



Marine & Offshore
Division

Certificate number: 07644/D0 BV

File number: ACE 10/120/02

Product code: 2658H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

DEIF A/S

Skive - DENMARK

for the type of product

GENERATOR CONTROL AND PROTECTION UNITS

Generator control and protection units, type Uni - Line.

Requirements:

BV Rules for the Classification of Steel Ships.

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 14 Nov 2019

For BUREAU VERITAS,

At BV FREDERICIA, on 14 Nov 2014,

Jesper Jensen



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine & Offshore Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 October 2014

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

Voltage relays:

RMV - 112 D (under / overvoltage protection),
 RMV - 122 D (overvoltage protection),
 RMV - 132 D (undervoltage protection),
 RMV - 142 D (under / overvoltage protection).

Current relays:

RMC - 111 D (short circuit relay),
 RMC - 121 D (short circuit current relay),
 RMC - 122 D (overcurrent and short circuit relay),
 RMC - 131 D (differential current relay),
 RMC - 132 D (dual overcurrent relay),
 RMC - 142 D (stator earth fault relay).

Power relays:

RMP - 111 D (overload relay),
 RMP - 112 D (overload / reverse power relay),
 RMP - 121 D (reverse power relay),
 RMQ - 111 D (loss of excitation relay),
 RMQ - 121 D (overexcitation relay).

Synchronizers and accessories:

FAS - 113 DG (synchronizer),
 FAS - 115 DG (synchronizer),
 FAS - 125 DG (synchronizer),
 HAS - 111 DG (paralleling relay),
 EPN - 110 DN (electronic potentiometer).

Load sharing units:

LSU - 112 DG (load sharing unit),
 LSU - 113 DG (load sharing unit and -P> protection),
 LSU - 114 DG (load sharing unit and start/stop outputs),
 LSU - 122 DG (var load sharing unit).

Other relays:

RMF - 112 D (frequency relay),
 LMR - 111 D (loss of mains relay),
 LMR - 122 D (loss of mains relay),
 RMT - 111 Q 96 (phase sequence relay),
 G 59 (protection relay package).

2. DOCUMENTS AND DRAWINGS :

2.1 - DEIF A/S data sheets N°s:

4921240096D/F, 4921240102D/E, 4921240104F/H, 4921240106F/H, 4921240108E/F,
 4921240110E/F, 4921240112D/F, 4921240114D/G, 4921240116D/F/G, 4921240118D/F,
 4921240120F/H, 4921240122D/F, 4921240124D/F, 4921240126E/F, 4921240128D/E,
 4921240131F, 4921240141D, 4921240144D/F, 4921240148C/E, 4921240214D,
 4921240217D, 4921240220C, 4921240223B/C, 4921240260A/B and 4921240130N.

2.2 - DEIF A/S drawings N°s:

- 4157200374 Rev. C, 4157200358 Rev. B, 4157200375 Rev. C,
- 4157200378 Rev. D, 4157200379 Rev. D.

2.3 - DEIF A/S minor changes list ref. N° 20040220/NMJ.

2.4 - User Documentation ref. IPA0274-04W.

3. TEST REPORTS :

DEIF A/S test reports N°s:

- 3A1 dated 16.01.2004, 4A1 dated 16.01.2004, 6A1 dated 16.01.2004,
- 9A1 dated 16.01.2004, 14A1 and 14A2 dated 16.01.2004, 15A1 and
- 15A2 dated 21.10.2003, 16A dated 20.02.2004 and 27.08.2009, 18A1 dated 23.02.2004,
- 1A2 dated 04.09.2008, 1B1 to 1B4 dated 18.02.2004, 2B1 dated 18.02.2004, 2B2 to 2B6 dated 05-09-2008,
- 5B1 dated 18.02.2004, 6B1 to 6B8 dated 18.02.2004, 9B dated 18.02.2004,
- 10B and 12B dated 18.02.2004, 13B and 15B dated 18.02.2004, 16B dated 18.02.2004.
- 2A1, 2A2, 2A3, 2A4, dated 15.Feb.2012.

4. APPLICATION / LIMITATION :

BV Rules for the Classification of Steel Ships.

5. PRODUCTION SURVEY REQUIREMENTS :

- 5.1 - The **Generator control and protection units, type Uni - Line** are to be supplied by **DEIF A/S** in compliance with the type described in this certificate.
- 5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320.
- 5.3 - **DEIF A/S** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products :

DEIF A/S
Frisenborgvej 33
DK-7800 Skive
DENMARK

6. MARKING OF PRODUCT :

- Maker's name or trade mark.
- Serial number of the units.
- Equipment type number or model identification under which it was type-tested.

7. OTHERS :

- 7.1 - This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the units at any time and that **DEIF A/S (Skive - DENMARK)** will accept full responsibility for informing shipbuilders, shipowners or their sub-contractors of the proper methods of use and general maintenance of the units and the conditions of this approval.
- 7.2 - This Certificate supersedes the Type Approval Certificate N° 07644/C0 BV issued on 02.11.2009. by the Society.

*** END OF CERTIFICATE ***



MARINE
DIVISION

DEIF A/S
Frisenborgvej 33
7800 Skive

Att: Jørn Karl Sternberg

Our ref.: FRC/MLY/19112014

Subject: Type Approval Certificate

Date: 19.11.2014

Please find enclosed the following Type Approval Certificate:

<u>Certificate No.</u>	<u>File No.</u>	<u>Product code.</u>	<u>Product</u>
07644/D BV	ACE 10/120/02	2658H	Generator Control & Protection Units.

Please also find enclosed our Client invoice which covers our fees for the above mentioned certificate.

Kind regards

Maybritt Lyndrup
BUREAU VERITAS

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