

AVAS Sound Generator

Give a voice to Electric Vehicle



ELECTRIC VEHICLE SOUND GENERATOR

Electric Vehicles or HEV/PHEV in electrical mode are **very quiet at low speeds** therefore people have difficulty recognizing that these vehicles are approaching and **risk of accident is increased**.

To address this concern, Electric Vehicle Sound Generator for Pedestrians system development has been discussed worldwide.

Defining the sound of xEV is an opportunity for OEM to **design and customize the sound signature of their vehicles**, therefore increasing their potential value to consumers.

General Description

MHE introduce the new generation of Pedestrian Sound System, a **mono or bi-speaker system easy-to-integrate** supporting OEM to **fulfill upcoming regulations**.

Linked with vehicles functions (Idle / Fwd / Rev) through CAN-bus, the Sound Generator will **recreate the Vehicle speed perception** using sound pitch. Acting as a **key safety feature for xEV**, this new system will **enhance the OEM brand image** of xEV by giving a **unique sound to electric vehicle** from combustion to fully synthesized sound thanks to our Sound Generation Software.

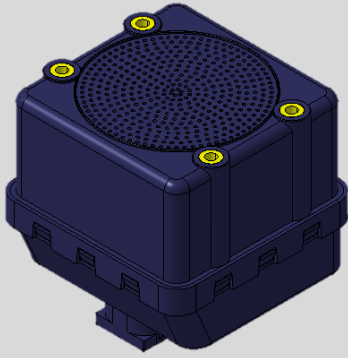
From OEM perspective, this system can be integrated with multiple functions such as Electrical Horn, Ignition on, Lock/Unlock system, Charging/End-of-Charging, acting as an **External Sound Hub**.

Integrating Sound Expertise to our Manufacturing Capabilities

- ✓ MHE is the first Korean Tier-1 leading supplier of advanced electronics automotive parts industry
- ✓ ARKAMYS is a French company specialized in audio software having solutions embedded in +20M. Automobiles worldwide.

The result achieved by this collaboration ensure the **best sound experience** using a combination of **acoustic generation algorithms, sound quality optimization and sound tuning expertise** delivered to OEM in a **durable and lightweight one-single-box system**.

TECHNICAL DESCRIPTION



Single-box System

- IPX7 Certification
- Size (WxLxH): 95x95x85
- Lightweight: 450g
- Frequency Range: 100Hz – 10Khz(±6dB).

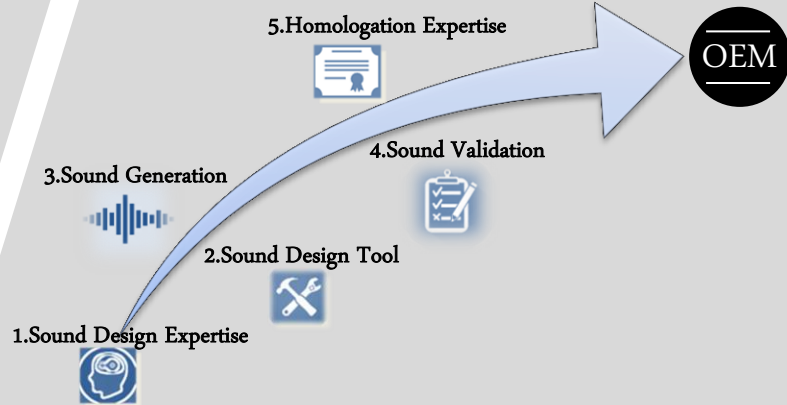
Hardware / Software Concept

- 32 bits ARM Core with integrated FPU&DSP external flash 2Mb.
- Full Digital Amp. 32 bits sampled at max 96KHz.
- AUTOSAR 4.X (including cyber security).
- ARKAMYS Sound Generation Software.

Value Proposition

- Complete customizable solution in a small and lightweight single box system with low power consumption
- High quality configuration linked with vehicle functions through CAN bus
- Benefits from Premium services in sound design by ARKAMYS Golden Ears Engineers
- Scalable Integration with vehicle's basic functions

Full Range of Services



Product Evolution: External Sound Hub

