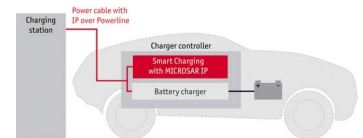


Intelligent Battery Charging in Electric Vehicles

MICROSAR IP from Vector supports Smart Charging

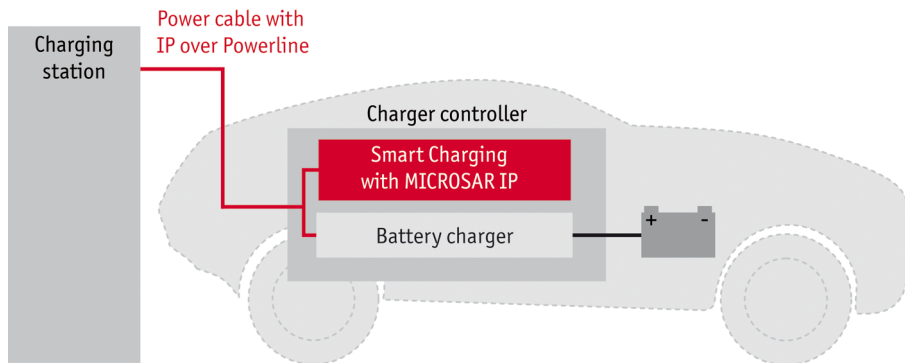


Stuttgart, 2010-06-17 – Vector is developing standard software modules for charger controllers in electric vehicles. Therefore, the Vector MICROSAR IP-Stack was extended by adding protocols for Smart Charging communication. In addition, protocols from the Internet world, such as HTTP, JSON, DNS and TLS (Transport Layer Security) are now already available for special customer functions. The standard software modules are being developed for series production and in close cooperation with a large German automotive OEM. The protocols for Smart Charging are expected to be available in MICROSAR IP in the fourth quarter of 2010.

In the field of electric mobility, in addition to the power connection, intelligent charging (Smart Charging) of the vehicle's battery requires a communication channel between the charging station and the vehicle. This channel is used to exchange information for the charging process and electrical accounting. The communication channel may be implemented by an internet connection over the power cable – which is known as IP over Powerline. The advantages of this solution are that additional contacts in the plug are avoided while a new and simplified plug is used, and very high data transmission rates of up to 200 Mbit/s are possible. To ensure that in future every vehicle can be connected to every charging station, powerline communication must be standardized. This is currently being done in ISO/IEC 15118.

To implement Smart Charging, a charger controller is needed in the vehicle. First, it has to contain an IP Stack for handling protocol communication with the charging station. Second, the controller must have a CAN Stack to apply

the interface to the vehicle's existing network, e.g. power management, instrument cluster, etc. To prevent manipulation of the IP interface, a TLS-based authentication and data transfer system is needed.



[Figure: MICROSAR IP is used for powerline communication between charging station and on-board charger controller]

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About Vector Group (Revised: 2010-06-01):

Vector is the leading manufacturer of software tools and software components for networking of electronic systems based on CAN, LIN, FlexRay, MOST as well as multiple CAN based protocols.

The Vector know-how is reflected in a wide range of tools as well as in integrated consulting services with software and systems engineering. Workshops and seminars complete the manifold training program. Customers from the automotive engineering, the commercial vehicle, transportation and control technologies around the world trust in the solutions and products from the independently-owned Vector Group.

Vector Informatik GmbH was founded in 1988. About 860 employees work for Vector Informatik and Vector Consulting Services in Stuttgart or in one of the subsidiaries in USA, Japan, France, Great Britain, Sweden, the Republic of Korea, India and China. The group's revenue in 2009 was 96 million Euros.