



Marine & Offshore

Certificate number: 28021/B0 BV

File number: AP4298

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
MECC ALTE SPA
 Creazzo (VI) - ITALY

for the type of product
GENERATOR CONTROL AND PROTECTION UNITS
 Digital Voltage Regulator DSR

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships

EC Code : 33

This certificate is issued to attest that Bureau Veritas Marine & Offshore 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: 16 Jul 2023

For Bureau Veritas Marine & Offshore,

At BV VENEZIA, on 16 Jul 2018,

Sandro BRUSEGAN



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 Marine & Offshore. 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 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 Marine & Offshore 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 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

The **DIGITAL VOLTAGE REGULATOR DSR** hardware includes the following units:

1.1 Main Characteristics

- Variable voltage supply: from 40 Vac up to 270 Vac.
- Maximum continuous output current of 4 Adc.
- Working ambient temperature: from -25°C up to +70°C.
- Single-phase sensing.
- Regulation from 15 Hz up to 72 Hz.
- Under speed protection.
- Protection of excitation over current.
- Management of short circuit.
- Management of asynchronous motors starting.
- Alarms list : Checksum Eeprom, Over Voltage, Under Voltage, Short Circuit, Over Excitation, Under Excitation, Under Speed, Over Speed
- Installation in terminal Box, with minimum protection index IP33.

1.2 - Embedded Software Version: 18

2. DOCUMENTS AND DRAWINGS:

- Instruction Manual Digital DSR Digital Regulator Rev 3
- Self-regulating alternators series ECO-ECP - Operating and maintenance instructions - September 2012 Rev 32
- Digital regulators firmware releases - 24/05/2016

3. TEST REPORTS:

- Type test report for certification of DSR:
- EMC tests report 72667LP issued on 25/06/2007 by CREI Ven Scarl
- Functional, Environmental and EMC Test report 122169LP issued on 31/07/2012 by CREI Ven Scarl
- Vibration Test Report T211-0101/12 issued on 16/03/2012 by Slovenian Institute of Quality and Metrology
- Report of IACS UR E22 verification issued at MECC ALTE S.p.A. on 06/11/2012
- Fault test report RT-DSR_BV_fault_test_eng.doc rev 0 - issued at MECC ALTE S.p.A. on 06/11/2012

4. APPLICATION / LIMITATION:

- 4.1 - BUREAU VERITAS Rules and Regulations for the Classification of Steel Ships.
- 4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**
- 4.3 - BUREAU VERITAS Environmental category : **EC 33.**
- 4.4 - The equipment fulfils the EMC requirements for installation in General power Distribution Zones.
- 4.5 - The equipment fulfils requirements of Hardware and Software of electronic programmable system Category III.
- 4.6 - In case of AUT notations issuance, machinery protection required by the Rules and based on data processing techniques are to be duplicated by another and different system.
- 4.7 - The equipment, once installed on board ship, is to be tested in accordance with the above referred Regulations applicable to system category III, under the supervision of a Society's Surveyor.
- 4.8 - Only Hardware and Firmware / Software successfully tested together in compliance with the regulations as referred to in page one, according to the declaration of the manufacturer are covered by this certificate. External software tools are not included.

5. PRODUCTION SURVEY REQUIREMENTS:

- 5.1 - The **DIGITAL VOLTAGE REGULATOR DSR** are to be supplied by **MECC ALTE S.p.A.** 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 and as such does not require a BV product certificate.
- 5.3 - **MECC ALTE S.p.A.** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.
- 5.4 - For information, **MECC ALTE S.p.A.** has declared to Bureau Veritas the following production site(s):

MECC ALTE S.p.A.
Via Roma 20,
I-36051 Creazzo (VI)
ITALY

6. MARKING OF PRODUCT:

6.1 - Maker's name or trade mark.

- Date of manufacture and serial number.

- Equipment type number or model identification under which it was type-tested.

6.2 - The title and version of each software element included in the installed software system shall be either marked or displayed on command on the equipment.

7. OTHERS:

7.1 - It is **MECC ALTE S.p.A. Creazzo - Italy**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This certificate supersedes the Type Approval Certificate No. 28021/A0 BV issued on 17 Dec 2012 by the Society.

***** END OF CERTIFICATE *****