

TYPE APPROVAL CERTIFICATE

DNV GL

This is to certify that the undernoted product(s) has/have been tested in accordance with the relevant requirements of the DNV GL Type Approval System.

Certificate No. **45 425 - 16 HH**

Company **Hoppe Bordmesstechnik GmbH**

**Kieler Straße 318
22525 Hamburg, GERMANY**

Product Description **Programmable Logic Controller; Electronic Inclinator & Ships Inertial Measuring System; Passive Power over Ethernet (PoE); Linear Position Indicator**

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

Environmental Category **C; EMC1**

Technical Data / Range of Application **Hardware components: HOMIP 2; Hoppe Electronic Inclinator; HOSIM 2; Passive Power over Ethernet (PoE) Module, Hoppe Linear Position Indicator**

**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**

Test Standard **DNVGL Class Guideline CG-0339 Edition November 2015
IEC 60945 Edition 2002; IEC 61162**

Documents **Test report : No. 156-16 dated 13-09-2016 and Functional Test Description F-08025-00060-DOC Revision: 1.0 dated 17.06.2016
Documents: TYPE APPROVAL / Processing Units & Motion Sensor F-08025-00040-LA Revision: 1.0 dated 13.09.2016
Technical data sheet F- 09539-09045-TD Revision: 1.2 dated 12.09.2016
Operation Manual F-09539-09047-HB Revision: 1.2 dated 12.09.2016
Commissioning Guide F-09539-09061-IB Revision: 1.3 dated 12.09.2016
Troubleshooting Guide F-09539-09062-TSG Revision: 1.3 dated 12.09.2016
SQP (SW Quality Plan) F- 09539-09068-SQP Revision: 1.1 dated 17.08.2016**

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

Valid until **2021-10-26**

Page **1 of 2**

File No. **I.B.07**

Hamburg, 2016-10-27

Type Approval Symbol



DNV GL

Marco Rinkel

Andrea Grün

TYPE APPROVAL CERTIFICATE

DNV GL

This is to certify that the undernoted product(s) has/have been tested in accordance with the relevant requirements of the DNV GL Type Approval System.

Certificate No. **45 425 - 16 HH**

Hoppe Electronic Inclinator

Processor: ARM Cortex A9 Dual Core, 800 MHz, 32 bit; 1GB RAM
Root file system: FLASH 4 GB Display
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 GB Display
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: 2 4 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)

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)

Valid until **2021-10-26**

Page **2 of 2**

File No. **I.B.07**

Hamburg, **2016-10-27**

Type Approval Symbol



DNV GL

Marco Rinkel

Andrea Grün