



## Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

<b>Manufacturer</b>	<b>Green Instruments A/S</b>
<b>Address</b>	Erhvervsparken 29, Brønderslev, 9700, Denmark
<b>Place of Production</b>	Green Instruments A/S Erhvervsparken 29, Brønderslev, 9700, Denmark
<b>Type</b>	Gas analyser units
<b>Description</b>	<p>The G7200 is a Multi Gas Monitoring System and measures various gasses, including SO<sub>2</sub>, CO<sub>2</sub>, NO<sub>2</sub>, NO, CH<sub>4</sub>.</p> <p>It also can be used as a Continuous Emission Monitoring System for the SO<sub>2</sub> and CO<sub>2</sub> concentrations in exhaust gas according to the requirements in Appendix 3 of the NO<sub>x</sub> Technical Code 2008 and the requirements in MEPC.340(77).</p> <p>The system consists of:</p> <ul style="list-style-type: none"><li>Electronic module</li><li>Analyzing module (G7010, G7210, G7230)</li><li>Gas processing module</li><li>Sampling module</li></ul> <p>For detailed product description, pls. refer to appendix.</p>
<b>Trade Name</b>	G7200
<b>Application</b>	Gas analyser unit for the use onboard vessels, in general power distributions

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### Specified Standard

IACS UR E10 Rev. 8: 2021

### Ratings

Power supply voltage: 230 VAC, 50/60 Hz  
Ambient temperature: 5 - 55 °C  
Exhaust gas temperature: 0-500 °C

For detailed ratings, pls. refer to appendix.

### Other Conditions

For systems consisting of the listed components the final functional arrangement and application software are to comply with appropriate Lloyd's Register Rules and Regulations and shall be subject to project related Plan Approval Process, when installed on LR classed vessels. Documents and drawings for the actual application are to be provided according relevant LR Rules and Regulations.

If the G7200 is used in installations intended to comply with the SO<sub>2</sub> and CO<sub>2</sub> emission ratio requirements of Chapter 6 of MEPC.340(77), the following requirements as well as the relevant requirements of revised MARPOL Annex VI and NOX Technical Code 2008 (NTC 2008) shall be complied with:

- MEPC.340(77) section 6 and 7
- NTC 2008, Appendix III, section 1.6 to 1.10
- NTC 2008, Appendix IV, 5.5.1 and 9

The G7200 must be installed, calibrated, and operated in accordance with the manufacturer's instructions and in compliance with the NOx Technical Code 2008, Chapter 5 and associated appendices.

The probes and heated hoses do not form part of this certificate.

The IP rating specified by the manufacturer could not be verified by documentary evidence.



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## Type Approval Certificate

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

If the specified standards are amended during the validity of this certificate, the product is to be re-approved prior to it being supplied to vessels to which the amended standards apply.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document HPC2362043-24/MK and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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## Appendix

### RATINGS

	G7010	G7210	G7230
Gas analyzer measuring principle	NDIR	NDIR	NDUV + NDIR
Measuring gasses and typical ranges (other ranges upon request)	CO <sub>2</sub> : 0 – 10 %	CO <sub>2</sub> 0 – 20 %	CO <sub>2</sub> 0 – 20 %
	SO <sub>2</sub> : 0 – 200 ppm	-	SO <sub>2</sub> 0 – 300 ppm
	-	-	NO <sub>2</sub> 0 – 100 ppm
	-	NO 0 – 1000 ppm	NO 0 – 1000 ppm
	-	CH <sub>4</sub> 0 – 5000 ppm	CH <sub>4</sub> 0 – 5000 ppm
Accuracy/Linearity	≤ ± 2 % of reading or ≤ 0.3 % of full scale whichever is larger (except zero)		
Precision/Repeatability	≤ ± 1 % of full scale above 100 ppm or ≤ ± 2 % of full scale below 100 ppm		
Noise	≤ ± 2 % of full scale		
Zero drift	< ± 2 % of full scale		
Span drift	< ± 2 % of full scale		

NDIR = Non-dispersive infrared principle  
NDUV = Non-dispersive ultraviolet principle