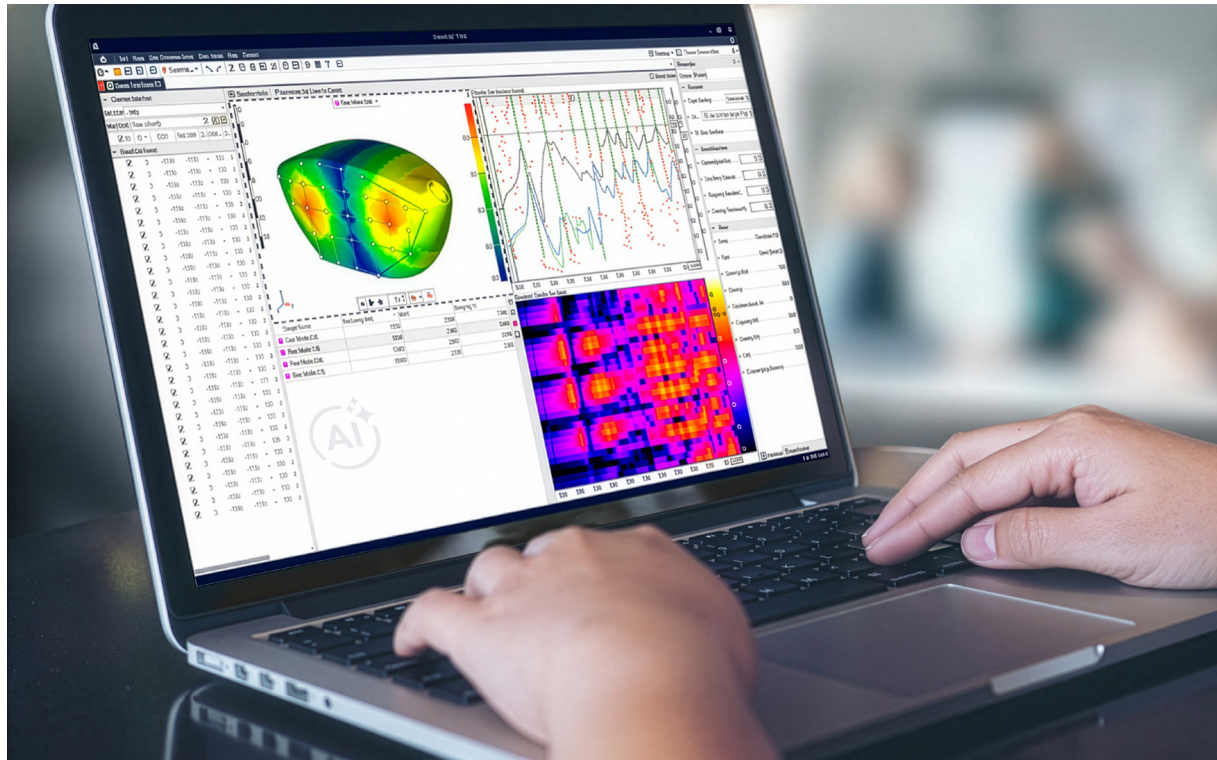




ArtemiS SUITE Overview

Codes 50000–51801

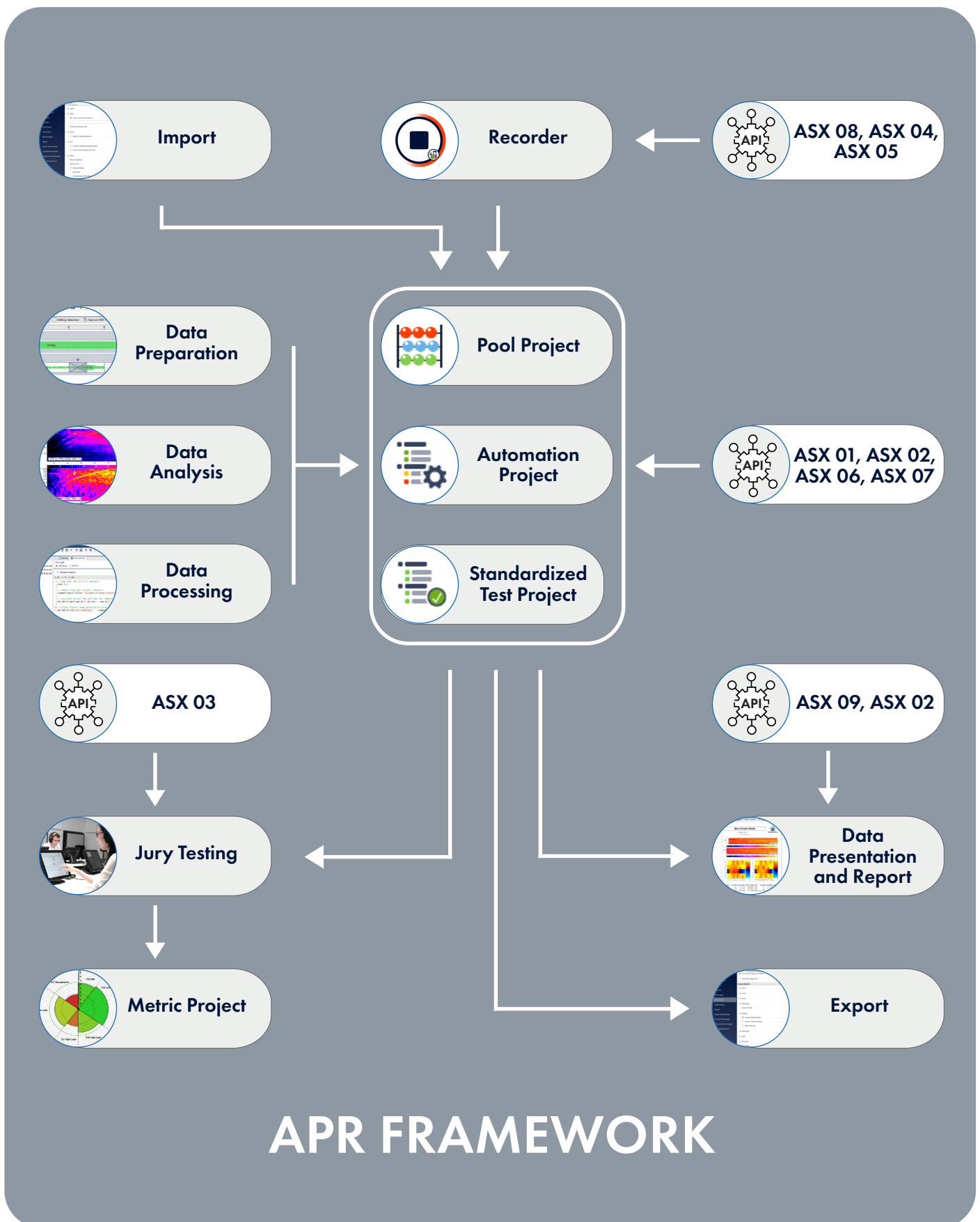
ArtemiS SUITE – Overview

ArtemiS SUITE is a universal software environment for sound and vibration analysis. The modular design of ArtemiS SUITE enables customizable configurations consisting of projects (APRs) and signal processing tools (ASPs). In addition, the ASX programming interfaces provide customizable extensions and remote-control functionality.

OVERVIEW

FUNCTION	NAME	APR/ASP	CODE	ASX (API)
Basis of ArtemiS SUITE	APR Framework	APR 000	50000	ASX 05
Data acquisition	Recorder	APR 040	50040	ASX 04 / ASX 08
	MDM Recording	ASP 702	51702	
	IRIG 106 Chapter 10 Support	ASP 708	51708	
Data preparation	Database	APR 030	50030	
	RPM Generator	APR 080	50080	
	HDF Tools	APR 200	50200	
	Signal Generator Project	APR 210	50210	
	Data Preparation	ASP 302	51302	
	Batch RPM Generator	ASP 304	51304	
	Basic Decoder	ASP 801	51801	
Central projects	Pool Project	APR 010	50010	ASX 01 / ASX 02
	Automation Project	APR 050	50050	
	Standardized Test Project	APR 220	50220	
	Compact Analysis Project	APR 100	50100	
Data processing	Sound Engineering Project	APR 190	50190	
	Offline Filters	ASP 301	51301	
	Statistics	ASP 303	51303	
	Channel Calculation	ASP 305	51305	
Data analysis	Basic Analysis / vs. Control Channel	ASP 001 / 002	51001 / 51002	
	Advanced Analysis / vs. Control Channel	ASP 003 / 004	51003 / 51004	
	Modulation Analysis	ASP 005	51005	
	Order Analysis	ASP 006	51006	
	Octave Analysis	ASP 007	51007	
	Psychoacoustics - Basic Analysis / vs. Control Channel	ASP 101 / 102	51101 / 51102	
	Psychoacoustics - Advanced Analysis / vs. Control Channel	ASP 103 / 104	51103 / 51104	
	Speech Intelligibility Analysis	ASP 106	51106	
	Spectral Audio Feature Analysis / vs. Control Channel	ASP 107 / 108	51107 / 51108	
	LEAP Analysis	ASP 109	51109	
Data presentation and Report	Report	APR 020	50020	ASX 02 / ASX 09
	Comparison Report Project	APR 021	50021	
Playback, listening tests, and sound evaluation	Playback Filters	APR 110	50110	ASX 03
	Jury Testing - SQala Basic	APR 500	50500	
	Jury Testing - SQala Lite	APR 501	50501	
	Jury Testing - SQala Net	ASP 501	51501	
	Jury Testing - SQala Server	ASP 502	51502	
	Metric Project	APR 570	50570	
Structural analysis	Impact Measurement	APR 430	50430	ASX 10
	Reference+	APR 440	50440	
	Modal Analysis Project	APR 420	50420	
	ODS Project	APR 400	50400	
	Shape Comparison Project	APR 410	50410	
Transfer path analysis	TPA Project	APR 600	50600	
	TPA - Data Acquisition	APR 610	50610	
	TPA - Virtual Point Transformation	ASP 601	51601	
	TPA - Structure-Borne Analysis	ASP 602	51602	
	TPA - Airborne Analysis	ASP 603	51603	
Sound intensity / sound power	Sound Intensity Measurement	APR 300	50300	
	Sound Power Analysis	ASP 203	51203	
Extended import/export	MDF4 Import	ASP 707	51707	
	MDF4 Export	ASP 703	51703	
	MTS-RPC Conversion	ASP 704	51704	
	UFF Conversion	ASP 705	51705	

FUNDAMENTAL TASKS



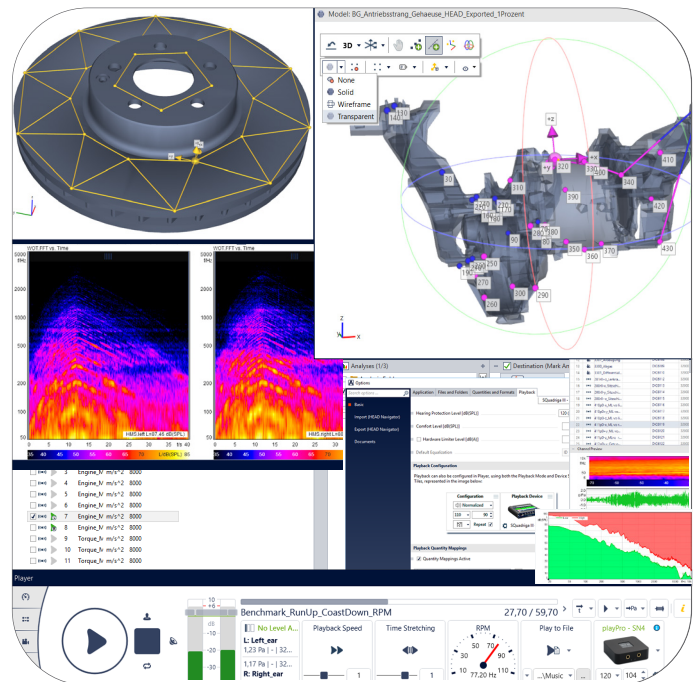
BASIS OF ARTEMIS SUITE

APR 000 APR Framework

APR Framework is the basis of ArtemiS SUITE and is required for each individual configuration of projects (APRs) and signal processing tools (ASPs).

In addition, APR Framework contains a range of central functions, for example:

- › Navigator, Player, Data Viewer, User Documentation, System Documentation, and Sensor Library
- › Measurement Point Library for recording measured quantities and integrating 2D or 3D grid models (CAD models can be imported)
- › Channel Editor for editing channel properties and signals
- › Tolerance Schemes
- › Import and export options



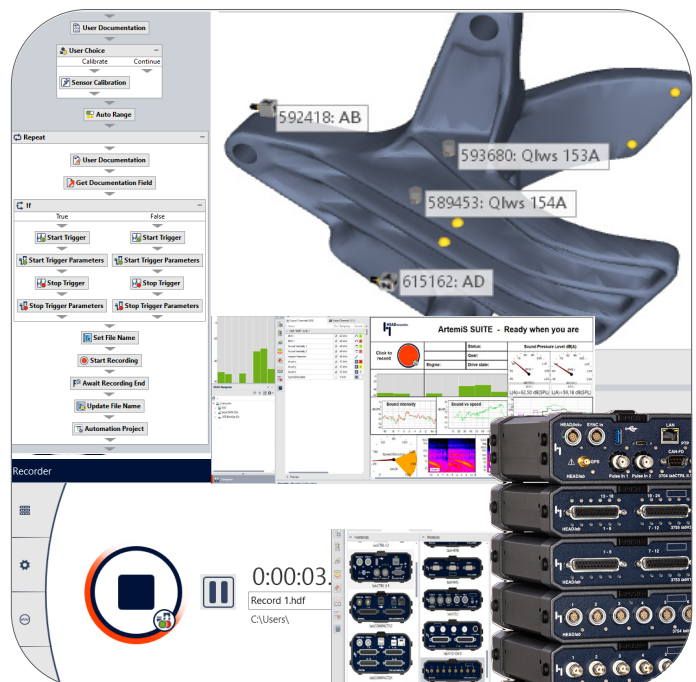
DATA ACQUISITION

APR 040 Recorder

ASP 702 MDM Recording

ASP 708 IRIG 106 Chapter 10 Support

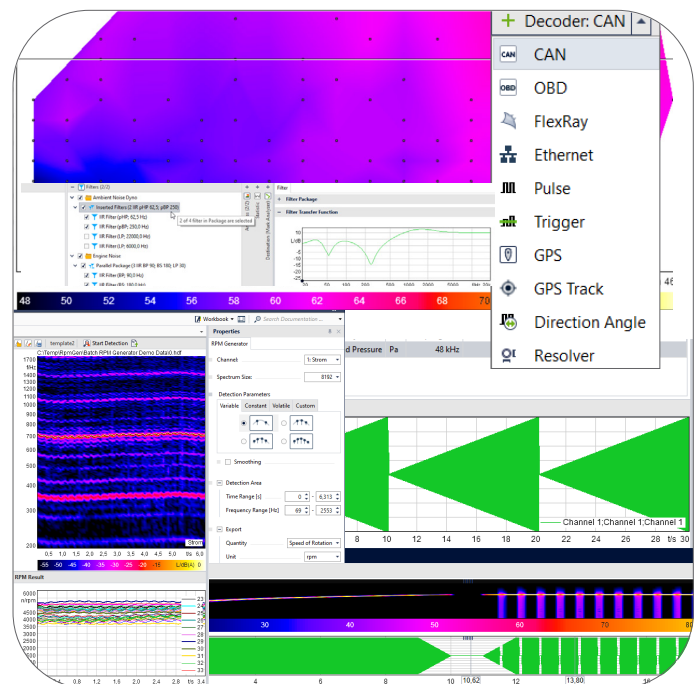
- › Universal Recorder
- › Structured planning and execution of measurements using the Measurement Point Library and 3D models
- › Automatic recognition of the supported frontends
- › Online Monitoring
- › Individually adjustable triggers
- › Flow Control for automatic execution of recurring tasks
- › Wizards for sensor calibration, reading TEDS information, level adjustment, ...
- › Shaker excitations



DATA PREPARATION

APR 030 Database
 APR 080 RPM Generator
 APR 200 HDF Tools
 APR 210 Signal Generator Project
 ASP 302 Data Preparation
 ASP 304 Batch RPM Generator
 ASP 801 Basic Decoder

- › Generation of RPM curves and signals
- › Modification of HDF data: Channel Sort, File Concatenation, and File Merge
- › Editing marks and channels, Point Map, ...
- › Extraction of signals: CAN, OBD-2, FlexRay, Pulse, Resolver, Ethernet, ...



CENTRAL PROJECTS

APR 010 Pool Project
 APR 050 Automation Project
 APR 220 Standardized Test Project
 APR 100 Compact Analysis Project

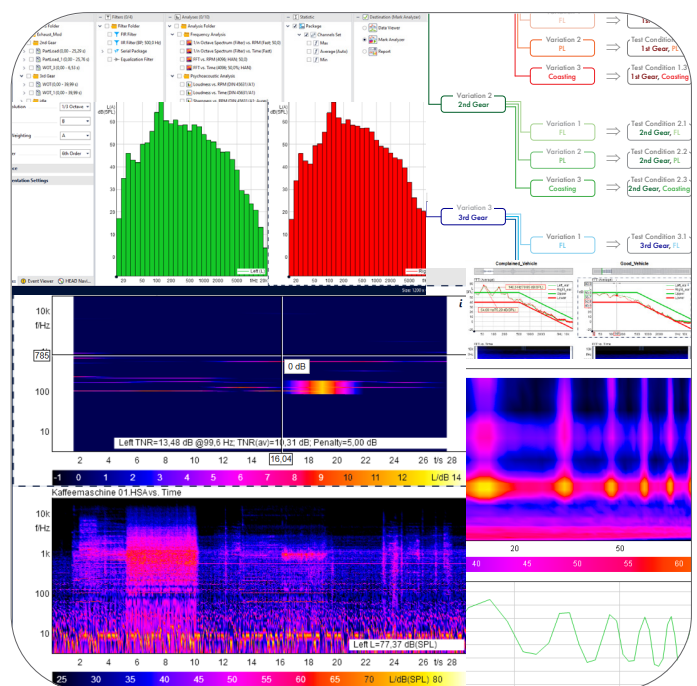
The **Pool Project** enables an interactive workflow, offers straightforward usability, and processes data based on cross-product logic.

With the **Automation Project**, processing steps are defined only once, executed automatically, and reused for all subsequent data sets.

With the **Standardized Test Project**, multiple operating conditions of objects are measured using the Recorder and examined through multiple analysis methods.

Pool Projects, Automation Projects, and Standardized Test Projects can be combined with additional projects (APRs) and signal processing tools (ASPs) of ArtemiS SUITE.

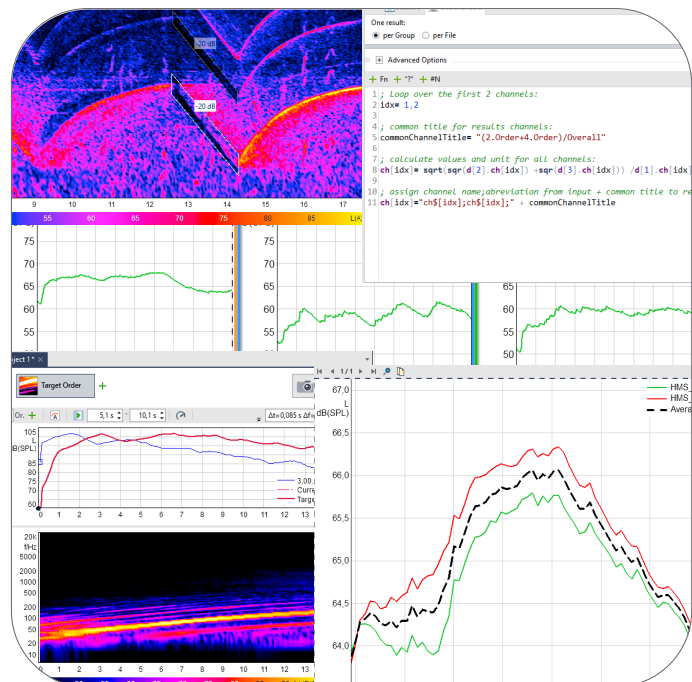
The **Compact Analysis Project** is a streamlined application for basic analysis tasks and can be extended with selected APR modules. ASP modules are not compatible with APR 100.



DATA PROCESSING

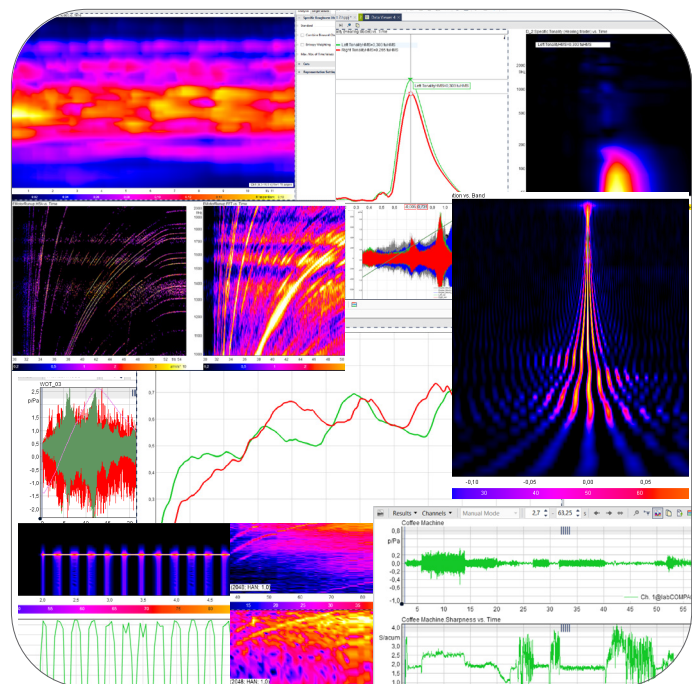
APR 190 Sound Engineering Project
 ASP 301 Offline Filters
 ASP 303 Statistics
 ASP 305 Channel Calculation

- › Interactive optimization of data using a graphical user interface
- › Differentiation, integration, sampling rate conversion, ...
- › Filtering (IIR, FIR, ...) of input signals
- › Calculation of statistical functions, including minimum, maximum, mean value, sum, median, ...
- › Custom processing of individual channels and cross-channel operations using scripts



DATA ANALYSIS

ASP 001 Basic Analysis
 ASP 002 Basic Analysis vs. Control Channel
 ASP 003 Advanced Analysis
 ASP 004 Advanced Analysis vs. Control Channel
 ASP 005 Modulation Analysis
 ASP 006 Order Analysis
 ASP 007 Octave Analysis
 ASP 101 Psychoacoustics - Basic Analysis
 ASP 102 Psychoacoustics - Basic Analysis vs. Cont. Channel
 ASP 103 Psychoacoustics - Advanced Analysis
 ASP 104 Psychoacoustics - Adv. Analysis vs. Cont. Channel
 ASP 106 Speech Intelligibility Analysis
 ASP 107 Spectral Audio Feature Analysis
 ASP 108 Spec. Audio Feature Analysis vs. Cont. Channel
 ASP 109 LEAP Analysis
 ASP 201 System Analysis
 ASP 202 System Analysis vs. Control Channel



Data Analysis offers more than 150 analyses, ranging from basic analysis to psychoacoustic analyses based on the Sottek Hearing Model.

Basic Analysis (ASP 001)

- › Spectral analyses, level analyses, and additional analyses

Basic Analysis vs. Control Channel (ASP 002)

- › Analyses from ASP 001 vs. Control Channel

Advanced Analysis (ASP 003)

- › Spectral analyses with high or variable frequency resolution and additional analyses

Advanced Analysis vs. Control Channel (ASP 004)

- › Analyses from ASP 003 vs. Control Channel

Modulation Analysis (ASP 005)

- › Modulation analyses for examining characteristics of modulated signals, such as frequency, strength, and temporal variation

Order Analysis (ASP 006)

- › Order analyses with variable DFT length, rpm-synchronous resampling, or time-domain averaging

Octave Analysis (ASP 007)

- › 1/n Octave analyses based on recursive filters with high time resolution

Psychoacoustics - Basic Analysis (ASP 101)

- › Psychoacoustic analyses
e.g., Loudness, Sharpness, Tonality, Tone-to-Noise Ratio, Specific Prominence Ratio
Supported methods: ISO, ANSI, DIN, ECMA, Aures, and von Bismarck

Psychoacoustics - Basic Analysis vs. Control Channel (ASP 102)

- › Analyses from ASP 101 vs. Control Channel

Psychoacoustics - Adv. Analysis (ASP 103)

- › Sophisticated psychoacoustic analyses (Sottek Hearing Model)
e.g., Loudness (Hearing Model), Tonality (Hearing Model), Roughness (Hearing Model), Impulsiveness (Hearing Model), Spectrum (Hearing Model), Fluctuation Strength (Hearing Model), Relative Approach
Supported methods: DIN, ECMA, Sottek Hearing Model

Psychoacoustics - Adv. Analysis vs. Control Channel (ASP 104)

- › Analyses from ASP 103 vs. Control Channel

Speech Intelligibility Analysis (ASP 106)

- › Examination of speech intelligibility

Spectral Audio Feature Analysis (ASP 107)

- › Spectral feature analyses

Spectral Audio Feature Analysis vs. Control Channel (ASP 108)

- › Analyses from ASP 107 vs. Control Channel

LEAP Analysis (ASP 109)

- › Listening effort prediction using acoustic parameters

System Analysis (ASP 201)

- › Transfer function, impulse response, coherence, correlation, etc.

System Analysis vs. Control Channel (ASP 202)

- › Analyses from ASP 201 vs. Control Channel

Sound Power Analysis (ASP 203)

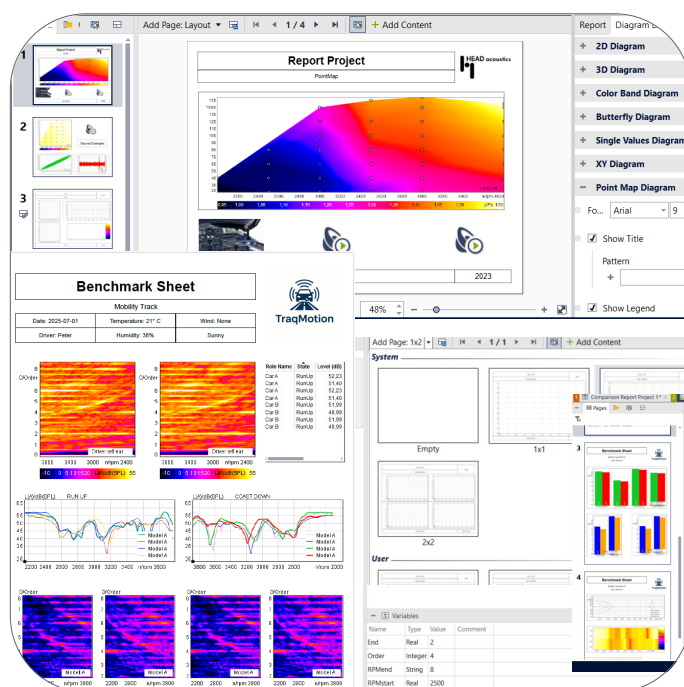
- › Standard-compliant determination of sound power in accordance with the ISO 3741-3746 series

DATA PRESENTATION AND REPORT

APR 020 Report

APR 021 Comparison Report Project

- › Creation of Reports from filtered, analyzed, and statistically processed input signals at the click of a button
- › Individual configuration of Report templates
- › Automated comparison of any number of data sets and analysis results, for example in benchmarking applications
- › Quick comparison of different development stages
- › Export of Reports to PowerPoint, PDF, or as a new Report template



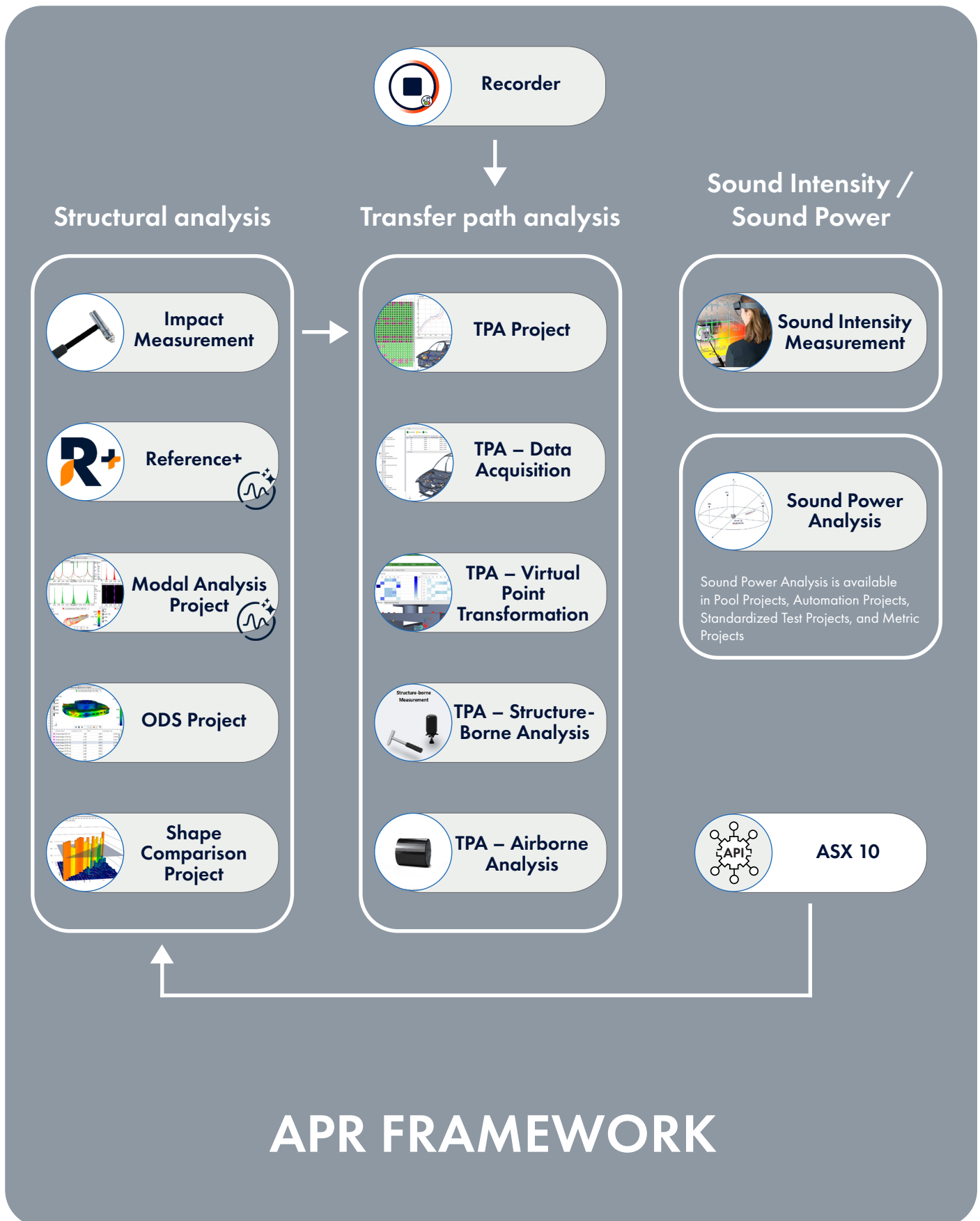
PLAYBACK, LISTENING TESTS, AND SOUND EVALUATION

APR 110 Playback Filters
 APR 500 Jury Testing – SQala Basic
 APR 501 Jury Testing – SQala Lite
 ASP 501 Jury Testing – SQala Net
 ASP 502 Jury Testing – SQala Server
 APR 570 Metric Project

- › Interactive filtering of time signals in real time
- › Modular jury testing software
- › Clearly structured user interface
- › Quick creation of listening tests for individual workstations or listening studios
- › Straightforward management, monitoring, and control of listening tests
- › Generation of quality metrics by correlating listening test results with (psycho)acoustic signal analyses



FURTHER TASKS

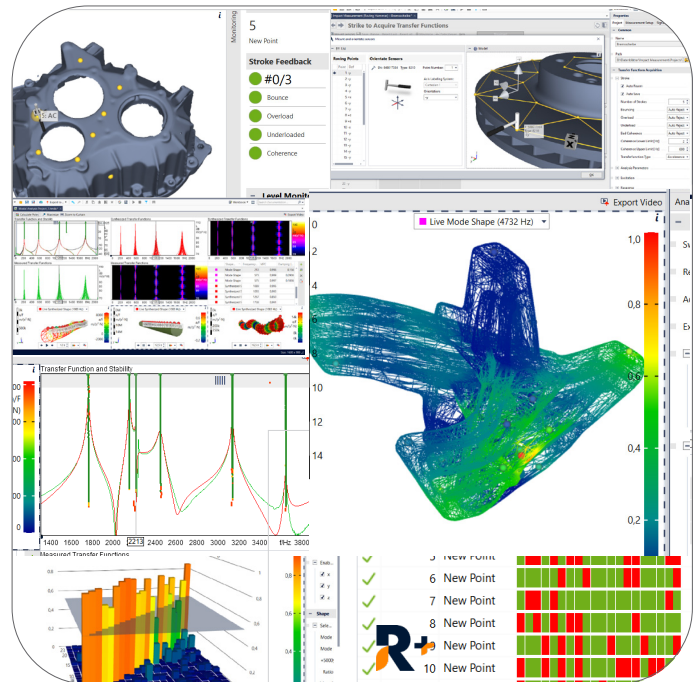


STRUCTURAL ANALYSIS

APR 430 Impact Measurement
 APR 440 Reference+
 APR 420 Modal Analysis Project
 APR 400 ODS Project
 APR 410 Shape Comparison Project



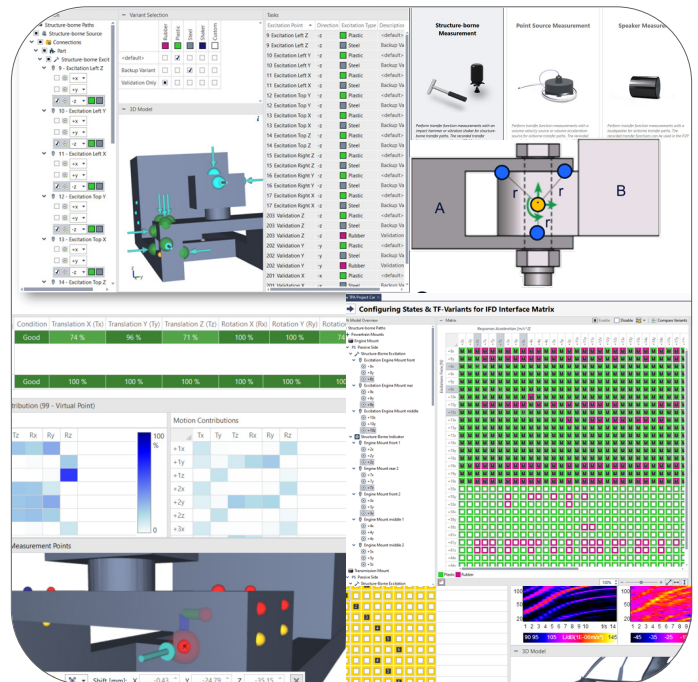
- › User-friendly, automated workflow
- › Impact Measurements (Roving Hammer / Roving Accelerometer)
- › Quality control with visual and acoustic feedback
- › AI-assisted identification of optimal reference points
- › Stability diagram: AI-assisted selection of the model size based on the LSCF algorithm
- › Automatic determination, graphical representation, and comparison of MAC values



TRANSFER PATH ANALYSIS

APR 600 TPA Project
 APR 610 TPA – Data Acquisition
 ASP 601 TPA – Virtual Point Transformation
 ASP 602 TPA – Structure-Borne Analysis
 ASP 603 TPA – Airborne Analysis

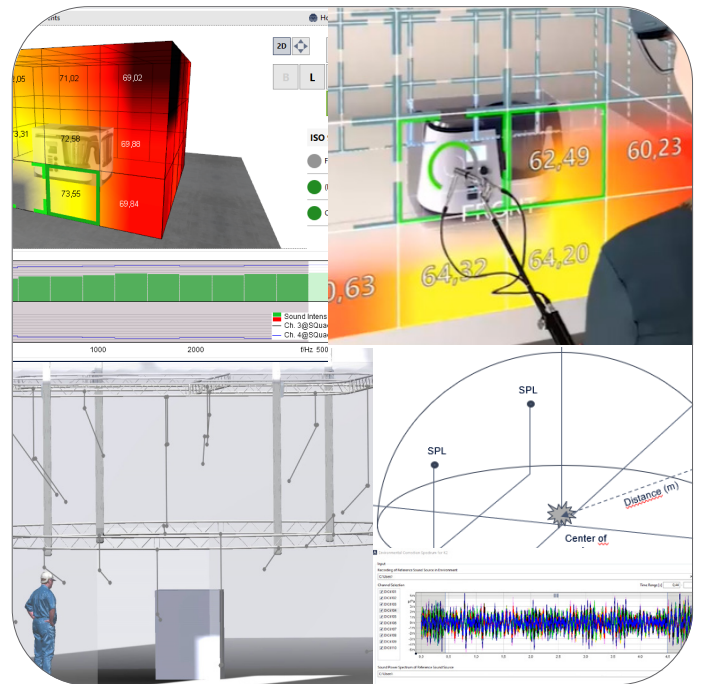
- › Hybrid classical or in-situ TPA, enabling the integration of measurement and simulation data
- › Guided workflows, measurement planning using a 3D model
- › Measurements using the Recorder or, for structure-borne sound, using Impact Measurement (Roving Hammer)
- › Determination of blocked forces in accordance with ISO 20270:2019
- › Interface quality evaluation using the Interface Completeness Criterium Plus (ICCplus)
- › Report generation in accordance with ISO 20270:2019



SOUND INTENSITY / SOUND POWER

APR 300 Sound Intensity Measurement
ASP 203 Sound Power Analysis

- › Sound intensity measurements for determining sound power in accordance with ISO 9614-1, ISO 9614-2, and ISO 9614-3
- › ISO 9614-compliant Report generation
- › Method for standard-compliant determination of sound power in accordance with the ISO 3741-3746 series
- › Interactive and automated application of the K1 background noise spectrum and K2 environmental correction spectrum correction factors

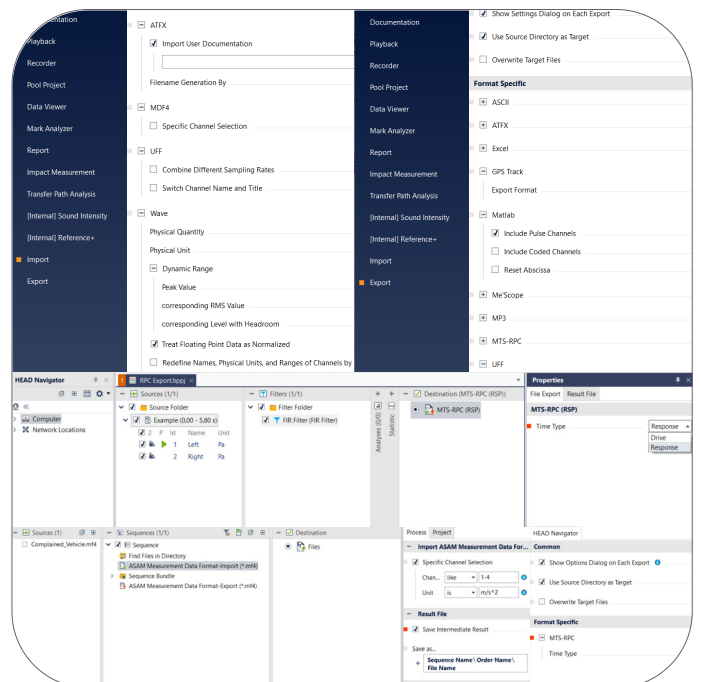


EXTENDED IMPORT / EXPORT

ASP 707 MDF4 Import
ASP 703 MDF4 Export
ASP 704 MTS-RPC Conversion
ASP 705 UFF Conversion

In addition to the import and export functions already included in APR Framework (APR 000), ArtemiS SUITE offers extended import and export options:

- › Data exchange with the ASAM Measurement Data Format (MDF4)
- › Import and export of MTS RPC files (Remote Parameter Control)
- › Import and export of UFF files (Universal File Format 58)



ASX PROGRAMMING INTERFACES

ASX 00 (license-free)

- › Programming and application examples in C#, MATLAB®, and Python as well as programming references and a complete format description of the Sensor Library

ASX 01 (Code 5091)

- › Reading, modifying, and writing of HDF and HSVX files

ASX 02 (Code 5092)

- › Automated or interactive control of Pool Projects and Automation Projects, execution of Reports, exports, ...

ASX 03 (Code 5093)

- › Programming and seamless integration of user-defined listening-test procedures, such as MUSHRA tests, into the SQala jury testing software

ASX 04 (Code 5094)

- › Control of various functions of the Recorder

ASX 05 (Code 5095)

- › Creation and editing of User Documentation

ASX 06 (Code 5096)

- › Use of custom analyses and filters in Automation Projects, Pool Projects, Metric Projects, and Standardized Test Projects (various add-ins are available)

ASX 07 (Code 5097)

- › Execution of Automation Projects, for example, on test benches or for batch processing of large data sets

ASX 08 (Code 5098)

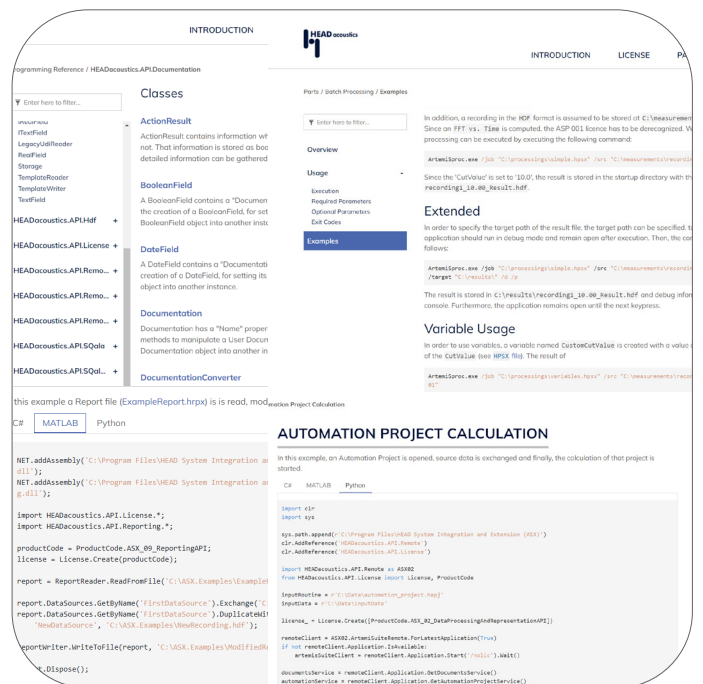
- › Execution of stand-alone measurements with the Recorder at the touch of a button or using start and stop triggers

ASX 09 (Code 5099)

- › Report creation based on a Report template

ASX 10 (Code 5110)

- › Automated updating of FE models and calculation of MAC values based on shape tables



- › Programming interfaces for customized integration of your own software with ArtemiS SUITE
- › Remote control of selected components of ArtemiS SUITE using your software to execute projects and processes either automatically or interactively
- › Extension of ArtemiS SUITE with your analyses, filters, ...
- › Combination of multiple ASX programming interfaces into a single workflow,
 - » for example, for End-of-Line applications:
 - » ASX 08: Performing stand-alone measurements
 - » ASX 05: Automated insertion of User Documentation
 - » ASX 07: Processing measurement data with an Automation Project
 - » ASX 09: Output of the results in a Report or as a PDF or PPTX file
- › The license-free ASX 00 provides easy-to-handle application examples and programming instructions, enabling you to begin programming right away.

SOFTWARE MAINTENANCE

Introduction to software maintenance for
ArtemiS SUITE (Code 9346)

Extension of an existing software maintenance
for ArtemiS SUITE (Code 9347)

Automatic upgrades

- › Automatic provision of the current ArtemiS SUITE version, including all newly developed features
- › Substantial cost savings compared to standard upgrade prices

Priority Technical Support from our Support Department

- › Processing of your inquiries within 24 hours on business days
- › Clear, transparent, and straightforward support

Priority Consideration of Your Feature Ideas

- › Priority consideration for implementing your feature requests and suggestions in future versions

Multiple License Discounts

- › Favorable software maintenance terms for customers with multiple licenses
- › Discounts on the purchase of additional multiple licenses

SYSTEM REQUIREMENTS

- › Windows 11 x64 (Pro, Enterprise, Education; version: 21H2 or later; languages: US, Western European)
- › Xeon E5-1680, Core i7-7700, Core i5-8250U, Ryzen 5 1500X, Ryzen 5 2500U (recommended: Core i7-9700KF, Core i9-9980HK, Ryzen 5 3600, Ryzen 9 4900HS)
- › 8 GB memory (recommended: 16 GB)
- › DirectX 9.0c-capable graphics card 512 MB (recommended: 2 GB)
- › Display with WXGA resolution (1366 x 768) (recommended: FHD resolution (1920 x 1080))
- › .NET Framework 4.8
- › HEAD USB Driver (optional)
- › Microsoft 365, Microsoft Office 2024, Microsoft Office 2021, Microsoft Office 2019 (optional)

Installing our software/drivers requires administrator privileges.
Operating the software requires standard user privileges.

For detailed information on the individual projects (APRs), signal processing tools (ASPs), programming interfaces (ASX), and software maintenance, please refer to the respective data sheets.

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