Umwelt Bundesamt

TÜVRheinland®
Precisely Right.

CERTIFICATE

of Product Conformity (QAL1)

Certificate No.: 0000051687_01

Evaluation device:	CEM-DAS/DAA
Manufacturer:	ABB Automation GmbH Stierstädter Str. 5 60488 Frankfurt/Main Germany
Test Laboratory:	TÜV Rheinland Energy GmbH

This is to certify that the data acquisition and handling system (DAHS) has been tested and found to comply with the standards: Uniform practice in monitoring emissions 2017* and EFÜ interface definition 2017 (remote emission control) 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).
The present certificate replaces certificate 0000051687 19 August 2016

TÜVRheinland®
ZERTIFIZIERT

Suitability Tested
EN 15267
QAL1 Certified
Regular Surveillance

www.tuv.com
ID 0000051687

Publication in the German Federal Gazette (BAnz) of 22 July 2019

Expiry date:
21 July 2024

Federal Environment Agency
Dessau, 05 November 2019

Dr. Marcel Langner
Head of Section II 4.1

TÜV Rheinland Energy GmbH
Cologne, 04 November 2019

ppa. Dr. Peter Wilbring

www.umwelt-tuv.eu tre@umwelt-tuv.eu Phone: + 49 221 806-5200	TÜV Rheinland Energy GmbH Am Grauen Stein 51105 Köln

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

Test Report:	936/21242378/B dated 1 March 2019
Initial certification:	01 August 2016
Expiry date:	21 July 2024
Publication:	BAnz AT 22.07.2019 B8, chapter IV number 1.4

Approved application
The tested DAHS is suitable for emission data acquisition, evaluation and remote emission control at continuously monitored plants. Signals can be transmitted analogously (0–20 mA + operational status signal) and digitally via Modbus (EIA-485, serial, Ethernet).

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 long-term field test at a municipal waste incinerator. The data collected during the field test were also used to simulate various other plant types to test the evaluation unit. The test was part of the performance test of the UmweltOffice evaluation system manufactured by Siempelkamp NIS Ingenieurgesellschaft mbH.

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 certification
This certification is based on:

- Test report 936/21242378/B dated 01 March 2019 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 22.07.2019 B8, chapter IV number 1.4, UBA announcement dated 28 June 2019:

Data acquisition and handling system:
CEM-DAS/DAA

Manufacturer:
ABB Automation GmbH, Frankfurt am Main

Field of application:
Data acquisition, evaluation and remote emission control at continuously monitored plants

Tested features during performance testing:
- analogue data transmission
- digital data transmission in line with VDI standard 4201, parts 1 (general) and 3 (Modbus)
- Remote emission control via modem and FTPS

Software versions:
Data evaluation and parameterisation

CEM-DAS:	1.3.1
Oracle data base:	11.2, 11.2 Express or 12.2

Data acquisition:

DAA	1.3 (001)

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 emission data acquisition and evaluation consists of two parts: the front end system for recording analogous and digital status signal and a PC on which the programme suite CEM-DAS as well as the DAA programme for data acquisition are installed. The following Talas/7 I/O modules are available as frontend systems:IO8/AI, IO8/DI, IO8/AIDI, IO4/AI, IO4/DI, IO4/AIDI, IO4/DIDO.
2. The DAHS comes with a digital Modbus interface (serial and TCP/IP) in accordance with VDI 4201, parts 1 (general) and 3 (Modbus).
3. The programme is also offered as small edition “CEM-DAS sE” with 12 analogue inputs and without remote emission control. It is also possible to operate the DAA programme for data acquisition on a separate PC.
4. Supplementary test (adaptation to BEP2017 and moving monthly average for refineries under the 13th BImSchV) as regards Federal Environment Agency notices of 14 February 2016 (BAnz AT 01.08.2016 B11, chapter II number 1.1) and of 3 July 2018 (BAnz AT 17.07.2018 B9, chapter III 1st notification).

Test Report:
TÜV Rheinland Energy GmbH, Cologne
Report no. 936/21242378/B dated 1 March 2019

Certified product
This certification applies to automated measurement systems conforming to the following description:

The CEM-DAS DAHS comprises the following parts:

- TALAS/7 IO modules for analogue and digital data transmission,
- digital data transmission according to VDI 4201 parts 1 and 3,
- one or more PCs
- DAA software
  - for connecting the TALAS/7 I/O modules and
  - the digital interface as defined in VDI 4201 and
  - for data evaluation,
- CEM-DAS software package for data transfer from DAA, classification, report creation and data transmission

TALAS/7 IO modules are used to receive analogue and status signals; the modules perform analog-to-digital conversion and have a sampling rate of 40/sec and use 16-bit analog-to-digital converters. The TALAS/7 IO modules are connected to the computer via TCP/IP Ethernet. These TALAS/7 IO modules keep being purchased from Siempelkamp NIS Ingenieurgesellschaft mbH.

The **TALAS/7** IO modules are available in the following versions:

Module	AI	DI	AO	DO
TALAS/7 – IO8/AI	28	1		1
TALAS/7 – IO8/DI		29		1
TALAS/7 – IO8/AIDI	14	15		1
TALAS/7 – IO8/AO		1	14	1
TALAS/7 – IO4/AI	12	1		1
TALAS/7 – IO4/DI		13		1
TALAS/7 – IO4/AIDI	6	7		1
TALAS/7 – IO4/DIDO		7		7
TALAS/7 – IO4/AO		1	6	1
TALAS/7 – IO4/DO		1		13

AI = analogue input; DI = digital input, AO = anologue output, DO = digital output

The TALAS/7 IO modules have the following technical specifications:

- Degree of protection: IP20
- Galvanic isolation: 1500 Volt (air break >= 2 mm)
- Network: 10BaseT on RJ45

Analogue inputs

- A/D converter: per input with T correction
- Resolution: 0.763 µA (15 Bit)
- Accuracy: 0.04 % FSR (Full Scale Range: 25 mA)
- Scan rate: ~ 25 ms
- Measured range: 0 … > 24 mA
- Load: 50 Ohm
- Protected against polarity reversal, galvanic isolation between pins and from the module

Digital inputs

- External voltages: 12 … 230 V AC/DC
- Potential-free contacts: require a 24V power supply
- Internal resistance: > 50 kOhm
- Scan rate: ~ 2 ms
- Protected against polarity reversal, galvanic isolation between pins and from the module

Measured values and status signals can also be transferred via a digital interface which works with the **Modbus protocol according to VDI 4201 parts 1 and 3**. The data transfer takes place via TCP/IP directly to the computer operating the DAA software. A Modbus protocol converter is used for digital data transmission according to EIA-485 serial, which converts “serial to TCP/IP”.

The **DAA** program carries out the data transfer (from the IO modules and the digital interface), the averaging, the conversion according to the calibration function, the standardization and the validation of the measured values for both the analogue input modules and the digital interface and forwards these to the CEM-DAS program package. Moreover, raw signals are transferred as 5sec-averages for the purpose of documenting data. The DAA program can run on the same computer as the CEM-DAS as well as on a stand-alone computer.

The computer with the **CEM-DAS** program suite takes over the data for storage and further processing. The computer classifies and evaluates data in accordance with the applicable provisions and generates the required messages and protocols.

The PC operating CEM-DAS is able to receive and process data from several data recording units. For this purpose, clusters are set up in the programme for each and assigned to a data acquisition unit. Data evaluation can thus be performed for each cluster individually or for several clusters combined. This also applies to remote emission control.

The following minimum configuration of the computers with the programs DAA and the CEM-DAS suite are required:

- Intel Dual Core 2 or equivalent processor
- 2 GB for 32bit Windows 7 or 4 GB for 64bit Windows 7/Server 2008
- 2 hard drives ≥ 500 GB
- Ethernet interface for TALAS/7 IO modules and digital interfaces
- serial (RS232)/USB port for modem
- Parallel interface/USB interface for printer
- Windows 7 or Windows Server 2008 operating system
- DCF77 receiver
- External modem
- CD/DVD ROM (optional writer)

For backup purposes, the PC has been equipped with a second hard drive for data mirroring, a backup drive (e.g. CD writer) and/or an Ethernet interface to backup data on a separate PC.

The evaluation system was against the following requirements:

- Uniform practice in monitoring emissions (BEP):
  Circular of the Federal Ministry of Environment dated 23 January 2017 - IG I 2 -45053/5
- Remote emission control (EFÜ)/interface definition
  version amended by LAI decision of 28 September 2005, latest version of April 2017
- EN 14181 2014-11 (Stationary source emissions, quality assurance of automated measuring systems): Standard applies to the evaluation of data obtained from emission monitoring systems
- VDI guideline 4201, Performance criteria on automated measuring and electronic data evaluation systems for monitoring emissions –
  Part 1 – General requirements (2010)
  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 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 manufacturing process for the certified product. Both the product and the quality management system 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 returned and the certificate mark must no longer be used.

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

Document history

Certification of the CEM-DAS data acquisition and handling systemn 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. 0000051687: 19 August 2016
Expiry date of the certificate: 31 July 2021
Test report: 936/21230570/B dated 26 February 2016
TÜV Rheinland Energie und Umwelt GmbH, Cologne
Publication: BAnz AT 01.08.2016 B11, chapter II number 1.1
UBA announcement dated 14 July 2016

Notifications in accordance with EN 15267

Statement issued by TÜV Rheinland Energy GmbH dated 12 October 2016
Publication: BAnz AT 15.03.2017 B6, chapter V 12th Notification
UBA announcement dated 22 February 2017
(software changes)

Statement issued by TÜV Rheinland Energy GmbH dated 08 March 2017
Publication: BAnz AT 31.07.2017 B12, chapter II 1st Notification
UBA announcement dated 13 July 2017
(software changes)

Statement issued by TÜV Rheinland Energy GmbH dated 02 May 2018
Publication: BAnz AT 17.07.2018 B9, chapter III, 1st Notification
UBA announcement dated 03 July 2018
(software changes)

Supplementary testing according to EN 15267

Certificate no. 0000051687_01: 05 November 2019
Expiry date of the certificate: 21 July 2024
Test report 936/21242378/B dated 01 March 2019
TÜV Rheinland Energy GmbH, Cologne
Publication: BAnz AT 22.07.2019 B8, chapter IV number 1.4
UBA announcement dated 28 June 2019