Certificate no.:
TAE000052X

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Electrical Equipment

with type designation(s)
ECU

issued to
Scania CV AB
Södertälje, Stockholms Län, Sweden

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

Application:

Product approved by this certificate is accepted for installation on all vessels classed by DNV following DNV Rules of July 2024 edition

Location classes:

EMC class :	**A**
Enclosure:	**B**
Temperature	**B**
Humidity	**B**
Vibration	**B**

Issued at **Høvik** on **2025-10-27**
This Certificate is valid until **2030-10-26**.
DNV local unit: **Sweden CMC**

Approval Engineer: **Uwe Supke**

for **DNV**

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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 USD 300 000.

Product description

The propulsion control system (PCS) control and monitor power load to the inverter MGU2 (See TAE000052R) and the electric motor MG4115-1 (See TAE000052N) and the internal combustion engine (ICE).
The purpose is to receive signals from the bridge panels and thrust control, switch to desired operation mode and distribute torque /speed between the electric motor and the ICE.
The hardware is based on the sixth generation of the electric control Unit (ECU) of Scania.
HW-ID: PCS G6e
SW-ID: PSS1.11.XX

Software update notification
When the type approved software is revised (affecting all future deliveries) DNV is to be informed by forwarding updated software version documentation. If the changes are judged to affect functionality for which rule requirements apply a new functional type test may be required, and the certificate may have to be renewed to identify the new software version.

Manufactured by:

Scania CV AB (122762),
Södertälje,
Sweden

Application/Limitation

1. The Type Approval covers hardware and software listed under Product description.
2. This certificate is valid only for systems applications made and delivered by production facilities listed under Place of manufacture for engines series listed under Product description.
3. This Type Approval certificate covers electronic control functions only.
4. The system is intended for multi-engine propulsion plants.
5. Power supply inputs are equipped with internal short-circuit protection.
6. Case-by-case approval and system certification may be requested if the Approval conditions are not met or the system configuration is found not to be in line with the requirements from DNV rules.

Approval conditions

The following documentation of the actual application is to be submitted for approval in each case:
- Reference to this Type Approval Certificate,
- Hardware version used,
- Software versions used,

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.

Application 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.

Type Approval documentation

Tests carried out

Applicable tests according to DNV Rule for Ships Pt.4 Ch.9, DNV Class Guideline DNV-CG-0339, August 2021.
Functional Type Testing and Integration Test performed at 2025-02-07.

Marking of product

Manufacturer name
Product identifier
Serial number

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.
The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)

- Review of type approval documentation
- Review of possible change in design, software versions, components, materials and performance
- Ensuring that systems, software versions, components and/or materials used comply with type approved, documents and/or referenced system, software, component and material specifications.

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