Focus on test and measurement

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Scanning IR gas imaging system

Bruker's new remote scanning IR gas imaging system, SIGIS 2, can identify, quantify, and visualize potentially hazardous gas clouds from long distances.

SIGIS 2 combines an IR spectrometer with a single detector element and a scanner system. A rotating head with a scanning mirror allows 360° observation and imaging; a video or IR camera displays an image of the scene. In the basic operating mode, the operator draws a frame in the video image of the area to be examined. The mirror sequentially scans the scene, and the incoming IR radiation is analyzed in real time. The results are visualized by the video image, which is overlaid by an image of the potentially hazardous gas cloud. The direct display of the cloud in the image allows simple assessment of the position and the size of the cloud. *Bruker Optics Inc, 19 Fortune Drive, Manning Park, Billerica, MA 01821-3991, http://www.brukeroptics.com*

Sound and vibration measurements

Data Translation's DT9847 series of high-accuracy, dynamic signal acquisition modules for USB are suitable for precision measurements with microphones, accelerometers, and other transducers with a wide dynamic range. Common applications include audio, acoustic, and vibration testing. The DT9847 can be combined with the ready-to-measure VIBpoint Framework to create a fast-Fourier-transform analyzer. All Data Translation devices include comprehensive driver and software support and interface tools for LabVIEW and Matlab programmers. Design features of the DT9847 series include flexible channel configurations with portable, USB-powered models; simultaneous analog input and analog output operations in continuous or modulated mode; a 24-bit A/D converter per channel (up to three analog inputs, depending on the model); and up to 216 kSamples/s for each channel. With software-selectable gains of 1 and 10, the input range of ±10 V effectively becomes ±10 V and ±1 V. *Data Translation Inc, 100 Locke Drive, Marlboro, MA 01752-1192, http://www.datatranslation.com*

Cryogenic probe station

Lake Shore Cryotronics has updated the specifications for its model CRX-VF cryogenic probe station. It now features increased maximum magnetic field, improved magnetic field at elevated sample temperatures, and improved vacuum performance. The maximum magnetic field capability at base temperature has been improved from ±2.25 T to ±2.5 T. The CRX-VF can now be operated up to ±2 T from 10 K to 400 K and up to ±1 T from 400 K to 500 K. Previously, only ±0.5 T was possible above 400 K, and no magnetic field was possible above 450 K. A new high-vacuum option has been added for users whose applications require lower base pressures. The PS-HV-CPX option improves vacuum to less than 5×10^{-7} Torr with the station at base temperature, an improvement of two orders of magnitude over the standard vacuum configuration. The high-vacuum option is recommended for applications sensitive to contamination. *Lake Shore Cryotronics Inc, 575 McCorkle Boulevard, Westerville, OH 43082, http://www.lakeshore.com*

Vector signal transceiver

National Instruments (NI) has announced 10 pieces of new application intellectual property (IP) that enable engineers and scientists to use NI LabVIEW system design software to build their own custom RF instruments. The IP integrates with PXI field-programmable gate array targets, such as the NI PXIe-5644R vector signal transceiver (VST), and extends their default capabilities by adding new features or enhancing performance in specific applications. Each piece of IP is available in a standalone package so users can add it to one of the default VST personalities and mix and match the components appropriate for each application. The IP is prebuilt into examples to provide immediate access to its functionality, which eliminates the need for users to compile the code and reduces development time. NI Alliance Partners and third-party developers also are creating IP and developing software add-ons for the VST. *National Instruments Corporation, 11500 North Mopac Expressway, Austin, TX 78759-3504, http://www.ni.com*

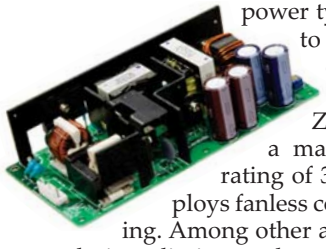
AFM for semiconductor laboratories

Park Systems now offers the NX20, a large-sample atomic force microscope (AFM) for failure analysis (FA) and quality assurance (QA) laboratories that require high accuracy and reliability. Designed for FA and QA in the hard-disk-drive and semiconductor industries, the NX20 features Park's True Non-Contact Mode for long-running probe-tip sharpness. That is key to high accuracy and repeatability of roughness measurement and defect review and to high productivity and low AFM lifecycle costs. In the noncontact mode,

the probe tip reliably remains above the sample's surface, thanks to the decoupled *z*-dimension positioning servo with its fast response time. True Sample Topography, Park's novel technology for measuring the *z*-position with a low-noise *z*-detector, removes the effects of edge overshoot or piezo creep. *Park Systems Inc, 3040 Olcott Street, Santa Clara, CA 95054, http://www.parkAFM.com*

High-efficiency AC/DC power supply

The ZWS300BAF by TDK Corp expands the company's ZWS-BAF series of compact, lightweight, high-efficiency, open-frame-type AC/DC power supplies. The new product is available in 24-, 36-, and 48-V versions. The lineup now ranges from low-power to high-power types and helps to reduce users' environmental impact. The ZWS300BAF has a maximum power rating of 300 W and employs fanless convection cooling. Among other advantages, the design eliminates the need for fan replacement and reduces acoustic noise and vibrations. It is approximately 54% smaller than prior models and consumes only 0.5 W or less in standby mode. Applications include test and measurement equipment, office automation equipment, and industrial automated machinery. *TDK-Lambda Americas Inc, 3055 Del Sol Boulevard, San Diego, CA 92154, http://www.us.tdk-lambda.com*



High-voltage DC power supply

Trek's new model 2300 high-voltage DC power supply series offers five configurations, each with 300-W output power. According to the company, its high-voltage multiplier technology enabled the development of a modular, compact design without sacrificing performance. Active circuitry on the high-voltage output reduces noise and ripple while maintaining low output capacitance and low energy. The low-energy technology may be suitable for applications in which standard power supply technology with large capacitors and high energy is undesirable. The series features versatile voltage and current monitors, short-circuit and thermal protection, universal input, and studs designed for secure mounting in users' systems. The series is compliant with CE and Restriction of Hazardous Substances directives. Applications for the 2300 series include capacitor charging, cell separation, DC biasing, dielectric testing, ion implantation, lasers, and materials testing. *Trek Inc, 11601 Maple Ridge Road, Medina, NY 14103, http://www.trekinc.com*

Molecular-beam epitaxy monitor

The Hiden HALO 201 MBE was developed specifically for the molecular-beam epitaxy process. The probe is mounted on a standard DN-40-CF Conflat-type flange, and its sensitive ionization region is totally shrouded to inhibit random surface deposition. Construction materials are restricted to stainless steel, molybdenum, and alumina to minimize potential process contamination in aggressive environments. The unit has a mass range of 1–200 amu for measuring all common gases and contaminants, with operating modes for vacuum species identification, leak detection, and process trend analysis. User-assignable inputs and outputs enable simultaneous operation for identification of process irregularities and vacuum protection. The MASsoft Professional PC control software is intuitive and multilevel. It offers simple operation but incorporates a broad range of advanced features for experienced vacuum users. Features include template-driven, quick-start operation; multiple residual gas analyzer operation over an Ethernet link; mixed mode scanning; trend analysis extraction from multiple sequential mass range scans; and auto mass alignment. *Hiden Analytical, 420 Europa Boulevard, Gemini Business Park, Warrington, WA5 7UN, UK, http://www.hidenanalytical.com*

Thermal laser sensors

The fast-axial OEM sensor from Ophir Photonics is based on a novel thermopile design that provides fast response times and high power levels. According to the company, response times are up to 20 times faster than those of traditional thermopile sensors; energy levels are up to 2000 J for single pulses, and more than 20 kW of average power is provided. The new sensor is designed to handle a wide array of laser-beam sizes, from 20 mm to 180 × 180 mm. It operates on the principle of axial heat flow in the direction of incident laser or light beams, unlike the usual radial flow sensor where heat flows from the center outward. In the axial sensor, heat flows through a thermopile deposited as a thin layer on the heat sink's surface. It flows only a small distance axially into the substrate, which results in response-time improvements and support for higher power levels. *Ophir Photonics Group, Ophir-Spiricon LLC, 3050 North 300 West, North Logan, UT 84341, http://www.ophiropt.com*

Conductivity and pH meters

Anaheim Scientific has released three new products in its P-series of pH and conductivity meters: the P771 pH meter, the P772 conductivity meter, and the P773 total dissolved solids meter. The pocket-sized, pen-style meters can make taking measurements out in the field easy and convenient. According to the company, the meters offer high resolution and automatic temperature compensation so users can be confident about the quality and validity of their results. The P-series meters have several other features in common: a rugged waterproof housing that meets IP57 standards, compactness, replaceable electrodes, and a large 21 × 18 mm LCD display. *Anaheim Scientific, 22820 Savi Ranch Parkway, Yorba Linda, CA 92887, http://anaheimscientific.com*

Digital-storage and mixed-signal oscilloscopes

Agilent Technologies has introduced the fully upgradeable InfiniiVision 4000 X-series of digital-storage and mixed-signal oscilloscopes. Claimed to offer speed and ease of use and integration, the 4000 X-series lineup includes 200-, 350-, and 500-MHz and 1- and 1.5-GHz models. The standard configuration for all models includes 4 megapoints of memory and segmented memory. The update rate is 1×10^6 waveforms/s with

standard segmented memory, which uses patented MegaZoom IV smart memory technology. The lineup also features a 12-inch capacitive touchscreen and a new InfiniiScan Zone touch-triggering capability. The high-speed waveform update rate enables fast operation, even with digital channels, protocol decoding, math functions, or measurements activated. Higher speed increases the probability of capturing random or intermittent events that can go undetected by scopes with lower update rates. *Agilent Technologies Inc, 5301 Stevens Creek Boulevard, Santa Clara, CA 95051, http://www.agilent.com*

Sweep function generators

Two new direct digital synthesis (DDS) sweep function generators from B&K Precision improve on former models 4007DDS and 4013DDS. With an enhanced user interface, models 4007B and 4013B can generate sine and square waveforms from 0.1 Hz to 7 MHz and 0.1 Hz to 12 MHz, respectively. Both models also output triangle and ramp waveforms from 0.1 Hz to 1 MHz and provide variable output voltages from 0 to 10 Vpp into 50 Ω or 20 Vpp into open circuit. Convenient waveform and range selection buttons are provided for quick, simple adjustments. Users can also navigate through the intuitive LCD display with menu function keys. The instruments provide linear and logarithmic sweep functions, variable DC offset from −4.5 to 4.5 V (into 50 Ω), and adjustable 20–80% duty cycle up to 1 MHz for square and triangle waveform output. A sync output is accessible on the front panel for delivering transistor–transistor logic-level pulses synchronized to the main output. *B&K Precision Corporation, 22820 Savi Ranch Parkway, Yorba Linda, CA 92887-4610, http://www.bkprecision.com*

Precision calibrator

Fluke Calibration has announced that its 7526A precision process calibrator combines versatility, precision, and value into a single benchtop device. It simplifies calibration of temperature and pressure process instrumentation by incorporating an isolated measurement channel that allows users to source and measure simultaneously. The instrument helps calibrate resistance temperature detector (RTD) and thermocouple readouts, pressure gauges, temperature and pressure transmitters, digital process simulators, data loggers, and multimeters. The calibrator simulates and measures 9 RTD and 13 thermocouple types, measures pressure to within 0.008% of reading when combined with Fluke 525A-P series pressure modules, and sources and measures DC voltage from 0 to 100 V to within 0.004% of reading. It sources DC current from 0 to 100 mA, accurately measures DC current to within 0.01% from 0 to 50 mA, and supplies 24 V of DC loop power. *Fluke Corporation, 6920 Seaway Boulevard, Everett, WA 98203, http://us.flukecal.com*

Picoammeter and voltage source

Keithley Instruments has expanded its low-level measurement capacity by introducing a dual-channel picoammeter with dual ±30-V, independent, nonfloating bias sources and 1-fA measurement resolution. Model 6482 provides two independent picoammeter and source channels in a 2U (two-unit), half-rack enclosure, allowing simultaneous 6½-digit measurements across both channels. According to the company, it offers twice the channel density of other high-speed, high-accuracy picoammeters. That allows for easier control and data aggregation, a lower cost of ownership, higher measurement accuracy of ±1% on the 2-nA range, and a wider dynamic range (1 fA to 20 mA) than other available single-channel picoammeter and source combinations. At 4½-digit resolution, users can take up to 900 readings/s on each channel. Model 6482 offers low current measurement ranges from 2 nA to 20 mA in decade steps. *Keithley Instruments Inc, 28775 Aurora Road, Cleveland, OH 44139, http://www.keithley.com* ■