

# CERTIFICATE

## of Product Conformity (QAL1)

Certificate No.: 0000072197

**AMS designation:** FIDAMAT 6 Measuring System II for Total Organic Carbon

**Manufacturer:** SIEMENS AG  
Östliche Rheinbrückenstraße 50  
76187 Karlsruhe  
Germany

**Test Laboratory:** TÜV Rheinland Energy GmbH

**This is to certify that the AMS has been tested  
and found to comply with 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  
ID 0000072197

Publication in the German Federal Gazette  
(BAnz) of 31 July 2020

This certificate will expire on:  
30 July 2025

German Federal Environment Agency  
Dessau, 07 September 2020

TÜV Rheinland Energy GmbH  
Cologne, 06 September 2020



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

<b>Test Report:</b>	936/21245879/A dated 02 March 2020
<b>Initial certification:</b>	31 July 2020
<b>Expiry date:</b>	30 July 2025
<b>Publication:</b>	BAnz AT 31.07.2020 B10, chapter I number 2.1

### **Approved application**

The tested AMS is suitable for use at combustion plants according to Directive 2010/75/EU, chapter III (13<sup>th</sup> BImSchV), chapter IV (17<sup>th</sup> BImSchV), 30<sup>th</sup> BImSchV, 44<sup>th</sup> BImSchV, plants in compliance with TA Luft and plants according to the 27<sup>th</sup> BImSchV. The measured ranges have been selected so as to ensure as broad a field of application as possible.

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

The AMS is approved for an ambient temperature range of +5 °C to +40 °C.

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

Any potential user should ensure, in consultation with the manufacturer, that this AMS is suitable for the intended purpose.

### **Basis of the certification**

This certification is based on:

- Test report 936/21245879/A dated 02 March 2020 issued by TÜV Rheinland Energy GmbH
- Suitability announced by the German Federal Environment Agency (UBA) as the relevant body
- The ongoing surveillance of the product and the manufacturing process

Publication in the German Federal Gazette: BAnz AT 31.07.2020 B10, chapter I number 2.1,  
UBA announcement of 27 May 2020:

**AMS designation:**

FIDAMAT 6 Measuring System II for Total Organic Carbon

**Manufacturer:**

SIEMENS AG, Karlsruhe

**Field of application:**

For plants requiring official approval and for plants according to the 27<sup>th</sup> and 44<sup>th</sup> BIm-SchV

**Measuring ranges during performance testing:**

Component	Certification range	supplementary measuring ranges				Unit
TOC	0–15	0–50	0–150	0–500	0–3000	mg/m <sup>3</sup>

**Software version:**

1.3.7

**Restrictions:**

None

**Notes:**

1. The maintenance interval is four weeks.
2. The ending -37 on the type plate identifies the Fidamat 6 analyser module.
3. The automatic zero and span check must be deactivated for operation.

**Test Report:**

TÜV Rheinland Energy GmbH, Cologne  
Report no.: 936/21245879/A dated 2 March 2020

### Certified product

This certification applies to automated measurement systems conforming to the following description:

An integrated diaphragm pump supplies the sample gas to the FIDAMAT 6 Measuring System II via a heated line and an additional filter, and to the flame ionisation detector via a clog-resistant quartz glass limiter. Inside the detector, hydrocarbons present in the sample gas are burned in an oxygen-hydrogen flame. Organic hydrocarbons are ionised during the combustion process.

Ions thus released are converted into an ion current as a result of the polarisation potential between the electrodes and are measured with the help of a highly-sensitive amplifier. The measured current is proportional to the number of organic C atoms of the hydrocarbons present in the sample gas.

A pressure controller keeps the hydrogen pressure at a constant level. A dove-tailed system consisting of a pump, capillaries and combustion-air pressure control ensures constant sample gas pressure.

The AMS tested here comprises the following components:

- FIDAMAT 6 analyser
- Analyser cabinet
- Heated sampling probe (180 °C) incl. controller, M&C SP2000
- Alternative: Bühler GAS 222.20 sampling probe
- Heated line (180 °C)( max 50 m), c/w controller, inner liner made of Teflon

### General remarks

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 manufacturing process for 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 document as well as the certification mark remains property of TÜV Rheinland Energy GmbH. Upon revocation of the publication the certificate loses its validity. After the expiration of the certificate and on request of TÜV Rheinland Energy GmbH this document shall be returned and the certificate mark must no longer be used.

The relevant version of this certificate and its expiration date are also accessible on the internet at [qal1.de](http://qal1.de).

### **Document history**

Certification of the FIDAMAT 6 Measuring System II measuring system is based on the documents listed below and the regular, continuous surveillance of the manufacturer's quality management system.

### **Initial certification according to EN 15267**

Certificate no.0000072197: 07 September 2020  
Expiry date of the certificate: 30 July 2025  
Test report 936/21245879/A dated 02 March 2020  
TÜV Rheinland Energy GmbH, Cologne  
Publication: BAnz AT 31.07.2020 B10, chapter I number 2.1  
UBA announcement of 27 May 2020

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

**Measuring system**

Manufacturer	Siemens AG
AMS designation	FIDAMAT 6 Measuring System II
Serial number of units under test	L-4597 / L-4598
Measuring principle	FID

**Test report**

Test laboratory	936/21245879/A TÜV Rheinland
Date of report	2020-03-02

**Measured component**

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

(system with largest CS)

Sum of positive CS at zero point	0.49 mg/m <sup>3</sup>
Sum of negative CS at zero point	-0.08 mg/m <sup>3</sup>
Sum of positive CS at span point	0.37 mg/m <sup>3</sup>
Sum of negative CS at span point	0.00 mg/m <sup>3</sup>
Maximum sum of cross-sensitivities	0.49 mg/m <sup>3</sup>
Uncertainty of cross-sensitivity	$u_i$ 0.283 mg/m <sup>3</sup>

**Calculation of the combined standard uncertainty**

**Tested parameter**

			$u^2$
Standard deviation from paired measurements under field conditions *	$u_D$	0.070 mg/m <sup>3</sup>	0.005 (mg/m <sup>3</sup> ) <sup>2</sup>
Lack of fit	$u_{lof}$	-0.058 mg/m <sup>3</sup>	0.003 (mg/m <sup>3</sup> ) <sup>2</sup>
Zero drift from field test	$u_{d.z}$	0.052 mg/m <sup>3</sup>	0.003 (mg/m <sup>3</sup> ) <sup>2</sup>
Span drift from field test	$u_{d.s}$	0.139 mg/m <sup>3</sup>	0.019 (mg/m <sup>3</sup> ) <sup>2</sup>
Influence of ambient temperature at span	$u_t$	0.173 mg/m <sup>3</sup>	0.030 (mg/m <sup>3</sup> ) <sup>2</sup>
Influence of supply voltage	$u_v$	0.050 mg/m <sup>3</sup>	0.003 (mg/m <sup>3</sup> ) <sup>2</sup>
Cross-sensitivity (interference)	$u_i$	0.283 mg/m <sup>3</sup>	0.080 (mg/m <sup>3</sup> ) <sup>2</sup>
Influence of sample gas flow	$u_p$	-0.041 mg/m <sup>3</sup>	0.002 (mg/m <sup>3</sup> ) <sup>2</sup>
Uncertainty of reference material at 70% of certification range	$u_{rm}$	0.121 mg/m <sup>3</sup>	0.015 (mg/m <sup>3</sup> ) <sup>2</sup>
Variation of response factors (TOC)	$u_{rf}$	0.272 mg/m <sup>3</sup>	0.074 (mg/m <sup>3</sup> ) <sup>2</sup>

\* The larger value is used :

"Repeatability standard deviation at set point" or

"Standard deviation from paired measurements under field conditions"

Combined standard uncertainty ( $u_c$ )	$u_c = \sqrt{\sum (u_{max,j})^2}$	0.48 mg/m <sup>3</sup>
Total expanded uncertainty	$U = u_c * k = u_c * 1.96$	0.95 mg/m <sup>3</sup>

**Relative total expanded uncertainty**

**Requirement of 2010/75/EU**

Requirement of EN 15267-3

<b>U in % of the ELV 10 mg/m<sup>3</sup></b>	<b>9.5</b>
<b>U in % of the ELV 10 mg/m<sup>3</sup></b>	<b>30.0</b>
U in % of the ELV 10 mg/m <sup>3</sup>	22.5