Umwelt Bundesamt

TÜVRheinland®
Precisely Right.

CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000001016_04

AMS designation:	FMD 09 for velocity
Manufacturer:	Dr. Födisch Umweltmesstechnik AG Zwenkauer Straße 159 04420 Markranstädt 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 (2004).

Certification is awarded in respect of the conditions stated in this certificate (this certificate contains 7 pages).
The present certificate replaces certificate 0000001016_03 of 22 July 2016.

TÜVRheinland®
ZERTIFIZIERT

Suitability Tested
EN 15267
QAL1 Certified
Regular
Surveillance

www.tuv.com
ID 0000001016

Publication in the German Federal Gazette (BAnz) of 20 July 2012

This certificate will expire on:
28 July 2022

German Federal Environment Agency
Dessau, 28 July 2021

Dr. Marcel Langner
Head of Section II 4.1

TÜV Rheinland Energy GmbH
Cologne, 27 July 2021

ppa. Dr. Peter Wilbring

www.umwelt-tuv.eu
tre@umwelt-tuv.eu
Phone: + 49 221 806-5200

TÜV Rheinland Energy GmbH
Am Grauen Stein
51105 Köln

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.

10/221 2.08

Test Report:	936/21212361/C of 20 March 2012
Initial certification:	29 July 2011
Expiry date:	28 July 2022
Certificate:	Renewal (of previous certificate 0000001016_03 dated 22 July 2016 valid until 28 July 2021)
Publication:	BAnz AT 20.07.2012 B11, chapter II number 2.2

Approved application

The tested AMS is suitable for use at combustion plants according to Directive 2010/75/EU, chapter III (13th BImSchV), chapter IV (17th BImSchV), 30th BImSchV, plants in compliance with TA Luft and plants according to the 27th 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 six-month field test at a waste incineration plant.

The AMS is approved for an ambient temperature range of -20 °C to +50 °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 936/21212361/C of 20 March 2012
  by TÜV Rheinland Energie und Umwelt 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 20.07.2012 B11, chapter II number 2.2, UBA announcement dated 06 July 2012:

AMS designation:
FMD 09 for velocity

Manufacturer:
Dr. Födisch Umweltmesstechnik AG, Markranstädt

Field of application:
For plants requiring official approval and for plants according to the 27th BImSchV

Measuring ranges during performance testing:

Component	Certification range	Supplementary range	Unit
Velocity	2 – 30	2 – 60	m/s

Software versions:
Main Version: 2.0
I/O Version: 1.1

Restriction:
The lower limit of the velocity measurement range is 2 m/s.

Notes:
1. The maintenance interval is three months.
2. After any malfunction of the filter resulting in high dust loads, the probe must be checked for contamination and cleaned if necessary.
3. As a pressure transmitter, the SMAR LD301 can be used in a range from 0 to 500 Pa or from 0 to 1000 Pa.
4. Supplementary test (additional measuring range) to the announcement of the Federal Environment Agency of 23 February 2012 (BAnz. p. 920, chapter II number 2.1).

Test Report:
TÜV Rheinland Energie und Umwelt GmbH, Cologne
Report no.: 936/21212361/C of 20 March 2012

Publication in the German Federal Gazette: BAnz AT 05.03.2013 B10, chapter V 25th notification, UBA announcement dated 12 February 2013:

25 Notification as regards Federal Environment Agency (UBA) notice of 6 July 2012 (BAnz AT 20.07.2012 B11, chapter II number 2.2)

The current software versions of the measuring system FMD 09 for velocity of the company Dr. Födisch Umweltmesstechnik AG are:
Main Version: 2.07
I/O Version: 1.13

Statement issued by TÜV Rheinland Energie und Umwelt GmbH
dated 15 October 2012

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

The volumetric flow measurement FMD 09 is based on the determination of the differential pressure in flowing flue gas with help of a back pressure probe and a pressure sensor. The measuring system uses an in-situ method. 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.

The evaluation unit takes into account the differential pressure signal and waste gas boundary conditions as well as the cross-section of the duct. 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 volumetric flow or speed signal is carried out by several freely assignable 4 - 20 mA analogue outputs whose measuring range can be varied. In addition, the exhaust gas temperature, for example, can be output via the analogue 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.

Optionally it is possible to connect an absolute pressure transmitter, through which the absolute pressure at the measurement area can be determined. This was not installed in the version used for the performance test. The signal from the absolute pressure transmitter can be used for calculation in the DAHS. Offsetting by the evaluation electronics of the FMD 09 was not tested.

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**.

Document history

Certification of the FMD 09 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. 0000001016: 19 August 2011
Expiry date of the certificate: 28 July 2016
Test report 936/212361/A of 23 March 2011
TÜV Rheinland Energie und Umwelt GmbH, Cologne
Publication: BAnz. 29 July 2011, no. 113, p. 2725, chapter II number 1.1
UBA announcement dated 15 July 2011

Supplementary testing according to EN 15267

Certificate no. 0000001016_01: 16 March 2012
Expiry date of the certificate: 28 July 2016
Test Report: 936/212361/B of 19 October 2011
TÜV Rheinland Energie und Umwelt GmbH, Cologne
Publication: BAnz. 02 March 2012, no. 36, p. 920, chapter II number 2.1
UBA announcement dated 23 February 2012

Certificate no. 0000001016_02: 20 August 2012
Expiry date of the certificate: 28 July 2016
Test Report: 936/21212361/C of 20 March 2012
TÜV Rheinland Energie und Umwelt GmbH, Cologne
Publication: BAnz AT 20.07.2012 B11, chapter II number 2.2
UBA announcement dated 06 July 2012

Notifications in accordance with EN 15267

Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 15 October 2012
Publication: BAnz AT 05.03.2013 B10, chapter V notification 25
UBA announcement dated 12 February 2013
(New software version)

Renewal of the certificate

Certificate no. 0000001016_03:	28 July 2016
Expiry date of the certificate:	28 July 2021

Renewal of the certificate

Certificate no. 0000001016_04:	28 July 2021
Expiry date of the certificate:	28 July 2022

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

Measuring system					
Manufacturer			Dr. Födisch Umweltmesstechnik AG		
AMS designation			FMD 09		
Serial number of units under test			09130 / 09131		
Measuring principle			Differnetial pressure measurement		
Test report			936/21212361/A / 936/21212361/B / 936/21212361/C		
Test laboratory			TÜV Rheinland Energie		
Date of report			2011-03-23 / 2011-10-19 / 2012-03-20		
Measured component			Velocity		
Certification range			2 - 30 m/s		
Calculation of the combined standard uncertainty					
Tested parameter				u^2	
Standard deviation from paired measurements under field conditions *	u_D	0.127	m/s	0.016	$(m/s)^2$
Lack of fit	u_{lof}	-0.196	m/s	0.038	$(m/s)^2$
Zero drift from field test	$u_{d,z}$	0.000	m/s	0.000	$(m/s)^2$
Span drift from field test	$u_{d,s}$	0.173	m/s	0.030	$(m/s)^2$
Influence of ambient temperature at span	u_t	0.058	m/s	0.003	$(m/s)^2$
Influence of supply voltage	u_v	0.059	m/s	0.003	$(m/s)^2$

* 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)	$u_c = \sqrt{\sum (u_{max,j})^2}$	0.30	m/s
Total expanded uncertainty	$U = u_c * k = u_c * 1.96$	0.59	m/s

Relative total expanded uncertainty	**U in % of the range 30 m/s**	**2.0**
Requirement of 2010/75/EU	**U in % of the range 30 m/s**	**10.0 ****
Requirement of EN 15267-3	U in % of the range 30 m/s	7.5

** The EU-directive 2010/75/EC on industrial emissions does not define requirements for this component.
A value of 10.0 % was used instead.