

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Remote Control System, Propulsion

with type designation(s)

3-axis Joystick 20-201, Twin Lever 20-101, E-HELM 20-301, HCU 21-101, JCU 25-101, CDU 22-101

Issued to

ALAMARIN-JET OY
Härmä, Finland

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.

Type	Temperature	Humidity	Vibration	EMC	Enclosure
3-axis Joystick 20-201, Twin Lever 20-101, E-HELM 20-301	C	B	A	B	IP66
HCU 21-101, JCU 25-101	C	B	B	B	IP66
CDU 22-101	D	B	A	B	IP66

Issued at **Høvik** on **2021-05-26**

This Certificate is valid until **2026-05-25**.

for **DNV**

DNV local station: **Finland CMC**

Approval Engineer: **Marthe Kristine Tautra Hoen**

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Jan Tore Grimsrud
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.

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.



Product description

SIGMA Modular Electronic Propulsion Control system is based on modules that can be assembled to create a complete control system for waterjets.

Product	Name	Type designation	Compass safe distance	Compass safe distance – steering compass
Twin Lever	TWL	20-101	60 cm	40 cm
3-axis Joystick	3XJS	20-201	60 cm	40 cm
Electronic Helm Unit	E-HELM	20-301	100 cm	80 cm
Helm Control Unit	HCU	21-101	10 cm	10 cm
Computing Display Unit	CDU	22-101	10 cm	10 cm
Jet Control Unit	JCU	25-101	10 cm	10 cm

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
- Circuit diagrams
- Description of functions covered by software
- Test program for application software at manufacturer

The Type Approval covers hardware listed under Product description.

Product certificate

Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The Certification is to be performed at the manufacturer before the system is shipped to the yard. 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 DNVGL-CG-0339, December 2019.

For the bridge mounted components the 'Compass safe distance' was measured according to section 11.2 of IEC 60945 4th edition (2002).

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



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Certificate No: **TAA00002Y2**

- 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