

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Engine Safety, Control and Alarm System

with type designation(s)
ECSU - AM1

Issued to

Hanshin Electric Mfg. Co. Ltd.
Osaka, Japan

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Location classes:

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	B

Issued at **Busan** on **2017-07-19**

This Certificate is valid until **2022-06-30**.

DNV GL local station: **Kobe**

for **DNV GL**

Approval Engineer: **Baeg Soon Choi**

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Michael Jost Auf der Stroth
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

Engine control/safety unit : ECSU-AM1

Application/Limitation

This Type Approval covers hardware only under product description.

Speed setting system is not part of certification.

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

Product certificate

Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. 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 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 DNVGL 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

Tests carried out

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

Periodical assessment

The scope of the retention/renewal survey 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 survey 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

Retention survey is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE