Umwelt Bundesamt

TÜVRheinland®
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CERTIFICATE

of Product Conformity (QAL1)

Certificate No: 0000032297_03

Certified AMS:	StackFlowMaster for waste gas velocity
Manufacturer:	McMenon Engineering Services Ltd. Salterback Trading Estate CA14 5DS Workington / Cumbria United Kingdom
Test Institute:	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), EN ISO 16911-2 (2013) and EN 14181 (2014).

Certification is awarded in respect of the conditions stated in this certificate (this certificate contains 7 pages).
The present certificate replaces certificate 0000032297_02 dated 05 March 2018.

TÜVRheinland® CERTIFIED

Suitability Tested
EN 15267
QAL1 Certified
Regular Surveillance

www.tuv.com
ID 0000032297

Publication in the German Federal Gazette (BAnz) of 23 July 2013

This certificate will expire on:
04 March 2028

German Environment Agency
Dessau, 02 March 2023

TÜV Rheinland Energy GmbH
Cologne, 01 March 2023

Dr. Marcel Langner
Head of Section II 4.1

ppa. Dr. Peter Wilbring

www.umwelt-tuv.eu
tre@umwelt-tuv.eu
Tel. + 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 the certificate D-PL-11120-02-00.

10/221 2.08

Test report:	936/21215448/B dated 26 March 2013
Initial certification:	05 March 2013
Expiry date:	04 March 2028
Certificate:	Renewal (of previous certificate 0000032297_02 of 05 March 2018 valid until 04 March 2023)
Publication:	BAnz AT 23.07.2013 B4, chapter II No. 2.1

Approved application
The tested AMS is suitable for use at combustion plants according to EC Directive 2001/80/EC (13th BImSchV:2012), at waste incineration plants according to EC Directive 2000/76/EC (17th BImSchV:2009), Directive 2015/2193/EC (44th BImSchV:2021), the 27th BImSchV:1997, the 30th BImSchV:2009 and TA Luft:2002. The measured ranges have been selected so as to cater for 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-months field test at a waste incineration.

The AMS is approved for an ambient temperature range of -20° 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 flue gas velocity 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.

Note:
The legal regulations mentioned correspond to the current state of legislation during certification. Each user should, if necessary, in consultation with the competent authority, ensure that this AMS meets the legal requirements for the intended use. In addition, it cannot be ruled out that legal regulations governing the use of a measuring device for emission monitoring may change during the lifetime of the certificate.

Basis of the certification
This certification is based on:

- Test report 936/21215448/B dated 26 March 2013 of 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 23.07.2013 B4, chap. II No. 2.1, Announcement by UBA dated 3 July 2013:

AMS designation:
StackFlowMaster for waste gas velocity

Manufacturer:
ABB Ltd., Workington, United Kingdom

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

Measuring ranges during the performance test:
Type A:

Component	Certification range	Unit
Flow velocity	2 – 25	m/s

Type C:

Component	Supplementary range	Unit
Flow velocity	2 – 35	m/s

Software version: Version 27

Restrictions:
The lower limit of measuring the flow velocity is at 2 m/s.

Notes:
1. After any malfunction of the filter resulting in high dust loads, the probe must be checked for contamination and cleaned if necessary.
2. The maintenance interval is three months.
3. Two different types (A or C) of pressure transmitters can be used.
4. Two different types of probes (type A 25 mm in diameter or type B 60 mm in diameter) can be used.
5. The AMS designation has been changed from Torbar to StackFlowMaster.
6. Supplementary testing (extension of the maintenance interval and additional probe) as regards Federal Environment Agency (UBA) notice of 12 February 2013 (BAnz AT 05.03.2013 B10, chapter I number 2.4).

Test Institute:
TÜV Rheinland Energie und Umwelt GmbH, Cologne
Report No.: 936/21215448/B dated 26 March 2013

Publication in the German Federal Gazette: BAnz AT 01.04.2014 B12, chap. VI notification 7, Announcement by UBA dated 27 February 2014:

7 Notification as regards Federal Environment Agency (UBA) notice of 3 July 2013 (BAnz AT 23.07.2013 B4, chapter II number 2.1)

The StackFlowMaster measuring system manufactured by ABB Ltd. can also be used with the FPD 585 electronics unit.

Statement issued by TÜV Rheinland Energie und Umwelt GmbH
dated 2 October 2013

Publication in the German Federal Gazette: BAnz AT 14.03.2016 B7, chap. V notification 21, Announcement by UBA dated 18 February 2016:

21 Notification as regards Federal Environment Agency notices of 3 July 2013 (BAnz AT 23.07.2013 B4, chapter II number 2.1) and of 27 February 2014 (BAnz AT 01.04.2014 B12 chapter VI notification 7)

The StackFlowMaster measuring system for flow velocity manufactured by ABB Ltd. may also be operated with the 266CSH pressure transmitter.
The two electronics units with which ABB's StackFlowMaster measuring system may be used are the FPD583 and FPD585 (version D).

Statement issued by TÜV Rheinland Energie und Umwelt GmbH
dated 11 August 2015

Publication in the German Federal Gazette: BAnz AT 26.03.2019 B7, chap. IV notification 40, Announcement by UBA dated 27 February 2019:

40 Notification as regards Federal Environment Agency (UBA) notices of 3 July 2013 (BAnz AT 23.07.2013 B4, chapter II number 2.1) and of 18 February 2016 (BAnz AT 14.03.2016 B7, chapter V notification 21)

The manufacturer of the StackFlowMaster for flow velocity now is:
McMenon Engineering Services Ltd.
Salterback Trading Estate, Workington, A14 5DS, United Kingdom

Statement issued by TÜV Rheinland Energy GmbH dated 11 October 2018

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

Flow velocity is determined on the basis of differential pressure in the waste gas flow using a dynamic pressure probe and a pressure box (model 267CS). The measuring system uses an in-situ method. Measured values detected by the pressure box are transmitted to the evaluation unit inside the instrument as 4 – 20 mA measured signals.

The evaluation unit takes into account the differential pressure signal and waste gas boundary conditions as well as the cross-section of the duct. This is also were parameterisation takes place. The volume flow or flow velocity signal is provided via freely assignable 4 – 20 mA outputs, whose measuring range can be changed. Ports of the outputs are located in a different external electronics unit.

In accordance with the relevant measuring range, different pressure transmitters are used which differ only in there pressure measuring range.

Two different probe types may be used which differ in terms of their diameter (25 mm or 60 mm in diameter).

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 certification mark may be applied to the product or used in advertising materials 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**.

History of documents
Certification of StackFlowMaster 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. 0000032297_00: 22 March 2013
Expiry date of the certificate: 04 March 2018
Test report 936/21215448/A dated 11 October 2012
TÜV Rheinland Energie und Umwelt GmbH
Publication BAnz AT 05.03.2013 B10, chapter II number 2.4
UBA announcement dated 12 February 2013

Supplementary testing according to EN 15267
Certificate No. 0000032297_01: 20 August 2013
Expiry date of the certificate: 04 March 2018
Test report 936/21215448/B dated 26 March 2013
TÜV Rheinland Energie und Umwelt GmbH
Publication BAnz AT 23.07.2013 B4, chapter II number 2.1
UBA announcement dated 3 July 2013

Notifications
Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 2 October 2013
Publication BAnz AT 01.04.2014 B12, chapter VI notification 7
UBA announcement dated 27 February 2014
(alternative electronics unit)

Statement issued by TÜV Rheinland Energie und Umwelt GmbH dated 11 August 2015
Publication BAnz AT 14.03.2016 B7, chapter V notification 21
UBA announcement dated 18 February 2016
(alternative pressure transmitter)

Renewal of certificate
Certificate No. 0000032297_02: 05 March 2018
Expiry date of the certificate: 04 March 2023

Notifications
Statement issued by TÜV Rheinland Energy GmbH dated 11 October 2018
Publication BAnz AT 26.03.2019 B7, chapter IV notification 40
UBA announcement dated 27 February 2019
(New certificate holder)

Renewal of certificate
Certificate No. 0000032297_03: 02 March 2023
Expiry date of the certificate: 04 March 2028

Umwelt Bundesamt

Certificate:
0000032297_03 / 02 March 2023

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

Measuring system					
Manufacturer	ABB Ltd.				
AMS designation	StackFlowMaster				
Serial number of units under test	267CS6502019089 / 267CS6502019088				
Measuring principle	differential pressure measurement				
Test report	936/21215448/B				
Test laboratory	TÜV Rheinland				
Date of report	2013-03-26				
Measured component	Velocity				
Certification range	2 - 25 m/s				

Calculation of the combined standard uncertainty

Tested parameter				u^2	
Standard deviation from paired measurements under field conditions *	u_D	0.183	m/s	0.033	$(m/s)^2$
Lack of fit	u_{lof}	0.023	m/s	0.001	$(m/s)^2$
Zero drift from field test	$u_{d,z}$	-0.087	m/s	0.008	$(m/s)^2$
Span drift from field test	$u_{d,s}$	-0.144	m/s	0.021	$(m/s)^2$
Influence of ambient temperature at span	u_t	0.058	m/s	0.003	$(m/s)^2$
Influence of supply voltage	u_v	0.021	m/s	0.000	$(m/s)^2$

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

Combined standard uncertainty (u_C)	$u_c = \sqrt{\sum (u_{max,j})^2}$	0.26	m/s
Total expanded uncertainty	$U = u_c * k = u_c * 1.96$	0.50	m/s

Relative total expanded uncertainty	**U in % of the range 25 m/s**	**2.0**
Requirement of 2000/76/EC and 2001/80/EC	**U in % of the range 25 m/s**	**10.0 ****
Requirement of EN 15267-3	U in % of the range 25 m/s	7.5

** For this component no requirements in the EC-directives 2001/80/EG und 2000/76/EG are given.
A value of 10.0 % was used for this.