Sensors from Sensitec provide a highly dynamic and precise current measurement. Characteristic features of the CFS1000 current sensor are the extremely compact design, the excellent linearity, the high measurement accuracy and low energy consumption.

The CFS1000 sensor works without an integrated busbar. The current range to be measured is determined by the shape and design of an external busbar. By variation of the geometry of the external busbar the CFS1000 can easily be adapted to different current ranges and applications.

All trends to be observed in power electronics have one demand in common: higher power density. Furthermore, sensors must be compact and fast. Sensitec has developed a Magneto-Resistive (MR) current sensor which fulfills both requirements.

Your benefits at a glance.

- Compact sensor design particularly for high current applications
- No hysteresis- and saturation effects due to a coreless design
- High bandwidth enables high power density
- Fast, configurable overcurrent detection
- High accuracy via a measurement range of 20 A up to 1000 A
- High flexibility regarding possible applications
- JEDEC-compliant SOIC housing
- Temperature range from -40 to +125 °C
- Galvanic isolation due to the magnetic measurement principle
- AECQ-100 qualification (pending)

As the CFS1000 sensor has no integrated primary busbar a flexible use for different current ranges is possible. For current measurement ranges up to ca. 50 Ampere the external busbar can be realized via a metallization layer in the printed circuit board for the power electronics to save space and cost.

We support you.

Sensitec gives support by means of the „Calc-U-Bar“ software for the calculation of the current measurement range defined by you. Even complex busbar designs can be generated in cooperation using modern 3D-FEM-simulation tools.

Background.

The MagnetoResistive effect offers the unique combination of bandwidth, resolution, miniaturization and robustness and is well suited for compact and fast current sensors. The power loss is considerably lower compared to Shunt-resistors and the response time is nearly one order of magnitude faster compared to current sensors based on the Hall-effect.
The project aims at new system architectures for drive-train by developing a smart, compact and durable single-wheel drive unit with integrated electric motor, compact transmission, full SiC power electronics (switches and diodes), a novel control and health monitoring module with wireless communication, and an advanced ultra-compact cooling solution. The advances over the current state of the art are an efficiency increase by 20 %, an improved driving performance due to a significant weight reduction (30 %) as well as reduced energy losses in the power module (50 - 70 %).

In the schematic below the cooperation between the user and Sensitec is described via important milestones.

Electromobility.

Power Train: EU-Project COSIVU.

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