



Interiors Spotlight

Pedal system

The **Teleflex** T6000 and T7000 Series mechatronic pedal systems are suitable for floor or suspended applications and feature the vSense Hall-effect noncontact sensor, configurable for analog output or electronic switches. The rugged pedal and sensor system can withstand extreme off-highway and harsh environments, with an operating temperature range of -40 to +85°C (-40 to +185°F) and a 350 lb (1550 N) download rating. The vSense sensor seals out contaminants and lacks moving parts to further improve reliability, according to the company, and it provides position sensing and switching accuracy. Other product benefits include user-customizable features, multiple configurations, and mounting flexibility.



Rocker switch

The rugged Sigma rocker switch from **Cole Hersee** is compatible with microprocessor-based electrical/electronic systems and handles much like a conventional rocker switch. The low current input membrane switch is fully customizable and is suitable for trucking applications and for use in adverse conditions. Features include LED backlighting, a variable actuator shape, and water resistance, while options include custom colors, imprint and graphics, and the shape and location of the LED lens. The Sigma rocker's silicone rubber actuator can be customized using laser-etching technology.



Single rotor latch

The 050-0700 single rotor latch for light-to medium-duty operator and compartment doors from **TriMark** permits maximum visibility and use of door space for on- and off-highway vehicles. The dual position rotary latching function is designed to be used with a 12-mm (0.5-in) striker. Available in standard left- and right-hand versions, the latch has a resilient black chromate finish that does not require painting or covers. Product features include durable construction and a compact size, according to the company. Four standard variations allow direct or remote actuation with TriMark's exterior handles and interior releases. System kits are available and include handles, latches, and accessories.



Seat pad accelerometer

A triaxial ICP accelerometer from **PCB Piezotronics** installs between rider and vehicle seat for ride comfort studies and human vibration exposure investigations. Model 356B41 contains a precision low-profile triaxial ICP accelerometer that is mounted to a metal plate and screwed into a molded rubber pad. The sensor may be removed from the pad for calibration and verification purposes. This configuration satisfies the requirements of **ISO 10326-1**. The sensor also supports whole body vibration studies in accordance with **ISO 2631** and **ISO 8041** standards, and supports compliance with EU physical agent directives. It has a sensitivity of 100 mV/g, frequency range of 0.5 to 1000 Hz ($\pm 5\%$), and features a 5 ft (1.5 m) integral cable and four-pin terminating connector.



Camera system

TTControl/TTTech Off-Highway has designed a new camera vision system that allows off-highway vehicle operators to better keep their work environment in view—increasing safety and productivity. This visual operator interface consists of a digital LCD module, a visualization unit, up to three analog PAL cameras, and is controlled by TTControl's TTC Vision. The cameras are designed for outdoor use, have an internal heater, and are supplied by the video adapter card. The LCD module provides adaptable illumination for changing light conditions.



Multifunction handle

J.R. Merritt Controls expands its variety of handle offerings with the Type FG-4 universal fighter grip handle. The FG4 multifunction handle for three-axis control was designed for comfort and can handle a number of push-button switches, toggles, rocker switches, and thumbwheels, thereby improving controller functionality. Options include a twist function for proportional control of potentiometer or hall sensor and an external hand rest for left- or right-hand orientation. By matching different-size handle halves, the FG-4 grip can accommodate various devices in different configurations to satisfy specific applications. The multifunction handle couples to all of the company's standard joysticks.



tools of the trade



Collaboration software

CogniTens' CoreView Lite software is used to share, view, and collaborate with dimensional measurement data collected during various processes from engineering and production shop floors—making critical information available for engineers and managers across the organization. Accessible for free use, CoreView Lite delivers dimensional measurement results, streamlining the evaluation process and supporting informed decision-making. The software also contributes to improved cooperation between divisions and vehicle development participants, facilitates daily decision-making, and improves processes, according to the company.



Offline GPS

The extended, always-on AssistNow Offline A-GPS service from **u-blox** provides data that enables instant positioning without mobile connectivity. AssistNow technology reduces a GPS receiver's fix time to seconds by computing an accurate position instantly without worry about network coverage or waiting times. Assistance data is valid for up to 14 days using AlmanacPlus. While Online uses mobile networks to provide data at each start-up, the Offline location service works independently and does not require server access for data downloads at start-up. AssistNow is scalable and supports a range of services with minimal installation and maintenance efforts.



Flatproofing material

Arnco offers UltraLite flatproofing material, specifically designed for slower-speed, light-duty equipment such as riding lawn tractors, golf and utility carts, truck-mounted forklifts, and other vehicles that do not exceed intermittent speeds of 15 mph (24 km/h). UltraLite is a liquid polymer, 60% lighter than polyurethane fill, injected into a pneumatic tire assembly to replace air. The material solidifies into lightweight flexible foam, resulting in a flat- and maintenance-free tire. Benefits include the elimination of flats and a reduction of downtime for operators.



Data logger

The HiBACK USB from **CleanAIR Systems** is a microprocessor-based data logger and alarm system coupled with real-time monitoring software. Used in conjunction with emissions control technology, the HiBACK USB records and monitors exhaust backpressure and temperature on diesel engines in mining equipment, stationary generators, construction vehicles, etc. With optional software, the system can track the duty cycle of an engine and analyze parameters, providing performance information and warning of potential system problems. Features include streamlined data capturing, the use of Windows-based software for direct downloads, and self-diagnostics for troubleshooting temperature and backpressure sensing problems.

Rotary position sensor

Duncan Electronics' 9950 non-contacting rotary position sensor incorporates dual Hall-effect sensor technology—including elec-



tronic interface capabilities—into a compact, single analog output package. The rugged device features a liquid-tight, fully sealed plastic package, a life expectancy of up to 35 million cycles, a large bearing surface for added strength and service life, and an insert-molded feature that prevents damage from fasteners used in mounting. Performance characteristics include an electrical angle of up to 120° and an operating temperature range of -40 to +125°C (-40 to +257°F). The 9950 is suitable for industrial, agricultural, and off-highway applications.

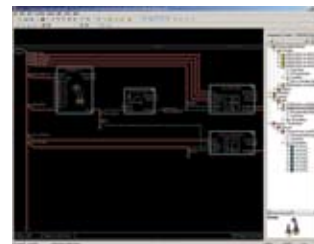


Hose and couplings

Kurt Hydraulics offers Teflon hose and couplings for rugged and high-heat installations. The hose features reinforced stainless-steel braid with a white extruded Teflon inner tube, withstands temperatures from -65°F to +450°F (-54 to +232°C), and resists corrosive fluids and vibrating environments. Diameters range from 3/16 to 1 in (5 to 25 mm) with pressure ranges up to 3000 psi (210 bar). The Teflon hose couplings are offered in nine styles and in various sizes to meet user requirements. Typical applications for the hose and couplings include trucks, construction equipment, and demanding injection-molding applications.

Development software

Sauer-Danfoss' GUIDE (Graphical User Integrated Development Environment) 3.0 is intended to improve design productivity and performance with 30 additional components. The updated display eliminates the need for a CAN bus connection before viewing a graphical pro-



gram. The display screen editor associates control signal values with text string and images. Within the 3.0 service tools, users can select specific data shown on individual screens. A data-logging feature records vehicle and operator productivity and monitors machine performance by analyzing data gathered from operation checkpoints. Developers also can tag critical system components during software development and use GUIDE to verify connection.



NOx-reduction system

Eaton has designed an after-treatment system that combines several exhaust-cleansing technologies, and is currently in the prototype stage for testing in a heavy-duty U.S. truck. The system features a combination of fuel reformer catalyst with doser, selective catalytic reduction (SCR) catalyst, and lean NOx trap (LNT). The fuel reformer generates an optimal mixture of reformate gases to improve LNT regeneration efficiency. During lean exhaust conditions, the LNT stores NOx. During rich exhaust conditions (LNT regeneration), the LNT converts stored NOx to nitrogen and produces ammonia. Stored by the downstream SCR catalyst, the ammonia is used to convert remaining NOx that slips past the LNT. NOx reduction takes place in two stages: by the LNT, then by the SCR catalyst. According to the company, this system is targeted to meet the U.S. EPA's 2010 emissions requirements.