PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

NGA 2000 MLT 3/4 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 :

CO	0 to 75 mg/m^3	0 to 2000 mg/m^3
SO_2	0 to 120 mg/m^3	0 to 2500 mg/m^3
NO	0 to 200 mg/m^3	0 to 2000 mg/m^3
NO_2	0 to 50 mg/m^3	0 to 1000 mg/m^3
O_2	0 to 25 %$^{vol.}$	-

Project No.:	70008246 & 80028794
Certificate No:	Sira MC150257/02
Initial Certification:	14 January 2015
This Certificate issued:	14 January 2020
Renewal Date:	14 January 2025

Emily Alexander
Environmental Project Engineer

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service

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UKAS PRODUCT CERTIFICATION 0011

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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/A dated 06 December 2013
ENERGOPOMIAR Sp. z o.o. report number 495/ZO-OP/2014 dated 11 September 2014
ENERGOPOMIAR Sp. z o.o. report number 496/ZO-OP/2014 dated 6 October 2014
TÜV SÜD report number 2214069-3 dated 7 July 2014

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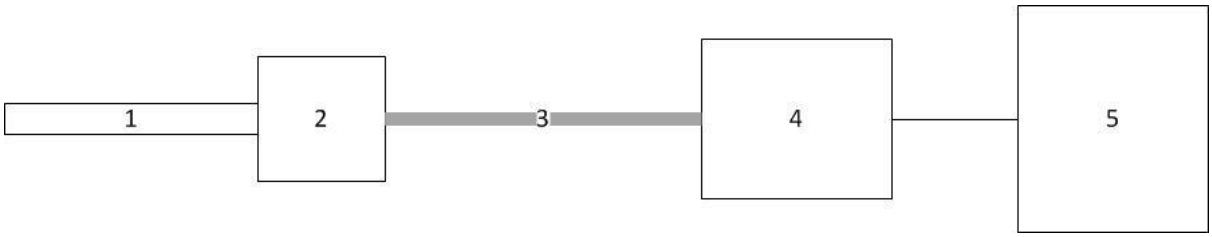
Product Certified

The NGA 2000 MLT 4 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 Sampling Probe, Buehler Gas 222 probe, M&C SP2xxx probe	Model: N/A (integrated with probe)	Model: 10m length, 4mm ID/6mm OD PTFE, 180ºC	Model: M&C type 'Gaskühler EC' Cooler, Buehler EGK Cooler, M&C ECM-2 Cooler	Model: NGA 2000 MLT 3/4

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 for MLT3 40MMYXXXXXXXX, MLT4 45MMYXXXXXXXX [4506303404522 reported in TUV report] onwards).

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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: 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						
CO (0 to 75 mg/m^3)					50s	<200s
CO (0 to 2000 mg/m^3)					38s	<200s
SO_2 (0 to 75 mg/m^3)					87s	<200s
SO_2 (0 to 2500 mg/m^3)					50s	<200s
NO (0 to 200 mg/m^3)					52s	<200s
NO (0 to 2000 mg/m^3)					40s	<200s
NO_2 (0 to 50 mg/m^3)					55s	<200s
NO_2 (0 to 1000 mg/m^3)					45s	<200s
O_2 (0 to 25 %$^{vol.}$)					47s	<200s
Repeatability standard deviation at zero point						
CO		0.60				<2.0%
SO_2		0.90				<2.0%
NO		0.90				<2.0%
NO_2		0.50				<2.0%
O_2	0.01					<0.2%
Repeatability standard deviation at reference point						
CO	0.30					<2.0%
SO_2	0.30					<2.0%
NO	0.10					<2.0%
NO_2		0.60				<2.0%
O_2	0.01					<0.2%

Certificate No : Sira MC150257/01
This Certificate issued : 14 January 2020

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Lack-of-fit						
CO (0 to 75 mg/m^3)	0.32					<2.0%
CO (0 to 1875 mg/m^3)		0.85				<2.0%
SO_2 (0 to 75 mg/m^3)		0.53				<2.0%
SO_2 (0 to 2857 mg/m^3)	0.18					<2.0%
NO (0 to 200 mg/m^3)			-1.0			<2.0%
NO (0 to 2008 mg/m^3)		0.70				<2.0%
NO_2 (0 to 50 mg/m^3)			-1.6			<2.0%
NO_2 (0 to 1000 mg/m^3)	-0.30					<2.0%
O_2 (0 to 25 %$^{vol.}$)	-0.10					<0.2%
Influence of ambient temperature zero point						
CO		0.90				<5.0%
SO_2				-4.4		<5.0%
NO		-0.60				<5.0%
NO_2				3.1		<5.0%
O_2	0.02					<0.50%
Influence of ambient temperature reference point						
CO		0.50				<5.0%
SO_2				-4.5		<5.0%
NO			-1.0			<5.0%
NO_2				2.6		<5.0%
O_2	0.11					<0.50%
Influence of sample gas flow for extractive CEMS						
CO	0.30					<2.0%
SO_2		0.90				<2.0%
NO		0.80				<2.0%
NO_2		0.80				<2.0%
O_2	0.17					<0.2%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Influence of voltage variations 190 to 250V						
CO		-0.60				<2.0%
SO_2			1.1			<2.0%
NO			1.4			<2.0%
NO_2		-0.60				<2.0%
O_2	0.02					<0.2%
Cross-sensitivity at zero with interferents: O_2, H_2O, CO, CO_2, CH_4, N_2O, NO, NO_2, NH_3, SO_2, HCl						
CO				3.9		<4.0%
SO_2 (0 to 120 mg/m^3)				-2.1	Note 1	<4.0%
NO				3.6		<4.0%
NO_2				3.2		<4.0%
O_2	-0.10					<0.4%
Cross-sensitivity at reference with interferents: O_2, H_2O, CO, CO_2, CH_4, N_2O, NO, NO_2, NH_3, SO_2, HCl						
CO				-3.9		<4.0%
SO_2 (0 to 120 mg/m^3)				-3.8	Note 1	<4.0%
NO				3.6		<4.0%
NO_2				2.2		<4.0%
O_2	-0.36					<0.4%
Measurement uncertainty					Guidance - at least 25% below max permissible uncertainty	
CO (For and ELV of 50 mg/m^3)					7.8 Note 2	<7.5% (10%)
SO_2 (For and ELV of 50 mg/m^3)					15.3 Note 2	<15% (20%)
NO (For and ELV of 131 mg/m^3)					9.2	<15% (20%)
NO_2 (For and ELV of 200 mg/m^3)					1.6	<15% (20%)
O_2					2.8	<7.5% (10%)

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Calibration function (field)						
CO					0.9913	>0.90
SO_2					0.9949	>0.90
NO					0.9883	>0.90
NO_2					0.9975	>0.90
O_2					0.9926	>0.90
Response time (field)					Note 3	
CO (0 to 75 mg/m^3)					50s	<200s
CO (0 to 2000 mg/m^3)					38s	<200s
SO_2 (0 to 75 mg/m^3)					87s	<200s
SO_2 (0 to 2500 mg/m^3)					50s	<200s
NO (0 to 200 mg/m^3)					52s	<200s
NO (0 to 2000 mg/m^3)					40s	<200s
NO_2 (0 to 50 mg/m^3)					55s	<200s
NO_2 (0 to 1000 mg/m^3)					45s	<200s
O_2 (0 to 25 $\%^{vol.}$)					47s	<200s
Lack of fit (field)					Note 4	
CO			<2.0			<2.0%
SO_2			<2.0			<2.0%
NO			<2.0			<2.0%
NO_2			<2.0			<2.0%
O_2			<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		
Maintenance interval					3 months	>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						
CO			1.2			<3.0%
SO_2			-1.9			<3.0%
NO			1.8			<3.0%
NO_2			-1.0			<3.0%
O_2	-0.20					<0.2%
Change in reference point over maintenance interval						
CO			1.3			<3.0%
SO_2				2.1		<3.0%
NO			1.7			<3.0%
NO_2			-1.5			<3.0%
O_2	0.19					<0.2%
Availability					99.8%	>95% (>98% for O_2)
Reproducibility						
CO		0.80				<3.3%
SO_2			1.3			<3.3%
NO			1.8			<3.3%
NO_2				2.5		<3.3%
O_2	0.13					<0.20%

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Note 1: Cross sensitivity data for SO_2 was reworked for the certification range 0 to 120 mg/m^3.

Note 2: The measurement uncertainty results for CO and SO_2 meet the requirements of EN14181, but do not meet the guidance of EN15267-3. The SO_2 measurement uncertainty was calculated using the range 0 to 75 mg/m^3.

Note 3: Data taken from the laboratory test

Note 4: Data derived from the calibration function test.

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Description

The MLT3 and MLT 4 have the capability to continuously measures up to 5 components in a single analyser, using various combination of non-dispersive infrared (NDIR), non-dispersive ultraviolet (NDUV), visible (VIS) spectroscopy, electrochemical or paramagnetic oxygen sensors and internal thermal conductivity (TC) sensors. The MLT3/4 can also manage up to 8 associated parameters such as temperature, pressure, and gas flow.

The possible configurations are

- MLT 3: 1 or 2 NDIR/UV/VIS channels plus 1 O2 /TC channel
- MLT 4: 1 NDIR channels, 1 or 2 NDIR/UV/VIS channels plus 1 O2 /TC channel.
- 19 inch heated enclosure (55-65°C, 120°C option) analyser or AM

The MLT 3 and MLT4 may be configured as:

- Standalone Analyser: Comprises an analyser sensor, 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 options – analogue, serial or digital.
- Analyser Module (AM): A blind analyser unit capable of measuring concentration, comprising detector sensor, associated 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 Emerson NGA network 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 MLT-3 analyser is mounted in a standard, 3 U high 19 inch rack mounting enclosure with an integral 24V power supply.
The MLT-4 analyser is mounted in a standard, 3 U high 19 inch rack mounting enclosure with external 24V power supply.

Sample Conditions
The MLT-3 and 4 Analysers require extractive sample conditioning equipment. The sample gas must be clean, dry, non-condensing and at atmospheric pressure. The required sample flow rate is 0.2 to 1.5 l/min.

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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 MC150257/01

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.

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