PRODUCT CONFORMITY CERTIFICATE

This is certify that the

4500 MKII+Dust Monitor

manufactured by:

Land Instruments International Ltd
Stubley Lane
Dronfield
Derbyshire
S18 1DJ
England

has been assessed by Sira Certification Service
and found to comply with:

MCERTS Performance Standards for Continuous Emission Monitoring Systems, Version 2, Revision 1 (April 2003)

Certification Ranges :

Optical Density (Extinction)	0 to 0.2 to 0 to 0.5

Certification is awarded in respect of the conditions stated in this certificate

Project No:	674/0161
Certificate No:	Sira MC 040028/01
Initial Certification:	18th February 2004
This Certificate Issued:	07th March 2008
Renewal Date:	17th February 2009

Chief Executive

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service
South Hill, Chislehurst, Kent, BR7 5EH, England
Tel: 020-8467-2636 Fax: 020-8467 7097

Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -20^{o}C to +50^{0}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 max of certification range				Other results	MCERTS* specification
	<0.3	<1	<2	<4		
Linearity			✔			<±2%
Ambient temperature: zero shift	✔					<±0.3%
Ambient temperature: span shift	✔					<±0.3%
Response time					6s	<200s
Detection limit					0.000549 OD	<±2%
Analysis function (field) 0 - 0.2 OD 0 - 0.5 OD					 95% 99%	 >95% >95%
Availability (field)					98.8%	>95%
Voltage effect at ±15% from the norm					No effect 190 to 250V	<2%
Maintenance interval					4 weeks	To be reported
Zero drift (field)			✔		<±2%/week	<±2%/week
Span drift (field)			✔		<±2%/week	<±2%/week
Reproducibility R_D					57	>50

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

Approved Site Application

The application for MCERTS certification sought by the manufacturer was for a waste incinerator.

The suitability of the product for this application was assessed on the basis of a 4 month trial of the 4500 MKII+ system on a municipal waste incinerator.

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.

Test Reports

This certification is based on the following Test Reports

TÜV Köln Report No: 936/808016/A dates 30.09.1999

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' (Feb 2001)

Products Certified

This certificate applies to all instruments fitted with software version 3.09 onwards (i.e. serial number 9895298 onwards).

Description:

Land Instruments Model 4500 MkII^{+} is designed to measure the opacity, optical density, and dust density in the exhaust gases produced by combustion processes. The measurement technique uses a modulated beam of light from a high intensity green LED light source. The light passes through the flue gases to a retroreflector and returns back to the transceiver. The ratio of the intensities of the outgoing and returning light beams is measured using a patented low-drift technique.

The analyser contains a microprocessor, which calculates opacity, optical density and dust density, as well as controlling the automatic calibration system. Gravimetric calibration is essential for dust density measurement.

The ambient temperature range is -20 ºC to +50 ºC for the standard analyser system. Heated components are available to extend the minimum temperature to -40 ºC

Auto-calibration is performed automatically at regular intervals or when requested.

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 040028/01

2. If certified product is found not to comply, Sira Certification Services 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.