

Media information

Autonomous trucking

Autonomous trucks: a clear path, lots of regulations

A brief guide to autonomous driving: What does Level 4 mean? Why isn't a driver required to be on board as a backup? What regulations allow AUMOVIO and Aurora to deploy autonomous trucks in the U.S.?

Here's what it's all about: Starting as early as 2027, autonomous trucks are expected to operate at Level 4 on U.S. highways. 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.

This is what Level 4 means: Level 4, according to the international SAE classification, means "high driving automation." This means that the vehicle drives autonomously within specified areas (such as highways only) without a driver in the cockpit. In critical situations, the technology safely brings the vehicle to a stop. The levels were established by SAE International, a global professional association for automotive engineers – formerly known as the Society of Automotive Engineers.

What are the other SAE levels? The six levels (0 through 5) defined by SAE International classify the stages of automated driving. They determine who is in control: the human or the car. Responsibility shifts gradually from the driver to the technology. Level 0 (no driving automation): The human is 100 percent in control; assistance systems such as ABS or ESC intervene only briefly. Level 1 (assisted driving): The vehicle temporarily takes over functions such as "adaptive cruise control" or "lane-keeping assist," while the human steers. Level 2 (partially automated driving): The vehicle accelerates, brakes, and steers in defined situations. The driver remains fully responsible and must be able to intervene at any time. Level 3 (conditional automated driving): The vehicle takes over driving completely in certain situations. The driver may look away and is warned when he or she needs to take over the steering wheel. Level 4: see above. Level 5 (driverless driving): The vehicle drives completely autonomously in every situation – including in urban areas.



AUMOVIO_PP_Road_Transport

Autonomous trucks are expected to operate at Level 4 on US highways starting in 2027.

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This is the legal basis in the U.S.: Approvals in the U.S. are based on the principle of self-certification. The safety standards that must be met are defined by the National Highway Traffic Safety Administration (NHTSA), the U.S. civil agency responsible for road and vehicle safety. Compliance with the technical “Federal Motor Vehicle Safety Standards” (FMVSS) is required. This includes, for example, an onboard “Safety Management System.” Aurora trucks are equipped with an independent backup system – developed entirely by AUMOVIO – that takes over in the event of a failure of the main system. To put up to 2,500 vehicles per year per manufacturer on the road under this framework, no additional approvals are required, neither from individual states nor from the NHTSA.



AUMOVIO_PP_Driverless

Approvals for autonomous trucks in the U.S. are based on the principle of self-certification.

This is the current legal situation in Europe: A binding regulatory framework is still taking shape. In June 2026, the United Nations released global safety standards for automated driving systems and technical verification requirements that manufacturers must comply with. Based on these standards, a total of nearly 100 regulations in the EU – which have not yet taken driverless mobility into account – are now to be amended by the end of the year. This is a prerequisite for driverless vehicles to be permitted on the road. Exception: small-scale production runs for testing purposes. These may comprise up to 1,500 vehicles across Europe. An EU-wide type approval for mass production is expected in 2027. This also includes the EU’s “Cross Border Testbed” initiative, designed to facilitate cross-border test drives.

Here's the situation in China: Currently, only pilot projects for testing purposes are permitted. Operation is limited to specific areas, such as individual cities. To pave the way for large-scale production for everyday use, the new United Nations safety standards are being reviewed (as in the EU).

Here's what Andree Hohm, Head of Aurora Program at AUMOVIO, has to say: “We need internationally harmonized guidelines to be able to develop and test in a legally compliant manner. That's why we welcome the efforts being made at many international levels, which are being significantly driven forward not least by the German federal government. The United Nations' resolutions on the framework conditions for Level 4 type approval are a milestone. At the same time, individual countries must now adapt their national regulations to accommodate driverless mobility. It is essential to quickly establish the necessary registration and traffic law requirements now so that we are prepared for the market ramp-up—for example, for large fleets of autonomous trucks—even outside the U.S.”

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