

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

FIDAMAT 6

manufactured by:

Siemens AG

DE-76181
Karlsruhe,
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) and Transportable-CEMs (T-CEMS),
Version 4 dated July 2018
EN15267-3:2007,
& QAL 1 as defined in EN 14181: 2014**

Certification Ranges:

TOC	0 to 15 mg/m ³
	0 to 50 mg/m ³
	0 to 150 mg/m ³
	0 to 500 mg/m ³
	0 to 3000 mg/m ³

Project No.: 70164367/70200725
Certificate: Sira MC170331/02
Initial Certification: 28 November 2017
This Certificate issued: 27 November 2018
Renewal Date: 27 November 2022

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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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 Rheinland Energy GmbH Report No.:936/21235670/E dated 10th November 2017

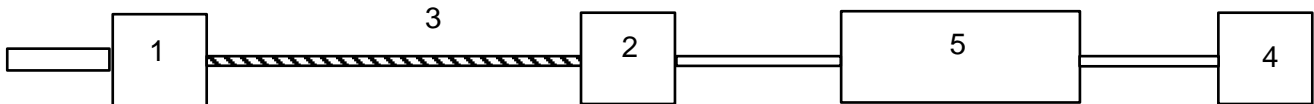
TÜV Rheinland Energy GmbH Report No.: 936/21235670/F dated 3rd September 2018

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Product Certified

The FIDAMAT 6 measuring system consists of the following parts:



1. Sample Probe	2. Heated Filter	3. Heated Sample Line	4. Fuel Air Conditioning	5. Analyser
Model: M&C SP2000 180°C incl. controller and filter	Model: M&C FT-2T-H2	Model: 4mm ID PTFE line heated to 180°C (50m field test)	Model: Siemens Air Treater Model 1	Model: FIDAMAT 6

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.

Operation of the AMS and the compensation of cross-sensitivity effects require input of the oxygen concentration within measurement path of the AMS. In case of varying oxygen values, an oxygen measuring system has to be fitted in the same measurement path. The oxygen measurement instrument must at least be certified according to EN 15267 and operated according to the requirements of EN 14181.

This certificate applies to all FIDAMAT 6 instruments fitted with software version 1.3.6 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: 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 0 to 15 mg/m³, unless otherwise stated.

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time						
TOC 0 to 15 mg/m ³					56s	<200s
TOC 0 to 50 mg/m ³					53s	<200s
TOC 0 to 150 mg/m ³					52s	<200s
TOC 0 to 500 mg/m ³					45s	<200s
TOC 0 to 3000 mg/m ³					54s	<200s
Repeatability standard deviation at zero point						
TOC	0.1					<2.0%
Repeatability standard deviation at reference point						
TOC	0.1					<2.0%
Lack-of-fit						
TOC 0 to 15 mg/m ³	0.2					<2.0%
TOC 0 to 50 mg/m ³	-0.2					<2.0%
TOC 0 to 150 mg/m ³	0.13					<2.0%
TOC 0 to 500 mg/m ³	-0.2					<2.0%
TOC 0 to 3000 mg/m ³		0.57				<2.0%
Influence of ambient temperature zero point (+5°C to +40°C)						
TOC				2.1		<5.0%
Influence of ambient temperature reference point (+5°C to +40°C)						
TOC			1.3			<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 sample gas flow for extractive CEMS TOC		-0.5				<2.0%
Influence of voltage variations (196V to 253V) All gases	-0.3				No influence	<2.0%
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, TOC				2.87		<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, TOC				3.34		<4.0%
Response factors for TOC CEMS:						
Methane					1.06	0.9 to 1.2
Aliphatic hydrocarbons					1.08	0.9 to 1.1
Aromatic hydrocarbons					1.05	0.8 to 1.1
Dichloromethane (tetrachloroethane)					0.76	0.75 to 1.15
Aliphatic alcohols					0.88	0.7 to 1.0
Ester and ketones					0.6	0.7 to 1.0
Organic acids					0.6	0.5 to 1.0
Measurement uncertainty TOC (For an ELV of 10 mg/m ³)					Guidance - at least 25% below max permissible uncertainty 12.4%	<22.5% (30%)

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Calibration function (field) TOC					0.99	>0.90
Response time (field) TOC					67s	<200s
Lack of fit (field) TOC		-0.78				<2.0%
Maintenance interval					Note 1 4 weeks	>8 days
Zero and Span drift requirement	The AMS allows for recording zero and span drifting and thus fulfils the requirements of QAL3 according to 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 TOC			-1.2			<3.0%
Change in reference point over maintenance interval TOC				2.5		<3.0%
Availability					99.6%	>95%
Reproducibility TOC	0.3					<3.3%

Note 1: The FIDAMAT 6 has a maintenance interval of 4 weeks. The work details below has to be carried out at regular intervals, depending on local conditions:

- Regular visual inspections
 - Hydrogen stocks
 - Check temperature of the analyzer and sample gas line
 - Check test gas filter, sample gas lines and gas inlets regularly
 - Perform a zero and span point check by admitting test gases every 4 weeks

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Description

The FIDAMAT 6 is an extractive AMS and comprises the following parts:

- FIDAMAT 6 analyser
- Cabinet for the analyser
- Heated probe (180 °C) incl. controller, M&C SP2000
- Heated test gas line (180 °C) (max. 50 m) including controller

The measuring gas is supplied to the FIDAMAT 6 Measuring System by the built-in diaphragm pump via a heated line and an additional filter and then routed to the flame ionization detector via a non-clogging fused-silica restrictor. Within the detector the hydrocarbons contained in the measuring gas are combusted in an oxy-hydrogen flame.

During the combustion process the organic hydrocarbons are ionized.

The ions which are released are converted into an ion current by the polarization voltage between two electrodes and then measured using a highly sensitive amplifier. The current measured is proportional to the number of organic C-atoms of the hydrocarbons in the measuring gas.

A pressure regulator keeps the pressure of the hydrogen constant. A mutually adjusted system of pump, capillaries and combustion-air pressure regulator ensures a constant measuring-gas pressure.

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 MC170331/00
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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