

TYPE APPROVAL CERTIFICATE

This is to certify:

That the RCD - Residual Current Device

with type designation(s)
FRCdM

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**

DNV GL local station: **Augsburg**

Approval Engineer: **Harald Amberger**

for **DNV GL**

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.

Product description

Residual Current Devices FRCdM Type A, U and R, Digital

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

Further technical ratings and type spectrum acc. manufacturer documentation.

Residual Current Devices FRCdM Type B, Bfq and B+, Digital

Operating characteristics	Type B, Bfq acc. to IEC 61008, IEC 62423 Type B+ acc. to VDE 0664-400 Type G, G/A acc. to ÖVE E 8601 Type G/B, G/Bfq, G/B+ additional acc. to ÖVE E 8601
Tripping characteristics	Instantaneous
Type G	10 ms delay
Type S	40 ms delay - with selective disconnecting function
Ratings (40°C)	
Rated voltage (U_n)	240/415V AC, 50Hz; 4poles
Rated impulse withstand voltage (U_{imp})	4kV
Rated insulation voltage (U_i)	440V
Rated current (I_n)	25, 40, 63A
Rated tripping current ($I_{\Delta n}$)	30, 300mA
Sensitivity	All types of current
Rated short circuit capacity (I_{CN})	10kA with back-up fuse
Max. back-up fuse: $I_n = 25-63A$	63A gG/gL

Further technical ratings and type spectrum acc. manufacturer documentation.

Application/Limitation

Job Id: **262.1-020861-1**
Certificate No: **TAE0000117**

Type Approval documentation

Tests carried out

IEC 62423(ed.2), 61008-1(ed.3);am1, 61008-2-1(ed.1), 61008-2-2(ed.1)
DIN VDE 0664-400:2012-05 (Type B+), ÖVE/ÖNORM E 8601:2001-02-01 (Type G)
Temperature Class C, Humidity 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

Name and place of manufacturer

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

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