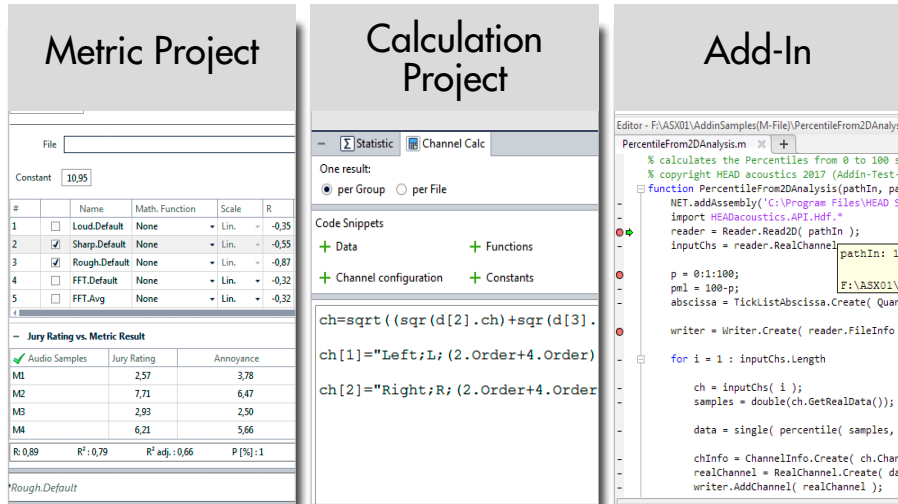


ArtemiS SUITE Calculation Module (Code 5027)

Module for developing sound metrics, performing channel-related calculation functions, and integrating user-specific filters and analyses



Overview

The Calculation Module contains the Metric Project, the Calculation Project, and the Add-In interface.

- The Metric Project supports experienced users with the modeling of sound metrics consisting of a combination of several weighted single value results.

In addition, jury test results can be automatically included in the metric design in order to improve the correlation to the human hearing impression and to optimize the metrics.

Sound metrics can be used in Pool, Automation, and Standardized Test Projects in order to determine a quality index directly at a test stand or at the desk.

- With the Calculation Project, any channel or multiple channels simultaneously can be post-processed with customized mathematical operations.

By means of a script, the processing options for each channel can be predefined (e.g. level adaptation, comparison to a reference channel), or cross-channel operations can be defined.

- With the add-in, users can implement their own filters and analyses programmed with MATLAB®, .NET etc. in the Pool, Automation, Metric and Standardized Test Projects. The user-specific tools can be applied in ArtemiS SUITE as well as the available filters and analyses.

Features

Metric Project

- Manual or semi-automatic metric design
- Sequence Editor for compiling custom sequences (processing chains) for determining the single value results
 - A wide range of psychoacoustic and other analyses, filters, statistics functions, etc. (any required module licenses must be provided)
- Metric design with automated weighting of the individual sequences based on jury test result
 - Tabular comparison between jury test and metric results
- Tabular entry for rating and compiling the single value results delivered by the sequences
- Export of metric definitions for use in Pool, Automation, and Standardized Test Projects in ArtemiS SUITE
- Jury test ratings from SQala jury test results can be used in a Metric Project

Calculation Project

- Simultaneous processing of multiple channels using scripts
- Execution of various mathematical functions (e.g. sin, log, sign)
- Adjustable smoothing
- Automated changing of channel measurement units
- Use of predefined code segments
- Compatible with ArtemiS Classic scripts

Add-In

(Requirements: ASX 01/ASM 01 or ASX 01/ASM 06)

- Seamless integration of user-specific filters and analyses into ArtemiS SUITE
- Using MATLAB® and applications, based on a .NET programming language, to gain access to time data and 2D/3D analysis results. The add-ins can be used for
 - filtering
 - analyzing
 - post-analyzing

Metric Project

Sequences

Test sequences are the core of the Metric Project. Each sequence can consist of any number of successive individual processes and provides one or several single value results for the metric.

The manual mode for linking the sequences can be used, for example, to implement a known combination of several partial values into a quality index.

Using the semi-automatic mode, users can have the weighting of their sequences calculated automatically based on jury test results.

The Metric Project is suitable for processing monaural sound samples. In case of multi-channel files, only the first channel is used.

Export

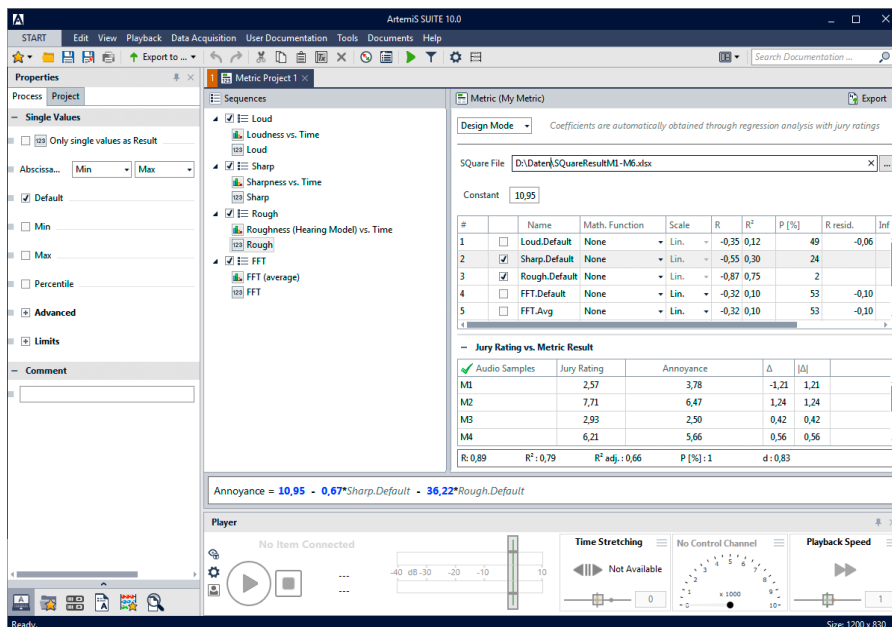
Users can export their created metrics in order to provide them to co-workers in a company or to suppliers, for example.

Core projects of ArtemiS SUITE, such as Pool, Automation, and Standardized Test Projects, can process the metrics directly and also apply them to large amounts of data.

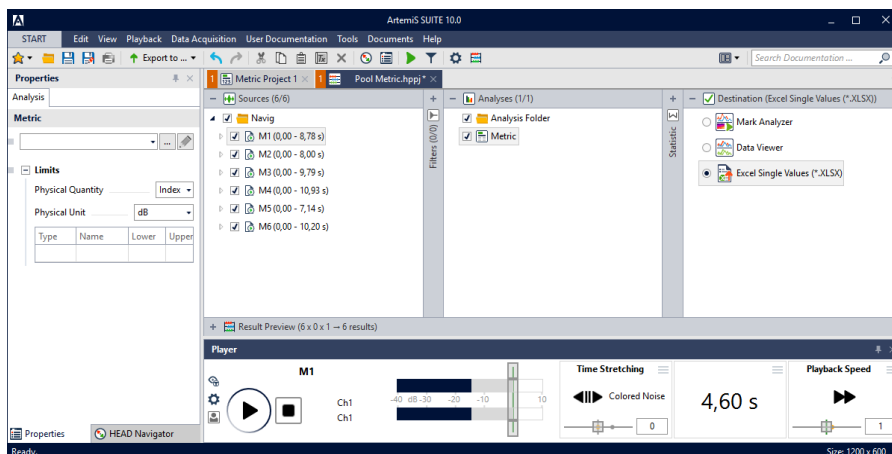
Channel Calculation

The Channel Calculation is performed in the Calculation Project, which is similar to a Pool Project. Thereby a similar structuring is applied, however, it is reduced to three pools being arranged consecutively.

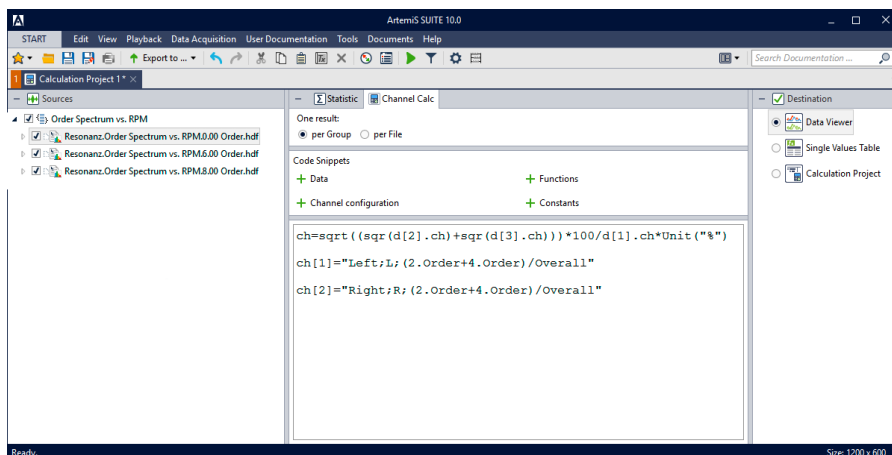
For example, users can automatically adjust the level or DC for individual channels or for all channels. In addition, channels can be created using various mathematical functions (e.g. sin, log), and much more.



In semi-automatic design mode, the results of jury tests are accounted for automatically in order to map them on the measured analysis results from the sequence area in the best possible way.



A metric saved as HMSX file can be used in a Pool Project, for example, to calculate the specified metric for each individual channel of all input signals. The results can be exported as single values in an Excel sheet, for example.



With the Calculation Project, a text script can be used to specify individual processings for each channel or to define channel comprehensive operations. For a straightforward creation of the scripts, predefined code snippets can be inserted.

Add-In

(Requirements: ASX 01/ASM 01 or ASX 01/ASM 06)

With the add-in, an external input signal can be transferred to an external software such as MATLAB®, for filtering, analyzing or post-processing there. The resulting HDF file is then adopted again and transferred to the normal signal flow of ArtemiS SUITE.

All other options of ArtemiS SUITE, such as preprocessing and presentation, can be used as usual.

For users, the add-in offers several options for integrating own filters, analyses and post-processing operations into ArtemiS SUITE:

Filter Add-In (Time signal to a time signal)

- User-specific filtering or processing of a multi-channel time signal
- Processing a time signal from another time signal

Analysis Add-In (Time signal to a 2D/3D analysis)

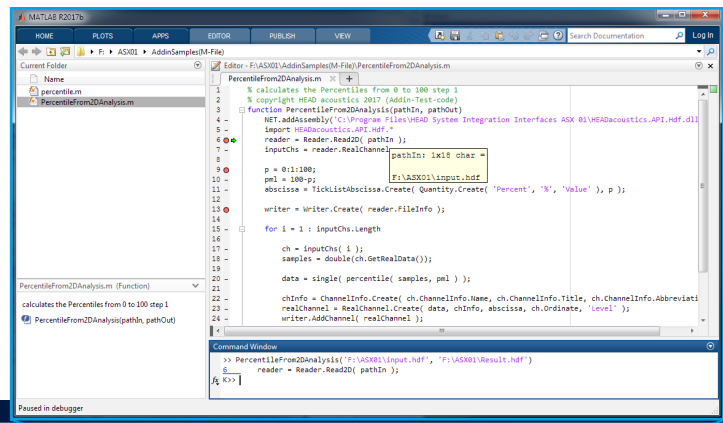
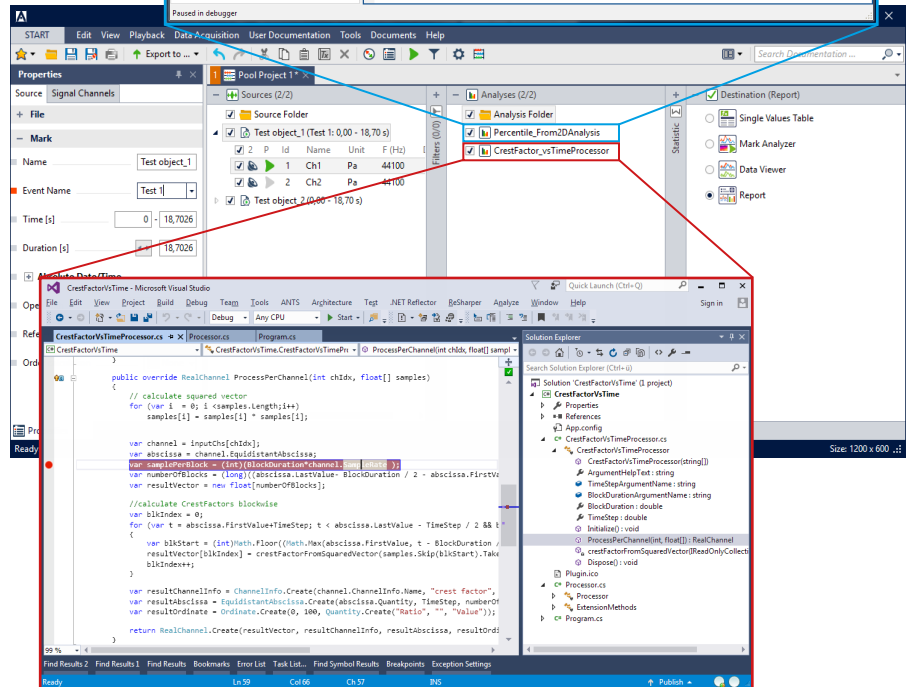
- User-specific 2D/3D analysis of an input signal
- Calculating a 2D/3D analysis from a time signal

Post-Analysis Add-In (Analysis from a 2D/3D analysis)

- User-specific post processing of a 2D/3D analysis result
 - Integrating a user-specific weighting function or an analysis based on an average FFT spectrum, for example
- Calculating the time signal of an analysis from a 2D/3D analysis of ArtemiS SUITE

Supported Add-In interfaces

- MATLAB® (*.m, *.p)
- Executable (*.exe, *.com), programmed with a language that allows users to import and use the .NET-Assembly-API-HDF (ASX 01): C#, F#, Visual Basic .NET, C++/CLI, Python for .NET, MATLAB® compiler
- Powershell Script (*.ps1)

Example which shows the integrating of customer-specific analyses programmed with MATLAB® (upper image) and Visual Studio (lower image) into the Analysis Pool of a Pool Project.

Scope of supply

- License file: ArtemiS SUITE Calculation Module (Code 5027)

Requirements

- ArtemiS SUITE Basic Framework (Code 5000)
- ArtemiS SUITE Basic Analysis Module (Code 5001)

Add-In:

- ASX 01 (Code 5091) System integration interfaces for connecting applications from HEAD acoustics with user-specific software solutions
- ArtemiS SUITE Automation Basic Analysis Module (Code 5006)

Recommended

- ArtemiS SUITE Psychoacoustics Module (Code 5012)
- ArtemiS SUITE Signature Analysis Module (Code 5013)
- ArtemiS SUITE Octave Analysis Module (Code 5014)
- ArtemiS SUITE System Analysis Module (Code 5015)
- ArtemiS SUITE Advanced Psychoacoustics Module (Code 5016)
- ArtemiS SUITE Advanced Analysis Module (Code 5017)
- ArtemiS SUITE Jury Testing Module SQala Basic (Code 5050)

MATLAB is a registered trademark of the MathWorks Inc.