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 Oscilloscopes

LeCroy has introduced the Waverunner series of two- and four-channel digital oscilloscopes. These instruments offer large color displays, 500 MHz bandwidth, a sampling rate of 500 megasamples per second, a full complement of input/output capabilities and a long data acquisition memory. The scope can capture many acquisitions of a signal, which are then displayed in persistence mode on a bright 8.4-inch thin film transistor screen. That capability allows the user to see voltage versus time, as well as a third dimension of signal activity, the intensity of the signal over a period of time. It also enables the viewing of modulation effects, intermittent signals and other features of signals, using either single triggers or repetitive acquisitions.

All of the models in the new series feature dedicated knob controls and a menu system that provides access to the most common scope functions, such as coupling, zoom, scroll and measurements. *LeCroy, 700 Chestnut Ridge Road, Chestnut Ridge, New York 10977-6499*

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DSP-Based Lock-In Amplifier

Digital signal processing (DSP) technology is exploited by EG&G Signal Recovery in its model 7265 lock-in amplifier. The device performs all of the normal measurements expected from a dual-phase lock-in amplifier and has analog and digital outputs for in-phase and quadrature components, vector magnitude, phase angle and noise. The unit, which offers both current and voltage inputs, covers a frequency range spanning over eight decades, from 0.001 Hz to 250 kHz, and has a full-scale sensitivity capability of 2 nV or 2 fA. Its operating modes include dual harmonic, dual reference and virtual reference. In addition, the spectral display mode provides a Fourier transform of the input signal after amplification; the frequency response mode is an automatic routine that records the amplitude and phase response of an external network over a preset frequency span using the instrument's own oscillator as a signal source; and the transient recorder mode allows the digitization of an external signal at rates of up to 40 kilosamples per second, with subsequent storage and display of the result as a curve of amplitude versus time. *EG&G Signal Recovery, Sorbus House, Mulberry Business Park, Wokingham, Berks RG41 2GY, United Kingdom*

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High-Temperature Automatic Refractometer

Topac is now marketing in the US the DURHT high-temperature refractometer from Schmidt & Haensch (Berlin, Germany). The unit covers the full Abbe range of refractive index, 1.33000 to 1.70000, and it can make refractive index measurements at temperatures of up to 80 °C with a precision of 0.00002 index. It controls sample temperature in the measurement area by means of a recirculating fluid from a temperature-controlled bath.

The DURHT's eight-line display shows temperature, index, sample ID, time and date. The instrument can be programmed via the menu options on the display to show customized concentration scales and temperature-corrected index scales to suit the user's samples. The controller can drive two separate measuring heads, each of

which can be operated horizontally (high-temperature mode) or vertically, with accessories for flow-through samples and continuous measurements. *Topac Inc, 99 Derby Street, Suite 303, Hingham, Massachusetts 02043*
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Digital Phosphor Oscilloscopes

Tektronix has introduced the TDS3000 family of digital phosphor oscilloscopes (DPO), which feature bandwidths of up to 500 MHz, four-channel operation and a sample rate of 5 gigasamples per second. The DPOs display, store and analyze signals in real-time, using three dimensions of signal information: amplitude, time and the distribution of amplitude over time. This provides the intensity-graded display and responsiveness of an analog oscilloscope, combined with the storage and measurement capabilities of a digital storage oscilloscope. The six models in the TDS3000 family differ in bandwidth and the number of input channels; all feature a color display. The advanced logic and pulse triggering, as well as fast Fourier transform analysis, simplify the verification phase of design. Furthermore, during the debug process, the DPO's intensity-graded display indicates the relative frequency of signal anomalies. *Tektronix, P.O. Box 500, Beaverton, Oregon 97077-0001*
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High-Throughput Sensitive Electrometer

Keithley Instruments' model 6514 electrometer was designed for use where both high throughput and femtoampere resolution are required. It is said that the 6514 can replace many older electrometers and digital multimeters (DMMs) to provide users with better data at lower cost and higher speed. The new electrometer has a much higher input resistance (200 TΩ) and lower voltage burden compared to DMMs and can measure charge directly. Measurements can be made at speeds of up to 1200 readings per second. All this is done without sacrificing sensitivity—the instrument combines line cycle integration and a 60 dB normal-mode rejection ratio to minimize noise errors. It can resolve a 10 fA measurement out of a 2 nA signal with 15 ms settling time.

Digital input/output lines and a component handler interface help speed up testing, facilitate setup and simplify system integration. IEEE-488 and RS-232 interfaces allow the unit to

be controlled from a personal computer. *Keithley Instruments Inc, 28775 Aurora Road, Cleveland, Ohio 44139*
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Laboratory Pulse Generator

The model AV-1030-C from Avtech Electrosystems is a 10 MHz general-purpose laboratory pulse generator that provides 0 to ±5 V (0.5, 1.5 and 5 V ranges) with pulse widths variable from 5 ns to 1 ms (five ranges), rise times of 200 ps, fall times of less than 300 ps and pulse repetition frequencies variable from 1 kHz to 10 MHz (eight ranges); the maximum output duty cycle is limited to 10%. The output polarity is switch-selectable, and the delay is variable up to 1 ms. Additional features include extremely low jitter (±15 ps or 0.01%), manual single-pulse mode and external trigger and gate inputs. *Avtech Electrosystems Ltd, P.O. Box 5120, Station F, Ottawa, Ontario K2C 3H4, Canada*
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Real-Time Sound Analyzer

Scantek has announced the availability of RION's (Tokyo, Japan) newest real-time sound analyzers, the SA-29 (single channel) and SA-30 (dual channel). The analyzers' ability to perform simultaneous measurements of 1/1- and 1/3-octave bands is said to be unique. The 1/3-octave center frequencies are available over the range of 0.4 Hz to 20 kHz, with an option for up to 80 kHz. A built-in noise source provides white, pink and 1/1 octave-band noise. Various trigger functions (external, level, time and noise) are provided, along with a graphic and alphanumeric printer. Also included are a card for memory or data transfer, an RS-232 port and storage of up to 6400 octave-band data. All of the filters are digital; battery life is nominally six hours. *Scantek Inc, 916 Gist Avenue, Silver Spring, Maryland 20910*
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Noncontact Electrostatic Voltmeter

Trek's model 370 is a precision electrostatic voltmeter with the unique capa-

bility of making noncontact surface voltage measurements in the range of 0 to ±3 kV DC or peak AC. The 370 employs an electrostatic field-nulling technique that achieves high DC stability and high measurement accuracy even when the probe is used to measure surface spacing changes. This permits measurements of either stationary or moving surfaces without the need to establish fixed spacing to maintain accuracy. An automatic gain control feature eliminates the need for manual adjustment when changing probes. The 370 responds to voltage changes quickly—less than 50 μs for a 1 kV step.

The voltmeter also features one-step, push-button zeroing. The precision voltage monitor provides a low-voltage replica of the measured electrostatic voltage for external monitoring or for use as a feedback signal in a closed-loop system. *Trek Inc, P.O. Box 728, 3932 Salt Works Road, Medina, New York 14103*

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Digital Oscilloscope/ Transient Analyzer

Nicolet Technology has extended the speed limit of precision measurements with the new Integra 40, a four-channel digital oscilloscope/transient analyzer. Designed for high-dynamic-range physical measurements, the oscilloscope uses four 20-megasamples-per-second, 12-bit digitizers, combined with ultrahigh-accuracy (0.25%) amplifiers. Memory lengths of up to 1 megasample per channel assure reliable capture of transient events. Other features include standard differential inputs; a bright color display supporting over 9000 color combinations; a hard copy output; an internal thermal plotter; and versatile analysis functions, including real-time histograms, trend waveforms, filtering, fast Fourier transforms, integration and differentiation. The Integra 40 has several acquisition modes, including multishot, autocycle, averaging and persistence. *Nicolet Technologies, 5225 Verona Road, Building 4, Madison, Wisconsin 53711*

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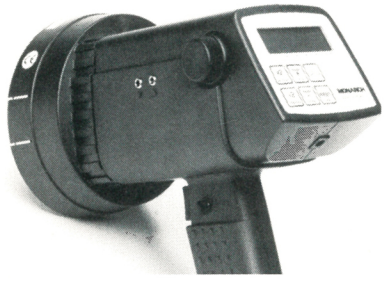
Digital Stroboscope

Monarch Instrument has announced its new digital, internal-battery-operated Nova-Strobe DB Plus stroboscope. It provides bright white stroboscopic light for inspection of slipping belts, loose bolts, missing gear teeth, cracked couplings, misaligned blades, bent shafts, printing press registration marks and other industrial applications. The Nova-Strobe DB Plus can operate as a stroboscope with a resolution of 0.1 rpm and stability over a wide operating range of 30 to 14 000 flashes per minute; it can also operate in a tachometer mode when used with a remote sensor capable of measuring speeds up to 200 000 rpm.

For easy identification of true speed,



the keypad has push buttons for divide- and multiply-by-two, as well as six programmable memory values. The instrument's internal phase-shifting capability allows the viewing target to be kept in sight at all times. Input and output pulses are provided for interfacing with external equipment. *Monarch Instrument, 15 Columbia Drive, Amherst, New Hampshire 03031-2334*

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Low-Level Current Amplifiers

The new series of low-level current amplifiers from Advanced Research Instruments is intended for photomultiplier tubes and photo cells. The hand-sized amplifiers can be located close to the detector. The PMT-4 is a fast current-to-voltage converter covering an input range of 10^{-7} to 10^{-5} A/V. The PMT-5 has a wider range of 10^{-11} to 10^{-6} A/V. The PMT-5R is for computer applications, with a range of 10^{-12} to 10^{-6} A/V, and has remote-controlled gain with selection by three logic lines. The PMT-5 and PMT-5R are suited for detection of currents in the picoampere range. *Advanced Research Instruments Corp, 2434 30th Street, Boulder, Colorado 80301*

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Correction

December, 1998, page 65 – In the final entry of the New Products column, headed Time-of-Flight Mass Spectrometer, the emphasis should have been on a digital signal averager from EG&G Instruments. The company does not manufacture nor supply the mass spectrometer. ■