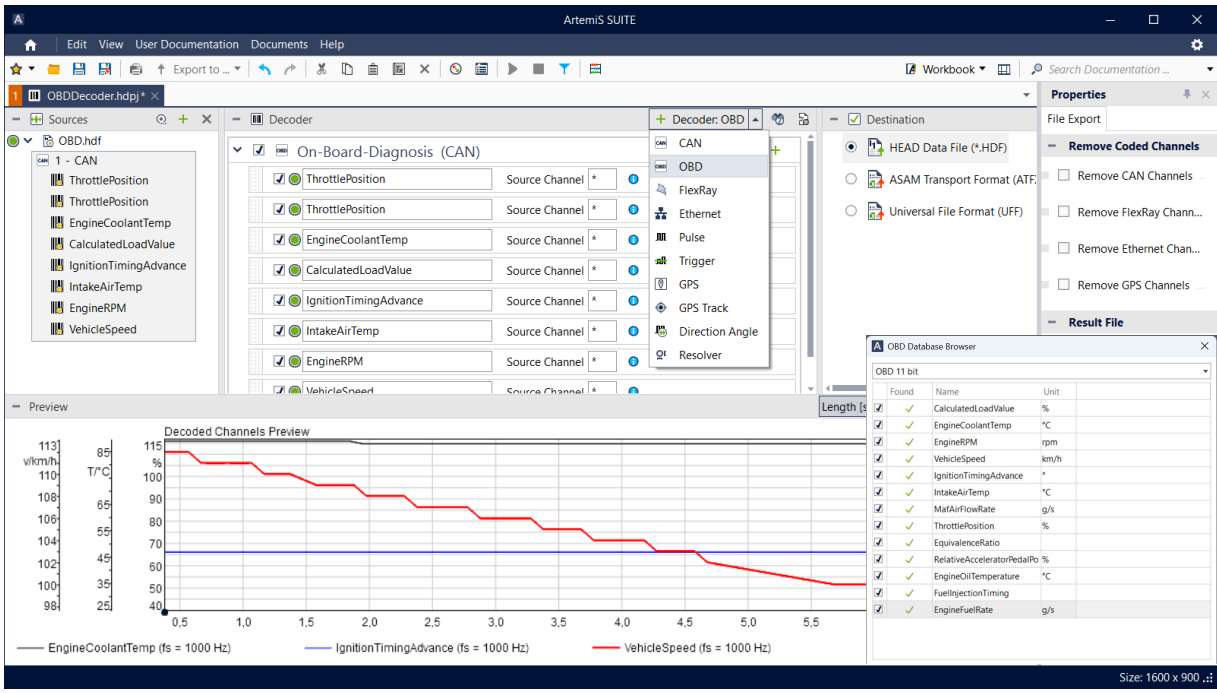
HEAD acoustics

DATA SHEET



ArtemiS SUITE
Signal Processing

Code 51801

ASP 801
Basic Decoder

Basic Decoder of ArtemiS SUITE enables the extraction of encoded CAN FD, CAN, OBD, FlexRay, GPS, pulse, Ethernet, and resolver signals, which are then stored as additional, dedicated channels.

OVERVIEW

ASP 801
Basic Decoder

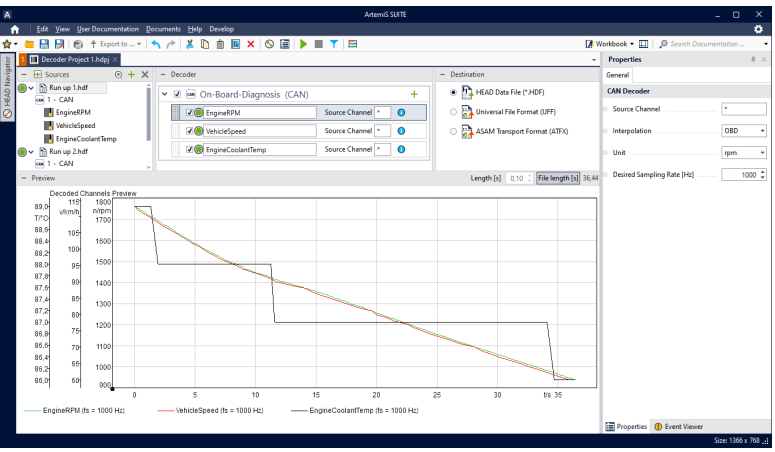
Code 51801

Using the Decoder Project enables you to extract specific information from measurements, visualize and analyze this information, and subsequently generate signals from it in the form of additional, dedicated channels.

The Decoder Project is clearly divided into three pools arranged side by side:

- Use the Sources Pool (on the left) to enter the source files from which the desired signals are decoded
- Use the Decoder Pool (in the middle) to configure the decoding instructions
- Use the Destination Pool (on the right) to define the format for storing the decoded signals and to specify the corresponding storage location

A graphical preview below the pools enables a quick, visual check of the decoding results.



KEY FEATURES

Decoder Project for extracting different signals:

- CAN FD, CAN
- OBD, WWH-OBD
- FlexRay
- Ethernet
- GPS (navigation satellite system)
- Pulse
- Trigger
- Resolver
- Direction of Rotation
- GPS track

Simultaneous use of multiple decoders

Simple integration of manufacturer-specific databases

Various configuration options for signal extraction (sampling rate, unit, etc.)

Visual verification of the decoded signals

Status indicators showing the expected results

Graphical visualization of a route segment for subsequent use, for example, in Google Earth

Integration of the decoders into Automation Projects (APR 050 is required) and Standardized Test Projects (APR 220 is required) for automatic extraction of signals within a processing chain

APPLICATIONS

- Efficient and rapid extraction of specific signals

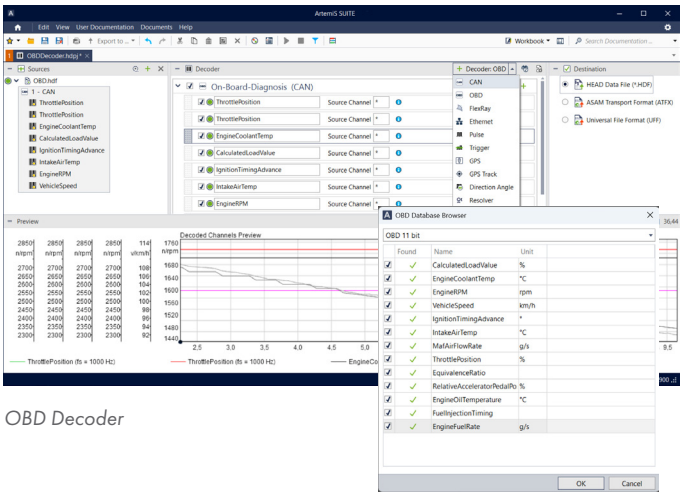
DETAILS

CAN FD, CAN, OBD, and FlexRay

Extracting the data contained in the Sources Pool requires a manufacturer-specific DBC, ARXML, or XML database (Fibex 3.0/3.1), which can be conveniently imported into the Decoder Pool via drag-and-drop. A list of decodable signals opens automatically, allowing you to activate the desired signals. To maintain an overview, filter the list as needed.

The Decoder Project provides an integrated database comprising all signals in accordance with OBD (ISO 15765-4) and WWH-OBD (ISO 27145). A dedicated smoothing algorithm for OBD signals supports interpolation and filtering.

Additional decoding instructions can be added, or existing ones duplicated, at any time to decode the same signal using different settings.



OBD Decoder

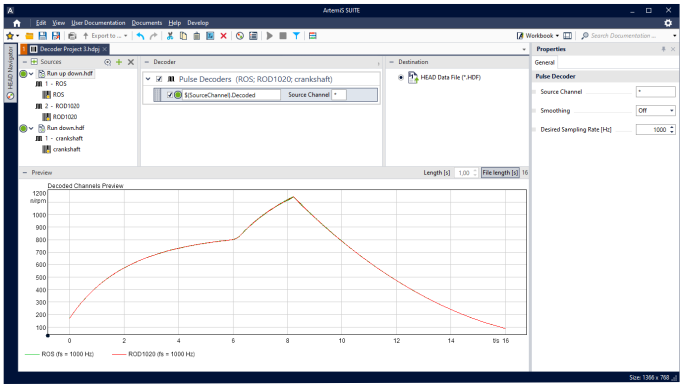
Pulse and Trigger

Processed (decoded) RPM channels are computed from digital pulse channels (pulse decoders) or separate analog channels (trigger decoders). The system supports various pulse patterns, including equidistant pulses (with our without gaps), zebra tapes, and non-equidistant tooth arrangements. Missing pulses are corrected automatically.

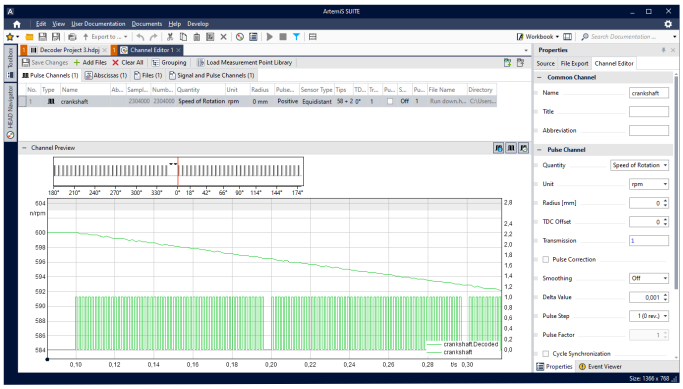
These channels can be used as simple control channels for analyses or for torsional vibration analyses, provided that the source files contain a sufficiently high number of impulses per revolution at a correspondingly high sampling rate.

Using a high target sampling rate, the signal can be optimally prepared for subsequent torsional vibration analysis.

Furthermore, you can launch the Channel Editor (included in APR 000) directly from the Decoder Project, for example, to generate a new pulse channel.



Pulse Decoder

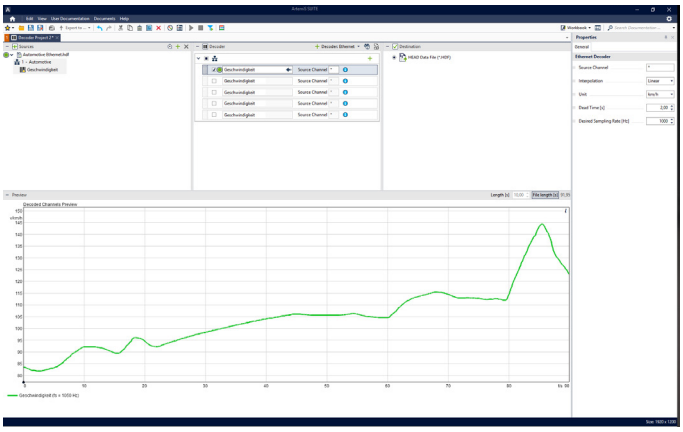


The Channel Editor enables the processing of the pulse sensor geometry defined for the respective channel and supports the addition of missing channels.

Automotive Ethernet

During recording, you can specify various decoding parameters, such as interpolation, physical unit, dead time, and sampling rate. Each decoded signal is stored in a separate channel.

To extract Ethernet signals, an ARXML file is required that lists the signals with their names, physical units, comments, and other relevant details. The convenient sorting and filtering functions enable efficient overview and processing of even extensive input data.

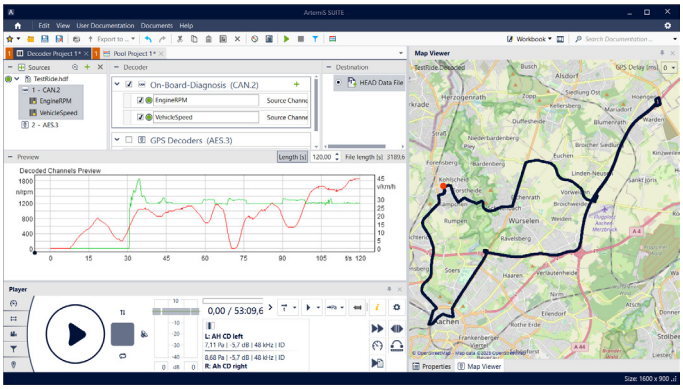


Ethernet Decoder

GPS and GPS Track

The GPS decoder extracts the following GPS information contained in a recording: speed, altitude, latitude, longitude, and time (via the time stamp).

Based on this GPS information, the GPS track decoder generates GPX or KML track files, which can be used, for example, to graphically visualize test drives in Google Earth.



Example of a graphical visualization of extracted GPS information in OpenStreetMap data.

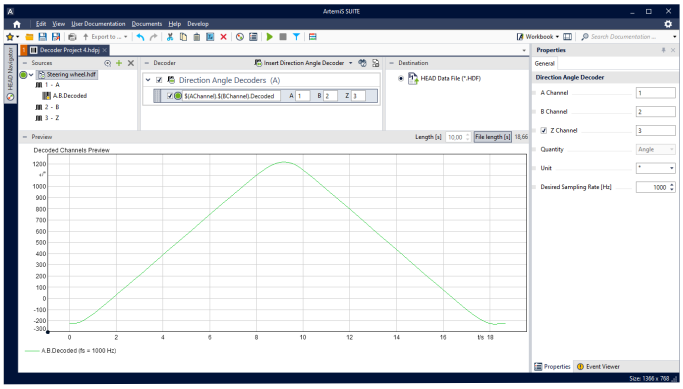
Quadrature

The Quadrature Decoder generates an analog channel with signed angle information from two or three digital pulse or trigger signals contained in the input data.

For this purpose, the selected channels (A/B) must contain digital pulses from sensors with an equidistant pulse sensor geometry. Forward and reverse direction information is encoded as a time shift between the two channels (quadrature encoding). The pulse sensor geometry of both sensors must be identical. An optional third channel (Z) is used to determine the pulse information required to identify the actual start of each revolution (true 0° reference position).

Resolver

The Resolver Decoder generates an analog channel containing the rotational speed, angular position, or frequency information from two or three analog voltage signals and uses the decoded channel, for example, as a control variable.



Quadrature Decoder

Storing and Exporting

A Decoder Project can be stored with user-defined settings and subsequently reused with all configuration parameters retained. The decoded channels can be stored in HDF or ATFX file formats or exported in accordance with UFF (ASP 705 is required).

HARDWARE FOR MEASURING THE ENCODED VARIABLES

Our HEAD*lab* Products

Code	Product Name	Description	Decodable channels
3704	*lab*CTRL II.1	HEAD*lab* controller	› RPM 2 › CAN FD, CAN, OBD, WWH-OBD 2 › GPS[1] 1
3710	*lab*HSU	HEAD*lab* high-end 2-channel frontend	› RPM 1
3741	*lab*DX[2]	Digital HEAD*lab* input module with CAN, CAN FD, FlexRay, HMS, and pulse interfaces.	› RPM 2 › CAN FD, CAN, OBD, WWH-OBD 2 › FlexRay 1 › GPS[3] 1
3743	*lab*HRT6[2]	Digital HEAD*lab* input module for high-resolution measurement of rotational speeds	› RPM 6

Our System Solutions

Code	Product Name	Description	Decodable channels
3324	SQuadriga III	Mobile 8-channel recording and playback system	› RPM 2 › CAN FD, CAN, OBD, WWH-OBD 2 › FlexRay 1 › GPS[4] 1
3302	SQobold	Mobile 4-channel recording and playback system	› RPM 1 › CAN FD, CAN, OBD, WWH-OBD[5] 1 › GPS[1] 1
1502	HMS V	Digital artificial head measurement system with high dynamic range (Dual ADC)	› RPM 1
3420	AQuire V4	4-channel frontend with network connection for End-of-Line applications	› RPM 1 › CAN FD, CAN, OBD, WWH-OBD 1

Network Interfaces from Vector Informatik GmbH

Product Name	Description	Decodable channels
VN5430, VN5620, VN5640	Interface	› Ethernet

[1] An active GPS rod antenna is required.

[2] The *lab*DX and *lab*HRT6 HEAD*lab* input modules can be connected to a *lab*CTRL II.1 HEAD*lab* controller, the *lab*COMPACT12 II (Code 31020) or *lab*COMPACT24 II (Code 31021) HEAD*lab* compact systems, a *lab*HSU frontend, and an HMS V artificial head. Connection to discontinued HEAD*lab* controllers and to additional hardware solutions from our portfolio is also possible.

[3] The GPS receiver CDG I.1 (Code 3796) is required.

[4] An active GPS rod antenna is included in the scope of delivery.

[5] SQP 04 – CAN Bus Support (Code 3306) and a PCAN-USB FD adapter are required.

LICENSES AND OPTIONAL FEATURES

Requirements

Code	Product Name	Description
50000	APR 000 APR Framework	Basis of ArtemiS SUITE
51801	ASP 801 Basic Decoder	Decoding of CAN FD, OBD, FlexRay, Ethernet, GPS, resolver, trigger, and other signals
Specific database files for decoding the respective signals		

Optional

Code	Product Name	Description
50040	APR 040 Recorder	Universal Recorder of ArtemiS SUITE for all types of measurements
50050	APR 050 Automation Project	Core project of ArtemiS SUITE: one-time definition of the processing steps, followed by automatic execution and repetition for all subsequent data
50220	APR 220 Standardized Test Project	Core project of ArtemiS SUITE: measurement of multiple operating conditions of objects using the Recorder and analysis of the data using different methods
51705	ASP 705 UFF Conversion	Import and export of UFF files (Universal File Format 58)

5092	ASX 02 Data Processing and Representation API	ASX Programming Interface: automated or interactive control of Automation Projects; ArtemiS SUITE must be installed
5097	ASX 07 Local Processing Service	ASX Programming Interface: execution of Automation Projects, for example, in End-of-Line processes, based on automation specifications (calculation jobs) without requiring ArtemiS SUITE to be installed

Additional modules of ArtemiS SUITE (see the ArtemiS SUITE Overview data sheet)

HEAD acoustics

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