



Certificate no.:
TAA00003CB

TYPE APPROVAL CERTIFICATE

This is to certify:

that the **Programmable Controller**

with type designation(s)
Power Electronic Controller System (PECe)

issued to

GE Energy Power Conversion UK Ltd.
Rugby, Warwickshire, United Kingdom

is found to comply with

DNV 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.

Location classes:

Temperature D

Humidity B

Vibration A

EMC B

Enclosure Required protection according to DNV Rules shall be provided upon installation on board

Issued at **Høvik** on **2024-03-06**

This Certificate is valid until **2029-03-05**.

DNV local unit: **UK & Ireland CMC & VMC**

for **DNV**

Approval Engineer: **Martin Skårerverket**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Revision: 2023-09

www.dnv.com

Page 1 of 3

Product description

Power Electronic Controller System (PECe) consist of the following hardware:

Item	Description	Ref. No
Industrial PC	GE Intelligent Platform RXI Premium Industrial PC (Four Slot Version)	14240DB11234A
Industrial PC	GE Intelligent Platform RXI Standard Industrial PC (Two Slot Version)	14220CA11232A
Interface Board	PIBe3	GDS1168-FF-ST60-AD24
I/O	AD24 Analogue and Digital input interface card	20x4598
I/O	ST60 Fibre I/O	ST60 20X4540/20
PCI Card	GE PCI Card with 3 SPF ports	PC00008752/01
Filter	Schaffner Multistage Performance EMI Filter	FN2070
PSU	PHOENIX QUINT-PS/1AC/24DC 10A	PS/1AC/24DC 10A

Tested and approved for 230 VAC 50/60 Hz power supply input.

Compass safe distances:

Standard compass: 300 cm
Steering compass: 200 cm

Place of manufacture

DNV ID: 127469
18 avenue du Quebec
91140 Villebon Sur Yvette
France

DNV ID: 10665325
S.No. 235/1A2, Sriperumbudur – Thiruvallur Road,
Thodugadu Village, Thiruvallur District,
Sriperumbudur – 602105, Tamil Nadu-INDIA

DNV ID: 10755717
Unit 3 Rothley Lodge Commercial Park, Rothley,
Leicestershire, LE7 7NL
United Kingdom

DNV ID: 10755715
Unit 4, Pool Road Business Centre,
Pool Road, Nuneaton,
Warwickshire, CV10 9AQ
United Kingdom

DNV ID: 10759413
Unit 5, Kingswood Business Park,
Connaught Road,
Hull, HU7 3AP
United Kingdom

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Product certificate

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After certification the clause for software control will be put into force.

Software control

All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.

For the bridge mounted components the 'Acoustic noise and signals' and the 'Compass safe distance' were measured according to sections 11.1 and 11.2 of IEC 60945, 4th edition (2002).

Shock test: 15g/11ms half-sine shocks according to IEC 60068-2-27:2008.

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

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