

# CONFIRMATION

## of Product Conformity (QAL1)

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**Evaluation system:** D-EMS 2020 c/w remote emission monitoring module

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

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**Test Laboratory:** TÜV Rheinland Energy GmbH

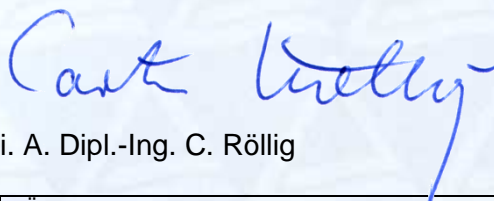
**This is to certify that  
the emission data evaluation system was tested in respect of the  
Uniform practice in monitoring emissions 2017\*  
and interface definitions for remote emission monitoring 2017 (data telecommunica-  
tion)  
as well as EN 14181 (2015), EN 15267-1 (2009) and DIN EN 15267-2 (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: 2 September 2018**

TÜV Rheinland Energy GmbH  
Cologne, 2 March 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

**Confirmation:**  
2 March 2018

**Test Report:** 936/21226273/B dated 30 September 2017  
**Expiry date:** 2 September 2018

### **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).

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 permanent 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 confirmation**

This confirmation is based on:

- Test report 936/21226273/B dated 30 September 2017 issued by TÜV Rheinland Energy GmbH
- The ongoing surveillance of the product and the manufacturing process
- Expert testing and approval by an independent body

**Confirmation:**  
2 March 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 continually being monitored

**Measuring ranges during performance testing:**

- analogue data transmission
- digital data transmission in accordance with VDI 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. The evaluation unit is not suitable for evaluating emissions determined for plants in the scope of the Greenhouse Gas Emissions Trading Act according to appendix 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

### **Tested product**

This confirmation 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 signal to a digital signal. The interval for scanning and storing signals is 1/sec.

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

Shielded inputs serve the purpose of data acquisition of current signals between 0–20mA. 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.

Data storage for a period of 16 days (default), optionally for 96 days on a compact flash drive Each D-MS 500KE 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 / 50/60Hz 100VA power supply
- Input cards (per board)
- 8 analogue inputs with 12-Bit resolution, 0–20mA, 100 Ω internal resistance
- 16 digital inputs with 24V internal supply voltage

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

#### **Signal input**

Inputs serve the purpose of data acquisition of current signals between 0–20mA. 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

24V DC / max. 550mA 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 0/4–20mA/0–300 Ω or 300–600 Ω (4 per module)

Up to 256 analogue inputs (8 per module)

Up to 256 digital outputs 24V/0.5A (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
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- 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, parts 1 and 2.
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- 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.
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- Measured values are evaluated on an industrial computer with the following minimum configuration:
  - - Pentium > 3.2 GHz, 512 MB RAM, 2 hard drives > 160 GB, Raid 0, Ethernet interface
  - - serial (RS 232) optional / USB ports, DCF77 receiver, standard printer
  - - Modem (external standard analogue modem V92) for telecommunication or remote maintenance
  - - CD / DVD-ROM (optional burner) or external hard drive
  - - Windows 7, 8, 8.1, or WinServer 2008 R2, 2012 R2, 2016 operating system
  - - For back-up purposes, the computer is equipped with a second backup hard drive, a backup drive (e.g. CD burner) and/or an Ethernet interface for storing data on a different computer.

**Confirmation:**  
2 March 2018

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 7, 8.1 and 10

Processor: Intel Atom N2600 or higher

Hard drives: min. 100 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 30 digital relay inputs (15 each per D-MS 500 No51/50 board)

Up to 32 digital relay outputs 24V/5VA (16 each per D-MS 285 No13 board)

Up to 32 analogue outputs 0/4–20 mA/500 Ohm (8 D-MS 500 No16 board)