



MARINE DIVISION

Certificate number: 36615/A0 BV

File number: AP4472

Product code: 4121H

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

Woodward GmbH
Stuttgart - GERMANY

for the type of product

SYNCHRONISING / LOAD SHARING / LOAD SHEDDING SYSTEMS

Synchronization Units: LS-511 and LS-521

Requirements:

Bureau Veritas 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: 08 Jan 2019

For BUREAU VERITAS,

At BV HAMBURG, on 08 Jan 2014,

Dirk Hoepfner



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 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.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

The **LS-511** and **LS-521** are synchronization units for power management in low voltage applications. They operate in combination with easYgen-3400/3500 units or in stand-alone mode.

Installation of LS-511 unit on a mounting plate within a cabinet or rack and LS-521 unit with soft keys and panel in a cut-out of a cabinet or rack.

Actual software version: V1.03xx

1.1 - Types

Part No.	Type	Features
8440-2076	LS-511-1/P1-Marine	Metal housing, measuring current: 1A
8440-2077	LS-511-5/P1-Marine	Metal housing, measuring current: 5A
8440-2074	LS-521-1/P1-Marine	Graphic display with soft key operation, measuring current: 1A
8440-2075	LS-521-5/P1-Marine	Graphic display with soft key operation, measuring current: 5A

1.2 - Main characteristics

Power supply: 24V DC

Degree of protection: IP20 for rear side and metal housing, IP54 or IP65 for the front of panels

2. DOCUMENTS AND DRAWINGS:

- 37545A dated 2013/01, 37542A dated 2013-03-04
- 639-1100 rev. C dated JUL-2011, 640-1100 rev. A dated JAN-2012
- 9989-4337 rev. A dated MAR-2011, 9989-4268 rev. A dated NOV-2010

3. TEST REPORTS:

ELMAC GmbH:

- 2010-2588-3935-REN dated July 2, 2010; 2010-2588-3939-REN dated July 2, 2010

Institute for International Product Safety GmbH:

- 0900921 dated 2009-10-27

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 by using a filter on power supply lines specified in manual.
- 4.5 - Drawings and documents relating to each application are to be submitted to the Society's examination prior fitting on board.
- 4.6 - Factory Acceptance and On-board Tests are to be performed for each application in accordance with the requirements for Category III Equipment.
- 4.7 - 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 above mentioned units are to be supplied by **Woodward GmbH** 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 - **Woodward GmbH** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products :

Woodward Poland Sp. z o.o.
Ul.Skarbowa 32
32-005 Niepolomice
POLAND

- 5.4 - Each equipment is to be supplied with manual (s) for installation, use and maintenance.

6. MARKING OF PRODUCT:

- Maker's name or trade mark.
- Date of manufacture and/or serial number.
- Equipment type or model identification.
- 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.
- When the title and version of the software are displayed only on the display, such information shall also be included in the equipment manual.

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 **Woodward GmbH - GERMANY**, 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.

*** END OF CERTIFICATE ***