

new products

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Lawrence G. Rubin

Focus on sensors

Three-axis accelerometer

Analog Devices has introduced the ADXL345, a thin, low-power, three-axis accelerometer with 13-bit resolution up to ± 16 g. It measures the static acceleration of gravity in tilt-sensing applications and dynamic acceleration resulting from motion or shock. It enables resolution of inclination changes of as little as 0.25° . Several special sensing functions are provided. Activity and inactivity sensing monitors the presence or lack of motion and whether the acceleration on any axis exceeds a preset level. Tap sensing detects single and double taps. Free-fall sensing detects whether the device is falling. The functions can be mapped to interrupt output pins. Digital output data are formatted as 16-bit two's complement and are accessible through one of two interfaces. Applications for the ADXL345 include personal navigation and gaming and pointing devices, handsets, and digital cameras. *Analog Devices Inc*, 3 Technology Way, Norwood, MA 02062, <http://www.analog.com>

Pressure transducer

Kavlico has developed the model P255 stainless steel pressure transducer, which is based on the company's ceramic capacitive technology and incorporates advanced electronics for improved EMI, RFI, and accuracy specifications. The device is designed for pressure measurement from 0–15 to 0–1000 psi in 12 ranges with a reference that can be absolute, gage, or sealed gage. Its ceramic diaphragm can withstand exposure to a wide array of com-

patible liquid and gaseous process media. The sensor has low power consumption and excellent long-term stability, repeatability, and hysteresis. Other features include overvoltage, reverse polarity, and short-circuit protection. Excited by 5 V DC, the P255 provides a linear amplified output of 0–4.5 V DC that is proportional to pressure. It is offered with various seal materials and is suitable for many diverse applications. *Kavlico Corporation*, 14501 Princeton Avenue, Moorpark, CA 93021, <http://www.kavlico.com>

Carrier multiplication devices

Voxtel has announced a class of near-IR photodetectors called carrier multiplication devices (CMDs) that are nano-structured indium gallium arsenide/indium aluminum arsenide sensors. They have been designed to overcome the limitations of avalanche photodiodes in the 0.9- to $1.6\text{-}\mu\text{m}$ spectral region, including the eye-safe range beyond $1.3\text{ }\mu\text{m}$. APDs achieve high responsivity through internal current



gain, but the gain's usefulness is diminished by the accompanying avalanche noise. The company's Siletz LFP-1000 series can operate at high gain with low noise, thus providing unsurpassed sensitivity in the near-IR range from 750 to 1700 nm. The devices have a very low effective rate of ionization coefficients and can be operated with low excess noise: $F(M)$ is about 2 up to gain $M = 50$. The maximum linear-mode gain of Siletz CMDs is typically above $M = 100$. *Voxtel Inc*, 12725 SW Millikan Way, Suite 230, Beaverton, OR 97005, <http://www.voxtel-inc.com>

IR thermometers

Ircon's Modline 5 series 5R ratio sensors are designed for noncontact IR temperature measurement; they incorporate

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advanced signal detection and attenuation-alarming capabilities. The new sensors use a dual detector assembly that measures temperature by comparing IR radiation levels in two wavelength bands (0.85–1.05 μm and 1.0–1.1 μm). Temperature readings are based on the ratio of the signals in those bands. That method, rather than the measurement of the absolute intensity of radiation at a single wavelength, is almost immune to error caused by loss of signal. With most two-color IR thermometers, an invalid indication is reached when the reduction in signal from the target is greater than 95%.

When that occurs, an alarm output is provided. The Modline 5 series uses a new alarming capability that allows users to adjust the alarming sensitivity level and operates independently from the optional dirty window detector. *Ircon Inc, 1201 Shaffer Road, Santa Cruz, CA 95060, <http://www.ircon.com>*

Sensor interface family

The SD400 from SensorDynamics is a single-chip family that offers a set of analog blocks for interfacing with a

comprehensive range of sensors that use various working principles. The first of two versions of the line has a specialized eddy current interface for contactless displacement measurement. Besides the chip, only a sensing coil and a few passive components are needed for the application circuit. A metal target facing the coil completes the system. The second version provides two differential analog input channels. Sensors that can be easily adapted to the chip include thermocouples, Wheatstone-bridge type, magnetoresistive, piezoresistive pressure, and strain gauge. The SD400 family is also suitable for battery management. For fast prototyping, a tool kit is offered to allow sensor interface configuration and firmware development. *SensorDynamics AG, Schloss Eyebeisfeld 1e, A-8403 Graz-Lebring, Austria, <http://www.sensordynamics.cc>*

Linear-position sensors

MTS Systems Corp has introduced the Temposonics R series linear-position sensors, which are instrumental in improving the filling process for facilities that package a wide variety of products. The sensors, based on magnetostrictive technology, provide a nonlinearity of less than 0.01% and repeatability within 0.001% and thus are ideal for packaging applications that require accuracy, reliability, and consistency. For improved protection, the electronics are in IP67 or



NEMA 4X housings for contamination protection and wash down. The sensors are available in many configurations. Depending on the model, the R series offers stroke ranges of 50–7620 mm, 255–10 060 mm, and others; resolutions as low as 0.001 mm; output signals such as voltage, current, and synchronous; and output types that include dual channel, position and velocity analog, Profibus, and DeviceNet. *MTS Systems Corporation, Sensors Division, 3001 Sheldon Drive, Cary, NC 27513, <http://www.mtssensors.com>*



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LVDT signal conditioner

Electro Standards Laboratories is offering the M4331-200 CellMite linear variable differential transformer digital signal conditioner board. It connects directly to two standard AC LVDT transducers and simultaneously generates a serial output for a PC and a ± 10 -V, 16-bit analog output. The input range is adjustable from 10 mV/V to 100 mV/V. The board has an onboard storage for up to three calibrated LVDTs, each with an integrated six-point calibration that can be used to linearize the LVDT outputs. The M4331-200 also features non-volatile memory for parameter and calibration storage, automatic LVDT identification, solid-state relay switches, and the ability to locate LVDT core null position. The device includes internal generation of precision sine wave AC excitation voltages, remote sense excitation, and 24-bit internal resolution. *Electro Standards Laboratories, 36 Western Industrial Drive, Cranston, RI 02921-3403, <http://www.electrostandards.com>*

Vision sensor

Cognex Corp has added the Checker 3G series to its Checker vision sensor product line. With the new product, users choose whether to configure it as a presence sensor, which verifies that features are present, or a measurement sensor, which verifies that features are the correct height, width, and/or diameter. In either mode, a single Checker can determine an unlimited number of parts. It can detect and track more than 6000 parts/min in varying positions along the product line, overcome imprecise positioning, and deliver consistent, precisely timed pass/fail results. The Checker 3G series does not require a PC for installation; instead, it uses the company's SensorView teach pendant with its One-Click setup technology: Users click on the feature in the image to be inspected, and Checker creates a sensor and learns its attributes. *Cognex Corporation, 1 Vision Drive, Natick, MA 01760-2059, <http://www.cognex.com>*

Silicon pressure transducers

Omegadyne has introduced the high-accuracy MMA500V series of micro-machined silicon pressure transducers. They feature all welded stainless-steel construction, 316-wetted parts, and



glass-to-metal seals at the electrical outlets to ensure that they are hermetically sealed from external environments and media. The transducers have a micro-machined silicon core that provides high accuracy (from 0.08 to 0.03%), low drift, and excellent long-term stability in the harshest environments. Ranges from 100 to 5000 psi and various pressure and electrical connections are available. The temperature compensation range can be as broad as -40 to 104 °C with thermal errors as low as $\pm 0.3\%$ over that range. The ruggedized MMA500V series has a secondary containment system in the event of diaphragm rupture. A five-point NIST-traceable calibration certificate is included. *Omegadyne Inc, 149 Stelzer Court, Sunbury, OH 43074, <http://www.omegadyne.com>*

New literature

CVI Melles Griot has published its 2009 catalog with details and specifications on such products as optics, lasers, laser beam and spectral measurement tools, machine vision systems, shutters, optical tables, microscopes, apertures and spatial filters, forensics equipment, and lab accessories. *CVI Melles Griot, 200 Dorado Place SE, Albuquerque, NM 87123, <http://www.cvimellesgriot.com>*

Ophir-Spiricon has released its 2009 *Laser Measurement Catalog*. Directed toward medical, industrial, and research applications, the catalog covers many laser measurement and analysis needs, from photodiode, thermal, and pyro-electric power/energy detectors to portable displays and high-power, high-accuracy beam profilers. *Ophir-Spiricon Inc, 60 West 1000 North, Logan, UT 84321, <http://www.ophir-spiricon.com>*

The *Analytical Products* catalog from Alfa Aesar highlights the company's Specpure range of analytical standards. Its 256 pages list hundreds of other products, including NMR and specialty solvents, high-purity acids and bases, and IR spectroscopy tools. *Alfa Aesar, 26 Parkridge Road, Ward Hill, MA 01835, <http://www.alfa.com>*

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