

new products

The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers, and in some cases by independent sources. 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.

C-language scientific subroutines for microcomputers

Wiley is distributing a C-language scientific library developed by Peerless Engineering Service. The library consists of 112 pretested and precompiled mathematical and statistical subroutines and is supplied on disk as a linkable library and source code.

The programs are designed for the IBM-PC, IBM-XT or IBM-AT, or any compatible computer. A minimum RAM of 192 K is required, as well as two double-sided disk drives or one drive and a hard disk. The programs require a lattice C compiler, PC DOS 1.1 (or a later version), or a version of MS DOS compatible with the C compiler.

The subroutines in the library cover the most commonly used operations, such as polynomials, time series analysis, interpolation, numerical integration, regression, and matrices with real or complex elements.

A 400-page manual describes the methodology, the source code, the test program for each subroutine and each test's results. The precompiled subroutines are easily linked into C programs, reducing coding errors. The C-language library is priced at \$175.00 and comes complete with three diskettes—one contains the source code, one the subroutine library, and one the test programs. Wiley, 605 Third Avenue, New York, New York 10158
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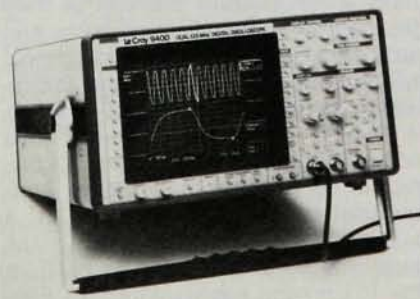
Dual 125-MHz digital storage oscilloscope

LeCroy has introduced the 9400 dual 125-MHz digital storage oscilloscope that combines an oscilloscope and a transient recorder in a portable (14kg) instrument. The oscilloscope features complete programmability and extensive interfacing options for remote control

and computer archiving.

The analog bandwidth of the instrument is 125 MHz. The two input channels are identical, and contain 100-megasample/sec, 8-bit analog-to-digital converters, and 32 000-word acquisition memories. The LeCroy 9400 has an interleaved sampling rate of 12.5 gigasamples per sec. One can measure repetitive signals at full bandwidth with measured points at every 80 psec. The 32-K waveform-storage memories permit expansion of the time base with a factor 100 for the study of recorded phenomena. The entire measurement process, including dynamic modification of front-panel settings, display organization and waveform processing, can be remotely controlled. The 9400 has two standard RS232-C ports and a standard general-purpose interface bus for low-speed communication or remote control. A standard GPIB port provides a transfer rate of up to 400 kilobytes per sec.

The 5" x 7" display is driven digitally and indicates all the parameter settings. In addition, it displays internal status and software-driven communications, such as operation, measurement and analysis menus. A built-in dedicated digital plotter driver can provide hard copy of the 9400's screen. Menu-driven waveform-processing routines complement the 9400's measurement hardware. Signal averaging improves signal-to-noise ratios, while arithmetic waveform processing provides addition, subtraction, multiplication, and so on, of complete signal arrays. The instru-



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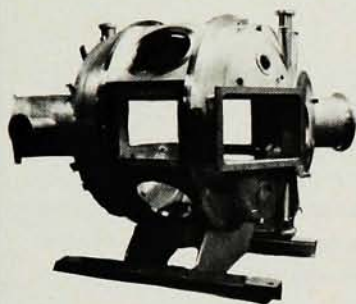
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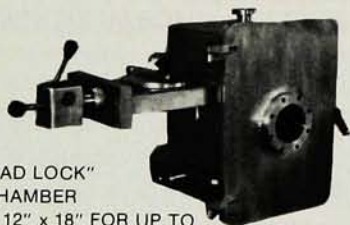
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new products

ment stores up to eight control-setting configurations that can be recalled manually or by external control. The price of the unit is \$14 900. *LeCroy, 700 Main Street, Spring Valley, New York 10977.*

Circle number 141 on Reader Service Card

Constant-current generators for microsecond pulses

The AV-107 pulsed constant-current generators, introduced by Avtech, provide peak current outputs of 0.5, 2.0, 10 and 20 amps with pulse widths that are variable from either 20 nsec to 0.2 μ sec or 50 nsec to 5 μ sec. The output current is regulated and varies less than 5% for a load voltage change from 60 V (maximum load voltage) to 0 V. The 0.5- and 2.0-amp units (Models AV-107A-C and AV-107B-C) provide a rise time of 10 nsec and maximum pulse repetition frequencies of 50 and 20 kHz, respectively. The 10- and 20-amp units (Models AV-107C-C and AV-107D-C) provide 20- and 30-nsec rise times and maximum pulse repetition frequencies of 5 and 0.5 kHz, respectively.

A delay control and signal output is provided for scope-triggering purposes. One can control the output amplitude and pulse width by front-panel one-turn controls. The units are mounted in a 4" x 6" x 8" inch chassis with BNC connectors and require 110-220 V, 50-60 Hz power. Available options include voltage-controlled pulse width and amplitude controls and dc-powered miniature modules. The series is specifically designed for powering laser diodes and high-power IMPATT diodes and for general laboratory applications requiring regulated constant currents of high pulse rates. The price of the units ranges from \$1900 to \$2993. *Avtech, P.O. Box 5120 Station, Ottawa, Ontario, Canada K2C 3H4*

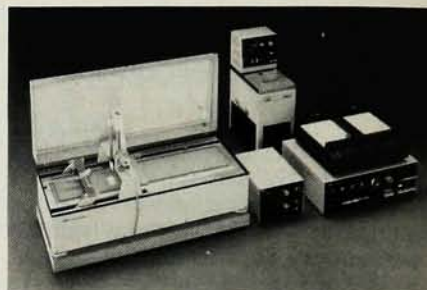
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Langmuir film balance for molecular film transfer

Brinkmann Instruments has introduced a film balance that can be used for the study of surface-pressure and surface-area relations of monolayers of polar organic compounds, and for repeated, uniform deposition of multiple monolayers of varying densities onto a substrate. The instrument consists of a measuring unit that incorporates a teflon-lined trough, a moving barrier, a floating barrier with transducer for the measurement of its displacement (from 0 to 10 μ m) and a control unit. A film-

deposition apparatus and a digital temperature indicator are optional. The trough has a recess for dipping. The automated deposition apparatus for the transfer of single- or multiple-molecular layers onto a carrier is mounted over the recess. Vertical movement is controlled by a stepping motor, and the dipping length can be monitored on an LED display. The moving barrier can keep the film pressure constant within ± 0.1 dyne/cm during transfer of molecular layers on a substrate.

The transducer measures the force on the floating barrier exerted by the film and supplies these data to the y-channel of the x-y recorder. By displacing the moving barrier, one can vary



the film-covered area, whose size can be supplied to the x-channel of the x-y recorder.

The control unit, which incorporates an analog computer, permits the setting and reading of values for the film pressure, covered area, and direction and speed of the moving barrier. *Brinkmann Instruments, Cantiague Road, Westbury, New York 11590*

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Data system for secondary-ion mass spectrometry

Atomika has announced a new menu-driven data system, the Model 3-142, designed for routine secondary-ion mass-spectrometry analysis. The system comprises a color CRT, a keyboard, a CPU and an incorporated printer, and uses a combination of color-coded program prompts and function keys to guide the operator for depth profiles, mass spectra and energy spectra. All program choices appear on the CRT screen directly above the related function keys. The programming language is Microsoft-BASIC.

Examples of features for routine SIMS include quantitative measurements, simultaneous depth profiling of up to ten elements, absorbed-current signals during profiling, presentation of several profiles, and a modified overlap graph for convenient comparison of two depth profiles with different measuring conditions and a removal rate correction. Software is also available

for an HP 7475 six-color plotter for a more readable presentation of multi-element depth profiles. Applications include contamination identification and monitoring, investigation of bonding and coating problems, materials purity analysis and elemental depth profiling of ion-implanted or diffusion-doped semiconductor materials. *Ato-mika, 614 West Manchester Boulevard, Inglewood, California 90301*
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Vibration isolation table with magnetic levitation

Hopewell has announced a vibration isolation table that uses powerful permanent magnets to suspend vibration-sensitive equipment in clean-room conditions. The Magfloat tables are available in four sizes, ranging from capacities of 44 to 250 lbs, and areas from 18"×18" to 27.5"×19". The tables can be bench mounted. *Hopewell, 4 Stevens Drive, Hudson, New Hampshire 03051*

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Two-axis positioning pedestal with microprocessor control

The Cosmos tracker, introduced by Sci-Tech, is an all-weather, two-axis positioning pedestal that can be used to point instruments at celestial and terrestrial objects. The azimuth and elevation positioning mechanism is controlled by a microprocessor, which permits unattended operation.

The Cosmos tracker is supplied with an 8-bit standard parallel interface or an optional RS232-C interface. The Cosmos tracker software can determine its own orientation, facilitating horizontal and azimuth alignment. The resolution is 0.02 degrees, both for the elevation and azimuth. The pedestal can carry loads up to 50 kg, if equipped with a counterbalance of



equal weight, and is powered either with 110 V at 60 Hz or 220 V at 50 Hz. Applications range from the positioning and tracking of solar panels, satellite antennas, heliostats, siderostats, radiation instrumentation and telescopes, to gyro simulation and calibration. The pedestal is priced at \$7995. *Sci-Tec Instruments, 1526 Fletcher Road, Saskatoon, Saskatchewan, Canada S7M 5M1*

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Ion-beam source for 400-mA beam current

Commonwealth Scientific has introduced a new 12-cm Kaufman ion-beam source that can produce 400 milliamps of beam current and can supply ions with energies between 50 and 2000 eV. The source can be mounted onto a 10-inch Conflat flange or can be placed at an internal location by flexible electrical and gas connections by using a one-inch baseplate-type or 2 3/4-inch Conflat flange. Applications for the ion source include ion-beam milling and sputter deposition, precleaning and ion-beam assisted deposition (for example, for optical coatings) with inert or reactive gases. The source features a compact switching-type power supply and is available as part of a complete ion-beam system or with a power supply and feedthroughs only, for installation into existing vacuum chambers. *Commonwealth Scientific, 500 Pendleton Street, Alexandria, Virginia 22314*

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Decade resistance box for load simulation

The TE 1065 decade resistance box announced by Zi-Tech is an adjustable resistive load, capable of dissipating up to 10 watts per resistor. Rotary switches allow precise setting of resistance values in the range of 0.1 Ω to 120 k Ω ; the midscale accuracy is 1%. The TE 1065 is housed in a ventilated, compact metal case. The unit is priced at \$573.00. *Zi-Tech, 2151 Park Boulevard, Palo Alto, California 94306*

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New literature

Lock-in amplifiers—EG&G Princeton Applied Research's 74-page *Lock-in Applications Anthology* describes the use of lock-in amplifiers in a variety of low-level signal measurements. The booklet covers solid-state physics, spectroscopy, electrochemistry, and mechanical applications, instrumentation and engineering. *EG&G Princeton Applied Research, P.O. Box 2565, Princeton, New Jersey 08540* □

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