

Media information

Autonomous trucking

“Aurora Driver” on board: These technologies enable trucks to drive autonomously

AUMOVIO and Aurora are teaming up to bring autonomous trucks to U.S. highways. Sensors and high-performance computers play a crucial role in this effort – as does AUMOVIO’s in-house accident research.

It marks the beginning of a new era: Autonomous trucks are set to hit U.S. highways as early as 2027. They will operate at Level 4 – meaning there will be no driver in the cockpit. Through the development and industrialization of the “Aurora Driver” system, AUMOVIO and Aurora are jointly creating the world’s first system for driverless trucks—designed for high-volume, daily transport operations.

In its exclusive partnership with the U.S. company Aurora, AUMOVIO is responsible for the core hardware: a product portfolio proven millions of times over, including radar sensors, cameras, high-performance computers, control units for automated driving, and telematics units. The system is based on a modular component kit from AUMOVIO, which is being developed specifically for the integration of the “Aurora Driver” autonomous driving system into existing truck architectures. To this end, AUMOVIO is scaling up a LiDAR sensor developed by Aurora specifically for heavy-duty transport vehicles.

“We’re using a broad portfolio of proven—and in some cases highly complex—components to build the ‘Aurora Driver’ and industrialize the system,” explains Andree Hohm, Head of Aurora Program at AUMOVIO. “We’re integrating the technologies into what we call ‘pods.’ These are complete, fully integrated component systems that can ultimately be delivered to a truck manufacturer in a production-ready state.”

AUMOVIO’s internal accident research also plays a central role in the development of the “Aurora Driver” for mass production. The scientific team led by Harald Feifel, Head of Accident Research at AUMOVIO, anticipates all traffic situations that an autonomous truck might encounter. All typical – and even theoretically possible – accident scenarios on U.S. highways are analyzed using extensive databases—and safeguarded with appropriate system responses.



AUMOVIO_PP_System_Overview

AUMOVIO is responsible for the core hardware and relies on a product portfolio that has been proven millions of times over.

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“In accident research, we examine what we’ve learned from situations where drivers encounter autonomous vehicles,” explains Harald Feifel. “For years, we’ve been studying exactly what typical reaction times, following distances, and evasive maneuvers look like. AUMOVIO is one of the leading developers of advanced driver assistance systems. Our goal is to replicate human driving behavior as authentically as possible – without the mistakes that humans make.” After all, this is also one of the findings of accident research: 80 percent of all serious accidents are caused by driver inattention. This inattention does not occur with sensors and computers.



AUMOVIO_PP_Center_Pod

The technologies used are integrated into complete, fully integrated component systems, so-called pods.



AUMOVIO_PP_Front_View_Pods

The pods are delivered to truck manufacturers ready for production.

Here is what the technology can do in detail

- Trucks equipped with “Aurora Driver” operate at Level 4 (L4 for short) in accordance with the SAE standard (SAE stands for Society of Automotive Engineers, the international association for mobility technology). L4 stands for “High Driving Automation.” At Level 4, a vehicle can drive autonomously in a defined environment without a driver. This includes safely handling all conceivable situations, such as technical failures.
- AUMOVIO is developing its own fallback system for the “Aurora Driver.” To ensure safe operation without a driver, autonomous vehicles require built-in redundancies. These serve as a backup in the rare event that a component, a sensor, or the entire system fails. The secondary system operates independently of the main system. Its purpose is to take control in an emergency and bring the truck to a safe stop.

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- Radar and LiDAR sensors, as well as cameras, are essentially the sensory organs of an autonomous truck, while high-performance computers serve as its brain. In self-driving trucks with no driver in the cab, this brain has to process a particularly large amount of data. A truck equipped with “Aurora Driver” has over 40 environmental sensors installed – about four times as many as in a modern passenger car equipped with all standard driver assistance systems.
- LiDAR sensors (LiDAR stands for Light Detection and Ranging) are also crucial for navigation and collision avoidance in autonomous driving. Laser beams generate 3D maps of the truck’s surroundings. This allows the vehicle to “see” its location with exceptional precision.

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