

CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000050625

Certified AMS: AO2000-Fidas24 for TOC

Manufacturer: ABB Automation GmbH
Stierstädter Str. 5
60488 Frankfurt/Main
Germany

Test Institute: TÜV Rheinland Energy GmbH

**This is to certify that the AMS has been tested and certified
according to the standards**

**EN 15267-1 (2009), EN 15267-2 (2009), EN 15267-3 (2007)
and EN 14181 (2014)**

Certification is awarded in respect of the conditions stated in this certificate
(this certificate contains 6 pages).



Suitability Tested
EN 15267
QAL1 Certified
Regular
Surveillance

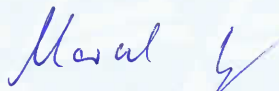
www.tuv.com
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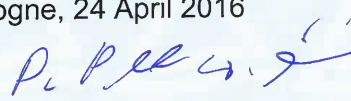
Publication in the German Federal Gazette
(BAnz.) of 14 March 2016

This certificate will expire on:
13 March 2021

German Federal Environment Agency
Dessau, 25 April 2016

TÜV Rheinland Energy GmbH
Cologne, 24 April 2016


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Test institute accredited to EN ISO/IEC 17025:2005 by DAkkS (German Accreditation Body).
This accreditation is limited to the accreditation scope defined in the enclosure to the certificate D-PL-11120-02-00

Test report:	936/21228173/A dated 21 October 2015
Initial certification:	14 March 2016
Expiry date:	13 March 2021
Publication:	BAnz AT 14.03.2016 B7, chapter I number 3.1,

Approved application

The tested AMS is suitable for use at combustion plants according to Directive 2010/75/EU, chapter III (13. BImSchV), at waste incineration plants according to Directive 2010/75/EU, chapter IV (17. BImSchV) and other plants requiring official approval. The tested ranges have been chosen with respect to the wide application range of the AMS.

The suitability of the AMS for this application was assessed on the basis of a laboratory test and a three-month field test at a waste incineration plant.

The AMS is approved for an ambient temperature range of +5 °C to +45 °C.

The notification of suitability of the AMS, performance testing, and the uncertainty calculation have been effected on the basis of the regulations valid at the time of performance testing. As changes in legal regulations are possible, any potential user should ensure that this AMS is suitable for monitoring the limit value relevant to the application.

Any potential user should ensure, in consultation with the manufacturer that this AMS is suitable for the installation at which it will be installed.

Basis of the certification

This certification is based on:

- test report 936/21228173/A of 21 October 2015 of TÜV Rheinland Energie und Umwelt GmbH
- suitability announced by the German Federal Environment Agency (UBA) as the relevant body
- the on-going surveillance of the product and the manufacturing process

Publication in the German Federal Gazette: BAnz AT 14.03.2016 B7, chapter I number 3.1,
Announcement by UBA from 18 February 2016:

AMS designation:

AO2000-Fidas24 for TOC

Manufacturer:

ABB Automation GmbH, Frankfurt/Main

Field of application:

For measurements at plants requiring official approval and plants of 27. BImSchV

Measuring ranges during the performance test:

Component	Certification range	Supplementary range			Unit
TOC	0 - 15	0 - 50	0 - 150	0 - 500	mg/m ³

Software version:

Fidas24: 3.4.2

Syscon: 5.1.4

Restrictions:

None

Notes:

1. The maintenance interval is four weeks.
2. The AMS is available with housing AO2020 (19"-housing for rack installation) and AO2040 (for wall installation).

Test report:

TÜV Rheinland Energie und Umwelt GmbH, Cologne
Report No.: 936/21228173/A dated 21 October 2015

Certified product

This certificate applies to automated measurement systems confirming to the following description: The AMS is a flame ionization detector (FID) designed to determine total organic carbon (TOC) in exhaust gases.

The extractive AO2000-Fidas24 analyzer consists of the following components:

- Analyzer AO2000-Fidas24
- heated sensor (180°C) incl. controller, ABB PFE 3
- heated measurement gas line (180°C), (max. 60 m) incl. controller, Teflon sample gas line

For operation, combustion air with a TOC concentration of < 1 % of the measurement range is required.

Fidas24 is an analyzer module which is fitted in a universal housing of type AO2000 from the "Advance Optima Series". Display and control unit, evaluation unit, the analyzer module as well as the power supply are fitted in the housing. Additionally, there are analogue outputs and data ports. The AMS is available with housing AO2020 (19"-housing for rack installation) and AO2040 (for wall installation).

General notes

This certificate is based upon the equipment tested. The manufacturer is responsible for ensuring that on-going production complies with the requirements of the EN 15267. 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 systems shall be subject to regular surveillance.

If a product of the current production does not conform to the certified product, TÜV Rheinland Energy GmbH must be notified at the address given on page 1.

A certification mark with an ID-Number that is specific to the certified product is presented on page 1 of this certificate. This can be applied to the product or used in publicity material for the certified product.

This document as well as the certification mark remains property of TÜV Rheinland Energy GmbH. With revocation of the publication the certificate loses its validity. After the expiration of the certificate and on requests of the TÜV Rheinland Energy GmbH this document shall be returned and the certificate mark must not be employed anymore.

The relevant version of this certificate and its expiration is also accessible on the internet: qal1.de.

Certification of AO2000-Fidas24 for TOC is based on the documents listed below and the regular, continuous monitoring of the Quality Management System of the manufacturer:

Initial certification according to EN 15267

Certificate No. 0000050625: 25 April 2016
Expiry date of the certificate: 13 March 2021

Test report: 936/21228173/A dated 21 October 2015
TÜV Rheinland Energie und Umwelt GmbH, Cologne

Publication: BAnz AT 14.03.2016 B7, chapter I number 3.1
Announcement by UBA from 18 February 2016

Calculation of overall uncertainty according to EN 14181 and EN 15267-3

Measuring system

Manufacturer	ABB Automation GmbH
AMS designation	AO2000-Fidas24
Serial number of units under test	33481024 / 33481014
Measuring principle	FID

Test report

Test laboratory	TÜV Rheinland
Date of report	2015-10-21

Measured component

Certification range	TOC 0 - 15 mg/m ³
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Evaluation of the cross-sensitivity (CS)

(system with largest CS)

Sum of positive CS at zero point	0.55 mg/m ³
Sum of negative CS at zero point	0.00 mg/m ³
Sum of positive CS at span point	0.32 mg/m ³
Sum of negative CS at span point	-0.49 mg/m ³
Maximum sum of cross-sensitivities	0.55 mg/m ³
Uncertainty of cross-sensitivity	u_i 0.320 mg/m ³

Calculation of the combined standard uncertainty

Tested parameter

			u^2
Standard deviation from paired measurements under field conditions *	u_D	0.048 mg/m ³	0.002 (mg/m ³) ²
Lack of fit	u_{lof}	0.041 mg/m ³	0.002 (mg/m ³) ²
Zero drift from field test	$u_{d,z}$	-0.225 mg/m ³	0.051 (mg/m ³) ²
Span drift from field test	$u_{d,s}$	0.260 mg/m ³	0.068 (mg/m ³) ²
Influence of ambient temperature at span	u_t	0.058 mg/m ³	0.003 (mg/m ³) ²
Influence of supply voltage	u_v	0.040 mg/m ³	0.002 (mg/m ³) ²
Cross-sensitivity (interference)	u_i	0.320 mg/m ³	0.102 (mg/m ³) ²
Influence of sample gas flow	u_p	0.118 mg/m ³	0.014 (mg/m ³) ²
Uncertainty of reference material at 70% of certification range	u_{rm}	0.121 mg/m ³	0.015 (mg/m ³) ²
Variation of response factors (TOC)	u_{rf}	0.042 mg/m ³	0.002 (mg/m ³) ²

* The larger value is used :

"Repeatability standard deviation at set point" or

"Standard deviation from paired measurements under field conditions"

Combined standard uncertainty (u_c)

$$u_c = \sqrt{\sum (u_{max,j})^2} \quad 0.51 \text{ mg/m}^3$$

Total expanded uncertainty

$$U = u_c * k = u_c * 1.96 \quad 1.00 \text{ mg/m}^3$$

Relative total expanded uncertainty

Requirement of 2010/75/EU

Requirement of EN 15267-3

U in % of the ELV 10 mg/m³ 10.0

U in % of the ELV 10 mg/m³ 30.0

U in % of the ELV 10 mg/m³ 22.5