DNV·GL

Certificate No:
TAE000011B

TYPE APPROVAL CERTIFICATE

This is to certify:

That the RCD - Residual Current Device

with type designation(s)
Combined RCD/MCB Devices FRBdM, FRBmM, FRBm4, FRBm6

Issued to
Eaton Industries (Austria) GmbH
Schrems, Austria

is found to comply with
DNV GL rules for classification – Ships and offshore units

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **2021-05-10**.

Issued at **Hamburg** on **2016-05-11**

for **DNV GL**

DNV GL local station: **Augsburg**

Approval Engineer: **Harald Amberger**

Duy Nam Le
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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Product description

Combined RCD/MCB Devices FRBdM, 1+N-, 2-poles Type A Digital

Operating characteristics	Type A acc. to IEC 61009 Type G acc. to ÖVE E 8601
Tripping line voltage-independent Type G	10 ms delay 3kA (8/20µs), surge current-proof
Ratings (40°C)	
Rated voltage (U_n)	240V AC, 50Hz
Rated impule withstand voltage (U_{imp})	4kV
Rated insulation voltage (U_i)	440V
Rated current (I_n)	6 - 25A
Rated tripping current ($I_{\Delta n}$)	10, 30, 100 mA
Characteristic	B, C, D
Sensitivity	AC and pulsating DC
Rated breaking capacity (I_{cn})	10kA
Max. back-up fuse (short circuit)	100A gL (>10kA)

Combined RCD/MCB Devices FRBmM, 1+N-pole

Operating characteristics	Type A, AC acc. to IEC 61009 Type G acc. to ÖVE E 8601
Tripping line voltage-independent	instantaneous 250A (8/20µs), surge current-proof
Type G	10 ms delay 3kA (8/20µs), surge current-proof
Ratings (40°C)	
Rated voltage (U_n)	240V AC, 50Hz
Rated impule withstand voltage (U_{imp})	4kV
Rated insulation voltage (U_i)	440V
Rated current (I_n)	2 - 40A
Rated tripping current ($I_{\Delta n}$)	10, 30, 100, 300 mA
Characteristic	B, C, D
Sensitivity	AC and pulsating DC
Rated breaking capacity (I_{cn})	10kA
Max. back-up fuse (short circuit)	100A gL (>10kA)

Combined RCD/MCB Devices FRBmM, FRBm6, 2-pole, Type AC, A

Operating characteristics	Type A, AC acc. to IEC 61009
Tripping line voltage-independent	instantaneous 250A (8/20µs), surge current-proof
Type Super A	10 ms delay, surge current-proof
Ratings (40°C)	
Rated voltage (U_n)	240V AC, 50Hz
Rated impule withstand voltage (U_{imp})	4kV
Rated insulation voltage (U_i)	440V
Rated current (I_n)	6 - 40A
Rated tripping current ($I_{\Delta n}$)	30, 100, 300 mA
Characteristic	B, C
Sensitivity	AC and pulsating DC
Rated breaking capacity (I_{cn})	
FRBmM	10kA
FRBm6	6kA
Max. back-up fuse (short circuit)	100A gL (>10kA)

Combined RCD/MCB Devices FRBmM, 3-pole, Type A

Operating characteristics	Type A acc. to IEC 61009 Type G acc. to ÖVE E 8601
Tripping line voltage-independent	instantaneous 250A (8/20µs), surge current-proof
Type G	10 ms delay, surge current-proof
Ratings (40°C)	
Rated voltage (U_n)	240/415V AC, 50Hz
Rated impule withstand voltage (U_{imp})	4kV
Rated insulation voltage (U_i)	440V
Rated current (I_n)	6 - 32A
Rated tripping current ($I_{\Delta n}$)	30, 100 mA
Characteristic	B, C, D
Sensitivity	AC and pulsating DC
Rated breaking capacity (I_{cn})	10kA
Max. back-up fuse (short circuit)	100A gL (>10kA)

Combined RCD/MCB Devices FRBm6, FRBm4, 3+N-pole, Type AC and A

Operating characteristics	Type A, AC acc. to IEC 61009
Tripping line voltage-independent	instantaneous 250A (8/20µs), surge current-proof N protected.
Ratings (40°C)	
Rated voltage (U_n)	240/415V AC, 50Hz
Rated impule withstand voltage (U_{imp})	4kV
Rated insulation voltage (U_i)	440V
Rated current (I_n)	6 - 32A
Rated tripping current ($I_{\Delta n}$)	30, 100, 300 mA
Characteristic	B, C, D
Sensitivity	AC and pulsating DC
Rated breaking capacity (I_{cn})	
FRBm4	4,5kA
FRBm6	6kA
Max. back-up fuse (short circuit)	100A gL (>10kA)

Further technical ratings and type spectrum acc. manufacturer documentation.

Application/Limitation

Type Approval documentation
Tests carried out

IEC/EN 61009-1:2004+A11:2008+A12:2009:+A13:2009+A14:2012
IEC/EN 61009-2-1:1994+A11:1998, OVE/ONORM E 8601:2001-02-01 (type G)
Temperature Class C, Humitity Class A, Vibration Class B, EMC Class A, acc. DNVGL-CG-0339

Marking of product

Eaton – type designation - voltage – frequency – current – tripping current – operating characteristic

Job Id: **262.1-020860-1**
Certificate No: **TAE000011B**

Name and place of manufacturer

Eaton Industries (Austria) GmbH
Eugenia 1,
3943 Schrems, Austria

Eaton Electrotechnika s.r.o.
Havlickova 89,
37806 Suchdol nad Luznici, Czech Republic

Eaton Electro Productie s.r.l.
Str. Independentei Nr. 8,
Sarbi 437155, Maramures, Romania

Eaton Electric doo
Branch Sremska Mitrovica, Rumski drum 13,
22000 Sremska Mitrovica, Serbia, Republic of

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable).
- Results from Production Sample Tests (PST) and Routines (RT) checked (if not available tests according to PST and RT to be carried out).
- Review of type approval documentation.
- Review of possible change in design, materials and performance.
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Assessment to be performed at least every second year.

END OF CERTIFICATE