

ArtemiS SUITE Decoder (Code 5009)

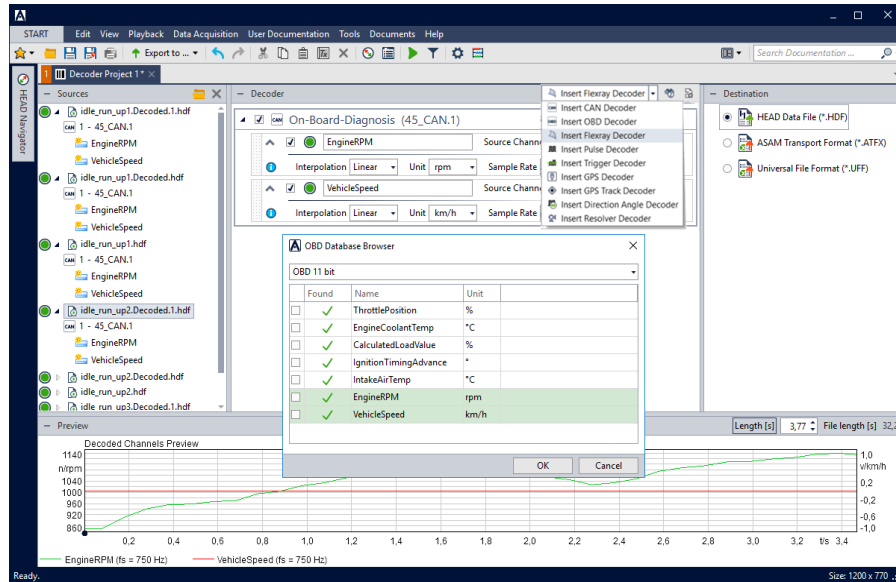
Extension module for the extraction of specific signals

Overview

The Decoder is used for the extraction of specific signals from recorded measurements for visualizing and analyzing the extracted data and to create additional dedicated channels from these data.

The Decoder Project extracts several signals

- CAN FD, CAN, OBD-2 (WWH-OBD incl.)
- FlexRay
- GPS
- Pulse
- Resolver



Features

- Decoder Project with various decoders for extracting
 - CAN FD, CAN, OBD-2 (WWH-OBD incl.),
 - FlexRay,
 - GPS,
 - pulse, or
 - resolver signals
 from a data stream, which can be saved as additional channels
- Simultaneous use of multiple decoders
- Straightforward pool structure
- Easy insertion of source data (HDF/DAT/ATFX) from the HEAD Navigator, for example
- Various configuration options for the extraction (sampling rate, measurement unit, etc.)
- Status indicators for the expected result
- Decoder Projects can be saved with custom settings
- Decoded results can be exported to HDF, ATFX, and UFF with ASM 23
- CAN FD, CAN, OBD-2, FlexRay Decoders
 - Easy insertion of manufacturer-specific databases
 - Interpolation/smoothing of signals; special smoothing algorithm for OBD-2 signals
- Pulse Decoder for decoding revolution speed information:
 - from a digital pulse channel (Pulse Decoder)
 - from a separate analog channel (Trigger Decoder)
- Automatic correction of missing pulses
- Continuous re-detection of pulse patterns
- Support of different pulse patterns:
 - equidistant (with or without gaps)
 - Zebra Tape
 - non-equidistant tooth arrangements
- GPS Decoder
 - Extraction of speed, altitude, latitude, longitude (GPS Decoder), time (via time stamp)
 - Graphical representation of a track history (GPX or KML file), for further use in Google Earth (GPS track decoder), for example
- Direction Angle Decoder
 - Creating an analog channel with signed direction angle information
- Resolver Decoder
 - Determining speed of rotation, angle, and frequency information from analog voltage signals

Decoder Project

Structured similarly to a Pool Project, the Decoder Project is designed for quick and intuitive extraction of

- CAN FD, CAN, OBD-2,
- FlexRay,
- GPS, or
- pulse data,
- resolver signals

which can then be saved as separate channels for further use.

As in a Pool Project, input data can be easily dragged and dropped into the Source Pool. The Decoder Project automatically checks whether the input data contains channels to be decoded. Status indicators provide a quick and intuitive overview of the expected result and indicate any misconfigurations. A graphical preview is provided as well.

The decoded channels can be saved as an HDF file or exported to a third-party format (ATFX, with ASM 23 also UFF) and used for analyses, for example.

Each Decoder Project can be saved with all custom settings, so it can be re-used later with suitable input data.

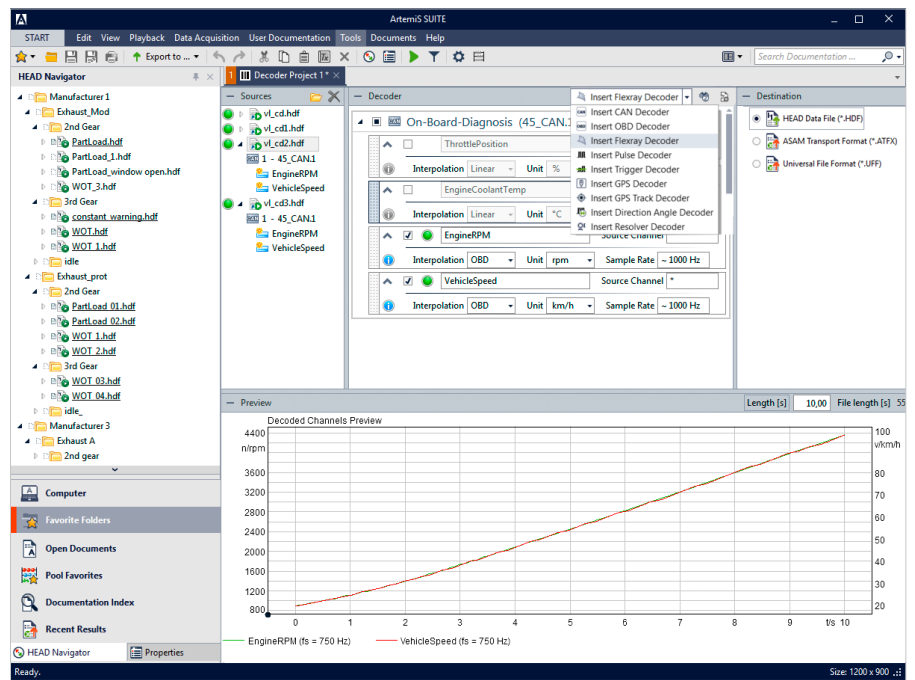
Decoders can be used directly as part of an Automation Project (ASM 01) and a Standardized Test Project (ASM 22).

CAN FD, CAN, OBD-2, FlexRay Decoders

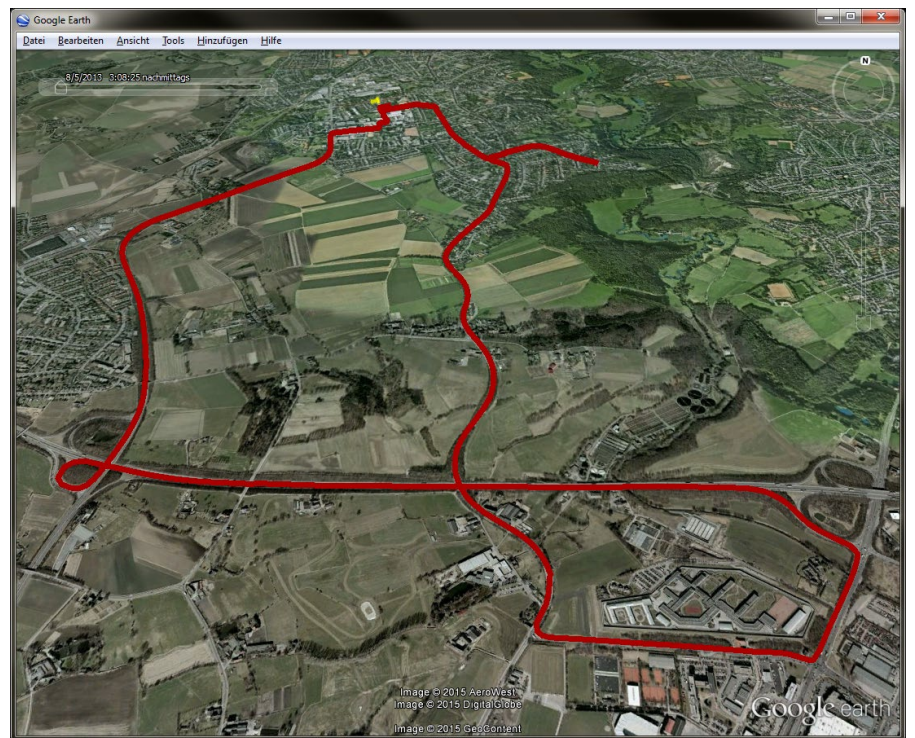
To use the CAN FD, CAN or FlexRay Decoder, it is sufficient to drag-and-drop the manufacturer-specific DBC/ARXML or XML database (Fibex 3.0 or 3.1) into the Decoder Pool of the Decoder Project. A list of decoding instructions is displayed, where the signals to be decoded can be easily selected via checkboxes. The list can be filtered for a better overview.

For OBD-2 data (WWH-OBD, 11 bit / 29 bit incl.), a compatible database is available in the application (ASM 09).

It is possible to add more decoding instructions to the selected ones or to duplicate existing instructions, e.g., in order to decode the same signal with different settings.



The Decoder Project provides users with immediate visual control of the decoded signals.



Example of a graphical representation of extracted GPS data in Google Earth.

Pulse and Trigger Decoders

The Pulse and Trigger Decoders allow pre-processed (decoded) revolution speed channels to be calculated from pulse channels.

These channels can be used not only as simple reference quantities for analyses, but also for torsional vibration analysis, provided that the source files contain a sufficiently high number of pulses per revolution with an accordingly high sampling rate.

By choosing a high target sampling rate, the signal can be optimally pre-processed for a subsequent torsional vibration analysis.

Furthermore, users can open the Channel Editor directly from within a Decoder Project in order to create a new pulse channel, for example.

GPS and GPS Track Decoder

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

The GPS Track Decoder generates GPX or KML track files from the GPS information, which allows, for example, test drives to be displayed graphically in Google Earth.

Direction Angle Decoder

The Direction Angle Decoder enables users to create an analog channel with signed direction angle information from two or three digital pulse or trigger signals that are contained in the input data of a Decoder Project.

Digital pulses of sensors with an equidistant pulse sensor geometry have to be stored in the selected channels (A/B). Additionally, the pulse sensor geometry of both sensors has to be identical but shifted against each other. An optional third channel (Z) can be used as reference channel for the zero point.

Resolver Decoder

The Resolver Decoder can be used to generate an analog channel with speed of rotation, angle, or frequency information from two or three analog voltage signals. The decoded channel can be used, for example, as control channel.

Requirements

- ArtemiS SUITE Basic Framework (Code 5000)
- Manufacturer-specific databases: DBC/ARXML for CAN FD, CAN and XML for FlexRay (Fibex 3.0 and 3.1)
- Exporting to UFF format requires Advanced Import & Export (ASM 23).
- Basic Analysis (ASM 01) is required for use in an Automation Project.
- Standardized Testing (ASM 22) is required for use in a Standardized Test Project.

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