

# CERTIFICATE

## about Product Conformity (QAL1)

Number of Certificate: 0000001016

**Certified AMS:** FMD 09 for velocity

**Manufacturer:** Dr. Födisch Umweltmesstechnik AG  
Zwenkauer Straße 159  
04420 Markranstädt  
Germany

**Test Institute:** TÜV Rheinland Energie und Umwelt GmbH

**This is certifying that the AMS has been tested  
and found to comply with:**

**EN 15267-1: 2009, EN 15267-2: 2009, EN 15267-3: 2007  
and EN 14181: 2004**

Certification is awarded in respect of the conditions stated in this certificate  
(see also the following pages).



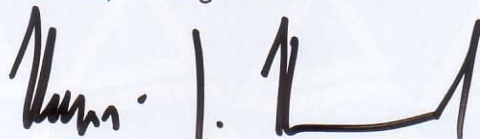
- EN 15267-3 tested
- QAL1 certified
- TUV approved
- Annual inspection


Publication in the German Federal Gazette  
(BAnz.) of 29 July 2011

The certificate is valid until:  
28 July 2016

Umweltbundesamt  
Dessau, 19 August 2011

TÜV Rheinland Energie und Umwelt GmbH  
Köln, 17 August 2011

  
i. A. Dr. Hans-Joachim Hummel

  
ppa. Dr. Peter Wilbring

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Am Grauen Stein  
51105 Köln

Accreditation according to EN ISO/IEC 17025 and certified according to ISO 9001:2008.

**Test report:** 936/21212361/A of 23 March 2011  
**First certification:** 29 July 2011  
**Run of validity until:** 28 July 2016  
**Publication** BAnz. 29 July 2011, No 113, page 2725, chapter II, No 1.1

**Authorised application**

The tested AMS is suitable for the use at combustion plants according to EC directive 2001-80-EC, at waste incinerations plants according to EC directive 2000-76-EC and other plants requiring official permission. The tested measurement ranges were selected in order to secure an application range for the AMS as wide as possible.

The suitability of the AMS for this application was assessed on the basis of a laboratory test and a six month fieldtest at a municipal waste facility. The AMS is approved for the ambient temperature range from -20 °C to +50 °C.

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

**Basis of the certification**

This certification is based on:

- test report 936/21212361/A of 23 March 2011 of TÜV Rheinland Energie und Umwelt GmbH
- suitability announced by the German Environmental Agency (UBA) as relevant body
- the ongoing surveillance of the product and the manufacturing process
- publication in the German Federal Gazette (BAnz. 29 July 2011, No 113, page 2725, chapter II, No 1.1, UBA publication from 15 July 2011)

**AMS name:**

FMD 09 for velocity

**Manufacturer:**

Dr. Födisch Umweltmesstechnik AG, Markranstädt

**Suitability:**

For measurements at plants requiring official permission (i. e. 2000-76-EC, waste incineration directive and 2001-80-EC, large combustion plants directive).

**Measuring ranges during the suitability test:**

Component	Certification-range	Unit
Velocity	5 - 30	m/s

**Software versions:**

Main Version: 2.0, I/O Version: 1.1

**Restriction:**

The lower level of the velocity measuring range is 5 m/s.

**Remarks:**

1. A three month period has been determined as maintenance interval.
2. After a filter disturbance with high dust concentrations the probe has to be checked for contaminations and if necessary it has to be cleaned.
3. It is possible to install the SMAR LD301 pressure transmitter with a range of 0 to 500 Pa or of 0 to 1000 Pa.



**Test report:**

TÜV Rheinland Energie und Umwelt GmbH, Köln  
Report-No.: 936/21212361/A of 23 March 2011

**Certified product**

This certificate applies to automatic measurement systems confirming to the following description:

The volumetric flow measurement is based on the determination of the differential pressure in driftly flue gas with help of a back pressure probe and a pressure sensor. The measurement device is an in-situ analyser. The measured values from the pressure transmitter are transferred as 4-20 mA measuring signal to the evaluation electronics which are located in the measuring device.

In the evaluation electronics transfers of the differential pressure signal for the boundary conditions and the stack cross section take place. The stack temperature is continuously measured by a temperature sensor (PT100) which is integrated in the back pressure probe. The flow signal can be corrected by the measured temperature in the evaluation electronic.

The output of the volume flow- or rather the velocity signal is carried out by different free selectable 4 – 20 mA analog outputs. The measurement ranges of these outputs can be diversified. In addition the stack temperature can be outputted by the analog outputs. It is possible to show either the actual measurement value or a line chart on the instrument display.

The control- and display unit is integrated into a weather protected housing. The display shows all measured values, the status information and parameters. Using a keyboard it is possible to configure the display and to adapt the parameters specific for the instrument.

Optional the possibility exists to connect an absolute pressure transmitter, through which the absolute pressure at the measurement area can be determined. This one has not been included in the version for the aptitude test. The signal of the absolute pressure transmitter can be used as offset in the emission calculation. An offset of the evaluation electronics of the FMD 09 has not been tested.

**General notes**

This certificate is based upon the equipment tested. The manufacturer is responsible for a long-lasting compliance of the ongoing production process with the requirements of EN 15267. The manufacturer is obliged to maintain a certified quality management system to control the production of the certified product. Both product and quality management system shall be subject to regular surveillance.

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

The certification mark with the product specific ID-Number which may be applied to the product or used in promotion material of the certified product is presented on page 1 of this certificate.

This document as well as the certification mark remain property of TÜV Rheinland Energie und Umwelt GmbH. Upon revocation of the announcement the certificate loses validity. After expiration of the validity of the certificate or on request of the TÜV Rheinland Energie und Umwelt GmbH this document shall be returned and the certification mark shall longer be used.

The current version of this certificate and its validity is also listed at the Internet Address: [qal1.de](http://qal1.de).

Certification of FMD 09 for velocity is based on the documents listed below and the regular, continuous monitoring of the Quality Management System of the manufacturer:

**Supplementary testing according to EN 15267**

Certificate No 0000001016 of: 19 August 2011  
 Validity of the certificate: 28 July 2011  
 Test report: 936/21212361/A of 23 March 2011  
 TÜV Rheinland Energie und Umwelt GmbH, Köln  
 Publication: BAnz. 29 July 2011, No 113, p. 2725, chapter II No 1.1:  
 Announcement by UBA from 15 July 2011.

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

**Measuring system**

Manufacturer	Dr. Födisch Umweltmesstechnik AG
Name of measuring system	FMD 09
Serial number of the candidates	09130 / 09131
Measuring principle	Differential pressure measurement

**Test report**

Test laboratory	936/21212361/A
Date of report	TÜV Rheinland Energie und Umwelt GmbH 2011-03-23

**Measured component**

Certification range	Velocity 5 - 30 m/s
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**Calculation of the combined standard uncertainty**

**Tested parameter**

	u	u <sup>2</sup>
Standard deviation from paired measurements under field conditions *	u <sub>D</sub> 0.127 m/s	0.016 (m/s) <sup>2</sup>
Lack of fit	u <sub>lof</sub> 0.121 m/s	0.015 (m/s) <sup>2</sup>
Zero drift from field test	u <sub>d,z</sub> 0.000 m/s	0.000 (m/s) <sup>2</sup>
Span drift from field test	u <sub>d,s</sub> 0.173 m/s	0.030 (m/s) <sup>2</sup>
Influence of ambient temperature at span	u <sub>t</sub> 0.058 m/s	0.003 (m/s) <sup>2</sup>
Influence of supply voltage	u <sub>v</sub> 0.059 m/s	0.003 (m/s) <sup>2</sup>

\* The larger value is used :  
 "Repeatability standard deviation at span" or  
 "Standard deviation from paired measurements under field conditions"

Combined standard uncertainty (u <sub>c</sub> )	$u_c = \sqrt{\sum (u_{max,j})^2}$	0.26 m/s
Total expanded uncertainty	$U = u_c * k = u_c * 1.96$	0.51 m/s

<b>Relative total expanded uncertainty</b>	<b>U in % of the ELV 30 m/s</b>	<b>1.7</b>
<b>Requirement of 2000/76/EC and 2001/80/EC</b>	<b>U in % of the ELV 30 m/s</b>	<b>10.0</b>
Requirement of EN 15267-3	U in % of the ELV 30 m/s	7.5

\*\* For this component no requirements in the EC-directives 2001/80/EG und 2000/76/EG are given.  
 The chosen value is recommended by the certification body.