PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

NGA 2000 CLD Measuring System

Manufactured by:

Emerson Process Management GmbH & Co. OHG

Industriestraße 1
63594 Hasselroth
Germany

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 (CEMS), Version 4 dated July 2018
EN15267-3:2007,
& QAL 1 as defined in EN 14181: 2014

Certification Ranges :

NO	0 to 134 mg/m^3	0 to 669 mg/m^3
NO_x	0 to 205 mg/m^3	0 to 1026 mg/m^3 (expressed as NO_2)

Project No.:	70008246 / 80036153
Certificate No:	Sira MC150262/01
Initial Certification:	19 February 2015
This Certificate issued:	02 March 2020
Renewal Date:	18 February 2025

Emily Alexander
Environmental Project Engineer

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service

Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
Tel: +44 (0)1244 670 900

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Form 1335
Issue 8

Certificate Contents

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.

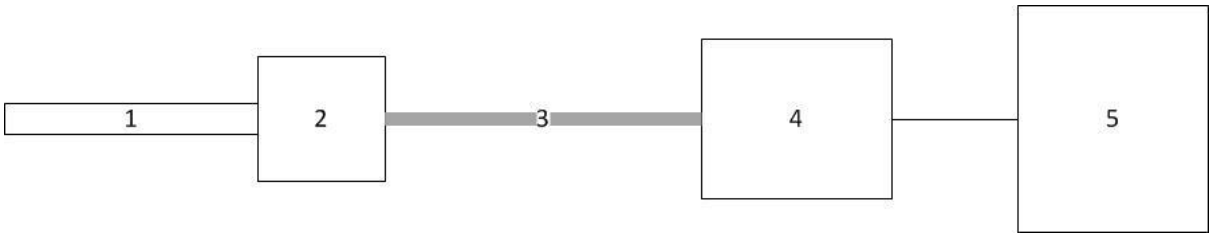
Basis of Certification

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:

TÜV report number 936/21220685/B dated 04 July 2014

Product Certified

The NGA 2000 CLD measuring system consists of the following parts:



1. Sample Probe	2. Heated Filter	3. Heated Sample Line	4. Gas Conditioning	5. Analyser
Model: Rosemount 3.1	Model: N/A (integrated with probe)	Model: 10m length, 4mm ID/6mm OD PTFE heated to 180°C	Model: M&C 'Gaskühler EC' / Rosemount RAE-G	Model: NGA 2000 CLD

Allowable variations could include:

- A different brand or model of sampling system of the same type, provided that there is evidence the alternative system works with similar types of CEM.
- Additional manifolds and heated valves used to allow more than one analyser to share a sampling system.

This certificate applies to all instruments fitted with software version 3.9.4 (serial number 60MMYXXXXXXXX [W01443334 reported in TUV report] onwards).

Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: 5°C to 40°C
Instrument IP rating: IP55

Note: The requirement for the protection class of the enclosure is not fulfilled. The measuring system needs to be installed with an IP65 enclosure to meet the requirements of EN 15267-3. 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 % certification range, unless otherwise stated.

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time						
NO					56s	<200s
Repeatability standard deviation at zero point						
NO	0.00					<2.0%
Repeatability standard deviation at reference point						
NO	0.1					<2.0%
Lack-of-fit						
NO (0 to 134mg/m^3)		0.82				<2.0%
NO (0 to 669mg/m^3)			1.79			<2.0%
Influence of ambient temperature zero point						
NO				-3.9		<5.0%
Influence of ambient temperature reference point						
NO				-2.		<5.0%
Influence of sample gas flow for extractive CEMS						
NO		-0.7				<2.0%
Influence of voltage variations 190 to 250V						
NO					No influence	<2.0%

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Influence of vibration (10 to 60Hz (±0.3mm), 60 to 150Hz at 19.6m/s^2)					Not Applicable	To be reported
Cross-sensitivity at zero with interferents: O_2, H_2O, CO, CO_2, CH_4, N_2O, NH_3, SO_2, HCl NO				3.48		<4.0%
Cross-sensitivity at reference with interferents: O_2, H_2O, CO, CO_2, CH_4, N_2O, NH_3, SO_2, HCl NO				3.81		<4.0%
Converter Efficiency					100%	>95%
Measurement uncertainty NO (For a NO_x ELV of 100mg/m^3)					Guidance - at least 25% below max permissible uncertainty 12.5%	<15% (20%)
Calibration function (field) NO					0.9980	>0.90
Response time (field) NO					56s	Note 1 <200s
Lack of fit (field) NO (0 to 134mg/m^3) NO (0 to 669mg/m^3)		0.82	1.79			Note 1 <2.0% <2.0%
Maintenance interval					3 Months	Note 2 >8 days
Zero and Span drift requirement	The AMS allows for recording zero and span drifts and thus fulfils the criteria of EN 14181.					Clause 6.13 & 10.13 Manufacturer shall provide a description of the technique to determine and compensate for zero and span drift.
Change in zero point over maintenance interval NO	0.3					<3.0%

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Change in reference point over maintenance interval NO				<3.0		<3.0%
Availability NO					99.8%	>95%
Reproducibility NO			1.5			<3.3%

Note 1: Test was not conducted during the field trial. Result reported has been taken from the laboratory testing.

Note 2: The NGA 2000 CLD has a maintenance interval of 3 months. The work detailed below has to be carried out at regular intervals, depending on local conditions:

- Visual inspection, check zero gas / test gas supply, temperature check of cells and sample gas line.
- Inspection of sample gas filter, gas conditioning system, sample gas lines and gas supply.
- Span check with test gas.
- Always follow manufacturer's recommendations.

Description

The CLD analyser uses the chemiluminescence reaction between ozone and nitric oxide to determine the presence of oxides of nitrogen (NOx) in a sample gas. The chemiluminescence measurement involves the following reaction:
$NO + O_3 = NO_2^* + O_2$
$NO_2^* = NO_2 + hv$ (red light)

In the first reaction nitric oxide and ozone readily react to form nitrogen dioxide in an electrically excited state. In the second reaction the excited NO_2^* immediately reverts to the ground state, emitting photons (red light). The light intensity is measured by the photodiode detector. Controlled sample flow and excess ozone ensures the reaction is directly proportional to the NO concentration. The technique for NOx (NO/NO_2) measurement is identical except that before the sample gas is reacted with ozone, any NO_2 in the sample is converted to NO by a heated vitreous carbon bed catalyst.

The CLD may be configured as:

- A standalone Analyser: Comprises of an analyser physics, associated electronics and internal sample and utility gas transport components integrated into a housing, complete with internal power supply, control functionality, display, operator interface and input/output connectivity options – analogue, serial or digital.

- An analyser Module (AM): An analyser unit capable of measuring concentration, comprising detector physics, supporting electronics, internal sample and utility gas transport components. Concentration and other relevant data is combined and made available on a digital data highway to an NGA or customer network.

- Integrated Network of Analysers: AM versions can be integrated in an NGA analyser system (mounted into a platform or combined with an MLT/TFID analyser or platform).

Mounting
The CLD Module is mounted in a steel enclosure suitable for installation into a standard 3 U high 19” rack mounting enclosure.

Sample Conditions
The CLD module requires additional extractive sample conditioning equipment. The sample gas must be clean, dry, non-condensing and at a pressure of 620 to 1034mbar. The required sample flow rate is 0.5 to 2.0 l/min.

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'.

2. The design of the product certified is held and maintained by TUV Rheinland for certificate No. Sira MC150262/01

3. 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.