AVAD3: Detector for audio/visual signals from the vehicle

Application areas:
- EuroNCAP
- NHTSA FCW
- NHTSA LDW
- And many more

EuroNCAP test protocol:
- Speed Assist Systems
- Lane Support Systems
- AEB Systems (T_{AEB} , T_{FCW})

AVAD3: Detector for audio/visual signals from the vehicle

AVAD3 detects acoustic and optical warnings and messages from inside the vehicle and then directs them to the driver. A high-performance camera and microphone are fitted for this purpose. It triggers corresponding trigger signals as digital I/O, LAN and CAN messages within a few milliseconds whenever it detects sound patterns, shape and colour changes on the instrument cluster and head-up display. The AVAD3's core is a very fast, top-quality processor for sound and image processing, which is housed with all of the signal processing and interface modules in a robust automotive and passively cooled housing.
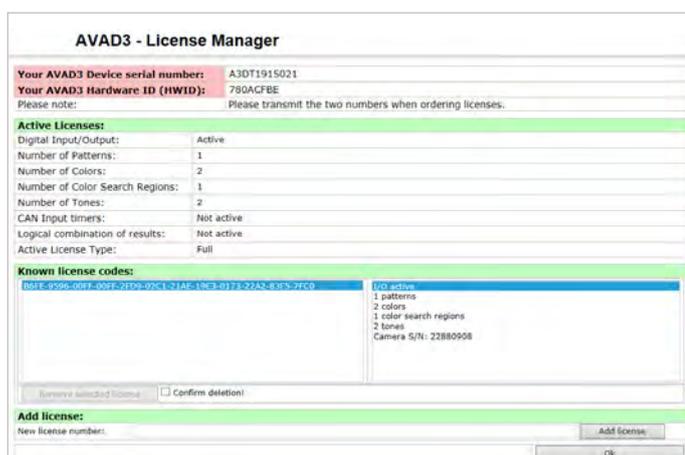
AVAD3: Basic system

The basic AVAD3 version is fitted with a high-performance camera and a microphone as well as the associated cabling. The software ensures easy handling and easy system configuration. The following options are enabled as standard options: 2 colours, 2 tones, 1 pattern, 1 search area. Image processing works with a 100 Hz frame rate (up to 300 Hz as an option); CAN and LAN work with a maximum output rate of 1 KHz.

You can use the license manager to easily unlock other options.

AVAD3: the software

You can freely and easily configure the colours and sounds that you want via the AVAD3's menu. Fixed patterns and search areas can be pre-set so that the system will search for changes with the corresponding signalling outputs latencies in the ms range. Save the measurement profiles whenever you like, and you can access them again for the next measurement.

Camera settings configuration menu.

Option MF – Expanding colour detection

The basic AVAD3 version is able to detect 2 colours. They can be freely configured and adapted to meet your requirements. The new TFT displays and the corresponding colour and shape display options provide many new options for developers and designers. We provide you with the option to enable other AVAD3 colour options so that you can cover these various options with a test setup. You can then test a wide range of combinations in parallel.

Expanded search using four separately configured colours.

Option MM – Expanded pattern detection

The basic AVAD3 version is able to detect one pattern. It can be freely configured and adapted to meet your requirements/ shapes. Expand your AVAD3 by adding the required pattern detection to your AVAD3 to simultaneously test the various assistance systems that work in parallel and output the corresponding signals. This will save you time when developing and testing the systems. AVAD3 can work simultaneously with up to eight configured patterns.

*Expanded search using three separately defined patterns.*

Option CI - Expanding the CAN input

The CI option is used for high-precision measuring of the CAN signal delay between the control unit and the display in the instrument cluster.

Feed your CAN test message directly into the AVAD3 and obtain a precise measurement of the vehicle's signalling process with ms accuracy. The AVAD3 is also able to test optical or acoustic signalling - both are possible with this high-precision test equipment.

Latency between the signal input and the display
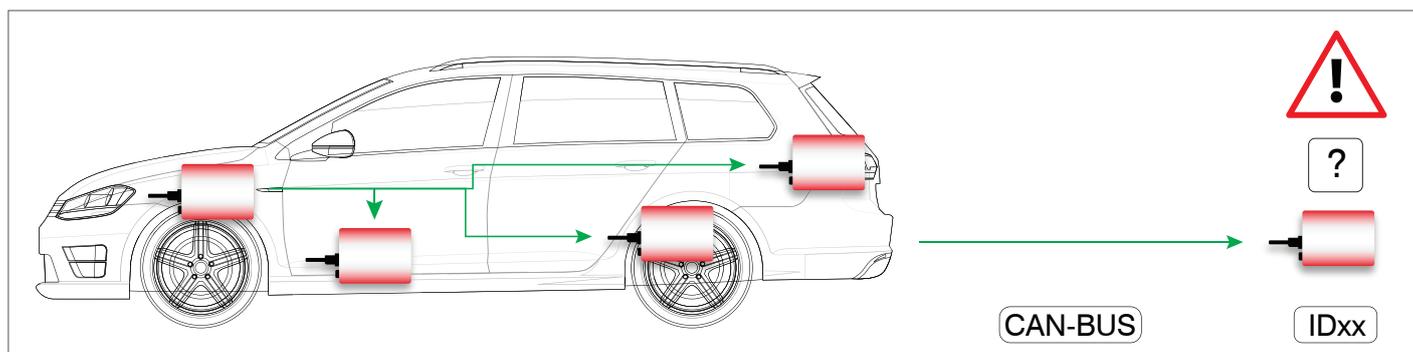
Option ES - Expanding audio signal detection

Your Lane Keeping Assistant will announce control acceptance via an audio alert and your FCW system will issue a simultaneous audio alert. We experience this or various exemplary scenarios daily on test tracks and in free traffic. The AVAD3 can work with up to 100 different tones simultaneously so that it can test these scenarios. Minimum latency times (i.e. from 4ms) are used to test single or multiple frequency tones, including real-time filters.

Selection of audio frequencies and amplitudes taken from the signal spectrum.

Option SR - Expanding the colour search range

Expanding the colour search range is often necessary if colour signalling in the instrument cluster has to be tested simultaneously in different areas. Is the Lane Keeping Assistant displaying the correct information? Was the lane detected and displayed accordingly? These and other challenges are faced by manufacturers and OEMs. AVAD3 enables you to test these systems with high accuracy and precision! This is realised through easy on-site configuration. These search functions can be saved as search profiles for calling up later on.


Signalling occurs when a, b and/or a/b were detected.

Option EK - Combination of several events

Combine your search and alarm functions freely and interlink them with each other so that the AVAD3 alert is only triggered by a, b, c and/or links.

For example, an alarm should only be triggered if a red warning triangle appears in the instrument cluster. Shape and colour will be searched for and found and the signalling will be triggered accordingly. This saves you having to manually link the separate results in post-processing.

We are looking for a red triangle:
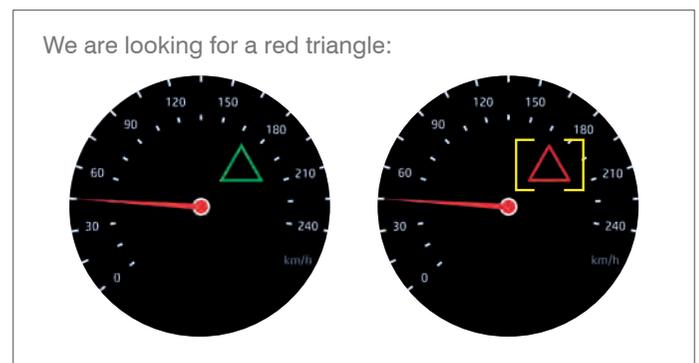
Shape being searched for displayed in green – no hit – no alert. Shape being searched for displayed in red – A hit! – signalling!