



Marine & Offshore

Certificate number: 70692/A0 BV

File number: MPA2200822

Product code: 4440H

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

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## TYPE APPROVAL CERTIFICATE

*This certificate is issued to*

**Green Instruments A/S**

Brønderslev - DENMARK

*for the type of product*

**ALARM, MONITORING AND CONTROL SYSTEMS**

G6200 Water Monitoring System

**Requirements:**

Bureau Veritas Rules for the Classification of Steel Ships

IMO Res. MEPC.259(68) & MEPC.340(77)

EC Code: 21

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 16 Jun 2027**

**For Bureau Veritas Marine & Offshore,**

At BV FREDERICIA, on 16 Jun 2022,

Jesper JENSEN

***This certificate was created electronically and is valid without signature***



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION :

Water Monitoring System-G6200:

The G6200 Water Monitoring System is a continuous in situ water monitoring system in accordance with IMO MEPC.259(68) and MEPC.340(77). As a standard configuration the system monitors PAH, turbidity, pH and temperature.

A system can consist of or be configured with extra measuring modules for G6111 PAH, G6120/G6121 Turbidity and G6130 pH/Temperature.

The G6200 Water Monitoring System communicates typically with an Exhaust Gas Cleaning System (not covered by this Type Approval Certificate) on a fixed communication protocol.

#### Specifications:

|                            |  |                                    |   |
|----------------------------|--|------------------------------------|---|
| <b>Display</b>             | 7" TFT LCD color display   |                                    |   |
| <b>Main supply</b>         | 400-440 VAC 50-60Hz 3 Phases   |                                    |   |
| <b>Communication</b>       | Modbus TCP/IP, Modbus RTU(RS-485) via converter  |                                    |   |
| <b>Firmware Version</b>    | >0.0.25  |                                    |   |
| <b>Sensor Module</b>       | <b>G6111 PAH</b>   | <b>G6120 Turbity</b>               | <b>G6130 pH/Temperature Module</b>                  |
| <b>Manufacturer</b>        | Green Instruments  | ABB Ltd                            | MJK   |
| <b>Brand/Type</b>          | G6111 PAH  | AWT420 Transmitter ABB/4690 series | MJK/ pHix Compact                                   |
| <b>Measuring Technique</b> | UV induced fluorescence  | Nephelometry                       | Glass Electrode                                     |
| <b>Range</b>               | 0-800 µg/l phenanthrene equivalence, freely configurable. Turbidity corrected  | 0-400 NTU freely configurable      | 0-14pH units, 0-50°C fully tempeprature compensated |
| <b>Accuarcy</b>            | Max ±5% of sensor range or Max ±5% of the nominal standard test concentration, which value is not less than 80% of the sensor range. | Max ± 2 NTU                        | Max ± 0.2 pH unit                                   |

### 2. DOCUMENTS AND DRAWINGS :

- G6200 Water Monioring System operation manual, Doc No. 103864, ver.1.0, dated August 2021.
- G6200 Flame retardant Assessment, dated 2021-10-28.
- G6200 IP rating Assesment, dated 2021-09-28.
- G6200 Performance Test Plan, dated 2021-10-04.
- G6200 Additional Performace Test Plan, V. 1.2, dated 10 September 2021.
- Component Layout -Water Monitoring System G6200, Doc No. 11247, dated 2021-09-14.
- Installation Layout -Water Monitoring System G6200, Doc No. 11246, dated 2021-09-14.
- P&ID- G6200 water monitoring system, Doc No. 11182, dated 23-08-2021.
- Electrical Diagram, Doc No. 11076, dated 09-12-2021.
- AWT420, Universal 4-wire, dual - input transmitter, No. OI/AWT420-EN rev.E.
- G6200, Software Quality Assurance Plan, No. S152304, dated 14.09.2021.
- Software Function Description, No.S152304, dated 2021-09-01.
- 4690 Series Turbidity systems, No.IM/4690-EN rev.F, dated 06.2018

### 3. TEST REPORTS :

- Type Approval Test Report, No. P21-0087-1, dated 2021-09-21.
- Flame Retardant Test , No. P21-0087-3, dated 2021-10-21.
- Type Approval Test for AWT420, No. P20-0184-2, dated 2021-04-20.
- Performance Test Report,G6200 Water Monitoring System , dated 09th December 2021.

### 4. APPLICATION / LIMITATION :

- 4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships.
- 4.2 - Approval is valid for ships to be granted with the notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**
- 4.3 - The equipment fulfils the EMC requirements for installation in General power Distribution Zones.
- 4.4 - BUREAU VERIATS Environmental Category, **EC Code: 21.**

- 4.5 - Only Hardware and Firmware / Software successfully tested together in compliance with the regulations as referred to in cover page, according to the declaration of the manufacturer are covered by this certificate.
- 4.6 - Any modification of the hardware, firmware or software having an impact on the product performance or functionality has to be validated with type testing.
- 4.7 - In accordance with IACS UR E22 and as applicable to programmable devices for computer based systems of Category II or III, for each ship application:
- Ship specific documentation is to be submitted including software documentation and categorization of the computer based system.
  - Inspection and testing before installation onboard is to be performed under the surveillance of the Society.
- 4.8 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev8.

#### **5. PRODUCTION SURVEY REQUIREMENTS :**

- 5.1 - The above type of the product are to be supplied by **Green Instruments A/S** in compliance with the type described in this certificate.
- 5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.
- 5.3 - **Green Instruments A/S** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.
- 5.4 - **Green Instruments A/S** has declared to Bureau Veritas the following production site:

**Green Instruments A/S**  
**Erhvervsparken 29**  
**9700 Brønderslev**  
**DENMARK**

#### **6. MARKING OF PRODUCT :**

- Maker's name or trade mark.
- Serial number of the units.
- Equipment type number or model identification under which it was type-tested
- Alternatively, the marking may be presented on a display at equipment start-up.

#### **7. OTHERS :**

It is **Green Instruments A/S**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

\*\*\* END OF CERTIFICATE \*\*\*