

new products

Focus on software 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 the product description.

Andreas Mandelis

System design software

In its latest version of LabVIEW, the system design software for engineers and scientists, National Instruments has integrated novel technologies and reduced design complexity from basic measurements to full test platforms. Among the upgrades in LabVIEW 2013 is native support for new hardware from vendors such as ARM and Xilinx, which makes the Xilinx Zynq all-programmable system on a chip. The reliability and quality of complex applications are enhanced through a suite of code management, documentation, and review tools. Those tools integrate with a software engineering process and include a new Subversion plugin from Viewpoint Systems. Deployment technologies are streamlined for developers who want to deliver professional applications. LabVIEW 2013 also delivers systems on mobile platforms for iOS and Android to enable dashboards for remote monitoring and system control. *National Instruments Corporation, 11500 North Mopac Expressway, Austin, TX 78759-3504, <http://www.ni.com>*

Preclinical MRI software

Bruker has designed preclinical MRI software to enhance productivity in advanced research and routine uses. The workflow in ParaVision 6 introduces optimized, application-oriented experimental protocols; an intuitive, interactive 3D scan planning viewport; and automatic reporting. It features a newly developed user interface and easy parameter handling. A guided imaging workflow produces consistent results and lowers the learning curve for bio-

medical researchers new to MRI. A context-sensitive view reduces complexity by visualizing only parameters relevant to the operations at hand and thus ensures intuitive and focused operation. Integrated, real-time optimization features enable dynamic adjustment of parameters during scanning and provide integration of navigator scans and on-the-fly, automatically calculated Shinnar-Le Roux RF pulses for optimum slice profiles. *Bruker Optics Inc, 19 Fortune Drive, Manning Park, Billerica, MA 01821, <http://www.bruker.com>*

Data acquisition module

The Data Translation DT9841 is a real-time USB data acquisition module with an embedded digital signal processor (DSP) for high-accuracy sound and vibration testing. It offers full data acquisition capability: eight 24-bit analog inputs, two 24-bit analog outputs, 24 lines of digital input and output, and three 32-bit counter timers. Delta-sigma A/D and D/A converters enable high-accuracy measurements at up to 800 kHz/channel. The instrument features real-time control with the embedded TMS320C6713, which is a 300-MHz DSP for standalone or system operation, and a software-programmable DSP. It has a flexible memory configuration for autonomous operation consisting of 128-MB synchronous dynamic random access memory and 2-MB flash. Scalable design allows for up to eight modules to be connected for high-channel count applications. The package includes software and drivers and support for Texas Instruments' Code Composer 3.3 or 5.2.1. *Data Translation Inc, 100 Locke Drive, Marlboro, MA 01752-1192, <http://www.datatranslation.com>*

Handheld data-logger thermometer

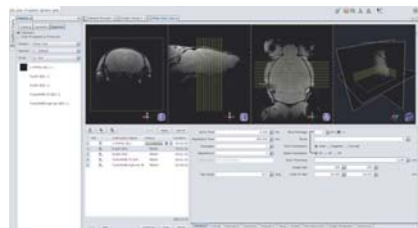
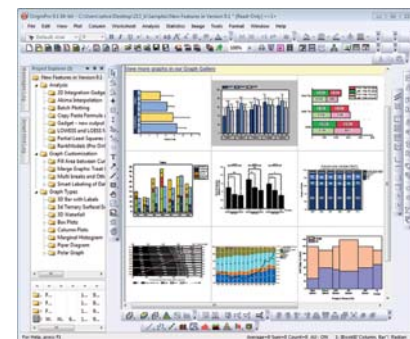
Omega's OM-EL-ENVIROPAD-TC handheld data logger takes and records temperature readings via the attached

thermocouple probe. A large touch-screen color display indicates temperature and maximum and minimum readings and produces a graph of the data. The unit performs both data logging and spot measurement. In data-logging mode, it can be set up and left to take temperature readings at predetermined intervals for a specified length of time. All readings are saved to a file with a date and time stamp in comma-separated values format for up to 65 536 readings. In spot measurement mode, the unit functions as a thermometer to capture one-off temperature readings displayed on-screen. It can repeat up to 65 536 readings per file. The data can be downloaded to a PC via a USB connection and opened with Microsoft Excel or the EasyLog software available free of charge from Omega's website. The unit is compatible with any J-, K-, N-, and T-type thermocouple probes. *Omega Engineering Inc, One Omega Drive, P. O. Box 4047, Stamford, CT 06907-0047, <http://www.omega.com>*



Data analysis and graphing software

OriginLab has released Origin and OriginPro version 9.1, with improvements to version 9.0 based on user feedback and industry demand. Among the enhancements are new graph types that include grouped box charts and marginal histogram and box charts; 3D ternary surface and column and bar plots; 3D waterfall and 100% stacked column and bar plots; and piper diagrams. Time-saving features include batch plotting to create duplicate graphs from other worksheets and columns, batch analysis using interactive gadgets on multiple data plots, copying and pasting new data, and a custom worksheet header row for quickly formulating columns. Origin 9.1 has a redesigned



graph axis dialog. Among new data analysis features are Akima spline interpolation, lowess and loess smoothing, and improvements to existing analysis tools. *OriginLab Corporation, One Roundhouse Plaza, Suite 303, Northampton, MA 01060, <http://www.originlab.com>*

Library for open-source microscopy

Piezosystem Jena has developed a device library for the Micro-Manager open-source microscopy program. Micro-Manager provides a simple interface that allows users to carry out microscope image acquisition strategies, including time-lapse and multi-channel imaging. The device configuration is implemented during the installation of Micro-Manager software and is completely customizable. It easily interfaces to Piezosystem Jena stages such as MIPOS objective focusers, sample Z stages, and three-axis TRITOR systems. Micro-Manager offers flexibility and benefits that include continuously adjustable position control, short travel ranges, storage of up to 50 settings, graphical programming, and control with scripts such as Matlab and BeanShell. *Piezosystem Jena Inc, 2B Rosenfeld Drive, Hopedale, MA 01747, <http://www.piezo-usa.com>*

Accelerated drug-screening software

To accelerate drug screening with accurate mass-based technology in laboratories that perform clinical research, AB Sciex offers MPX TF 1.0 software. According to the company, it delivers faster turnaround times, increased sample throughput, and lower costs than single-stream, mass spectrometry methods. By enabling the use of two parallel liquid chromatography streams, the software can increase throughput by as much as 100%. Chromatographic runs can be staggered while collecting sample data, making use of instrument "dead time" to run more samples and identify more compounds within a given time period. Researchers will potentially be able to do more in less time by combining the increased throughput of the MPX software with the capability of the AB Sciex TripleTOF 4600 accurate mass system to produce

reliable data for a large number of compounds. *AB Sciex, 500 Old Connecticut Path, Framingham, MA 01701, <http://www.absciex.com>*

Optical modulation analysis software

Agilent Technologies has introduced the next generation of analysis software for its family of optical modulation analyzers. According to the company, the software makes it easy for photonic scientists to set up modulation tests and increase efficiency by cutting the number of steps in half. Since it automates the execution of tests, the software also minimizes errors. It provides a comprehensive analysis of complex modulated optical signals to help researchers analyze all facets of the signals and diagnose problems. Users can now set up instruments simply by entering a few parameters that describe the optical input signal. Based on that information and the characteristics of the signal itself, the software determines the best settings and selects the most suitable algorithms to provide analysis results within seconds. *Agilent Technologies Inc, 5301 Stevens Creek Boulevard, Santa Clara, CA 95051, <http://www.agilent.com>*

Spectroscopy software

Bio-Rad Laboratories' KnowItAll Informatics System 2013 spectroscopy software offers solutions for spectral analysis, identification, search, data management, and reporting. It supports multiple instrument vendor file formats and techniques—IR, Raman, near-IR, NMR, mass spectrometry (MS), and UV-visible. Combined with a spectral reference collection consisting of more than 1.4 million spectra, the software helps users extract greater knowledge from their spectral data. KnowItAll Informatics System 2013 includes additions to attenuated total reflectance-IR, IR, Raman, NMR, and MS reference spectral collections; enhanced Raman spectrum management; performance optimizations and workflow simplifications; and advanced gas chromatography-mass spectrometry database building and linking capabilities. It also offers support for generating a single database for multiple spectra obtained by the same technique. *Bio-Rad Laboratories, Informatics Division, Two Penn Center Plaza, Suite 800, 1500 John F. Kennedy Boulevard, Philadelphia, PA 19102-1737, <http://www.bio-rad.com>*

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External FET

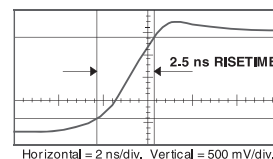
FET can be cooled

Noise: <100 e⁻ RMS (Room Temp.)
<20 e⁻ RMS (Cooled FET)

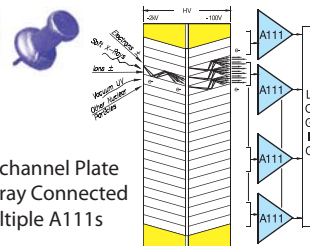
Gain-Bandwidth f_c > 1.5 GHz

Power: 19 mW typical

Slew rate: >475 V/ μ s



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Analog output card for DAQ systems

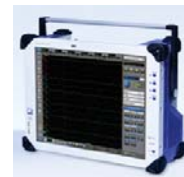
Computer Aided Solutions, also known as CAS Data Loggers, has released the PRO-II-Aout-1/16 50-MHz analog output card for the ADwin-Pro-II data acquisition system. The card has 16 digital inputs and outputs and a single 16-bit analog output that can update at a 50-MHz rate. In addition to a point-by-point output mode, it has an on-board coprocessor and memory buffer that allow the generation of complex arbitrary waveforms or ramp signals independent of the main system processor. The card provides synchronous operation of the input and output digital channels simultaneously with the analog output signals. It is suitable for applications such as scanning microscopy and magneto-optical, quadrupole ion storage, and quadrupole ion traps. In cases requiring more than one channel, multiple cards can run in a single system while synchronizing all output channels to each other. The high speed of the Pro II system provides complex applications with a high data rate. Computer Aided Solutions LLC, 12628 Chilli-cothe Road, Unit J, Chesterland, OH 44026, <http://www.dataloggerinc.com>

Electromagnetic design software

Cobham Technical Services has developed a new version of its Opera electromagnetics and multiphysics design software to enable design engineers to accelerate analysis time. Conceived for use on standard office-grade PCs, Opera-3d version 16 contains enhancements that take advantage of the multicore processor architecture of today's computers. According to the company, harnessing the parallel processing capabilities of multicore processors can reduce computational time. One advanced feature is the accurate method the software uses to represent coils. That feature is widely used by scientists and engineers to model computationally intensive, complex devices with up to several hundred coils. The run time of such complex simulations can be much quicker with the new Opera version; the company reports that a PC with a quad-core processor using the software can run four times as fast as one not using the software. Cobham Technical Services, 1700 North Farnsworth Avenue, Aurora, IL 60505-1186, <http://www.cobham.com>

High-speed data recorder

A new portable data recorder has been added to HBM Test and Measurement's Genesis High Speed line of data recorders. The GEN3i is intended for laboratory, power test stand, and destructive material testing applications and for generators, turbines, and engines. It transfers data directly to the storage medium at speeds as high as 200 MB/s—faster than comparable industrial units, according to HBM. Users can select among 21 data acquisition cards. The GEN3i can be equipped with isolated strain gauge or accelerometer signal conditioners and ultrahigh-speed cards that offer sampling rates of 100 MS/s or with an isolated 1-kV data acquisition card with ± 1000 -V direct inputs. The data recorder features up to 96 fully configurable input channels. A large, intuitive touchscreen lets users easily access all of the data-handling functions. HBM Inc, 19 Barlett Street, Marlborough, MA 01752, <http://www.hbm.com>



Software for fiber analysis

Malvern Instruments' new software for its Morphologi G3 particle characterization system extends the instrument's capabilities to include the detailed measurement of fibers. The Morphologi G3 measures the size and shape of particles by image analysis. The new software delivers accurate measurement of fiber-specific parameters, including total length, width, straightness, and elongation. Many manufactured materials and intermediates, including insulation products, reinforcing materials, textiles, and carbon fiber, are fibrous in nature. Each has unique properties, and detailing those properties is essential to R&D, manufacturing, and quality control. When measuring curved or branched fibers by image analysis, traditional caliper-based measurements deliver only some of the particle length and width information needed to fully determine fiber-particle properties. According to Malvern, total length and width fiber measurements, now possible with the Morphologi G3, may prove to be more valuable parameters. Malvern Instruments Inc, 117 Flanders Road, Westborough, MA 01581-1042, <http://www.malvern.com>

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