

new products

The descriptions of the new products

listed in this section are based on information supplied to us by the manufacturers.

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Andreas Mandelis

Focus on sensors and detectors

Contrast sensors

The new TL46 sensors, distributed by IDEC for Datalogic Automation, are available in basic (TL46-W), standard (TL46-WL), and enhanced (TL46-WLF) versions. All sensors feature PNP/NPN configurable outputs, analog output, and remote settings. With regard to resolution, definition, and precision, the TL46 digital contrast sensors feature red, green, and blue LEDs, fast response time, and high switching speed. The TL46-W has one pushbutton and two LEDs to indicate the output status and sensor acquisition condition. The TL46-WL has three pushbuttons; four LEDs to show output status, sensor acquisition condition, and delay output activation; a bar graph to manually set the threshold; and a 20-kHz switching frequency. The TL46-WLF has a 30-kHz switching frequency and a four-digit display to set advanced functions such as dynamic acquisition of the contrast mark. *IDEC Corporation, 1175 Elko Drive, Sunnyvale, CA 94089, <http://www.idec.com/usa>*

Ultrasonic level transmitter

Dwyer Instruments has introduced an ultrasonic level transmitter (ULT) to provide accurate non-contact measurement of liquid levels. Unlike contact methods, ultrasonic noncontact technology has no moving parts to wear, jam, corrode, or become coated. Mapping software confines the effective measuring surface to a 3-inch-diameter column. Since the instrument



is explosion-proof, it is suitable for use in hazardous locations. The ULT is easily programmed using a six-digit LCD and simple menu structure. Applications include corrosives, slurries, and fluids with solids. The device features four-button programming, zero and span adjustment by inputting tank dimensions or pushing the programming button for actual tank conditions, fail-safe output options, and diagnostic capabilities. *Dwyer Instruments Inc, 102 Indiana Highway 212, Michigan City, IN 46360, <http://www.dwyer-inst.com>*

Multiparameter water analyzer

The LabNavigator from Forston Labs is a multitechnology, multisensor analytical measurement platform for water analysis. The device can be used either as a computer interface or as a stand-alone unit in the field. Its six inputs include electrochemical, turbidity, and spectrophotometer sensors. The instrument has four ports on the back, a USB for additional sensors, an IR thermometer, and two digital ports on the side for other accessories. It accepts each of the sensors in any position and combination except the spectrophotometer/fluorometer, which must be used by



itself because of power consumption requirements. An air temperature sensor, sound sensor, microphone, and graphing and analysis software are built in. Other features include a 100-Ksps data collection rate, 40 MB of on-board data storage with expansion through a secure digital/multimedia card or USB drive, a 320 × 240 pixel color touch screen, and a rugged splash-proof enclosure with rubber molding for shock absorption. *Forston Labs, 4098 Trouble Trail, Fort Collins, CO 80524, <http://www.forstonlabs.com>*

Current-voltage module

The 4225-PMU Ultra Fast I-V module from Keithley Instruments integrates ultrafast voltage waveform generation and signal observation capabilities into the company's 4200-semiconductor characterization system (SCS) to deliver rapid current-voltage testing. Each plug-in 4225-PMU module provides

two integrated source and measurement channels but occupies only a single slot in the 4200-SCS nine-slot chassis. Each channel combines high-speed voltage outputs with pulse-widths ranging from 60 ns to DC, with simultaneous current and voltage measurements. Each chassis can accommodate up to four 4225-PMU modules for a maximum of eight ultrafast source and measurement channels, leaving five chassis slots free for other instrumentation. Applications include CMOS device characterization, nonvolatile memory device testing, and characterization of compound semiconductor devices and materials. *Keithley Instruments Inc, 28775 Aurora Road, Cleveland, OH 44139, <http://www.keithley.com>*

Silicon drift detector

Amptek has announced that its small-size XR-100SDD (silicon drift detector) for hand-held operation with benchtop analyzers yields excellent energy resolution in extremely high count rate applications. The new detector is housed inside the same TO-8 package as Amptek's other detectors and is compatible with all the company's accessories and options. An SDD is a type of photodiode, functionally similar to a PIN photodiode but with a unique electrode structure to improve performance. Amptek SDDs are optimized for x-ray spectroscopy. The key advantage of the Amptek SDD is that it has much lower capacitance than a conventional diode of the same area, thus reducing electronic noise at short shaping times. The SDD uses a special electrode structure to guide the electrons to a very small, low-capacitance anode. *Amptek Inc, 14 De Angelo Drive, Bedford, MA 01730, <http://www.amptek.com>*

Variable capacitance accelerometer

Designed to accurately measure low-frequency events, the Endevco 7290E Microtron series is a high-precision variable capacitance accelerometer microsensor with integral digital temperature compensation. Available in seven models, with sensing ranges from 2 to 150 g, the device incorporates a variable capacitive sensing element with gas damping and internal over-range stops. It has several excitation voltages and either differential or single-ended output.

Nonlinearity and hysteresis are $\pm 0.2\%$ full scale. Typical applications include measurement of whole body motion immediately after the accelerometer is subjected to a shock motion and in the presence of severe vibrational inputs. Frequency response is controlled by near-critically damped sensors. The use of gas damping results in very small thermally induced changes in frequency response. *Endevco Corporation, 30700 Rancho Viejo Road, San Juan Capistrano, CA 92675, <http://www.endevco.com>*

Hall effect sensor interface

Maxim Integrated Products has announced the MAX9621, a dual, two-wire Hall effect sensor interface with analog and digital outputs for use in automated controllers. The interface chip enables a microprocessor to monitor the status of Hall effect sensors and has a programmable input current threshold for the digital output. The MAX9621 protects the Hall sensors from supply transients up to 60 V. Additionally, when the interface detects a short-to-ground fault condition, it shuts off the current to the Hall input and indicates the condition at the analog output by a zero-current level and a high digital output. The device provides a minimum of 50- μ s blanking time following Hall sensor power-up or restart. The open-drain digital outputs are compatible with logic levels up to 5.5 V. The MAX9621 is available in a 3×5 mm, 10-pin package and is rated for operation in the -40°C to $+125^\circ\text{C}$ temperature range. *Maxim Integrated Products Inc, 120 San Gabriel Drive, Sunnyvale, CA 94086, <http://www.maxim-ic.com>*

Sensor signal conditioner

The ZSSC3053 from ZMDI is a pure differential signal conditioner, a CMOS integrated circuit for highly accurate amplification and sensor specific correction of mV DC sensor signals. Featuring maximum gain of 1000 to 5000, the ZSSC3053 is adjustable to nearly all



resistive bridge sensor types, including piezoresistive, thin film, and thick film. It also enables single-ended resistive sensors such as RTDs or mV DC sources to be interfaced. The chip is suitable for integration to microcontroller-based

sensor systems that measure pressure, temperature, linear position, force, and load. The microcontroller custom-calibrates sensors in a short time. Other features include digital compensation for offset, sensitivity, temperature drift, and nonlinearity; an analog-to-digital converter with 15-bit precision and $\pm 0.1\%$ full scale accuracy over the full temperature range; a voltage range of 2.7–5.5 V; and an operating temperature range of -25°C to 85°C . *ZMD America Inc, 201 Old Country Road, Suite 204, Melville, NY 11747, <http://www.zmdi.com>*

Quantum-dot image sensors

InVisage has introduced QuantumFilm quantum-dot-based image sensors to replace silicon imaging technologies. According to the company, InVisage delivers four times the performance and two times the dynamic range of other professional cameras and has features not yet found in mobile image sensors. QuantumFilm uses quantum dots to capture an imprint of a light image, then employs the silicon substrate to read out the image and turn it into digital signals. The highly sensitive quantum-dot image sensors integrate with standard CMOS manufacturing processes. While silicon-based image sensors capture on average 25% of light, QuantumFilm captures between 90% and 95%, making better pictures possible even in challenging lighting conditions. QuantumFilm has applications in a wide range of image-sensing technologies, including security and automotive cameras and those used in the military. *InVisage, 978 Hamilton Court, Menlo Park, CA 94025, <http://www.invisageinc.com>*

Mercury analyzer

Designed for trace levels of mercury detection, the Aquacounter HG-400 analyzer from JM Science provides improved accuracy and sensitivity through optical flow-path optimization. Mercury exists in various phases and states, including liquid, vapor, and organic compounds in groundwater, materials, and foods. Since high concentrations can be harmful to the environment and living organisms, monitoring ambient Hg is critical to human and environmental safety. The compact HG-400 is equipped with a large 7.5-inch color touch screen and a built-in printer. It has the potential to expand in order to communicate with a flexible sample changer. Sample solutions come in four sizes—5, 20, 100, and 250 mL—

and can be accommodated by adding optional components to the instrument. The lower detection limit is 0.5 ppt for the 5-mL sample volume and 5 ppt for the other three.



JM Science Inc, 355 Lang Boulevard, Grand Island, NY 14072, www.jmscience.com

Silicon photomultiplier detector

SensL has announced that its SPMMatrix is the largest-area, highest-channel-count silicon photomultiplier detector currently available. It consists of a 61.28×61.28 mm detection area with 256 photomultiplier channels. Two analog boards, each containing 16 analog channels, provide amplification, discrimination, and energy sampling. The SPMMatrix is supplied with a field-programmable gate array board that implements cross-wire logic time stamping and readout/buffering events to the USB or openPET bus. Applications include radiation imaging, nuclear and particle physics, and scintillation crystal readout. The SPMMatrix has better uniformity than photomultiplier tube-based systems, is magnetically insensitive, and has electronics simplified through cross-wire technology, making it suitable for both research and industrial applications. *SensL Inc US MAC, 111 North Market Street, 6th Floor, San Jose, CA 95113, <http://www.sensl.com>*

Optical leak sensor

The FODK 23 from Baumer is an optical sensor for leak monitoring in tanks, pumps, vessels, trays, and other containers. The evaluation electronics are housed in an IP67-rated chemically resistant Teflon PFA sheath that allows the device to withstand exposure to a range of liquids, including acids, alkalis, milk, and mineral oil. Typically, 1 ml of leaked liquid will make the sensor react. The sensor itself is screwed into or glued onto a dry floor or base panel in the area where leakage might occur. The sensor's installation clip can be used to snap the device into place and to remove it quickly without tools. *Baumer Ltd, 122 Spring Street, Unit C-6, Southington, CT 06489, <http://www.baumerelectric.com>*