

Automotive LiDAR Market Forecasts to 2034 – Global Analysis By LiDAR Type (Mechanical LiDAR, Solid-State LiDAR, and Hybrid LiDAR), Technology, Component, Range, Installation Location, Application, and By Geography

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Abstracts

According to Statistics MRC, the Global Automotive LiDAR Market is accounted for \$4.66 billion in 2026 and is expected to reach \$12.07 billion by 2034, growing at a CAGR of 12.62% during the forecast period. Automotive LiDAR is an advanced sensing technology that uses laser pulses to measure distances and creates high-resolution, real-time 3D maps of a vehicle's surroundings. It plays a critical role in enabling advanced driver-assistance systems (ADAS) and autonomous driving by providing accurate object detection and environmental perception even in challenging conditions.

Market Dynamics:

Driver:

Increasing demand for advanced safety and autonomous driving features

The automotive LiDAR market is primarily driven by the escalating consumer demand for enhanced vehicle safety and the rapid progression of autonomous driving technologies. LiDAR is a cornerstone sensor for ADAS and autonomous vehicles, providing the high-resolution, three-dimensional perception required for functions like automatic emergency braking, adaptive cruise control, and lane-keeping assist. As regulatory bodies such as the NHTSA and Euro NCAP increasingly mandate advanced safety features and the industry moves towards Level 3 and higher automation, LiDAR's ability to offer precise, reliable environmental data, even in low-light or adverse weather,

makes it indispensable. This has accelerated its adoption from luxury vehicles to more mainstream models.

Restraint:

High costs and technological integration challenges

High system costs and complex integration challenges are significant restraints for the automotive LiDAR market. Despite recent price reductions, high-performance LiDAR units, particularly long-range and solid-state variants, remain expensive, impacting their adoption in cost-sensitive vehicle segments. The integration of LiDAR systems into vehicle designs requires sophisticated engineering to manage packaging, aesthetics, and thermal requirements without compromising performance. Furthermore, developing and validating the complex software algorithms needed to process massive amounts of LiDAR point cloud data in real-time for safe autonomous navigation presents a substantial technological hurdle. These factors contribute to higher overall vehicle costs and extended development cycles.

Opportunity:

Cost reduction and solid-state LiDAR advancement

A significant market opportunity lies in the ongoing development and cost reduction of solid-state LiDAR technology. Solid-state systems, which have no moving parts, offer superior durability, smaller form factors, and lower manufacturing costs compared to traditional mechanical LiDAR. The shift towards solid-state designs, including MEMS-based, Flash, and Optical Phased Array LiDAR, is enabling more affordable and reliable sensors that can be seamlessly integrated into vehicle grilles, bumpers, and headlights. The rapid advancement in semiconductor technology, such as the use of SPAD (Single-Photon Avalanche Diode) detectors, is also enhancing performance while reducing costs. This trend is crucial for democratizing LiDAR technology, enabling its adoption in mass-market vehicles and accelerating the deployment of autonomous driving capabilities.

Threat:

Data management and cybersecurity vulnerabilities

The effective use of LiDAR data requires robust, high-bandwidth in-vehicle networks

and powerful on-board computing platforms to process the massive point clouds in real-time, which can strain existing electrical/electronic architectures. More critically, the reliance on data transmission and networked connectivity exposes LiDAR and the broader perception system to potential cyberattacks. Compromised sensor data or malicious interference could lead to incorrect environmental perception and faulty decision-making by ADAS or autonomous driving systems. This poses significant safety risks, potentially causing accidents or system failures. Protecting the integrity, confidentiality, and resilience of LiDAR data against cyber threats is a growing challenge that requires constant vigilance and significant investment.

Covid-19 Impact:

The COVID-19 pandemic initially had a mixed impact on the automotive LiDAR market. The market faced significant disruptions due to factory shutdowns, supply chain bottlenecks, and a sharp decline in vehicle production, leading to deferred new model rollouts and reduced spending on advanced technologies. However, the crisis also underscored the value of automation and contactless technology. As the industry recovered, there was a renewed and accelerated focus on vehicle safety and autonomous features, with LiDAR playing a central role. The pandemic effectively highlighted the strategic importance of advanced driver-assistance systems, positioning the LiDAR market for rapid growth as manufacturers prioritize resilience, safety, and technological leadership.

The Solid-State LiDAR segment is expected to be the largest during the forecast period

The Solid-State LiDAR segment is expected to account for the largest market share during the forecast period. This growth is driven by the superior durability, compact size, and lower cost potential of solid-state designs compared to mechanical systems. Solid-state LiDAR, which lacks moving parts, is better suited for automotive integration in grilles, bumpers, and headlights, preserving vehicle aesthetics while offering high reliability. The ongoing trend of mass adoption in passenger cars for ADAS and autonomous driving requires a substantial volume of these reliable and cost-effective sensors, making them the dominant technology.

The Long-Range LiDAR segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the Long-Range LiDAR (Above 200 m) segment is predicted to witness the highest growth rate. This is due to its critical role in enabling high-speed

autonomous driving and advanced safety features. Long-range LiDAR provides the necessary detection distance for highway-speed automatic emergency braking and ensures safe navigation at higher velocities. The development of advanced, high-channel-count technologies like the 896-channel LiDAR from Huawei, which significantly increases recognition distance and accuracy, is fueling demand for these systems to achieve higher levels of vehicle autonomy.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share, driven by the rapid adoption of autonomous driving technologies, particularly in China, which has become a global leader in LiDAR deployment. The region benefits from strong government initiatives supporting electric and autonomous vehicles, a booming automotive manufacturing base, and the presence of key LiDAR suppliers like Hesai and RoboSense. Massive investments in autonomous driving programs and the establishment of new assembly lines are accelerating the integration of LiDAR.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is also anticipated to exhibit the highest CAGR, fueled by the expansion of the middle class, increasing demand for vehicles with advanced safety features, and supportive regulatory frameworks. Countries like China, Japan, South Korea, and India are heavily investing in modernizing their automotive sectors and promoting indigenous technology development. The region's rapidly growing fleet and focus on modernizing maintenance and manufacturing capabilities make it a key area for LiDAR market expansion, with China leading the way due to its robust domestic supply chain and consumer adoption.

Key players in the market

Some of the key players in the Automotive LiDAR Market include Luminar Technologies, Hesai Technology, RoboSense, Innoviz Technologies, Ouster, Valeo, Aeva Technologies, Cepton, Continental AG, Bosch, Velodyne LiDAR, Quanergy, Livox, Seyond, and Blickfeld.

Key Developments:

In February 2026, Honeywell announced that it has entered into an amended agreement to acquire Johnson Matthey's Catalyst Technologies business segment,

which adjusts the total consideration from ?1.8 billion to ?1.325 billion and extends the long stop date to July 21, 2026. In the event that any of the regulatory approvals are not satisfied by the long stop date, the long stop date may be extended to August 21, 2026, if certain conditions are met.

In February 2026, Boeing announced the largest landing gear exchange contract in Boeing's history at the Singapore Airshow. Under this contract, Boeing will provide landing gear exchanges for more than 75 aircraft across the 737 MAX and 787 fleets operated by the Singapore Airlines (SIA) Group. The landing gear exchange program offers gear overhaul scheduling flexibility that will optimize the useful life of the gears and minimizing aircraft downtime.

LiDAR Types Covered:

Mechanical LiDAR

Solid-State LiDAR

Hybrid LiDAR

Technologies Covered:

Time-of-Flight (ToF) LiDAR

Frequency-Modulated Continuous Wave (FMCW) LiDAR

Pulsed LiDAR

Components Covered:

Laser Source

Photodetector

Scanner and Optics

Processor and Controller

Software and Algorithms

Ranges Covered:

Short-Range LiDAR (Up to 100 m)

Medium-Range LiDAR (100–200 m)

Long-Range LiDAR (Above 200 m)

Installation Locations Covered:

Roof-Mounted LiDAR

Front Grille LiDAR

Bumper-Mounted LiDAR

Headlight Integrated LiDAR

Side-Mounted LiDAR

Rear-Mounted LiDAR

Applications Covered:

Advanced Driver Assistance Systems (ADAS)

Autonomous Driving

Parking Assistance

Traffic Monitoring and Mapping

Collision Avoidance Systems

Regions Covered:

North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of Africa

What our report offers:

Market share assessments for the regional and country-level segments

Strategic recommendations for the new entrants

Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034

Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)

Strategic recommendations in key business segments based on the market estimations

Competitive landscaping mapping the key common trends

Company profiling with detailed strategies, financials, and recent developments

Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

Contents

1 EXECUTIVE SUMMARY

- 1.1 Market Snapshot and Key Highlights
- 1.2 Growth Drivers, Challenges, and Opportunities
- 1.3 Competitive Landscape Overview
- 1.4 Strategic Insights and Recommendations

2 RESEARCH FRAMEWORK

- 2.1 Study Objectives and Scope
- 2.2 Stakeholder Analysis
- 2.3 Research Assumptions and Limitations
- 2.4 Research Methodology
 - 2.4.1 Data Collection (Primary and Secondary)
 - 2.4.2 Data Modeling and Estimation Techniques
 - 2.4.3 Data Validation and Triangulation
 - 2.4.4 Analytical and Forecasting Approach

3 MARKET DYNAMICS AND TREND ANALYSIS

- 3.1 Market Definition and Structure
- 3.2 Key Market Drivers
- 3.3 Market Restraints and Challenges
- 3.4 Growth Opportunities and Investment Hotspots
- 3.5 Industry Threats and Risk Assessment
- 3.6 Technology and Innovation Landscape
- 3.7 Emerging and High-Growth Markets
- 3.8 Regulatory and Policy Environment
- 3.9 Impact of COVID-19 and Recovery Outlook

4 COMPETITIVE AND STRATEGIC ASSESSMENT

- 4.1 Porter's Five Forces Analysis
 - 4.1.1 Supplier Bargaining Power
 - 4.1.2 Buyer Bargaining Power
 - 4.1.3 Threat of Substitutes
 - 4.1.4 Threat of New Entrants

- 4.1.5 Competitive Rivalry
- 4.2 Market Share Analysis of Key Players
- 4.3 Product Benchmarking and Performance Comparison

5 GLOBAL AUTOMOTIVE LIDAR MARKET, BY LIDAR TYPE

- 5.1 Mechanical LiDAR
- 5.2 Solid-State LiDAR
 - 5.2.1 MEMS-Based LiDAR
 - 5.2.2 Flash LiDAR
 - 5.2.3 Optical Phased Array (OPA) LiDAR
- 5.3 Hybrid LiDAR

6 GLOBAL AUTOMOTIVE LIDAR MARKET, BY TECHNOLOGY

- 6.1 Time-of-Flight (ToF) LiDAR
 - 6.1.1 Direct ToF
 - 6.1.2 Indirect ToF
- 6.2 Frequency-Modulated Continuous Wave (FMCW) LiDAR
- 6.3 Pulsed LiDAR

7 GLOBAL AUTOMOTIVE LIDAR MARKET, BY COMPONENT

- 7.1 Laser Source
 - 7.1.1 Fiber Laser
 - 7.1.2 Semiconductor Laser
- 7.2 Photodetector
 - 7.2.1 Avalanche Photodiode
 - 7.2.2 Single Photon Avalanche Diode
- 7.3 Scanner and Optics
- 7.4 Processor and Controller
- 7.5 Software and Algorithms

8 GLOBAL AUTOMOTIVE LIDAR MARKET, BY RANGE

- 8.1 Short-Range LiDAR (Up to 100 m)
- 8.2 Medium-Range LiDAR (100–200 m)
- 8.3 Long-Range LiDAR (Above 200 m)

9 GLOBAL AUTOMOTIVE LIDAR MARKET, BY INSTALLATION LOCATION

9.1 Roof-Mounted LiDAR

9.2 Front Grille LiDAR

9.3 Bumper-Mounted LiDAR

9.4 Headlight Integrated LiDAR

9.5 Side-Mounted LiDAR

9.6 Rear-Mounted LiDAR

10 GLOBAL AUTOMOTIVE LIDAR MARKET, BY APPLICATION

10.1 Advanced Driver Assistance Systems (ADAS)

10.2 Autonomous Driving

10.3 Parking Assistance

10.4 Traffic Monitoring and Mapping

10.5 Collision Avoidance Systems

11 GLOBAL AUTOMOTIVE LIDAR MARKET, BY GEOGRAPHY

11.1 North America

11.1.1 United States

11.1.2 Canada

11.1.3 Mexico

11.2 Europe

11.2.1 United Kingdom

11.2.2 Germany

11.2.3 France

11.2.4 Italy

11.2.5 Spain

11.2.6 Netherlands

11.2.7 Belgium

11.2.8 Sweden

11.2.9 Switzerland

11.2.10 Poland

11.2.11 Rest of Europe

11.3 Asia Pacific

11.3.1 China

11.3.2 Japan

11.3.3 India

- 11.3.4 South Korea
- 11.3.5 Australia
- 11.3.6 Indonesia
- 11.3.7 Thailand
- 11.3.8 Malaysia
- 11.3.9 Singapore
- 11.3.10 Vietnam
- 11.3.11 Rest of Asia Pacific
- 11.4 South America
 - 11.4.1 Brazil
 - 11.4.2 Argentina
 - 11.4.3 Colombia
 - 11.4.4 Chile
 - 11.4.5 Peru
 - 11.4.6 Rest of South America
- 11.5 Rest of the World (RoW)
 - 11.5.1 Middle East
 - 11.5.1.1 Saudi Arabia
 - 11.5.1.2 United Arab Emirates
 - 11.5.1.3 Qatar
 - 11.5.1.4 Israel
 - 11.5.1.5 Rest of Middle East
 - 11.5.2 Africa
 - 11.5.2.1 South Africa
 - 11.5.2.2 Egypt
 - 11.5.2.3 Morocco
 - 11.5.2.4 Rest of Africa

12 STRATEGIC MARKET INTELLIGENCE

- 12.1 Industry Value Network and Supply Chain Assessment
- 12.2 White-Space and Opportunity Mapping
- 12.3 Product Evolution and Market Life Cycle Analysis
- 12.4 Channel, Distributor, and Go-to-Market Assessment

13 INDUSTRY DEVELOPMENTS AND STRATEGIC INITIATIVES

- 13.1 Mergers and Acquisitions
- 13.2 Partnerships, Alliances, and Joint Ventures

- 13.3 New Product Launches and Certifications
- 13.4 Capacity Expansion and Investments
- 13.5 Other Strategic Initiatives

14 COMPANY PROFILES

- 14.1 Luminar Technologies
- 14.2 Hesai Technology
- 14.3 RoboSense
- 14.4 Innoviz Technologies
- 14.5 Ouster
- 14.6 Valeo
- 14.7 Aeva Technologies
- 14.8 Cepton
- 14.9 Continental AG
- 14.10 Bosch
- 14.11 Velodyne LiDAR
- 14.12 Quanergy
- 14.13 Livox
- 14.14 Seyond
- 14.15 Blickfeld

List Of Tables

LIST OF TABLES

Table 1 Global Automotive LiDAR Market Outlook, By Region (2023-2034) (\$MN)

Table 2 Global Automotive LiDAR Market Outlook, By LiDAR Type (2023-2034) (\$MN)

Table 3 Global Automotive LiDAR Market Outlook, By Mechanical LiDAR (2023-2034) (\$MN)

Table 4 Global Automotive LiDAR Market Outlook, By Solid-State LiDAR (2023-2034) (\$MN)

Table 5 Global Automotive LiDAR Market Outlook, By MEMS-Based LiDAR (2023-2034) (\$MN)

Table 6 Global Automotive LiDAR Market Outlook, By Flash LiDAR (2023-2034) (\$MN)

Table 7 Global Automotive LiDAR Market Outlook, By Optical Phased Array (OPA) LiDAR (2023-2034) (\$MN)

Table 8 Global Automotive LiDAR Market Outlook, By Hybrid LiDAR (2023-2034) (\$MN)

Table 9 Global Automotive LiDAR Market Outlook, By Technology (2023-2034) (\$MN)

Table 10 Global Automotive LiDAR Market Outlook, By Time-of-Flight (ToF) LiDAR (2023-2034) (\$MN)

Table 11 Global Automotive LiDAR Market Outlook, By Direct ToF (2023-2034) (\$MN)

Table 12 Global Automotive LiDAR Market Outlook, By Indirect ToF (2023-2034) (\$MN)

Table 13 Global Automotive LiDAR Market Outlook, By Frequency-Modulated Continuous Wave (FMCW) LiDAR (2023-2034) (\$MN)

Table 14 Global Automotive LiDAR Market Outlook, By Pulsed LiDAR (2023-2034) (\$MN)

Table 15 Global Automotive LiDAR Market Outlook, By Component (2023-2034) (\$MN)

Table 16 Global Automotive LiDAR Market Outlook, By Laser Source (2023-2034) (\$MN)

Table 17 Global Automotive LiDAR Market Outlook, By Fiber Laser (2023-2034) (\$MN)

Table 18 Global Automotive LiDAR Market Outlook, By Semiconductor Laser (2023-2034) (\$MN)

Table 19 Global Automotive LiDAR Market Outlook, By Photodetector (2023-2034) (\$MN)

Table 20 Global Automotive LiDAR Market Outlook, By Avalanche Photodiode (2023-2034) (\$MN)

Table 21 Global Automotive LiDAR Market Outlook, By Single Photon Avalanche Diode (2023-2034) (\$MN)

Table 22 Global Automotive LiDAR Market Outlook, By Scanner and Optics (2023-2034) (\$MN)

Table 23 Global Automotive LiDAR Market Outlook, By Processor and Controller (2023-2034) (\$MN)

Table 24 Global Automotive LiDAR Market Outlook, By Software and Algorithms (2023-2034) (\$MN)

Table 25 Global Automotive LiDAR Market Outlook, By Range (2023-2034) (\$MN)

Table 26 Global Automotive LiDAR Market Outlook, By Short-Range LiDAR (Up to 100 m) (2023-2034) (\$MN)

Table 27 Global Automotive LiDAR Market Outlook, By Medium-Range LiDAR (100–200 m) (2023-2034) (\$MN)

Table 28 Global Automotive LiDAR Market Outlook, By Long-Range LiDAR (Above 200 m) (2023-2034) (\$MN)

Table 29 Global Automotive LiDAR Market Outlook, By Installation Location (2023-2034) (\$MN)

Table 30 Global Automotive LiDAR Market Outlook, By Roof-Mounted LiDAR (2023-2034) (\$MN)

Table 31 Global Automotive LiDAR Market Outlook, By Front Grille LiDAR (2023-2034) (\$MN)

Table 32 Global Automotive LiDAR Market Outlook, By Bumper-Mounted LiDAR (2023-2034) (\$MN)

Table 33 Global Automotive LiDAR Market Outlook, By Headlight Integrated LiDAR (2023-2034) (\$MN)

Table 34 Global Automotive LiDAR Market Outlook, By Side-Mounted LiDAR (2023-2034) (\$MN)

Table 35 Global Automotive LiDAR Market Outlook, By Rear-Mounted LiDAR (2023-2034) (\$MN)

Table 36 Global Automotive LiDAR Market Outlook, By Application (2023-2034) (\$MN)

Table 37 Global Automotive LiDAR Market Outlook, By Advanced Driver Assistance Systems (ADAS) (2023-2034) (\$MN)

Table 38 Global Automotive LiDAR Market Outlook, By Autonomous Driving (2023-2034) (\$MN)

Table 39 Global Automotive LiDAR Market Outlook, By Parking Assistance (2023-2034) (\$MN)

Table 40 Global Automotive LiDAR Market Outlook, By Traffic Monitoring and Mapping (2023-2034) (\$MN)

Table 41 Global Automotive LiDAR Market Outlook, By Collision Avoidance Systems (2023-2034) (\$MN)

Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) are also represented in the same manner as above.

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