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new products

Focus on analytical equipment, sensors, and detectors

The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers. PHYSICS TODAY can assume no responsibility for their accuracy. For more information about a particular product, visit the website at the end of the product description.

Andreas Mandelis

Spectrometer for fast gas analysis

Hidden Analytical initially developed its transient mass spectrometer (TMS) series of gas analyzers for researchers to monitor fast-evolving and pulsing gases. Now available to general users, the HPR-20 QIC TMS instruments monitor process pressures from subatmospheric to 30 bar. A heated, flexible, fast-response interface allows easy, direct connection to the gas evolution process. When coupled with the digital detector of the integral Hidden pulse ion counting



quadrupole MS, the HPR-20 analyzers can monitor a gas species within a time as short as 6 ms. They can be refined to monitor both fast transient pulses and changing composition profiles with a dynamic range through seven signal decades. Standard options enable measurement of gas and vapor species with molecular weights to 200 amu or 300 amu, with higher mass ranges available. Hidden Analytical Inc, 37699 Schoolcraft Road, Livonia, MI 48150, <http://www.hiddenanalytical.com>

Helium leak detectors

The Heliot 900 leak detector series from Ulvac Technologies can sense helium and hydrogen. The instruments feature



a fast pumping speed to detect small leaks, fast response time and background cleanup, a 7-inch Android touch screen for control and display, and a multiple-valve design for high sensitivity of 10^{-12} Torr l/s. The fast pumping speed of 5 l/s shortens the time for the helium background to be suppressed. Programmable leak test configurations help automate operations, and internal monitoring of error and alarm conditions detects problems before they can damage a unit. The internal construction is designed for easy maintenance. Available in five models, the Heliot 900 detectors are suitable for applications in the automotive, air conditioning, refrigeration, electronics, semiconductor, and pharmaceutical industries. Ulvac Technologies Inc, 401 Griffin Brook Drive, Methuen, MA 01844, <http://www.ulvac.com>

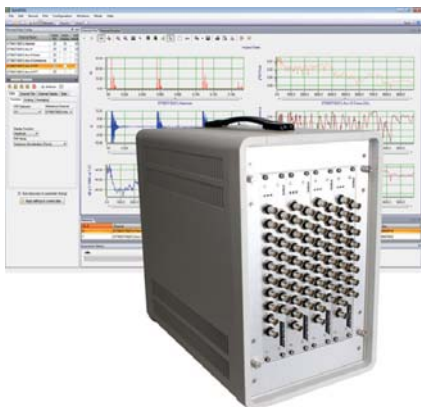
Lock-in amplifier

The SR865 2-MHz lock-in amplifier from Stanford Research Systems offers a wide frequency range of 0.001 Hz to 2 MHz, high dynamic reserve greater than 120 dB, stability less than 5 ppm/°C, and phase resolution of 0.1×10^{-6} . Building on the company's model SR830, the new amplifier incorporates several enhancements and new features. A touch-screen display shows results in large numbers that can be read from across the laboratory and provides chart recordings for a complete time history of users' data. Fast-Fourier-transform algorithms of signal inputs and analog outputs are available. The SR865 comes with GPIB, RS-232, USB, and Ethernet interfaces. A USB flash storage port allows users to

save and export data and graphical screenshots. *Stanford Research Systems Inc., 1290-D Reamwood Avenue, Sunnyvale, CA 94089, <http://www.thinksrs.com>*

Sound and vibration measurement

Data Translation has expanded its vibration module offerings to include a standard 64-channel system. The portable VIBbox offers high-accuracy measurement for large channel count applications, including audio, acoustic, and vibration testing. It has 64 integrated electronic piezoelectric (IEPE) inputs, eight 32-bit digital-to-analog signal outputs, four tachometers, and



numerous digital input/output, counter/timer, and measure counter channels. As a parallel measurement system, VIBbox features simultaneous measurement from all channels. The IEPE inputs from sensors such as microphones, accelerometers, and other transducers with a large dynamic range can be connected directly and executed at a throughput of 105.4 kHz. VIBbox operates using the QuickDAQ application with an option for advanced fast-Fourier-transform analysis. *Data Translation Inc., 100 Locke Drive, Marlboro, MA 01752-1192, <http://www.datatranslation.com>*

Monochromator system

Shimadzu's SPG-120-REV compact monochromator system is suitable for a wide range of applications, including 2D spectral mapping of solar-cell materials and optical devices, monitoring of vacuum evaporation of thin films, and evaluation of the spectral characteristics of cameras. It can accurately and reproducibly scan from 200 nm to 900 nm in 2 s when the grating used to change

optical wavelengths is attached directly to the stepping motor. Achieving such speed and accuracy can potentially improve the throughput for applications that require measurement of large numbers of samples and multiwavelength analysis of individual samples. The SPG-120-REV system features a five-phase stepping motor with a high-reduction-ratio harmonic drive gearing that enables a wavelength positioning speed of 500 nm/s, which the company claims is 10 times that of conventional models. *Shimadzu Corporation, 1 Nishinokyo Kuwabara-cho, Nakagyo-ku, Kyoto 604-8511, Japan, <http://www.shimadzu.com>*

Electron paramagnetic resonance system

Bruker's EMXnano benchtop electron paramagnetic resonance system can be used to analyze many EPR samples, including transition metals, antioxidants, and free radicals, and provide information and insights into biological and chemical systems. A novel permanent magnet and an efficient microwave resonator deliver high sensitivity and stability. The EMXnano is suitable for a range of analyses and teaching applications and for quantitative EPR with Bruker's spin counting module. Appli-



cations include polymer synthesis, purity testing of silicon in solar cells, spin trapping to assess the oxidative stability of flavors, and the analysis of metalloproteins. In electrochemistry, redox chemistry, photochemistry, and catalysis, the EMXnano can be used to study metal centers and radicals involved in chemical processes. *Bruker BioSpin Corporation, 15 Fortune Drive, Billerica, MA 01821-3991, <http://www.bruker.com>* ■

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