

Can power line communications reduce the wiring effort of automotive battery management systems?

Modern automotive battery management systems (BMS) compete with challenging performance and safety requirements and need to monitor a large amount of battery parameters. In this paper, we propose power line communications (PLC) for high voltage (HV) traction batteries to reduce the BMS wiring effort.

What is power line communication (PLC)?

This knowledge can then be used to implement the power line communication (PLC) method. The PLC technique helps us to reduce the wire harness of a battery pack by using the existing high-voltage lines of the vehicle as the main transmission channel.

What is high voltage power line communication (PLC)?

Recently, high voltage (HV) power line communication (PLC) has been proposed as an attractive and innovative communication technique to improve cost efficiency and reduce weight and wiring overhead in the battery system [20, 21, 22, 23, 24].

How can a power line communication (PLC) network optimize energy density?

To optimize the energy density available within a lithium ion (li-ion) pack we demonstrate how a power line communication (PLC) network can be formed at an individual cell level. This reduces the need for complex communication cables within a vehicle wiring loom.

How a PLC technology helps a battery pack?

The PLC technique helps us to reduce the wire harness of a battery pack by using the existing high-voltage lines of the vehicle as the main transmission channel. This leads to cheaper battery packs by reducing the amount of used material for the wire harness and production time as well as assembly complexity.

Is power line communication a viable alternative Communication technique for BMS data transmission?

6. Conclusions Power line communications for HV battery systems is an attractive alternative communication technique for BMS data transmission and can pave the way for advanced single-cell monitoring methods such as electrochemical impedance spectroscopy being implemented in future smart cells and smart battery systems.

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Fortunately, LED lamps can be controlled through existing power lines using PLC technology. PLC technology allows communication over a long range. New OFDM-based PLC technology, including emerging standards such as G3-PLC(TM), is simplifying integration of lighting control applications by providing noise immunity and interoperability.

Power Line Communication (PLC) enables data networks to be created in environments where only power wiring is available between nodes, perhaps when either cost ...

Power Line Communications (PLC) is a technology that carries data on a conductor that is primarily designed for electric power transmission. Since it can be used to implement two-way communications over existing power ...

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Power line communication (PLC) in automotive traction batteries is considered an attractive alternative to the serial-bus communication used in state-of-the-art

Whether it's a live power line, a battery, or an appliance coming into contact with a bathtub, spa, pool or the ocean, taking proper precautions against electric shock drowning (the death of swimmers exposed to electric currents in the water) and to ...

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