



NIPPON KAIJI KYOKAI

TYPE APPROVAL CERTIFICATE FOR AUTOMATIC DEVICES AND EQUIPMENT

Certificate No. TA19074M

This is to certify that the undernoted product(s) has/have been approved in accordance with the requirements specified in Chapter 1, Part 7 of “Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use” and the relevant Society's Rules.

This certificate is issued to

Manufacturer:	Green Instruments A/S
Place of Manufacturing:	Erhvervsparken 29, 9700 Broenderslev, Denmark
Product description:	Multigas Monitoring System
Model:	G7000 Multigas Monitoring System

Approval No.:	19A007
Valid until:	3 February 2024

This certificate is subject to the conditions specified in the attached sheet(s).

Issued at Tokyo on 4 February 2019



T. Shimada
General Manager
Machinery Department

Note: The manufacturer, if desired, is requested to apply to the Society for renewal prior to the expiration date.

Specification & documents:

1. Particulars: Power supply: 230V AC - 50/60 Hz

2. Components and reference drawings:

Main Components	
Multigas Monitoring System (CEMS)	Multigas analyzer, multiplexer, gas cooler(s), gas pump(s), condensate pump(s), air conditioner, HMI, PLC.
	Display: 7.5" TFT LCD color display with touch screen
	External Communication: Modbus TCP/IP (terminals)
Gas Analyzer	Measuring principle: NDIR
	Measuring range: SO ₂ : 0 – 200 ppm; optional 0 – 1000 ppm CO ₂ : 0 – 10 %; optional : 0 – 25 %
	Calibration: Zero Calibration: Automatic using compressed air. Span Calibration: Automatic using inbuilt optical filters. Possible to connect mixed test gases for verification.
Probes and Heated Sample Lines	Number of probes: Up to 5, refer to Installation Layout.
	Sample line length: 4 – 25 m, dependent on system configuration
	Exhaust gas temperature: From 0°C to 500°C
	Ambient temperature: 5°C to 55°C
System Drawings 05285_Rev.F, 05292_Rev.D, 05380_Rev.B, 05577_Rev.B, 05907_Rev.A, 05910, 05980_Rev.B, 03069_ED_D	

3. Documentation and Test Reports:

- G7000 Multigas Monitoring System, Installation Manual, Part Number: 03134, Version 1.1
- G7000 Multigas Monitoring System, Operation Manual, Part Number: 03135, Version 1.3
- G7000 Multigas Monitoring System, Product Type Approval - Brief Description, Version 1.2
- DELTA Test Report for Marine Type Approval of G7000 – SO₂/CO₂ Multigas Monitoring System, DANAK-19/18237
- Vibration test Report, RISE Research Institutes of Sweden AB, 7P05581
- Performance Test Report 1, TP v2.2, dated 06/09/2017
- Performance Test Report 2, Version 1.0, dated 11/12/2017

Test items & approval conditions:

1. Test items:

(Applied testing items are marked with X.)

ENVIRONMENTAL TESTS		Mark
External examination		X
Operation test and performance test		X
Electric power supply failure test		X
Power supply fluctuation test	Electric	X
	Pneumatic and Hydraulic	--
Insulation resistance test		X
High voltage test		X
Pressure test (Pneumatic and Hydraulic)		--
Dry heat test (Temperature 55°C × 16 hours)		X
Damp heat test		X
Vibration test (Acceleration ±0.7g × 2.5 hours: Cabinet, Acceleration ±4.0g × 1.5 hours: Probe)		X
Inclination test		X
Cold test (Temperature 5°C × 2 hours)		X
Salt mist test		--
Electrostatic discharge immunity test		X
Radiated radio frequency immunity test		X
Conducted low frequency immunity test		X
Conducted high frequency immunity test		X
Burst / Fast transient immunity test		X
Surge immunity test		X
Radiated emission test		X
Conducted emission test		X
Flame retardant test		--

2. Approval condition:

The product is not allowed to be installed in the bridge and on open decks.

- The End -