PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

O2000N Oxygen Analyser

Manufactured by:

Opsis AB
P.O. Box 244
S-244 02 Furulund
Sweden

has been assessed by CSA Group
and for the conditions stated on this certificate complies with:

Environment Agency Guidance
"MCERTS for stack emissions monitoring equipment at industrial installations"
- Continuous emissions monitoring systems(CEMS)
Published 20 October 2020
EN 15267-1:2009, EN15267-2:2009, EN 15267-3:2007
& QAL 1 as defined in EN 14181: 2014

Certification ranges:

O_2	0 - 25 %vol.

Project No.:	80074508
Certificate No:	Sira MC220384/00
Initial Certification:	14 April 2022
This Certificate issued:	14 April 2022
Renewal Date:	13 April 2027

Andrew Young
Environmental Team Manager

MCERTS is operated on behalf of the Environment Agency by

CSA Group Testing UK Ltd
Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
Tel: +44 (0)1244 670 900

Form 1335
Issue 10

Certificate Contents

Approved Site Application 2
Basis of Certification 2
Product Certified 3
Certified Performance 4
Description 7
General Notes 7

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

This instrument is considered suitable for use on waste incineration and large combustion plants. This CEMS 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. The lowest certified range for each determinand shall not be more than 1.5 times the daily average emission limit value (ELV) for incineration plants, and not more than 2.5 times the ELV for other types of applications.

Basis of Certification

This certification is based on the following Test Report(s) and on CSA Group's assessment and ongoing surveillance of the product and the manufacturing process:

TÜV Rheinland Energy GmbH, Cologne, ref. 936/21241138/A, dated 14 September 2018
TÜV Rheinland Energy GmbH, Cologne, ref. 936/21241138/C, dated 15 July 2020

Product Certified

The O2000N measuring system consists of the following parts:

- Analyser O2000N
- Probe 502N (including 10m connection cable)

Allowable variations could include:

- A different brand or model of sampling system of the same type, provided that there is evidence the alternative system works with similar types of CEM.

- Additional manifolds and heated valves used to allow more than one analyser to share a sampling system.

This certificate applies to all instruments fitted with software version ‘Firmware 1.09’ onwards (serial number 3500).

Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: -20°C to +50°C
Instrument IP rating: IP66

Note: For outdoor installations the analyser needs to be mounted into an IP65 environment. 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.

Results are expressed as error % of certification range, unless otherwise stated.

Test (***Laboratory***)	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time O_2					15 s	≤200s
Repeatability standard deviation at zero point O_2	0.006					≤0.2%
Repeatability standard deviation at span point O_2	0.01					≤0.2%
Lack of fit O_2	-0.10					≤0.2%
Influence of ambient temperature change from nominal value at 20°C within specific range at zero point (-20°C to +50°C) O_2	0.25					≤0.50%
Influence of ambient temperature change from nominal value at 20°C within specific range at span point (-20°C to +50°C) O_2	0.10					≤0.50%
Influence of sample gas pressure at span point O_2	0.02					≤0.2%

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Influence of voltage, at -15% below and at +10% above nominal supply voltage (196V to 253V) O_2	-0.01					≤0.2%
Influence of vibration (10 to 60Hz (±0.3mm), 60 to 150Hz at 19.6m/s^2) O_2	0.01					≤0.2%
Cross-sensitivity at zero with interferents: H_2O, CO, CO_2, CH_4, N_2O, NO, NO_2, NH_3, SO_2, HCl O_2	0.00					≤0.40%
Cross-sensitivity at reference with interferents: H_2O, CO, CO_2, CH_4, N_2O, NO, NO_2, NH_3, SO_2, HCl O_2	0.00					≤0.4%

Test (***Field***)	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Determination coefficient of calibration function O_2					0.9484	≥0.90
Response time O_2					14 s	≤200s
Lack of fit O_2	0.10					≤0.2%
Minimum maintenance interval					Note 1/Note 2 12 months	8 days
Zero and Span drift requirement	This CEMS does not contain an automatic correction of zero and span drift.					Clause 6.13 & 10.13 Manufacturer shall provide a description of the technique to determine and compensate for zero and span drift.
Zero drift within maintenance interval O_2	Note 2 0.15					≤0.2%
Span drift within maintenance interval O_2	Note 2 0.17					≤0.2%
Availability					Note 2 99.9%	≥98.0%
Reproducibility O_2	0.109					≤0.20%
Measurement uncertainty O_2					Guidance - at least 25% below max permissible uncertainty 1.9%	<7.5% (10%)

Note 1: The O2000N has a maintenance interval of 12 months. Work in the maintenance interval:
- Regular visual inspections
- Perform zero and span point checks by applying test gases every six months
- Refer to the manufacturer's instructions

Note 2: The results for field test has been taken from TÜV report ref. 936/21241138/C.

Note 3: The measuring system determines gas concentrations in wet stack gas.

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Description

The OPSIS O2000N Oxygen Analyser uses zirconium dioxide as the measuring principle and is designed for measuring oxygen in industrial, process and continuous emissions monitoring applications. Since the oxygen analyser measures the oxygen contents in the flue gas directly (utilizing the zirconium dioxide measurement probe), there is no need for sample extraction systems.

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 CSA Group Testing UK Ltd Certificates'.

2. The design of the product certified is held and maintained by TUV Rheinland for certificate No. Sira MC220384/00.

3. If a certified product is found not to comply, CSA Group should be notified immediately at the address shown on this certificate.

4. The certification marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of CSA Group Testing UK Ltd Certificates'.

5. This document remains the property of CSA Group and shall be returned when requested by CSA Group.