

CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000035007_01

Certified AMS: D-EMS 2000

Manufacturer: DURAG data systems GmbH
Kollaustr.105
22453 Hamburg
Germany

Test Institute: TÜV Rheinland Energy GmbH

**This is to certify that the Emissions data evaluation (DAHS)
has been tested and certified according to the standards**

**Uniform Practice in monitoring emissions*,
Teletransmission definition 2005,
EN 14181 (2004), EN 15267-1 (2009) and EN 15267-2 (2009)**

Certification is awarded in respect of the conditions stated in this certificate
(this certificate contains 9 pages).



Suitability Tested
EN 15267
QAL1 Certified
Regular
Surveillance

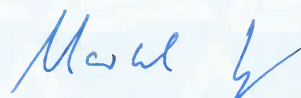
www.tuv.com
ID 0000035007

Publication in the German Federal Gazette
(BAnz.) of 02 March 2012

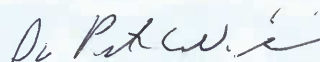
This certificate will expire on:
01 March 2022

German Federal Environment Agency
Dessau, 28 February 2017

TÜV Rheinland Energy GmbH
Cologne, 27 February 2017



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Test institute accredited to EN ISO/IEC 17025:2005 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

* Uniform Practice in monitoring emissions,

- Circular from Federal Environment Ministry of 2005-06-13 - IG I 2 - 45053/5 and from 2010-08-04 - Az.: IG I 2- 51134/0

Certificate:
0000035007_01 / 28 February 2017

Test report: 936/21217135/A of 14 October 2011
Initial certification: 02 March 2012
Expiry date: 01 March 2022
Certificate renewal (previous certificate 0000035007 dated from 16 March 2012 with validity up to the 01 March 2017)
Publication: BAnz. 02 March 2012, No. 36, p. 920, chapter III, No. 1.2

Approved application

The certified data acquisition and handling system (DAHS) is suitable for continuous emissions data acquisition, evaluation and teletransmission at plants with continuous monitoring.

The suitability of the data acquisition system for this application was assessed on the basis of a laboratory test and a more than three months field test at a waste incinerator. Additional a coal fired power plant was simulated.

The AMS is approved for a temperature range of +5 °C to +40 °C.

The notification of suitability of the DAHS and performance testing 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 values relevant to the application.

Basis of the certification

This certification is based on:

- Test report 936/21217135/A of 14 October 2011 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. 02.03.2012, No. 36, p. 920, chapter III, No. 1.2,
Announcement by UBA from 23 February 2012:

AMS name:

D-EMS 2000

Manufacturer:

DURAG data systems GmbH, Hamburg

Field of application:

Emission data acquisition, evaluation and remote transmission for plants with continuous monitoring

Measuring ranges during suitability test:

- Analog data transmission
- Digital data transmission via Profibus
- Emission remote data transmission

Software version:

Version 4.50

Restriction:

In order to protect the system from unauthorised access to saved data during continuous operation, access rights granted by the administrator of the PC operating system have to be restricted on file manager programs (such as Explorer).

Notes:

1. The physical limitations of data transmission via RS 232C/RS 485 or network connection shall be taken into account at the time of installation.
2. Complementary testing (changes in software, digital interface for Profibus and Modbus) for notification of the Federal Environment Agency of 21 February 2006 (BAnz. p. 2653, chapter III, No. 1.6) and 15 July 2011 (BAnz. p. 2725, chapter III, 5th notification).

Test report:

TÜV Rheinland Energie und Umwelt GmbH, Cologne
Report No.: 936/21217135/A of 14 October 2011

Publication in the German Federal Gazette: BAnz AT 05.03.2013 B10, chapter V notification 15,

Announcement by UBA from 12 February 2013:

15 Notification as regards Federal Environmental Agency notice of 23 February 2012 (Federal Gazette (BAnz) p. 920, chapter III, No. 1.2)

The evaluation system D-EMS 2000 manufactured by DURAG data systems GmbH includes the digital interface Modbus (serial EIA-485) in accordance with VDI 4201 parts 1 and 3.

Its current software version is: V 4.50.11917

Statement of TÜV Rheinland Energie und Umwelt GmbH dated 12 October 2012

Publication in the German Federal Gazette: BAnz AT 01.04.2014 B12, chapter VI notification 10,

Announcement by UBA from 27 February 2014:

10 Notification on the announcements of the Federal Environment Agency of 23 February 2012 (BAnz. 2 March 2012, p. 920, Chapter III Number 1.2) and of 12 February 2013 (BAnz AT 05.03.2013 B10, Chapter V notification 15)

The D-EMS 2000 evaluation unit by Durag data systems GmbH is also equipped with the Modbus TCP/IP Ethernet digital interface.

The current software version is: V 4.50.12232

Statement of TÜV Rheinland Energie und Umwelt GmbH of 19 October 2013

Publication in the German Federal Gazette: BAnz AT 02.04.2015 B5, chapter IV notification 30,

Announcement by UBA from 25 February 2015:

30 Notification as regards Federal Environment Agency (UBA) notices of 23 February 2012 (Federal Gazette (BAnz.) p. 920, chapter III number 1.2) and of 27 February 2014 (Federal Gazette (BAnz) AT 01 April 2014 B12, chapter VI notification 10)

The D-EMS 2000 evaluation device, manufactured by DURAG data systems GmbH, is also offered as D-EMS 2000CS based on a mini-PC.

The D-MS 500 KE (hardware unit for analogue and digital inlets and AD-converter) is delivered with the new CPU card 507.

In addition, the data acquisition unit is also offered as D-MS 500 FC on the basis of 16bit Wago modules.

The current software version corrects the evaluation of the measured values of multi-fuel firing at the standardization referring the used substitute values for reference quantities. In the case of multi-fuel firing with different substitute values, a software update shall be made.

The current software version is: V 4.50.12655

Statement of TÜV Rheinland Energie und Umwelt GmbH of 29 September 2014

Publication in the German Federal Gazette: BAnz AT 14.03.2016 B7, chapter V notification 18,

Announcement by UBA from 18 February 2016:

18 Notification as regards Federal Environment Agency (UBA) notices of 23 February 2012 (BAnz. p. 920, chapter III number 1.2) and of 25 February 2015 (BAnz AT 02.04.2015 B5, chapter IV notification 30)

The current software version of the data evaluating system D-EMS 2000 of the DURAG data systems GmbH is: V 4.50.12994

Statement of TÜV Rheinland Energie und Umwelt GmbH of 13 October 2015

Certified product

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

The data acquisition and handling system (DAHS) comprises the communication and/or DIN rail units and a PC. The communication rail unit (KE) and/or DIN rail unit (HS) serves for recording analogous and status signals. The analog signals change into digital signals via 12-bit analog-digital converters. The temporal resolution of the signals and storage of the raw data is 1/sec.

Data acquisition with D-MS 500KE for analog signals and status signals

Potential-independent inputs serve for the data acquisition of current signals in the range of 0 - 20 mA. For the transformation of the input current into a measured voltage in the input circle a 100 Ω resistance is integrated. The measured voltages transform into a 12-bit data word via an analog-digital-transformer each.

The status signals are collected by relays and passed on as digital signals.

Data storage: 16 days (optional: 96 days) on Compact flash card.

One D-MS 500KE can contain a maximum of 11 input/output units.

Overview of the technical data:

- 3 serial interfaces, by default 1xRS485, 2xRS232
- 1 service interface RS232
- 1 Ethernet TCP/IP-connection
- 1 CAN-interface (to date without use)
- Current supply of 115/230 VAC / 50/60Hz 100VA
- Input-cards (per card)
- 8 analog inputs with 12 bits resolution, 0 - 20 mA, internal resistance of 100 Ω
- 16 Digital inputs with 24 V of internal mains voltage

Data acquisition with D-MS 500HS for analog signals and status signals

Potential-independent inputs serve for the data acquisition of current signals in the range of 0 - 20 mA. For the transformation of the input current into a measured voltage in the input circle a 50 Ω resistance is integrated. The measured voltages transform into a 12-bit data word via an analogous-digital transformer each.

The status signals are captured by an optical coupler and passed on as digital signals.

This unit does not allow data storage.

Overview of the technical data:

- Modules to the snapping on DIN rails
- A serial bus connection RS485
- Current supply 24VDC D MS 500 HS-PS
- D-MS 500 HS-AI with 8 analog inputs of 12 bits resolution, 0/4-20 mA / 50 ohm each

- D-MS 500 HS-DIO with 7 digital inputs and 8 digital outputs each
- 24 V external mains voltage
- D-MS 500 HS-AO with 4 analog outputs 0/4-20 mA / 500 ohm each
- Up to 16 modules can be connected to D-EMS 2000.

Profibus interface

As profibus interface, the Profibus Master FNL DP of the company COMSOFT GmbH Karlsruhe is used. Revision: 02;SW/FW:2.19.34; HW:02.1, GSD: COMSOA4A.GSD, file version: 2011-09-29. Data transmission takes place according to the interface definition in compliance with VDI 4201-0 part 1 and part 2.

Evaluation of the data

Data evaluation runs on an industrial PC with the following minimum configuration:

- Pentium > 3,2 GHz, 512 MBS RAM, 2 hard disks \geq 160 GB, Raid 0, Ethernet interface,
- serial (RS 232) optional / USB interfaces, DCF77 receiver, standard printer
- Modem (external standard modem V92) for remote transmission or remote servicing
- CD / DVD-ROM (optional: burner) or external hard disk.
- Operating system: Windows XP, Windows 7, WinServer 2003 or WinServer 2008 R2
- The PC is equipped with a 2nd hard disk for data mirroring, a backup system (e.g. CD burner), and/or an Ethernet interface for data saving on another PC.

The tests of the data evaluating-system CEM-DAS occurred on basis of following requests:

- Uniform Practice in monitoring emissions, Circular from Federal Environment Ministry of 2005-06-13 - IG I 2 - 45053/5 and from 2010-08-04 - Az.: IG I 2- 51134/0
- Teletransmission for emission data (EFÜ) / interface definition revised edition dated 28 September 2005
- EN 14181: 2004
Stationary source emissions
Quality assurance of automated measuring systems
(Use of this regulation with regard to the data evaluating of emission measuring systems)
- Technical guideline VDI 4201
Performance criteria on automated measuring and electronic data evaluation systems for monitoring emissions - Digital interface -
part 1 - General requirements
part 2 - Specific requirements for Profibus
part 3 - Specific requirements for Modbus

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 D-EMS 2000 is based on the documents listed below and the regular, continuous monitoring of the Quality Management System of the manufacturer:

Basic test:

Test report: 541935 of 20 May 2005
TÜV Industrie Service GmbH
TÜV Süd Gruppe, Abt. Umwelt-Service, 80686 München
Publication: BAnz. 29 October 2005, No. 206, page 15700, chapter III, No. 1.3
Announcement by UBA from 25 July 2005

1st supplementary test for teledata transmission

Test report: 20086187 of 23 December 2005
TÜV Industrie Service GmbH
TÜV Süd Gruppe, Abt. Umwelt-Service, 80686 München
Publication: BAnz. 08 April 2006, No. 70, page 2653, chapter III, No. 1.6
Announcement by UBA from 21 February 2006

Notifications

- Statement of TÜV Süd Industrie Service GmbH, München, of 22 November 2006 about software changes
BANz. 20 April 2007, No. 75, page 4139, chapter IV, notification 5
Announcement by UBA from 12 April 2007
- Statement of TÜV Süd Industrie Service GmbH, München, of 31 March 2009 about software changes
BANz. 25 August 2009, No. 125, page 2929, chapter III, notification 22
Announcement by UBA from 03 August 2009
- Statement of TÜV Rheinland Energie und Umwelt GmbH of 31 March 2011 about name change
BANz. 29 July 2011, No. 133, page 2725, chapter III, notification 5
Announcement by UBA from 15 July 2011

Initial certification according to EN 15267

Certificate No. 0000035007: 16 March 2012
Expiry date of the certificate: 01 March 2017

Test report: 936/21217135/A of 14 October 2011
TÜV Rheinland Energie und Umwelt GmbH, Cologne
Publication: BANz. 02 March 2012, No. 36, p. 920, chapter III, No. 1.2,
Announcement by UBA from 23 February 2012

Notifications according to EN 15267

Statement of TÜV Rheinland Energie und Umwelt GmbH of 12 October 2012
Publication: BANz AT 05.03.2013 B10, chapter V notification 15
Announcement by UBA from 12 February 2013
(digital interface)

Statement of TÜV Rheinland Energie und Umwelt GmbH of 19 October 2013
Publication: BANz AT 01.04.2014 B12, chapter VI notification 10
Announcement by UBA from 27 February 2014
(digital interface)

Statement of TÜV Rheinland Energie und Umwelt GmbH of 29 September 2014
Publication: BANz AT 02.04.2015 B5, chapter IV notification 30
Announcement by UBA from 25 February 2015
(Hardware and Software changes)

Statement of TÜV Rheinland Energie und Umwelt GmbH of 13 October 2015
Publication: BANz AT 14.03.2016 B7, chapter V notification 18
Announcement by UBA from 18 February 2016
(new Software Version)

Renewal of the certificate

Certificate No. 0000035007_01: 28 February 2017
Expiry date of the certificate: 01 March 2022