

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

LaserGas II Monitor

Manufactured by:

NEO Monitors AS

Prost Stabels vei 22
2019 SKEDSMOKORSET
NEO Monitors AS
Norway

has been assessed by Sira Certification Service
And for the conditions stated on this certificate complies with:

**MCERTS Performance Standards for Continuous Emission
Monitoring Systems, Version 3.5 dated June 2016
EN15267-3:2007,
& QAL 1 as defined in EN 14181: 2014**

Certification Ranges:

NH ₃	0 to 10 mg/m ³
	0 to 15 mg/m ³
H ₂ O	0 to 40 Vol.-%
	0 to 30 Vol.-%
	0 to 50 Vol.-%

Project No.:	70137489
Certificate No:	Sira MC170328/00
Initial Certification:	06 June 2017
This Certificate issued:	06 June 2017
Renewal Date:	05 June 2022

Emily Alexander
Deputy Certification Manager

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service

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Approved Site Application

Any potential user should ensure, in consultation with the manufacturer, that the monitoring system is suitable for the intended application. For general guidance on monitoring techniques refer to the Environment Agency Monitoring Technical Guidance Notes available at www.mcerts.net

On the basis of the assessment and the ranges required for compliance with EU Directives this instrument is considered suitable for use on waste incineration and large coal-fired combustion plant applications. This CEM has been proven suitable for its measuring task (parameter and composition of the flue gas) by use of the QAL 1 procedure specified in EN14181, for IED Chapter III and IED Chapter IV applications for the ranges specified. The lowest certified range for each determinand shall not be more than 1.5X the daily average emission limit value (ELV) for IED Chapter IV applications, and not more than 2.5X the ELV for IED Chapter III and other types of application.

Basis of Certification

This certification is based on the following Test Report(s) and on Sira's assessment and ongoing surveillance of the product and the manufacturing process:

TUV Rheinland Report No. 936/21228113/A dated 12 March 2015

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Product Certified

The measuring system consists of the following parts:

- Transmitter unit with purge gas device and evaluation system
- Receiver unit with purge gas device
- 5m data cable to interconnect the Transmitter and Receiver units
- Power supply unit
- Cable to interconnect Power supply and transmitter units
- Heated measuring path (active path length: 0.513 m)
- Unheated measuring path (active path length: 0.712 m)

This certificate applies to all instruments fitted with software version GM 6.1f1-6 onwards.

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -20°C to +50°C
Instrument IP rating: IP66

Note: For outdoor installations the analyser needs to be mounted into an IP65 environment. If the instrument is supplied with an enclosure, then the ambient temperature shall be monitored inside the enclosure to ensure that it stays within the above ambient temperature range.

Results are expressed as error % of certification range, unless otherwise stated.

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time						
NH ₃					<2s	<200s
H ₂ O					<2s	<200s
Repeatability standard deviation at zero point						
NH ₃	0.1					<2.0%
H ₂ O	0.03					<2.0%
Repeatability standard deviation at reference point						
SO ₂	0.4					<2.0%
NO	0.3					<2.0%
Lack-of-fit						
NH ₃ (0 to 10 mg/m ³)			1.7			<2.0%
NH ₃ (0 to 15 mg/m ³)				-2.0		<2.0%
H ₂ O (0 to 40 Vol.-%)			-1.4			<2.0%
H ₂ O (0 to 30 Vol.-%)			-1.3			<2.0%
H ₂ O (0 to 50 Vol.-%)			1.1			<2.0%
Influence of ambient temperature zero point (-20°C to +50°C)						
NH ₃		-0.6				<5.0%
H ₂ O	-0.1					<5.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Influence of ambient temperature reference point (-20°C to +50°C) NH ₃ H ₂ O				2.0		<5.0% <5.0%
Influence of sample gas pressure NH ₃ H ₂ O		-0.76 0.67				<2.0% <2.0%
Influence of voltage variations at zero (190V to 250V) NH ₃ H ₂ O	0.1 -0.1					<2.0% <2.0%
Influence of voltage variations at span (190V to 250V) NH ₃ H ₂ O	-0.3 -0.1					<2.0% <2.0%
Influence of vibration					No impact observed	To be reported
Cross-sensitivity at zero with interferents: O ₂ , H ₂ O, CO, CO ₂ , CH ₄ , N ₂ O, NO, NO ₂ , NH ₃ , SO ₂ , HCl NH ₃ H ₂ O			1.80			<4.0% <4.0%
Cross-sensitivity at reference with interferents: O ₂ , H ₂ O, CO, CO ₂ , CH ₄ , N ₂ O, NO, NO ₂ , NH ₃ , SO ₂ , HCl NH ₃ H ₂ O			-1.60 -1.88			<4.0% <4.0%
Excursion of measurement beam NH ₃ H ₂ O			1.20			<2.0% <2.0%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Measurement uncertainty					Guidance - at least 25% below max permissible uncertainty	
NH ₃					5.4%	<30% (40%)
H ₂ O					4.0%	<7.5% (10%)
Calibration function (field)						
NH ₃					0.9035	>0.90
H ₂ O					0.9875	>0.90
Response time (field)						
NH ₃					<2s	<200s
H ₂ O					<2s	<200s
Lack of fit (field)						
NH ₃			1.40			<2.0%
H ₂ O			1.5			<2.0%
Maintenance interval					6 months	>8 days
Zero and Span drift requirement	<p><i>It is possible to record zero and span drift. This complies with the requirements for QAL3 according to EN 14181. The system is equipped with an automatic drift check. On reaching the limits for the automatic drift correction, a status signal was set.</i></p>					<p>Clause 6.13 & 10.13</p> <p>Manufacturer shall provide a description of the technique to determine and compensate for zero and span drift.</p>
Change in zero point over maintenance interval						
NH ₃		0.5				<3.0%
H ₂ O	0.1					<3.0%
Change in reference point over maintenance interval						
NH ₃			-1.3			<3.0%
H ₂ O	0.4					<3.0%
Availability					99.5%	>95% (>98% for O ₂)

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Reproducibility						
NH ₃				2.8		<3.3%
H ₂ O			1.9			<3.3%
Contamination check of in-situ systems					No deviations due to contamination were determined	<2.0%

Description

The LaserGas II is a TDL-based optical instrument based on transmitting infrared light from a transmitter unit on one side of a stack to a receiver unit on the opposite side of the stack. The measuring technique is based on measuring the absorption of light by the gas molecules present in the stack.

The measuring principle is called infrared single-line absorption spectroscopy and is based on the fact that most gases absorb light at certain wavelengths. The absorption is a direct function of the gas concentration in the stack.

General Notes

1. This certificate is based upon the equipment tested. The Manufacturer is responsible for ensuring that on-going production complies with the standard(s) and performance criteria defined in this Certificate. The Manufacturer is required to maintain an approved quality management system controlling the manufacture of the certified product. Both the product and the quality management system shall be subject to regular surveillance according to 'Regulations Applicable to the Holders of Sira Certificates'. The design of the product certified is defined in the Sira Design Schedule for certificate No. Sira MC170328/00
2. If certified product is found not to comply, Sira Certification Service should be notified immediately at the address shown on this certificate.
3. The Certification Marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of Sira Certificates'.
4. This document remains the property of Sira and shall be returned when requested by the company.

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