

CONFIRMATION

of Product Conformity (QAL1)

AMS designation: D-EMS 2020

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

Test Laboratory: TÜV Rheinland Energy GmbH

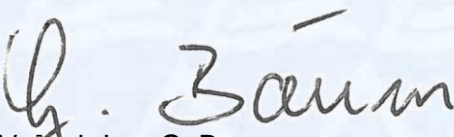
**This is to certify that the data acquisition and handling system (DAHS)
and found to comply with:**

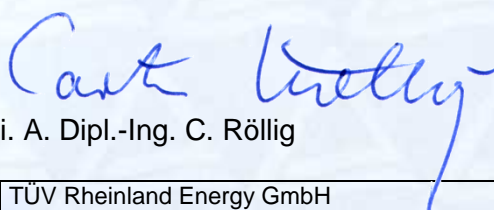
**Uniform practice in monitoring emissions 2017*
and EFÜ interface definition 2017 (remote emission control)
as well as EN 14181 (2015), EN 15267-1 (2009) and DIN EN 15267-2 (2009).**

The AMS underwent independent expert testing and was accepted.
This confirmation is valid up to the publication of the certificate,
but no longer than 6 months from the date of issue
(this document contains 6 pages).

Expiry date: 31 January 2020

TÜV Rheinland Energy GmbH
Cologne, 1 August 2019


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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 of the FME 23.01.2017- IG I 2 -45053/5

Confirmation:
1 August 2019

Test Report: 936/21226273/D dated 12 April 2019
Initial certification: 13 April 2018
Expiry date: 31. January 2020

Approved application

The tested DAHS is suitable for emission data acquisition and evaluation of emission measurements at continuously monitored plants. Signals can be transmitted analogously (0–20 mA) and digitally via Profibus and Modbus (EIA-485, serial, Ethernet) in accordance with VDI 4201.

The system also allows for remote emission control via modem and FTPS.

This has been demonstrated by way of a performance test in the laboratory and a three-month field test at a waste incinerator. Additional plant types have been simulated.

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

Suitability of the DAHS and its performance test were based on the provisions applicable at the time of testing. As changes in legal provisions are possible, any potential user should ensure that this DAHS is suitable for monitoring the measured values relevant to the application.

Any potential user should ensure, in consultation with the manufacturer, that this data evaluation system is suitable for the installation at which it will be installed.

Basis of the confirmation

This confirmation is based on:

- Test report no. 936/21226273/D dated 12 April 2019 issued by TÜV Rheinland Energy GmbH
- Suitability announced by the relevant body on 21 February 2018
- The ongoing surveillance of the product and the manufacturing process
- Expert testing and approval by an independent body

Confirmation:
1 August 2019

Data acquisition and handling system:

D-EMS 2020

Manufacturer:

DURAG data systems GmbH, Hamburg

Field of application:

Emission data acquisition, evaluation and remote control for continuously monitored plants and plants under the Greenhouse Gas Emissions Trading Act (TEHG)

Tested features during performance testing:

- Analogue data transmission
- Digital data transmission in line with VDI standard 4201, parts 1 (general requirements), 2 (Profibus) and 3 (Modbus)
- Remote emission control via modem and FTPS

Software version: 1.1 / 9870

Restrictions:

At IP20 and IP21, the DAHS enclosure did not meet the requirement for the degree of protection during the performance test. The DAHS must be installed in an enclosure for evaluation systems which provides a sufficient degree of protection for the intended site of installation. This must be verified in the context of correct installation.

Notes:

1. The DAHS comprises a system for recording analogue and status signals (D-MS 500KE and D-MS 500FC, types 750-453, 750-436, 750-553, 750-536) and a PC running the D-MS 500FC programme suite.
2. The data evaluation system is also available as compact system with an Atom N2600 processor under the name D-EMS 2020 CS. This system runs the same software, but the number of input channels is limited to 12 analogue and 30 digital inputs.
3. Supplementary test (reflecting TEHG) as regards Federal Environment Agency notices of 21 February 2018 (BANz AT 26.03.2018 B8, chapter II number 1.1) and of 27 February 2019 (BANz AT 26.03.2019 B7, chapter IV 79th notification).

Test report:

TÜV Rheinland Energy GmbH, Cologne
Report no. 936/21226273/D dated 12 April 2019

Confirmation:
1 August 2019

Tested product

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

The data evaluation system consists of communication and/or top hat rail unit and a PC. The communication (KE) and/or top hat rail (FC) units serve to collect analogue and status signals. A 12bit analogue to digital converter converts analogue 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. For the transformation of the input current into a measured voltage in the input circle a 100Ω resistance is integrated. An analogue to 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 communication unit allows data memory over a 32-day period by default, an option for 64, 96 or 128 days (compact flash card) is provided. Each D-MS 500 communication unit allows for a maximum of 11 I/O components.

Overview of technical specifications:

- 3 serial interfaces: 1xRS485, 2xRS232 by default
- 1 RS232 service interface
- 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 card)
- 8 analogue inputs with 12 bit resolution, 0–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. For the transformation of the input current into a measured voltage in the input circle a 100Ω resistance is integrated. An analogue to 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.

Confirmation:
1 August 2019

Overview of technical specifications:

- Top hat rail mounting
- 24 V DC / max. 550 mA power supply
- 1 serial RS232/RS485 interface
- 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: September 29, 2011. Data transmission is ensured in accordance with the interface definition provided by VDI guideline 4201, parts 1 (2010) and 2 (2014).

Data evaluation

The software version operated by the D-EMS 2020 data evaluation system is: 1.1 / 9870.

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, RS 232/485 serial optional, USB port, DCF77 receiver, standard printer
- Modem (V92 analogue or ISDN modem) or Internet for remote emission control or 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

Confirmation:
1 August 2019

Data evaluation can alternatively be performed on a **D-EMS 2020 CS compact computer** which 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 V92 analogue modem) for remote emission control or 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)