

## A Vision Becomes a Reality – Global Industry Standard for the Transfer of Measured Data

### AQDEF® – Advanced Quality Data Exchange Format

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AQDEF® standardizes the recording and cross-system exchange of quality information and is thus groundbreaking in metrology. As experience in practice impressively shows, the data exchange format helps to reach the consistently demanded simplification, cost cutting and acceleration of data management.

AQDEF® is based on the Q-DAS® ASCII transfer format that has been established in the automotive industry for a long time and became a requirement for the suppliers of measuring equipment that has been specified in corporate guidelines at an early stage. Companies like Audi, BMW, Bosch and General Motors were pioneers of this practice. By consistently demanding a certified data interface in the Q-DAS® ASCII transfer format, the correct provision of data was ensured for statistical evaluation through standard tools like qs-STAT®. The advantages of a standardized data format for the company-wide recording and processing of quality information quickly became obvious. The compact, simple and transparent structure, its high flexibility and the specification revealed right from the start also contributed to the increasing acceptance and use of this format.

Due to its successfulness, many different corporate and plant-specific individual solutions of the data interface have been created over the years. They all have a similar approach in common; however, these solutions require customized modifications in each individual case affecting costs and the introduction effort. In order to establish a company-wide standard, users of the data interface from the automotive and supplier industry created a work group developing a uniform and adapted specification. Representatives of renowned companies like Adam Opel AG, BMW Group, Daimler AG, Ford Werke GmbH, General Motors Company, Getrag Corporate Group, Robert Bosch GmbH and Volkswagen AG specified AQDEF® and first published it in 2006. Back then this data format was called Automotive Quality Data Exchange Format. Since the format is used by a rising number of companies even outside the automotive industry, the format was finally renamed as Advanced Quality Exchange Format in 2011. Meanwhile AQDEF® has become a cross-industry interface standard the work group evaluates and develops at regular intervals.

Centerpiece of the AQDEF® specification is a list of data fields an interface has to support and that can be activated or deactivated. This amount of fields also provides

the basis for a uniform and comprehensive certification of the interface that does not have to be made specifically in each company anymore. Different certification categories consider, where necessary, the limited amount of fields for different measuring tasks and applications. A list of all interface certificates that have already been issued is available on the Q-DAS® website under [www.q-das.de](http://www.q-das.de). There you will find leading manufacturers of measuring instruments such as Carl Zeiss GmbH, Hommel-Etamic GmbH, Klingelnberg GmbH, Marposs and promess GmbH. Q-DAS® is also responsible for the certification process in accordance with requirements of the AQDEF® specification.

Based on the feedback the work group received, the experiences of the members of the work group and the seminars provided to manufacturers of measuring instruments at regular intervals, we determined the following aspects to characterize the benefits and advantages of AQDEF®:

- Uniform exchange format for any kind of industry
- Binding amount of fields transferred via interface
- Adaptable to the respective measuring task due to fields that can be activated optionally
- Reduced effort in implementing interfaces
- Complete and structurally correct data for an immediate visualization and evaluation with Q-DAS® products
- Certification of the data interface provides safety
- Worldwide application as a specification in the purchase of measuring instruments
- Groundbreaking standardization of data exchange in the future
- Meeting a high number of requirements based on a single interface definition
- No double data maintenance and converter solutions required anymore
- Cost savings and minimization of transmission errors.

In addition to the AQDEF® specification, the work group also created a user specification providing helpful information to the developers of data interfaces. We collected many requirements and examples regarding the handling and user friendliness of the interface in this user specification since they are an integral part of the respective data logging software.

### History of AQDEF®

1996	Q-DAS® and Ford developed together the Q-DAS® ASCII transfer format.
2005	Initiation of a data format work group with the aim to define a standard for the certification of data fields and interfaces.
2006	Release of the first version of the "Automotive Quality Data Exchange Format" specification.
2008	Version 2.0 was released and supplemented by the user specification.
2010	Work group published the advanced version 3.0 of the AQDEF® specification.
2010	AQDEF® became a registered trademark of Q-DAS® GmbH & Co. KG. It represented a standardized data exchange between measuring instruments and Q-DAS® software products.
2011	Since there has been an increasing demand for this format even outside the automotive industry, it was renamed as "Advanced Quality Data Exchange Format".

### Additional Information

The specification and documents of the AQDEF® work group are published on the Q-DAS® website under [www.q-das.de](http://www.q-das.de). The same applies to the documents about the certification of interfaces and already issued certificates.

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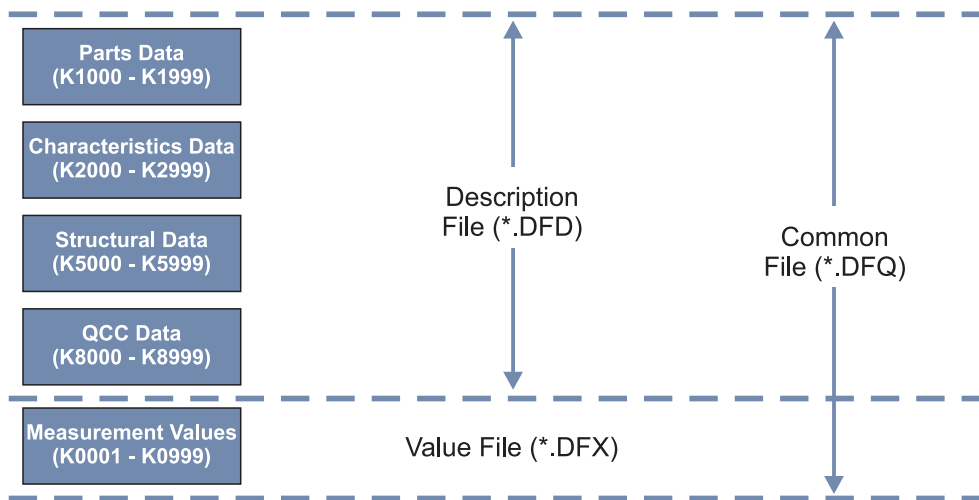


Figure 1: AQDEF® Basic structure