



CERTIFICATE NUMBER 19-LD1820401-PDA

EFFECTIVE DATE 22-Mar-2019

EXPIRATION DATE 21-Mar-2024

ABS TECHNICAL OFFICE London

CERTIFICATE OF

## Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

**KONGSBERG MARITIME AS**

located at

**SKONNERTVEGEN 1, 7053 RANHEIM, TRONDHEIM, Norway, 7005**

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

**Product** Monitoring Instruments

**Model** HSIO-100-A (Condition monitoring Acoustic)  
HSIO-100-B (Condition monitoring Vibration)  
HSIO-100-C (Fieldbus and Torque applications)

This Product Design Assessment (PDA) Certificate remains valid until 21-Mar-2024 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau of Shipping

Theodoros Chatzidakis, Senior Engineer

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

**KONGSBERG MARITIME AS**

SKONNERTVEGEN 1

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Tier: 2 - PDA Issued *TC*

**Product:** Monitoring Instruments  
**Model:** HSIO-100-A (Condition monitoring Acoustic)  
HSIO-100-B (Condition monitoring Vibration)  
HSIO-100-C (Fieldbus and Torque applications)

**Intended Service:**  
Instrument condition monitoring for marine and offshore applications.

**Description:**

The Kongsberg HSIO-100 module is a family of high-speed data acquisition modules and can be an integrated part of Kongsberg Maritime Condition Monitoring system.  
The high-speed capability is provided by a FPGA (Field Programmable Gate Array) and processor.  
The data collected can be data from any high-speed data source like for example, vibration sensor, acoustic emission sensor, or specialized sensors for torque measurement.  
The module provides high-speed communication via Ethernet.

**Rating:**

HSIO-100-A

Power supply: 24 VDC (18 - 32 VDC)

Max power consumption: 20 W

Ambient operating temperature: - 40 °C to +70 °C

Enclosure protection rating: IP 21

Communication: Ethernet (100 Mbit/s)

I/O connectors: 16-pin female x 1, 3-pin female x 2, 2-pin female x 3, SMA x 8

HSIO-100-B

Power supply: 24 VDC (18 - 32 VDC)

Max power consumption: 15 W

Ambient operating temperature: - 40 °C to +70 °C

Enclosure protection rating: IP 21

Communication: Ethernet (100 Mbit/s)

I/O connectors: 8-pin female x 2, 3-pin female x 2, 2-pin female x 3

HSIO-100-C

Power supply: 24 VDC (18 - 32 VDC)

Max power consumption: 10.5 W

Ambient operating temperature: - 40 °C to +70 °C

Enclosure protection rating: IP 21

Communication: Ethernet (100 Mbit/s)

I/O connectors: 12-pin female x 2, 3-pin female x 2, 2-pin female x 3

**Service Restriction:**

1. Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.
2. This assessment is not to be misconstrued as an approval on behalf of a Maritime Administration.

**Comments:**

1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
2. This assessment is valid for hardware only. Each application and configuration is to be specifically approved.

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**Notes/Drawing/Documentation:**

Drawing No. 315579, Nemko E17008.00 Test Report (28-03-2017), Revision: 0, Pages: 82  
Drawing No. 429230\_1A, Standard Connection to sensor, Revision: A, Pages: 1  
Drawing No. P-HSIO-100-A\_CE, High Speed Module for Condition Monitoring, Revision: -, Pages: 2  
Drawing No. P-HSIO-100-B\_CE, High Speed I/O Module for Condition Monitoring, Revision: -, Pages: 2  
Drawing No. P-HSIO-100-C\_CE, High Speed I/O Module for Fieldbus and Torque Applications, Revision: -, Pages: 2  
Drawing No. P-HSIO100\_FE\_A, HSIO-100 User Manual, Revision: 1, Pages: 22  
Drawing No. P\_CMS\_DE\_A, HSIO-100 Installation Manual, Revision: 1, Pages: 54

**Terms of Validity:**

This Product Design Assessment (PDA) Certificate 19-LD1820401-PDA, dated 22/Mar/2019 remains valid until 21/Mar/2024 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

**STANDARDS**

**ABS Rules:**

The Rules applicable to this assessment are:

Marine Vessels Rules (2019) - 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-1-1/7.15, 4-8-3/1.7, 4-9-9/7, 4-9-9/13, 4-9-9/Table1  
Mobile Offshore Units Rules (2019) - 1-1-4/9.7, 1-1-A2, 1-1-A3, 4-1-1/7.9, 4-3-1/11, 6-1-1/9, 6-1-1/13  
Steel Vessels for Service on Rivers and Intracoastal Waterways Rules (2019): 1-1-4/7.7, 1-1-A3, 1-1-A4  
High Speed Crafts Rules (2019): 1-1-4/11.9, 1-1-A2, 1-1-A3  
Steel Barge Rules (2019): 1-1-4/7.9, 1-1-A3, 1-1-A4

**National:**

NA

**International:**

IACS E10 Rev 6 :2014  
IEC 60945 Ed. 4.0 b:2002  
IEC 60533 Ed. 3.0 en:2015  
IEC 61326-1 Ed. 2.0 b:2012

**Government:**

NA

**EUMED:**

NA

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**OTHERS:** *TC*  
NA