



Marine & Offshore

Certificate number: 36554/B0 BV

File number: AP4459

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

LEROY SOMER DEI (Les Agriers)
ANGOULEME - FRANCE

for the type of product

GENERATOR CONTROL AND PROTECTION UNITS
D510C.
Digital voltage regulator

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships.

EC Code: 31.

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: 11 Jul 2024

For Bureau Veritas Marine & Offshore,

At BV BORDEAUX, on 11 Jul 2019,

Gabriel ZIMMER



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.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

D510C is an automatic voltage regulator for Marine and Offshore application.

1.1 - Product's datas:

Name	Minimum value	Maximum value
Battery power supply	11V	30V
Alternator frequency	10Hz	100Hz
Mains frequency	10Hz	100Hz
Single-phase mains voltage	50V	530V
Mains voltage ratio	1	100
Excitation current	0A	6A
Max. excitation current	0A	15A/10s
Single-phase alternator voltage	0V	530V
Three-phase alternator voltage	0V	530V
Alternator current input	1A	5A
Alternator I u	0A	5000A
Alternator I v	0A	5000A
Alternator I w	0A	5000A

1.2 - Software & Firmware:

Firmware version
Up to Firmware 2.60

2. DOCUMENTS AND DRAWINGS:

Software specification N°T430C092 rev.B.

FMEA ref. D500-regulateur digital, dated 03.2008.

3. TEST REPORTS:

Specification	Reports D510 C	Laboratory
Test de performance	CR130114 06 RDE RL rev A	RDE
Power supply failure	CR 13011404 RDE RL revA	RDE
Electrical AC supply	T28BP470	Laboratoire Sillac
Electrical DC supply	CR 13011404 RDE RL revA	RDE
Dry Heat	CR 1301111404 RDE RL revA	RDE
Damp Heat	CR 1301111404 RDE RL revA	RDE
Vibration	R09-10244	Emitech
	T431 T030 revB	RDE
Inclination	R09-10244	Emitech
Cold : 60068-2-1	CR 13011403 RDE RL rev A	RDE
Salt Mist	A5 REE 200 485	Laboratoire Sillac
Electrostatic discharge	R053-14-100737-1-A (00)	Emitech
Radiated Radio Frequency	R053-13-100242-1-A (01)	Emitech
Conducted audio frequency	CR2504 10 RDE RL revA	RDE
Conducted radio frequency: 61000-4-4	R053-14-100737-1-A (00)	Emitech
Burst/fast Transients	R071013 01 RDE RL rev A	RDE
Surge/slow Transient	CR 060514 11 RDE RL revA	RDE
Radiated Emission	R053-14-100737-1-A (00)	Emitech
Conducted Emission	R053-13-100242-1-A (01)	Emitech
Flame retardant	A5-RE-200-526	Laboratoire Sillac
Electrical type test	D510 firmware 2.60 tests	NIDEC

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 Code: 31**
4.4 - The equipment fulfils the EMC requirements for installation in General Power Distribution Zones.
4.5 - The equipment, once installed on board ship, is to be tested in accordance with the above referred Regulations under the supervision of a Society's Surveyor.
4.6 - 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.

5. PRODUCTION SURVEY REQUIREMENTS:

- 5.1 - The **D510C** are to be supplied by **LEROY SOMER DEI (Les Agriers)** 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 - **LEROY SOMER DEI (Les Agriers)** 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, **LEROY SOMER DEI (Les Agriers)** has declared to Bureau Veritas the following production site(s):
LEROY SOMER DEI (Les Agriers)
Zi Agriers
16000 ANGOULEME
FRANCE

6. MARKING OF PRODUCT:

- 6.1 - Trade name.
6.2 - Date of manufacture and serial number.
6.3 - Equipment type or model identification under which it was type-tested

7. OTHERS:

- 7.1 - It is **LEROY SOMER DEI (Les Agriers)** 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. 36554/A2 BV issued on 22 Jun 2018 by the Society.

*** END OF CERTIFICATE ***