



+ PSITraffic/DMS



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# PSITraffic Depot Management

## The digital depot for your fleet

Photos: Adobe Stock, Rheinbahn AG, PSI Transcom GmbH



# Digitizing your depot. If not now, when?

## Efficiency across the board

Conventional systems and analog approaches quickly reach their limits. There are many reasons for this:

- the diversification of your vehicle fleet
- mapping and monitoring of charge levels and remaining ranges
- restrictions and constantly changing requirements for vehicle allocation
- specifications for achieving ecological goals, as well as resource scarcity.

In cases like these, our PSITraffic Depot Management System (DMS) is the solution you need.

Our DMS enables reliable operation while complying with your specifications and requirements. The system ensures that your buses and trams are ready for daily operations and are dispatched for the correct journey. It monitors and controls all processes in your depots – from the arrival of the vehicles, to their supply, repair, and parking – efficiently and in a way that saves resources and costs. Our integrated, intelligent optimization for dispatching makes the best possible decisions in seconds and supports your dispatchers in case of operational deviations.

PSITraffic/DMS enables you to digitize your depot processes, establish a continuous, digital workflow and integrate all areas of your operations: the best way to begin mastering the many complex tasks in the depot.

## DMS, AVMS, charge management – all from a single source

Adding an AVMS and load management system easily expands the DMS into a complete system. With a direct connection to every AVMS, you always have a clear overview of your vehicles, even on the route. In case of disruptions, you can react quickly and make all the necessary arrangements for replacement vehicles or vehicle repair. Continuous data flows eliminate the need for redundant entries thanks to the

standardized interfaces used by the DMS. Processes are automated and support work and procedures in the control center. Emission-free fleets can also be integrated into the system. Whether your buses are powered by diesel, hydrogen, synthetic fuels or electrically – PSITraffic monitors and controls all operating vehicles at the same time. Integrated charge planning and the direct connection to PSI's own (or a third-party) charge management system allow optimized control of all charging processes for your electric buses.

## Fit for the future

Our modular solution can be scaled and expanded to almost any size and is therefore especially future-proof. The use of standardized interfaces for data exchange enables the greatest possible vendor independence.

Whether in disposition, in the garage or during vehicle preparation – the optimization potential is enormous. PSITraffic/DMS creates transparency and maximum efficiency!





## Many tasks. Simply solved.

The modular structure of PSITraffic/DMS and the extensive functionality that has grown over many years allows you to meet your project-specific requirements and execute a phased rollout that fits your needs. Modules can be configured individually or in combination according to your requirements.

**Vehicle identification and tracking**  
 Modern tracking methods are extremely precise. Locations are displayed graphically in PSITraffic and form the basis for the work of dispatchers and employees in the workshop and in supply.

Trams can be controlled by connecting them to a tram and switch control system. In this way, routes can be set automatically, and vehicles entering the depot can drive directly onto the destination track with no waiting time.

**Parking lot assignment**  
 PSITraffic/DMS assigns parking spaces to the vehicles that are presented to drivers on digital displays when they enter the depot based on whether the vehicles are to be supplied, maintained, repaired or immediately used for the next tour.

**Garage and supply**  
 The DMS manages all garage, maintenance and supply work, as well as unplanned vehicle downtime. These can be created (automatically) in the DMS, taking into account the required resources.

They can also be imported from the respective ERP systems. When entering the depot, pending work is considered when the vehicle is parked.

**Dispatch**  
 Dispatching is the heart of the DMS and ensures that vehicles are parked in the depot in such a way that all routes can be served. If a vehicle is not ready for operation, a new route dispatching schedule is automatically created in real-time. The basis for this is PSI's proprietary intelligent optimization algorithm Qualicision. Dispatching can be manual, semi-automatic or fully automatic.

**Operation**  
 All system information is displayed in the form of an operational picture or in table views. This provides a real-time overview of all data available in the system, including parking space capacities, vehicle locations and statuses, and the functionality of the infrastructure (e.g. charging stations).

**Driver information**  
 In addition to registration and deregistration for service, the DMS also records the presence of personnel, the route allocations and the associated requirements for verification. The DMS uses terminals, displays or mobile terminals to inform drivers about their services, the assigned route and vehicle location and status. Simultaneously, the system informs dispatchers about the on-time departure from the depot.

**Optimized refueling**  
 PSITraffic/DMS has precise information about when, where, what and how much fuel was pumped. This enables the system to calculate the remaining range, a central decision-making criterion for route scheduling. Refueling can be optimized according to the consumption values of the vehicles.

**Charge management**  
 Directly connecting to the charge management system ensures that your electric buses are charged and preconditioned in time for the start of their journey. The basis for this is the range forecast and charge planning. They emerge from the consolidation of the vehicle master data and all variable

vehicle and consumption data collected during regular operation. Vehicle preconditioning is automatically begun just-in-time before the start of the journey. Interfaces to leading charging station manufacturers give you security and the greatest possible flexibility in selecting the appropriate supplier.

**Quality management**  
 All archived operational data can be evaluated and rendered in standard reports and as statistics. The data can be automatically exported to external systems, providing you with an overview or proof of compliance with your company's KPIs at any time. Additional reports can be configured independently by system administrators.



## With the complete system you have everything in view.

Our DMS is also available as a complete solution together with the AVMS. The system models all processes in the operational business: from driver and vehicle dispatching at the depot, to operations control, ticketing and passenger information, to comprehensive analyses and evaluations.

### The advantages are obvious

- + Seamless processes
- + Uniform data storage
- + Reduced interfaces
- + Improved data archiving and evaluation
- + One central server, one database



# In focus: The advantages

## Modular

The openness and flexibility of PSITraffic makes it possible to assemble, expand and configure the modular software components according to your requirements. One of the strengths of the system is that it is highly configurable without having to be stopped, let alone reinstalled. The comprehensive pool of existing functions enables a quick system implementation without the need for additional development. This also requires fewer resources on your side.

## Scalable

Both market requirements and the technical environment evolve over the service life of a DMS. Thanks to the modular structure of PSITraffic, you can react flexibly in the face of future changes. This also ensures the possibility of extending the system to any number of depots, vehicle types, subcontractors and external garages.

## Open interfaces

For years, we have been promoting the development of standardized interfaces in all relevant areas in cooperation with other suppliers. This includes participation in the VDV453/454 interface, the definition of the VDV461 interface for linking AVMS and DMS systems, and the VDV463 interface for connecting DMS and charge management. Thanks to this extensive experience in the field of interface development, we can guarantee the ability to integrate all peripheral and third-party systems.

## Process optimizing

The dispatching core used for process optimization is based on PSI's own Qualicision software, which reliably finds solutions within seconds based on operational conditions.

Qualicision is characterized by an outstanding optimization speed with very high solution quality. The system always finds a solution, taking into account a wide range of restrictions and qualitative criteria that can be switched on and off online and which can be configured based on the time of day and with weighting.

## Cloud-capable

PSITraffic/DMS can be easily virtualized and migrated to the cloud – even together with AVMS. Client systems, and with this most importantly all of the interfaces used by the dispatchers, run independently of the backend on any environment, from desktop PCs to virtual environments and smartphone apps. The backend system, comprising databases and application servers, runs autonomously in the cloud. Besides the cost savings thanks to the elimination of hardware acquisition and maintenance costs, flexible scalability is a major benefit.

# Reasons to choose PSITraffic

- + Efficient AI-based dispatching within seconds that considers all operational and environmental factors
- + DMS, AVMS, charge management, and personnel dispatching – all from a single source
- + Integration of bus, tram, subway, emission-free fleets and any number of depots
- + Integrated monitoring of the entire operational situation in the depot and on the route
- + Transparency for the entire fleet status
- + Transparency across all areas of the depot – garage, supply, personnel
- + Optimal vehicle availability
- + Short system implementation phase
- + Open interfaces
- + Manufacturer and hardware independence
- + Flexible, future-proof software architecture
- + Real-time data availability
- + Integrated quality management

How PSI customers have benefited:

**40**  
percent

**Less refueling processes** thanks to integrated tank optimization

**4,000**  
euros

**Cost savings per case** through prevented trip cancellations

**10**  
percent

**Time savings per day** by eliminating double supply duplication

**0.5**  
person years

**Saved** by using automated driver registration

**5,000**  
hours

**Saved per year** through reduced vehicle search times

**20**  
percent

**Time and cost savings per day** through reduced shunting