PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

RASI 800 portable emission monitoring system

Manufactured by:

Eurotron Instruments (UK) Ltd

Unit 8 Austin Way
Royal Oak Industrial Estate
Daventry
Northants
NN11 8QY
UK

has been assessed by Sira Certification Service
And for the conditions stated on this certificate complies with:

MCERTS Performance Standards for Handheld Emission Monitoring Systems, Version 4 dated September 2018

Certification Ranges :

CO	0 to 500 ppm	0 to 1000 ppm
CO_2	0 to 12 %vol.	0 to 20 %vol.
NO	0 to 300 ppm	0 to 2000 ppm
NO_2	0 to 200 ppm	
SO_2	0 to 500 ppm	
O_2	0 to 21 %vol.	

Project No.	:	16A29050
Certificate No	:	Sira MC130233/02
Initial Certification	:	04 October 2013
This Certificate issued	:	03 October 2018
Renewal Date	:	03 October 2023

Emily Alexander
Environmental Project Engineer

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service
Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
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Form 1335
Issue 4

Certificate Contents

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

The measuring system shall only be employed at plants in which the waste gas humidity does not persistently exceed 30 $\%^{vol.}$

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:

TUV Rheinland Report Number 936/21220650/A dated 14 August 2013

Product Certified

The RASI 800 portable emission monitoring system consists of the following parts:

- Base unit with condensate separator
- Sensor unit
- Data printer
- Remote control unit (RCU)
- Gas sampling probe with exchangeable probe pipe and sampling line

This certificate applies to all instruments fitted with software version 1.08.01 (serial numbers 012055 (Base Unit) & 012043 (Remote Control Unit) onwards).

Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: +5ºC to +40ºC

Results are expressed as error % certification ranges for CO 0 to 500ppm, CO2 0 to 12%vol., NO 0 to 300ppm, NO2 0 to 200ppm, SO2 0 to 500ppm & O2 0 to 21%vol., unless otherwise stated.

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time						
CO (0 to 500 ppm)					67s	<200s
CO (0 to 1000 ppm)					44s	<200s
CO_2 (0 to 12 %$^{vol.}$)					81s	<200s
CO_2 (0 to 20 %$^{vol.}$)					71s	<400s
NO (0 to 300 ppm)					17s	<400s
NO (0 to 2000 ppm)					17s	<200s
NO_2 (0 to 200 ppm)					59s	<200s
SO_2 (0 to 500 ppm)					37s	<200s
O_2 (0 to 21 %$^{vol.}$)					11s	<200s
Repeatability standard deviation at zero point						
CO	0.0					<2.0%
CO_2	0.02					<2.0%
NO	0.0					<2.0%
NO_2	0.0					<2.0%
SO_2	0.0					<2.0%
O_2	0.0					<0.4%
Repeatability standard deviation at zero point						
CO	0.0					<2.0%
CO_2	0.02					<2.0%
NO	0.0					<2.0%
NO_2	0.0					<2.0%
SO_2	0.0					<2.0%
O_2	0.0					<0.4%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Lack-of-fit						
CO (0 to 500 ppm)		0.80				<2.0%
CO (0 to 1000 ppm)			-1.1			<2.0%
CO_2 (0 to 12 %$^{vol.}$)		0.83				<2.0%
CO_2 (0 to 20 %$^{vol.}$)			-1.0			<2.0%
NO (0 to 300 ppm)			-1.0			<2.0%
NO (0 to 2000 ppm)		-0.50				<2.0%
NO_2 (0 to 200 ppm)				-2.0		<2.0%
SO_2 (0 to 500 ppm)		-0.66				<2.0%
O_2 (0 to 21 %$^{vol.}$)	-0.11					<0.4%
Influence of ambient temperature - zero point						
CO	0.0					<5.0%
CO_2	0.0					<5.0%
NO	0.0					<5.0%
NO_2	0.0					<5.0%
SO_2	0.0					<5.0%
O_2	0.06					<0.8%
Influence of ambient temperature - span point						
CO				-2.3		<5.0%
CO_2		0.80				<5.0%
NO			-1.4			<5.0%
NO_2			-1.8			<5.0%
SO_2			-1.5			<5.0%
O_2	0.10					<0.8%

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Cross-sensitivity at zero with interferents: O_2, H_2O, CO, CO_2, CH_4, N_2O, NO, NO_2, NH_3, SO_2, HCl						
CO	0.0					<5.0%
CO_2	0.58					<5.0%
NO			1.3			<5.0%
NO_2			-1.0			<5.0%
SO_2	0.0					<5.0%
O_2	0.0					<0.8%
Cross-sensitivity at reference with interferents: O_2, H_2O, CO, CO_2, CH_4, N_2O, NO, NO_2, NH_3, SO_2, HCl					Note 1	
CO			1.4			<5.0%
CO_2				-3.3		<5.0%
NO				3.8		<5.0%
NO_2				-4.7		<5.0%
SO_2				-4.2	Note 2	<5.0%
O_2	0.1					<0.8%
Zero drift						
CO	0.0					<3.0%
CO_2	0.0					<3.0%
NO	0.0					<3.0%
NO_2	0.0					<3.0%
SO_2	0.0					<3.0%
O_2	0.0					<0.3%

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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Span drift						
CO				-2.3		<3.0%
CO_2			1.0			<3.0%
NO	0.43					<3.0%
NO_2				2.8		<3.0%
SO_2			1.0			<3.0%
O_2	0.1					<0.3%

Note 1: Depending on the degree of frequency and the level of the concentration of the measured components the measuring system NOVA plus must be calibrated frequently by using test gases for the components NO, NO_2, CO, CO_2 and SO_2. The O_2 channel has to be calibrated with ambient air. At the same time the cross sensitivities among the sensors have to be checked and if necessary readjusted.

Note 2: The cross sensitivity test at span for SO_2 was conducted with 10 $\%^{vol.}$ H_2O rather than 30 $\%^{vol.}$ prescribed by EN 15267-3. As a result, for the measurement of SO_2 the humidity in the waste gas shall not exceed 10 %vol.

Description

The RASI 800 is a portable emissions and combustion analyser capable of measuring O2,CO, NO, NO2, SO2, H2S by using electrochemical cells and CO2, HC and CO by using NDIR infrared technology.

The MCERTS version measures O2, CO, NO, NO2, SO2 and CO2 and it is certified as per range stated in the first page.

The RASI 800 MCERTS has a sophisticated sample conditioning system which includes a sampling line with heated head, an electronic Peltier gas cooler, a peristaltic pump for moisture removal and line filters.

In addition, to support long term measurement, a “fresh air inlet/set to auto zero” user programmable function is supplied as standard.

The unit operates on Li-ION rechargeable batteries or can be powered using mains power. The base unit is also equipped with a built-in printer

The wireless hand held control unit (RCU) remotely controls and operates all the functions of the analyser and displays the measured value. Data can be saved on an SD card and transferred to a PC directly or via USB port. The communication between the RCU and the analyzer base is established via Bluetooth and it is ensured over long distances. The RCU is powered by Li-ION rechargeable batteries which are charged via induction from the main unit.

The RCU advanced menu offers many features and provides the user with various information and automatic calculations, such as O2 referencing and emissions conversions.

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 MC130232/00

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.