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# PRODUCT CONFORMITY CERTIFICATE

This is certify that the

***MCS 100E HW Multi-Component Analyser***

manufactured by:

***SICK MAIHAK GmbH***

*Dr Zimmermann Street 18  
88709  
Meersburg  
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 <sub>2</sub>	0 to 75 mg/m <sup>3</sup>
NO	0 to 200 mg/m <sup>3</sup>
CO	0 to 75 mg/m <sup>3</sup>
HCl	0 to 15 mg/m <sup>3</sup>
NH <sub>3</sub>	0 to 20 mg/m <sup>3</sup>
O <sub>2</sub>	0 to 21 % vol
CO <sub>2</sub>	0 to 25 % vol
H <sub>2</sub> O	0 to 40 % vol

Project No: 674/0113E  
Certificate No: Sira MC 040044/02  
Initial Certification: 10 August 2004  
This Certificate Issued: 18 July 2008  
Renewal Date: 09 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: +5°C to +35°C

Performance values are expressed as a percentage of the 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: CO, CO <sub>2</sub> , NH <sub>3</sub> , H <sub>2</sub> O, HCl NO SO <sub>2</sub> O <sub>2</sub>	✓	✓	✓		0.15 %vol	<±2% <±2% <±2% <±0.3 %vol
Cross sensitivity: CO <sub>2</sub> , H <sub>2</sub> O, O <sub>2</sub> NO CO, NH <sub>3</sub> , HCl SO <sub>2</sub>	✓	✓	✓	✓		<±4% <±4% <±4% <±4%
Temperature dependent zero drift:	✓					<0.3%
Temperature dependent span drift:	✓					<0.3%
Response time: All gases (except HCl & NH <sub>3</sub> ) NH <sub>3</sub> HCl					< 142 < 167 < 311	<200s <200s <600s
Detection limit: CO, CO <sub>2</sub> , H <sub>2</sub> O, NO SO <sub>2</sub> , NH <sub>3</sub> , HCl O <sub>2</sub>	✓ ✓	✓			<0,03%vol	<2% <2% <0,2%vol
Accuracy/Analysis function (field): CO and HCl NO, SO <sub>2</sub> , NH <sub>3</sub> H <sub>2</sub> O, CO <sub>2</sub> , O <sub>2</sub>					>98.6% >99.7% >98.6%	>95% >95% >95%
Availability (field): all gases					98.6%	>95%

\* MCERTS performance limit Version 2 Revision 1, April 2003

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Test	Results expressed as % of certification range				Other results	MCERTS* specification
	<0.5	<1	<2	<4		
Zero shift (field): all gases	✓					<2%/week
Span shift (field): all gases	✓					<4%/week
Vibration test					See note 1	Not specified
Sample gas pressure					See note 2	To be reported
Sample gas temperature					See note 3	To be reported
Maintenance Interval					12 weeks	To be reported

\* MCERTS performance limit Version 2 Revision 1, April 2003

- Note 1: A visual examination did not identify any components in the probe that are likely to be affected by vibration. Hence the test was not carried out.
- Note 2: Test not required, as the system is an extractive analyser with a pump sampling system
- Note 3: Test not required as no active detection parts are exposed to the flue gas temperature

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### Field Test Site

The MCS 100E HW analyser was assessed on the basis of an eight month trial mounted on a waste incinerator.

### Approved Site Application

On the basis of these tests this certificate is valid when the instrument is used on waste incineration and large coal-fired 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 Rheinland Report No: 936/808010/A dated 30<sup>th</sup> September 1999

TÜV Rheinland Report No: 936/21201591/A dated 7<sup>th</sup> February 2004

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)

### Product Certified

The tested system MCS100 E consists of the following main components:

- Analyser module
- Heated sampling line
- Sampling probe with heated filter

The software status certified is version 1.38 onwards.

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### Description:

MCS 100 E HW is an extractive multi component gas analyser. It is a hot measuring IR analyser especially for applications at waste incineration plants and power plants with high acid dew point. It can be used at raw gas sites for process monitoring and at clean gas applications for emission monitoring.

In MCS 100 E HW all components from the sampling system to the measuring cell are electrically heated to a temperature above the acid dew points. It uses the gas filter correlation principle. For the measurement of oxygen a  $ZrO_2$  probe is used.

The ranges certified are the minimum ranges, consult manufacturer for details of higher ranges.

### 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 040044/02.
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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