



Certificate No:
TAA0000335

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Programmable Electronic System

with type designation(s)

HOMIP 2; Hoppe Electronic Inclinator; HOSIM 2; Hoppe Linear Position Indicator; Passive Power over Ethernet (PoE) Module

Issued to

Hoppe Marine GmbH
Hamburg, Germany

is found to comply with

DNV rules for classification – Ships

Application :

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

Temperature B (Cold test -15°C)

Humidity B

Vibration A

EMC B

Enclosure specified in product description

Issued at **Hamburg** on **2021-11-09**

This Certificate is valid until **2026-10-26**.

for **DNV**

DNV local station: **Hamburg – CMC North/East**

Approval Engineer: **Holger Jansen**

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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.

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

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Product description

HOMIP 2 (Hoppe Monitor Interact Process)

Power supply & System Alarm: PHOENIX Contact, 4 PIN

Network: 2 x Ethernet RJ 45,
ETH0: 10/100 Mbit/s, ETH1: 10/100/1000Mbit/s, MDIX;

USB: 1x Device & 2x Host, USB 2.0, up to 50 MB/s;

Card interface: SD / MMC, up to 25 MB/s;

Serial interfaces (optional): 2x RS 422, 6x RS 485, 2x CAN 500 Kbit; all interfaces isolated 250 VDC

Relays: K1 system alarm: 1 A / 50 VDC resistive load (NC)

(optional): K2 and/or K3 multi-purpose: 0.5 A / 125 VAC

Degree of Protection: IP44

Hoppe Electronic Inclinator

Processor: ARM Cortex A9 Dual Core, 800 MHz, 32 bit; 1GB RAM
Root file system: FLASH 4 GBDisplay

Power Supply: 24 Vdc, 600 mA miniature fuse

Power Consumption: 12 W

Degree of Protection: IP44

HOSIM 2 (Hoppe Ships Inertial Measuring System)

Processor: ARM Cortex A9 Dual Core, 800 MHz, 32 bit; 1GB RAM
Root file system: FLASH 4 GBDisplay

Interfaces: 1x RS422/RS485; 1x RS485; 1x Ethernet 100 Mbit, Auto-MDIX

Measurement accuracy of the HOSIM system

Linear acceleration: $\pm 0.005\text{m/s}^2$ (standard deviation)

Angular velocity: $\pm 0.05^\circ/\text{s}$ (standard deviation)

Roll angle/Pitch angle: $\pm 0.01^\circ$ (static, standard deviation)

Power Supply: 24 Vdc

Power Consumption: 10 W

Degree of Protection: IP68

Hoppe Linear Position Indicator

Communication: Open/Close indication = high/low signal for digital outputs

Power Supply: 24 Vdc nominal

Max. current: Default <10 mA
(depending on input resistance of connected digital input module)

Power input protection: Self-resetting fuse (Trigger: 300 mA)

Power polarity protection: Ensured by a diode (status LED only glows when polarity correct)

Position indication: Ensured by LED, for each signal status (open: green, close: yellow)

Connections: 1x 4-pin push-in spring connector for maximum conductor cross section of 1.5 mm².

Degree of Protection: IP68

Passive Power over Ethernet (PoE) Module

Communication: X1: 24 VDC Power
X2: Ethernet 10 Base-T & Ethernet 100 Base-TX
X3: Mixed Ethernet and power

Interfaces: 1x 8P8C (RJ45) connector for Ethernet 10 Base-T & 100 Base-TX
(only 4 data wires used; TXP, TXN, RXP, RXN);

1x FK-MCP 1,5/3-ST-3,81 (Phoenix Contact) connector for injected/splitted

24 Vdc voltage; max. wire diameter 1.5 mm²;

1x insulation-displacement contact (IDC) for stranded 8-wire Ethernet cable;

AWG 22-26 (0.14-0.34 mm²);

1x screw terminal M4 for cable shield connection and strain relief; connected to PE

Power Supply: 24 Vdc nominal for injected/splitted voltage

Current: max. 1 A (0.5 A per conductor)

Application/Limitation

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 RU SHIP Pt.4 Ch.9 Sec. 1.

Type Approval documentation

Tests carried out

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

Marking of product

The products to be marked with:

- Manufacturer name
- Serial number
- Type designation

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