

US Acoustic Sensors - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The US Acoustic Sensors Market is expected to register a CAGR of 8.4% during the forecast period.

Key Highlights

- The United States is one of the foremost innovators and investors in the global SWA sensor market, owing to the growing regional demand and manufacturing of acoustic wave sensors. The regional end-user industry is increasingly investing in advanced technologies and adopting low-cost components, expanding the scope of SAW sensors in the region.
- In addition to that, most of the significant global market vendors are US-based, which provides an upper hand to the region in the studied market. Also, most of these regional vendors are far ahead of their global competitors in terms of product innovation and technological advancement, which is also helping the regional market's growth along with the global market's. The United States is one of the significant markets for surface acoustic wave sensors globally.
- After the financial crisis of 2007-2008, the semiconductor companies that emerged strongest still focused on innovations and maintained relatively higher R&D spending and M&As, as compared to other competitors. Many industry experts claim that the same trend is expected to reflect the forecast period due to the pandemic.
- In November 2020, the Semiconductor Industry Association (SIA) of the United States announced that sales of global semiconductors reached USD 39.0 billion for October 2020, an increase of 6% compared to October 2019 and 3.1% more than September 2020. In the same month, WSTS also forecasted that the projected annual global sales of semiconductors for 2020 would increase by 5.1%, followed by 8.4% in 2021.

US Acoustic Sensors Market Trends

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Pressure Sensors to Drive the Market Growth

- The pressure sensor is an instrument consisting of a pressure-sensitive element to determine the actual pressure applied to the sensor (using different working principles) and some components to convert this information into an output signal. These sensors have witnessed significant growth due to the increasing applications across various industries, such as oil and gas, aerospace, automotive, healthcare, consumer goods, industrial, etc.
- The growing adoption of surface acoustic wave pressure sensors for permanent sound monitoring systems in the oil and gas industry has replaced the quartz crystals, and fiber optics which dominated the market for downhole pressure gauges, is expected to drive the market in the forecast period.
- These pressure sensors can be used in a car tire pressure monitoring system. This kind of sensor takes advantage of the fact that a SAW can be used wirelessly and without a battery. With a one-port SAW resonator and antenna, the Tire Pressure Monitoring System (TPMS) can be stimulated by signals of different frequencies and then received back from the SAW.
- In the past few years, exclusive cross-country and off-road cars have been witnessed installing innovative tire pressure control systems. For instance, the G63 AMG 6X6 from the Mercedes enables the driver to check and vary the tire pressure of both the front and rear axles separately. Reportedly, the system takes less than 20 seconds to raise the tire pressure from 0.5 bar to 1.8 bar.
- Furthermore, the NHTSA has mandated the use of TPMS (tire pressure monitoring system) since 2002. Hence, the US automotive sector has been leading the market studied, owing to a robust automotive sector.?

Consumer Electronics holds the highest market share

- There is a significant surge in acoustic sensors and other related equipment sales due to the increasing smartphone sales and the increasing adoption of emerging RF technologies in consumer electronics, expanding the scope of the market studied.
- The growing production of LTE, 4G & 5G devices, especially 5G smartphones, also creates a massive growth opportunity for the SAW technology provider. RF filters are becoming standard components in these devices as they isolate radio signals from the different spectrum bands used by various smartphones to receive and transmit information. New advanced SAW filters offer a higher performance solution than competing for BAW filters in the sub-2.7 GHz frequency range, hence having higher growth opportunities with the emergence of 5G technology.
- For instance, in February 2020, US-based Qualcomm Technologies Inc. announced the Qualcomm ultraSAW filter technology, another groundbreaking innovation in its wireless technology portfolio mainly targeting 5G/4G Mobile Devices. According to the company, RF filters isolate radio signals from the different spectrum bands, and by achieving as much as 1 dB improvement in insertion loss, Qualcomm ultraSAW filters offer a higher performance solution than competing filters in the sub-2.7 GHz frequency range.
- Many researchers are also exploring the scope of the SAW MEMS microphone that can also be used as a wireless passive accelerometer and pressure sensor. The global MEMS microphone market will be expected to cross USD 1.67 billion by 2024.

US Acoustic Sensors Industry Overview

Acoustic sensors are a relatively simple device to manufacture. Consequently, the market is highly fragmented, with many global and local manufacturers contributing to the market dynamics. The MEMS market is seeing steady growth, but companies have to face cut-throat competition leading to brutal price declines and low margins. The market is continually adding new entrants into the market.

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- December 2020, a US-based integrated device manufacturer (IDM) of acoustic wave high-band RF filters for mobile and other wireless applications, Akoustis Technologies Inc, announced that the company had been awarded a design win from a second Wi-Fi 6 customer for its 5.2/5.6 GHz RF coexistence filter solutions. The company expects the design to enter production in the first half of 2021.
- September 2020, US-based Sandia National Laboratories have made significant progress toward developing an integrated nucleic acid amplification system for Autonomous Medical Devices Incorporated (AMDIs) Optikus handheld diagnostic device. This effort developed a set of loop-mediated isothermal amplification (LAMP) primers for SARS-CoV-2 and then demonstrated amplification directly on the SAW sensor.
- May 2020, San Diego-based Roswell Biotechnologies and nano innovator, Imec collaborated to make the first molecular electronics biosensors chips commercially available in 2021. Such chips would help detect COVID-19 and other diseases and for precision medicine, as well as low-cost genome sequencing on portable or even handheld devices.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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