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PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

***GM 31 In-situ Multi Component Analyser
Models GM31-1 (SO₂), GM31-2 (SO₂, NO), GM31-4 (NO)***

manufactured by:

SICK MAIHAK GmbH
*Nimburger Street 11
79276 Reute
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 2, Revision 1 (April 2003)**

Certification Ranges :

SO ₂	0 to 75 mg/m ³
NO	0 to 130 mg/m ³

Project No: 674/0113H
Certificate No: Sira MC 040038/03
Initial Certification: 2 August 2004
This Certificate Issued: 18 July 2008
Renewal Date: 1 August 2009

Technical Director

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: 01322 520500 Fax: 01322 520501

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Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -20°C to +55°C

Performance values are expressed as a percentage of the smallest certification range, except for availability and analysis function, and '✓' Indicates compliance with MCERTS requirements.

Test	Results expressed as % of certification range				Other results	MCERTS* specification
	<0.5	<1	<2	<4		
Linearity:			✓			<±2%
Cross sensitivity: SO ₂ NO			✓	✓		<±4% <±4%
Temperature dependent zero drift:	✓					<0.3%
Temperature dependent span drift:	✓					<0.3%
Response time:					18 s	<200s
Detection limit	✓					<2%
Accuracy/Analysis function (field): SO ₂ NO					98.1% 99.5%	>95% >95%
Availability (field)					> 96,1%	>95%
Zero shift (field)	✓					<2%/week
Span shift (field)	✓					<4%/week
Vibration test					See note 1	Not specified
Sample gas pressure					See note 2	To be reported
Sample gas temperature					See note 2	To be reported
Maintenance Interval					4 weeks	To be reported

* MCERTS performance limit Version 2 Revision 1, April 2003

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Note 1: Partial sinusoidal vibration testing was conducted over 10 – 55Hz. Also the field test results from different types of plants have shown that typical vibrations on site have no influence to the measuring signal of this instrument. After the partial testing, an expert visual examination, and analysis of the field test results the decision was made by the certification committee that a full vibration test was not required.

Note 2: This test was not conducted.

Field Test Site

The GM31 analyser was assessed on the basis of a six month trial mounted on a waste incineration plant and four months at a large combustion plant.

Approved Site Application

On the basis of these tests this certificate is valid when the instrument is used on waste incineration and large combustion plant applications.

However any potential user should ensure, in consultation with the manufacturer, that the emission monitoring system is suitable for the process on which it will be installed. The MCERTS standard gives guidance of process conditions for some other types of plant.

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 Essen Report No: 3.5.2/0154/96-61 75 26/01 dated 25th February 1997
TÜV Essen Report No: 1.6 WKS –205 63 494 dated 15th January 2003

TÜV reports are accepted on the basis of the Environment Agency's document 'MCERTS – Guidance on the acceptance of German type approval test reports for CEMS' Version 2 (October 2003)

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Product Certified

This certificate applies to the GM-31-1, GM31-2 and GM31-4 models. The tested system GM31 consists of the main components:

- GM31 T/R unit (transmitter/receiver unit)
- GM31 measuring probe
- TCU (terminal control unit) or evaluation unit GMA31
- Purge air supply

The certified software status is version E-Prom 2017810 (change index N471) onwards.

Description:

The GM31 in-situ multi-component analyser is based on an optoelectronic direct measurement. It uses a measuring probe that is equipped with an aperture or a gas-permeable membrane (filter) which is known as the active measuring distance. Using the wavelength specific light absorption by the gas mixture in the active measuring distance, it determines the concentration of the gas components present.

The GM31 measures the gas components as well as the temperature in the gas duct continuously - either simultaneously or as individual measurements using transmission measurement (UV-spectroscopy) more specifically known as DOAS (Differential Optical Absorption Spectroscopy).

The ranges stated are the minimum with an 800 mm active measuring path under dry standard conditions. The manufacturer should be consulted for details on higher ranges.

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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'. The design of the product certified is defined in the Sira Design Schedule for certificate No. Sira MC 040038/02.
2. If certified product is found not to comply, Sira Certification Service should be notified immediately at the address shown on page 1.
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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