

DATAWEEK

ELECTRONICS & COMMUNICATIONS TECHNOLOGY

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FEATURING:
Power supply & management



**Integrated Modules
optimise space
and EMI**



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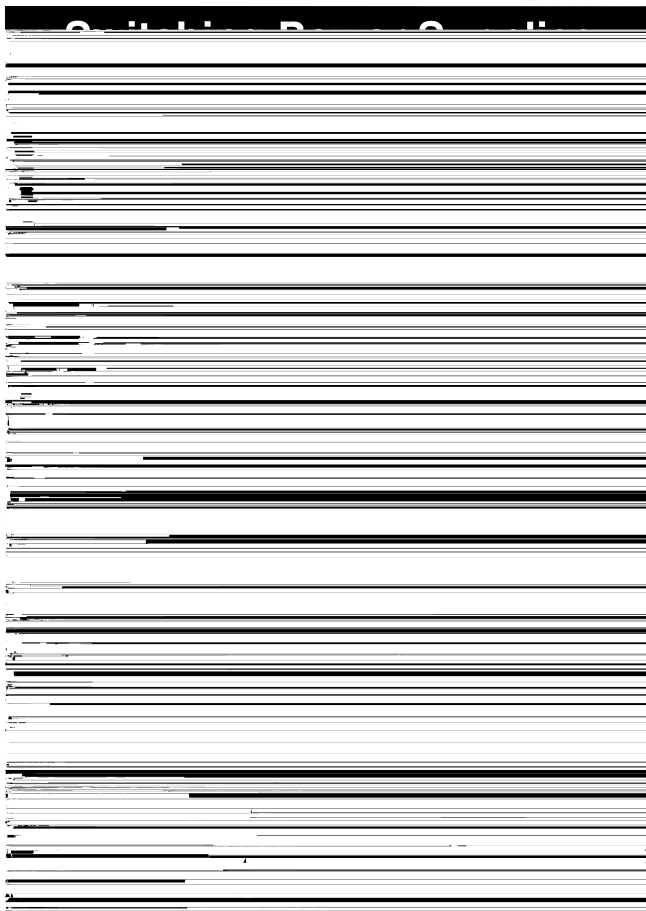
High side current monitor for accurate current measurement

The IX1848 high side current monitor, part of a future family of signal interface products from *Ixys*, is an integrated circuit incorporating a precision amplifier with adjustable gain and level shift features. The IX1848 provides the system designer with the ability to measure current signals in a high side current path, enabling signal measurement outside of the ground signal path in power electronic circuits.

The IX1848 is a versatile precision amplifier, allowing current sensor signal amplification and level translation to a ground reference level with a selectable gain of 10X or 50X. By selection of the current sense element and the signal gain, a large range of current signals can be measured with an accuracy of 0,7% typical for a full scale signal. The input voltage covers a wide range of 2,7 V to 40,0 V.

The IX1848 comes in a small 8-Lead SOIC surface mount package, with rated operation of -40 to +85°C.

For more information contact Avnet Kopp, 011 809 6100, www.avnet.co.za, sales@avnet.co.za



Integrated modules optimise space and EMI

Dennis Pendergast, Vicor

In an effort to improve vision systems in helicopters, designers are replacing bulky cathode-ray tube (CRT) monitors with much thinner and space-efficient liquid crystal displays (LCDs).

For new applications, some are specifying LCDs as small as 6,4 cm across to make the most of the cockpit space. These changes make new demands on power and the need to manage electromagnetic interference (EMI).

UK-based Highlander, one of the companies active in this market, has shipped more than 500 LCD monitors to police and military organisations in the UK, France, Germany, Spain, the US and other countries around the world.

Complex mixture of output voltages needed

As a company, Highlander started in 1998 assembling display systems for avionics but was soon being asked to develop the displays as well. A key issue with designing LCD monitors for airborne use lies in the power supply. Helicopters generally provide a single supply voltage of 28 V. LCDs however, need a complex mixture of voltages and control frequencies to generate the display and provide illumination through an inverter-driven fluorescent backlight. As customers demand the integration of compute functions into the monitors, the ability to support a complex mixture of output voltages will become even more important.

To provide the necessary power at the right voltages, the company has used DC-DC converters from *Vicor*.

Vicor's second-generation converters were designed to be

user-customised. Almost any combination of input, output and power is available on each module. This reduces the need to mix and match multiple off-the-shelf modules within a system, which helps to save space. Customisation is made easy through the *Vicor* Design Assistance Computer (VDAC) tool, a patented system that enables *Vicor's* customers and partners to specify and check the configuration of its second-generation DC-DC converters. Using VDAC, *Vicor* was able to provide a converter tuned specifically to Highlander's latest generation of products.

Further space savings are made through the DC-DC converters' use of low-noise zero-current switching and zero-voltage switching. These techniques, coupled with advanced power semiconductor packaging, provide high density with low temperature gradients. The second-generation design tripled power density compared with previous DC-DC converters, vital for the designs in the space-constrained aerospace sector.

EMI becomes a problem

Many designers of electronic systems are faced with the dual challenge of trying to squeeze as much functionality as possible into a small space as well as dealing with the EMI from systems that operate at increasing frequencies. As the size of the system reduces, space constraints make it difficult to use conventional passive shielding techniques, which are often bulky. However, careful design can stop EMI problems close to the source.

By making use of active EMI filtering techniques, it is possible to meet the stringent requirements of defence standards such as the US Department of Defense DO160 standard. This standard demands that electronic systems pass stringent EMI tests to ensure that they will not interfere with other critical systems in an aircraft.

The problem of achieving small size with low EMI is particularly difficult in the cockpit of a helicopter. Helicopters equipped with daylight and night-vision cameras are being used around the world by law-enforcement agencies to help capture criminals, watch for people moving illegally across borders, and by the military to check on enemy movements. Those agencies want more sophisticated computer systems to be integrated into their vision systems,

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