ADAS Audio Sensor

(RLADAS-AS-V1)

The **VBOX Audio Sensor** accurately detects audible warnings and driver alerts within the vehicle cabin, making it ideal for **validating ADAS and HMI functions**.

It integrates seamlessly with VBOX data loggers and third-party driving robots, enabling fast and reliable audio signal capture during regulatory and consumer testing.

Features

- **Simple Installation** – Set up takes minutes to configure via bespoke VBOX Audio Setup software
- **Ultra-high Accuracy** – Up to 3ms (1σ) signal capture accuracy
- **Real-Time CAN Output** – Immediate CAN output with latency correction, accounting for any delays
- **Standards Compliant** – Meets regulatory and consumer group requirements inc. UNECE and Euro NCAP
- **Total Testing Integration** – Seamlessly connects with VBOX data loggers and third-party driving robots such as AB Dynamics, Humanetics, and Stähle.
- **Flexible Deployment** – Functions as a standalone sensor or alongside other sensors

ADAS Testing

VBOX Sensors are compliant with regulatory and consumer group requirements, including UNECE and Euro NCAP standards, and is suitable for research and development activities.

It is an essential tool in the validation and development of Advanced Driver-Assistance Systems (ADAS). This includes requirements relating to warnings from:

- Forward Collision Warning (FCW)
- Occupant Status Monitoring (OSM) systems including Driver Status Monitoring (DSM)
- Dooring technologies such as Safe Exit Assist (SAE) and Clear Exit Monitoring (CEM)
- Seat Belt Reminder (SBR) systems
- Signpost Recognition (SPR) systems

VBOX Audio Sensors are specifically engineered to identify and differentiate between up to four target frequencies from background environmental noise, such as road and engine sounds. It can detect a single frequency or multiple frequency tones. Allowing the user one configuration to trigger a variety of warnings.

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Outputs

VBOX Audio Sensor provides both CAN and digital outputs, enabling real-time data transmission and analysis.

- The **CAN** output includes time-since-audio-start data, facilitating precise latency correction.
- The **digital** output offers a 0-5 V signal, for compliance with a variety of data acquisition systems.

With its highly accurate CAN and digital outputs, the sensor offers versatile connectivity to VBOX data loggers or third-party driving robots.

Software Set up

The sensor can be configured with a fixed delay, eliminating almost all the internal variable delays, with an overall signal capture accuracy of less that 3ms (1σ).

- **Total Testing Compatibility**: Designed for seamless integration with VBOX or third-party sensor packs.
- **Multi-Frequency Configuration**: User-configurable to trigger on single or multiple frequencies, with selectable 'ALL' or 'ANY' logic.
- **Configurable Fixed Delay**: User-defined fixed delay for output signals, minimizing internal variable delays.
- **VBOX Test Suite Integration**: Automatic fixed delay compensation within test results.
- **Noise Differentiation**: Configurable frequency thresholds to distinguish between environmental noise and target signals.

Hardware Set Up

- Digital Output: 0-5 V/ open drain compatible digital output.
- CAN Output
- Mounting: 5 mm internal thread for rigid in-vehicle mounting.
- Integrated and External Microphones: Built-in microphone for standard applications, with an included external microphone for high-noise environments or concealed speaker units.

Specifications

Description	Values
Output Type	Open drain digital output with internal 5 V pull-up (12 V tolerant) / CAN
Signal Capture Accuracy	3 ms (1σ)
Operating Temperature range (C)	-40°C to +85°C
Power supply	6 to 30 V @ <50 mA
Weight	115 g excluding cables
Size	W = 66 mm, L = 68.5 mm (including connectors), H = 22.10 mm

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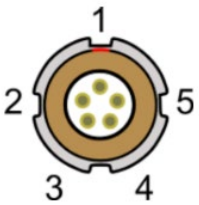
PIN OUT Description

CAN/PWR (5-pin Lemo)

Pin #	Function	Connector
Pin 1	NA	
Pin 2	NA	
Pin 3	CAN High	
Pin 4	CAN Low	
Pin 5	Power Input 7 to 30 V	
Lemo Shell	Ground	

EXT MIC (4-pin Lemo)

Pin #	Function	Connector
Pin 1	External Microphone Input	
Pin 2	External Microphone Bias	
Pin 3	External Microphone Detect	
Pin 4	Microphone Ground	

TRIG OUT (3-pin Lemo to unterminated)

Pin #	Function	Connector
Pin 1	Power Input 7 to 30 V	
Pin 2	Digital Output / Open Drain Tolerant	
Pin 3	Ground	

Wiring

Wire Colour	Function	
Red	Power	
Green	Ground	
Yellow	Signal Ground	
Blue	Signal	

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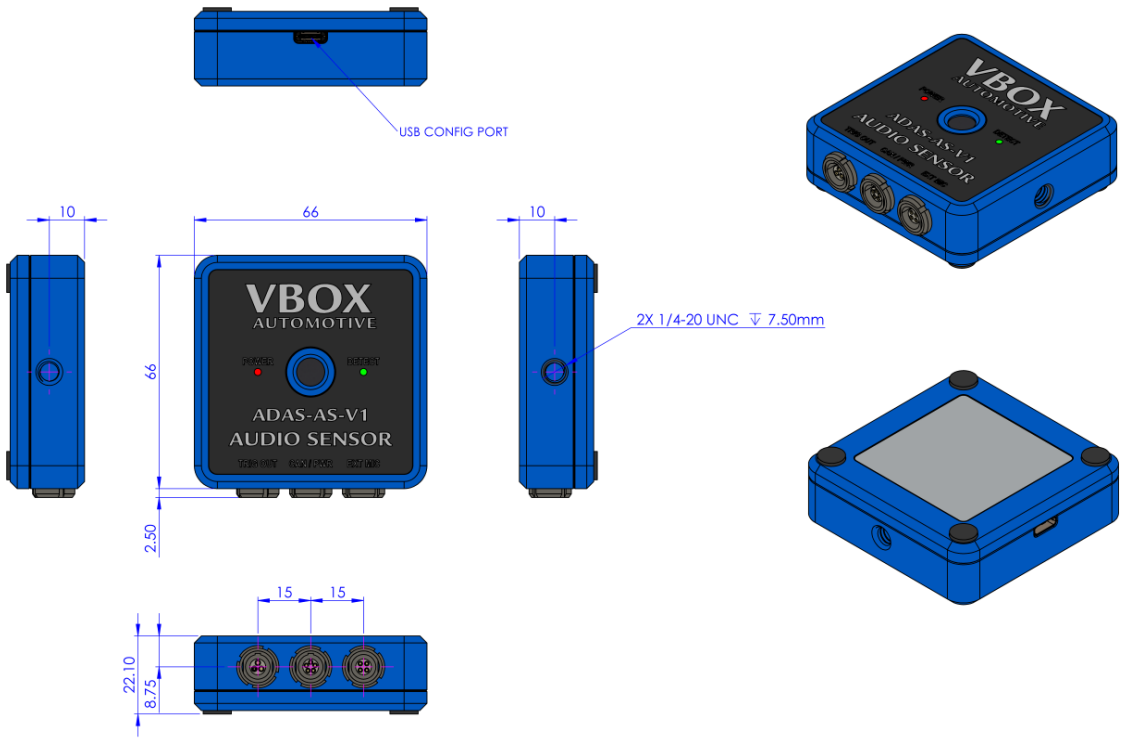
Dimensions



Package Contents

Description	Product Code
1 x Audio Sensor Unit	RLADAS-AS-V1
1 x USB-C to USB-A cable	TV1AM20MB31
1 x External Microphone	RLACS343
1 x 5-way LEMO to 5-way LEMO CAN cable	RLCAB005-C
1 x 3-way LEMO to 4 wire unterminated cable	RLCAB007-2