

CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000074623

Certified AMS: EM-F 5000-20 for velocity

Manufacturer: Horiba GmbH
Kaplanstraße 5
A-3430 Tulln
Österreich

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 16911 (2013) and EN 14181 (2004).**

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



Suitability Tested
EN 15267
QAL1 Certified
Regular
Surveillance

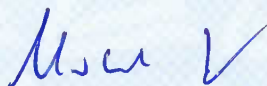
www.tuv.com
ID 0000074623

Publication in the German Federal Gazette
(BAnz.) of 03 May 2021


This certificate will expire on:
02 May 2026

German Federal Environment Agency
Dessau, 02 June 2021

TÜV Rheinland Energy GmbH
Cologne, 01 June 2021



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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.

Test report: 936/21250511/B of 25 August 2020
Initial certification: 03 May 2021
Expiry date: 02 May 2026
Publication: BAnz AT 03.05.2021 B9, chapter II number 3.1

Approved application

The tested AMS is suitable for use at combustion plants according to Directive 2010/75/EU, chapter III (13th BImSchV), at waste incineration plants according to Directive 2010/75/EU, chapter IV (17th BImSchV), 27th BImSchV, 30th BImSchV and TA Luft. 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 twelve-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 valid at the time of performance testing. As changes in legal regulations are possible, any potential user should ensure that this AMS is suitable for monitoring the flow 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.

Basis of the certification

This certification is based on:

- Test report 936/21250511/B of 25 August 2020 of 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 03.05.2021 B9, chapter II number 3.1
Announcement by UBA dated 31 March 2021:

AMS designation:

EM-F 5000-20 for velocity

Manufacturer:

Horiba GmbH, Tulln, Austria

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
Flow velocity	3 – 30	3 – 50	m/s

Software versions:

EM-F 5000-20: 01.01R0000

EM5800CU: 02.02R0066

Restrictions:

1. The measuring system is only fit for use in waste gas which is not saturated with water vapour.
2. The lower limit of measuring the flow velocity is 3 m/s.

Notes:

1. The maintenance interval is six months.
2. The EM-F 5000-CU evaluation unit has no display and no operating option. The control unit EM5800CU must be connected to parameterize the evaluation unit and visualize the data.
3. The EM-F 5000-20 measuring device is equipped with an digital Modbus RTU Interface in accordance with VDI 4201 parts 1 and 3 (EIA-485, serial).
4. The EM5800CU control unit is equipped with the digital interfaces Modbus according to VDI 4201 sheets 1 and 3 (EIA-485, serial and TCP / IP, Ethernet).
5. The EM5800CU control unit is available in the following designs:
 - EM5800CU M (standard)
 - EM5800CU C (compact housing)
 - EM5800CU P (with purging air fan)
 - EM5800CU R (housing for 19 " rack installation)

Test report:

TÜV Rheinland Energy GmbH, Cologne
Report No.: 936/21250511/B of 25 August 2020

Certified product

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

The EM-F 5000-20 measuring device is based on the differential pressure measuring principle and is designed for continuous measurement of exhaust gas velocity. The measuring system consists of the following components:

- Pitot tube
- Switchover device for manual zero and span checks and for back purging of the pitot tube
- Differential pressure transmitter 266MST (ABB)
- optional: Temperature and pressure sensor for calculating waste gas density
- EM-F 5000-20 evaluation unit for data evaluation and output
- Control unit EM5800CU for adjusting parameters, presenting data and conducting AST, QAL2 and QAL3 for the EM-F 5000-20

Each EM-F 5000 P dynamic pressure probe is custom made for the respective measuring point. For this purpose, three different cross-section probe sizes are available depending on the intended measuring path length.

- 22 x 24 mm² for 0.4 to 2 m probe length
- 50 x 53 mm² for 0.4 to 4 m probe length
- 90 x 100 mm² for 0.4 to 8 m probe length

The EM-F 5000-CU evaluation unit does not have a display. Signals are output via a 4–20 mA signal outputs. In addition to the 4–20 mA signal output, it provides a Modbus interface for connecting an evaluation system with a digital interface in accordance with the VDI 4201 parts 1 and 3. The front plate has 5 LEDs and a USB port (Mini-B 5–pins). The LEDs serve to signal the current status/operating mode of the system.

Different parameters such as standard density, substitute values for pressure and temperature in the waste gas duct, k-factor and measuring ranges are entered and monitored via the universal control unit EM5800CU.

The display provides instant information on the status of connected instruments as well as values currently being measured. In addition, measured values can be presented as bar charts. EM5800CU also allows retrieval of information, control and adjustment of parameters for connected instruments. The universal control unit is fitted with a Modbus digital interface in accordance with VDI 4201 parts 1 and 3 (EIA-485, series and TCP/IP, Ethernet).

The EM5800CU control unit is available in the following designs:

- EM5800CU M (standard)
- EM5800CU C (compact housing)
- EM5800CU P (with purging air fan)
- EM5800CU R (housing for 19 “ rack installation).

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: gal1.de.

History of documents

Certification of EM-F 5000-20 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. 0000074623: 02 June 2021
Expiry date of the certificate: 02 May 2026
Test report 936/21250511/B dated 25 August 2020
TÜV Rheinland Energy GmbH, Cologne
Publication: BAnz AT 03.05.2021 B9, chapter II number 3.1
Announcement by UBA dated 31 March 2021

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

Measuring system

Manufacturer	HORIBA GmbH
AMS designation	EM-F 5000-20
Serial number of units under test	1226520 / 1227484
Measuring principle	Dynamic / Differential pressure

Test report

Test laboratory	936/21250511/B
Date of report	TÜV Rheinland
	2020-08-25

Measured component

Certification range	Velocity	3 - 30 m/s
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Calculation of the combined standard uncertainty

Tested parameter

			u^2
Repeatability standard deviation at set point *	u_r	0.364 m/s	0.132 (m/s) ²
Lack of fit	u_{lof}	0.230 m/s	0.053 (m/s) ²
Zero drift from field test	$u_{d,z}$	0.316 m/s	0.100 (m/s) ²
Span drift from field test	$u_{d,s}$	0.318 m/s	0.101 (m/s) ²
Influence of ambient temperature at span	u_t	0.153 m/s	0.023 (m/s) ²
Influence of supply voltage	u_v	0.180 m/s	0.032 (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)	$u_c = \sqrt{\sum (u_{max, j})^2}$	0.71 m/s
Total expanded uncertainty	$U = u_c * k = u_c * 1.96$	1.39 m/s

Relative total expanded uncertainty

Requirement of 2010/75/EU	U in % of the range 30 m/s	4.6
Requirement of EN 15267-3	U in % of the range 30 m/s	10.0 **
	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.