

Backgrounder

From commodity to ecosystem: how VDO is connecting the commercial vehicle industry

For decades, the tachograph was merely a device for complying with legal requirements – a box in the cab that recorded driving and rest times because it was required by law. That era is over. Today, the digital tachograph is the central data hub of an ecosystem that encompasses workshops and fleet services, toll systems and charging infrastructure. With millions of devices installed throughout Europe, VDO's tachograph technology is one of the most trusted sources of data in road freight transport. The question is no longer which device is installed in the vehicle, but how can its data be utilized throughout the vehicle's entire lifecycle.

This shift – from hardware to connected services – is the story behind the VDO Ecosystem, which brings together four solution areas: workshop solutions, fleet solutions, tolling solutions and charging solutions. Each area addresses a specific operational need on its own; together, they transform previously separate processes into a seamless system for day-to-day transportation operations.

A trusted data foundation

At the heart of the ecosystem is the DTCO, VDO's digital tachograph. The latest generation, the DTCO 4.1b, combines tamper-proof GNSS data collection with new signature procedures, thereby providing fleet operators and authorities with a reliable source of data. This "trusted data" encompasses far more than just driving and rest times: loading and unloading operations, border crossings, and driver identities are recorded, encrypted and archived via the VDO Cloud in a legally compliant, audit-proof manner.

This forms the principle running through the entire ecosystem: trusted data, captured once, used many times. Instead of separate systems that collect redundant information, a single reliable foundation provides data for workshop diagnostics, fleet management, toll collection and billing alike.

Workshop solutions: the workshop as digital service hub

The workshop has evolved from a facility where vehicles are repaired and maintained into a digital service center for the entire fleet. Increasing regulatory requirements are driving up the need for specialized service expertise, while linking tachograph data with workshop diagnostics creates greater transparency for both the workshop proprietor and the fleet operator. VDO combines in-depth tachograph expertise, specialized tools for workshops, an extensive partner network, and digital services that link vehicle data with the necessary service – thereby transforming workshops into a compliant, data-driven component of the broader ecosystem. Modifications and calibrations to the DTCO can only be performed by authorized workshops with the appropriate workshop card. Authentication of service personnel and complete documentation of interventions contribute to a high level of safety and security throughout the system's entire lifespan.

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Fleet solutions: unified overview of vehicles, drivers and compliance

Fleet managers need a unified overview of vehicles, drivers and regulatory obligations – not a patchwork of disjointed tools. As data from tachographs, vehicles and telematics increasingly converge, the true value lies in combining these sources rather than treating them separately.

VDO Fleet meets this need. As a digital cockpit, it transforms data from tachographs and the cloud into actionable insights: driver management, live tracking, vehicle status, infringement analysis, and audit-ready reporting. It is used in more than 25,000 fleets, for 300,000 vehicles and 500,000 drivers in over 30 languages. Crucially, it is based on accessibility: open interfaces connect it to numerous partner applications and existing customer systems. Collaborations with Samsara and FleetCheck demonstrate that digital fleet services are increasingly emerging from interconnected ecosystems rather than closed platforms, creating more use cases and greater transparency in day-to-day operations.

Tolling solutions: from an isolated obligation to integrated cost management

Toll collection is currently undergoing a similar transformation: it is evolving from an isolated, mandatory task into an integral part of fleet management and cost planning. As European toll systems expand and diversify, cross-border complexity is growing, and operators are increasingly expecting uniform solutions rather than a patchwork of national systems.

VDO builds toll collection directly onto the existing vehicle infrastructure. Using the DTCO's integrated DSRC modem, precise GNSS data and the European Electronic Toll Service (EETS)-certified plug-and-play telematics solution VDO Link, toll-related data is captured in the VDO Tolling Proxy Cloud, processed according to defined business rules and securely forwarded to the participating systems. For a fully EETS-compliant configuration, VDO also offers a solution based on the Tolling On-Board Unit 5+, a device that combines motion, zone and stop detection with high-precision GNSS and DSRC communication.

No matter the system, the result is clear: toll services are integrated into existing fleet and compliance data rather than running as a standalone system, making toll costs a transparent part of route and operational management.

Charging Solutions: making electrification manageable

With electrification, charging is taking center stage in fleet data and management systems. The success of an electric commercial vehicle depends not only on the vehicle itself, but also on a well-functioning charging ecosystem. Availability, costs and energy consumption must be transparent to operators so they can plan reliably. The new VDO Charge solutions are based precisely on this concept: a holistic approach that integrates vehicle technology, charging infrastructure and fleet management, and encompasses both AC and DC charging stations for depots, logistics fleets, municipal fleets and corporate locations.

The connecting layer is the VDO Fleet platform, which consolidates vehicle and charging data for daily operations and provides fleet managers with real-time insight into charging status, energy consumption, vehicle availability, and the operational readiness of charging points on their own premises. Together, they form the foundation for efficient and transparent management of charging processes.

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The bigger picture: competing on integration, not hardware

Three conclusions point to where this development is headed. First, the tachograph serves as the data foundation for a digital transportation ecosystem. The focus has shifted from the device itself to the use of its data. Second, digital processes are converging: workshop services, fleet management, toll collection and billing have evolved from standalone solutions into interconnected applications. Third, the next phase of the industry's development is integration itself. Competitive advantages are increasingly determined not by hardware, but rather by how intelligently data and services are linked together.

This is the premise behind the VDO Ecosystem: not a product bundle, but a connected foundation – built on trusted data from the tachograph, which is already installed in millions of vehicles – that enables workshops, fleets, toll and charging systems to function as a single system rather than separate ones.

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In September 2025, AUMOVIO emerged as a spin-off from Continental's former Automotive group sector and has since established itself as an independent technology company. The company offers a broad portfolio for safe, exciting, connected and autonomous mobility, including sensor solutions, displays, brake and comfort systems as well as extensive expertise in software, architecture platforms and advanced driver assistance systems for software-defined vehicles. In fiscal year 2025, AUMOVIO generated sales of € 18.5 billion. Headquartered in Frankfurt am Main, AUMOVIO has around 82,000 employees at more than 80 locations worldwide.

Images and captions



AUMOVIO_PP_VDO_Ecosystem

The VDO Ecosystem intelligently connects drivers, vehicles and fleets.



At the heart of the VDO Ecosystem is the digital tachograph DTCO 4.1b.

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AUMOVIO_PP_DTCO_4.1b



AUMOVIO_PP_VDO_Fleet

VDO Fleet brings together several functionalities in a single, secure cloud-based solution.



AUMOVIO_PP_Tolling

AUMOVIO offers two EETS-certified tolling solutions addressing different fleet and service provider requirements



AUMOVIO_PP_VDO_Charge

VDO Charge offers a range of robust AC and DC charging stations designed for professional fleet operations.

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