DNV·GL

Certificate No:
TAE0000119

TYPE APPROVAL CERTIFICATE

This is to certify:

That the RCD - Residual Current Device

with type designation(s)
FRCmM, FRCmM-NA, FRCmM-NA-110

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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Job Id: **262.1-020862-1**
Certificate No: **TAE0000119**

Product description

Residual Current Devices FRCmM Type AC, A, U and R

Operating characteristics	Type A, AC acc. to IEC 61008 Type G, G/A acc. to ÖVE E 8601	
Tripping class	Instantaneous	
Type G, R	10ms delay	
Type S	40ms delay - with selective disconnecting function	
Type U (only 30mA)	10ms delay	
Type U (except 30mA)	40ms delay - with selective disconnecting function	
Ratings (40°C)		
Rated voltage (U_n)	240/415V AC, 50Hz	
Rated impule withstand voltage (U_{imp})	4kV	
Rated insulation voltage (U_i)	440V	
Number of poles	two / four pole	
Rated current (I_n)	16, 25, 40, 63, 80, 100A	
Rated tripping current ($I_{\Delta n}$)	30, 100, 300, 500mA	
Sensitivity	AC and pulsating DC	
Rated short circuit capacity (I_{CN})	10kA with back-up fuse	
	Short circuit- /	overload protection
Max. back-up fuse: I_n = 25A	25A gG/gL	25A gG/gL
Max. back-up fuse: I_n = 40A	40A gG/gL	40A gG/gL
Max. back-up fuse: I_n = 63A	63A gG/gL	63A gG/gL
Max. back-up fuse: I_n = 80A	80A gG/gL	80A gG/gL
Max. back-up fuse: I_n = 100A	100A gG/gL	80A gG/gL

Further technical ratings and type spectrum acc. manufacturer documentation.

Residual Current Devices FRCmM-NA Type A

Operating characteristics	Type A acc. to IEC 61008 Type G, G/A acc. to ÖVE E 8601	
Tripping class	Instantaneous	
Type G	10ms delay at 50Hz	
Ratings (40°C)		
Rated voltage (U_n)	240/415V AC, 50/60Hz	
Rated impule withstand voltage (U_{imp})	4kV	
Rated insulation voltage (U_i)	440V	
Number of poles	two / four pole	
Rated current (I_n)	25, 40, 63A	
Rated tripping current ($I_{\Delta n}$)	30, 300mA	
Sensitivity	AC and pulsating DC	
Rated short circuit capacity (I_{CN})	10kA with back-up fuse	
	Short circuit- /	overload protection
Max. back-up fuse: I_n = 25A	63A gG/gL	25A gG/gL
Max. back-up fuse: I_n = 40A	63A gG/gL	40A gG/gL
Max. back-up fuse: I_n = 63A	63A gG/gL	40A gG/gL

Further technical ratings and type spectrum acc. manufacturer documentation.

Residual Current Devices FRCmM-NA-110 Type A

Operating characteristics	Type A acc. to IEC 61008 Type G, G/A acc. to ÖVE E 8601	
Tripping class	Instantaneous	
Type G	10ms delay at 50HZ	
Ratings (40°C)		
Rated voltage (U_n)	110/190V AC, 50/60Hz	
Rated impule withstand voltage (U_{imp})	4kV	
Rated insulation voltage (U_i)	440V	
Number of poles	two / four pole	
Rated current (I_n)	25, 40, 63A	
Rated tripping current ($I_{\Delta n}$)	30, 300mA	
Sensitivity	AC and pulsating DC	
Rated short circuit capacity (I_{CN})	10kA with back-up fuse	
	Short circuit- /	overload protection
Max. back-up fuse: I_n = 25A	63A gG/gL	25A gG/gL
Max. back-up fuse: I_n = 40A	63A gG/gL	40A gG/gL
Max. back-up fuse: I_n = 63A	63A gG/gL	40A gG/gL

Further technical ratings and type spectrum acc. manufacturer documentation.

Application/Limitation

Type Approval documentation
Tests carried out

IEC 61008-1(ed.3);am1, 61008-2-1(ed.1), 61008-2-2(ed.1), ÖVE/ÖNORM E 8601:2001-02-01 (type G)
Temperature Class C, Humitity Class A, Vibration Class B, acc. DNVGL-CG-0339

Marking of product

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

Name and place of manufacturer

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