

16-bit sensor signal conditioner provides energy-efficient high accuracy amplification and high resolution output

Dresden, Germany, January 19, 2012 - ZMD AG (ZMDI) today introduced a class-leading 16-bit sensor signal conditioning IC (SSC) for calibrated resistive sensor modules. The ZSSC3016 combines high accuracy amplification, 16-bit precision analog-to-digital conversion, and an 18-bit DSP for linearization and calibration functions. The high resolution sensor interface ASSP provides special features for battery driven low power devices, such as an overall current consumption of less than 1mA combined with an ultra low standby current of less than 250nA, operation voltages between 1.8 and 3.6V and an intelligent power save scheme to ensure lowest overall current consumption. Designed for high resolution altimeter module applications, the ZSSC3016 is ideal for use in mobile phones, sport watches or outdoor GPS tracking systems.

“Energy-efficiency is what we do best. We designed the ZSSC3016 to provide our customers with the required resolution and accuracy for their next generation battery products,” said Michael Georgi, Engineering Manager at ZMDI. “Unlike many available products today, the ZSSC3016 comes with an internal signal correction and allows customers to minimize engineering efforts and costs.”

With a practically noise free 16-bit output signal, the ZSSC3016 allows an altitude resolution of less than 15cm at sea level. It is accurate enough for barometric altitude measurement for portable navigation or emergency call systems, altitude measurement for car navigation, inside hard disk pressure measurement, and weather forecasting equipment. Modern consumer products, such as motion sensing sport equipment or multi-function watches greatly benefit from the ZSSC3016's precision. Medical products, which require this level of precision, include medical gas control, medical infusion pumps, ambulatory non-invasive pump systems, and occlusion detection systems.

The ZSSC3016 features an internal sensor supply regulator with an excellent power supply rejection ratio (PSRR) eliminating the need of an external buffer cap and making it attractive for mobile phones or other transmitters which are creating battery voltage dumps during operation.

Technical features

The ZSSC3016 operates at a temperature range of -40°C to +85°C. Accuracy is less than $\pm 0.10\%$ FSO over the full temperature range. The ZSSC3016 can perform offset, span, and first and second order temperature compensation of the measured signal. Developed for correction of resistive bridge sensors, the ZSSC3016 can provide a corrected temperature output measured with an internal sensor. The measured and corrected bridge values are provided at the digital output pins, which

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can be configured as I2C or SPI.

Digital compensation of signal offset, sensitivity, temperature, and non-linearity is accomplished via an 18-bit internal digital signal processor running a correction algorithm. Calibration coefficients are stored on-chip in a highly reliable, nonvolatile, multiple-time programmable memory. Programming the ZSSC3016 is simple via the serial interface and the PC-controlled calibration software provided in the ZMDI Development Kit.

Availability & Pricing

The ZSSC3016 is available as die for wafer bonding. Parts are priced at 0.78 Euro / US\$1.09 in volumes of 10k. Samples and wafer material are available now.

See more at www.zmdi.com [1]

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