



# PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

***ULTRAMAT / OXYMAT 6 Multi-component analyser***

manufactured by:

***Siemens Production Automatisations S.A.S.***

*1 Chemin de la Sandlach  
B.P. 189  
F – 67506 Haguenau Cedex  
France*

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 3.1 dated July 2008,  
EN15267:2007,  
& QAL 1 as defined in EN 14181: 2004**

## Certification Ranges :

O <sub>2</sub>	0 to 5 % vol	to	0 to 25 % vol
NO	0-100 mg/m <sup>3</sup>	to	0-200 mg/m <sup>3</sup>
CO	0-50 mg/m <sup>3</sup>	to	0-75 mg/m <sup>3</sup>
SO <sub>2</sub>	0-75 mg/m <sup>3</sup>		

Project No: 674/0135A & 674/0374  
Certificate No: Sira MC040035/02  
Initial Certification: 25 February 2004  
This Certificate Issued: 04 December 2009  
Renewal Date: 24 February 2014

Technical Director

*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 emission monitoring system is suitable for the process on which it will be installed.*

*For general guidance on stack emission monitoring techniques refer to Environment Agency Technical Guidance Note M2: Monitoring of stack emissions to air. Operators with installations falling under the Large Combustion Plant Directive or Waste Incineration Directive must refer to Technical Guidance Note M20: Quality Assurance of Continuous Emission Monitoring Systems, for guidance on the suitability of CEMS for their installations. M2 and M20 are available on the Agency's website at [www.mcerts.net](http://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 emission limit value (ELV) for WID applications, and not more than 2.5X the ELV for LCPD and other types of application.

The field trial was conducted over 6 months with the Ultramat / Oxymat 6 installed on a waste incinerator.

## 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 Süddeutschland	Report Number 24019084 dated February 1999
TÜV Süddeutschland	Report Number 13213066 dated April 2009

## Product Certified

The measuring system consists of the following parts:

- |                 |             |               |
|-----------------|-------------|---------------|
| • Sample Probe  | M&C         | SP 2000 HR    |
| • Heated lines  |             | H300 integral |
| • Sample cooler | M&C/Siemens | 7MB1993...    |

This certificate applies to all instruments fitted with software version 4 (serial number X2-635 onwards).

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## Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: +5°C to +45°C  
 Instrument IP rating: 'E' model IP20  
 'F' model IP40

Note: 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 CO 0 to 50mg/m<sup>3</sup>, NO 0 to 100mg/m<sup>3</sup>, SO<sub>2</sub> 0 to 75mg/m<sup>3</sup>, and O<sub>2</sub> 0 to 25%vol

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time						
SO <sub>2</sub>					120s	<200s
NO					81s	<200s
CO					75s	<200s
O <sub>2</sub>					38s	<200s
Repeatability standard deviation at zero point						
SO <sub>2</sub>	0.3					<2.0%
NO	0.4					<2.0%
CO	0.4					<2.0%
O <sub>2</sub>	0.01					<0.2%
Repeatability standard deviation at span point						
SO <sub>2</sub>	0.2					<2.0%
NO	0.2					<2.0%
CO	0.3					<2.0%
O <sub>2</sub>	0.02					<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						
SO <sub>2</sub> 0-400 mg/m <sup>3</sup>	-0.32					<2.0%
NO 0-100 mg/m <sup>3</sup>	-0.26					<2.0%
NO 0-200 mg/m <sup>3</sup>	0.45					<2.0%
CO 0-50 mg/m <sup>3</sup>	0.27					<2.0%
CO 0-75 mg/m <sup>3</sup>	-0.22					<2.0%
O <sub>2</sub> 0-5 % vol	-0.08					<0.2%
O <sub>2</sub> 0-25 5 vol	-0.05					<0.2%
Influence of ambient temperature zero point – E model						
SO <sub>2</sub>				-3.3		<5.0%
NO			1.9			<5.0%
CO				-2.2		<5.0%
O <sub>2</sub>	0.12					<0.50%
Influence of ambient temperature zero point – F model						
SO <sub>2</sub>				2.4		<5.0%
NO				4.3		<5.0%
CO			-1.7			<5.0%
O <sub>2</sub>	-0.12					<0.50%
Influence of ambient temperature span point - E model						
SO <sub>2</sub>				4.4		<5.0%
NO			1.6			<5.0%
CO				3.1		<5.0%
O <sub>2</sub>	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 ambient temperature span point - F model						
SO <sub>2</sub>				2.4		<5.0%
NO				4.4		<5.0%
CO			1.3			<5.0%
O <sub>2</sub>	0.10					<0.50%
Influence of sample gas flow for extractive CEMS						
SO <sub>2</sub> , NO, CO,		<1				<2.0%
O <sub>2</sub>	<0.2					<0.2%
Influence of voltage variations 185 to 264V					No effect	<2.0% <0.2% O <sub>2</sub>
Influence of vibration (10 to 60Hz (±0.3mm), 60 to 150Hz at 19.6m/s <sup>2</sup> )					Not tested	To be reported
Cross-sensitivity at zero					Note 1	
SO <sub>2</sub>				2.6		<4.0%
NO				-2.7		<4.0%
CO				3.5		<4.0%
O <sub>2</sub>	-0.11					<0.40%
Cross-sensitivity at span					Note 1	
SO <sub>2</sub>				2.3		<4.0%
NO				-2.7		<4.0%
CO				3.3		<4.0%
O <sub>2</sub>	-0.07					<0.40%
Measurement uncertainty					Guidance - at least 25% below max permissible uncertainty	
SO <sub>2</sub> (for an ELV of 50mg/m <sup>3</sup> )					7.60%	15%
NO (for an ELV of 32.6mg/m <sup>3</sup> )					10.61%	15%
CO (for an ELV of 50mg/m <sup>3</sup> )					7.32%	7.5%
O <sub>2</sub> (for a range of 25%vol)					0.32%vol	-

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Calibration function (field)						
SO <sub>2</sub>					0.99	>0.90
NO					0.99	>0.90
CO					0.99	>0.90
O <sub>2</sub>					0.99	>0.90
Response time (field)					Note 2	
SO <sub>2</sub>					120s	<200s
NO					81s	<200s
CO					75s	<200s
O <sub>2</sub>					38s	<200s
Lack of fit (field)					Note 3	
SO <sub>2</sub> , NO, CO					<2.0%	<2.0%
O <sub>2</sub>					<0.2%	<0.2%
Maintenance interval						
NO, CO, O <sub>2</sub>					4 weeks	>8 days
SO <sub>2</sub>					8 days	>8 days
Zero and Span drift requirement	<p><u>Statement from manufacturer:</u></p> <p>The zero point is created by purging the measuring cell with an IR-inactive gas (e.g. N<sub>2</sub>). The resulting spectrum corresponds to measurement on a gas free measurement path. The relevant measured concentration values are determined by means of the instrument's calibration function.</p> <p>The span point is created by purging the measuring cell with a gas consisting of the measured component in a concentration of 60-90% of the measuring range, residual gas is IR-inactive N<sub>2</sub> (10-40%). The relevant measured concentration values are determined by means of the instrument's calibration function.</p>					
Clause 6.13 & 10.13						
Manufacturer shall provide a description of the technique to determine and compensate for zero and span drift.						

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Change in zero point over maintenance interval						
SO <sub>2</sub>			1.6			<3.0%
NO		0.9				<3.0%
CO	0.4					<3.0%
O <sub>2</sub>	0.02					<0.2%
Change in span point over maintenance interval						
SO <sub>2</sub>			1.7			<3.0%
NO		0.7				<3.0%
CO		0.6				<3.0%
O <sub>2</sub>	0.01					<0.2%
Availability						
SO <sub>2</sub> , O <sub>2</sub>					99.3%	>95%
CO, NO					99.7%	(>98% for O <sub>2</sub> )
Reproducibility						
SO <sub>2</sub>	0.2					<3.3%
NO	0.2					<3.3%
CO	0.3					<3.3%
O <sub>2</sub>	0.02					<0.20%

Note 1 – Cross sensitivity test has been conducted with the following interferents: O<sub>2</sub>, H<sub>2</sub>O, CO, CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, NO, NO<sub>2</sub>, NH<sub>3</sub> and SO<sub>2</sub>. The analyser has not been tested against the interferent HCl

Note 2 – Results stated are from the laboratory test

Note 3 – Test data derived from calibration function test

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### Description:

The ULTRAMAT / OXYMAT 6 gas analysers are based on the NDIR two-beam alternating light principle and can be used to measure such gases as CO, CO<sub>2</sub>, NO, SO<sub>2</sub>, NH<sub>3</sub>, H<sub>2</sub>O, CH<sub>4</sub> and other hydrocarbons. The OXYMAT part of the system measures O<sub>2</sub> using the paramagnetic alternating pressure sensing method. The ULTRAMAT / OXYMAT 6 is a 19-inch multi gas analyser.

Single-channel analysers measure up to 2 gas components simultaneously. Dual-channel analysers can measure up to 4 gas components simultaneously.

The measuring cell can be dismantled for cleaning (rather than replacement) and is alarm indicated.

Auto calibration is available. For the ULTRAMAT 6 auto or manual range changing is available over a minimum ratio 10:1 between maximum and minimum ranges. As four measuring ranges are available, two intermediate ranges are available between these maximum and minimum limits. For the OXYMAT 6 auto or manual range changing between four ranges is available. Remote operation of the range change is also possible.

One electrically isolated signal output 0-20mA or 4-20mA per component are standard and a PROFIBUS version can be supplied as an option.

### 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 MC040032/01
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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