

## Product showcase

### Battery-powered oscilloscopes

Agilent Technologies' battery power options for all 16 of its 6000 Series digital storage oscilloscopes and mixed signal oscilloscopes allow high-performance measurements in environments where line power is unavailable. The devices are the first battery-operated oscilloscopes with automotive CAN, LIN, and FlexRay serial bus triggering and protocol decode for remote testing. These units are suited for electronics testing in aerospace applications. The rechargeable battery options are based on lithium-ion technology, providing more than two hours of battery life between charges. The battery charges while plugged into line power and can be disconnected at any time without powering off the oscilloscope. The devices feature fast update rate, superior signal display qualities, and ability to measure across analog, digital, and serial interfaces.



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### Cable harnessing

Tyco Electronics' RAYCHEM 700 Series of nuclear, biological, and chemical (NBC) contamination-survivable harnessing systems consist of heat-shrinkable tubing, molded parts, wire, cable, adhesives, adapters, and other components necessary for system interconnection. Harness applications include battlefield vehicles, military hardware, and other combat electronics/electrical systems. In addition to exposure to NBC agents, the harnesses are also subjected to and withstand vehicle and aerospace fluids, high and low temperature extremes, and mechanical/environmental rigors found in combat. Three versions are available: System 770 for -55 to +125°C applications, System 780 for -55 to +175°C applications, and System 790 for -65 to +200°C applications.



### UAV power system

Nexergy's portable power system for UAVs is a solar and battery powered system—developed with SION Power—that uses SION lithium-sulfur battery cells in a custom battery pack assembly along with a charging circuit. In initial flight tests, the power system increased the UAV's battery-operated flight time by 80%. A smart charging system provides charge to battery cells during daylight hours from the solar array, considering the unpredictability of solar energy due to factors such as solar-panel angle, weather, and shifting atmospheric conditions. A step charge system varies the amount of charge based on the power supplied to the solar cells, leaving enough power to drive the UAV motors.

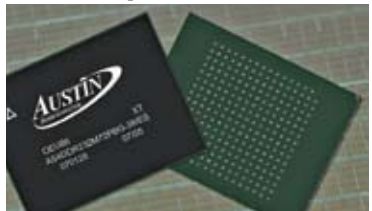
### Digital I/O expansion

Microstar Laboratories' MSXB 078 boards are designed to eliminate ground currents, which are a potential source of noise in measurement and control signals, and eliminate timing errors from high-channel-count digital I/O. The digital I/O expansion hardware combines simultaneous operation on all channels with an isolated ground to protect an application from both these sources of error. The board provides 16 digital inputs and 16 digital outputs on an HD62 connector, with headers for alternate connectors. Eight boards connected to a single DAP board provide 128 digital inputs and 128 digital outputs, all operating simultaneously and with a ground isolated from the PC.



### Encapsulated semiconductor products

The DDR2 family of iPEM (industry standard plastic materials) devices from Austin Semiconductor is packaged in a 32 x 25 mm, 255 ball BGA with a ball pitch of 1.27 mm. The first member of the product offering is a 2.4-Gb device, organized as a 32 M x 72/80 and offered in performance benchmarks up to 667 Mb/s transfer rate while operating within the Mil-temperature range of -55 to +125°C. The product family is based on integrated multiple silicon devices, made on an organic laminate micro-substrate and then encapsulated using iPEM. The device is defined with separate power and ground planes as well as planer assembly methods for improved flexibility for signal filtering and improved thermal performance.



### Sealing solution

Employing a PTFE-based sealing solution for the solid glands often used by aerospace engineers, Trelleborg Sealing Solutions' Turcon Variseal is designed for high-temperature operation, chemical resistance, and low friction—making it suitable for high-frequency cycling of primary flight controls. The seal's jacket of Turcon, Trelleborg's proprietary PTFE-based material, is resistant to corrosive aerospace fluids such as synthetic hydrocarbon, petroleum base, phosphate ester, and many types of aviation jet fuels. Turcon Variseal can also be used to replace slipper seals and O-rings used in standard grooves as well as existing housings.



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### SWIR cameras

Two cameras from **Sensors Unlimited**, a division of **Goodrich**, are shortwave infrared imaging systems based on indium gallium arsenide (InGaAs) technology. From the KTS product line, the SU320KTSW-1.7RT InGaAs SWIR Windowing Camera and the SU320KTSWVis-1.7RT Visible-InGaAs SWIR Windowing Camera feature both snapshot and high-frame-rate region-of-interest windowing capabilities, enabling tracking of free-space communications lasers or fast-moving targets. The 320KTSW imager provides high response in the shortwave infrared region from 0.9 to 1.7  $\mu\text{m}$  and the 320KTSWVis extends the wavelength response into the visible from 0.4 to 1.7  $\mu\text{m}$ . The cameras feature a 320 x 256 pixel format on a 25- $\mu\text{m}$  pitch, low power, onboard non-uniformity corrections, and advanced automatic gain control with contrast image enhancements.



### Hydraulic manifold

The Di-Dro Advanced Forming System from **Hyson Products**, a division of **Barnes Group**, is a hydraulic manifold designed to provide metal-stamping operations facing both efficiency and limited-space issues with a number of advantages. It combines high force in a small space, which makes it well suited for aerospace applications. The system also provides controllable pad delay to prevent distortion and allow multiple operations to be performed in a single press. Additional features include adjustable force, no electronic signals, and applicability for both upper and lower applications.



### Superalloy fasteners

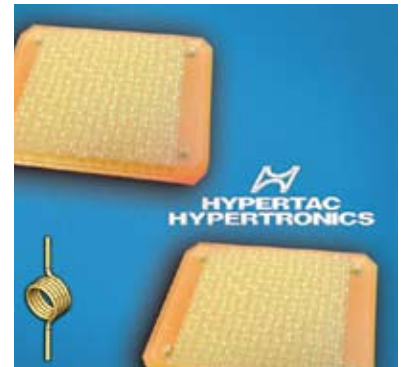
**SPS Technologies** has introduced a new line of fasteners made from AEREX 350, a proprietary superalloy originally developed for bolting applications in gas-turbine engines. Benefits include high strength, corrosion resistance, suitability for use in temperatures up to 1350°F, and resistance to creep and stress rupture. Designed with tough-



ness and thermal stability in mind, AEREX 350 is capable of being forged into a variety of large-diameter, high-shear-strength, corrosion-resistant fasteners and fastener parts. Applications include commercial and military aircraft as well as jet engines.

### High-reliability connectors

**Hypertronics'** HyperGrid micro-miniature connectors meet extreme environmental requirements as well as high-density requirements. The connectors use solderless, compression-style contacts, feature the space- and weight-sensitive properties inherent in reduced form factors, and can support more than 100,000 mating cycles. Offering the same tiny size, high-node count, high density, and stackability features required in many micro-miniature applications, the devices are designed to surpass the electrical, repeatability, and cost limitations associated with other connector technologies. The connectors are available as custom interconnects for PCB-to-PCB, flex cable-to-PCB, and IC-to-PCB designs.



### Airborne surveillance

At this year's Paris Air Show, **Polytech**, a subsidiary of **Cedip Infrared Systems**, unveiled the Cobolt 275 CG, a high-performance multi-sensor gimbal designed for airborne surveillance missions. The C275 CG is compact, with an 11-in diameter and a mass of less than 12 kg, making it suitable for light helicopter and drone applications. A high-performance thermal camera and color day camera are integrated into the unit. A miniature inertial power station is integrated into the optical frame, enabling geo-referencing and geo-pointing missions, in addition to interfacing with 3-D cartography. Also, as a means to track moving targets, the C275 CG comes standard with VILGA video-tracker technology.



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