

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

Waveform Generators

TEGAM has introduced the 2700 series of direct-digital synthesis function and arbitrary waveform generators, which can create and generate high-speed, standard, or user-defined waveforms ranging from 1 μ Hz to 50 MHz. Any of the three models in the series can replace traditional function, sine, triangle, square-wave, pulse, or sweep generators with the addition of true arbitrary waveform capabilities. Models 2720, 2725, and 2730 provide sine waves of frequencies up to 31, 40, and 50 MHz, respectively. The units feature 14-bit amplitude resolution, up to 4 megapoints of segmentable random-access memory, sweeps from 10 ms to 500 s, and internal or external modulation (AM, FM, and frequency-shift keying). WaveWorks DDS waveform creation software offers graphical tools that allow the production of virtually any waveform type. *TEGAM Inc, Ten Tegam Way, Geneva, OH 44041, <http://www.tegam.com>*

See www.pt.ims.ca/7373-131

Gaussmeter

Lake Shore Cryotronics has announced the model 455 gaussmeter, which incorporates digital signal-processing technology and covers eight magnetic field ranges to a maximum of 35 T. The new instrument offers a DC accuracy of $\pm 0.075\%$, 5 $\frac{1}{2}$ digits of display resolution, DC–20 kHz AC frequency response, and peak-field detection to 50- μ s pulse widths. Measurement features include auto range, auto probe zero, relative reading, maximum and minimum hold, and such flexible display unit options as gauss or tesla. When the model 455 is used with the company's Hall probes, firmware-based features work in conjunction with the probe's calibration and programming to ensure accurate measurements. The probe's characteristics are stored in the probe connector's nonvolatile memory. The two-line by 20-character screen displays temperature and frequency when the probe is operating in RMS mode. *Lake Shore Cryotronics*

ics Inc, 575 McCorkle Boulevard, Westerville, OH 43082, <http://www.lakeshore.com>

See www.pt.ims.ca/7373-132

Pulse Measurement Semiconductor Characterization

Keithley Instruments has developed the PIV (Pulse I-V) package as an option for the company's model 4200-SCS system used for DC device characterization. However, measurement techniques other than DC source-measure are often necessary to characterize new materials and devices because of problems such as high-k charge trapping and self-heating in



silicon-on-insulator (SOI) devices. The model 4200-SCS PIV system with pulse capability solves those problems through integration of pulse generation, pulse measurement, and associated software. The PIV package uses a new pulse generator card that has dual independent channels covering a frequency range from 1 Hz to 50 MHz and is capable of generating a pulse as short as 10 ns to allow for true isothermal pulse measurement of SOI and other devices and processes of 65 nm and lower. *Keithley Instruments Inc, 28775 Aurora Road, Cleveland, OH 44139-1891, <http://www.keithley.com>*

See www.pt.ims.ca/7373-133

Digital Multimeters

The models 34410A and 34411A digital multimeters from Agilent Technologies provide greatly improved reading speeds and system throughput compared with the company's earlier 34401A model. The new in-

struments are 6.5-digit, dual-display benchtop multimeters that measure DC and AC voltage, DC and AC current, resistance, frequency, capacitance, and temperature; digitized AC measurements make better accuracy possible at low and high frequencies. The instruments offer data logging with storage of 50 000 readings per second in nonvolatile memory and peak detection that can measure down to 20 μ s. The model 34410A features 10 000 readings/s at 5.5 digits; the 34411A provides 50 000 readings/s at 4.5 digits, 1 megabyte of reading memory, level triggering, and pre- and post-triggering. *Agilent Technologies Inc, 395 Page Mill Road, Palo Alto, CA 94306, <http://www.agilent.com>*

See www.pt.ims.ca/7373-134

Software for Spectrum Analyzers

Tektronix is offering its new Signal Source Analysis Suite for the company's WCA200A, RSA3300A, and RSA 3408A real-time spectrum analyzers. The software package provides tools to characterize phase noise, jitter, frequency deviation, and settling time for transient RF signals. The new package offers a real-time phase noise display that combines a spectrogram—displaying frequency horizontally, time vertically, and amplitude as a color scale—with a traditional spectrum analyzer view showing a signal with noise sidebands, and adds phase noise and jitter measurements to the view. Included is a “Noisogram,” defined as the measured phase noise displayed over time. This feature helps designers of phase-locked loops to optimize loop bandwidth and overall phase performance. *Tektronix Inc, 14200 SW Karl Braun Drive, P.O. Box 500, Beaverton, OR 97077, <http://www.tektronix.com>*

See www.pt.ims.ca/7373-135

Precision Power Analyzer

Yokogawa Corp of America's model WT3000 is a power analyzer with a power accuracy of $\pm(0.02\%$ of reading



+ 0.04% of range), DC and 0.1 Hz-1 MHz measurement bandwidths, and up to four input elements. Direct current inputs and external voltage inputs are included. The new power analyzer has the highest precision of the company's WT series power meters and is the first in the series to provide a PC card slot and a GPIB port. As options, an RS-232, Ethernet, or USB port is available. The WT3000 lets the user display input signal waveforms in addition to numerical value data so that a separate waveform analyzer is not necessary. An optional harmonics measurement function enables a display of vectors and bar graphs. The instrument provides a function to compensate for the loss caused by the wiring of each input element. *Yokogawa Corporation of America, 2 Dart Road, Newnan, GA 30265, <http://www.yokogawa.com>*
See www.pt.ims.ca/7373-136

Signal Source

Novatech Instruments has introduced the model 440A direct-digital synthesizer, a programmable signal source that generates a low-distortion sine wave signal from 200 kHz to 400 MHz with 1-Hz resolution. The amplitude of the output, set at 10 MHz, is 630 mV peak-to-peak into 50 ohms. The new source contains an internal temperature-compensated crystal oscillator that is programmable from 1 to 25 MHz in 8-kHz steps and can be locked to an external reference such as a cesium or rubidium atomic standard. When the instrument is locked, its accuracy and stability will match that of the reference. The relative phase of the 440A's output signal can be set to a resolution of 14 bits, or 0.022 degrees. The user programs the source by sending simple text commands via an RS-232 serial interface; settings can be saved in an EEPROM. *Novatech Instruments Inc, P.O. Box 55997, Seattle, WA 98155-0997, <http://www.novatech-instr.com>*
See www.pt.ims.ca/7373-137

Ultrahigh-Impedance Voltmeter

Trek has announced a new ultrahigh-input impedance voltmeter called the

Infini-tron, with an input resistance greater than 10^{16} ohms and a very low input capacitance of less than 10^{-15} farads. The instrument provides a measurement range of 0 to ± 100 VDC or peak AC at $\pm 0.1\%$ accuracy, a bandwidth greater than 10 kHz, and a response speed of less than 100 μ s for a 100-V step change. The Infini-tron offers a digital display and hold-and-zero modes. The new electrostatic voltmeter with hand-held probe enables contacting voltage measurements to be made with virtually no transfer of charge to or from the measured object. The Infini-tron and its contacting probe can accurately measure a very small area; this results in very high spatial-resolution capability on devices sensitive to electrostatic discharge during their handling and processing. *Trek Inc, 11601 Maple Ridge Road, Medina, NY 14103, <http://www.trekinc.com>*

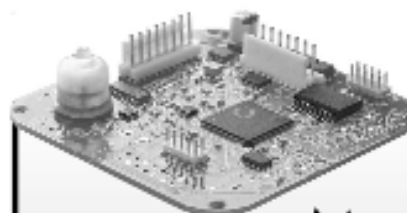
See www.pt.ims.ca/7373-138

Digital-Delay Pulse Generator

The model 565 from Berkeley Nucleonics Corp is a digital-delay pulse generator with eight synchronized outputs. It combines the precise timing properties of digital-delay generators with the versatility of general-purpose pulse generators. The 565 offers 500-ps timing resolution with widths and delays out to 1000 s, jitter to an external trigger at 500 ps rms, independent bursts, division by N in which a different N can be assigned to each channel, and the ability to set a specific wait time after a trigger. It also can combine the timing patterns of several channels onto one and operate each channel in any mode. Setups can be stored within the instrument, which allows reuse of frequently applied testing configurations. The 565 supports RS-232, GPIB, and USB programming. *Berkeley Nucleonics Corporation, 2955 Kerner Boulevard, San Rafael, CA 94901, <http://www.berkeleyelectronics.com>*
See www.pt.ims.ca/7373-139



See www.pt.ims.ca/7373-25



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Arbitrary Waveform Generators

Gage Applied Technologies has released a new CompuGen family of arbitrary waveform and function generator cards for the PCI platform. The cards provide aperiodic analog waveforms by creating a digital representation of the waveform in the onboard memory; standard cards have four megasamples of memory. A converter then changes this digital pattern into an analog signal. Three models each offer 12-bit resolution. The CompuGen 11G has one channel and 1 billion conversions per second; the model 4300 comes with four channels and 300 million c/s; the model 8150, eight channels and 150 million c/s with an optional 16 megasamples of memory. The software enables the creation, editing, and generation of the waveforms. *Gage Applied Technologies Inc, 1 Provost, Suite 200, LaChine, QC, H8S 4H2, Canada, <http://www.gage-applied.com>*

See www.pt.ims.ca/7373-140

PC-Based Tester

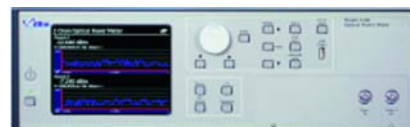
CWAV has added the USBee AX Test Pod to its USBee product line. The AX

is a PC-based pod that relies on the USB 2.0 bus to turn a personal computer into a programmable oscilloscope, digital signal analyzer, and logic analyzer in one compact unit. It is used for testing and controlling circuit designs, verifying analog voltage levels and digital logic, and generating a visual representation of the signals. The USBee AX Test Pod can stream data to and from the PC and perform all triggering and data storing. The AX-Standard comes with an oscilloscope and logic analyzer; the AX-Plus adds a signal generator and USB, 12C, SPI, and Async decoder modules; the AX-Pro includes a data logger, frequency and pulse counter, frequency generator, remote and pulse-width modulation controller, and the ESbee AX Tool Builder source-code library. *CWAV, P.O. Box 892661, Temecula, CA 92589, <http://www.usbee.com>*

See www.pt.ims.ca/7373-141

Optical Power Meter

dBm Optics has introduced the model 4100 Optical Power Meter that combines 100 000 readings per second with a powerful processor that can handle such a measurement speed; when operated with two channels,



each channel still measures at 100 000 readings/s. The new power meter has a dynamic range greater than 65 dB at full speed, which in most cases eliminates the need to change ranges. The instrument can capture an extended range of signal levels at a single sensitivity setting, and thus enables a wide range with a single optical sweep. A USB flash memory drive and large color touch-screen display enhance operation, analysis, and ease of use. When used with the company's model 202 optical power meters, the polarization dependence of the power measurement is less than 0.0015 dB. *dBm Optics Inc, 300 South Public Road, Suite 201, Lafayette, CO 80026, <http://www.dbmoptics.com>*

See www.pt.ims.ca/7373-142

Data Acquisition Software

CEC Capital Equipment has announced DASYLab V 9.0, the latest

www.lakeshore.com

Thermometry Solutions from 20 mK to 1500 K

sensors
controllers
monitors
accessories

LakeShore.

Lake Shore Cryotronics, Inc. • 675 McCord Blvd.
Westerville, OH 43082 • Tel 614-891-2244
Fax 614-891-2400 • info@lakeshore.com

version of the company's Microsoft Windows-based graphical data acquisition software, featuring an updated user interface, improved online help, and interactive tutorials. The software gives more than 150 examples to help users accelerate setup and development of data acquisition and analysis, process monitoring and control, data logging and display, and reporting applications. The DASyLab 9 workspace has been updated with modern icons and graphics, and has been restructured to include module browsing and dynamic information areas. DASyLab's wide range of measurement and control hardware drivers has been extended with a series of new drivers that now support the National Instruments M series and CAN boards. *CEC Capital Equipment*, 6 Bedford Farms, Bedford, NH 03110, <http://www.cec488.com>

See www.pt.ims.ca/7373-143

Motorized Potentiometers

The MR267 motorized potentiometer with an optional current loop controller (CLC) from Micronor offers a

simple solution for automating existing systems controlled by the company's manually operated potentiometers, rheostats, or rotary cam switches. When the CLC option is specified, an MR267 control board, MR267-dedicated rotational feedback potentiometer, and a 12-VDC motor are added to the configuration. The remote control option operates via a 4–20 mA current loop or 0–2.5 V input. The “motor pot” provides a smooth, uniform ramp throughout its timing cycle with absolute positional feedback information. Rotary limit switches are programmed via cams to electrically control events or provide status at pre-stages. *Micronor Inc*, 3483 Old Conejo Road, Suite 203, Newbury Park, CA 91320, <http://www.micronor.com>

See www.pt.ims.ca/7373-144

On the Web

The RF Microwave division of AR Worldwide is offering a new full-color brochure, *SuperPower Amps*, that provides a detailed overview of the company's microwave amplifiers for electromagnetic compatibility and wireless testing. The brochure in-

cludes specifications on the ST, T, and S series amplifiers. *AR Worldwide RF/Microwave Instrumentation*, 160 School House Road, Souderston, PA 18964-9960, <http://www.ar-worldwide.com>

See www.pt.ims.ca/7373-145

New Literature

Ultravolt is adding to its website two new parametric searches that enable users to search for the exact characteristics they require and to compare results to find the modular or rack-mount high-voltage power supply or test fixture for their applications. Search results include links to product data sheets. *Ultravolt Inc*, 1800 Ocean Avenue Front, Ronkonkoma, NY 11779, <http://www.ultravolt.com>

See www.pt.ims.ca/7373-146

Associated Research has published an *Operators Guide to Electrical Safety Compliance*, a user resource that covers operator safety, commonly specified tests, and new technologies and techniques. *Associated Research Inc*, 13860 West Laurel Drive, Lake Forest, IL 60045, <http://www.asresearch.com>

See www.pt.ims.ca/7373-147

www.oxford-instruments.com

What's new from Oxford Instruments?



Find out from our team at APS2006 Baltimore

Meet the Oxford Instruments team at our exhibition booth and get the very latest news on our innovative products and services.

Come along to our 'Socialize with science' event on Sunday 12th March from 7.00pm, at the Marriott Waterfront Hotel, and celebrate the award of the 'Lee-Osheroff-Richardson Science Prize'.




See www.pt.ims.ca/7373-29

APS Show—Booth #801,3,5,7

See www.pt.ims.ca/7373-30