

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.

High-sensitivity vacuum uv phototubes

The Hamamatsu R1132 and R1187 are new head-on-type vacuum phototubes, claiming to offer high sensitivity in the vacuum ultraviolet region and low dark current. The R1132 has a KBr photocathode and an MgF_2 window, providing spectral response from 115 to 160 nanometers. The R1187 employs a CsI photocathode and MgF_2 window that provide a wider spectral response, 115 to 200 nm. Both tubes are very small in diameter (approximately $\frac{1}{2}$ inch), and they have flexible leads. Hamamatsu Corporation, 420 South Avenue, Middlesex, New Jersey 08846
Circle number 140 on Reader Service Card

High-repetition-rate pulsed CO₂ laser

Laser Science has introduced the PRF-150G, a preionized, pulsed CO₂ laser capable of repetition rates as high as 150 Hz with arc-free plasma. The maximum pulse energy of this compact ultraviolet laser is 500 mJ/pulse up to 50 Hz and 300 mJ/pulse up to 150 Hz. The pulse length is 100 ns or longer, depending on gas mixture. Average power is 30 W. Peak power is 3 MW (at 300 mJ/pulse) or 5 MW (at 500 mJ/pulse). The laser can run as an open-cycle device at a gas flow rate of 0.1 ft³/min, or in a closed cycle with an optional CO₂ regenerator. The laser offers a



dual plasma chamber, a unique feature, we are told, designed for critical noise isolation and ease of service.

The compact size (19" x 11", 55 lbs.) and repetition rate versatility of the PRF-150G suits it well for CO₂ laser applications such as remote sensing of atmosphere trace gases, infrared spectroscopy, multiphoton excitation, coherent imaging, laser chemistry and chemical kinetics. Laser Science, 80 Prospect Street, Cambridge, Mass. 02139

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Broadband, high-power radiofrequency amplifier

A new high-power rf amplifier from Amplifier Research, model 1500L, produces saturated cw output rated at 1600 watts nominal, 1400 watts minimum over an operating bandwidth from 10 kHz to 220 MHz. Over this bandwidth the amplifier produces a minimum linear output of 600 W—less than 1 dB compression. Designed for laboratory applications requiring instantly available bandwidth and high gain, the 1500L is fully compatible with swept-frequency rf signal sources.

The amplifier's power supply is also equipped for pulse output at duty cycles up to 25%. In this mode, 1500L output is rated at 4 kW minimum from 10 kHz to 150 MHz and 2 kW minimum from 150 MHz to 250 MHz. For applications requiring extreme high-power pulse output followed by immediate blanking—nmr spectroscopy, for example—the 1500L shuts down both driver and final amplifier screen supplies in response to an external blanking signal. When supplied with timed pedestal and blanking pulses in combination with a constant rf signal source, the 1500L provides high-power rectangular rf pulses.

The full bandwidth is available instantly; it requires no bandswitching or tuning. Flatness is typically 1.5 dB.



PEARSON Wide Band, Precision CURRENT MONITOR

With a Pearson current monitor and an oscilloscope, you can measure pulse or ac currents from milliamperes to kilampères, in any conductor or beam of charged particles, including those at very high voltage levels.

This monitor is physically isolated from the circuit. It is a terminated current transformer whose output voltage precisely follows the current amplitude and waveshape. A typical model gives an amplitude accuracy of +1%, -0%, 20 nanosecond rise time, droop of 0.5% per millisecond, and a 3 db bandwidth of 1 Hz to 35 MHz. Other models feature 2 nanosecond rise time, or a droop as low as 1% per second.

Whether you wish to measure current in a conductor, an electron device, or a particle accelerator, it is likely that one of our off-the-shelf models (ranging from $\frac{1}{2}$ " to 10 $\frac{3}{4}$ " ID) will do the job. We also provide custom designs to meet individual specifications.

Contact us and we will send you engineering data.

PEARSON ELECTRONICS, INC.

1860 Embarcadero Road
Palo Alto, Calif. 94303, U.S.A.
Telephone (415) 494-6444
Telex 171-412

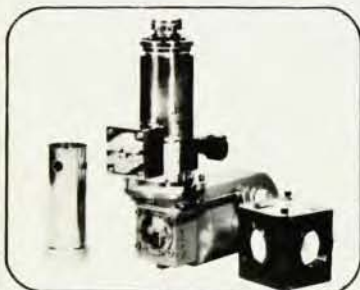
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new products

Gain (at maximum setting) is more than 63 dB. All harmonic products occur more than 15 dB below fundamental power at 1400-watt output. The 1500L is unconditionally stable, we are told; it will not shut down or sustain damage while driving any load impedance, inductive or capacitive. The price is \$43 000. *Amplifier Research, 160 School House Road, Souderton, Pennsylvania 18964*

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Real-time, back-reflection Laue x-ray camera

Multiwire Laboratories has introduced a two-dimensional, position-sensitive x-ray detector with analog electronics for generating real-time back-reflection Laue x-ray diffraction patterns on an x-y display scope. This model MWL100 real-time, back-reflection Laue camera system replaces the conventional back-reflection Laue film method in the orientation of single crystals. Ingots of crystalline material can also be rapidly characterized to reveal single-crystal regions and boundaries in seconds, with precision in real time that is not possible with the film method, we are told.

Laue patterns may be integrated over seconds on the screen of the display scope for an orientation determination of $\pm 1^\circ$ accuracy. This ability to view Laue x-ray diffraction patterns in real time drastically reduces the time and effort required to achieve crystallographic orientations. The system is modular. Its multiwire proportional chamber has an active area of 30×30 cm, made from three planes of gold-plated tungsten wires. The MWL100 has a spatial resolution of 1×2 mm. The x and y coordinates of each detected diffracted x-ray photon are determined by a delay-line-readout method. *Multiwire Laboratories, 124 Langmuir Building, Cornell Industry Research Park, Ithaca, New York 14850*

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High-speed, versatile waveform analyzer

LeCroy's new high-speed signal analyzer, model 3500SA/100, offers high-throughput signal averaging for fast signal-to-noise enhancement, 10-nsec time resolution, 8-bit amplitude resolution and multi-waveform processing capabilities. The instrument acquires, digitizes, signal averages, processes and archives high-speed analog signals using state-of-the-art techniques, we are told. Bit-slice processor technology



permits an averaging speed of over 700 waveforms per second for a 1024-point waveform and hundredfold signal-to-noise improvement (in 14 seconds) for noisy signals. Averaged waveforms can contain up to 8096 points.

A 1024-point fast Fourier transform can be performed on recorded waveforms. On-screen manipulations include curve normalization and subtraction, overlay of waveforms, peak-search routines, horizontal axis calibration, and display of selected regions of interest for detailed study. Data are stored on a floppy disk, and an RS-232C serial port is standard. The system is a full-feature CP/M-based computer, permitting further data manipulation or use of other CP/M programs. FORTRAN or BASIC is provided at no charge. The entire system costs less than \$20 000. *Le Croy Research Systems, 700 South Main Street, Spring Valley, New York 10977*

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Fast gate integrator and boxcar averager

Stanford Research Systems have introduced a new fast-gated integrator and boxcar averaging system. This NIM-compatible system offers gate widths from 2 nanoseconds to 15 microseconds. It allows up to four independent gated integrators, and it provides both moving-average and last-sample outputs. A gate scanner module lets the system record entire waveforms, and an analog processor module is used to take sums, differences, ratios, products, roots, powers, logs and derivatives of analog signals. *Stanford Research Systems, 460 California Avenue, Palo Alto, California 94306*

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Vacuum-compatible, double- crystal x-ray monochromator

Princeton Research Instruments has developed a vacuum-compatible double-crystal x-ray monochromator for synchrotrons and related applications. The standard instrument features a fixed beam offset of 3 inches. It is feedback-stabilized, and it can scan

Bragg angles from 7° to 68°. The energy range thus attainable with silicon (111) crystals is 2.13 to 16.2 keV. Left and right justified versions are available for use in adjacent beamlines. The scan drive is operated with either a motorized vacuum feedthrough or a special in-vacuum stepper motor. Two in-vacuum theta adjustments are motorized. A vacuum-compatible "piezo pusher" completes the feedback loop.

An in-vacuum encoder is directly coupled to the instrument for wavelength determination. Cooled, interchangeable crystal holders carry a variety of crystals. Each holder base carries an in-vacuum stepper motor for phi adjustment. The monochromator can be pumped to 5×10^{-8} Torr. It can scan the entire energy range, we are told, without losing lock. Care was also taken in design to insure the thermal stability and bakeability of the instrument. *Princeton Research Instruments, PO Box 1174, Princeton, New Jersey 08540*

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Position-sensitive x-ray and charged-particle detector

Hamamatsu is offering a new position-sensitive detector for x-rays and charged particles. This 30-element array is an ion-implanted, planar PIN silicon photodiode, capable of providing position data of x rays and charged particles incident on the active surface. The array is also sensitive to electrons and light from 300 to 1100 nm wavelength. Each of the 30 elements provides $0.8 \times 27 \text{ mm}^2$ of active area. *Hamamatsu, 420 South Avenue, Middlesex, New Jersey 08846*

Circle number 147 on Reader Service Card

Wavemeter-driven ring dye laser

Coherent's CR 699-29 Autoscan system is a narrow-linewidth (500 kHz) dye laser designed to simplify high-resolution spectroscopy by integrating the laser, wavemeter and data handling. The system is capable of addressing a wavelength to within 200 MHz absolute accuracy across the visible spectrum. The laser spectrometer can then scan the narrow linewidth, recording spectra at intervals as small as 1 MHz.

The wavelength, scan dimensions, interval and data recording rate are controlled by a keyboard-access microprocessor. Three data channels are available to display information and spectra on a monitor with automatic labeling of the frequency axis. Spectra can be stored on floppy disk or transmitted via RS-232 or IEEE 488 ports.



Owners of coherent ring dye lasers can upgrade any model of the CR 699 to an Autoscan. *Coherent, 2310 Porter Drive, P.O. Box 10321, Palo Alto, California 94303*

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Analog-to-digital converter with 16384 channel resolution

The ND581 analog-to-digital converter from Nuclear Data is described as "the ideal companion for the latest fast amplifiers and high resolution detectors." When used in either the ND66 or ND6700 multichannel analysis system, the ND581 is claimed to offer state-of-the-art data acquisition for fast decay studies, high-count-rate situations and very-high-resolution spectroscopy. The instrument offers fixed 5-microsecond conversion time, 256 to 16K-channel conversion gain, high linearity and pulse-pile-up/live-time-correction circuitry. The converter is compatible with Nuclear Data's ND595 digital stabilizer.

The ND581 is packaged in a single-width NIM module; it includes an LED "busy" display. The unit operates in either a pulse height analysis mode (gated or ungated) or a sample-voltage-analysis mode. Support for commonly used pulse pile-up/live-time correction schemes is included. *Nuclear Data, Instrumentation Division, Golf and Meacham Roads, Schaumburg, Illinois 60196*

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New literature

Computer maintenance—A new 110-plus page handbook on maintaining its computer systems and associated equipment is available from Digital Equipment Corporation. This *Self-Maintenance Handbook* covers service planning, site preparation and installation, remedial and preventive maintenance, and product upgrades. It is intended for those who prefer to service the equipment themselves rather than establish conventional service contracts. Free copies are available. *Digital Equipment Corporation, Self-Maintenance, MK01/W83, Continental Boulevard, Merrimack, NH 03054* □



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