

Integrated stereo AVAS solution



Features

- AEK-AUD-C1D9031 compact AVAS solution
- AEK-MCU-C4MLIT1 domain zone controller
- Two AEK-LCD-DT028V1 display expansion boards
- Two integrated loudspeakers
- Current sensing for open-load detection in play or mute state
- Speaker disconnection switch
- Hardware mute button
- Plays a preloaded wave file (car key on, neutral and drive modes)
- Size: 290 x 210 x 70 mm
- Included in the AutoDevKit ecosystem

Description

The **AEKD-STEREOAVAS** is an AutoDevKit acoustic vehicle alerting system (AVAS) demo.

It consists of an **AEK-AUD-C1D9031** compact AVAS board, an **AEK-MCU-C4MLIT1** domain zone controller, and two **AEK-LCD-DT028V1** display expansion boards, plus two loudspeakers and a switching button.

The **AEK-AUD-C1D9031** communicates with the **AEK-MCU-C4MLIT1** via CAN protocol, exchanging commands like start/stop to simulate alerting sounds used in e-vehicles.

The sound is reproduced by the **AEK-AUD-C1D9031** ECU through a pair of integrated class D audio amps connected to the loudspeakers.

Two **AEK-LCD-DT028V1** boards with resistive touch allow the user to interact with the demo. The first screen shows a graphic simulation of the electric motor rpms, while the second allows starting/stopping the demo and regulating the sound volume and the engine rpms.

An important system safety feature reproposed in our demo consists in the open-load detection in play or mute state.

Toggling the “disconnect speaker” switch, the FDA903D embedded in the **AEK-AUD-C1D9031** detects the open load in play or in mute and the blue LED lights up.

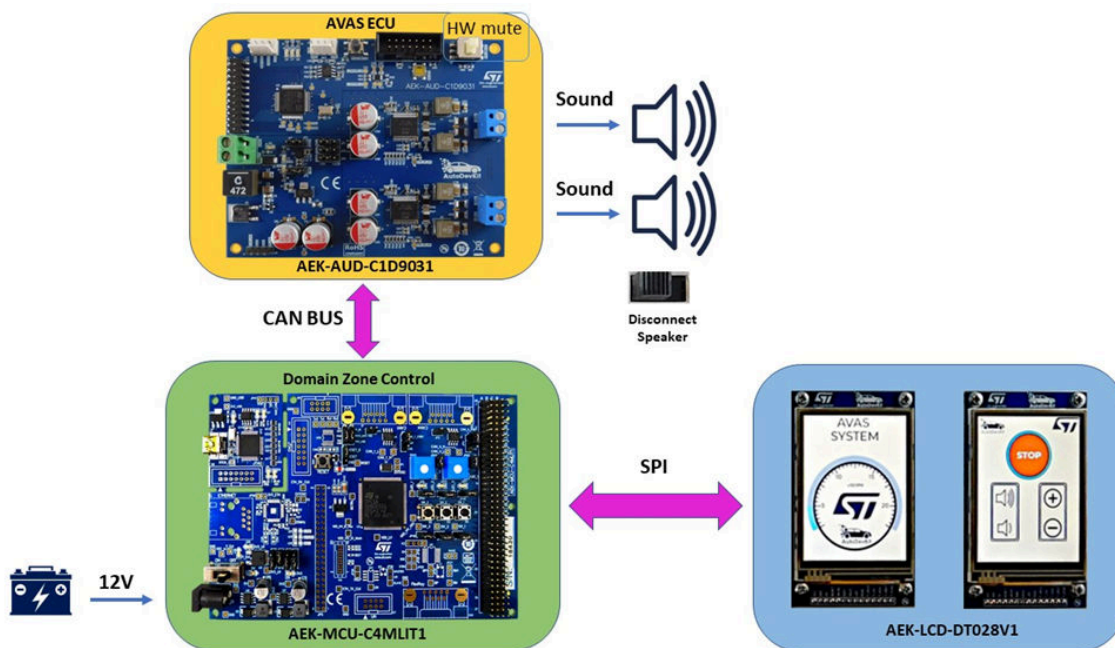
This open-load detection depends on the sound amplitude. If the blue LED does not light up, turn the volume up through the dedicated touch screen button.

Switching on the hardware mute button on the **AEK-AUD-C1D9031** board, an orange LED (D7) turns on to indicate that the system is in the hardware mute state.

Product summary	
Integrated stereo AVAS solution	AEKD-STEREOAVAS
AVAS solution based on SPC582B60E1 Chorus family MCU and FDA903D Class D audio amplifier	AEK-AUD-C1D9031
MCU discovery board for SPC5 Chorus 4M automotive microcontroller with CAN transceivers	AEK-MCU-C4MLIT1
Display expansion board with resistive touch for Chorus family	AEK-LCD-DT028V1
Application	Automotive Sound System

1 Demo architecture block diagram

Figure 1. Demo architecture block diagram



2 Schematic diagrams

Schematic diagrams of boards included in [AEKD-STEREOAVAS](#) kit are available at relevant schematic links:

[AEK-AUD-C1D9031](#)

[AEK-MCU-C4MLIT1](#)

[AEK-LCD-DT028V1](#)

3 Board versions

Table 1. STEVAL-LLL013V1 versions

PCB version	Schematic diagrams	Bill of materials
AEKD\$STEREOAVAS (1)	AEKD\$STEREOAVAS schematic diagrams	AEKD\$STEREOAVAS bill of materials

1. This code identifies the AEKD-STEREOAVAS evaluation kit first version. The kit consists of a AEK-AUD-C1D9031 whose version is identified by the code AEK\$AUD-C1D9031A, a AEK-MCU-C4MLIT1 whose version is identified by the code AEK\$MCU-C4MLIT1A and a AEK-LCD-DT028V1 whose version is identified by the code AEK\$LCD-DT028V1A.

Revision history

Table 2. Document revision history

Date	Revision	Changes
11-Jul-2023	1	Initial release.

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