

# PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

## **IMR 7500 CEMS**

Manufactured by:

### **M&C TechGroup Gentics GmbH**

Robert-Mayer-Straße 12  
D-74172 Neckarsulm  
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, Version 3.4 dated July 2012  
EN15267-3:2007,  
& QAL 1 as defined in EN 14181: 2004**

Certification Ranges :

CO	0 to 75 mg/m <sup>3</sup>
NO	0 to 200 mg/m <sup>3</sup>
NO <sub>2</sub>	0 to 100 mg/m <sup>3</sup>
O <sub>2</sub>	0 to 21 Vol.-%

Project No.: 70041541  
Certificate No: Sira MC160291/01  
Initial Certification: 13 June 2016  
This Certificate issued: 22 December 2016  
Renewal Date: 12 June 2021

Emily Alexander  
Deputy Certification Manager

MCERTS is operated on behalf of the Environment Agency by

## **Sira Certification Service**

Unit 6, Hawarden Industrial Park  
Hawarden, Deeside, CH5 3US  
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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](http://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 Rhineland report no: 936/21200089/A dated 27/01/2005

IMG Electronic & Power Systems report no: AU15-000492 dated 04/11/2015

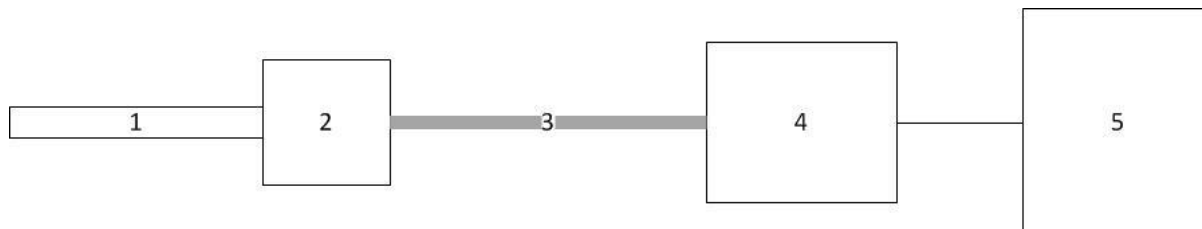
IMG Electronic & Power Systems report no: AU16-000052 dated 08/02/2016

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**Product Certified**

The IMR 7500 measuring system consists of the following parts:



1. Sample Probe	2. Heated Filter	3. Heated Sample Line	4. Gas Conditioning	5. Analyser
Model: Bühler model 222.17 heated probe (180°C)	Model: Stainless steel integrated with probe	Model: 180°C PTFE heated sample line (8m length in field trial).	Model: Bühler Cooler Model PKE5-OEM. Heat transfer body type MTS/MTV	Model: IMR 7500

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 P7VC1 onwards (serial number 211R4575).

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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: IP20

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 % 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					Note 1	
CO					65s	<200s
NO					30s	<200s
NO <sub>2</sub>					135s	<200s
O <sub>2</sub>					31s	<200s
Repeatability standard deviation at zero point						
CO	0.23					<2.0%
NO		0.63				<2.0%
NO <sub>2</sub>		0.69				<2.0%
O <sub>2</sub>	0.03					<0.2%
Repeatability standard deviation at reference point						
CO		0.62				<2.0%
NO		0.70				<2.0%
NO <sub>2</sub>	0.32					<2.0%
O <sub>2</sub>	0.07					<0.2%
Lack-of-fit						
CO		0.74				<2.0%
NO			-1.11			<2.0%
NO <sub>2</sub>				2.00		<2.0%
O <sub>2</sub>	-0.20					<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 ambient temperature zero point (+5°C to +40°C)						
CO	0.00					<5.0%
NO	0.00					<5.0%
NO <sub>2</sub>	0.00					<5.0%
O <sub>2</sub>	0.22					<0.5%
Influence of ambient temperature reference point (+5°C to +40°C)						
CO				-2.00		<5.0%
NO			1.66			<5.0%
NO <sub>2</sub>				2.30		<5.0%
O <sub>2</sub>	0.00					<0.5%
Influence of sample gas flow for extractive CEMS						
CO		<1.00				<2.0%
NO		<1.00				<2.0%
NO <sub>2</sub>		<1.00				<2.0%
O <sub>2</sub>		<1.00				<0.2%
Influence of voltage variations (190V to 250V)						
CO	0.12					<2.0%
NO		0.50				<2.0%
NO <sub>2</sub>			1.54			<2.0%
O <sub>2</sub>	0.08					<0.2%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Cross-sensitivity at zero with interferents: O <sub>2</sub> , H <sub>2</sub> O, CO, CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, NO, NO <sub>2</sub> , NH <sub>3</sub> , SO <sub>2</sub> , HCl,						
CO				3.80		<4.0%
NO				-2.50		<4.0%
NO <sub>2</sub>				3.90		<4.0%
O <sub>2</sub>	-0.04					<0.4%
Cross-sensitivity at reference with interferents: O <sub>2</sub> , H <sub>2</sub> O, CO, CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, NO, NO <sub>2</sub> , NH <sub>3</sub> , SO <sub>2</sub> , HCl,						
CO				3.90		<4.0%
NO			-1.50			<4.0%
NO <sub>2</sub>				3.40		<4.0%
O <sub>2</sub>	0.06					<0.4%
Measurement uncertainty					Guidance - at least 25% below max permissible uncertainty	
CO (For and ELV of 50 mg/m <sup>3</sup> )					5.66	<7.5% (10%)
NO (For and ELV of 130 mg/m <sup>3</sup> )					14.29	<15% (20%)
NO <sub>2</sub> (For and ELV of 200 mg/m <sup>3</sup> )					8.68	<15% (20%)
O <sub>2</sub>					0.54	<7.5 (10%)
Calibration function (field)						
CO					0.98	>0.90
NO					0.99	>0.90
NO <sub>2</sub>					0.95	>0.90
O <sub>2</sub>					0.99	>0.90

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time (field)						
CO					65s	<200s
NO					30s	<200s
NO <sub>2</sub>					135s	<200s
O <sub>2</sub>					31s	<200s
Lack of fit (field)					Note 2	
CO			<2.0			<2.0%
NO			<2.0			<2.0%
NO <sub>2</sub>			<2.0			<2.0%
O <sub>2</sub>			<2.0			<0.2%
Maintenance interval					Note 3	
CO					8 days	>8 days
NO					4 weeks	>8 days
NO <sub>2</sub>					2 weeks	>8 days
O <sub>2</sub>					4 weeks	>8 days
Zero and Span drift requirement	<p>The analyser will account for drift by flushing the sensor banks with fresh air at a set period of time, and use this to zero the sensors. The standard time is every three hours. This process is referred to as AutoCal. Span will be determined by use of single, non-mix calibration gases. These gases use where applicable, a neutral carrier gas such as N<sub>2</sub>. The calibration concentrations should be ideally at around 50% of the measuring range of the device channel to be calibrated.</p>					<p>Clause 6.13 &amp; 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						
CO				<3.0		<3.0%
NO			1.0			<3.0%
NO <sub>2</sub>				2.4		<3.0%
O <sub>2</sub>	<0.2					<0.2%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Change in reference point over maintenance interval						
CO				<3.0		<3.0%
NO				<3.0		<3.0%
NO <sub>2</sub>				<3.0		<3.0%
O <sub>2</sub>	0.18					<0.2%
Availability						
All Gasses					98.6%	>95% (>98% for O <sub>2</sub> )
Reproducibility						
CO			1.08			<3.3%
NO		0.86				<3.3%
NO <sub>2</sub>				2.00		<3.3%
O <sub>2</sub>	0.13					<0.2%

Note 1: Response time in the laboratory was not reported in the test report. Response times on this certificate are reported from field trial data.

Note 2: Test data derived from the calibration function test.

Note 3: The IMR 7500 has a maintenance interval of 8 days for CO, 2 weeks for NO<sub>2</sub> and 4 weeks for NO and O<sub>2</sub>. The work detailed below has to be carried out at regular intervals, depending on local conditions;

- Regular visual inspections of the measuring device.
- Weekly inspections of the sample gas filter, sample gas preparation system, sample gas lines and connections.
- The maintenance intervals for each component state how often manual calibration gasses should be applied.
- Manufacturer instructions should be observed.

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## Description

The IMR 7500 is an automated measurement system for the continuous, extractive measurement of flue- and process gas in industrial applications. This compact 19" rack integrated system is the standard IMR analyzer for Continuous Emission Monitoring Systems (CEMS). Gases measured include O<sub>2</sub>, CO, CO<sub>2</sub>, NO, NO<sub>2</sub>. The system comprises of a Heated Sample Extraction Probe and filter combination; a heated sample line, Peltier Cooler/Dryer, high quality sample pump and the main IMR 7500 unit.

## 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 V00 for certificate No. Sira MC160291/00
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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