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Global Autonomous Driving Solid-State LiDAR Sensor Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Autonomous Driving Solid-State LiDAR Sensor market size is expected to reach $ 2120 million by 2032, rising at a market growth of 10.3% CAGR during the forecast period (2026-2032).

Autonomous driving solid-state LiDAR sensors are three-dimensional environmental perception hardware designed for intelligent vehicle systems. Their core purpose is to provide vehicles with stable spatial distance, object contour, relative position, and partial motion-state information in complex road conditions, low-light environments, backlighting, long-range obstacle detection, close-range blind spots, and high-speed driving scenarios. Through laser emission, echo reception, scanning or area-array imaging, signal processing, and point-cloud output, these products convert road vehicles, pedestrians, cyclists, curbs, traffic cones, irregular obstacles, and other targets into three-dimensional data that can be used by perception algorithms. Compared with traditional mechanical rotating LiDAR, solid-state or hybrid solid-state solutions place greater emphasis on automotive-grade reliability, miniaturization, low power consumption, lower cost, easier integration, and scalable manufacturing. Common technology routes include MEMS scanning, flash imaging, spectrum scanning, frequency-modulated continuous wave sensing, and hybrid solid-state scanning. Typical customers include automakers, autonomous driving system suppliers, Tier 1 component suppliers, robotaxi operators, autonomous truck companies, and low-speed unmanned vehicle manufacturers.

Autonomous driving solid-state LiDAR sensors are at a critical stage of moving from technology validation to large-scale vehicle deployment. Their industrial significance is no longer limited to improving the ranging capability of a single sensor, but lies in becoming an important foundation for safety redundancy and three-dimensional spatial

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understanding in intelligent driving systems. As advanced driver assistance expands from highway scenarios to urban roads, parking scenarios, and complex mixed-traffic environments, vehicles need to identify low-reflectivity obstacles in advance at long distances while also eliminating side, turning, front, and rear blind spots at close range. By reducing traditional mechanical rotating structures, solid-state and hybrid solid-state solutions improve the feasibility of miniaturization, vibration resistance, concealed installation, and scalable manufacturing. This enables LiDAR to evolve from a roof-mounted device used on early test vehicles into an automotive-grade component that can be integrated into windshields, bumpers, grilles, headlights, and side-wing positions. Industry competition is therefore shifting from single-point performance competition to comprehensive engineering capability competition. Core evaluation criteria include detection range, field of view, point-cloud density, power consumption, size, cost, automotive-grade reliability, algorithm interfaces, and compatibility with vehicle styling.

From the perspective of technology routes, the industry has not formed a single dominant route, but instead shows a pattern in which multiple architectures coexist according to application scenarios. Forward long-range detection places greater emphasis on long distance, angular resolution, resistance to strong light, and stability in high-speed scenarios, making it suitable for serving as the main LiDAR sensor. Short-range blind-spot products place greater emphasis on a wide field of view, short-distance recognition, low cost, and multi-point deployment capability, making them suitable for covering both sides of the vehicle, the front and rear corners, and parking scenarios. Flash imaging solutions emphasize no moving parts and near-field response. MEMS scanning and hybrid solid-state routes emphasize the balance required for mass production. Spectrum scanning and frequency-modulated continuous wave routes seek to build differentiation in interference resistance, instant velocity sensing, and long-term performance upgrades. As vehicle electronic and electrical architectures become more centralized, the sensor itself is also evolving from hardware that simply outputs point clouds into a software-hardware collaborative node. Some products are beginning to reduce system integration difficulty through embedded perception software, region-of-interest focusing, dynamic fields of view, and data preprocessing. Future competitive advantage will come from chip-level integration, modularization, automotive-grade manufacturing, software-defined perception, and coordination with vehicle platforms, rather than leadership in a single indicator.

From the perspective of regional and supply-chain structure, autonomous driving solid-state LiDAR has already formed a clear global division of labor. Supported by new energy vehicle penetration, upgrades in advanced driver-assistance configurations, and

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rapid vehicle model iteration, the Chinese market is driving front-fit LiDAR from high-end models toward a broader range of vehicles. This has also enabled domestic suppliers to improve rapidly in mass production, cost control, engineering delivery, and product iteration speed. North American and Israeli companies compete more around high-performance architectures, autonomous driving platforms, commercial vehicle scenarios, and emerging sensing technologies. European, Japanese, and South Korean companies rely more on automotive component systems, automotive-grade quality management, and relationships with automakers to build advantages in system integration and reliable delivery. In the long term, LiDAR will not independently determine the commercialization of autonomous driving, but it will work together with cameras, millimeter-wave radar, high-definition maps, computing platforms, and perception algorithms to form a multi-sensor fusion system. As long as advanced driver assistance continues to pursue higher safety margins, stronger night-driving capability, and more reliable redundant perception, solid-state LiDAR will continue to have strong potential for growth in vehicle deployment and product upgrades.

This report studies the global Autonomous Driving Solid-State LiDAR Sensor production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Autonomous Driving Solid-State LiDAR Sensor and provides market size (US$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Autonomous Driving Solid-State LiDAR Sensor that contribute to its increasing demand across many markets.

Highlights and key features of the study
Global Autonomous Driving Solid-State LiDAR Sensor total production and demand, 2021-2032, (K Units)
Global Autonomous Driving Solid-State LiDAR Sensor total production value, 2021-2032, (USD Million)
Global Autonomous Driving Solid-State LiDAR Sensor production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (K Units), (based on production site)
Global Autonomous Driving Solid-State LiDAR Sensor consumption by region & country, CAGR, 2021-2032 & (K Units)
U.S. VS China: Autonomous Driving Solid-State LiDAR Sensor domestic production, consumption, key domestic manufacturers and share
Global Autonomous Driving Solid-State LiDAR Sensor production by manufacturer,

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production, price, value and market share 2021-2026, (USD Million) & (K Units)
Global Autonomous Driving Solid-State LiDAR Sensor production by Output Form, production, value, CAGR, 2021-2032, (USD Million) & (K Units)
Global Autonomous Driving Solid-State LiDAR Sensor production by Application, production, value, CAGR, 2021-2032, (USD Million) & (K Units)

This report profiles key players in the global Autonomous Driving Solid-State LiDAR Sensor market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Luminar Technologies, Innoviz Technologies, Aeva, Baraja, Ouster, AEye, MicroVision, Continental, XenomatiX, Blickfeld, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Autonomous Driving Solid-State LiDAR Sensor market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US$ Millions), volume (production, consumption) & (K Units) and average price (US$/Unit) by manufacturer, by Output Form, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global Autonomous Driving Solid-State LiDAR Sensor Market, By Region:

United States

China

Europe

Japan

South Korea

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ASEAN

India

Rest of World

Global Autonomous Driving Solid-State LiDAR Sensor Market, Segmentation by Output Form:

3D Point Cloud

4D Velocity Sensing

Fusion Perception

Global Autonomous Driving Solid-State LiDAR Sensor Market, Segmentation by Output Form:

Narrow-FOV Forward

Wide-FOV Forward

Ultra-Wide-FOV Blind-Spot

Omnidirectional Surround-View

Global Autonomous Driving Solid-State LiDAR Sensor Market, Segmentation by Installation Position:

Near-Infrared 905 nm

Near-Infrared 940 nm

Short-Wave Infrared 1550 nm

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Global Autonomous Driving Solid-State LiDAR Sensor Market, Segmentation by Application:

Passenger Car ADAS

Robotaxi

Commercial Vehicle Autonomous Driving

Low-Speed Unmanned Vehicle

Vehicle Blind-Spot Coverage

Other

Companies Profiled:

Luminar Technologies

Innoviz Technologies

Aeva

Baraja

Ouster

AEye

MicroVision

Continental

XenomatiX

Blickfeld

KOITO Manufacturing

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Hesai Technology

RoboSense

Seyond

Livox

SOSLAB

HL Klemove

Key Questions Answered:
1. How big is the global Autonomous Driving Solid-State LiDAR Sensor market?
2. What is the demand of the global Autonomous Driving Solid-State LiDAR Sensor market?
3. What is the year over year growth of the global Autonomous Driving Solid-State LiDAR Sensor market?
4. What is the production and production value of the global Autonomous Driving Solid-State LiDAR Sensor market?
5. Who are the key producers in the global Autonomous Driving Solid-State LiDAR Sensor market?
6. What are the growth factors driving the market demand?

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