

## elexon at the IAA Mobility 2023

**elexon, the industry leader for charging infrastructures in the logistics sector, will present its fleet product portfolio at the IAA and discuss the technical features required for a successful charging infrastructure.**

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- **Product portfolio showcase: innovative charging point technology, high-yield solar carport, 360-degree charging infrastructure solutions incl. energy self-sufficiency.**
- **Keywords: reactive power and harmonics**
- **Plug & Charge activation via OCPP 2.0.1 with ISO 15118-2**
- **Charging solution with up to 480 kW for simultaneous use at up to 6 charging stations**
- **Solar carport: high-quality steel construction, high-performance PV modules, innovative inverter system solution and modular design**

### Focus on technology

For elexon, the IAA Mobility 2023 was the ideal platform not only to present its extensive fleet product portfolio in its entirety, but also to discuss technical factors that have received little attention to date in the context of charging infrastructure projects. Factors that can, however, already determine the long-term success and benefits of a charging infrastructure.

Fleet managers in companies and public authorities who already manage a charging infrastructure or are currently planning one will be confronted with terms such as "reactive power" or "harmonics" in the future. Electrical engineering terms that have, thus far, received little attention outside the engineering hemisphere. However, today it is already mandatory for the operation of renewable energy plants (RE plants) to provide reactive power and transfer it to the grid. Without the possibility of supplying reactive power as a so-called system service, a connection permit is not granted. This is regulated in the VDE connection guidelines. And network operators can also apply this requirement to connected charging infrastructures. Consequently, there will be no way around reactive power compensation in the near future for most consumer and generator groups, such as the charging infrastructure. The fact is, very few charging infrastructure providers offer this technical

option with their products. elexon was one of the first manufacturers to adopt a topology for its power components that can generate reactive power and minimize harmonics for its new DC charging stations from 80 kW to 150 kW and up to 480 kW, which are already available on the market. "Charging station manufacturers' ability to provide reactive power to the grid demonstrates their commitment not only to enabling fast and efficient charging, but also to strengthening grid stability. This "invisible" support paves the way for sustainable e-mobility, not only charging vehicles but also laying the foundations for a reliable energy future," affirms Rebecca Heckmann, Head of Project Management at elexon GmbH.

### **The future of charging starts today**

Another buzzword that is increasingly dominating the industry is "Plug & Charge" - easier, safer and faster charging without an RFID card. Since the roadmap for the implementation of the ISO15118-2 standard and the OCPP2.0.1 protocol has been completed, plug & charge has become a reality. From a charging station manufacturer's perspective, these protocols are critical to the use of their products. They offer more convenience on both sides of the charging station, for the vehicle owner and the power provider, and are in demand by both customers and the market - a recurring topic during discussions at the trade show. elexon's main focus, as a manufacturer of individual charging solutions, is to reduce administrative work on the part of fleet managers. This makes elexon one of the first manufacturers to have ISO15118-2 and OCPP 2.0.1 compliant charging stations in its portfolio. The development of the new controller required for this began long before the standards were publicly announced. Development took approximately two years and has been successfully evaluated in various field tests and pilot projects with e-cars from different manufacturers. The ISO15118-2- and OCPP 2.0.1-compatible charging station connects to the car, identifies the vehicle by means of a certified contract from the respective mobility provider that is digitally stored in the vehicle, and begins the charging process automatically. The contract data in the vehicle contains holder and tariff information. Apart from this, the e-car communicates technical parameters, such as the charging status. The integrated energy management system organizes the optimal energy supply, taking into account the current status of the power grid. This means that electricity from an attached PV system can also be used. The Smart Charging function additionally optimizes the charging strategy in conjunction with energy management. The connection between the charging station and the backend also guarantees secure data transmission for billing and comprehensive documentation of the charging process, as well as simplified troubleshooting. These new charging stations are a perfect example of synergies between innovative software and hardware development with real added value in everyday life.

### **Unique on the European market**

Maximum flexibility and the reassurance of meeting the legal and technical requirements in the future also play a decisive role in one of the charging solutions presented: the 480 kW DC charging station. This is a solution that covers all current charging capacities and, at the same time, is well equipped for future capacities. With up to 480 kW charging power and up

to 6 charging points at up to 3 terminals including a powerbank, the 480 kW DC charging station offers this feature. Each charging point can be operated with different charging capacities. A maximum of 480 kW and 500 amps can be used per charging point. This means that elexon currently offers the largest number of terminals per base station on the European market. Why? Because currently available charging solutions of this type usually offer five or fewer charging points and reduce usage to 2 columns when charging capacity is high. The other charging points cannot be used during this time. As a result, cost-intensive infrastructure is left idle. A fact that repeatedly found attentive listeners during the IAA talks as well. Elexon's charging solution with up to 480 kW allows all charging stations to be used simultaneously. For elexon's customers, this is a decisive purchasing argument and generated a high level of interest during trade fair discussions. For fleet and mobility managers in particular, the planning reliability and high efficiency factor are what count.

### **Close to the market**

Elexon is also one of the first charging infrastructure providers to respond to the solar carport obligation already in force in many places. This is a change in the law that is of particular interest to fleet operators and an aspect that was often addressed at the trade show. In order to quickly and practically accommodate this new aspect with an economically and ecologically successful charging infrastructure, elexon has developed and manufactures modular PV carports. As a joint venture of SMA Solar Technology AG, the leading global specialist for PV system technology, the development team at elexon GmbH was able to draw on a high level of market and product expertise in solar technology. The result: an innovative inverter system solution with integrated system manager for maximum yield and increased performance combined with modern high-performance modules with 16.60 kWp and, if desired, including a highly flexible battery storage system with high-end battery cells. A combination designed to make the best possible use of the available grid connection power for different electric vehicle charging requirements.

The "solar carport" fits perfectly into elexon's service philosophy. "Companies that want to remain competitive in the future must position themselves sustainably in all business areas. Sustainable corporate management also means being (nearly) self-sufficient in terms of energy supply in order to pursue the company's values and at the same time to be as independent as possible in terms of economic policy decisions and geopolitical developments. elexon's philosophy is based on this holistic approach", explains Marcus Scholz, Managing Director of elexon GmbH. The long-term goal of many customers is to generate, store and use the electricity they generate themselves independently and in a company-controlled manner, supplemented by intelligent load management systems. The IAA visitors were able to experience all of these elements in a visual format and, thanks to digital interaction, understand the relationships between them.

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**About elexon**

*elexon is a joint venture established in 2019 by SMA Solar Technology AG (SMA), AixControl GmbH and aixACCT charging solutions GmbH aimed at advancing the development of charging infrastructures for EVs across Europe.*

*Elexon operates as a full-service provider and, as a result of the merger, boasts extensive expertise in the field of electromobility. elexon focuses on charging infrastructure, energy and load management, as well as the provision of electricity via renewable energies.*

*With its 360° charging infrastructure solutions, elexon offers its customers holistic plug-and-play solutions for the planning, installation and service of efficient EV charging parks from a single source.*