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P R E S S R E L E A S E

The Battery Show 2024: Eberspaecher presents innovative power management solutions

- **12 V battery management system for passenger car starter batteries**
- **Up to ASIL D protection for 12 V sub-networks with the PowerSentinel**
- **Non-automotive high-voltage BMS from Eberspaecher Vecture**

Esslingen (Germany) / Detroit (Michigan, USA), 17 September, 2024—**At the Battery Show in Detroit Eberspaecher showcases battery management systems (BMS) and switching solutions, that provide safety and performance in automotive as well as nonautomotive applications. From October 8 to 10 visitors can see the 12 V BMS and more at booth 4850. With its connection to the on-board network, it provides the necessary safety in passenger cars for automated driving functions up to safety integrity level ASIL C.**

Automotive power supply networks are becoming increasingly complex. At the same time, continuous efficiency and weight optimizations are required, and high safety criteria must be met. In the low-voltage range, switching from lead-acid to lithium-ion batteries saves up to five kilograms in weight. The recently launched **12 V Battery Management System** provides the automotive controls with the status of the battery over a connection to the on-board network via CAN or LIN bus. This allows the BMS to react accordingly in an emergency and perform all the necessary actions to bring the vehicle to a safe standstill. The BMS monitors and protects four to six lithium-ion cells and regulates charging and discharging behavior. This increases the service life and guarantees that they remain in a safe operating range. Its compact design, with dimensions of 132 mm by 80 mm, facilitates integration in the battery, while proprietary busbar technology eliminates the need for external current measuring shunts. Innovative MOSFET relays improve

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performance. The system can handle a continuous electrical load of 200 A and up to 1400 A for one second at ambient temperatures up to 80°C, while only requiring 130 µA of power in deep sleep mode. Additionally, Eberspaecher's solution features diagnostic capabilities to detect individual MOSFET faults in the circuit breaker online without having to open it and therefore shut down the vehicle.

Protecting low-voltage sub-networks

Whether for autonomous driving in redundant vehicle electrical systems, safety-critical loads such as electric brakes ("X-by-wire") or an electronic fuse based on semiconductors (e-fuse) - the **PowerSentinel Advanced Switching Solution (PASS)** protects sub-networks up to safety integrity level ASIL D and disconnects them from the vehicle electrical system when a fault or emergency occurs. The semiconductor switch can carry currents of up to 2000 A for short periods and 200 A continuously. The low quiescent current of less than 100 µA when the disconnector is active prevents the battery from discharging. The PowerSentinel is initially designed for 12 V, but will offer the option of a 24 V or 48 V version in the future. With dimensions of 148 mm by 108 mm by 22 mm, the switching solution makes installation in the vehicle very easy. In addition, the modular concept behind the configuration of the switch offers the customer maximum flexibility in terms of both hardware and software. The PowerSentinel comes with a LIN bus connection to the vehicle electric system as standard. CAN is also possible as an alternative. It will be available from the end of 2024.

Scalable high-voltage BMS for non-automotive applications

Eberspaecher Vecture brings over 20 years of experience in designing and manufacturing reliable and safe battery protection, fuel gauging and charging systems in the non-automotive sector. At the Battery Show the specialist from Concord, Ontario, Canada, will be showcasing the distributed BMS consisting of the **Battery System Manager V04282** and up to 20 **Battery Cell Mangers V04288** that monitor cell performance. The Canadian-made system is scalable and supports up to 1,000 V. It protects four to 16 cells in any battery chemistry. This, combined with its modularity, allows it to be customized for many high voltage applications including energy storage, off-road mobility, material handling, UPS, industrial and more. Passive cell balancing optimizes the battery performance in operation while charging. The optional voltage transducer provides string voltage data to the Battery System Manager.

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Captions:

- *The 12 V battery management system from Eberspaecher has a connection to the on-board network—either via the CAN or LIN system.*
- *The PowerSentinel Advanced Switching Solution protects sub-networks up to safety integrity level ASIL D.*
- *The V04282 Battery System Manager for the distributed system monitors up to 20 Battery Cell Manager (V04288) to protect a maximum of 16 cells.*

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About Eberspaecher:
With approximately 11,200 employees at 80 locations worldwide, the Eberspaecher Group is one of the automotive industry's leading system developers and suppliers. The family business, headquartered in Esslingen am Neckar, stands for innovative solutions in exhaust technology, automotive electronics and thermal management for a broad range of vehicle types. In combustion or hybrid engines and in e-mobility, the components and systems from Eberspaecher ensure greater comfort, higher safety and a clean environment. Eberspaecher is paving the way for future technologies such as mobile and stationary fuel cell applications, synthetic fuels as well as the use of hydrogen as an energy carrier. In 2023, the Group generated revenue of around 6.4 billion euros. Net revenue adjusted for transitory items amounted to 3.0 billion euros.