



+ E-Mobility

# PSI smartcharging

Dynamic load and charge management for control and network integration of your charging infrastructure

load management      charge management      low voltage controlling

PSI smartcharging prepares your network for the requirements of electric mobility and promotes integrated communication

With the increasing number of electric vehicles and charging stations simultaneous charging processes are more likely to cause network congestions and outages. If strengthening the network is too costly or structurally impossible, PSI smartcharging offers the ideal, sustainable platform for intelligent control and optimization of charging processes. In addition to network-enhancing or stabilizing aspects, the system also takes operational demands and economic factors in the following areas into account:

- bus depots (public transport)
- fleet operators
- parking garages and public charging parks
- private infrastructure, which is controlled from the network operator's perspective

The modular structure and use of standard communication interfaces make PSI smartcharging manufacturer-independent and offer virtually unlimited scalability and expandability. Leveraging PSI's expertise in grid control systems, network technology, public transport, and logistics will bring the greatest benefits to the customer.



## PSIsmartcharging ensures safe e-bus operation in our cities

For the public transport of the future, PSIsmartcharging directly exchanges data with bus depot management systems to ensure that electric buses' batteries are charged in time for their intended routes and that safety aspects are taken into account. It continuously monitors the electricity network and can in the event of imminent overload or restrictions in the energy supply redistribute power to restore a stable network

status. The system can flexibly factor changes in electricity prices into the charge planning and generate longterm additional revenue by offering operating reserve. Integration of additional battery storage at the bus depot to increase flexibility may be an option.



### Hamburger Hochbahn AG

PSI load management and bus charging management at Hamburger Hochbahn AG monitors the network and the connected equipment in multiple bus depots. The management system determines and applies an intelligent charging strategy for the vehicles by taking into account the available power as well as operational requirements. This approach fields optimum efficiency, availability, and operational reliability.



## PSIsmartcharging controls charging infrastructure in the low voltage network

During the expansion phase of the charging infrastructure for private transport the numbers of charging stations and wall boxes in the low voltage network are increasing. Even just a few vehicles charging simultaneously can cause an overload in a low voltage line section; consequently, the vehicles power intake need to be monitored and controlled with regard to the actual local grid capacity. In future, charging

capacities and charging times can be controlled in automated processes with due consideration of the actual grid status and customer preferences. Local renewable energy infeeds and available battery storage systems will be integrated for decentralized energy generation and storage and will increase flexibility for consumers in the low voltage grid.

### Here's how you can benefit from PSIsmartcharging

#### Network monitoring and control

- + Monitoring of all voltage levels
- + Automated switchovers in case of a fault
- + Support for emergency operation
- + Limitation in case of bottlenecks
- + Connections to the network control center
- + Power consumption monitoring

#### Planned vehicle charging

- + Charging that is precisely in line with demand
- + Prioritization according to departure time
- + Optimal planning of charging processes
- + Preconditioning of vehicles for their departure time

### PSI Software AG

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