

new products

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.

Lawrence G. Rubin

Focus on test and measurement

Digital storage oscilloscope

B&K Precision Corp has introduced the model 2530 digital storage oscilloscope with 25-MHz bandwidth, 250-megasamples/s sampling rate, and 4000 points of record length for each of the two input channels. The scope allows users to analyze signals with FFT and mathematical functions, view the signal's frequency domain spectrum, and perform harmonic distortion analysis. The signal can be isolated with advanced triggering, including pulse width and line-selectable video triggers. A one-touch button can automatically set up both channels for vertical, horizontal, and trigger systems. The instrument comes with PC software that enables the capture and saving of waveform data for transfer to a computer via a USB device port; users can store up to 10 waveforms and two setups for future reference and use. *B&K Precision Corporation, 22820 Sawi Ranch Parkway, Yorba Linda, CA 92887, <http://www.bkprecision.com>*
See www.pt.ims.ca/16298-131

Vector signal analysis software

Agilent Technologies has released version 8.0 of its 89601 vector signal analysis (VSA) software to interface with the company's Acqiris 10-bit and 12-bit Compact PCI broadband digitizers. The new package provides rapid data transfers from the digitizers to the host, reducing measurement time and enabling users to troubleshoot and evaluate broadband signals. VSA 8.0 extends the number of supported platforms to more than 30 of Agilent's instruments and adds a new bus, the PCI, supported by

the software. Three 10-bit digitizers offer a bandwidth up to 2 GHz and up to 1 gigasample of memory in single-channel mode; dual-channel operation can achieve up to 512 MSa per channel at a bandwidth as high as 1.56 GHz. Two Acqiris digitizers are available for smaller bandwidth applications that require 12-bit resolution. *Agilent Technologies Inc, 5301 Stevens Creek Boulevard, Santa Clara, CA 95051, <http://www.agilent.com>*
See www.pt.ims.ca/16298-132

Laser meter

The new LabMax laser power and energy meter from Coherent supports position sensing detectors and is compatible with the company's wide range of thermal, pyroelectric, and semiconductor sensors. LabMax can deliver high accuracy measurements of average power, pulse energy, and repetition rate for pulsed and CW lasers that operate from 190 nm to 12 μm . The in-



strument includes measurement ranges from 1 nW to 30 kW, 1 nJ to 30 J from single shot to 10 kHz, and an improved external pulse trigger. LabMax provides built-in file management capabilities that enable the transfer of stored data to an external computer or the use of onboard flash memory. It can perform numerous statistical functions on accumulated data and offers trend charting, a tuning display, and beam-stability analysis. *Coherent Inc, 5100 Patrick Henry Drive, Santa Clara, CA 95054, <http://www.coherent.com>*
See www.pt.ims.ca/16298-133

Frequency standard

Novatech Instruments has announced the model 2975AX disciplined quartz frequency standard that can generate a synthesized output of any frequency from 100 Hz to 20 MHz with a resolution of 1 μHz . The output is internally

locked to an oven-enclosed quartz crystal time base that enables a stability of $\pm 5 \times 10^{-11}$ per day when disciplined to a 1 pulse/s source, with daily aging better than $\pm 1 \times 10^{-10}$ during holdover. The synthesized output frequency is automatically saved in EEPROM, so after a power interruption, the output remains the same. The 2975AX uses an auto-adaptive algorithm that tracks the 1 pps from a GPS receiver or smart antenna and provides outputs of 5 and 10 MHz. The front-panel display allows users to set the output and also indicates the 1-pps tracking status. *Novatech Instruments Inc, P. O. Box 55997, Seattle, WA 98155-0997, <http://www.novatech-instr.com>*
See www.pt.ims.ca/16298-134

Temperature measurement

Fluke Corp's model 566 and model 568 thermometers combine contact and noncontact temperature measurement capabilities in a single tool, providing a range from -40°C to 650°C (566) or -40°C to 800°C (568) at 1% accuracy. Both models include a type K thermocouple bead probe for users to make contact measurements and are compatible with all standard miniconnector type K sensors. For broadband IR temperature determinations, both instruments offer an adjustable emissivity feature with a built-in materials table or numerical setting. The model 568 has a distance-to-spot ratio of 50:1; the 566's ratio is 30:1 to enable users to measure smaller objects or from farther away. The model 568 thermometer can capture and store up to 99 data points, which can be viewed on the instrument or quickly downloaded to a computer. *Fluke Corporation, P. O. Box 9090, Everett, WA 98206, <http://www.fluke.com>*
See www.pt.ims.ca/16298-135

Serial data analyzer

LeCroy Corp is offering a 13-GHz test solution comprising the SDA13000 serial data analyzer and oscilloscope, the D13000PS active differential probe, and a suite of debugging and analysis tools. With a bandwidth of 13 GHz, a sample rate of 40 gigasamples/s, and 100 Mpoints of memory for each channel, the analyzer can troubleshoot physical-layer problems during development and provide a good solution for compliance testing of next-generation serial data standards. One or two of the instrument's four channels can be used



at the full 13-GHz bandwidth. The computer industry is the primary driver behind the need for faster memory technology, faster disk-drive storage, and a faster interconnect system to link the two together. The D13000PS probe's amplifier contains calibration data on the probe to maximize its performance. *LeCroy Corporation, 700 Chestnut Ridge Road, Chestnut Ridge, NY 10977-6499, <http://www.lecroy.com>*
See www.pt.ims.ca/16298-136

Multichannel I-V test solutions

Keithley Instruments has introduced the series 2600 system SourceMeter. Each instrument combines a precision power supply, true current source, digital multimeter, arbitrary waveform generator, I or V pulse generator with measurement, electronic load, and trigger controller. The A/D converters of the 2600 system provide simultaneous I and V measurements in less than 100 μ s (10 000 readings/s) and source-measure sweep speeds of less than 200 μ s per point. Three single-channel models—the 2601, 2611, and 2635—offer a dynamic range of 1 fA to 10 A and 1 μ V to 200 V. The same ranges are available in the dual-channel models 2602, 2612, and 2636; multiple-channel (three or greater) systems can be configured with the 2602 master and 2601 slave units using the company's TSP-Link connection. *Keithley Instruments Inc, 28775 Aurora Road, Cleveland, OH 44139, <http://www.keithley.com>*
See www.pt.ims.ca/16298-137

ESD event detector

Trek has released the model 900 electrostatic discharge event detector, a diagnostic tool used to identify incidents and verify suspected areas of ESD activity within a manufacturing site. Such incidents are important indicators of excessive charge accumulation, which can be detrimental to ESD-sensitive processes and devices, such as in med-

ical electronics, MEMS, and microelectronics and in semiconductors, LCDs, and hard disk drives. A voltage-sensitive antenna on the unit can be positioned near potential problem areas to monitor any ESD events; detection is conveyed via an audible buzzer and/or a visual color-coded light display that depicts intensity. Model 900 is portable and powered by batteries. Its technical design enables a wide spatial operating range with high sensitivity. *Trek Inc, 11601 Maple Ridge Road, Medina, NY 14103, <http://www.trekinc.com>*
See www.pt.ims.ca/16298-138

Digital pulse and delay generator

The model 575 from Berkeley Nucleonics Corp is a multichannel digital pulse and delay generator. A true pulse generator provides independent control of rate, delay, and width with an external trigger. The company claims that the 575 is the only multichannel unit to permit differing rates for all the channels.



New clock-divider functions, for example, allow one channel to operate at 20 MHz, one at 5 MHz, and another at 50 Hz. The new generator provides 250 ps resolution and up to 1 ppm of accuracy for delay and widths. Rate, selected by period, is set to a resolution of 10 ns. Each channel can use the internal clock, a multiple of the internal clock, or one of two external trigger input connectors. One option is a separate external trigger for each channel. *Berkeley Nucleonics Corporation, 2955 Kerner Boulevard, San Rafael, CA 94901, <http://www.berkeleynucleonics.com>*
See www.pt.ims.ca/16298-139

Vibration spectrum analyzer

Datastick Systems has announced the VSA-1225 handheld vibration spectrum analyzer, the company's first product on the Microsoft Windows Mobile Pocket PC platform. The analyzer

LT - SHPM

Low Temperature Scanning Hall Probe Microscope System

SHPM Image of NIST Calibration Sample at 77K

SHPM Image of Vortices in BSCCO Single Crystal at 77K

MFM - AFM Image of Calibration Grating at 4.2K

MFM Image of Garnet Single Crystal at 1.9K

Scanning Hall Probe Microscopy

- 50 nm spatial resolution
- Real time scanning!
- Up to 6 nT/Hz^{1/2} @ 4K

Multi-Mode Operation:

- Fibre interferometer for ultimate AFM resolution
- MFM, AFM, STM, EFM ...
- Quartz or Akiyama sensor options

World's Smallest Hall Sensor, 50 nm

- PPMS® Compatible
- mK versions are also available



NANOMAGNETICS
INSTRUMENTS

www.nanomagnetics-inst.com
info@nanomagnetics-inst.com

See www.pt.ims.ca/16298-38

hardware module attaches to an HP IPAQ handheld instrument. The IPAQ supplies the computing power and 128 MB of data storage; the VSA module supplies the sensor power, Datastick electronics, and interface. The module includes a very low-noise analog input for standard ICP-type piezoelectric accelerometer or velocity sensors, sufficient power to operate the sensors beyond an eight-hour shift, and optimized digital circuitry. Version 1.8 of the 1225's Datastick Spectrum software suite shows and records vibration FFT spectra in displacement, velocity, and acceleration displays and in a new vibration decibel display. *Datastick Systems Inc, 3350 Scott Boulevard, Building 50, Santa Clara, CA 95054, <http://www.datastick.com>*

See www.pt.ims.ca/16298-140

Light test application software

Labsphere's LightMtrX software is designed for next-generation light measurements. Application solutions are available for controlling the company's line of CDS spectrometers, LSA 3000 LED spectral analyzers, and auxiliary source meters and temperature controllers. The package enables the measurement of such parameters as total spectral, radiant, and luminous flux; averaged radiant and luminous intensity; illuminance; irradiance; dominant and peak wavelength; spectral purity; correlated color temperature; and spatial distribution. Users can display, log, and store results for research and pass/fail testing for production, instantly capture results with real-time graphics, and intensify profile polar plots for modeling and marketing. *Labsphere Inc, 231 Shaker Street, North Sutton, NH 03260, <http://www.labsphere.com>*

See www.pt.ims.ca/16298-141

Portable spectrum analyzer

Boonton Electronics, a Wireless Telecom Group company, is offering the model 9103 handheld spectrum analyzer, whose frequency range of 100 kHz to 7.5 GHz allows capture of the higher harmonics from amplifier and oscillator modules and spurious signals that can mix and break through into the passband. All of the measurement functions of the instrument, such as channel power, occupied bandwidth, and adjacent

channel-power ratio, benefit from the extended frequency range. The 9103 supports many microwave applications that include the typical measurements of standard desktop spectrum analyzers, and it provides spectrum analysis, reflection measurements, cable fault finding, and emission and RF pollution measurements. *Boonton Electronics, 25 Eastmans Road, Parsippany, NJ 07054-3702, <http://www.boonton.com>*

See www.pt.ims.ca/16298-142

Digital multimeter

Protek Test and Measurement has introduced the model 6300, a digital, 4000-count multimeter that provides measurements of luminance, sound level, relative humidity, and temperature, with a thermocouple that covers the range -20°C to 1000°C . Those capabilities are in addition to standard DMM functions that include AC/DC voltages from $100\ \mu\text{V}$ to $1000\ \text{V}$, AC/DC current from $400\ \mu\text{A}$ to $10\ \text{A}$, resistance from $0.1\ \text{ohm}$ to $40\ \text{megohms}$, and duty cycle, frequency, capacitance, diode check, and transistor check measurements.



The 6300 also offers auto and manual ranging, relative mode, data hold, and sleep mode, along with Smart Jacks that flash and buzz to warn of current overload and incorrect inputs. Overload protection fuses may be reset without opening the meter case. *Protek Test and Measurement, 45 Smith Street, Englewood, NJ 07631, <http://www.protektest.com>*

See www.pt.ims.ca/16298-143

Sampling oscilloscope

Saelig Co, the North American distributor for Rigol Technologies Inc (Beijing, China), has released the DS1062CA, a dual-channel digital oscilloscope with two gigasamples/s real-time sample rate, $50\ \text{GSa/s}$ equivalent sample rate, and $60\ \text{MHz}$ bandwidth. The scope has a refresh rate of $2000\ \text{waveforms/s}$ that aids in the capture of instantaneous signals and thus expedites troublesome circuit debugging. Ten waveforms and ten setups can be saved and screen displays can be output as csv and bmp files. Other features include a built-in

FFT function, frequency counter, and math functions such as add, subtract, and multiply. The DS1062CA's 5.7-inch color LCD display provides a wide viewing angle, and its sophisticated triggering mode enables users to quickly stabilize signals. *Saelig Company Inc, 1160-D2 Pittsford-Victor Road, Pittsford, NY 14534, <http://www.saelig.com>*

See www.pt.ims.ca/16298-144

New literature

The *Orange Book of Knowledge*, available from an AR sales representative, contains articles and application notes on EMC testing and wireless communications and represents the cumulative knowledge of AR RF/Microwave Instrumentation, AR Modular RF, and AR Receiver Systems. *AR RF/Microwave Instrumentation, 160 School House Road, Souderton, PA 18964-9990, <http://www.ar-worldwide.com>*

See www.pt.ims.ca/16298-145

Vicor Corp has published the *Design Guide & Applications Manual for Maxi, Mini, Micro Family DC-DC Converters and Accessory Modules*. Among the guide's many topics on converters are advanced factory and design automation, module do's and don'ts, and EMC compatibility. *Vicor Corporation, 25 Frontage Road, Andover, MA 01810-5413, <http://www.vicor.com>*

See www.pt.ims.ca/16298-146

On the Web

An extended section of the Malvern Instruments website is devoted to colloids and colloid stability issues. It features specific presentations, downloadable application notes, background information, and details of the company's analytical solutions. *Malvern Instruments Inc, 117 Flanders Road, Westborough, MA 01581-1042, <http://www.malvern.com>*

See www.pt.ims.ca/16298-147

Rights & Permissions

You may make single copies of articles or departments for private use or for research. Authorization does not extend to systematic or multiple reproduction, to copying for promotional purposes, to electronic storage or distribution (including on the Web), or to republication in any form. In all such cases, you must obtain specific, written permission from the American Institute of Physics.

Contact the

AIP Rights and Permissions Office,
Suite 1N01,
2 Huntington Quadrangle,
Melville, NY 11747-4502
Fax: 516-575-2450
Telephone: 516-576-2268
E-mail: rights@aip.org