

Dynamic and precise current measurement with robust magnetoresistive sensors

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Abstract:

As power electronics continue to decrease in size and cost, the demand for small, low cost, high performance, noise immune current sensors has increased dramatically. This trend is accompanied by increased awareness regarding energy efficiency, which makes precise, dynamic current sensors an essential part of the toolbox for power electronics engineers.

After more than a decade's experience with the CMS range of magnetoresistive current sensors and its derivatives, Sensitec GmbH of Lahnau, Germany, has now introduced the innovative new CDS4000 family of current sensors, that offers higher precision, higher dynamic performance, lower power consumption and a wider rated current range in a very compact package.

This new coreless magnetoresistive current sensor is designed for the measurement of DC, AC, pulsed and mixed currents with integrated galvanic isolation. By employing microsystem technology it reduces significantly the required printed circuit board footprint area and offers superior performance to standard open loop and closed loop Hall effect based current sensors.

The still new technology of magnetoresistive sensing offers to both improve on the high accuracy of Hall effect sensors and also significantly reduce the size by eliminating the magnetic core required by the Hall based sensors.

This new family of sensors is ideally suited to a wide range of applications, for example:

- AC variable speed drives for motors
- Converters for DC motor drives
- Converters for photovoltaic devices
- Power supplies for welding machines
- Power supplies for laser machine tools
- Uninterruptible power supplies
- Switched mode power supplies

In all these applications the compact precision and speed of the new CDS4000 current sensors enables significant performance improvements in terms of accuracy, speed and energy efficiency.

