

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

Model 3006 TOC FID Analyser

Manufactured by:

SICK AG

*Poppenbütteler Bogen 9b
D-22399 Hamburg
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
EN15267-1:2009, EN15267-2:2009, EN15267-3:2007,
& QAL 1 as defined in EN 14181: 2004
Certification Ranges :**

TOC 0 to 15 mg/m³

Project No. : 674/0133G & 674/0373D
Certificate No : Sira MC 040036/06
Initial Certification : 14 July 2004
This Certificate issued : 12 January 2015
Renewal Date : 13 July 2019

Joe Prince MSc MInst MC
Deputy Certification Manager

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service

12 Acorn Industrial Park, Crayford Road, Crayford
Dartford, Kent, UK DA1 4AL
Tel: +44 (0)1322 520500 Fax: +44 (0)1322 520501



*The MCERTS certificate consists of this document in its entirety.
For conditions of use, please consider all the information within.*

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Registered Office: Rake Lane, Eccleston, Chester, UK CH4 9JN

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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 LCPD and WID 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 WID applications, and not more than 2.5X the ELV for LCPD and other types of application.

The Model 3006 analyser was assessed on the basis of various three month trials mounted on a number of different waste incinerators. Both H₂ only and H₂/He mix (40% / 60%) fuel types were used during the field test.

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	Report No: 936/803017/1 dated 28 th March 1995 (Model 3006)
TÜV Rheinland	Report No: 936/803017/2 dated 28 th March 1995 (Model 3006 for Tetrachloroethylene)
TÜV Norddeutschland	Report No: 128 CU 07710 dated 16 th August 1991 (Model 3002 RC)
TÜV Norddeutschland	Report No: 128 CU 11120 dated 3 rd March 1993 (Model 3002 RC)
TÜV Rheinland	QAL 1 certificate dated 9 th May 2007
Sira Report	Report number 674/0373D dated 10/01/2010

Product Certified

The Model 3006 measuring system consists of the following parts:

- The analyser with fixture for gas cylinders
- The measuring probe with heated line

This certificate applies to all instruments from serial number 1222 onwards. The Model 3006 FID analyser is purely analogue without software.

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: 0°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.

Unless otherwise stated the evaluation was carried out on the certification range 0 to 15mg/m³

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time TOC					45s	<200s
Repeatability standard deviation at zero point TOC				2.0		<2.0%
Repeatability standard deviation at reference point TOC	0.0					<2.0%
Lack-of-fit TOC	0.3					<2.0%
Influence of ambient temperature zero point TOC			1.4			<5.0%
Influence of ambient temperature reference point TOC				-2.4		<5.0%
Influence of sample gas flow for extractive CEMS TOC			1.6			<2.0%
Influence of voltage variations 187 to 250V TOC		0.5				<2.0%

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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: H ₂ O, CO, CO ₂ , N ₂ O, NO, NO ₂ , NH ₃ , SO ₂ , HCl TOC			1.8			<4.0%
Cross-sensitivity at reference with interferents: H ₂ O, CO, CO ₂ , N ₂ O, NO, NO ₂ , NH ₃ , SO ₂ , HCl TOC				2.5		<4.0%
Effect of oxygen TOC		0.71				<2.0%
Response Factors					Note 1	
Methane					1.05	0.9 to 1.2
Aliphatic hydrocarbons					0.99 – 1.05	0.9 to 1.1
Aromatic hydrocarbons					0.98 – 1.1	0.8 to 1.1
Dichloromethane					1.01 – 1.03	0.75 to 1.15
Aliphatic alcohols					0.7 – 0.8	0.7 to 1.0
Esters and ketones					0.7 – 0.8	0.7 to 1.0
Organic acids					0.6	0.5 to 1.0
Measurement uncertainty TOC (For and ELV of 10 mg/m ³)					Guidance - at least 25% below max permissible uncertainty Note 2 25.8%	<22.5% (30%)
Calibration function (field) TOC					0.99	>0.90
Response time (field) TOC					60s	<200s
Lack of fit (field) TOC					Note 3 <2.0%	<2.0%
Maintenance Interval TOC					Note 4 3 Days	>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> Zero and span drift can be checked and compensated by the user at any time and always before use. Zero point calibration takes place using air or nitrogen. Span point calibration takes place using propane in air. Calibration can be done quickly in the field with on-board gases.</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 TOC			1.9			<3.0%
Change in reference point over maintenance interval TOC				3.8	Note 5	<3.0%
Availability TOC					98.6	>95%
Reproducibility TOC			1.9			<3.3%

Note 1 – The results for dichloromethane, aliphatic alcohols and esters and ketones are from the testing of the Model 3002 RC which is the non-portable version of Model 3006.

Note 2 – The measurement uncertainty for the Model 3006 FID meets the requirements of EN14181 (30%) but does not meet the EN15267-3 requirement of 22.5%.

Note 3 – Test data derived from calibration function test.

Note 4 – The maintenance interval is stated as 3 days. The instrument is designed for reference monitoring, and therefore would be subject to a calibration check before and after each use, and at least every 24 hours.

Note 5 – The result stated is over a one week maintenance interval. However, the manufacturer recommends a 3 day interval between calibrations which would result in a significantly lower span point change. When used during reference monitoring, calibration checks would be at least every 24 hours.

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Description

Model 3006 is a heated total hydrocarbon analyser. It is designed for mobile use and under harsh operating conditions. Its compact and robust assembly allows continuous and discontinuous measurement of organic components also at measuring points with difficult access.

Features including ranges from 100 ppb to 100,000 ppm, internal air supply, and a patented miniature heated sensor block with a flame ionisation detector controlled up to 240 °C make it possible to measure in steam saturated gases.

Model 3006 is a portable analyser and the Model 3002 RC is its stationary version.

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 for certificate No. Sira MC040036/01
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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