Laser Sensor - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The Laser Sensor Market is expected to register a CAGR of 9.61% during the forecast period.

Key Highlights
- Laser distance sensors are designed for non-contact distance measurements: laser gauges for measuring ranges up to 10 meters, laser distance sensors for up to 3,000m. These sensors are generally utilized for positioning and type classification in machine building and handling equipment.
- Moreover, in Feb 2020, VocalZoom (VZ), a manufacturer and provider of vibration sensors for industry 4.0, announced the launch of its autonomous laser sensors for the IIoT. It combines contactless, high-resolution vibration sensor technology with built-in data processing and wireless communications. It offers low-cost and fast deployment of a wide range of positioning and monitoring applications for IIoT environments.
- Further, attaining stable and accurate measurements is essential to ensure reliable product values and error-free production. The laser sensor can be used on reflective surfaces, numerous materials, and colors. These sensors are incorporated with rough, independent housing, a linear imager, a pinpoint laser emitter.
- According to Emerson, the projected growth of the global factory automation market is expected to increase from 3% in 2019 to 3.5% by 2021, which significantly holds the market demand. Further, the use of laser sensor technology innovation in the maritime and offshore industry is expected to be a future trend. Primarily a laser-based navigational aid, LADAR (Laser Detection and Ranging), combines long-distance object detection with high -accuracy measurement, giving users a full 2D/ 3D/4 D (3 D plus time) perspective for optimal maritime awareness.
- Further, players are innovating new devices and technology innovation, providing the integration of laser sensors, which are attributing to market growth. For instance, in April 2020, Xiaomi unveiled the company's new smart Internet of Things (IoT) home appliance Mi Vacuum -Mop P series in India. The Mi Vacuum is incorporated into twelve different multi-directional sensors and a

dedicated Laser Distance Sensor (LDS) navigation system such that it can be used to scan complex environments accurately and avoid obstacles during the cleaning process.
- The COVID -19 outbreak in China is disrupting the global tech sector, especially hardware, electronic manufacturing services providers, and semiconductor companies, as operations in the world's largest tech manufacturing hub are threatened. Also, for the COVID -19 situation, researchers have been developing a laser sensor that can pick up diseases at the earliest point of infection from saliva or nasal swab in minutes. They say the non -invasive optical biosensor demonstrator will pick up COVID-19 in people as soon as it is present in the body. The researchers already created six working laboratory demonstrators for other applications and said that the technology still needs further development and testing but could be available within 2020. This significantly helps the market growth in this sector.

Laser Sensor Market Trends

Automotive is Expected to Witness Significant Growth

- End-user industries such as automotive, are greatly benefiting from the advances in laser use, mostly with future sales of the autonomous vehicle. Autonomous cars use other sensors to see, notably radars and cameras, but laser vision is hard to match. Radars are reliable but do not offer the resolution needed to pick out things like arms and legs. Cameras deliver the detail but it requires adopting machine-learning-powered software such that it that can translate 2-D images into 3-D understanding. Lidar on the other hand offers hard, computer-friendly data in the form of exact measurements.
- In June 2020, Mouser has enhanced the lidar vision SPL S 1 L90 A and SPL S 4 L90 A lasers from Osram Opto Semiconductors. The high -power, infrared SMT components feature a 905 nm laser wavelength suitable for use in autonomous vehicles and other LiDAR applications. The lasers provide a typical output of 120 W at 40 A per channel, at up to 33 % efficiency. The lasers feature low thermal resistance, enabling heat to dissipate quickly from components even when operating at high currents.
- Further, currently, Livox Technology is bringing its Livox Tele -15 automotive lidar to the global market on a mass-producible scale. It is designed for advanced long-distance detection, where the Livox Tele -15 offers a durable, high precision system in a compact form. Now, objects with low reflectivity have an increased detection range of 60 % from 200 meters to 320 meters at 10 % reflectivity, and it will also detect objects at 500 m with 50 % reflectivity, previously requiring 80 % reflectivity at that distance.
- Apart from this, governments across the globe are also encouraging the deployment of ADAS features worldwide, which will drive the growth of the market. For instance, the US Department of Transportation's National Highway Traffic Safety Administration (NHTSA) published the Federal Automated Vehicles Policy related to highly-automated vehicles (HAV), which range from vehicles with advanced driver-assistance systems features to autonomous vehicles.
- Additionally, in June 2020, Infowork announced that it would start developing the Frequency Modulated Continuous Wave (FMCW) technology, a sensor for self -driving vehicles, in collaboration with Hyundai Motors. The FMCW LiDAR under development is a sensor that measures the distance of an object with a laser and models its surroundings with precise 3D images.

North America is Expected to Witness Significant Growth

- The North American region is known to be the early adopters of new technology in manufacturing, design, and research in the laser sensor. The region's prominence drives the demand in exporting electronics equipment and growing end-user industries that are significant consumers of laser sensors such as defense, consumer electronics, etc.
- In military and protection, the Pentagon developed an infrared laser that can identify a person's unique cardiac signature up to 200 meters away. The laser prototype which is known as Jetson is used in the measurement of surface vibrations caused by the heartbeat at a distance. Under suitable conditions, the technology can achieve an identification 95 percent of the time.

- Moreover, the Department of Defense, at the request of United States special operations forces, used the principle, primarily to develop an infrared laser that can be used in the identification of enemy combatants from a significant distance by reading their cardiac signature. The laser is expected to penetrate clothing and achieve an identification roughly 95% of the time from up to 200 meters away.
- Further, in Oct 2019, the during the association of the United States Army's annual meeting, the defense giant L3Harris Technologies announced that the company got an order from the Army for 65 electro-optical sensor suite units, to mount on the service's latest Shadow drones. The drones are configured to fit on the Tactical Unmanned Air Systems Shadow UAV (RQ-7Bv2), the contract is for 65 WESCAM MX-10D electro-optical, infrared and laser designator sensor suites.
- Moreover, in the consumer electronic segment, smartphones, tablets, and AI-assisted electronics are experiencing high growth. This is expected to influence the growth of the laser sensor market in the country. According to the US Consumer Technology Sales and Forecast study, which was conducted by the Consumer Technology Association (CTA), the revenue generated by smartphones was valued at USD 79.1 billion and USD 77.5 billion in 2018 and 2019.

Laser Sensor Industry Overview

The Laser Sensor market is highly competitive owing to the presence of multiple vendors. The market appears to be moderately concentrated. Multiple non-laser companies are entering the market to leverage the opportunities its presents or use the sensors for their applications. Additionally, many laser manufacturers are making acquisitions to expand their product portfolio. Some of the recent developments in the industry are as follows: -

- April 2020 - SmartRay launched one more product in its ECCO sensor family which is balanced for the diverse application requirements of consumer electronics manufacturing. Utilizing SmartRay's blue laser technology for image quality and repeatability, even for applications with low field-of-view, ECCO 95.020 offers 3D scanning of up to 20 million points per second.
- November 2019 - Micro-Epsilon has extended its optoNCDT 1750 portfolio which comprises laser triangulation sensors with the introduction of a new Blue Laser version for measuring fast-displacement, distance, and position. The sensors have new high-performance lenses, laser control, and evaluation algorithms to facilitate precise measurements on different surfaces and materials.

Additional Benefits:

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

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