

LiDAR Units for Autonomous Driving

ANMD-MRS16-156 · E-Mobility & Autonomous Transport Technologies

A Global Sustainability Due Diligence & Market Research Study

History 2020–2024 · Base Year 2025 · Forecast 2025–2032 · Outlooks 2035 / 2040 / 2050 · Currency US\$

WHY THIS REPORT

LiDAR units provide high-resolution 3D perception for autonomous driving — measuring precise distances to build the detailed depth map cameras and radar alone cannot match. The technology is shifting from mechanical spinning units toward solid-state, MEMS, flash and FMCW designs that cut cost and improve automotive durability. This decision-grade study sizes the global market three ways — value, units shipped and equipped vehicles — across LiDAR architecture, range class, application and end-user, across seven regions and four scenarios to 2032, with outlooks to 2050.

SUSTAINABILITY & SDG IMPACT — THE ANMD LENS

Sustainability here is safety and systemic. LiDAR enables safer autonomy and supports cleaner shared mobility, while raising data-privacy, cost-equity and electronic-waste questions that responsible deployment must address.

Mapped Sustainable Development Goals:

SDG 7 Affordable Clean Energy	SDG 9 Industry & Innovation	SDG 11 Sustainable Cities	SDG 12 Responsible Consumption	SDG 13 Climate Action
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Measurable sustainability outcomes assessed:

- Safer autonomy through robust 3D perception
- Falling cost curves widening access to advanced safety
- Cleaner, shared and automated mobility enablement
- Functional safety, data privacy and e-waste as material risks

Framework alignment: Double materiality mapped to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, with greenwashing and SDG-washing screens applied throughout.

WHAT'S INSIDE AT A GLANCE

53 Chapters	9 Report Parts	7 Regions Covered	40+ Country Markets
2025–32 Forecast Horizon	4 Forward Scenarios	25+ Companies Profiled	5 SDGs Mapped

REPORT COVERAGE

Geographic scope: North America, Europe, Asia Pacific, Latin America, Africa, Middle East and Rest of World — with named country intelligence. Asia Pacific is the volume leader (China) on domestic makers and EV-OEM design-wins; North America drives autonomy (United States) on robotaxi and FMCW developers; Europe scales on German OEM L3 integration; other regions assessed on their own merits.

MARKET OVERVIEW

From costly prototype to mass-producible, design-won component.

Automotive LiDAR is moving from costly prototype to mass-producible, design-won component. Demand is driven by L3 autonomy, robotaxi deployment and solid-state cost reduction, against cost competition from camera-radar approaches and automotive-grade qualification burden. The market is read three ways — value, units shipped and equipped vehicles — and forecast under four scenarios, each region reported separately.

- **Asia Pacific leads volume** — China, where domestic LiDAR makers and EV-OEM design-wins drive the fastest production scale
- **North America drives autonomy** — United States, on robotaxi programmes and leading FMCW and solid-state developers
- **Europe scales on L3** — Germany, where OEM L3 deployments integrate automotive-grade LiDAR
- **Solid-state cost-down is the differentiator** — the move from mechanical to solid-state decides which players reach automotive scale and price targets

REGIONAL OUTLOOK

Across seven reporting regions, the report separates deployment leaders from high-growth and emerging markets — each profiled in full rather than aggregated into Rest of World.

Region	Stage	Lead Country Markets & Drivers
Asia Pacific	Volume leader	China, Japan, South Korea — domestic makers, EV design-wins
North America	Autonomy-driven	United States, Canada — robotaxi, FMCW / solid-state developers
Europe	L3 scale	Germany, France — OEM L3 integration
Middle East	Emerging	UAE, Saudi Arabia — autonomous-mobility pilots
Latin America	Frontier	Brazil — early ADAS / autonomy adoption
Africa	Frontier	South Africa — premium-vehicle and pilot adoption

KEY MARKET DRIVERS & RESTRAINTS

Drivers	Restraints
<ul style="list-style-type: none"> • L3 autonomy & robotaxi deployment • Solid-state & MEMS cost reduction • EV-OEM design-wins (esp. China) • High-resolution 3D perception demand • Safety & redundancy requirements 	<ul style="list-style-type: none"> • Cost vs camera-radar approaches • Automotive-grade durability & qualification • Competition from camera-only autonomy • Standardisation & integration complexity • Margin pressure & vendor shakeout

SEGMENTATION SNAPSHOT

By LiDAR Architecture	Mechanical spinning · solid-state / MEMS · flash · FMCW · hybrid scanning
By Range Class	Short-range · mid-range · long-range / high-resolution
By Application	Passenger · commercial · two-wheeler / micro-mobility
By End User	OEMs · fleet operators · charge-point operators · consumers
By Business Model	Hardware sales · software / subscription · services
By Scale	Consumer · fleet · OEM / industrial-scale

TABLE OF CONTENTS — PARTS & CHAPTERS

The full report is organised into nine parts across 53 chapters, listed below. Detailed sub-headings, country tables and directories are provided in the full report.

Part I — Report Foundation, Discovery and Strategic Intelligence

- › Chapter 1. Scope, Methodology and Report Architecture
- › Chapter 2. Industry Discovery Summary — LiDAR Units for Autonomous Driving
- › Chapter 3. Executive Intelligence and Decision Dashboard
- › Chapter 4. Strategic Findings, Materiality and Investment Verdict Preview

Part II — Market Intelligence, Sizing, Forecasting and Segmentation

- › Chapter 5. Industry Overview and Market Evolution
- › Chapter 6. Market Dynamics
- › Chapter 7. Global Market Size and Forecast, 2020–2032
- › Chapter 8. Market Segmentation Analysis
- › Chapter 9. End-User and Demand-Side Intelligence
- › Chapter 10. Pricing, Cost and Commercial Model Intelligence

Part III — Regional and Country Intelligence

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- › Chapter 12. North America Market Intelligence
- › Chapter 13. Europe Market Intelligence
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Part IV — Technology, Innovation and Category-Specific Intelligence

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Part VIII — Scenario, Future Intelligence and Final Due Diligence Verdict

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Part IX — Annexes, Directories and Reference Material

- › Chapter 47. Methodology Annex
- › Chapter 48. Corporate Directory and Company Intelligence Annex
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- › Chapter 50. Project Intelligence Annex
- › Chapter 51. Forecast Annex
- › Chapter 52. Sustainability KPI Annex
- › Chapter 53. Reference Annexes

COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans US and Israeli solid-state developers, dominant Chinese volume makers, and Tier-1 LiDAR providers, amid an active vendor shakeout. Deal activity — M&A, technology acquisition and platform expansion — signals a market consolidating around scalable, bankable, deployment-ready solutions.

Representative players profiled in the full report:

Luminar Technologies, Inc. · Hesai Group · Innoviz Technologies Ltd. · Ouster, Inc. · Valeo SA · and further profiled developers and Tier-1 providers

Investment intelligence: venture, infrastructure, development, climate and blended finance, green bonds and sustainability-linked loans — culminating in a bankability assessment and a clear investment verdict.

KEY QUESTIONS THIS REPORT ANSWERS

- ? How large is the global automotive LiDAR market, and how fast will it grow to 2032?
- ? Which regions, architectures and range classes offer the strongest risk-adjusted opportunity?
- ? How does solid-state cost-down reshape design-win economics and the vendor field?
- ? Who leads, and where is the competitive and patent white space?
- ? Is the investment case bankable — and under what conditions?
- ? How does the category align with the SDGs, functional safety and data-privacy regulation?

WHY ANMD — THE DIFFERENCE

Most market studies stop at tonnes and revenue. This report is built as a sustainability due diligence instrument — fusing market sizing with ESG, SDG, climate, carbon-integrity and natural-capital intelligence and a decision-ready bankability verdict in a single architecture.

- **Triangulated sizing** — every market read three ways (value (US\$), units shipped and equipped vehicles) so value, capacity and volume views reconcile rather than conflict.
- **Region-honest forecasting** — Latin America, Africa and the Middle East reported in full, never hidden inside Rest of World, every forecast resolved to the 2025 base year.
- **Integrated evidence base** — company, patent and project databases linked to the analysis, with published-filing patents and FTO treated as an indicator, not a legal conclusion.
- **No-fabrication discipline** — every estimate carries a data-confidence rating and disclosed sources; gaps are flagged for further diligence, never filled with invented numbers.
- **Anti-greenwashing rigour** — SDG-washing and greenwashing screens plus claim-substantiation checks built into the ESG and project analysis.
- **Decision-first structure** — 9 Parts and 53 Chapters culminating in stakeholder playbooks and a clear, conditions-based investment verdict.

WHO SHOULD BUY THIS REPORT

Investors and venture / PE funds, vehicle OEMs and Tier-1 suppliers, robotaxi and autonomy developers, fleet operators, semiconductor and photonics firms, policymakers, lenders and ESG teams, plus strategic corporate planners and decision-makers.

Access the Full Report

The complete report delivers all 53 chapters in full, with every sub-heading, country table, company and patent directory, forecast model and due diligence checklist.

Purchase at www.anewmarketdynamics.com · Standard & Premium licences · Single-Site (SSL) and Global-Site (GSL) options at checkout.

Want the Complete Detailed Table of Contents?

This prospectus lists the nine parts and 53 chapters. The complete detailed table of contents — every sub-heading, country table, exhibit, company and patent directory and annex — is available on request to registered users. To receive it, register with your official company email at www.anewmarketdynamics.com. The full detailed table of contents will be sent directly to your registered company email address.