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Electronic Systems Are Decisive

The shift to electric mobility poses huge challenges for both industry and the whole of society. Issues like comprehensive charging infrastructure and misgivings held by consumers about range are continually the target of both professional and general discussion. Political incentives, for example to increase the number of charging stations, will certainly play a part in achieving more widespread acceptance of electric drive systems. But it is the automobile industry itself that will be able to make sure with innovative technical solutions that users become increasingly convinced of the great potential of electric mobility.

The key to this lies, among other things, in increased performance of the applied battery electronics: While the battery itself cannot be arbitrarily enlarged due to electrochemical limitations, its own weight, and the targeted cost frame, the stored amounts of energy can be used even more efficiently and sustainably by means of intelligent control and appropriate monitoring. So it all depends on optimally converting the provided energy into propulsion – and this is exactly what can be done by using intelligent, efficient battery management systems that analyze all the parameters of the rechargeable battery in real time, and at the same time predict a residual range that is as accurate as possible. Furthermore, precise knowledge of the current state of all the battery components

will allow additional premium functions, such as a temporary increase in vehicle performance.

Moreover, the use of high-performance battery electronic systems has a positive impact on the ecological footprint of the vehicle: Not only is the battery more evenly charged in the vehicle thanks to sophisticated cell management, which makes it more durable, the “state of health” of the components determined by the electronic system forms the basis for later reuse of the rechargeable battery as a stationary power store. The extended operating life will significantly improve the ecological balance of the electric drive.

Looking ahead, it is already foreseeable today that the currently very broad technology and performance field of battery cells will undergo increasing consolidation, so that quite a few cell manufacturers will be able to provide the OEMs with equal quality and performance for high-volume applications, whereas electronics will continue to play a major role in the creation of new functions, increasing the efficiency of the vehicle, and improving the comfort of the driver. Continual development of the battery management systems, together with all the associated electronic components and software that is based on them will thus enable the automotive industry to develop individual solutions for the premium vehicles of tomorrow.