

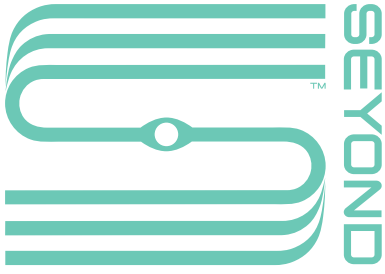
VIEW

by SEYOND

Automotive Edition

2025/2026

- **Seyond's Future-Ready Solutions at Scale:** With Vision and Precision Toward Autonomy
- **Autonomous Driving:** Why LiDAR and Sensor Fusion is Key
- **Smart Trucking:** Seyond at the Heart of Real-World Scenarios



Driving the Future of Mobility – With Vision and Precision

At Seyond, we see the road ahead with clarity – not only through the intelligent eyes of our LiDAR sensors, but also through a clear vision of where mobility is heading.

The automotive industry is undergoing a profound transformation: from driver assistance to full autonomy, from traditional vehicles to intelligent platforms. Safety, reliability, and scalability are the cornerstones of this journey – and LiDAR is the key enabler.

Our high-performance LiDAR portfolio, from ultra-long-range to short-range sensors, delivers the accuracy and robustness needed for real-world autonomous driving. Combined

with advanced perception software and deep industry expertise, we empower OEMs, Tier 1 suppliers, and technology partners to bring autonomous mobility from concept to road – safely, efficiently, and at scale.

In VIEW by Seyond, we share insights from our collaborations in the automotive sector, explore cutting-edge product developments, and highlight how Seyond's technology is setting new standards for perception in complex environments.

We invite you to discover how vision and precision come together – and how, by working side by side, we can drive the next era of mobility.



A handwritten signature in blue ink, reading 'Conrad-Christian Kimmle'.

Conrad-Christian Kimmle
Managing Director, Seyond Europe GmbH

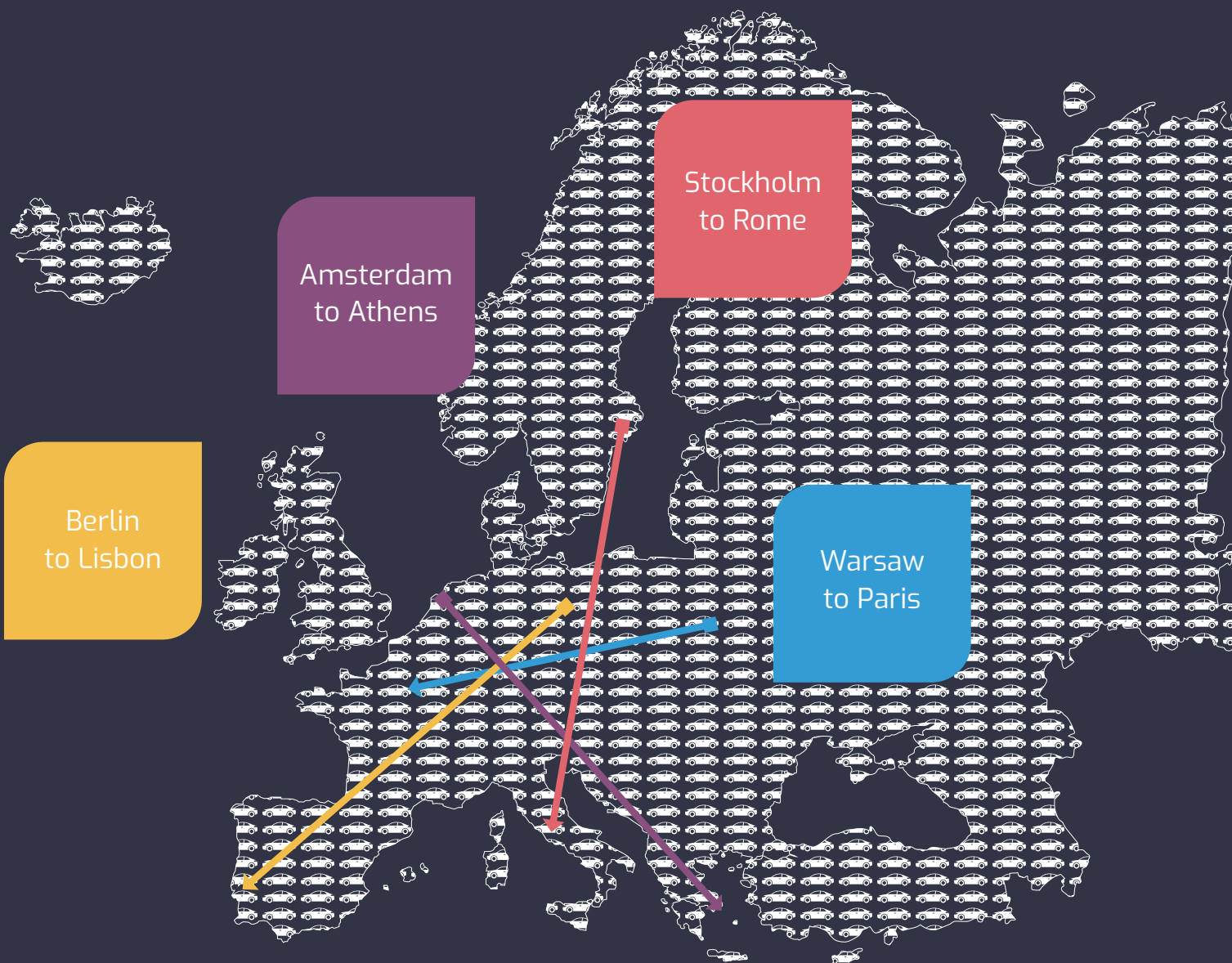
We've built 500,000 LiDAR sensors – and they're already on the road in cars around the world.

But what does that number really mean?

Imagine 500,000 cars, each about five meters long.

If you park them all in a row, bumper to bumper, that line would be about **2,500 kilometers long.**

That's as far as:



A simple way to visualize the growing footprint of Second technology on the road.

MOTOR Ai's Perception System Ensures Safe Autonomous Driving With Seyond's LiDAR

Safety is the cornerstone of autonomous driving, especially in public transport, where passenger trust and strict regulations are paramount. At MOTOR Ai, Seyond's LiDAR technology plays a decisive role within the multi-sensor suite, delivering the precision and reliability that enable safe and explainable autonomy.



Imagine an autonomous shuttle bus navigating seamlessly and safely through a busy European city – that's what MOTOR Ai offers. The foundation for this is advanced environmental perception:

Multi-Sensor Fusion: MOTOR Ai's system integrates data from Seyond's LiDARs, that are combined with cameras, and radar into a robust 3D environment model. Even in rain, fog, or snow, this fusion ensures consistent performance in complex urban settings.

LiDAR as the intelligent backbone: Seyond's Falcon Ultra-Long-Range LiDAR and Robin W Wide-Angle LiDAR provide complementary strengths. Falcon detects hazards and vehicles up to 500 meters ahead with centimeter-level accuracy, while Robin W ensures wide coverage of side views and blind spots. Together, they deliver high-resolution data that enhance camera depth perception and strengthen neural-network based recognition.

Reliable situational awareness: MOTOR Ai's software can reliably interpret surrounding traffic – from pedestrians and cyclists to vehicles of all types. Strengthened by Falcon and Robin W as key perception layers, the system can anticipate and react to critical situations in real time, whether at low urban speeds or up to 80 km/h.

By combining Seyond's LiDAR with radar, cameras, GNSS, and HD maps, MOTOR Ai builds a perception stack that supports strict adherence to traffic rules while enabling smooth interaction with human-driven and automated vehicles alike.

With this comprehensive system architecture, and powered by the precision of Seyond's LiDARs, MOTOR Ai establishes a reliable, explainable, and secure foundation for deploying autonomous mobility solutions in public transport.



"Safety is the foundation of autonomy. With Seyond's LiDAR as the intelligent backbone of our perception system, our shuttles can reliably see, understand, and react in real time – even in complex urban traffic."

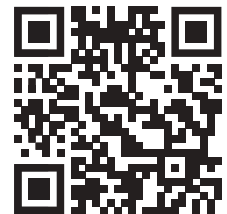
Adam Bahlke
CTO Motor Ai

Future-Ready Solutions

Engineering Progress to Power the Industries of the Future.

Falcon K

Ultra-Long Range LiDAR



[more Info](#)

Long range LiDAR detection is a key technology that ensures more safety. Falcon K provides ultra-long detection range up to 500 meters and can detect dark objects with 10% reflectivity up to 250 meters. It spots distant obstacles earlier and gives the vehicle time to respond in advance, improving the autonomous driving experience.

Precision with Dynamic Region of Interest (RoI)

Falcon K delivers image-grade point cloud and dynamic region of interest (RoI). Image-grade point cloud and dynamic-frame high-density region of interest ensure clarity of key detection and safe autonomy in any environment.

Key Features

Detection Range	1.5 – 500 m (250 m @ 10%)
Resolution (HxV)	up to 0.06° x 0.06°
Field of View* (HxV)	120° x 25°
Scan Lines	152 Lines @ 10 FPS
Laser	1.550 nm, Class 1 (IEC-60825)
Weight	1.7 kg
Dimensions (HxWxD)	58.5 x 228 x 149.6 mm



Robin W

*Ultra-Wide FOV, Compact,
High Resolution*



more info

The Robin W provides a wide field-of-view ($120^\circ \times 70^\circ$), short minimum distance (0.1m), and high resolution with low power consumption. This sensor is cost-effective and easy to integrate, making it ideal for automotive, robotics, and smart infrastructure applications. It detects up to 70 meters at 10% reflectivity which is twice the detection range of other side-view LiDAR, while maintaining a minimum range of down to 0.1 meters which keeps the blind zone at an absolute minimum.

Key Features

Detection Range	0.1 – 150 m (70 m @ 10%)
Resolution (HxV)	up to $0.15^\circ \times 0.36^\circ$
Field of View* (HxV)	$120^\circ \times 70^\circ$
Scan Lines	192 Lines
Laser	905 nm, Class 1 (IEC 60825)
Weight	850 g
Dimensions (HxWxD)	85 × 102 × 105 mm

*Configurable. For more information, please contact Seyond.

Robin E1X

Compact Long Range



more Info

The Robin E1X has a wide FoV of 120°x20°, a range of up to 300 m, and was developed using proven scanning architecture to optimize point cloud consistency.

Combining the Falcon K's proven automotive-grade design with low power consumption and a compact form factor, the Robin E1X is ideal for large-scale production. The Robin E1X's slim form factor enables flexible vehicle integration, including behind the windshield, in the headlight, grille, or front bumper.

Key Features

Detection Range	up to 300 m (200 m@10%)
Resolution (HxV)	up to 0.1° x 0.2°
Field of View* (HxV)	120° x 20°
Scan Lines	96 Lines
Laser	940 nm, Class 1 (IEC-60825)
Power Consumption	6 W
Operating Temperature	-40°C ~ +85°C
Weight	470 g
Dimensions (H x W x D)	30 x 106 x 101 mm

MetAdaptor 2.0

Ethernet Media Converter (POE)



MetAdaptor 2.0 is an advanced Ethernet media converter developed by Seyond for the Falcon and Robin series products. MetAdaptor enables the simultaneous operation of two LiDAR units while converting 1000 BASE-T1 automotive Ethernet to 1000 BASE-T industrial Ethernet, ensuring seamless integration and performance. MetAdaptor 2.0 is also available as none PoE version.

Key Features

Output Power (max)	110 W
PoE Interface	1x Gigabit PoE Interface
Network Transmission Rate	900 Mbits/s*1 or 450 Mbits/s*2
Ingress Protection	IP67
Operating Temperature	-40°C ~ +75°C
Weight	465 g
Dimensions (H x W x D)	102 x 36 x 142 mm

Hummingbird

Compact Blind-Spot Flash LiDAR



The Hummingbird combines an ultra-wide FoV (140×100°), short minimum distance (0.1m), and solid-state reliability. With a detection range of up to 20 meters at 10 % reflectivity, it is designed for blind zone coverage and near-field perception in automotive and robotic applications. Thanks to its compact size, low weight, and low power consumption (<10 W), the Hummingbird is easy to integrate into vehicle bodywork or robotic systems. Its precise resolution and pixel-accurate depth sensing minimize blind zones and enable safe maneuvering in complex environments, from detecting pedestrians and bicycles in traffic to supporting consumer and industrial robots in dynamic surroundings.

Key Features

Detection Range	20 m @ 10 %
Resolution (H x V)	5.547° × 0.521°
Field of View* (H x V)	140° × 100°
Scan Lines	192 Lines
Laser	940 nm Flash
Power Consumption	<10 W
Operating Temperature	-40°C ~ +85°C
Weight	>250 g
Dimensions (H × W × D)	60 × 60 × 35 mm

MetAdaptor 3.0

Ethernet Media Converter



MetAdaptor 3.0 is an Ethernet media converter developed by Seyond for the Falcon and Robin series products. MetAdaptor 3.0 supports powering a single LiDAR while converting 1000BASE-T1 automotive Ethernet into 1000BASE-T industrial Ethernet, ensuring seamless integration and performance.

Key Features

Network Transmission Rate	900 Mbits/s
Ingress Protection	IP67
Operating Temperature	-40°C ~ +75°C
Weight	146 g
Dimensions (H x W x D)	50 x 27 x 108 mm

*Configurable. For more information, please contact Seyond.

Eyes of Autonomy: How LiDAR Shapes the Future of Driving



Oli Ramoli
Business Development
& Key Account Manager
Automotive EMEA

Autonomous driving is no longer about asking if the technology works – it's about integrating it safely and seamlessly into everyday mobility. At the center of this shift lies LiDAR. Oli Ramoli, Business Development & Key Account Manager Automotive EMEA at Seyond Europe, about why sensor placement matters, shares his view on why one LiDAR is never enough, and how the next decade will reshape vehicle design.

?

When it comes to autonomous vehicles, LiDAR placement is always up for debate. In your view, where does it work best – and why does location make such a difference?

From a design perspective, carmakers want sensors to be invisible in best case, hidden behind the windshield for instance. Technically, though, the higher the mounting position, the better is the performance of the LiDAR due to a better field of view and fewer occlusions. Rooftop integration typically delivers the clearest perception and the longest detection range. Placement really matters because it directly influences how much light is returned to the sensor – and that defines the quality of the point cloud and, ultimately, safety.

?

Seyond builds LiDARs with different ranges and fields of view. Why isn't one type enough for full autonomy?

Driving, autonomously and non-autonomously, requires continuous 360-degree awareness. On highways, ultra-long-range LiDARs – like our Falcon at 1,550 nm – are crucial for detecting hazards hundreds of meters ahead. Mid-range sensors like our Robin W additionally cover lane changes and close cut-ins, and support other close interactions, especially in urban environments. For parking, blind spots, and ultra-near detection, compact sensors such as Hummingbird come into play. OEMs need this layered approach because no single LiDAR can handle every scenario efficiently. Maximizing the Operational Design Domain is key to enabling higher autonomy. And with our portfolio, we can support everything from affordable L2+ to high-performance L4 systems.



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Mixing multiple LiDARs with other sensors can't be easy. What are the biggest hurdles, and how do you overcome them at Seyond?

Every sensor has its strengths and weaknesses. Cameras deliver detail, radar works in rain, LiDAR provides depth. The real challenge is synchronizing these different data streams into one coherent perception model while managing the huge amount of data captured. That requires significant processing power, but also good calibration, and smart fusion algorithms. At Seyond, we already combine hardware with our own perception software stack into one reference system, giving OEMs a ready-to-use solution and expertise to reduce complexity and ensure reliability.

?

Looking ahead, how will LiDAR and sensor fusion change over the next decade — and will that shift the way cars are designed?

Today, a car already carries 20 to 30 sensors. By 2030, that number could exceed 50. Vehicles are turning into software-defined platforms, a smartphones on wheels, so to speak and perception systems are central to that. We'll see fewer dedicated sensors and more multi-purpose, integrated fusion solutions. Sensors will serve multiple roles and enable even more applications to the complete system. This will inevitably reshape vehicle design: cars will be built around their perception systems, not the other way around. Clean design and functional integration will go hand in hand.

?

When it comes to technology, what are the challenges to overcome when building a car with a LiDAR sensor?

Especially European OEMs place strong emphasis on design, which makes integration tricky. Behind the windshield, for example, sensors face optical losses and require special types of glass. Different vehicle types add complexity: an SUV roofline is not the same as a sports car. Add calibration, different tolerances, heat, dirt, fog, or snow, and the challenges multiply. Each of these factors can then make or break a business case — unless they are addressed early in development.

?

Which position in the car fits best for your sensors and why?

We don't believe in one-size-fits-all. In China, rooftop integration is common due to user acceptance. This helps because it provides the best technical performance for long-range detection. In Europe, windshield integration is being explored together with glass manufacturers for LiDAR modules, combined with smart Flash LiDAR integrations support complex scenarios like close cut-ins. Falcon remains the go-to for long-range, high-speed scenarios, Robin W excels at side view and blind spot detection, Robin E1X combines best cost-to-performance ratios and Hummingbird ensures close-range awareness. Together, they can cover the entire perception spectrum, enabling everything from L2+ Highway Driving up to true L4 autonomy.



Harvest Without Guesswork: LiDAR for Next-Generation Farming

Agriculture is evolving: Among others, rising costs, personnel shortages, and sustainability targets are pushing the need for smarter, more efficient machinery. Autonomous equipment such as self-driving tractors can meet these demands – but only with precise, reliable, and safe perception in all conditions.

When GPS and Cameras Reach Their Limits

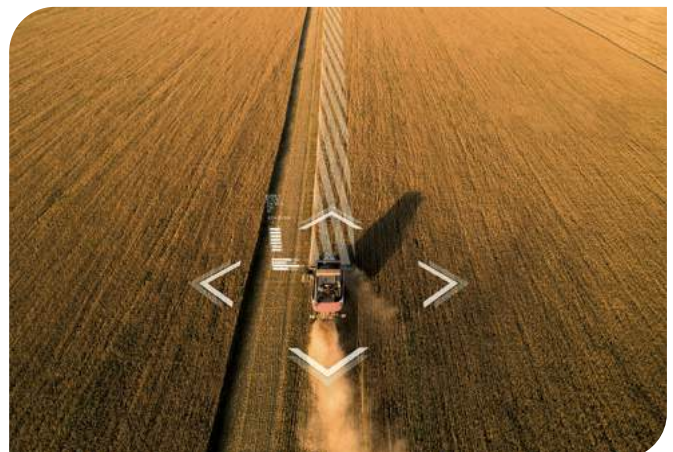
Fields are unpredictable: dust clouds, shifting light, uneven ground, weather conditions, and sudden obstacles challenge traditional tools. Even though, GPS provides positioning and cameras deliver visual detail – both have blind spots. Reduced visibility can impair cameras, and GPS accuracy may fluctuate.

LiDAR: The Intelligent Eye in the Field

That's where LiDAR comes in: closing the gaps, mapping the environment in 3D with centimeter-level accuracy, unaffected by weather or light. Seyond's Falcon K Ultra-Long-Range LiDAR detects hazards and terrain changes hundreds of meters ahead. The Robin Mid-Range LiDAR monitors the immediate working area, from crops to tools and nearby obstacles. Together, they form a continuous, detailed perception layer.

From Perception to Real-Time Action

Integrated with cameras, radar, and GNSS, LiDAR data enables autonomous farming machines to adjust routes, protect crops, and optimize operations instantly. These sensor fusion principles, proven in autonomous driving, now bring measurable efficiency gains to the field.





In Practice:

- Harvesters navigating between crop rows without human input
- Tractors rerouting around wet patches mid-task
- Sprayers targeting only specific plants to reduce chemical
- To reduce chemicals autonomous tractors running 24/7

A Clear Path to Adoption

With costs falling and integration becoming easier, LiDAR is moving from pilots to mainstream agricultural equipment. Leveraging experience from complex traffic environments, *Seeyond* applies the same mission to agriculture: giving machines the vision to work safely, precisely, and efficiently – and humans exactly what they need.



Smart Trucking Solutions

Based on High-performance, High-Fidelity LiDAR

Long-haul trucking is essential for global supply chains – but driver shortages, rising fuel costs, and safety demands challenge the industry. Autonomous trucks promise relief, yet only if they can detect and react to hazards at highway speeds.

Seeyond's smart trucking solution combines Falcon K Ultra-Long-Range LiDAR with Robin Mid-Range LiDAR to deliver precise, stable perception in all weather and lighting conditions. Falcon K detects hazards up to 500m ahead, giving vehicles valuable

reaction time. Robin monitors the mid-range and blind spots, ensuring comprehensive situational awareness.

Working together with radar, cameras, and GNSS, Seeyond's LiDAR creates a layered, all-weather perception model. This sensor fusion enables trucks to operate safely and efficiently – from urban interchanges to long, uninterrupted highway stretches – and supports the transition from pilot projects to large-scale deployment.



Application Scenarios

1

Long-Range Hazard Detection

Falcon K identifies vehicles, debris, and lane edges up to 500 m ahead, allowing safe stopping distances even at 90 km/h.



2

Mid-Range Coverage & Blind Spot Monitoring

Robin tracks vehicles in adjacent lanes, detects merging traffic, and assists in navigating ramps and work zones.



3

All-Weather Sensor Fusion

In fog, dust, or heavy rain, LiDAR maintains visibility where cameras and GPS may fail – ensuring consistent hazard detection.



4

Efficiency for Long Routes

Accurate perception supports fuel-efficient platooning, smoother driving, and reduced wear on vehicles.



From Showroom to Street

What Europe Can Expect Next

by Conrad-Christian Kimmle, Managing Director, Seyond Europe GmbH

In Suzhou, China last month, I saw the future of autonomous mobility – and it was parked next to a fashion store. Literally. On the fourth floor of a shopping mall, between clothing brands and cafés, there were car dealerships showcasing the latest autonomous models as casually as if they were selling sneakers.



Step outside, and you could see these same cars navigating real city streets. The “driver” sat in the seat, hands near the wheel, eyes forward – but the car was doing the driving. Not in a closed test track, not in a fenced-off zone, but in live, mixed highway traffic.

The technology? Among other components, the same intelligent eyes: high-performance LiDAR sensors, developed and produced by Seyond in the USA and China – and that are already integrated into European cars, too. The real difference is regulation. Europe insists on a step-by-step approval process, shaped by safety validation, liability concerns, and the need for harmonization across member states. In China, regulators already allow Level 2+ operations on public roads, prioritizing rapid deployment and real-world validation.

Across the Pacific, in the United States, robotaxis are already carrying passengers in cities like San Francisco – without a safety driver touching the wheel. Every trip builds experience, improves AI models, and accelerates public acceptance. It may sound like science fiction – but it’s happening right now.

I believe in safety first. The standards we set in Europe are not a weakness – they are our strength. I am convinced that autonomous cars need the right infrastructure to ensure safety. And we are not there yet. But what I saw in Suzhou, and what is happening in the US is a preview of what will come here. It’s only a matter of *when*, not *if*.

Autonomous driving is no longer about if the technology works. It’s about integrating it safely into everyday life and into our cities. And one day soon, buying a self-driving car next to your favorite clothing shop might feel just as normal in Europe as it does today in Suzhou.



Seyond's LiDAR at the Core of a Broader Vision

From premium sedans to flagship SUVs, selected top models rely on comprehensive sensor suites that include Seyond's Falcon Ultra-Long-Range LiDAR to enable advanced driver assistance and autonomous driving features. The Falcon serves as a one of the key perception sensors, delivering high-precision, real-time 3D vision at distances of up to 500 meters.

Operating at 1,550 nm with hybrid solid-state 2D scanning, the Falcon generates image-grade point clouds that deliver detailed, all-weather vision. Combined with radar, cameras, and other sensors, it forms a robust perception layer for safe and confident operation in diverse traffic scenarios.

Until today, more than 500,000 Falcon units have been shipped into mass production vehicles, making it one of the most widely deployed high-performance LiDARs on the market today. Beyond long-range perception, Seyond's Robin LiDAR also plays a role in automated infrastructure processes such as battery swapping, expanding autonomy from vehicles into connected ecosystems.

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KEY FACTS

- **First mass production launch:** 2022
- **Vehicle types:** Premium sedans and SUVs in the high-end segment
- **Seeyond LiDARs in use:** Falcon Ultra-Long-Range, Robin Wide FOV
- **Falcon technology:** Hybrid solid-state scanning with 2D beam steering, image-grade point clouds
- **Shipments to date:** Over 500,000 units
- **Role in vehicle:** Core long-range perception sensor within multi-sensor ADAS and autonomy stacks
- **Infrastructure use case:** Robin LiDAR supports automated battery swapping systems



From Autonomous Cars to Intelligent Roads – How **Seyond SIMPL** Bridges the Gap

Autonomous driving doesn't happen in isolation. For self-driving vehicles to operate safely and efficiently at scale, the roads themselves must become intelligent. With **SIMPL (Seyond Infrastructure Management Platform)**, Seyond brings its LiDAR expertise from the automotive world into the heart of urban and highway infrastructure – delivering real-time perception, analytics, and connectivity that make both traffic and cities smart.



SIMPL Intersection

DETECT ALL ROAD USERS TO OPTIMIZE TRAFFIC FLOW AND SAFETY



Reliable, real-time data & analytics



99% road user detection accuracy



Easy to install and maintain



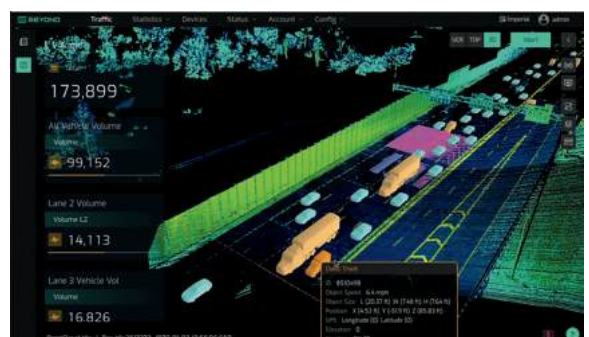
Privacy-friendly



24/7 detection in all weather and lighting conditions

TRAFFIC PERCEPTION SOFTWARE

Seyond's software fuses LiDAR data from multiple sensors into a complete traffic view. It classifies all road users, tracks their movements, and delivers precise data on counts, speed, size, and safety – reliably in any weather or lighting.



ACTUATION SOFTWARE

Seyond's software enables on-the-fly creation and adjustment of virtual loops – no roadwork required. It integrates seamlessly with traffic controllers to manage signals in real time, with failsafes ensuring continuous, reliable operation.

SIMPL Smart Highway

Seeyond's smart highway solution is based on high-performance **high-fidelity LiDAR technology, providing comprehensive and high-precision vehicle perception** and event detection capabilities to customers. Its intelligent road analysis ensures the safe operation and traffic efficiency on the highway.

VEHICLE PERCEPTION

Output 3D vehicle shapes with high-precision length, width, and height information, high-fidelity accuracy up to 10 cm. Supports long-distance tracking and positioning of target vehicles.



TRAFFIC FLOW ANALYSIS

Identify 4 vehicle types, including small, medium, large vehicles, and extra-large vehicle, monitor traffic flow and vehicle speed, providing 3D vision for traffic management.



TRAFFIC EVENT DETECTION

Support 6 types of traffic event detection, including debris detection, pedestrian detection, abnormal parking, weaving driving, occupying multiple lanes, and driving against traffic event detection accuracy $\geq 99\%$.



SIGNAL TRIGGER

Work with camera and weighing systems – unaffected by light conditions, providing triggering signals 24/7, reducing light pollution.



Full stack solution with software and hardware



Centimeter-level detection accuracy



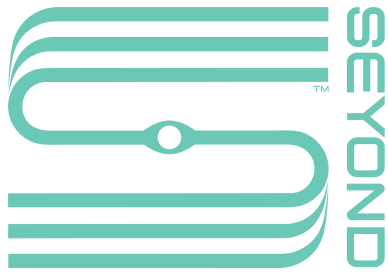
3D road condition perception



24/7 detection in all weather and lighting conditions



Wide coverage and easy deployment

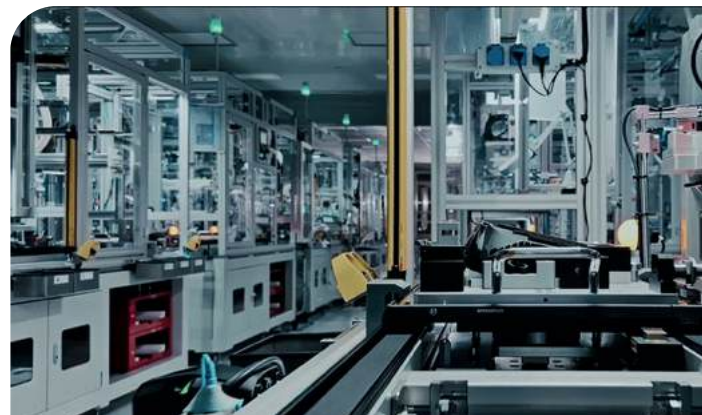


Bringing Light to Life.

Seyond was founded as Innovusion in 2016, with a vision to deliver market-leading LiDAR products. In December 2023, the company rebranded as Seyond, reaffirming its commitment to pioneering innovation in the field.

Headquartered in Silicon Valley, with global R&D teams and manufacturing expanding to the USA, Europe, Japan, and SE Asia, Seyond is at the forefront of long-range, high-fidelity LiDAR and autonomous driving. Our cutting-edge solutions are trusted across automotive, smart transportation, rail transit, and industrial automation, powering over 500 million kilometers of autonomous driving.

Our success is built on a simple formula: clarity of vision, rigorous engineering, and an unwavering commitment to quality. With 90%+ automation in our newest factories and a current production rate of 20,000–25,000 LiDAR units per month, we are ready to meet the industry's evolving demands.



Rigorously Tested & Ready for Delivery

- ISO 26262-(2-9):2018
- ISO 9001
- IATF 16949:2016

Seyond Europe

Founded as Innovusion Europe GmbH in 2022, our European headquarters is strategically located in Eschborn, Germany, serving the diverse needs of Europe, India, and the Middle East. Under the leadership of Conrad-Christian Kimmle, our team provides business development, technical support, and logistics for both automotive and infrastructure sectors.

Seyond Europe collaborates seamlessly with our global R&D teams and partners with the largest players in both verticals. We also meet Supplier-Assurance standards, ensuring compliance with evolving supply chain legislation such as the UFLPA and German Due Diligence Act.

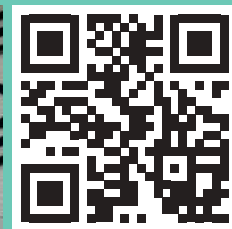




Seyond Europe GmbH

Conrad-Christian Kimmler
Managing Director

+49 6196 96988 01
christian.kimmler@seyond.com



Oli Ramoli
Business Development & Manager
Key Accounts Automotive EMEA

+49 6196 96988 03
oli.ramoli@seyond.com



www.seyond.com

Imprint

Publisher

Seyond Europe GmbH | Frankfurter Str. 92 | 65760 Eschborn/Germany
Managing Director: Conrad-Christian Kimmler | Commercial Register: Frankfurt, No. HRB: 127319 | VAT-ID: DE353320406
Phone: +49 6196 9698801 | Email: info@seyond.com | Website: www.seyond.com

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Content Responsibility

Conrad-Christian Kimmler, Oliver Ramoli, Vanja Schweiger, Frank Schütz

Design

WOLTMANN Marketing | Beidersweg 4 | 21435 Stelle

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WIRmachenDRUCK GmbH | Illerstraße 15 | 71522 Backnang