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**Get started
in 2011
– with ArtemiS Suite**

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| Editorial |

HEAD acoustics – At the forefront since 1986



Prof. Dr.-Ing. Klaus Genuit
Managing Director

In 1886, 125 years ago, Gottlieb Daimler and Carl Benz invented the automobile, thus setting an important milestone in the history of technological progress. Back then, many people reacted skeptically to this momentous invention, but as we all know, this very quickly changed.

In 1986, 100 years later, HEAD acoustics GmbH was founded to help with the breakthrough of the new idea of artificial head recording and playback technology. Initially ridiculed by manufacturers of conventional measurement technology, HEAD acoustics successfully established itself in the market within a very short time.

From the very beginning, the need of many manufacturers to acoustically optimize their products in order to achieve a competitive advantage shaped the success story of the AACHENHEAD® technology. Later on, as a market leader we played an essential role

in enhancing the field of sound engineering. Today's fundamental changes in the entire automotive industry let us face new challenges again.

True to our philosophy of advancing progress by innovation, we will continue to expand our

intensive research and development work, one of the hallmarks of HEAD acoustics. It is our goal to deliver the answers to today's and tomorrow's challenges together with our business partners around the world, and to develop new, innovative approaches.

Enter the ArtemiS Suite

A new, future-proof software solution from HEAD acoustics



With ArtemiS Suite HEAD acoustics breaks new ground in 2011 to offer a software solution that enables you to handle your complete workflow, using a single common interface with a new and functional design, beginning with the task definition up to reports and data archiving. With ArtemiS Suite HEAD acoustics retains and optimizes the established and user-friendly concepts of operations, which revolutionized the market for software solutions in the field of sound and vibration analyses with the launch of ArtemiS.

The ArtemiS Suite unites all tools for your tasks in one package. Its new user interface makes working with the software even easier, as all required tools can be found in one application and can be structured as needed. The unification of ArtemiS, HEAD Data Portal and many other, previously separate special tools enable you to work on even your most complex tasks quickly and easily by seamlessly switching between various tools in a consistent environment.

Utilization of the latest software technology in the redevelopment of ArtemiS Suite ensures a highly future-proof product, which protects your investment and prepares it well for future generations of operating systems.

The ArtemiS Suite covers a wide range of application areas:

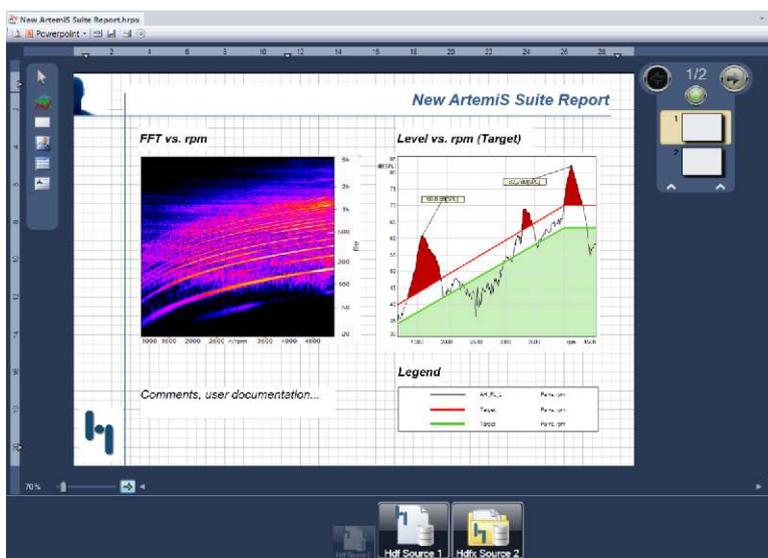
- Use the familiar, interactive ArtemiS way of working. Besides features from ArtemiS and

HEAD Data Portal, new integrated modules have been added, such as automated reporting and calculations of metrics.

- Benefit from new functions supporting tasks involving repeated measurement and analysis procedures, such as tasks in the area of data acquisition of dynamometers, as well as automated evaluations.
- Benefit from new application programming interfaces for integration of customer-specific software solutions.

Of course, you can flexibly switch between these fields of application at any time, e.g. in order to examine individual non-conforming (or "out-of-tolerance") results from automated test series in more detail.

As a user whose ArtemiS licenses are subject to a software maintenance contract, you will receive the new ArtemiS Suite automatically. To ensure a seamless transition, the "classic" ArtemiS application is still available to the full extent and is supported with service releases.



New reporting in ArtemiS Suite

Your ArtemiS Suite 2011 – Features of the first generation

With the introduction of the ArtemiS Suite in the summer of 2011, the following features await you:

ArtemiS basics

In the ArtemiS Suite, you will find the popular project window in a new, yet familiar form. Use the most important analysis and filtering functions, the Mark Analyzer with real-time filtering functions and the playback functions. Until 2012, all core features of ArtemiS are planned to be available in the ArtemiS Suite as well, supplemented by additional new features, such as a new module for calculating single result values and metrics.

Data management

Structured documentation can be created by means of user-defined forms and attached to files and folders. Quick search and navigation even across large amounts of data are made

possible by a database index. Inherent information (channel names, ranges, UDI, etc.) is included in the documentation automatically and is available for searching. The documentation options meet all typical requirements, e.g. for dynamometer measurements.

New features include support for managed folders containing all data regarding a measurement (e.g. time domain signals, video, documentation, analysis results, and single result values). They are the basis for comprehensive reporting and allow, for example, automatic storage of analysis results and single result values.

Reporting & presentation

The ArtemiS Suite provides you with a very powerful tool allowing you to easily and conveniently create report layouts with placeholders for texts, diagrams and images. By linking such a report template to one or several data

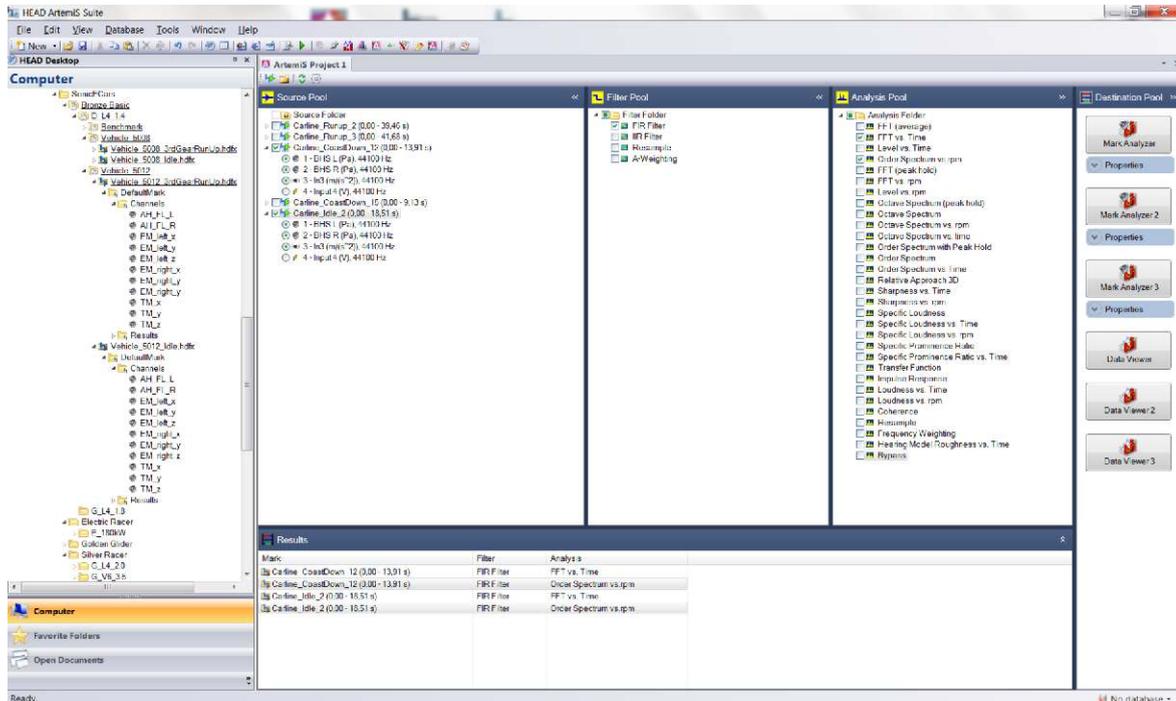
sets, it is automatically populated with content, which can then be exported to various formats (PDF, PPT etc.). Text content can be based not only on free text, but also on information from the structured documentation, e.g. descriptions of the project and the test specimen. Information on analyses and parameters can be used in the report as well.

The enhanced Data Viewer now supports various additional file types (HDF, PDF, XML, HTML, image formats), table representations and Excel export.

Data acquisition

Besides numerous import and export functions, the ArtemiS Suite provides a built-in frontend reader and a signal editor.

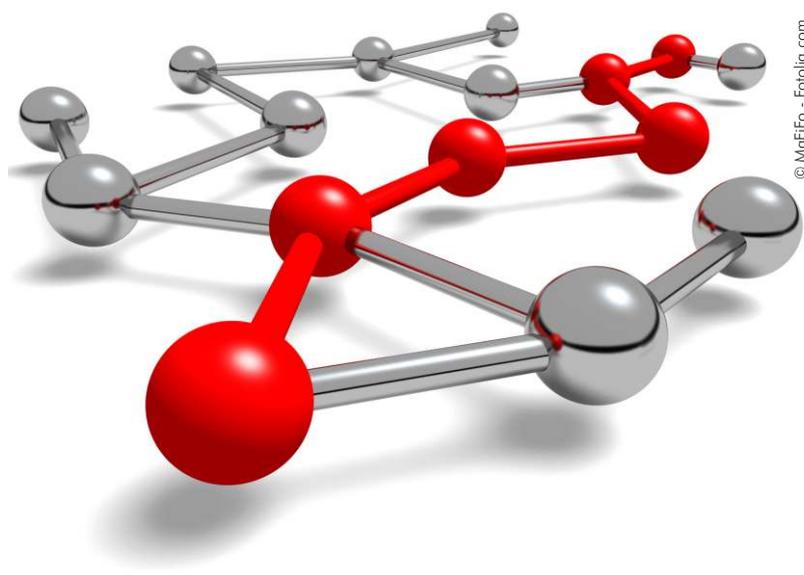
We would be delighted to provide you with detailed information on ArtemiS Suite – just drop us a line sales@head-acoustics.de.



The project window with the popular pool structure

ArtemiS'Net

Use your ArtemiS licenses via the network!



With ArtemiS'Net, we can now offer you the highest possible flexibility for accessing your ArtemiS licenses via a network.

ArtemiS'Net(+) further offers the possibility to "borrow" licenses from the network server for computers used during on-road measurements or business trips and thus disconnected from the network.

With the introduction of ArtemiS 11.0.200, we switched our software protection method to the advanced and powerful HASP technology from SafeNet, freeing you from the need to maintain up-to-date key files on each user's computer. Now this technology switch allows us to offer a very powerful network solution with the latest version of ArtemiS.

Efficient use of your license options

The optional network solution

ArtemiS'Net based on HASP technology unites all your network licenses in a license pool. Each time you start an ArtemiS session, you can now freely configure your custom license from the options available in the network pool.

Options not required for your current task thus remain available to other users in the network. That way, you can use your license options in a much more efficient way than with local licenses. The possibility to remotely access network licenses via a VPN connection offers even more flexibility and allows network licenses to be used at different locations.

With the extended functionality of ArtemiS'Net(+), you can detach licenses from the network for a certain period of time, e.g. for mobile computers used at your customers' facilities or for measurement drives. Furthermore

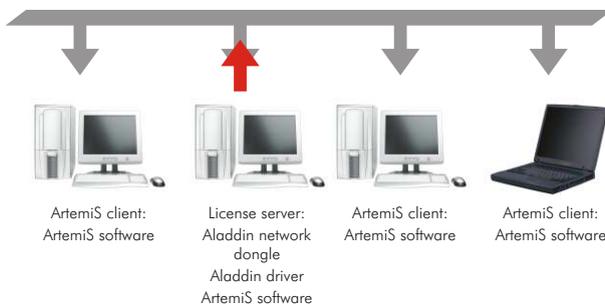
ArtemiS'Net(+) grants you an overbooking right in times of increased demand, e.g. when several projects with a tight time schedule must be completed.

Easy license management

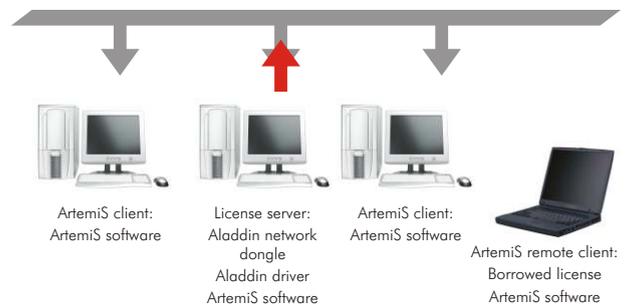
The administration of network licenses based on ArtemiS'Net is very convenient. Even without deeper knowledge about the network architecture, a software administrator can flexibly configure the access rights of individual users to the available network licenses.

Learn more about the license management in ArtemiS at www.head-acoustics.com or contact us. We would be delighted send you more information or an offer!

sales@head-acoustics.de



Network license ArtemiS'Net without borrowing



Network license ArtemiS'Net(+) including borrowing



MDM Interface Available in your HEAD acoustics products

MDM is an extendable, distributed software system for managing test data in areas such as crash tests, acoustics or infotainment. HEAD acoustics is active in the MDM community and involved in projects for interfacing its own software products with customers' MDM installations.

MDM (Measured Data Management) addresses the desire to use some sort of "construction kit" when building individual data management solutions, allowing the system to be adapted to the specific needs of a special department. For the following products, HEAD acoustics offers an interface to existing MDM clients:

- HEAD Recorder (2.0.300 or later)
- ArtemiS (12.0.100 or later)
- HEAD Data Portal (2.0.100 or later)

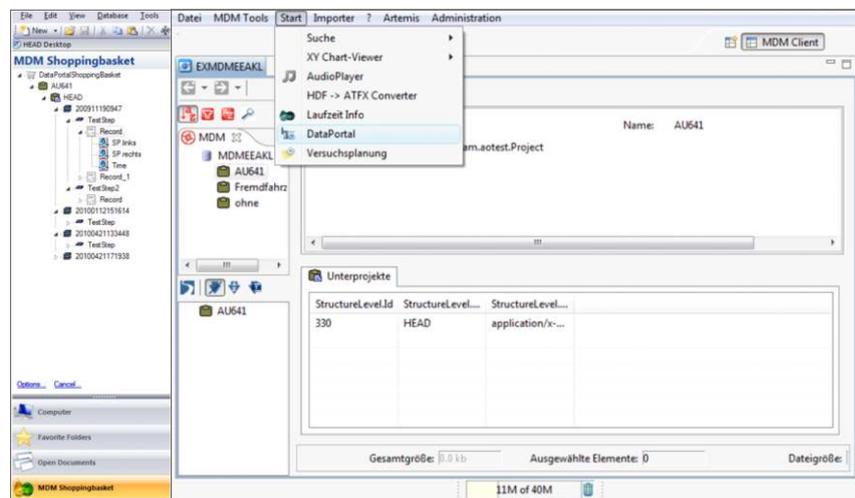
The software extension "MDM Analysis" provides an interface between your ArtemiS application and an existing MDM client. This module allows ArtemiS to load the shopping basket filled by the MDM client as well as the predefined ODS sessions. For HEAD Data Portal, the software extension "MDM Analysis" is also available. In this case, it can be

used to display the shopping basket filled by the MDM client, for example.

The software extension "MDM Acquisition" can be used with the HEAD Recorder. It allows MDM measurement tasks to be performed via an XML interface. The procedure can be managed

flexibly, e.g. by inserting unplanned steps at any time during the measurement as needed.

Furthermore, accompanying documentation regarding the test or individual test steps can be displayed in order to accelerate and standardize the test procedure.



Display of the shopping basket filled by the MDM client

Engagement with ASAM and in the MDM Community

In order to improve the collaboration with our customers regarding data management methods, HEAD acoustics has been an active member of the Association for Standardization of Automation and Measuring Systems (ASAM e. V.) since June, 2010. Within its membership, HEAD acoustics is participating in the standardization of interfaces, protocols and data formats for

measurement technology in the automotive industry.

For several years already, our analysis software ArtemiS has supported the possibility to save measurement data in the ASAM exchange format .atf, which is supported by many other manufacturers as well. This standardized data format allows you to exchange data with your peers in

an uncomplicated way and even compare and interpret data acquired by different systems.

Closely related to the generic data model ASAM ODS is our engagement in the MDM area, which is based on ASAM ODS. In co-operation with our customers, a universal interface between ArtemiS and MDM databases has been realized.

Whoosh!

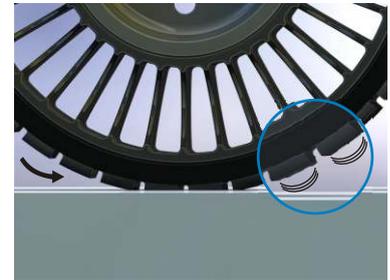
Examining wind and tire noise

With an increasing degree of annoyance caused by road traffic noise and growing customer sophistication in the automotive market, vehicle acoustics is constantly gaining in importance. A frequent object of examination is wind and tire noise. The analysis and separation of these two types of noise plays a central role and requires extensive measurements.

The multi-channel front-end system HEADlab is particularly well suited for these measurements. Since wind and tire noise is recorded during coasting (with the engine turned off) on a test track

with a defined surface, such as rough asphalt, the measuring equipment must be mobile. Since HEADlab is equipped with a powerful battery, even extended measurements can be performed without an external power supply.

After the recording, the wind noise must be separated from the tire noise, so that both components can be individually analyzed and rated. The noise contributions of the individual axles can be distinguished or the noise transmission can be examined. To separate the noise components, reference sensors are installed at



the sources, i.e. the road contact points of the four tires. This requires a total of 20 channels.

For the analysis, additional quantities must also be recorded, such as the vehicle speed and the interior noise. Since HEADlab was designed with the automotive industry in mind, these values can be easily acquired directly via CAN or pulse inputs. Ideally, the interior measurements should be performed with an artificial head, which you can connect directly to your HEADlab as well. With its low power consumption, compact dimensions and low weight, HEADlab also fulfills all other requirements of this measurement task.

To separate wind and tire noise, the data acquired this way can be analyzed with methods based on multiple coherence or OPA (Operational Path Analysis). After the noise separation, you can analyze and rate the individual components and develop possible optimization measures for the respective noise sources and transfer paths.

Find out more about HEADlab and our consulting services by going to www.head-acoustics.com or www.nvh-consulting.com.



Exemplified test setup including HMS IV and HEADlab

HSM V The new HEAD seat mount adapter HSM V for artificial head measurement systems

Our seat mount adapter HSM V was developed specifically for making secure and authentic artificial head recordings in a vehicle.

In addition to a secure installation of your head measurement system in a vehicle, the newly designed HSM V offers variable positioning and placement possibilities for additional measurement equipment. The optional ISOFIX adapter allows quick and secure fastening of the seat mount adapter onto the seat.

Thanks to the quick-lock coupling, the artificial head can be attached to the seat mount adapter in seconds, resulting in a position resembling a real person sitting in the vehicle. Since different body postures lead to different acoustic impressions in

the interior of a vehicle, the HSM V is height-adjustable, and the angle can be adjusted by 30 degrees in the driving direction, allowing the artificial head to take various postures with exact positioning.

To avoid interfering friction noise, the seat mount adapter is designed to keep the artificial head at sufficient distance from the backrest and to ensure a stable position on the seat. During the drive, the artificial head is held in place with the safety belt or with an optional ISOFIX adapter.

Additional equipment, such as HEADlab modules or a notebook, can be mounted securely on the bottom plate of the HSM V using suitable accessories, making them easily accessible from the driver's seat.



Seat mount adapter HSM V with measurement equipment

Sound engineering in the automotive industry

Particularly for acoustics engineers in the automotive industry, we recommend a new book titled



“Sound-Engineering im Automobilbereich”, which presents up-to-date methods for measuring and evaluating sound and vibrations. Edited by Prof. Dr.-Ing. Klaus Genuit, contributions by numerous scientific experts cover the area of sound engineering in the automotive industry comprehensively and from different perspectives. This broad overview helps you to approach the subject quickly, systematically access the basics as well as specific details and build up the expertise required for your professional work. It deals with both interior and exterior vehicle noise. The book is now available at bookstores.

aHEAD for 25 years

This year, HEAD acoustics GmbH celebrates its 25-year anniversary. Founded in 1986 by Prof. Dr.-Ing. Klaus Genuit, today the company is one of the leading specialists worldwide in the area of sound and voice quality.

From the very beginning, HEAD acoustics has been a pioneer in the development of innovative technologies, such as the development of a novel artificial head measurement system at the beginning of the company's history. Following this tradition, exciting innovations will be presented in the anniversary year 2011 as well. HEAD acoustics stays “always a step aHEAD”!

HEAD VISOR core

HEAD VISOR software now available as an offline version!

With HEAD VISOR core, HEAD acoustics now offers a software product for offline processing of HEAD VISOR recordings. HEAD VISOR is an innovation from HEAD acoustics in the area of microphone array technology, which allows real-time localization of sound sources.

Take advantage of the unique functions of the software, such as compensation of flow offset in a wind tunnel, automatic measurement of the distance to the sound source, or options for filtered and unfiltered playback.

With HEAD VISOR core, recordings made with HEAD VISOR can be processed in the absence of the HEAD VISOR hardware. The offline software provides users with the full functionality of the HEAD VISOR software, except for the recording function.

The powerful and easy-to-use offline analysis and playback system HEAD VISOR core is recommended especially for

customers making use of HEAD VISOR as a third-party service, or for those who already own a HEAD VISOR microphone array system and need an additional

workplace for processing the recordings.

Learn more at www.head-visor.com or contact us!

sales@head-acoustics.de



| Application |

Did you know that ...?

- ... you can have your BEQ II reconfigured by us to allow low-frequency measurements down to 1 Hz with the head-shoulder unit HSU III.1?
- ... you can have your PEQ V reconfigured by us in order to use it as a standard Windows® audio device without an additional digital sound card?
- ... you can subscribe to our newsletter at sales@head-acoustics.de in order to stay informed about our latest product news, training dates and events?
- ... you can view your HASP licenses at <http://localhost:1947/>? This service shows you all available licenses and their

options. Administrators in particular will find this dialog a great help for license management in networks. The service is installed along with the HASP dongle driver. The latest version of this driver can be found on the web at

<http://www3.safenet-inc.com/support/hasp.aspx>.