

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Generator Control / Load Share Units

with type designation(s)
easYgen-3400/3500 Marine

Issued to

Woodward GmbH
Stuttgart, Baden-Württemberg, Germany

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Temperature	B
Humidity	B
Vibration	B
EMC	A
Enclosure	Required protection according to Rules shall be provided upon installation on board

Issued at **Hamburg** on **2020-01-07**

This Certificate is valid until **2025-01-06**.

for **DNV GL**

DNV GL local station: **Augsburg**

Approval Engineer: **Didier Girardin**

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Joannis Papanuskas
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

Generic Hardware:

Single Genset Load Share Units

- Cabinet back mounting Type 3400 Marine (1A / 5A) 8440-2044 / 8440-2045 ¹⁾
- Front panel mounting Type 3500 Marine (1A / 5A) 8440-2046 / 8440-2047 ²⁾

1) Note: with rugged aluminum chassis

2) Note: with integrated back-lit display

Software Version. 1.18xx. According FAT, Rev. 006 and AN V. 3.0

Synchronising Module:

- LS-5 Synchroniser and load share controller

Software Version 1.03xx. According FAT, Rev. 006 and AN V. 3.0

Remote Display :

- RP-3500 Graphical Remote Display for easYgen-3400 / 3500 Marine

Software Version. 1.18xx. According FAT, Rev. 006 and AN V. 3.0

Application/Limitation

At design/configuration of a specific application system the following Rules shall be observed:

- separation between required safety functions and control/alarm functions
- The most probable failures, e.g. loss of power or wire failure, shall result in the least critical of any possible new conditions.
- EMC Filter to be provided in compliance with type tested equipment

Approval conditions

The following documentation of the actual application is to be submitted for approval in each case:

- Reference to this Type Approval Certificate
- Functional description
- System block diagram
- User interface description
- Power supply arrangement (may be part of the System block diagram)
- List of control and monitored points
- Description of functions covered by software
- Test program for application software at manufacturer/switchboard maker

The Type Approval covers hardware listed under Product description.

Product certificate

Each delivery of the application system **is to be** certified. The Certification of Application Functions is to be performed at the manufacturer of the application system before the system is shipped to the yard. After the certification the following clause for application software control will be put into force.

Clause for application software control

All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV GL for evaluation and approval.

Major changes in the software are to be approved before being installed in the computer.

A Certification of Application Functions may be required for the particular vessel.

Type Approval documentation

Hidden

Tests carried out

Applicable tests according to the Class Guideline DNVGL-CG-0339, November 2016

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE