

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.

Modular High-Voltage Systems for Particle Physics

LeCroy's 1450 series of modular high-voltage systems is designed to supply voltage to the various detectors in particle-physics and related experiments. Each system consists of a mainframe module and several control cards that regulate the voltage for a given detector type. Mainframe models 1451, 1454 and 1458 accept 2, 4 or 16 control cards, respectively. Each mainframe has an RS232 interface, and several mainframes can be controlled by a local area network. Model 1454 can also be controlled from its front panel.

Each card contains its own calibrated reference, analog-to-digital converters, digital-to-analog converters and interface circuitry. Any card can be run in any of the mainframes. Cards are available to supply high voltage to photomultiplier tubes or proportional wire chambers. *LeCroy, 700 Chestnut Ridge Road, Chestnut Ridge, New York 10977-6499*

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Amplifier-Discriminator for Photon or Electron Counting

Advanced Research Instruments' F-100T/E Version 6.2 is a fast-pulse amplifier-discriminator for counting photons, electrons or ions. The unit is placed adjacent to a counter, replacing a preamplifier, linear amplifier or discriminator. It is claimed to be compatible with almost any ratemeter or counter-timer. The device has a sensitivity of 50–100 microvolts for transistor-transistor logic or emitter-coupled logic pulses. The maximum pulse repetition rate for equally

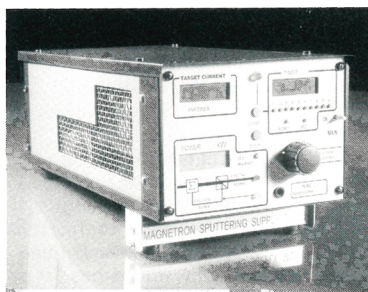
spaced pulses is 100 megahertz.

The F-100T/E is designed to process signals from photomultiplier tubes and electron multipliers. It should also find application in x-ray measurement, secondary ion mass spectroscopy and ion scattering spectroscopy. *Advanced Research Instruments, 2434 30th Street, Boulder, Colorado 80301*

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DC-AC Power Supplies for Magnetron Sputtering

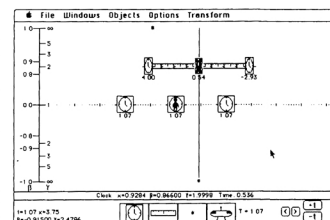
Mat-Vac Technology's Eterna power supplies are designed to ensure stable nonreactive and reactive magnetron sputtering without arcing (which can lead to instabilities in the plasma). Each unit provides 6 kilowatts, measures 7" × 8" × 18" and weighs 12 pounds. The power supplies can operate in ac mode or



in frequency-modulated dc mode, in which the unit generates a series of single-polarity 75-kilohertz pulses modulated at 2.5-kHz frequency. It is said that these modes of operation allow higher deposition rates with reduced radiation damage. The power supplies are claimed to be well suited for the deposition of thin-film

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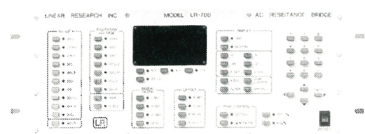
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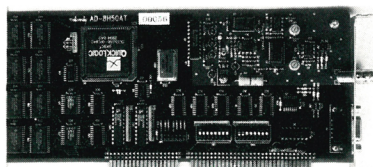
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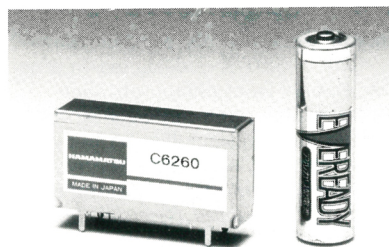
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dielectric materials. *Mat-Vac Technology, PO Box 160, Flagler Beach, Florida 32136-0160*

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Compact, High-Voltage Power Supplies for Photomultiplier Tubes

Hamamatsu's C6260 high-voltage photomultiplier tube power supplies each measure 4.6 cm × 2.4 cm × 12 cm



and weigh 31 grams. They have stabilities of ±0.01%, rise times of 70 volts per millisecond and output ranges from 0 to -1250 volts dc or 0 to +1250 volts dc. Fail-safe functions protect against reversed power output, reversed or excessive controlling voltages, overloads and short circuits. *Hamamatsu, 360 Foothill Road, Box 6910, Bridgewater, New Jersey 08807-0910*

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Multiple-Channel Delay and Pulse Generators

Berkeley Nucleonics is offering a series of multiple-channel delay and pulse generators. The V850 and V851 are configured in virtual machine environment (VME) format with four and six channels, respectively, and time resolutions of 40 picoseconds for delays up to 168 ms. The four-channel V840 is configured in the VME extension-for-instrumentation (VXI) format, and it has 10-ps resolution. The V840 employs binary counting and has an ovenized crystal clock. Each channel on any module can be configured as a delay or a gate; any two channels can be configured in a delay-and-gate mode, in which a pulse begins at the end of one channel's delay and ends with another channel's delay. All of the generators have programming times of 200 ns and their outputs can be set

from -2.5 to 5 volts. *Berkeley Nucleonics, 3060 Kerner Boulevard #2, San Rafael, California 94901*

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Photodiode Transimpedance Amplifier

The model PDA-700 high-gain transimpedance amplifier from Terahertz Technologies reads the output of a photodiode or similar device over a seven-decade dynamic range (20 nanoamperes to 2 mA) with 1 pA of noise and then displays the output with a resolution of a part in 20 000. One can display the output in watts by selecting a calibration factor ranging from 0.1-1.0 amperes per watt. The background-cancellation feature automatically adds or subtracts from the input signal a preselected offset of up to 200% of the full-scale reading. The unit provides a proportional output that measures 2 volts at full scale. It includes rechargeable nickel-cadmium batteries that provide 20 hours of operation between recharges. The PDA-700 can be used to calibrate detectors and characterize their dark currents. It can also be used as an optical power meter. *Terahertz Technologies, 169 Clear Road, Oriskany, New York 13424*

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Pulse Generators for Electro-Optics

The 9000 line of programmable pulse generators from Quantum Composers is intended for use in electro-optics. Generators in the 9310 series have four outputs, whose pulse widths and delays can be varied independently; they generate pulses and delays ranging from 1 microsecond to 99 seconds. Those in the 9410 series are more compact, two-output generators that generate pulses from 500 μs to 99 s. The 9510 series provides independent control of eight edges, generating four pulses from 100 μs to 99 s.

Each generator's nonvolatile memory stores up to 12 complete instrument setups, which can be recalled using a menu displayed on the instrument's front panel. All of the generators provide 1-μs timing resolution and 100-ns timing accuracy. They can be controlled remotely by means of an RS232 interface or an optional GPIB interface. *Quantum Composers, PO Box 4316, Bozeman, Montana 59772*

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Programmable Dual Lock-In Amplifier

The ALA2040 dual lock-in amplifier from Diversified Optical Products incorporates two analog lock-in amplifiers on a 5" x 7" printed circuit card. The amplifiers are digitally controlled by a 16-bit microprocessor that includes a serial digital interface, frequency counters, four 22-bit analog-to-digital converters and digital input and output. The user can program the gain and signal processing for each amplifier.

Signal processing includes signal normalization, signal ratio calculation, auto offset correction, auto phasing, vector magnitude and phase calculation, noise measurement and data averaging. To reduce radiated and conducted emissions that might interfere with measurements, the ALA2040 has a "sleep" mode that stops all clocking of the digital circuits while continuing to operate the analog circuits. *Diversified Optical Products, 282 Main Street, Salem, New Hampshire 03079-2704*

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Broadband Microwave Amplifiers for Susceptibility Studies

Amplifier Research's new line of broadband microwave amplifiers includes three solid-state amplifiers that provide 1, 5, and 10 watts minimum output at 1.0–4.2 gigahertz and four travelling-wave tube amplifiers that provide a minimum of 200 W of



power at 1–2, 2–4, 4–8 and 8–18 GHz, respectively.

The amplifiers are claimed to be particularly suited for susceptibility measurements, because they respond to severe load mismatches by reducing power output rather than shutting down. The amplifiers include gain control and protection against excessive rf input and excessive temperature. In addition, the travelling-wave tube amplifiers have TWT pro-

tection, a multifunction digital display and an IEEE-488 interface. *Amplifier Research, 160 School House Road, Souderton, Pennsylvania 18964-9990*

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Diode Laser Power Supplies

Opto Power is now offering 40-amp, 4-volt and 40-amp, 10-volt transient-protected diode laser power supplies. Both power supplies have drive-current limiters and fault-detection circuitry to protect the diode. The power supplies can be modulated to 1 kilohertz. The output current noise and ripple rate at half of full scale are said to be less than 0.02 A. The power supplies are operated by means of controls on their front panels. They are intended for use with the company's high-power diode laser components. *Opto Power, 15251 E. Don Julian Road, City of Industry, California 91745*

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New Literature

On-line SPM forum—Digital Instruments' Internet scanning probe microscopy mailing list is intended to facilitate discussion and information exchange on SPM techniques. To subscribe send an e-mail message to majordomo@di.com with "subscribe spm [your e-mail address]" in the body of the message. The company's World Wide Web home page, located at <http://www.di.com/>, includes bibliographies and information on SPM applications and the company's products. *Digital Instruments, 520 E. Montecito Street, Santa Barbara, California 93103*

Video on Lasers—The Optical Society of America has produced a 20-minute video, "Lasers as a Tool." The video explains the various types of lasers and their applications. The cost is \$25.00. *OSA, "Lasers as a Tool" Video, 2010 Massachusetts Avenue NW, Washington, DC 20036-1023*

Earth Science Facts—The US Geological Survey makes available fact sheets summarizing its assessments of potential resources and hazards in each state. The fact sheets are available on the World Wide Web at <http://www.usgs.gov/>, or by writing to the USGS. *USGS, 119-G National Center, Reston, Virginia 22092* ■

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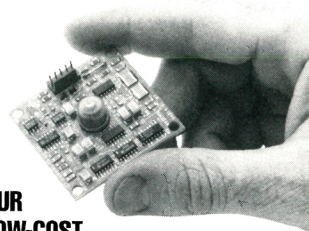
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