TYPE APPROVAL CERTIFICATE

Certificate no.:
TAA000034D
Revision No:
1

This is to certify:

that the Monitoring System

with type designation(s)
G6200 Water Monitoring System

issued to
Green Instruments A/S
Brønderslev, Nordjylland, **Denmark**

is found to comply with
DNV 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.

Location classes:

Temperature	**A**
Humidity	**B**
Vibration	**A**
EMC	**A**
Enclosure	**B/IP65**

Issued at **Høvik** on **2024-06-27**
This Certificate is valid until **2026-06-26**.
DNV local unit: **Denmark CMC**

for **DNV**

Approval Engineer: **Frode Nygård**

Product description

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 (ref. document “Main Cabinet, Installation manual”).

Water Monitoring System - G6200				
Display	7” TFT LCD color display			
Main Supply	400 - 440VAC 3 Phases 50-60Hz			
Communication	Modbus TCP/IP, Modbus TCP/RTU converter (RS-485)			
Firmware version	>0.0.25			
Sensor module	**G6111 PAH***	**G6120 Turbidity**	**G6121 Turbidity**	**G6130 pH and temperature**
Manufacturer	Green Instruments	ABB	ABB	MJK
Brand/Type	GI/ G6111 PAH	ABB/4690 series; AWT420 transmitter	ABB/ATS430 series; AWT420 transmitter	MJK/ pHix Compact
Measuring technique	UV Fluorescence	Nephelometry		Glass electrode
Range	0-800 µg/l PAH_{phe} Configurable	0-400 NTU/FNU Configurable		0 – 14 pH units 0 – 50 °C
Accuracy	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.	±2 NTU		±0.2 pH unit Fully temperature compensated

* The sensor G6111 PAH is type approved as a separate product (DNV certificate no. TAA00002U4)

Place of manufacture

Green Instruments A/S
Erhvervsparken 29
9700 Brønderslev
Denmark

Application/Limitation

The Type Approval covers all hardware listed under Product description.

The G6200 Water Monitoring System is generally in compliance with the requirements of Resolution MEPC.259(68) - 2015 Guidelines for exhaust gas cleaning adopted on 15. May 2015, Chapter 10 “Washwater”.
The G6200 Water Moitoring System meets the following requirements:

- Principle of detection for PAHpheeq. (MEPC.259(68), 10.1.3.3)
- Turbidity influences on PAHpheeq. (MEPC.259(68), 10.2.3)
- Principle of detection for pH (MEPC.259(68), 10.2.2)
- Resolution for pH (MEPC.259(68), 10.2.2)
- Temperature compensation for pH (MEPC.259(68), 10.2.2)
- Principle of detection for Turbidity (MEPC.259(68), 10.2.5)

The G6200 Water Monitoring System is also in compliance with the requirements of Resolution MEPC.340(77) - 2021 Guidelines for exhaust gas cleaning adopted on 26. November 2021, Chapter 10 “Discharge Water”.
The G6200 Water Monitoring System meets the following requirements:

- Definition of Phenanthrene equivalent (MEPC.340(77), 2.3 Table 3)
- Principle of detection for PAHpheeq. (MEPC.340(77), 10.1.3.3)

- Degassing of the sampled discharged water monitoring equipment	(MEPC.340(77), 10.2.1)
- Permission deviation of the discharge water monitoring equipment	(MEPC.340(77), 10.2.2)
-Turbidity influences on PAHpheeq.	(MEPC.340(77), 10.2.4)
- Principle of detection for pH	(MEPC.340(77), 10.2.3)
- Resolution for pH	(MEPC.340(77), 10.2.3)
- Temperature compensation for pH	(MEPC.340(77), 10.2.3)
- Principle of detection for Turbidity	(MEPC.340(77), 10.2.6)
- Sampling frequency	(MEPC.340(77), 10.4.1)

In order to completely fulfil the requirements of MEPC.259(68) for “washwater monitoring” and MEPC.340(77) for "discharge water monitoring", additional equipment (e.g. data recording) will have to be installed.

DNV shall be notified in writing whenever the G6200 Water Monitoring System is installed in a DNV classed vessel. A reference to this Type Approval Certificate shall be included.

Correct configuration and set up for each delivery to be tested during commissioning after installation.

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.
Performance tests according to “Test Plan, G6200 Water Monitoring System, performance tests”, dated 2021-10-04.

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
- 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

A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE