Umwelt Bundesamt

TÜVRheinland®
Precisely Right.

CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000054059

Evaluation system:	D-EMS 2020 c/w remote emission data transmission module
Manufacturer:	DURAG data systems GmbH Kollaustr. 105 22453 Hamburg Germany
Test Laboratory:	TÜV Rheinland Energy GmbH

This is to certify that the emission data evaluation system has been tested in respect of

Uniform practice in monitoring emissions 2017*
and interface definitions for remote emission data transmission 2017 (data tele-communication)
as well as EN 14181 (2014), EN 15267-1 (2009) and DIN EN 15267-2 (2009).

Certification is awarded in respect of the conditions stated in this certificate
(this certificate contains 7 pages).

TÜVRheinland®
CERTIFIED

Suitability Tested
EN 15267
QAL1 Certified
Regular
Surveillance

www.tuv.com
ID 0000054059

Publication in the German Federal Gazette
(BAnz) of 26 March 2018

This certificate will expire on:
25 March 2023

German Federal Environment Agency
Dessau, 13 April 2018

TÜV Rheinland Energy GmbH
Cologne, 12 April 2018

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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 2017
- Circular from the Federal Environment Ministry of January 13, 2017 - Ref.: IG I 2 - 45053/5

Test Report:	936/21226273/B dated 30 September 2017
Initial certification:	26 March 2018
Expiry date:	25 March 2023
Publication:	BAnz AT 26.03.2018 B8, chapter II number 1.1

Approved application

The tested data evaluation system is suitable for acquiring and evaluating data from emission measurements at plants continually being monitored. Data can be transmitted analogously (0–20 mA) or digitally via Profibus or Modbus (EIA-485, serial, Ethernet) in accordance with VDI guideline 4201.

The system also facilitates remote monitoring of emission data via Modem and FTPS.

Tests were carried out in the form of a performance test in the laboratory and a three-months field test at a waste incineration plant. In addition, further plant types were simulated.

The data evaluation system is approved for an ambient temperature range of +5 °C to +40 °C.

The notification of suitability of the data evaluation system and the performance test 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 data evaluation system is suitable for monitoring the measured values relevant to the application.
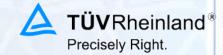
Basis of the certification

This certification is based on:

- Test report 936/21226273/B dated 30 September 2017 issued 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 26.03.2018 B8, chapter II number 1.1, UBA announcement dated 21 February 2018:

AMS designation:

D-EMS 2020 c/w remote emission monitoring module

Manufacturer:

DURAG data systems GmbH, Hamburg

Field of application:

Emission data acquisition, evaluation and telecommunication for plants with continuous monitoring

Measuring ranges during performance testing:

– analogue data transmission
– digital data transfer VDI guideline 4201 part 1 (General requirements), part 2 (Profibus) and part 3 (Modbus)
– Remote transmission of emission data via modem and FTPS

Software version:

1.1/ 6587

Restrictions:

1. During performance testing, the system's enclosure did not meet the requirements for the degree of protection which was IP20 and IP21. The data evaluation system has to be installed in a protective housing suitable for the system and with an adequate degree of protection for the specific site. This needs to be verified in the context of testing correct installation.
2. This data evaluation system is not suited for the evaluation of emission data measured at plants under the Greenhouse Gas Emissions Trading Act (TEHG) in accordance with Annex J of the "Uniform Practice in Monitoring Emissions".

Note:

The data evaluation system is also available as compact system with an Atom N2600 processor under the name D-EMS 2020 CS. This system operates the same software components but the number of input channels is restricted to 12 (analogue) and 30 (digital) respectively.

Test Report:

TÜV Rheinland Energy GmbH, Cologne

Report no.: 936/21226273/B dated 30 September 2017

Certified product

This certificate applies to data evaluation systems conforming to the following description:

The data evaluation system consists of communication and/or DIN rail units and a PC. The communication (KE) and/or DIN rail (FC) units serve to collect analogue and status signals. A 12-bit analogue-digital converter converts the analogue signals to digital signals. The interval for scanning and storing signals is 1/sec.

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

Shielded inputs serve the purpose of data acquisition of current signals between 0–20 mA. In order to convert an input current into a measurement voltage, a 100 Ω resistor is placed in the input circuit. An analogue-digital converter each converts shielded measuring circuits into a 12-Bit word.

A relay identifies status signals and passes them on as digital signals.

The D-MS 500 KE provides data storage for a period of 32 days (default), optionally for 64, 96 or 128 days on a compact flash drive. Each D-MS 500 KE allows for a maximum of 11 I/O components.

Overview of technical data:

- 3 serial interfaces: 1xRS485, 2xRS232 by default

- 1 service interface RS232

- 1 Ethernet TCP/IP port

- 1 CAN port (not in use so far)

- 115/230 VAC / 50/60 Hz 100 VA power supply

- Input cards (per board)

- 8 analogue inputs with 12-Bit resolution, 0–20 mA, 100 Ω internal resistance

- 15 digital inputs with 24 V internal supply voltage

Data acquisition with the D-MS 500 FC S(P) for analogue and status signals

Signal input

Inputs serve the purpose of data acquisition of current signals between 0–20 mA. In order to convert an input current into a measurement voltage, a 100 Ω resistor is placed in the input circuit. An analogue-digital converter each converts measuring circuits into a 12-Bit word. Measuring circuits on a module are not galvanically separated.

Status signals are identified via an optocoupler and passed on as digital signals.

Overview of technical data:

- DIN rail mounting
- 24 V DC / max. 550 mA power supply
- 1 serial interface RS232 / RS485
- 1 PROFIBUS DP Slave interface
- 1 service interface (downstream of the cover plate)
- 2 Ethernet TCP/IP ports
- Protocols: Modbus RTU and TCP, Elan-Master, PROFIBUS, OPC UA, Mode4-Master
- Up to 256 analogue inputs 0/4–20 mA/100 Ω (4 per module)
- Up to 256 analogue outputs 0/4–20 mA/0–300 Ω or 300–600 Ω (4 per module)
- Up to 256 analogue inputs (8 per module)
- Up to 256 digital outputs 24V /0.5 A (8 per module)

Data storage for a period of 32 days (default), optionally for 64 or 96 days on a SD card

tested analogue input module, Wago type: 750-553

Profibus interface

The Profibus Master FNL DP manufactured by COMSOFT GmbH in Karlsruhe is used as the Profibus interface. Revision: 02;SW/FW:2.19.34; HW:02.1, GSD: COMSOA4A.GSD, File Version: 29/09/2011. Data transmission is ensured in accordance with the interface definition provided by VDI guideline 4201, part 1 (2010) and part 2 (2014).

Data evaluation

The software version operated by the D-EMS 2020 data evaluation system is: 1.1 / 6587.

The manual version is: V 1.1.1.

Measured values are evaluated on an industrial computer with the following minimum configuration:

- Intel Core i3, 4 GB RAM, hard drive > 500 GB

- Ethernet interface, serial RS 232 / 485 optional, USB port, DCF77 receiver, standard printer

- Modem (analog V92 or ISDN) or Internet connection for emission data transfer or remote maintenance

- Windows 8.1, 10 or Windows Server 2012 R2, 2016 operating system

- For the purpose of back-ups, the PC has to be equipped with a backup drive (e.g. an external hard drive) and/or an Ethernet port for backup on a separate PC

The data evaluation system may alternatively run on a **compact system**. It is then distributed as **D-EMS 2020 CS** and features the following minimum specifications:

- Operating system: Windows 8.1 and 10
- Processor: Intel Atom N2600 or higher
- Hard drives: min. 300 GB
- Main memory: 2048 MB RAM
- Ethernet interface
- 3 serial (RS 232) optional / USB ports
- DCF77 receiver
- Modem (external standard analogue modem V92) for telecommunication or remote maintenance, optional
- External hard drive, optional
- Up to 12 analogue outputs 0/4–20 mA / 100 Ohm (8 each per D-MS 500 No51/50 board) (=>max. 16 components: 12 analogue outputs + 4 computing channels)
- Up to 24 digital relay inputs (15 each per D-MS 500 No51/50 board)
- Up to 24 digital relay outputs 24V/5VA (16 each per D-MS 285 No13 board)
- Up to 12 analogue outputs 0/4–20 mA/500 Ohm (8 D-MS 500 No16 board)

The assessment of the data evaluation system was based on the following requirements:

- Uniform practice in monitoring emissions 2017;
  Circular from the Federal Environment Ministry of January 13, 2017 - Ref.: IG I 2 - 45053/5
- Remote emission monitoring / interface definition revised version as per the decision of the competent committee of 28 Sept. 2005, April 2017 version
- EN 14181:2015-02 (Stationary source emissions, quality assurance of automated measuring systems) Application of this standard to the evaluation of data from emission measuring systems
- Guideline VDI 4201
  Performance criteria on automated measuring and electronic data evaluation systems
  for monitoring emissions - Digital interface –
  Part 1: General requirements (2010)
  Part 2: Specific requirements for Profibus (2014)
  Part 3: Specific requirements for Modbus (serial and TCP/IP) (2012)

General remarks

This certificate is based upon the equipment tested. The manufacturer is responsible for en-suring that on-going production complies with the requirements of the EN 15267. The manu-facturer is required to maintain an approved quality management system controlling the manufacturing process for the certified product. Both the product and the quality manage-ment 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 re-turned and the certificate mark must no longer be used.

The relevant version of this certificate and its expiration date are also accessible on the in-ternet at **qal1.de**.

Certification of the D-EMS 2020 c/w remote emission data transmission module data evalua-tion 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. 0000054059:   13 April 2018
Expiry date of the certificate: 25 March 2023

Test report: 936/21226273/B dated 30 September 2017
TÜV Rheinland Energy GmbH, Cologne
Publication: BAnz AT 26.03.2018 B8, chapter II number 1.1
UBA announcement dated 21 February 2018