

# CERTIFICATE

## of Product Conformity (QAL1)

Certificate No.: 0000032297\_01

**Certified AMS:** StackFlowMaster for velocity

**Manufacturer:** ABB Ltd.  
Salterback Trading  
Workington  
Cumbria  
CA14 5DS  
England

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

**This is to certify 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).

The present certificate replaces Certificate No. 0000032297 of 22 March 2013



Suitability Tested  
EN 15267  
QAL1 Certified  
Regular  
Surveillance

www.tuv.com  
ID 0000032297


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

German Federal Environment Agency  
Dessau, 20 August 2013

  
i. A. Dr. Marcel Langner

This certificate will expire on:  
04 March 2018

TÜV Rheinland Energie und Umwelt GmbH  
Cologne, 19 August 2013

  
ppa. Dr. Peter Wilbring

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

<b>Test report:</b>	936/21215448/B of 26 March 2013
<b>Initial certification:</b>	05 March 2013
<b>Expiry date:</b>	04 March 2018
<b>Publication:</b>	BAnz AT 23 July 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, at waste incineration plants according to EC directive 2000/76/EC 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 six-month field test at a waste incineration plant.

The AMS is approved for an ambient temperature range of -20 °C to +50 °C.

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 936/21215448/B of 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 July 2013 B4, chapter II, No. 2.1)



**AMS designation:**

StackFlowMaster for velocity

**Manufacturer:**

ABB Ltd., Workington, United Kingdom

**Field of application:**

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

**Measuring range during the performance test:**

Type A:

Component	Certification range	Unit
velocity	2 - 25	m/s

Type C:

Component	Supplementary range	Unit
velocity	2 - 35	m/s

**Software version:**

Version 27

**Restriction:**

The lower limit of velocity measurement is 2 m/s.

**Notes:**

1. After problems with the filter due to high dust load the probe should be checked for contamination and cleaned where necessary.
2. The maintenance interval is three months.
3. Two different types of pressure transmitters may be used: type A and type C.
4. Two different types of probes may be used (Type A with 25 mm diameter and type B with 60 mm diameter).
5. The AMS designation was changed from Torbar to StackFlowMaster.
6. Supplementary testing (extension of the maintenance interval and additional type of probe) as regards Federal Environmental Agency notice of 12 February 2013 (BAnz AT 05.03.2013 B10, chapter II no 2.4).

**Test report:**

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

### **Certified product**

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

The measurement of the volumetric flow rate is based on the principle of differential pressure in flowing exhaust gas. This is carried out as an in-situ method of measurement by means of a dynamic pressure probe and a pressure sensor (Model: 267CS).

The evaluation electronics is implemented in the pressure transmitter. There, the calculation of the differential pressure signals by means of exhaust gas boundary conditions (temperature, pressure and density) is carried out. Velocity signals are issued through two 4 – 20 mA analogue outputs with variable measuring range at an external electronic unit.

Depending on the measuring range, different pressure transmitters are used, differing only in the pressure range.

2 different types of probes can be used. The probes differ by their diameter (25 mm or 60 mm 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 Energie und Umwelt 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 Energie und Umwelt GmbH. With revocation of the publication the certificate loses its validity. After the expiration of the certificate and on requests of the TÜV Rheinland Energie und Umwelt 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](http://qal1.de).

Certification of StackFlowMaster for velocity 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: 22 March 2013

Expiry date of the certificate: 04 March 2018

Test report: 936/21215448/A of 11 October 2012  
TÜV Rheinland Energie und Umwelt GmbH, Cologne

Publication: BAnz AT 05 March 2013 B10, chapter II, No. 2.4  
Announcement by UBA from 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 of 26 March 2013  
TÜV Rheinland Energie und Umwelt GmbH, Cologne

Publication: BAnz AT 23 July 2013 B4, chapter II, No. 2.1  
Announcement by UBA from 03 July 2013



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

**Measuring system**

Manufacturer	ABB Ltd.
Name of measuring system	StackFlowMaster
Serial number of the candidates	267CS6502019089 / 267CS6502019088
Measuring principle	Differential pressure determination

**Test report**

Test laboratory	936/21215448/A	936/21215448/B
Date of report	TÜV Rheinland	2013-03-26

**Measured component**

Certification range	Velocity
	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) <sup>2</sup>
Lack of fit	$U_{lof}$ 0.023 m/s	0.001 (m/s) <sup>2</sup>
Zero drift from field test	$U_{d,z}$ -0.087 m/s	0.008 (m/s) <sup>2</sup>
Span drift from field test	$U_{d,s}$ -0.144 m/s	0.021 (m/s) <sup>2</sup>
Influence of ambient temperature at span	$U_t$ 0.058 m/s	0.003 (m/s) <sup>2</sup>
Influence of supply voltage	$U_v$ 0.021 m/s	0.000 (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 $u_c$	$u_c = \sqrt{\sum (u_{max, j})^2}$	0.26 m/s
Total expanded uncertainty	$U = u_c * k = u_c * 1.96$	0.50 m/s

**Relative total expanded uncertainty**

**Requirement of 2000/76/EC and 2001/80/EC**  
Requirement of EN 15267-3

<b>U in % of the range 25 m/s</b>	<b>2.0</b>
<b>U in % of the range 25 m/s</b>	<b>10.0**</b>
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.  
The chosen value is recommended by the certification body.