PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

AO2000 MultiFID14
Continuous Emission Monitoring Gas Analyser
(Previously named Advance Optima FID 14)

manufactured by:

ABB Automation GmbH

Stierstaedter Strasse 5
D-60488 Frankfurt-am-Main
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 3.4 dated July 2012, EN15267-1:2009, EN15267-2:2009, EN15267-3:2007,
& QAL 1 as defined in EN 14181: 2004

Certification Range :

TOC 0 to 15 mg C/m^3

Project No.:	673/0348
Certificate No:	Sira MC030015/07
Initial Certification:	01 October 2003
This Certificate issued:	20 May 2013
Renewal Date:	30 September 2018

R Cooper I Eng MInst MC
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

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 minimum range is 0-15 mgC/m^3 up to a range of 0-10,000 mgC/m^3. The MCERTS certification states that the system can be integrated with the other ABB products since it shares a sampling system with them.

The field test was carried out over four months with the system mounted on a waste incineration plant. Both H_2 only and H_2/He mix (40% / 60%) fuel types were used during the field test.

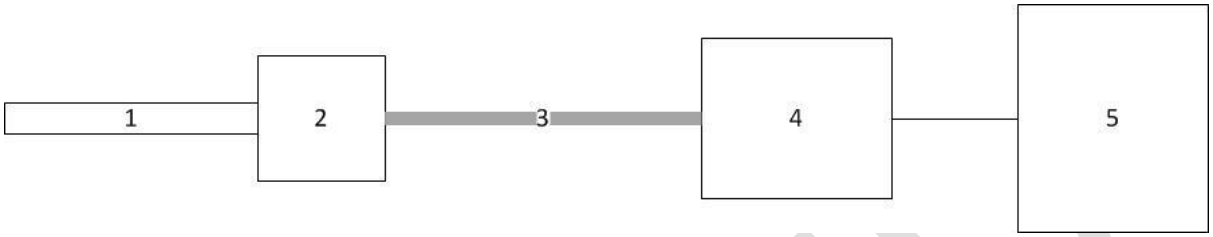
Basis of Certification

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 Munich	Report Number 24016659, dated 1998
TÜV Munich	Report Number 170608, dated 2003
TÜV SÜD	Report Number 1236011a, dated January 2009

Product Certified

The MutliFID 14 measuring system consists of the following parts:



1. Sample Probe	2. Heated Filter	3. Heated Sample Line	4. Gas Conditioning	5. Analyser
Model: FE2	Model: Ceramic filter, pore size < 0.3µm	Model: TBL01-S Length: 18m	Model: Aspirator pump integrated	Model: MultiFID14

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 2.0.6 onwards (Analyser software) and software version 4.0.1 onwards (Syscon II system software).

Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: +5ºC to +45ºC
Instrument IP rating: AO2020: IP 20 (can be supplied with protective casing to meet IP40 if required)
AO2040: IP54

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: TOC 0 to 15 mg C/m^3

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time					33s	<200s
Repeatability standard deviation at zero point	0.06					<2%
Repeatability standard deviation at reference point		1.0				<2%
Lack-of-fit	-0.15					<2%
Influence of ambient temperature zero point		0.8				<5%
Influence of ambient temperature reference point		0.7				<5%
Influence of sample gas flow for extractive		<1%				<2%
Influence of voltage variations 185V to 264V	0.06					<2%
Influence of vibration (10 to 60Hz (±0.3mm), 60 to 150Hz at 19.6m/s^2)					Not tested See Note 1	To be reported
Cross-sensitivity at zero with interferents O_2, H_20, CO, CO_2, N_2O, NO, NO_2, NH_3, SO_2, HCl				3.2		<4%
Cross-sensitivity at span with interferents O_2, H_20, CO, CO_2, N_2O, NO, NO_2, NH_3, SO_2, HCl			1.8			<4%

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Effect of oxygen for TOC CEMS	-0.5					<2.0%
Response factors for TOC CEMS:						
Methane					1.09	0.9 to 1.2
Aliphatic hydrocarbons					0.98	0.9 to 1.1
Aromatic hydrocarbons					1.07	0.8 to 1.1
Dichloromethane (tetrachloroethane)					0.97	0.75 to 1.15
Aliphatic Alcohols					1.00	0.7 to 1.0
Esters and keytones					0.84	0.7 to 1.0
Organic acids					Not tested	0.5 to 1.0
Measurement uncertainty (ELV 10 mg/m^3)					18.2%	Guidance - at least 25% below max permissible uncertainty 22.5% for TOC in EN15267-3
Calibration function (field)					0.98	>0.90
Response time (field) (Note 2)					33s	<200s
Lack of fit (field) (Note 3)					<2.0%	<2%
Maintenance interval					14 days	>8 days
Zero and Span drift requirement Clause 6.13 & 10.13 Manufacturer shall provide a description of the technique to determine and compensate for zero and span drift.	Statement from manufacturer: ***MultiFID14*** *The analyser is checked for zero and span drift every 14 days using test gases. Zero-point calibration takes place using air or nitrogen. Span-point calibration takes place using propane or another hydrocarbon in air or nitrogen. Automatic calibration is possible via built-in zero gas and test gas valves.*					

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Change in zero point over maintenance interval				2.4		<3%
Change in reference point over maintenance interval			2.0			<3%
Availability					99.4%	>95%
Reproducibility				2.07		<3.3%

Note 1 – The measuring system has not been tested against the effects of vibration as it is an extractive analyser.

Note 2 – The lab response time is reported, as field response time data is unavailable

Note 3 – Data derived from the analysis function/calibration function test

Description:

The MultiFID14 is a flame ionization detector which measures the total content of organic carbon in the sample gas. For this purpose organic substances are ionized in a hydrogen flame. The current of these ions is proportional to the organic carbon content.

The analyzer is heated up to 200 °C and can be directly connected to a heated sample gas line. Thus no cold spots occur at any point.

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 MC030015/05.

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.