

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

MGA 12 HR

Manufactured by:

Dr Fodisch Umweltmesstechnik AG

Zwenkauer Str. 159
04420 Markranstädt

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 dated June 2018
EN15267-3:2007,
& QAL 1 as defined in EN 14181: 2014**

Certification Ranges :

CO	0 to 125 mg/m ³	0 to 1000 mg/m ³
NO	0 to 300 mg/m ³	0 to 1000 mg/m ³
SO ₂	0 to 200 mg/m ³	0 to 1000 mg/m ³
O ₂	0 to 25 Vol.-%	

Project No. : 70194502
Certificate No : Sira MC180342/01
Initial Certification : 09 October 2018
This Certificate issued : 22 October 2018
Renewal Date : 08 October 2023

Emily Alexander
Environmental Project Engineer

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:

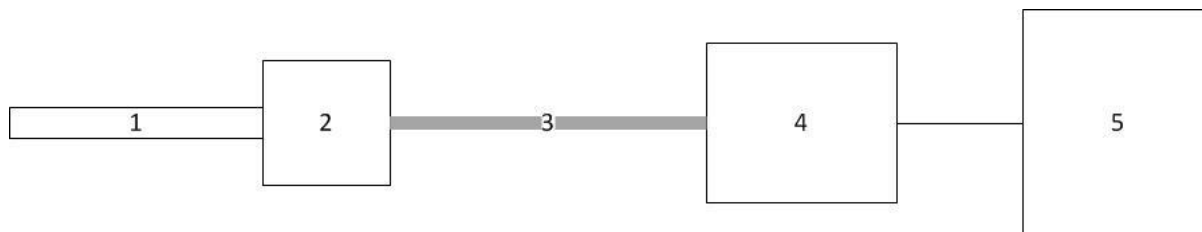
TUV Rheinland Report no. 936/21219366/B dated 1st April 2014

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Product Certified

The MGA 12 HR measuring system consists of the following parts:



1. Sample Probe	2. Heated Filter	3. Heated Sample Line	4. Gas Conditioning	5. Analyser
Model: Dr. Födisch AG ETL 8211 sampling tube	Model: Dr. Födisch AG HSP 12 sampling probe	Model: Winkler PTFE inner core at 180°C	Model: GCU16	Model: MGA12 HR

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 1.47 (serial number 12002) onwards.

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: +5°C to +30°C
Instrument IP rating: IP40

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 125mg/m ³)					152s	<200s
CO (0 to 1000mg/m ³)					142s	<200s
NO (0 to 250mg/m ³)					157s	<200s
NO (0 to 1000mg/m ³)					139s	<200s
SO ₂ (0 to 200mg/m ³)					170s	<200s
SO ₂ (0 to 1000mg/m ³)					164s	<200s
O ₂					30s	<200s
Repeatability standard deviation at zero point						
CO	0.1					<2.0%
NO	0.1					<2.0%
SO ₂	0.1					<2.0%
O ₂	0.01					<0.2%
Repeatability standard deviation at reference point						
CO	0.4					<2.0%
NO		0.5				<2.0%
SO ₂	0.4					<2.0%
O ₂	0.01					<0.2%

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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 125mg/m ³)		0.8				<2.0%
CO (0 to 1000mg/m ³)		0.8				<2.0%
NO (0 to 250mg/m ³)		0.8				<2.0%
NO (0 to 1000mg/m ³)			1.2			<2.0%
SO ₂ (0 to 200mg/m ³)			1			<2.0%
SO ₂ (0 to 1000mg/m ³)			1			<2.0%
O ₂	0.1					<0.2%
Influence of ambient temperature zero point (+5°C to +30°C)					Note 1	
CO	0.0					<5.0%
NO				2.2		<5.0%
SO ₂		0.9				<5.0%
O ₂	0.14					<0.50%
Influence of ambient temperature reference point (+5°C to +30°C)					Note 1	
CO				2.4		<5.0%
NO			1.9			<5.0%
SO ₂				-2.5		<5.0%
O ₂	-0.14					<0.50%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Influence of sample gas flow for extractive CEMS						
CO		0.5				<2.0%
NO			1			<2.0%
SO ₂		0.6				<2.0%
O ₂	-0.3					<0.2%
Influence of voltage variations (323V to 418V) Zero					No influence	
CO	0.1					<2.0%
NO	-0.6					<2.0%
SO ₂	-0.8					<2.0%
O ₂	-0.1					<0.2%
Influence of voltage variations (323V to 418V) Span						
CO	-0.9					<2.0%
NO	0.9					<2.0%
SO ₂	-0.8					<2.0%
O ₂	-0.1					<0.2%
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						
CO	0.0					<4.0%
NO	0.48					<4.0%
SO ₂		0.88				<4.0%
O ₂	0.0					<0.40%
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						
CO				2.96		<4.0%
NO				2.52		<4.0%
SO ₂				-4.0		<4.0%
O ₂	0.0					<0.40%

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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 Note 2	
CO (For and ELV of 80 mg/m ³)					8.4	<7.5% (10%)
NO (For and ELV of 120 mg/m ³)					12.9	<15% (20%)
SO ₂ (For and ELV of 130 mg/m ³)					10.7	<15% (20%)
O ₂ (For and ELV of 25 Vol.-%)					2.1	<7.5% (10%)
Calibration function (field)						
CO		0.99				>0.90
NO		0.9				>0.90
SO ₂		0.94				>0.90
O ₂		0.99				>0.90
Response time (field)						
CO					110s	<200s
NO					130s	<200s
SO ₂					176s	<200s
O ₂					33s	<200s
Lack of fit (field)						
CO			-1.76			<2.0%
NO			-1.8			<2.0%
SO ₂			1.5			<2.0%
O ₂	0.1					<0.2%
Maintenance interval					Note 3 3 months	>8 days

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Zero and Span drift requirement	<p><u>Statement from manufacturer:</u> <i>Recording of the zero reference point drift is possible and complies with the requirements of QAL3 in accordance with EN 14181.</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						
CO	-0.2					<3.0%
NO				2.3		<3.0%
SO ₂	-0.3					<3.0%
O ₂	-0.1					<0.2%
Change in reference point over maintenance interval						
CO			-1.6	-2.2		<3.0%
NO				-2.6		<3.0%
SO ₂				-2.3		<3.0%
O ₂	-0.2					<0.2%
Availability					98.9	>98%
Reproducibility						
CO			1.1			<3.3%
NO				2.4		<3.3%
SO ₂				3.2		<3.3%
O ₂	0.18					<0.20%

Note 1: The ambient air temperature should not exceed +30°C as the testing was performed over the range +5°C to 30°C.

Note 2: The measurement uncertainty results for CO meet the requirements of EN 14181 (10% ELV for CO), but does not meet the recommendations of EN 15267-3 (7.5% of ELV for CO)

Note 3: The MGA 12 HR has a maintenance interval of 3 months. The work details below has to be carried out at regular intervals, depending on local conditions.

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Description

The MGA 12 is applicable all-purpose for measurement of emissions, raw gases or processes. It serves the exhaust concentration control in combustion plants with different types of fuel, the combustion optimisation and the process and safety management control. In the MGA 12 two independent, selectively working measuring methods apply: infrared absorption and electrochemical cell.

By the functional principle of infrared absorption up to four infrared gas components can be detected simultaneously. This spectroscopic method is based on the absorption of non-dispersive infrared radiation (NDIR photometry).

The multi gas analyser MGA 12 serves the continuous measurement of pollutants in flue gas (e.g. CO, CO₂, SO₂, NO) and the measurement of O₂ as well as the continuous process control.

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 MC180341/00
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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