



Marine &amp; Offshore

Certificate number: 75777/A0 BV

File number: MPA2301543

Product code: 3926H

*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*

**EXHAUST GAS MONITORING AND RECORDING DEVICE**

G7200 Multi Gas Monitoring System

**Requirements:**

Bureau Veritas Rules for the Classification of Steel Ships.

IMO Res. MEPC.340(77) - 2021 Guidelines for exhaust gas cleaning systems.

EC Code: 31

**FOR information only**

*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: 18 Dec 2028**

**For Bureau Veritas Marine & Offshore,**

At BV FREDERICIA, on 18 Dec 2023

***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](http://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.

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION :

**G7200** is a continuous gas monitoring system, it can monitor the SO<sub>2</sub> and CO<sub>2</sub> concentrations in exhaust gas according to the requirements in Appendix 3 of NO<sub>x</sub> Technical Code 2008 and the requirements in MEPC. 340(77) – 2021 Guidelines for exhaust gas cleaning systems.

#### 1.1 - Technical description:

Type	G7200
Function	Monitoring of CO <sub>2</sub> , SO <sub>2</sub> , NO <sub>2</sub> , NO, CH <sub>4</sub> , H <sub>2</sub> O
Components	Analyzing module, electronics module, Gas processing module, Sampling module
Number of Gas Analyzer Modules	1- 4 depending on configuration
Power Supply	230 VAC - 50/60 Hz
Communication	Modbus TCP/IP (RJ45), Optional Modbus RTU
Ambient temperature	5 - 55 °C
Enclosure Class	IP 54 IP 55 for Probes and Heated Sample Lines

#### 1.2 - Analyzer Modules

<b>Type G7010</b>	
Gas Analyzer Measuring principle	NDIR
Measuring Gases and Ranges	CO <sub>2</sub> : 0 - 10% SO <sub>2</sub> : 0 - 200 ppm
<b>Type G7210</b>	
Gas Analyzer Measuring principle	NDIR
Measuring Gases and Ranges	NO: 0 - 1000 ppm CH <sub>4</sub> : 0 - 5000 ppm H <sub>2</sub> O: 0 - 20000 ppm HC, CO (optional)
<b>Type G7230</b>	
Gas Analyzer Measuring principle	NDIR + NDUV
Measuring Gases and Ranges	CO <sub>2</sub> : 0 - 20% SO <sub>2</sub> : 0 - 300 ppm NO <sub>2</sub> : 0 - 100 ppm

#### 1.3 - Software version: 0.8.0

### 4. APPLICATION / LIMITATION :

4.1 - BUREAU VERITAS Rules and Regulations 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 VERITAS Environmental Category, **EC Code: 31.**

4.5 - Use of the Exhaust Emissions Monitoring System must be included in the engine's technical file and detailed in the ship's on-board monitoring manual, which must be approved by the Administration.

4.6 - The Gas analysers must be operated and calibrated in accordance with the manufacturer's recommendations.

4.7 - The Exhaust Emissions Monitoring System must satisfy the accuracy and calibration requirement specified in the NO<sub>x</sub> Technical Code and MEPC Resolutions.MEPC.340(77).

4.8 - Only Hardware and Firmware / Software successfully tested together in compliance with the rules and regulations as referred to in cover page, according to the declaration of the manufacturer are covered by this certificate.

4.9 - Any modification of the hardware, firmware or software having an impact on the product performance or functionality has to be validated with type testing.

4.10 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev 8.

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