



HEAD System Integration and Extension (ASX 01 – ASX 09)

Code 5090ff

HEAD System Integration and Extension (ASX)

Use the flexible ASX programming interfaces to control parts of ArtemiS SUITE with your software and, conversely, extend ArtemiS SUITE with your individual analyses, filters, etc. ArtemiS SUITE does not need to be installed when performing measurements with the Recorder, using Automation Projects, or generating Reports.

OVERVIEW

HEAD System Integration and Extension (ASX 01 – ASX 09)

Code 5090ff

Use the programming interfaces ASX 01 to ASX 09 to connect ArtemiS SUITE with your software and develop solutions to meet your specific requirements. In this way, you can use your software to remotely control the Recorder, adjust the measurements, and have them processed by Automation Projects in order to output the results in a Report formatted as PDF or PowerPoint files.

You also have the option of extending ArtemiS SUITE with your own analyses, filters, etc., embedding your own listening test steps into the SQala jury testing software, and much more.

KEY FEATURES

ASX Programming Interfaces:

- › ASX 00 (license-free)
Programming and application examples as well as programming references
- › ASX 01 (Code 5091)
Processing HDF and HSVX files
- › ASX 02 (Code 5092)
Automated or interactive controlling of projects and processes of ArtemiS SUITE
- › ASX 03 (Code 5093)
Programming and integrating you own step types into the SQala jury testing software
- › ASX 04 (Code 5094)
Controlling the Recorder of ArtemiS SUITE
- › ASX 05 (Code 5095)
Creating and editing User Documentation
- › ASX 06 (Code 5096)
Using your own analyses and filters in various projects of ArtemiS SUITE
- › ASX 07 (Code 5097)
Executing Automation Projects (Automation specifications)
- › ASX 08 (Code 5098)
Stand-alone measurements using the Recorder of ArtemiS SUITE
- › ASX 09 (Code 5099)
Generating Reports

The screenshot displays a software interface with a search bar at the top left containing the text "Enter here to filter...". Below the search bar is a list of classes, including: `ITextField`, `LegacyUdiReader`, `RealField`, `Storage`, `TemplateReader`, `TemplateWriter`, `TextField`, `HEADacoustics.APLHdf`, `HEADacoustics.APLLicence`, `HEADacoustics.APLRemo...`, `HEADacoustics.APLRemo...`, `HEADacoustics.APLRemo...`, `HEADacoustics.APLSQala`, and `HEADacoustics.APLSQal...`. The main area shows the documentation for the `ActionResult` class, which contains information about its `ActionsOK` property. Below this, the `BooleanField` class is documented, followed by `DateField`, `Documentation`, and `DocumentationConverter`. On the right side, there is a sidebar titled "IN THIS ARTICLE" with links to "Classes", "Interfaces", and "Enums".

DETAILS

ASX 00

SYSTEM INTEGRATION AND EXTENSION GUIDELINES

- › Documentation with application examples, a programming reference, and code examples in C#, MATLAB®, and Python

ASX 00 includes detailed documentation with easy-to-use application examples and programming instructions, enabling you to start programming immediately.

In addition, ASX 00 contains a complete format description of the Sensor Library of ArtemiS SUITE (*.senx) that can be used to automatically convert your existing sensor information into the SENX format, for example.

ASX 01

DATA ACCESS API

- › Reading, modifying, and writing HDF and HSVX files using your software (HDF Library / HSVX Library)

Use ASX 01 to extend your own software solutions to process HDF files (time signals, 2D and 3D analysis data) directly. This includes, for example, processing and saving HDF files (signal and pulse channels, analysis results) as well as conveniently accessing single values and their respective threshold values.

HSVX Library is a subset of HDF Library. It enables convenient access to single values and their threshold values of one or more HSVX files. Single values can be read with HSVX Library, further processed with your software solutions, and then exported again as an HSVX file.

You can use ASX 01 to evaluate HDF and HSVX files, e.g., based on individual tolerance checks, and use them for your metrics.

ASX 02

DATA PROCESSING AND REPRESENTATION API

- › Automated or interactive controlling of Pool Projects and Automation Projects, performing Reports, exports, etc. using your software.

ASX 02 enables you to control various projects, including the processes they contain, and integrate them into your workflows. This includes filling predefined Pool Projects and Automation Projects with your data which can then be processed (cutting, filtering, and analyzing measurements, calculating single values, performing tolerance checks, etc.) and displayed or exported in a Data Viewer or a completed Report.

You can use your own software solution, e.g., a graphical user interface (GUI) to automate or interactively control your workflows.

ASX 03

SQALA EXTENSION API

- › Programming and integrating your own step types into the SQala jury testing software.

Use ASX 03 to extend SQala with your own step types, e.g., MUSHRA tests (MULTiple Stimuli with Hidden Reference and Anchor), and perform them in Local Mode. You also have the option of developing your own buttons, attribute controls, navigation elements, or test environments and integrating the functions of the Player to gain direct access to the acoustically correct playback of HDF files.

The API export enables seamless integration of the new elements and methods into the SQala interface, thus ensuring their visual consistency with the native steps and methods of SQala.

Note: Programming the step types requires C# or .NET Framework.

ASX 04

DATA ACQUISITION API

- › Controlling the Recorder using your software

ASX 04 enables you to control various functions of the Recorder of ArtemiS SUITE using your software. This includes, for example, starting the Recorder, selecting and connecting a frontend, configuring, applying, and changing triggers, as well as starting and stopping measurements. Your Recorder Configurations can be saved and (completely or partially) reloaded, as required.

Alternatively, the Recorder can be controlled via the CAN bus system, which is particularly useful in the case of mobile applications or test bench measurements.

Note: We recommend creating a Recorder Configuration (*.hrcx) with ArtemiS SUITE and using it to control the Recorder with ASX 04.

Note: Flow Control and Recorder Task List are not supported.

ASX 05

DOCUMENTATION AND METADATA API

- › Using User Documentation and Documentation Templates with your software

ASX 05 enables you to seamlessly integrate User Documentation and Documentation Templates into your software, completing them with information from other databases.

You can read, modify, and write external or embedded User Documentation and automatically add User Documentation and other information to measurements on test benches, for example.

In addition, Documentation Templates can also be applied to larger inventory data in order to integrate them automatically into the User Documentation.

ASX 06

DATA PROCESSING ADD-IN API

- › Using your own analyses and filters in various projects

ASX 06 enables you to intervene in the signal flow of ArtemiS SUITE, using your own analyses, filters, and data exports in Pool Projects, Automation Projects, Metric Projects, and Standardized Test Projects like the available analyses and filters.

For example, a time signal is transferred to your application, processed there, and the result is then fed back into the signal flow of ArtemiS SUITE. You can use any MATLAB® (*.m, *.p) files and Windows executable (*.exe) files.

There are appropriate add-ins available for various applications:

Filter Add-In

(Time signal to time signal)

- › Filtering or processing a multi-channel time signal
- › Calculating a time signal from a time signal

Analysis Add-In

(Time signal to 2D / 3D analysis)

- › Analyzing (2D / 3D analysis) an input signal
- › Calculating a 2D / 3D analysis from a time signal

Post-Analysis Add-In

(Analysis from 2D / 3D analysis)

- › User-specific post-processing of a 2D / 3D analysis result, e.g., integrating a user-specific weighting function or an analysis based on an averaged spectrum (FFT averaged)

Export Add-In

(Export to any user-specific file format)

- › Exporting the input format from any time signals and 2D / 3D files
- › Processing several HDF files of an export file

Export Merge Add-In

- › Creating any data format from several HDF data sets for further processing of data from ArtemiS SUITE in an external program
- › Simultaneous transfer of several freely selectable HDF data sets to MATLAB®, for example, in order to convert them into a different format there

ASX 07

LOCAL PROCESSING SERVICE

- › Performing Automation Projects that are saved as automation specifications (calculation jobs)

Using a command line, ASX 07 enables you to benefit from an Automation Project that was once defined and stored as an automation specification (processing specification, *.hpsx). Without having ArtemiS SUITE installed, you can use the complex processing procedures of the Automation Project and receive the results of the automation specifications with ASX 07 operating in the background. An automation specification can be reused for several files. You also have the option of processing files differently by interactively adjusting predefined variables.

In addition, ASX 07 can be used as a batch processing tool to process large amounts of data using Automation Projects, e.g., for End-of-Line processes, without further interaction.

Note: The automation specifications required for the implementation of Automation Projects must be created with ArtemiS SUITE.

ASX 08

LOCAL RECORDING SERVICE

- › Stand-alone measurements using the Recorder

Use ASX 08 to perform automated measurements with the stand-alone Recorder and frontends from HEAD acoustics without further interaction. The stand-alone Recorder does not come with a user interface, so you can focus entirely on your actual measurement tasks.

Important functions of the Recorder can be automated, such as starting and stopping measurements or excitations, entering file names, saving and loading settings, and performing measurements. Integrating the stand-alone Recorder into your test bench processes, for example, enables you to conveniently perform your measurements automatically, at the touch of a button, or with the help of start and stop triggers.

Note: We recommend creating a Recorder Configuration (*.hrcx) with ArtemiS SUITE and using it to control the Recorder with ASX 08.

Note: Flow Control and Recorder Task List are not supported.

ASX 09

REPORTING API

- › Generating Reports

ASX 09 enables you to read a Report (a Report template), exchange the data sources it contains, and save it as a new Report based on the changes you have made.

New data is automatically assigned to the respective Report elements via the data bindings in the Report template. Reports generated in this way can directly be exported in PDF or PowerPoint format.

When opening the Report in ArtemiS SUITE, the new data is displayed in the respective Report elements.

Note: The Report templates (*.hrpx) required for the Reporting with ASX 09 must be created with ArtemiS SUITE.

The ASX Programming Interfaces are Future-Proof

ASX is continuously being developed and will continue to seamlessly connect ArtemiS SUITE with your software solutions in order to optimize your processes.

In its current stage of development, ASX covers major workflow steps:

- › Acquisition: ASX 04, ASX 08
- › Documentation: ASX 05
- › Processing: ASX 01, ASX 02, ASX 06, ASX 07
- › Report generation: ASX 02, ASX 09
- › Jury testing: ASX 03

Combining several ASXs in one workflow

EXAMPLE

To individually expand and automate an End-of-Line application, you can perform stand-alone measurements using ASX 08, insert User Documentation automatically using ASX 5, process the measurements with an Automation Project using ASX 07, and then process the results in a Report and export them as a PDF or PPTX file using ASX 09.

LICENSES

ASX 01

License required when processing HDF and HSVX files; ArtemiS SUITE does not have to be installed:

Code	Product Name
5091	ASX 01

ASX 02

Licenses required when interactively controlling projects and processes; ArtemiS SUITE must be installed in order to use the full range of functions of ASX 02:

Code	Product Name
5092	ASX 02
50000	APR 000 APR Framework
Licensing is required for all projects and processes (e.g., analyses, filters, and functions) of ArtemiS SUITE, including the processes used in Pool Projects or Automation Projects.	

ASX 03

License required when programming customized step types for SQala; ArtemiS SUITE does not have to be installed:

Code	Product Name
5093	ASX 03

Licenses required when performing customized step types in Local Mode of SQala; ArtemiS SUITE must be installed:

Code	Product Name
5093	ASX 03
50000	APR 000 APR Framework
50500	APR 500 Jury Testing – SQala Basic

ASX 04

Licenses required when interactively controlling the Recorder; ArtemiS SUITE must be installed in order to use the full range of functions of ASX 04:

Code	Product Name
5094	ASX 04
50000	APR 000 APR Framework
50040	APR 040 Recorder
Optionally, the Recorder can also be controlled via the CAN Remote Control. The following items are required for this purpose:	
<ul style="list-style-type: none">> Adapter PCAN-USB or PCAN-USB FD> Device drivers and tools from PEAK System for Windows 10, 8.1 (32 bits/64 bits)> Dongle with ASX 04 license	

ASX 05

License required when using User Documentation and documentation templates; ArtemiS SUITE does not have to be installed:

Code	Product Name
5095	ASX 05

ASX 06

Licenses required when performing Pool Projects, Automation Projects, Metric Projects, and Standardized Test Projects using customized analyses and filters; ArtemiS SUITE must be installed:

Code	Product Name
5096	ASX 06
50000	APR 000 APR Framework
Licensing is required for all projects and processes (e.g., analyses, filters, and functions) of ArtemiS SUITE, including the processes used within the projects.	

ASX 07

Licenses required when performing Automation Projects;
ArtemiS SUITE does not have to be installed:

Code	Product Name
5097	ASX 07
Licensing is required for all processes (e.g., analyses, filters, and functions) used within the Automation Projects.	

ASX 08

Licenses required when running the Recorder;
ArtemiS SUITE does not have to be installed:

Code	Product Name
5098	ASX 08
5094	ASX 04

ASX 09

License required when editing and running a Report;
ArtemiS SUITE does not have to be installed:

Code	Product Name
5099	ASX 09

Notes on Licensing and Redistribution of ASX Software Solutions

Dongles with the respective licenses for the ASX 01 – ASX 09 programming interfaces used are required for

- › Developing software solutions using ASX 01 – ASX 09
- › Running software solutions developed on the basis of ASX 01 – ASX 09
- › Running (individual) codes used by ASX libraries

Licensing is also required for all projects and processes (e.g., analyses, filters, and functions) of ArtemiS SUITE accessed via ASX 01 – ASX 09 when running the ASX software solutions.

PROGRAMMING PLATFORMS

- › MATLAB® (*.m, *.p)
- › All executable files (*.exe, *.com) written in a programming language that enables the import and use of the .NET Assembly API HDF file (ASX 01):
 - » C#, F#, Visual Basic .NET
 - » C++/CLI, Python for .NET
 - » PowerShell Script (*.ps1).Net

SYSTEM REQUIREMENTS

- › Windows 11 x64 (Pro, Enterprise, Education; version: 21H2 or newer; languages: US, Western European) or:
Windows 10 x64 (Pro, Enterprise, Education; version: 1607 or newer; languages: US, Western European)
- › .NET Framework 4.8 (to use the libraries)
- › HASP dongle driver (to use the libraries)
- › Microsoft Edge

Installing the software and drivers from HEAD acoustics requires administrator rights. Operating the software only requires standard user rights.

Python is a registered trademark of Python Software Foundation; MATLAB and MATLAB Compiler are registered trademarks of The MathWorks, Inc.; Microsoft Windows, Microsoft Visual Studio, Microsoft Edge, Microsoft .NET Framework, and C# are registered trademarks of Microsoft Corporation.



Contact Information

Ebertstrasse 30a
52134 Herzogenrath, Germany
Phone: +49 2407 577-0
E-Mail: sales@head-acoustics.com
Website: www.head-acoustics.com