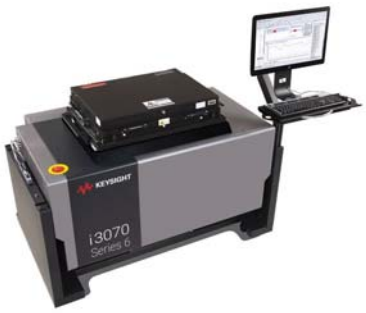
NEW PRODUCTS

Focus on test, measurement, and data acquisition

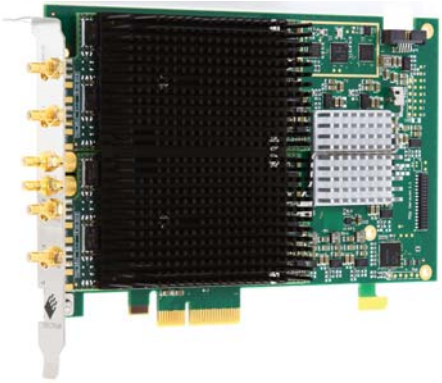
The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers. PHYSICS TODAY can assume no responsibility for their accuracy. For more information about a particular product, visit the website at the end of its description. Please send all new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

Andreas Mandelis

PCB efficiency testing device

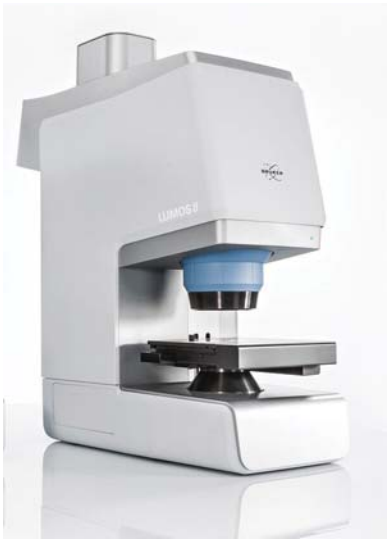


Keysight designed its i3070 Series 6 in-circuit test (ICT) suite to improve the throughput and operational efficiency of printed circuit board assembly (PCBA) manufacturing. The i3070 Series 6 ICT supports a wide range of PCBA sizes for applications that include the internet of things, 5G wireless technology, and the energy industry. According to the company, the i3070 features the shortest signal path between measurement circuitry and devices under test. That minimizes parasitic capacitance, cross-talk interference, and stray signal coupling and thereby facilitates delivery of consistent, repeatable measurements. Up to 4× faster boundary scan, silicon nails, and dynamic flash programming optimize test efficiency and throughput. Certified machine-to-machine capabilities reduce response times and operating expenses and improve test-data insights. ***Keysight Technologies**, 1400 Fountaingrove Pkwy, Santa Rosa, CA 95403-1738, www.keysight.com*



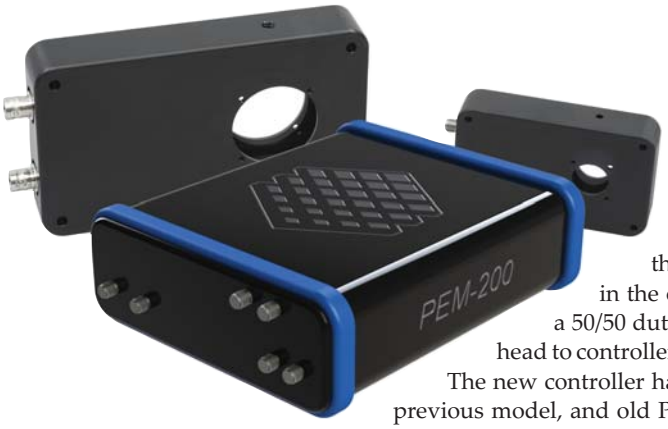
High-amplitude signal generators

Spectrum Instrumentation has added six arbitrary waveform generators (AWGs) to its M2p.65xx series of PCIe cards. The new AWGs extend the product family's capabilities by boosting the available output range, so that waveforms can be generated with amplitude swings of up to ±12 V into 1 MΩ or ±6 V into 50 Ω. To achieve the higher output voltage ranges, the cards have been fitted with additional amplification and larger cooling plates. The slightly wider cards occupy two PCIe slots, but they are just 168 mm long and can fit into almost any PC. The M2p.65xx series AWGs use the latest 16-bit digital-to-analog converters and feature a fast PCIe ×4 interface with up to 700 MB/s streaming speed. Users can select output speed rates of either 40 MS/s (M2p.654x series) or 125 MS/s (M2p.657x series) and models with one, two, or four channels per card. ***Spectrum Instrumentation Corp**, 401 Hackensack Ave, 4th Fl, Hackensack, NJ 07601, https://spectrum-instrumentation.com*



Fourier-transform IR imaging microscope

Bruker's Lumos II Fourier-transform IR imaging microscope provides ultrafast data acquisition in mapping and focal-plane array imaging modes. The Lumos II can identify particles, determine coatings and contaminations, and reveal polymeric compositions. According to the company, it delivers excellent results in transmission and reflection and attenuated total reflection measurements. The fully automated, software-controlled microscope features an easily accessible sample stage. The retractable crystal is controlled by high-precision piezoelectrical motors and integrated into the lens to give a clear view of the sample. The Lumos II offers a very large field of view and spatial resolution of 0.6 μm/pixel. It is suitable for use in quality control and failure analysis in many fields, including polymers, electronics, and pharmaceuticals, and for life sciences and forensics applications. ***Bruker Optics Inc**, 40 Manning Rd, Billerica, MA 01821, www.bruker.com*



Photoelastic modulator controller

Hinds Instruments has introduced the PEM-200 all-in-one controller for its photoelastic modulators. The device's primary function is to control the peak retardation of the photoelastic modulator optical head. In the past, that was an analog circuit with an electronic head. The new digital PEM-200 sets the transducer vibration amplitude and thus the strain amplitude in the optical element. It improves over its predecessor by providing a 50/50 duty cycle, a simplified connection (dual SMA cables from optical head to controller), USB 2.0 communication, and a low 1.7 W power requirement. The new controller has the same polarization purity, stability, and sensitivity as the previous model, and old PEM optical heads can be used with it. ***Hinds Instruments Inc**, 7245 NE Evergreen Pkwy, Hillsboro, OR 97124, www.hindsinstruments.com*

Large-aperture pulsed-laser-energy sensor

MKS Instruments, which includes Ophir-Spiricon, has announced the Ophir L2000W-PF-120 water-cooled laser power and energy sensor for measuring large pulsed lasers. The thermal sensor measures powers of 1–2000 W and energies of 6–6000 J over the spectral range of 0.3–2.2 µm. It features a large 120 mm aperture to accommodate high energy densities and short pulses. A fast 7 s response time allows the device both to measure fast drifts and instabilities and to handle high energy levels. The L2000W-PF-120 laser sensor is designed for use with large-diameter pulsed nanosecond or picosecond lasers. To address the optical damage that such short pulses can induce, the sensor features Ophir's PF-type volume absorber, which can withstand higher average energies and energy densities of up to 3 J/cm^2. ***Ophir-Spiricon LLC**, 3050 N 300 W, North Logan, UT 84341, www.ophiropt.com*

Inductive plasma-spectrometry system

Agilent has announced new inductively coupled plasma–optical emission spectrometry (ICP-OES) systems with patent-pending free-form optics. According to the company, the 5800 and 5900 models are the smallest and fastest ICP-OES systems available. They incorporate novel instrument intelligence that can deliver insight into samples, processes, and operational status. Sensors linked to software tools guide laboratory users through analyses, help them avoid unplanned downtime, and reduce their need to remeasure samples. The ICP-OES systems are suitable for users at all expertise levels in laboratories serving the environmental, food, energy, chemical, and materials fields. ***Agilent Technologies Inc**, 5301 Stevens Creek Blvd, Santa Clara, CA 95051, www.agilent.com*

Compact quadrupole analyzer

Hiden's pQA portable gas analyzer is a versatile mass spectrometer with interchangeable sampling inlets. It can be used in a broad range of applications, including gas analyses in which sample volume is small and environmental analyses that require detection of low concentration levels. The lightweight pQA system allows high-sensitivity, high-dynamic-range multigas analysis by mass spectrometry (MS) to be performed in the field, on riverbanks, at sea, and in the laboratory. Membrane-introduction MS inlets enable analysis of dissolved species in groundwater, fermentation cultures, soil samples, and other applications that require dissolved species in liquid samples. The pQA system has a mass range of 200 amu and sub-ppb detection levels. An extended mass range to 300 amu is optional. ***Hiden Analytical Inc**, 37699 Schoolcraft Rd, Livonia, MI 48150, www.hidenanalytical.com*

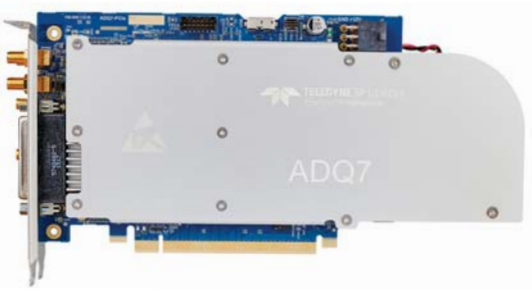
High-speed IR detection module

Boston Electronics, through its partner Vigo System SA, now offers the UHS-M high-performance, high-bandwidth IR detector and preamplifier module. The UHS-M features a minimum 1 GHz bandwidth, detector sensitivity of 3–11+ μm, and a high signal-to-noise ratio. According to the company, it is easy to use. Applications include fast pulsed-laser measurements, dual-comb spectroscopy, heterodyne detection, and free-space optical communication. The UHS-M module is contained in one compact package with the IR detector, preamplifier, thermoelectric cooler controller, and power supply. It is equipped with two analog signal outputs: AC–main broadband and DC–DC. ***Boston Electronics Corporation**, 91 Boylston St, Brookline, MA 02445, www.boselec.com*

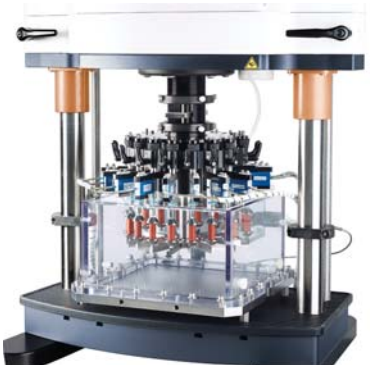
Radiometric power and energy measurement

Gamma Scientific has released its UDT series of enhanced radiometric sensors. According to the company, the sensors deliver highly accurate results, including femtoamp-level sensitivity for ultralow-light measurement. Configuration options include miniature, low-profile, blue- and UV-optimized, indium gallium arsenide, and cooled sensors for a wide variety of applications ranging from 190 nm to 1750 nm. With rise times to 1 μsec, pulsed-energy measurements are also possible. Most configurations can easily be combined with the Gamma Scientific range of integrating spheres and other full test solutions for laboratories, production-line testing, and OEM use. All products feature NIST-traceable calibration. ***Gamma Scientific**, 9925 Carroll Canyon Rd, San Diego, CA 92131, www.gamma-sci.com*

Wideband digitizer for RF applications



The ADQ7WB wideband digitizer from Teledyne SP Devices is available in PCI Express and PXI Express form factors and features 12-bit resolution. Its high analog input bandwidth of 6.5 GHz combined with a sampling rate of 5 gigasamples/s/channel allows for wideband capture of intermediate-frequency, quadrature, and RF signals. The AC-coupled analog front end is optimized for high linearity. Proprietary ADX digital performance enhancement technology helps the ADQ7WB achieve high spurious-free dynamic range. The optional FW4DDC firmware package adds real-time radio digital-signal-processing functions that can help reduce data rates to a manageable level. In addition to the onboard real-time processing, the ADQ7WB supports data streaming at high rates. Applications include RF monitoring, recording, and production testing; low-level RF; radar; satellite monitoring; and signals intelligence. ***Teledyne SP Devices**, 700 Chestnut Ridge Rd, Chestnut Ridge, NY 10977, https://spdevices.com*



Materials fatigue testing

Waters Corp has brought to market the MSF16 multispecimen fatigue instrument from its subsidiary TA Instruments. The MSF16 delivers insights into the failure limits of materials, components, and products that experience repetitive forces (stresses and strains), such as those in the aircraft, automobile, and medical devices industries. Failure quantification requires 10–100 specimens be tested for millions, even hundreds of millions, of cycles. Equipped with TA's patented, frictionless ElectroForce motor, the MSF16 offers 3000 N force capacity and high accelerations. According to the company, the instrument enables faster test frequencies and thereby reduces testing time. It features 16-sample simultaneous loading, precision specimen-to-specimen adjustments, and convenient features such as an auto-fill bath. ***TA Instruments**, 159 Lukens Dr, New Castle, DE 19720, www.tainstruments.com*

Lens centering system

Trioptics OptiCentric products are used for optical centration testing and manual and automated cementing and bonding of lenses and lens assemblies. According to the company, its OptiCentric 3D 101 with new optimized software is the only system available that allows the combined measurement of lens centering, air gap, and center thickness. Instead of using nominal values for the multilens calculation of internal centering errors, the OptiCentric 3D 101, with a patented procedure, uses the real distances for center thickness and air gaps. The company claims the method improves the accuracy of multilens measurements and the alignment of achromatic lenses. The system also offers increased accuracy for multivalve measurements. An ultrastable, vibration-free design enables high measurement speed and improved alignment processes. ***Trioptics USA**, 9087 Arrow Rte, Unit 180, Rancho Cucamonga, CA 91730, https://trioptics.com*

Image- and surface-analysis software

Digital Surf has released its Mountains 8 software platform for surface metrology and image analysis. Mountains 8, which builds on the previous Mountains 7 platform, combines Mountains' profilometer and scanning electron microscope data analysis with SPIP (scanning probe image processor) software from Image Metrology. Mountains 8 provides faster calculation speeds, new types of surface data, greater interactivity, and more than a hundred new features. Three families of instrument-specific products are offered: MountainsMap for profilometers, including 2D and 3D contact and noncontact profilers; MountainsSEM for scanning electron microscopes; and MountainsSPIP for scanning probe microscopes, such as atomic force and scanning tunneling microscopes. Research laboratories using multiple types of instruments can benefit from new MountainsLab software, a superset product designed to ensure multiple-source data confluence. ***Digital Surf**, 16 rue Lavoisier, 25000 Besançon, France, www.digitalsurf.com* PT