Umwelt Bundesamt

TÜVRheinland®
Precisely Right.

CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000040211_01

Certified AMS:	K-BAR 2000B for velocity
Manufacturer:	Kurz Instruments, Inc. 2411 Garden Road Monterey CA 93940 USA
Test Institute:	TÜV Rheinland Energy 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, EN ISO 16911-2 : 2013 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 0000040211 of 29 April 2014.

TÜVRheinland® CERTIFIED

Suitability Tested
EN 15267
QAL1 Certified
Regular
Surveillance

www.tuv.com
ID 0000040211

Publication in the German Federal Gazette (BAnz.) of 1 April 2014

This certificate will expire on:
30 Juni 2020

German Federal Environment Agency
Dessau, 1 April 2019

Dr. Marcel Langner
Head of Section II 4.1

TÜV Rheinland Energy GmbH
Cologne, 31 March 2019

ppa. Dr. Peter Wilbring

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TÜV Rheinland Energy GmbH
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51105 Cologne

Accreditation according to EN ISO/IEC 17025:2018 and certified according to ISO 9001:2015.

Test report:	936/21219690/A of 10 October 2013
Initial certification:	01 April 2014
Expiry date:	30 Juni 2020
Publication:	BAnz AT 01 April 2014 B12, chapter II, No. 2.2

Approved application
The tested AMS is suitable for use at combustion plants according to Directive 2010/75/EU, chapter III, at waste incineration plants according to Directive 2010/75/EU, chapter IV 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 three-month field test at a municipal waste incinerator.

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 936/21219690/A of 10 October 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 01 April 2014 B12, chapter II, No. 2.2, Announcement by UBA from 27 February 2014)

AMS designation:
K-BAR 2000B for velocity

Manufacturer:
Kurz Instruments, Inc., Monterey, USA

Field of application:
For measurements at plants requiring official approval (Directive 2010/75/EU on industrial emissions, chapter III and IV)

Measuring range during the performance test:

Component	Certification range	Unit
velocity	0 - 30	m/s

Software version:
MFT-B VER 2.08

Restriction:
The measuring system may only be employed if the temperature does not fall below dewpoint.

Notes:
1. The maintenance interval is four weeks.
2. The measuring system may be used at exhaust gas temperatures of up to 500 °C.

Test report:
TÜV Rheinland Energie und Umwelt GmbH, Cologne
Report No.: 936/21219690/A of 10 October 2013

Certified product

This certificate applies to automated measurement systems conforming to the following description:
The measuring system K-BAR 2000B for monitoring exhaust gas velocity consists of one or more sensor probe rods in which one or more sensor elements are fitted (the tested measuring system is equipped with 2 built-in sensor elements) that measure velocity according to the principle of thermal anemometry. To do so, an electrically heated resistance temperature detector (RTD) is used which maintains a constant temperature difference to the surrounding sample gas (temperature is measured with a second RTD). The measurement signal produced is the electricity required to maintain a constant temperature difference between the heated RTD and the sample gas.

An electronic analysis component is fitted directly on the probe rod and is connected to the external analysis and control electronics Adam 155B. The Adam 155B component calculates and provides the mean value of the individual elements. The parameters of the entire measuring system can also be controlled using the keyboard and display.

A control cycle for zero and span point control can be initiated via an external Siemens Logo PC. No proper reference point checks were carried out, but the evaluation electronics of the sensor elements were subjected to testing.

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 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 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**.

Certification of K-BAR 2000B 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. 0000040211: 29 April 2014
Expiry date of the certificate: 31 March 2019

Test report: 936/21219690/A of 10 October 2013
TÜV Rheinland Energie und Umwelt GmbH, Cologne
Publication: BAnz AT 01 April 2014 B12, chapter II, No. 2.2
Announcement by UBA from 27 February 2014

Renewal of the certificate according to EN 15267

Certificate No. 0000040211_01: 1 April 2019
Expiry date of the certificate: 30 June 2020

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

Measuring system					
Manufacturer			Kurz Instruments Inc.		
AMS designation			K-Bar 2000B		
Serial number of units under test			1294A / 1294B		
Measuring principle			Thermal convection		
Test report			936/21219690/A		
Test laboratory			TÜV Rheinland		
Date of report			2013-10-10		
Measured component			Velocity		
Certification range			0 - 30	m/s	

Calculation of the combined standard uncertainty

Tested parameter				u^2	
Standard deviation from paired measurements under field conditions *	u_D	0.215	m/s	0.046	$(m/s)^2$
Lack of fit	u_{lof}	-0.230	m/s	0.053	$(m/s)^2$
Zero drift from field test	$u_{d,z}$	0.035	m/s	0.001	$(m/s)^2$
Span drift from field test	$u_{d,s}$	0.052	m/s	0.003	$(m/s)^2$
Influence of ambient temperature at span	u_t	0.115	m/s	0.013	$(m/s)^2$
Influence of supply voltage	u_v	0.012	m/s	0.000	$(m/s)^2$
Uncertainty of reference material at 70% of certification range	u_{rm}	0.242	m/s	0.059	$(m/s)^2$

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

Combined standard uncertainty (u_C)	$u_c = \sqrt{\sum (u_{max,\ i})^2}$	0.42	m/s
Total expanded uncertainty	$U = u_c * k = u_c * 1.96$	0.82	m/s

Relative total expanded uncertainty	**U in % of the range 30 m/s**	**2.7**
Requirement of 2000/76/EC and 2001/80/EC	**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

** 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.