High-end Accelerometer - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

Market Report | 2024-02-17 | 120 pages | Mordor Intelligence

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Report description:

The High-end Accelerometer Market size is estimated at USD 290.16 million in 2024, and is expected to reach USD 416.95 million by 2029, growing at a CAGR of 7.52% during the forecast period (2024-2029).

The high-end accelerometer market witnessed supply chain difficulties in the initial phase of the COVID-19 pandemic. The demand from some industries was also down during the first half of 2020. Industries like automotive and manufacturing were significantly affected. However, the COVID-19 pandemic has also expanded the scope of MEMS sensors, like high end accelerometers, for many new applications.

Key Highlights
-The increasing adoption of MEMS technology has also played a significant role in expanding the application base for high-end accelerometers by scaling down the size and power consumption of these devices, without compromising on the performance metrics.
-High-end accelerometers are also being increasingly used in navigation systems for high-speed trains and autonomous vehicles. These devices are widely used for performing shock and vibrational test for evaluating the performance of automobiles in duress.
-High-end accelerometers for automotive applications possess a bias stability range more significant than that of industrial grade applications, and the working range is dependent on the intended end-applications. For instance, the working range could be as high as 40g for crash avoidance systems.
-The increased vibration levels of automated machinery in high-end industrial applications during high-speed operations, such as cutting or milling, are expected to damage critical materials and reduce precision. Such cases require higher stability to have higher machine control. Thus, high-end accelerometers are being adopted significantly for these applications.

High-End Accelerometer Market Trends

Navigational Applications to Hold a Major Share

- High sensitivity accelerometers are crucial for the next generation navigation and guidance systems, including tight coupling to existing GPS engines, pressure sensors, and platform stabilization for space applications.
- The incentive for a MEMS-based inertial accelerometer for navigational applications is based upon the hopes of realizing a small, low cost, lightweight, and highly-sensitive alternative to existing macro-scale approaches. The successful fabrication of a low cost, high-sensitivity MEMS accelerometer results in new applications for both consumer and military users that aren't feasible with current technologies.
- For instance, personal handheld navigators for military and consumer applications, as well as GPS-denied navigation applications, such as in valleys, urban areas, and within buildings and caves, utilize high-end accelerometers.
- Recently, in September 2019, Sensonor, a designer and manufacturer of advanced MEMS sensor solutions, announced the launch of its latest inertial IMU - the STIM318 IMU. A high-accuracy tactical-grade IMU, the new solution is designed to offer increased accelerometer performance to support demanding guidance and navigation applications within the defense and commercial markets. Furthermore, the STIM318 can deliver additional capability to applications already using the STIM300 (Sensonor's IMU) and many other applications by competitively replacing the fiber-optic gyros (FOGs).

North America to Account for the Largest Share

- The North American region is witnessing growth in the development of new high-performance accelerometers, as companies in the region are investing toward introducing advanced and innovative accelerometers. The increased spending by the US defense department to acquire high performance equipment is the major factor driving growth of high-end accelerometers in the country.
- The United States has the world's largest defense budget. With this rise, the country also focusses on precision guided munitions (PGMs), such as laser-guided bombs and cruise missiles, that have become the weapons of choice for the US military, providing a high degree of accuracy, while avoiding widespread collateral damage. These applications demand high performance, compact form factor, ruggedized accelerometers to improve tactical IMUs for long-duration guidance without GPS.
- The US military uses a navigation-grade inertial measurement unit developed by Northrop Grumman. This miniaturized unit is based on MEMS technology to enable navigation by sensing acceleration and angular motion, and providing data outputs used by vehicle control systems for guidance.

High-End Accelerometer Industry Overview

The high-end accelerometer market consists of some major players, and in terms of market share, few of the major players currently dominate the market. These major players with prominent share in the market are focusing on expanding their customer base across foreign countries. These companies are leveraging on strategic collaborative initiatives to increase their market share and increase their profitability.

- December 2020 - TDK Corporation introduced the InvenSense IAM-20680HP high-performance automotive monolithic 6-axis MotionTracking sensor platform for non-safety relevant automotive applications, which includes the IAM-20680HP IMU MEMS sensor and the DK-20680HP developer kit. InvenSense's IAM-20680HP combines a 3-axis gyroscope and a 3-axis accelerometer in

a thin 3 x 3 x 0.75mm (16-pin LGA) package and is automotive qualified based on AEC-Q100 Grade 2.

Additional Benefits:

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

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