

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.

Raman shifter

Quanta-Ray's model RS-1 Raman shifter is claimed to be the first commercially available device that can provide tunable, coherent output from 190 nanometers in the ultraviolet to 3 microns in the infrared. This span includes spectral regions that have been previously inaccessible. The RS-1 accessory uses the output of a high-quality tunable laser source to generate stimulated Raman emission from gases under pressure. The Raman output beams are frequency shifted up and down from the pump frequency in fixed increments determined by the scattering gas.

Output power is a function of pump power, wavelength and beam quality, the Raman gas and its pressure. With 85 millijoules at 560 nm from a Quanta-Ray PDL laser, for example, and pressurized hydrogen in the Raman cell, the output spectrum ranges from 0.003 mJ at 195 nm to 0.06 mJ at 1855 nm, with the strongest line (17 mJ) at 730 nm in the near infrared.

The RS-1 includes a prism dispersive optical system, to separate the colinear Raman beams and to select the wavelength of interest. The price is \$6500. Quanta-Ray, Inc., 1250 Charleston Road, Mountain View, California 94043

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Function generator

Exact Electronics stresses the low price (\$595) of its model-501 sweep/function generator. The device offers 5-MHz frequency, internal sweep capability and 30 volts peak-to-peak open-circuit output. The model 501 is a sine, square, triangle generator with variable symmetry, dc offset, internal ramp, gate and trigger, and stop/start frequency controls. The standard square and ramp waveform functions can be both positive and negative.

Attenuation of the output signal is

provided by 10-dB additive steps plus 20-dB variable. Standard features include a full-time ramp output, a start level control for adjusting the gate/trigger mode-lockout level, external voltage-controlled frequency input, and synchronous outputs for the main ramp generators. Kelvin-Varley dividers provide ten times finer resolutions of the frequency vernier potentiometer within



a selected decade range. A search mode switches the multiplier to a three-decade linear voltage-controlled-frequency range. The 501 is claimed to offer good resistance to shock, vibration, and temperature and humidity variations. It weighs 10 pounds. Exact Electronics, 6400 Signal Street, Tillamook, Oregon 97141

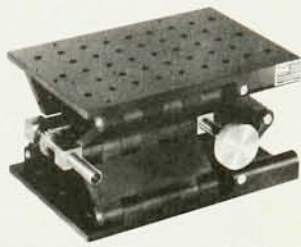
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Multichannel analyzer

Tracor Northern's model TN-1750 is their smallest processor-based multichannel analyzer. It is claimed to offer performance features that are typically provided only as options on significantly more expensive systems. It has a 200-MHz, Wilkinson-type, analog-to-digital converter, together with built-in pre-amplifier and display calibration.

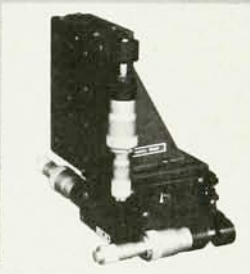
The data-processing capabilities of this pulse-height analyzer/multichannel scaling analyzer include smoothing, stripping, normalization and simple arithmetic operations. A buffer memory permits examination of processor operations before permanently changing the

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new products

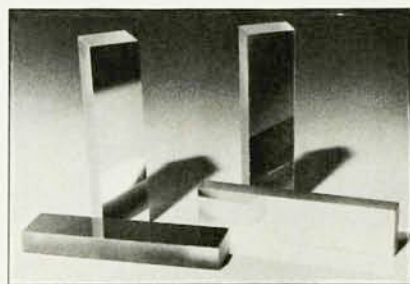
data. The buffer also provides flicker-free display of data during acquisition, regardless of ADC deadtime. Display features include digital expansion, overlap and logarithmic scale. *Tracor-Northern, 2551 West Beltline Highway, Middleton, Wisconsin 53562.*

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Diffraction gratings

American Holographic is offering a line of low-cost holographic diffraction gratings, which it claims can replace the more expensive achromatic objectives in dye lasers. These deep-grooved gratings are used at grazing incidence in place of achromatic telescopes or prism expanders, as end reflectors in dye lasers. The gratings, with a line density of 2400 per mm, also minimize light loss and reflections by reducing the number of surfaces in the optical cavity.

The dye-laser gratings disperse the beam, amplifying only a narrow spectral component. With a pair of these gratings one can produce single-mode lasers with



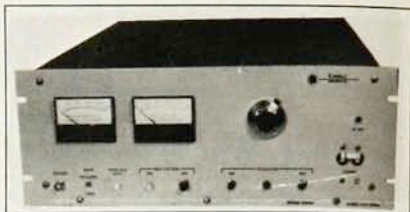
a single-shot line width of 300 MHz. Standard grating models measure $\frac{1}{2}$ by 2 or 4 inches, at \$320 and \$600 respectively. Other sizes can be provided. Grooved spacings optimized for infrared dye lasers, and concave and aberration-corrected gratings are also available. *American Holographic, 80 Harris Street, Acton, Mass. 01720*

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HV power supply

Candela's model HVD-1000A is an upgraded capacitor-charging, high-voltage switching power supply for use with dye lasers and capacitor-discharge systems. It is nominally rated for 25 kilovolts dc at 1000 joules/sec with 80 to 90% efficiency, and 0.1% voltage regulation with an 0.3-microfarad capacitor. All high-voltage sections are insulated under oil. For increased efficiency and charging rate the unit offers variable-frequency charging—from 4 to 8 kHz, depending on voltage.

The HVD-1000A has a programmable mode that permits charging of the capacitor and firing of the system without



recharging, except when commanded by the next arming pulse. For experiments with high repetition rates, another mode prevents recharging for a millisecond after discharge, to allow the thyrotrons and spark gaps to quench. The HVD-1000A is priced at \$3375. *Candela Corporation, 96 South Avenue, Natick, Mass. 01760*

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Mass spectrometer

The Tandetron mass-and-charge-spectroscopy (MACS) system from General Ionex is an ultrasensitive mass spectrometer, intended to measure minute concentrations of trace elements. It is claimed that the system can measure impurity levels as low as one part in 10^{15} . This extreme sensitivity is achieved by eliminating interference from molecules having the same mass number as the atom of interest—thus achieving unique identification of each detected atom.

The Tandetron can accomplish carbon-14 dating with samples of about a milligram. The system can be used to detect stable atoms or radioisotopes at concentration levels not measurable by conventional means. It also makes possible high-speed analysis of the molecular structure of trace organic compounds. The Tandetron MACS system is priced from \$500 000 to \$1 million. *General Ionex, 19 Graf Road, P.O. Box 3001, Newburyport, Mass. 01950*

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Photoacoustic cell

Burleigh's model PAS-100 is a high-sensitivity photoacoustic absorption cell, designed for use in gas-phase laser spectroscopy. The cell is of non-resonant design, with a single microphone detector and Brewster-angle windows. Under optimum conditions it can detect absorption as small as 10^{-5} of the incident laser power per centimeter.

The CaF_2 cell windows are oriented at Brewster's angle, to minimize scatter. They may be mounted to pass either horizontally or vertically polarized light. The microphone preamplifier is battery operated for low-noise operation, and for

the avoidance of ground loops. The height of the optical axis is adjustable from 1 to 4 inches.

Outgassing is minimized by the instrument's stainless-steel and Teflon construction. The cell is leak tested to a rate of less than 10^{-10} cm³ atm/sec. *Burleigh Instruments, Burleigh Park, Fishers, New York, 14453*

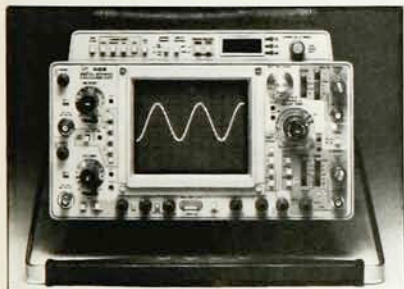
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Storage oscilloscope

The Tektronix model 468 is a digital-storage oscilloscope. The manufacturer claims that by incorporating recent advances in the state of the art, the model 468 has increased digital-storage bandwidth limits and can detect aliased signals. It also corrects envelope error and display jitter—problems that plagued earlier digital-storage oscilloscopes.

In the non-storage mode, the 468 has all the capabilities of the Tektronix 465B 100-MHz, portable oscilloscope. There are no storage-level/intensity-control interactions. The stored waveform does not bloom or fade positive. Other aids to convenient operation are the time and voltage cursors and the 468's signal-averaging option.

The scope has a 25-megasample/sec, 8-bit digitizer, and it uses a new display-interpolation technique to achieve 10 MHz of useful storage bandwidth. This is claimed to permit faster performance than is possible with other digital storage oscilloscopes, and to increase the range of



signal frequencies that can be stored and displayed. The instrument's 1024-word memory can store two 512-word waveforms or four 256-word waveforms. It is priced at \$5000. *Tektronix, P.O. Box 500, Beaverton, Oregon 97077*

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RF power amplifier

ENI's model 3200L is an all-solid-state rf power amplifier capable of providing 200 watts of continuous-wave or pulsed power over the frequency range from 250 kHz to 120 MHz, and 175 watts up to 150 MHz. Applications of interest to physicists include plasma generation, nmr spectroscopy and linear-accelerator drive. This

ultra-linear, "class A" amplifier has a high gain of 55 dB, making it compatible with signal and sweep generators. Its 50-ohm output impedance provides maximum power transfer with a 50-ohm load, but any load can be connected to the output without causing damage or oscillation.

The 95-pound model 3200L can be powered by any single-phase 115/230-V receptacle. At 150-W output the harmonic distortion of all harmonics is 24 dB below the main signal. For applications tolerating somewhat higher distortion levels, the amplifier can put out 250 watts from 2 to 80 MHz. The price is \$8350. *Electronic Navigation Industries, 3000 Winton Road South, Rochester, New York 14623*

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Correction

In the description of Ion Tech's Microvac thin-film coating unit in February's New Products section (page 77), we mistakenly attributed the manufacture of the Plasmax high-rate sputter gun to Ion Tech Ltd. In fact, the Plasmax is designed and manufactured by the L. M. Simard Company of Santa Barbara, California. We thank Ion Tech for calling this error to our attention.

New literature

Vacuum pumps—Acatel's new 24-page catalog describes its line of high-vacuum pumps and accessories. Detailed descriptions and performance data are provided for their direct-drive line of mechanical pumps for laboratory and industrial use, including a series of corrosion resistant pumps and a "hermetic" series for precious and exotic gases. *Acatel Vacuum Products, 60 Sharp Street, Hingham, Mass. 02043*

Beam-splitting polarizers—Lambrecht's new general catalog, *Prism Polarizers P78*, is emphasizing its beam-splitting polarizers. Detailed specification charts and transmission graphs are included, along with cut-away drawings. Their line of uv and ir beam-splitting polarizers includes Rochon, Wollaston and Thompson polarizers, as well as air-spaced polarizers and laser-beam-combining/splitting polarizers. *Karl Lambrecht Corp., 4204 North Lincoln Avenue, Chicago, Illinois 60618*

Semiconductor devices—The new 286-page General Semiconductor Industries product catalog includes its line of TransZorb silicon transient-voltage suppressors, NPN switching transistors, Zener diodes, temperature-compensated diodes, and its line of C²R high-speed, high-voltage switching transistors. *General Semiconductor Industries, 2001 W. Tenth Pl., Tempe, Ariz. 85281* □

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