

Acceleration And Yaw Rate Sensors - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2024 - 2029)

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Report description:

The Acceleration And Yaw Rate Sensors Market size is estimated at USD 6.17 billion in 2024, and is expected to reach USD 9.65 billion by 2029, growing at a CAGR of 9.35% during the forecast period (2024-2029).

A yaw rate sensor measures the vehicle's rotation around its vertical axis while measuring the acceleration at right angles to the driving direction at the same time. The yaw rate is measured in degrees per second. If a vehicle makes a 90° turn in two seconds, it will have a yaw rate of 45°. The sensor can differentiate between normal cornering and vehicle skidding movements by electronically evaluating the measured values.

Key Highlights

-A yaw rate sensor is a gyroscope gadget that detects a vehicle's angular motion around its vertical axis. The output is usually expressed in degrees per second or radians per second. The slip angle, related to the yaw rate, is the angle formed between the vehicle's driving and natural direction. The Coriolis effect is used to calculate this value. The Coriolis effect provides precise readings and results. Thus, it is projected to maintain its market dominance. Coriolis acceleration is sensed through a micromechanical capture acceleration sensor on the oscillating element in the micromechanical type. The acceleration is proportional to the product of the yaw rate and the oscillation speed, which is maintained electronically.

-The growing popularity of advanced driver assistance systems (ADAS) and connected vehicle technology is propelled by heightened consumer demand for enhanced safety, security, and comfort in automobiles. As these technologies advance, they contribute to a transformative driving experience by integrating sensors, cameras, and communication systems to assist drivers in various situations. The surge in demand reflects a collective desire for vehicles that prioritize safety with features like collision avoidance and lane-keeping assistance and offer connectivity for improved navigation, real-time information, and personalized comfort settings. This trend underscores the evolving expectations of consumers who seek a more smart and secure driving

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environment.

-In recent years, there has been a notable surge in consumer interest and preference for alternative fuel vehicles, driven by a collective desire to combat climate change and reduce greenhouse gas (GHG) emissions. The shift marks a significant step toward a more sustainable and eco-friendly transportation landscape.

-The automotive industry has witnessed a surge in the demand for advanced sensor technologies, transforming vehicles into smart systems. While developed economies have embraced this evolution, the aftermarket for automotive sensors in emerging economies faces unique challenges that may impede the growth of acceleration and yaw rate sensors. One of the primary hurdles lies in the underdeveloped nature of the aftermarket infrastructure in emerging economies. Unlike their developed counterparts, these markets often lack a robust network of specialized sensor service providers, hindering the availability of quality sensor replacements and timely maintenance services.

-COVID-19 caused an immediate halt in existing manufacturing, impacting supply chains around the world. China, which was initially afflicted by the epidemic, lost over two-thirds of its vehicle manufacturing owing to the statewide lockdown, which significantly damaged the supply chain. Auto supply chains are frequently geographically dispersed; with each country imposing its own protocol following the pandemic, supply chain management took a significant hit, emerging as one of the most critical challenges confronting the automotive industry during COVID-19.

Acceleration And Yaw Rate Sensors Market Trends

Passenger Cars to Hold Major Market Share

- The growing developments of passenger vehicles and rising demand for safety features in cars have fueled the demand for acceleration and yaw rate sensors. These sensors are key components in a vehicle's stability control to provide increased security, safety, and control even in the most difficult driving conditions. These sensors are used in numerous safety features such as airbags, traction control, advanced driver assistance systems (ADAS), collision avoidance systems, and others.

- The yaw rate sensor in passenger cars is used to measure the rotational speed of a vehicle, often referred to as the yaw rate. This data is essential for stability control systems, such as electronic stability control (ESC) and traction control, as it provides the basis for their operation. They are also helpful in diagnosing vehicle performance issues and providing data for driver assistance systems.

- The market is expected to witness high growth due to the introduction of trends such as autonomous driving and the electrification of vehicles, particularly in small passenger automobiles. To meet this growing demand, various automaker players focus on investing and introducing new vehicle models to expand their footprint and gain a competitive edge in the market. According to Scotiabank, in Asia, passenger car sales reached around 36.5 million units in 2023, and in North America, it reached 18.3 million units.

- In May 2023, BYD announced the establishment of a new passenger vehicle plant in Europe. The company is also planning to construct a vehicle plant in Thailand as a part of its growth strategy.

- Similarly, in October 2023, Suzuki Motor Corporation announced that it is targeting the sales of 3 million passenger vehicles in India, its single-largest market, by 2030, reiterating its plans to double its manufacturing capacity in the country to 4 million units over the next decade.

- Furthermore, governments and consumers around the globe are increasing their spending on electric cars, and regional governments are also providing purchase subsidies and tax waivers to promote the adoption of electric vehicles. Various governments are also spending on charging infrastructure to accelerate electrification plans and aiming for a fully electric future, thus supporting the market's growth.

Asia-Pacific is Expected to Hold Significant Market Share

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- The automotive industry in China has experienced significant growth and development in recent years. The Chinese industry has the largest EV market and industry in the world, with a robust supply chain and significant research and development activities. The Chinese government views its automotive industry, including the auto parts sector, as one of the prominent industries. The central government expects China's automobile output to reach 35 million units by 2025. China recently instructed automakers to sell 40% more electric vehicles (EVs) than conventional vehicles by 2030. As a result of these advancements in the automotive industry, there is likely to be growth in the market studied.
- Moreover, massive shifts in manufacturing due to Industry 4.0 and the acceptance of IoT require enterprises to adopt agile, smarter, and innovative ways to advance production, with technologies that complement and augment human labor with automation and reduce industrial accidents caused by process failure.?? The automotive sector in China has been a significant adopter of advanced manufacturing techniques for increasing their production output, achieving higher levels of fit and finish for their products, and reducing overall costs. The growing automotive sector in China is anticipated to support the growth of the market studied.
- Further, according to the China Association of Automobile Manufacturers(CAAM), in 2022, approximately 23.84 million passenger cars and 3.19 million commercial vehicles were produced in China.?
- According to the IBEF automobile industry report, the two-wheelers segment dominates the market in terms of volume due to a growing middle-class population, and a considerable percentage of India's population is young. Moreover, the rising interest of companies in examining the rural markets is further aiding the sector's growth. The growing logistics and passenger transportation industries are driving the demand for commercial vehicles. Future market growth is expected to be fueled by new trends, including the electrification of vehicles, particularly small passenger automobiles and three-wheelers.
- India also enjoys a powerful position in the global heavy vehicles market as it is the largest tractor manufacturer, second-largest bus producer, and third-largest heavy truck manufacturer globally. India's annual production of automobiles in FY22 was approximately 22.93 million vehicles.
- India is also a major auto exporter and has substantial export growth expectations for the forecast period. Additionally, several initiatives by the Government of India, like the scrappage policy, Automotive Mission Plan 2026, and production-linked incentive schemes in the Indian market, are likely to make India a prominent player in the two-wheeler and four-wheeler markets.

Acceleration And Yaw Rate Sensors Industry Overview

The acceleration and yaw rate sensors market is highly fragmented, with the presence of major players like Epson Europe Electronics GmbH (Seiko Epson Corporation), Bosch Sensortec GmbH (Robert Bosch GmbH), STMicroelectronics NV, Continental AG, and Baumer Group. Players in the market are adopting strategies such as partnerships and acquisitions to enhance their product offerings and gain sustainable competitive advantage.

- September 2023: During Intergeo 2023, the Silicon Sensing team showcased the latest lineup of robust and high-performing inertial systems and a variety of sensors based on micro-electro-mechanical systems (MEMS). Additionally, they engaged in discussions regarding the imminent market-ready technology of a new generation. These cutting-edge MEMS-based systems and sensors provide comparable performance levels to larger, heavier, and more expensive fiber optic gyroscope (FOG) units in crucial domains.
- August 2023: DTS received the accolade of being acknowledged as one of the top workplaces in Southern California. This acknowledgment serves as a testament to DTS's unwavering dedication to fostering a collaborative environment where every individual has played a significant role in achieving this esteemed recognition. Furthermore, this achievement reinforces DTS's core principles of developing groundbreaking products that bring value to society, nurturing a sense of camaraderie among team members, promoting personal growth, and cultivating a positive atmosphere.

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

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