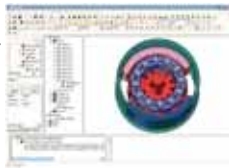


Product showcase

Electromagnetic analysis

Ansoft's Maxwell v11 3-D electromagnetic analysis software predicts the performance of low-frequency electromechanical components encountered in advanced automotive and aerospace electronic systems. This graphical user interface and desktop environment, available with HFSS, Q3D Extractor, and Ansoft Designer, increases engineering productivity through new geometry creation/import, integrated parameterization and optimization, model resolution, healing techniques, and electrically aware meshing. The release contains a 3-D analytical/FEM design flow for high-performing rotating electric machines; engineers can make initial sizing decisions and design choices, and the system automatically creates 3-D FEMs of the machine required to analyze end effects, saturation, and lamination effects.



For more information, circle 1

Single-board computer

The S950 radiation-tolerant, space-qualified, single-slot, 3U CompactPCI single-board computer from **Aitech Defense Systems** boosts performance by up to five times and doubles cost reduction when compared to the point-driven, purposed-based designs currently in use. The device is designed for both manned and robotic space vehicles in harsh space radiation environments found in low-Earth orbit, high-Earth orbit, and deep space applications. These include redundant mission, flight guidance and navigation, and command and data handling computers. The board combines a PowerPC 750FX processor with a silicon-on-insulator processor for reduced power consumption of typically less than 12 W, as well as increased processor speed and radiation tolerance.



For more information, circle 2

Magnetic-latching switch

Teledyne Relays' Series J255 magnetic-latching, half-size crystal can relay switches up to 2 A at 28 V dc and offers a 0.2-dB insertion loss at 1 GHz. The dual-pole, dual-throw relay helps users consume less power by offering pulse operation on the coil. The latching feature only requires the coil to receive a pulse to switch and remain in that position. The environmentally rugged design and latching feature make the relay suited for space applications. The relay is qualified to MIL-PRF-39016/45. A commercial version, the Series 255, is also available and may be used for RF applications up to 3 GHz. The canister measures 0.81 x 0.425 x 0.41 in, while the relay has a mass of 0.46 oz.



For more information, circle 3

Adhesive tape

VICTREX' PEEK adhesive tape can withstand continuous operating temperatures of up to 220°C and even higher temperatures for short durations. It resists wear over a range of pressure, velocity, temperature, and counterfacial roughness. The hydrolytically stable tape maintains its electrical properties over a wide frequency and temperature range, and can withstand over 10⁹ rads of radiation exposure without embrittlement. It has good chemical resistance to solvents, acids, bases, fuels, and hydrocarbons, even at elevated temperatures. The tape comes in slit rolls, sheets, and die-cut pieces in thicknesses of 0.002 in and above, and is coated on one or both sides with various adhesive systems including silicone or acrylic.



For more information, circle 4

Proximity sensors

Hermetic Switch's PRX+2450 surface-mount proximity sensor is an overmolded, pick-and-place form of the firm's HSR-0025 reed switch. It combines both switching and sensing functions in one package. The device measures 4.57 mm long, 1.57 mm wide, and 1.02 mm high. The product offers sensitivity from 2 to 15 turns, with more sensitivity options corresponding with the chosen lead configuration. Operate and release magnetic sensitivity is between 2.5 and 0.50 mT. Maximum switching ratings are 30 V dc, 0.01 A, and 0.25 W.



For more information, circle 5

Epoxy dispenser

DTIC Dispensing Technologies' EZ-mix HI dispenser is a portable, motorized gun for dispensing two-part epoxies used for insert potting on flame-retardant, lightweight honeycomb aircraft interior panels. The device dispenses 50-mL dual cartridges of epoxy without repetitive squeezing and material waste. It releases a controlled bead and has a drip-free design that prevents or reduces oozing from the mix tip. The variable-speed motor is powered by a 7.2-V NiMH rechargeable battery.



For more information, circle 6

Thermal imaging lens

The ASIO Microscopic Objective Lens from **Janos Technology** is one of 11 in the series of infrared lenses that support imagers with standardized back working distance and stop location for mid-wave IR systems. The lens maximizes the distance from the lens to the object. The line includes magnifications of 1x, 2.5x, and 4x to permit close inspection of small components using infrared imagery. Other



devices in the series include the Dual Field of View lens featuring a motorized control for both switching fields and for adjusting focus, and the One Degree FOV lens, which contains a manual focus and performs IR imaging of objects at extreme distances. For standard night vision optics and IR imagers, a line of commercial-off-the-shelf lenses is suited for cameras that image in the near-IR (1.5 to 3.0 μm) and the long-wave infrared (approximately 8 to 12-14 μm).

For more information, circle 7

Solenoid valve

South Bend Controls' Instant-Acting solenoid valve has a typical response time of less than 30 ms. The rapid response allows nearly instantaneous correction of payload position or rotation through thrust vectoring. The valve is the latest evolution of the firm's solenoid valves for launch vehicle attitude control systems. Its compact and lightweight design uses a pressure-balanced, dual-seat, split-flow poppet for bubble-tight sealing at pressures up to 575 psi. Extremely high mass flow rates are possible for such a small valve, configurable for a variety of cold-gas systems. Previous versions of this valve have been launched on multiple vehicle families with nitrogen, helium, or argon media.



For more information, circle 8

Imaging system

Lenox Instrument's VideoFlex series is a high-resolution remote imaging system featuring four-way tip articulation and an integrated control/display hand piece with a 6.4-in display. For viewing inside complex assemblies, the Series offers a tight bending radius and a steerable four-way, easily manipulated 150° articulated tip. The scope's working portion is protected with polyurethane-impregnated tungsten braiding in diameters of 6.0 or 8.4 mm and lengths up to 7.5 m. The hand piece features rugged, all-metal construction and a 2-m umbilical cable. Operators can articulate the tip using single-hand controls. Connections include interfaces for auxiliary monitor connection, video output, and 12-V dc powering with optional accessories available. The videoscope is suitable for inspection of aircraft engines and turbines, airframes, process tanks and vessels, tubing and pipes, heat exchangers, and covert surveillance and armament applications.



For more information, circle 9

Near-infrared photodiode

Goodrich's SU055-GM-APD-FO is an indium gallium arsenide/indium phosphide near-infrared avalanche photodiode (APD) designed for single-photon counting at wavelengths of 0.9 to 1.6 micron. The device offers a low dark current with

high responsivity, making it suited for Geiger Mode single-photon counting. It is capable of high-gain linear mode counting with quantum efficiency greater than 70%. Featuring ultra-low-noise analog optical detection up to about 1 GHz, the device contains an APD chip, thermoelectric cooler, thermistor, and optical fiber coupling optics in a hermetic package. Other applications include optical time domain reflectometry, near-IR Raman spectroscopy, and time-resolved emission detection for failure analysis and singlet oxygen detection.

For more information, circle 10



Rugged accelerometer

The Vibration Division of **PCB Piezotronics** offers Series 3741 high-sensitivity MEMS dc accelerometers in several models to accommodate various acceleration profiles, and full-scale ranges from 2 to 200 g up to 2k Hz measurement capability to accommodate aerospace and automotive applications, including occupant safety system requirements. A rugged, low-profile design allows mounting on restricted areas of aircraft wings, crash simulation sleds, and truck axles. The dc response allows for measurements in both static and dynamic environments, while mechanical over-range stops are included to prevent damage from rough handling and transient shock. Sensors are gas-damped and temperature-compensated.

For more information, circle number 11



Enhanced display

White Electronic Designs' Max-Vu technology will be integrated into HP's enhanced outdoor-viewable display option for the **HP Compaq tc4200** Tablet PC. The technology offers optimized contrast and viewing of active-matrix liquid-crystal displays. The process is accomplished by bonding an optically matched window directly to the display using specifically formulated silicone. The window is optically coupled to the display, resulting in a 200% increase in contrast ratio in high ambient lighting conditions, 85% decrease in reflections in high ambient lighting conditions, and significantly improved display readability.

For more information, circle 12



Optical termination

The HD1.25 mm optical termination method from **Tyco Electronics** is suited for applications in which a common terminus for all types of connections is required. The termini are a physical contact method of connecting high-density, low-cost fiber-optic connectors. Benefits of the devices include the fact that a single terminus design can be used for all connectors, push-pull resistant design that does not require strain relief on the backshell, and genderless contact that allows the use of the same contact on both connector halves.



For more information, circle 13

Panel mount LEDs

Wilbrecht Electronics' Panel Mount LEDs meet RoHS and lead-free certification standards. The LEDs are recommended for new designs and RoHS conversion of existing products. Suitable for front and rear mounting, the 3 mm and 5 mm LEDs



allow easy installation for hole sizes ranging from 0.156 to 0.312 in. To help applications meet the July 2006 RoHS deadline, prototypes are available within one week of request and production units within four weeks of requisition. Options include custom lead lengths, high temperature insulation, internal resistors, and connector terminations.

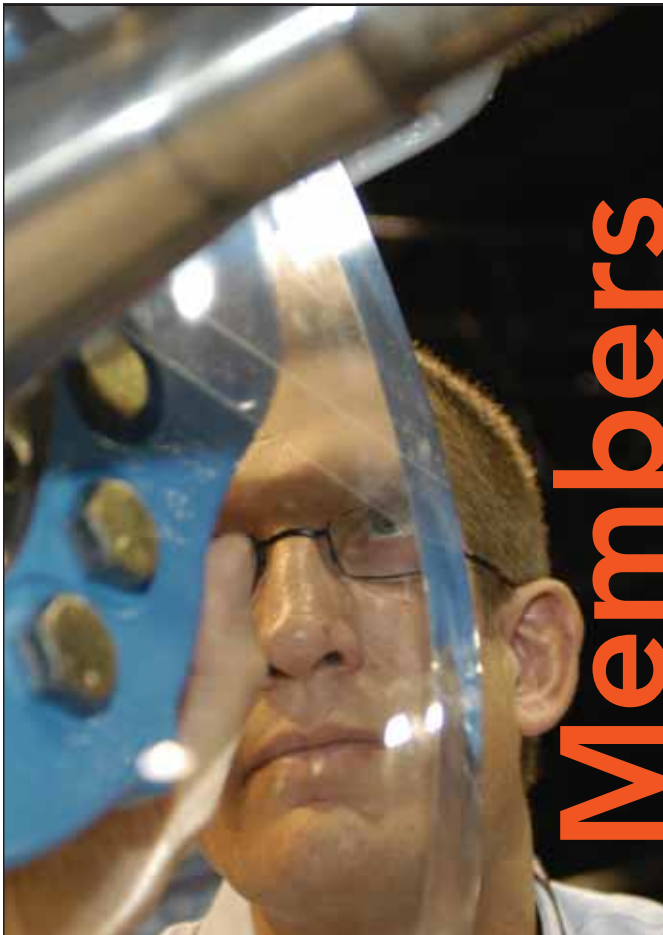
For more information, circle 14

Lockable slide-latch

A molded thermoplastic body, push-to-close convenience, and flexible locking options make the **Southco A3** push-to-close slide latch a solution for secure latching of sheet metal and thin thermoplastic door panels. Its integrated lockplug provides added security without sacrificing the latch's small envelope size and eliminates the need for a separate key cam lock for security. Both locking and non-locking versions snap into position in identical-size rectangular installation holes. The lock housing is offered with more than 500 key code options.



For more information, circle 15



people of uncommon commitment

Through service and membership—the global sharing of knowledge and experience—SAE Members propel forward people, technology, science, and the art of vehicle development and production, advancing in their work, their careers, and industry.

www.sae.org/membership

Share. Serve. Advance.
Join SAE International!

automotive • aerospace • commercial vehicle

SAE International[™]

051457