



SUCCESS STORY

Modular high-performance battery systems: Innovation for e-mobility

Darmstadt-based technology leader AKASOL develops and produces an impressive range of innovative, modular high-performance battery systems for electric and hybrid utility vehicles. International vehicle manufacturers count on its reliable and scalable batteries. Thanks to robust and compact CombiTac connectors including custom pre-assembled cables, AKASOL AG can guarantee safe, long-lasting operation for its customers' electric vehicles.

What started as the “Academic Solar Technology Group” at the Technical University of Darmstadt is now an international market leader and global player in the field of modular, high-performance lithium-ion battery systems for utility vehicles, headquartered in Darmstadt, Germany. AKASOL's innovative battery systems are used in electric and hybrid utility vehicles for passenger and freight transportation on roads, railways and waterways, as well as in industry.

Innovative visions and a passion for creating alternative drive concepts are the foundation of AKASOL's business success. Today, AKASOL's cutting-edge products are an integral part of the design concepts of some of the world's leading utility vehicle manufacturers.

The business needs

AKASOL's modular and flexible product portfolio stands out for its very high energy density and exceptional thermal management, allowing for compact and freely scalable design. Developing a high-performance, modular OEM battery system called for a highly powerful, robust and reliable pluggable connection solution that was also extremely safe and had the necessary certification for use in the automotive industry.



Market Segment: E-Mobility



Industrial Connectors: CombiTac

Application: Connection for power and data transmission for battery modules

- Individually configurable
- Vibration-resistant
- Extremely reliable and robust operation



The challenge

Stäubli worked jointly with AKASOL to configure a solution based on the modular Stäubli CombiTac system, flexible enough to support a 30% increase in the battery design's performance even without any design modifications. Stäubli also implemented the connection with pre-assembled cables according to the specifications of AKASOL's OEM customer.

The solution

These connections, which carry current as well as data signals between the individual battery modules and to the power electronics, allow for safe battery maintenance operations. Simply unplugging the power module from the battery enables technicians to work safely with no live voltage. Therefore, it's possible to change fuses without the need for an electrician or additional safety staff. This solution ensures that there is absolutely no voltage at the power module.

The modular connections also ensure fast, safe connections during assembly of the in-

dividual battery layers. Thanks to its robust design, the high-quality CombiTac solution can even stand up to strong vibrations in continuous operation. At the customer's request, an additional circuit board for monitoring was built into the power electronics with the CAN bus as part of the safety technology. This is another area of Stäubli's expertise, making the solution even safer.

The added-value provided

The Stäubli CombiTac connector system impressed the engineers at AKASOL with its proven reliability and robustness. AKASOL also appreciated the Stäubli team's flexibility and expertise in implementing the additional technical specifications and strict safety requirements of the international utility vehicle manufacturer. The user-specific cable solution allows for safe and efficient assembly of battery modules. For AKASOL's customers, the use of Stäubli's safe connector solution in the high-performance battery systems guarantees continuous, long-lasting electric vehicle operation and the highest level of safety for maintenance work.

Customer benefits

- Flexible implementation of additional, strict safety requirements
- Quick and safe installation
- Failsafe and durable electric vehicle operation
- Highest level of safety for maintenance-work

About Stäubli

Stäubli is a global mechatronics solution provider with three core activities: Connectors, Robotics and Textile. The international Group has a presence in 29 countries.

Stäubli Electrical Connectors is a specialist for advanced contact technology and technically mature solutions with a product portfolio ranging from miniature connectors up to high-power connectors for various industries.

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