

It's a small, green world at Sensors Expo

Chris Warner, Executive Editor



“Can you stand another ZigBee presentation?” was the greeting I received from one of the many exhibitors I met at the 2008 Sensors Expo in Rosemont, IL. Indeed, wireless industrial networking devices were in abundance at this year’s show, along with what seemed like an increasing amount of companies presenting MEMS-based devices. Two main networking themes were “ease-of-integration” and “efficiency/environmentally friendly.” Not only is your wireless sensor network going to be quicker and easier to deploy, it will be greener.

Among the companies touting quick, drop-in solutions, Microchip Technology’s (www.microchip.com [1]) MRF24J40MA RF transceiver module serves the entire 2.4 GHz IEEE 802.15.4 band, is fully regulatory agency certified and which includes discrete biasing components. The company expects it to eliminate designers’ need to receive FCC certification and thus get their products to market faster. Digi International (www.digi.com [2]) added an industrial-grade ConnectPort X4 gateway and XBee adapters to its drop-in networking line, while their XBee sensors offer long life and ease-of-integration into Drop-in Networking applications or ZigBee networks. Meshnetics, meanwhile, offers an IEEE 802.15.4-2006 module (ZigBit 900 — www.meshnetics.com [3]) that can operate in sub-1 GHz bands in the U.S. and Europe while combined with the company’s BitCloud is a full-featured, second generation embedded software stack implementing ZigBee PRO feature set. The company asserts the sub- 1 GHz bands are less prone to interference; the modules’ line-of-sight range can reach 3.7 miles.

Vendors also had efficiency and the environment in mind. Cymbet’s (www.cymbet.com [4]) thin film batteries can be reflow-soldered directly to the

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sensor electronics circuit card and are thousands-of-times rechargeable. A thin-film battery and transducer combination harvests energy to support permanent power in wireless sensor applications. GreanPeak Technologies' (www.greenpeak.com [5]) Emerald GP500C "autonomous transceiver" for wireless sensor networks can drive and control data communication, as an alternative to an MCU, enabling end nodes to run on energy harvesting devices for battery-free wireless sensor networks. Speaking of energy harvesting, look for general availability of a 2.4 GHz shear pin (down to 5/16" diameter) from Microstrain (www.microstrain.com [6]) that includes full strain gauge conditioning and 2 MB of flash.

Noteworthy MEMS-based products included Analog Devices' (www.analog.com [7]) ADIS16365 inertial sensor, which combines three gyroscopes and three accelerometers to provide six degrees of freedom motion sensing, fast response time, the stability to maintain ultra-fine resolution even under erratic conditions, improved bias stability and power efficiency. Silicon Sensing Systems' (www.siliconsensing.com [8]) CRG20 MEMS angular rate sensor for telematics, navigation aids and robotics features full digital closed-loop control electronics to eliminate any temperature and aging effects associated with analog devices, and built-in temperature compensation, while the CRS09 combines a MEMS gyro and discrete electronics and is positioned as an alternative to fibre-optic gyros.

Finally, there was a shot-in-the-arm for the die-cast industry with Visi-Trak's (www.visi-trak.com [9]) A40-HR 20P which provides linear position and velocity information with control resolution better than 0.001" at over 200 inches per second (ips).. Next year's Sensors Expo & Conference will take place once again in Rosemont. We'll see you there!

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