

Used in development platform

The Fraunhofer Institute for Integrated Systems and Device Technology (IISB) has chosen the IVT-S shunt-based current sensor by Isabellenhuettenwerke for its foxBMS development platform.

□

The IVT-S provides a CAN interface and measures the current in the foxBMS development platform for battery management systems
(Photo: Fraunhofer IISB)

[Zoom](#)

The IVT series features temperature-compensated current and voltage measurement in a single component. The product is mainly used in the rapidly growing market for lithium-ion traction batteries and can be found in electric cars, electric trucks, electric buses, and electric aircraft as well as in materials handling. The foxBMS platform is a gateway for researchers and developers of battery management systems. It is an open-source platform, meaning that any companies or research institutes are free to use it to develop or test their own products – such as electric vehicles or applications with similar requirements.

“We opted for the IVT-S from Isabellenhuettenwerke because this current sensor offers precision current measurement in combination with coulomb counting to determine state of charge in automotive battery systems up to 1000 V,” explained Dr.-Ing. Vincent Lorentz, Group Manager Battery Systems at Fraunhofer IISB. The IVT-S has a galvanically isolated CAN interface. The integrated, three-channel sensor measures the voltage of the battery and monitors high-voltage protection and fuses. The product is often used in the power distribution unit, the battery junction box, or the high-voltage box. The sensor is placed in the battery’s minus pole, as the current measurement always takes place in relation to the voltage of the shunt ground. This enables the overall battery voltage to be monitored. In addition, voltage measurement can also be used to monitor the pre-charging circuit or the circuit breaker.

The integrated CAN interface ensures a flow of data between the sensor and the platform. Due to the high level of precision and resolution in the mA range, the sensor also detects standby current and enables the foxBMS to record extremely precise information on the SoC (state of charge), the SoH (state of health) and the SoF (state of function) parameters of the overall battery system. Besides raw data for current and voltage measurement, the BMS can also provide temperature, output, and energy values through the CAN interface. The sensor also offers an ampere-hour meter for charging and discharging currents. The robust high-voltage box protects the sensor from environmental stresses.

[hz](#)