

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. To facilitate inquiries about a particular product, a Reader Service Card is attached inside the back cover of the magazine.

Lawrence G. Rubin

Focus on Test and Measurement

Digital Oscilloscope

LeCroy Corporation has announced the WaveRunner 6000 series of digital storage oscilloscopes. Each of the five models in this bench DSO line has a high sampling rate, relative to its bandwidth, to assure accurate signal capture. Each channel of every model has a five-gigasamples/s real-time A/D converter, except for the 350-MHz model 6030, which has 2.5 GSa/s. The models 6050 and 6051 offer four and two channels, respectively, both with 500-MHz bandwidths. The A/D converter can be interleaved to 10 GSa/s on two channels of the four-channel, 1-GHz (model 6100) and 2-GHz (model 6200) units. With one megapoint of memory per channel, the instruments have adequate memory to store the samples from the A/D converter while it is running at its fastest sampling rate for the duration of the signal. One PP007 500-MHz passive probe per channel is included with every unit. *LeCroy Corp, 700 Chestnut Ridge Road, Chestnut Ridge, New York 10977-6499, <http://www.lecroy.com>*

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Programmable Micro-Ohmmeter

Tinsley's model 5891 is a programmable micro-ohmmeter that measures four-wire resistance in eight ranges from 2.0 m Ω to 20 k Ω full scale. The resolution on the lowest scale is 0.1 $\mu\Omega$, rising to 1 Ω on the highest scale. The maximum capacity of the reading is 26 000 counts. Source currents range from 100 μ A to 10 A, depending on the range; the four intermediate scales provide a choice of three current magnitudes to help counter noise and thermal effects. Reading accuracy is as precise as 0.03% and a temperature compensation feature corrects measurements to 20°C. There are two programmable thresholds with output on two relays. The meter can operate from the mains or from internal rechargeable batteries and features an RS232 interface with optional IEEE-488. *H. Tinsley & Co Ltd, 275 King Henry's Drive, Croydon, CR0 0AE,*

UK, <http://www.tinsley.co.uk>

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Signal Generator

The model 2910B/RACK from Novatech Instruments is a four-channel direct digital synthesized signal generator in a 1U rack mount instrument case (see photo). The instrument generates four programmable frequencies simultaneously, which can be independently set to any value between 100 Hz and 30 MHz with a resolution



of 1 μ Hz. A sine wave of 1 V rms and TTL or square wave differential outputs are each available on two buffered output connectors, for a total of eight outputs. Each channel of the 2910B contains a temperature-compensated crystal oscillator that is stable to ± 3 ppm per year. The oscillators can be locked to an external standard such as a rubidium or cesium clock. The output frequencies can be set by front-panel controls or be controlled remotely via RS232 serial interfaces. *Novatech Instruments Inc, P.O. Box 55997, Seattle, Washington 98155-0997, <http://www.novatech-instr.com>*

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PC Oscilloscope and Spectrum Analyzer

Pico Technology has introduced the ADC-212/50 and ADC-212/100 PC dual-channel, digital storage oscilloscopes that also offer spectrum analyzer and meter functions. The PC-based DSOs provide a two-channel sampling rate of 5 gigasamples/s for repetitive signals. The ADC-212/50 model has a 25-MHz analog bandwidth and a single-channel sampling rate of 50 MSa/s; the ADC-212/100 version provides 50-MHz bandwidth and 100 MSa/s sampling rate. Both units take advantage of a 128-k memory buffer, enabling large amounts of

data to be captured at high sampling rates. Because of the low noise and distortion of the front-end amplifiers and the instruments' 12-bit resolution, the spectrum analyzer has an 80 dB dynamic range. *Pico Technology Ltd, The Mill House, Cambridge Street, St. Neots, PE19 1QB, UK, <http://www.picotech.com>*

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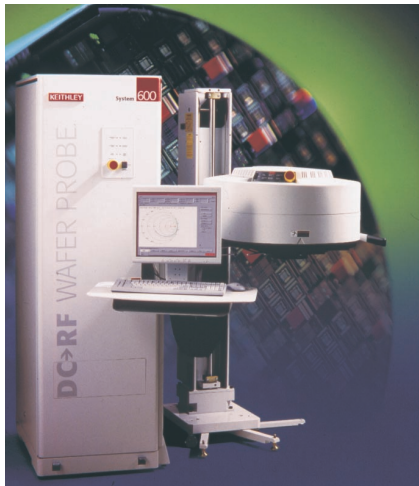
Vector Signal Generator

Rohde & Schwarz has introduced the SMU200A, a modular vector signal generator of two-path design that provides two instruments in one. The SMU200A has space for two RF generators and its baseband section can accommodate two baseband generators. Options for the first RF path include upper frequency limits of 2.2, 3, 4, or 6 GHz, and for the second RF path, 2 or 3 GHz; the lower frequency limit is 100 kHz for all options. If two RF paths are installed, the phase difference between their outputs can be adjusted and an in-phase/quadrature (I/Q) offset is possible. With two baseband generators in the SMU200A, their outputs can be added (with a frequency offset, if desired) and applied to the I/Q modulation of an RF path. Each baseband generator also includes an arbitrary waveform generator with a 56-megasample memory depth. *Rohde & Schwarz Inc, 8661A Robert Fulton Drive, Columbia, Maryland 21046-2265, <http://www.smu.rohde-schwarz.com>*

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40-GHz Parametric Tester

Keithley Instruments has released its S630DC/RF Parametric Testers with 40 GHz RF measurement capabilities for accurate characterization of ultrathin gate dielectrics in advanced semiconductor devices. In testing such devices, inaccuracies can occur due to a high dissipation factor and phase errors. The instrument incorporates a vector network analyzer, a DC/RF probe card and reliable RF



connections in the test head, and it uses per-pin electronics. When the system is used with a suitable test structure layout, it can execute independent RF and DC tests in parallel on separate probes. The test head design places complex impedance bias close to the device under test, which allows multibias capacitance measurements at a sufficiently high frequency to reduce the dielectric's dissipation. *Keithley Instruments Inc, 28775 Aurora Road, Cleveland, Ohio 44139-1891, <http://www.keithley.com>*
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Frequency Analyzer

The RION Company's SA-78 from Scantek is a hand-held, two-channel frequency analyzer that can be used in the field to measure sound and vibration. Analysis functions of the instrument include time waveform, cross-and power-spectrum, transfer function, phase, and coherence. The SA-78 provides FFT, octave, and one-third octave synthesis testing in the frequency range from DC to 80 kHz with up to 1600-line resolution. The inputs can accept piezoelectric accelerometers with built-in preamplifier, measurement electret condenser microphones, or similar transducers, and offer a dynamic range of 85 dB (60 dB for 50 kHz range and above). The SA-78 data can be stored on a CompactFlash memory card, read directly to Microsoft Excel or downloaded through a USB port for other post-processing operations. Waveform recording is available as an option. *Scantek Inc, 7060 Oakland Mills Road, Suite L, Columbia, Maryland 21046, <http://www.scantekinc.com>*
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Oscilloscope Digitizer

Gage Applied Technologies has announced a new 1.2-GHz bandwidth

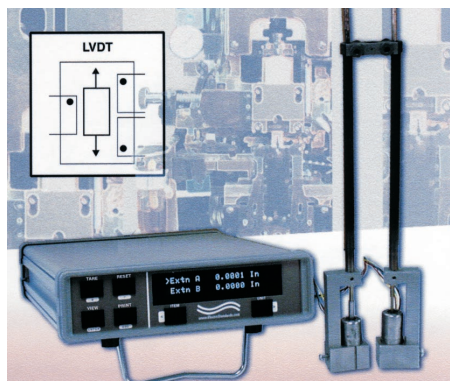
option on the company's CompuScope 82G-1GHz, a family of 2-gigasamples/s (on one channel), 8-bit resolution, waveform digitizer cards for the PCI and cPCI/PXI buses. A single card has simultaneous 1-GSa/s sampling rate on two channels, onboard acquisition memory of up to 16 MB, a variable gain input amplifier, and an external or optional internal trigger. The 82G is capable of becoming a PCI bus master, which can take control of the bus and transfer data to any PCI device without involvement from the host CPU. A multicard system of two, four, six, or

eight cards is available if the user wants to capture more than two channels with a common clock and trigger. The 82G-1GHz is compatible with the company's GageScope software. *Gage Applied Technologies Inc, 2000 32nd Avenue, Lachine, QC, H8T 3H7, Canada, <http://www.gage-applied.com>*
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Digital LVDT Meter

Electro Standards Laboratories has developed the model 4215-L for the dual-channel measurement and control

of linear variable differential transformers. An LVDT consists of a series of inductors in a hollow cylindrical shaft and a solid cylindrical core; it produces an electrical output proportional to the position of the core. The 4215-L provides all excitation and signal conditioning necessary to operate dual LVDT expansion measure-



ment fixtures (see photo). The instrument has a bipolar range with 24-bit resolution, a nonlinearity of 0.005%, and functions that include peak/valley, hold/tracking, and peak reset. Remote operation is available via a serial port. The output of the 4215-L provides an analog signal from a D/A

converter, scalable to ± 10 V, or an optional 4–20 mA. *Electro Standards Laboratories, 36 Western Industrial Drive, Cranston, Rhode Island 02921-3403, <http://www.electrostandards.com>*
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Power Analysis Option for DSO

Yokogawa Corporation of America has announced a new Power Analysis option (G4) for its DL7400 series of 500-MHz digital storage oscilloscopes, designed to make complex power and power-related measurements. The G4 option can exploit many of the DL7400's features. For example, the DL7400 equipped with up to eight analog channels and up to 16 logic inputs enables the monitoring of three phases of input, three phases of output, and many control signals simultaneously using a single instrument. The scope's 500-MHz analog bandwidth and 2 gigasamples/s sampling speed allows for more accurate measurement of fast-switching devices, and its long memory (up to 16 megawords) means that waveforms from startup to steady-state behavior can be captured at high

sampling rates. *Yokogawa Corporation of America, 2 Dart Road, Newnan, Georgia 30265-1094, <http://www.us.yokogawa.com>*

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New Literature

UltraVolt's new catalog has more than 400 models of high-voltage DC-to-DC converters. Output voltages are available from 0 to 62 V through 0 to 40 kV and output powers from 4 to 250 W with an ultralow ripple option. Analog and D/A converter input control is furnished at 0 to +5 VDC. *UltraVolt Inc, 1800 Ocean Avenue Front, Ronkonkoma, New York 11779, <http://www.ultravolt.com>*
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Keystone Electronics has published its new and expanded 104-page *Catalog M1*, featuring more than 5000 products that incorporate SMT and Thru-Hole PCB components. Included are test points, fuse clips and holders, screw terminals, audio jacks, and coin-cell contacts and holders. *Keystone Electronics Corp, 31-07 20th Road, Astoria, New York 11105-2017, <http://www.keyelco.com>* ■

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