Exciter Speaker Applications

An exciter (also called a surface transducer or actuator) is a speaker motor with no cone of its own: it bonds to a panel and makes the panel itself radiate sound. That makes it useful anywhere a visible speaker grille is unwanted, impossible to seal, or simply takes up too much room.

Consumer electronics

The best-known example is Sony's Bravia OLED TVs with "Acoustic Surface," which use actuators behind the panel so the picture itself produces the sound. LG's G8 ThinQ phone used a similar idea ("Crystal Sound OLED") to make the display act as the earpiece, removing the earpiece slot. Smart displays, tablets, laptops and soundbars use exciters to free up space and keep enclosures sealed.

Automotive

Exciters on door panels, headliners, dashboards, pillars and even glass replace or supplement conventional speakers, saving weight and space. Continental's "Ac2ated Sound" system is a production example. They're also used for in-seat audio and for alert sounds and pedestrian warning tones in electric vehicles.

Architecture and interiors

"Invisible" audio in drywall, ceiling tiles, wood paneling, mirrors, glass partitions and furniture is popular in hotels, restaurants, conference rooms and high-end homes, where designers want sound without grilles.

Retail, signage and public spaces

Exciters mounted on shop windows turn the glass into a speaker for passers-by. Kiosks, vending machines, digital signage, elevator panels, transit shelters and museum exhibits use them because the sound comes through a sealed, vandal-resistant surface.

Appliances and industrial equipment

Glass cooktops, refrigerator doors, washing machine panels and medical or industrial control panels use exciters for prompts and alerts behind a seamless, easy-to-clean, water-resistant front.

Tactile and haptic feedback

Low-frequency exciters, often called bass shakers or tactile transducers, are bolted to seats, couches, gaming chairs, flight and racing simulators and VR rigs so users feel bass and impacts. The ButtKicker line is a well-known example. Smaller exciters provide haptic feedback in touch panels and wearables.

Hobby, art and music

DIY builders turn picture frames, foam boards, guitars and cardboard into speakers. Artists use exciters in sound installations, and some instruments use them to drive a soundboard for sustain or effects.

Design considerations

For an engineer evaluating an exciter, the key differences from a cone speaker are these. The panel determines the frequency response, so the same exciter sounds very different on glass, wood or acrylic. Sound radiates from both sides of the panel. Mounting and isolation of the panel edges strongly affect bass and resonances. Response tends to be less even than a cone speaker's, so equalization is common.

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