

Battery Show Europe – June 18 to 20, 2024, Stuttgart

Marquardt Presents Solutions for Battery, Fuel Cell and Robotic Charging Applications

- Ready for series production: sensors and components for battery systems and fuel cells
- Robotic charging ready: First live presentation of the Interactive Charging System (ICS)
- New: Wireless Cell Module Controller for mobile and stationary HV applications

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Rietheim-Weilheim, Germany, May 2024 – At the Battery Show Europe, mechatronics specialist Marquardt will be showcasing its broad portfolio of components for battery and fuel cell systems. The global operating company presents production-ready battery management systems, sensors for hydrogen fuel cells and components for digital vehicle communication and positioning with Bluetooth Low Energy (BLE) and Ultra-Wideband (UWB) technology. The new Interactive Charging System (ICS), a fully automated charging solution from Marquardt, which makes robotic charging possible, can be seen live for the first time. Marquardt will also be providing insights into the development of new control units for wireless cell monitoring of battery systems, H₂ safety and contactless level measurement in liquid tanks.

Extremely Fast HV Sensor and Wireless Cell Module Controller

In the field of battery management systems (BMS), Marquardt offers complete systems as well as standardized and scalable components. Marquardt's presentation at the Battery Show will focus on its high-voltage sensor. Compared to conventional sensors, the innovation measures current and voltage extremely quickly and accurately. In the event of an overcurrent, the battery management system can react within just five milliseconds and disconnect the vehicle electronics from the high-voltage battery. Thanks to its scalable design, the HV sensor can also be adapted to the customer's requirements from specification to production in a cost-friendly way. Marquardt will also be presenting

the new Cell Module Controller (CMC), a comprehensive measuring unit that monitors and controls cells in electric vehicle batteries and stationary energy systems, offering reliable safety and performance.

Fuel-Cell: New Sensors for H₂ Leakage and Water Level

Marquardt's BMS components are suitable for mobile and stationary applications as well as for battery-powered and hybrid systems and drives with fuel cells. In the field of hydrogen applications, Marquardt will be showcasing the Cell Voltage Monitoring System (CVM) and the Cell Voltage Pick-Up (CVP) for direct measurement of cell values. Marquardt will also be showcasing its development expertise with new sensors for level measurement and hydrogen leakage detection: The new H₂ Leakage Sensor reliably detects concentrations between 0 and 4 percent of the highly volatile and flammable gas. This makes it an important safety-relevant feature for the storage and operation of hydrogen systems. The possible applications are diverse and range from monitoring and securing heating systems to electrolysis and use in drive systems.

With a new Water Level Sensor, Marquardt also offers the option of contactless level measurement. The new sensor detects without contact to the medium for example the fill level of wastewater tanks in internal fuel cell vehicles and indicates when they are empty.

The Future: Pioneering Role in Robotic Charging

Robotic charging - meaning fully automated charging solutions in interaction between a charging station and a vehicle - is opening up numerous fields of application in the future. This primarily includes autonomous valet parking with an automated charging process for electric vehicles. The positioning of the vehicles in the parking garage and the charging process by a robotic arm at the charging station are carried out autonomously and independently of the vehicle manufacturer. There are further opportunities for robotic charging in the truck and material handling sector as well as in mass charging for fleet operators and in intralogistics.

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Marquardt is playing a pioneering role in the development of the necessary global standards and components and, with the Interactive Charging System (ICS) and the Smart Access PnD3, today already offers vehicle manufacturers around the world central components that make their vehicles robotic charging-capable. The ICS with the integrated E-Lock locking module from Marquardt, which will be presented live at the Battery Show Europe, can be combined with the various global inlet standards (CCS, NACS, ChaoJi, CHAdeMO, GB/T). In addition, it is currently the only charging system to offer the option of an automated charging flap in combination with sensitive S3 button technology and a motorized inlet port cover, one of the basic requirements for future autonomous charging.

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Digital Key Sharing as the Basis for Robotic Charging

With the PnD3 keyless driving authorization system, Marquardt also provides the basis for digital key sharing in exchange with the robotic charging station. The vehicle is positioned using Ultra-Wideband (UWB) technology, while communication with the charging station takes place "over the air" via Bluetooth Low Energy (BLE). As a member of the Car Connectivity Consortium (CCC), Marquardt attaches great importance to using the already standardized CCC communication for digital key sharing as the basis for robotic charging.

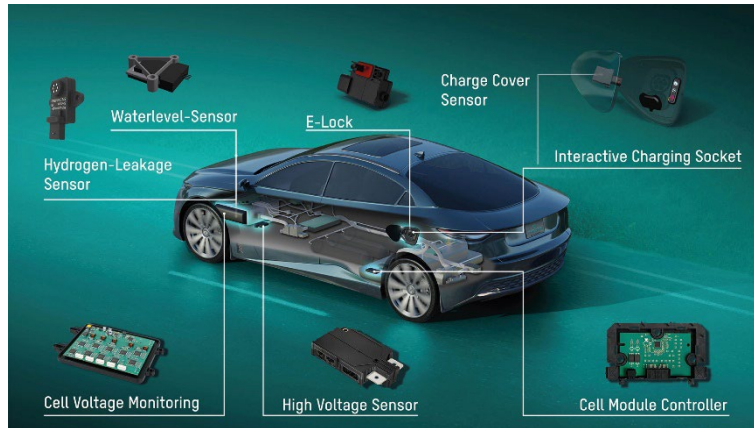
At the Battery Show Europe 2024, Marquardt will show how the interaction between vehicle and charging station works in detail using a fully automated demonstrator and in a 3D animation, which can be seen at the following link:

<https://www.marquardt.com/roboticcharging/>

In addition, Marquardt offers an in-depth overview of all sensors and components for battery and fuel cell systems on its website:

<https://mobilitysolutions.marquardt.com/en/>

Press Photos:



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Marquardt-Portfolio-Shot.jpg

At the Battery Show Europe, Marquardt will be presenting its broad portfolio of components for battery and fuel cell systems.



Marquardt-Batterymanagement.jpg

Extremely fast: The production-ready HV sensor from Marquardt disconnects the vehicle electronics from the high-voltage battery in just five milliseconds.



Marquardt-Chargingsystems.jpg

With the new Interactive Charging System (ICS), Marquardt is presenting a fully automated charging solution for the first time.



Marquardt-Fuelcell.jpg

New in the hydrogen sector: the H₂ leakage sensor and the water level sensor from Marquardt.

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About Marquardt

Marquardt, a family-run company founded in 1925 and based in Rietheim-Weilheim, Germany, is one of the world's leading manufacturers of electromechanical and electronic switches and switching systems. The products of the mechatronics expert are used by many well-known customers in the automotive industry and include operating components, vehicle access, driver authorization systems and battery management systems. The company's systems are also used in household appliances, industrial applications and power tools. Marquardt Group employs approximately 10,600 members of staff worldwide at 22 locations in four continents. The company generated around 1.4 billion euros sales revenue in the fiscal year 2022. Each year, Marquardt invests around ten percent of its revenues in research & development.

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