRENT- DEPENDENT  RATED IMPULSE WITHSTAND VOLTAGE (UIMP)  RATED SHORT-TIME WITHSTAND CURRENT (ICW)  ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX  POLICY Attachment with 2 latch positions for DIN-rail RATEO SHORT-TIME VILLE AND SHORT SHOR	FRAME	45 mm
MOUNTING METHOD  DIN rail Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715  25-55 °C / 90-95% relative humidity according to IEC 60068-2  EQUIPMENT HEAT DISSIPATION, CURRENT- DEPENDENT  RATED IMPULSE WITHSTAND VOLTAGE (UIMP)  RATED SHORT-TIME WITHSTAND CURRENT (ICW)  ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX  DIN rail Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715  25-55 °C / 90-95% relative humidity according to IEC 60068-2  4 kV (1.2/50 μ s) 4 kV  10 kA	FREQUENCY RATING	
MOUNTING METHOD       Quick attachment with 2 latch positions for DIN-rail IEC/EN 60715         CLIMATIC PROOFING       25-55 °C / 90-95% relative humidity according to IEC 60068-2         EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT       18.8 W         RATED IMPULSE WITHSTAND VOLTAGE (UIMP)       4 kV (1.2/50 μ s) 4 kV         RATED SHORT-TIME WITHSTAND CURRENT (ICW)       10 kA         ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX       80 A gG/gL	POLLUTION DEGREE	2
CLIMATIC PROOFING humidity according to IEC 60068-2  EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT  RATED IMPULSE WITHSTAND VOLTAGE (UIMP)  RATED SHORT-TIME WITHSTAND CURRENT (ICW)  ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX	MOUNTING METHOD	Quick attachment with 2 latch positions for DIN-rail
DISSIPATION, CURRENT- DEPENDENT  RATED IMPULSE WITHSTAND VOLTAGE (UIMP)  RATED SHORT-TIME WITHSTAND CURRENT (ICW)  ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX  18.8 W  4 kV (1.2/50 µ s) 4 kV  10 kA	CLIMATIC PROOFING	humidity according to IEC
WITHSTAND VOLTAGE (UIMP)  RATED SHORT-TIME WITHSTAND CURRENT (ICW)  ADMISSIBLE BACK-UP FUSE OVERLOAD - MAX  4 kV (1.2/50 µ s) 4 kV  (1.2/50 µ s) 4 kV  (1.2/50 µ s)  4 kV  (1.2/50 µ s)  8 kA  80 A gG/gL	DISSIPATION, CURRENT-	18.8 W
WITHSTAND CURRENT 10 kA (ICW)  ADMISSIBLE BACK-UP 80 A gG/gL	WITHSTAND VOLTAGE	•
FUSE OVERLOAD - MAX	WITHSTAND CURRENT	10 kA
BUILT-IN WIDTH 70 mm (4 SU)		80 A gG/gL
	BUILT-IN WIDTH	70 mm (4 SU)

(NUMBER OF UNITS)	
BUSBAR MATERIAL THICKNESS	0.8 mm - 2 mm
SHORT-CIRCUIT RATING	80 A (max. admissible back-up fuse)
STATUS INDICATION	White / blue
TERMINAL PROTECTION	Finger and hand touch safe, DGUV VS3, EN 50274
TERMINALS (TOP AND BOTTOM)	Twin-purpose terminals
TEST CIRCUIT RANGE	196 V AC - 264 V AC
AMBIENT OPERATING TEMPERATURE - MAX	75 °C
AMBIENT OPERATING TEMPERATURE - MIN	-25 °C
BUILT-IN DEPTH	70.5 mm
CONNECTABLE CONDUCTOR CROSS SECTION (MULTI-WIRED) - MAX	16 mm²
CONNECTABLE CONDUCTOR CROSS SECTION (MULTI-WIRED) - MIN	1.5 mm²
CONNECTABLE CONDUCTOR CROSS SECTION (SOLID-CORE) - MAX	35 mm²
CONNECTABLE CONDUCTOR CROSS SECTION (SOLID-CORE) - MIN	1.5 mm²
FAULT CURRENT RATING	30 mA
HEAT DISSIPATION PER POLE, CURRENT- DEPENDENT	4.7 W
PERMITTED STORAGE AND TRANSPORT TEMPERATURE - MAX	60 °C
PERMITTED STORAGE AND TRANSPORT TEMPERATURE - MIN	-35 °C
CONTACT POSITION INDICATOR COLOR	Red / green
MOUNTING POSITION	As required
LIFESPAN, MECHANICAL	20000 operations
DEGREE OF PROTECTION	IP20, IP40 with suitable enclosure IP20
IMPULSE WITHSTAND CURRENT	3 kA (8/20 μs) surge-proof

NUMBER OF POLES	Four-pole
LEAKAGE CURRENT TYPE	A
LIFESPAN, ELECTRICAL	4000 operations
TYPE	FRCmM     Residual current circuit breakers     Type U
SPECIAL FEATURES	<ul> <li>Current test marks as per inscription</li> <li>Maximum operating temperature is 75 °C: Starting at 40 °C, the max. permissible continuous current decreases by 1.2% for every 1 °C</li> </ul>
APPLICATION	Residual current circuit breaker - frequency converter-proof
FUNCTIONS	Short-time delayed tripping
SENSITIVITY TYPE	Pulse-current sensitive, suitable for variable frequency drives
RADIATION RESISTANCE	Suitable for variable frequency drives (enhanced sensitivity)
TERMINAL CAPACITY (CABLE)	M5 (with cross-recessed screw as defined in EN ISO 4757-Z2, PZ2)
RATED FAULT CURRENT - MAX	0.03 A
RATED FAULT CURRENT - MIN	0.03 A
RATED INSULATION VOLTAGE (UI)	440 V
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	80 A
RATED OPERATIONAL VOLTAGE (UE) - MAX	415 V
RATED RESIDUAL MAKING AND BREAKING CAPACITY	800 A
SURGE CURRENT CAPACITY	3 kA
WIDTH IN NUMBER OF MODULAR SPACINGS	4

VOLTAGE RATING (IEC/EN 60947-2)	240 V AC / 415 V AC
TERMINAL CAPACITY (SOLID WIRE)	1.5 mm² - 35 mm²
TRIPPING TIME	Short time-delayed 10 ms delayed
RATED SHORT-CIRCUIT STRENGTH	10 kA with back-up fuse
TIGHTENING TORQUE	2 Nm - 2.4 Nm
TERMINAL CAPACITY (STRANDED CABLE)	16 mm² (2x)

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
ПП•	



Eaton House 30 Pembroke Road Dublin 4, □□□ Eaton.com

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