Umwelt Bundesamt

TÜVRheinland®
Precisely Right.

CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000074630_00

AMS designation:	MT100 for velocity
Manufacturer:	Fluid Components International LLC La Costa Meadows Drive 1755 92078 San Marcos, California USA
Test Laboratory:	TÜV Rheinland Energy GmbH

This is to certify that the AMS has been tested according to the standards EN 15267-1 (2009), EN 15267-2 (2009), EN 15267-3 (2007) EN 16911 (2013) and EN 14181 (2015).

Certification is awarded in respect of the conditions stated in this certificate (this certificate contains 6 pages).

TÜVRheinland® CERTIFIED

Suitability Tested
EN 15267
QAL1 Certified
Regular
Surveillance

www.tuv.com
ID 0000074630

Publication in the German Federal Gazette (BAnz) of 05 August 2021

This certificate will expire on: 04 August 2026

German Federal Environment Agency
Dessau, 03 September 2021

TÜV Rheinland Energy GmbH
Cologne, 02 September 2021

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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.

Test Report:	936/21247922/A of 11 February 2021
Expiry date:	04 August 2026
Publication:	BAnz AT 05.08.2021 B5, chap. I No. 1.1

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, 44th 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 three-months field test at a municipal waste incinerator.

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 velocities 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 936/21247922/A of 11 February 2021 by TÜV Rheinland Energy 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 05.08.2021 B5, chap. I No. 1.1 ,
UBA announcement dated 29 June 2021 :

AMS designation:
MT100 for velocity

Manufacturer:
Fluid Components International LLC., San Marcos, USA

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

Measuring ranges during performance testing:

Component	Certification range	Unit
Velocity	0 – 30	m/s

Software version:
3.08M

Restriction:
The instrument is only fit for purpose in waste gas which is not saturated with water vapour.

Note:
The maintenance interval is four weeks.

Test Report:
TÜV Rheinland Energy GmbH, Cologne
Report no.: 936/21247922/A of 11 February 2021

Certified product

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

The AMS tested here consists of one or more measuring probes, in which one heated and one unheated sensor is installed per probe, as well as the electronics / control unit. The individual signals of the measuring probes (up to eight) result in an output signal that represents the total flow. The number of measuring probes results from the dimensions of the flue gas ducts where the probes are to be installed later and the volume flow determined.

During the performance test, 2 control units with two measuring probes each were used. Through this potential combination of the number of probes and sensors, the smallest possible number of measuring probes was tested and, in addition, a practice-oriented distribution of the sampling points is possible. For each control unit up to four measuring probes can be installed.

The software version 3.08M has not changed over the entire audit period.

The AMS tested here comprises the following components:

- Electronic / control unit
- Two measuring probes, length during the performance test 533 mm each

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 MT100 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. 0000074630_00: 03 September 2021
Expiry date of the certificate: 04 August 2026
Test report 936/21247922/A of 11 February 2021
TÜV Rheinland Energy GmbH, Cologne
Publication: BAnz AT 05.08.2021 B5, chap. I No. 1.1
UBA announcement dated 29 June 2021 :

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

Measuring system			
Manufacturer		Fluid Components International LLC.	
AMS designation		MT100	
Serial number of units under test		675808 / 675809	
Measuring principle		Thermal dispersion	
Test report		936/21247922/A	
Test laboratory		TÜV Rheinland	
Date of report		2021-02-11	
Measured component		Velocity	
Certification range		0 - 30 m/s	
Evaluation of the cross-sensitivity (CS)			
(system with largest CS)			
Sum of positive CS at zero point		0.00 m/s	
Sum of negative CS at zero point		0.00 m/s	
Sum of postive CS at span point		0.00 m/s	
Sum of negative CS at span point		0.00 m/s	
Maximum sum of cross-sensitivities		0.00 m/s	
Uncertainty of cross-sensitivity	u_i	0.000 m/s	

Calculation of the combined standard uncertainty

Tested parameter			u^2	
Standard deviation from paired measurements under field conditions *	u_D	0.097 m/s	0.009	$(m/s)^2$
Lack of fit	u_{lof}	0.116 m/s	0.013	$(m/s)^2$
Zero drift from field test	$u_{d,z}$	-0.052 m/s	0.003	$(m/s)^2$
Span drift from field test	$u_{d,s}$	-0.121 m/s	0.015	$(m/s)^2$
Influence of ambient temperature at span	u_t	0.100 m/s	0.010	$(m/s)^2$
Influence of supply voltage	u_v	0.036 m/s	0.001	$(m/s)^2$
Cross-sensitivity (interference)	u_i	0.000 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 set point" or
"Standard deviation from paired measurements under field conditions"

Combined standard uncertainty (u_C)	$u_c = \sqrt{\sum (u_{max\ j})^2}$	0.33	m/s
Total expanded uncertainty	$U = u_c * k = u_c * 1.96$	0.65	m/s

Relative total expanded uncertainty	**U in % of the range 30 m/s**	**2.17**
Requirement of 2010/75/EU	**U in % of the range 30 m/s**	**7.84 ****
Requirement of EN 15267-3	U in % of the range 30 m/s	5.88

** The EU-directive 2010/75/EC on industrial emissions does not define requirements for this component.
A value of 7.84 % was used instead.