

# 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.

## Sweep generator

Oxford Instruments, a British firm, is offering a new sweep generator. The model SG-3 is designed for the repetitive sweeping of power supplies for superconducting magnets, and for the programming of temperature controllers. The sweep generator is an all-solid-state unit, providing a stable, linear sweep with period variable from one to a thousand minutes. The sweep can be stopped, reversed or changed in speed at any time in the cycle. The SG-3 weighs 1.6 kg, operates on ac input voltages ranging from 110 to 240 V, or on single-phase, 50-60 Hz at 20 VA. A TTL output is provided for the operation of a recorder pen. *Oxford Instruments, Osney Mead, Oxford OX2 0DX, England.*

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## Dye laser

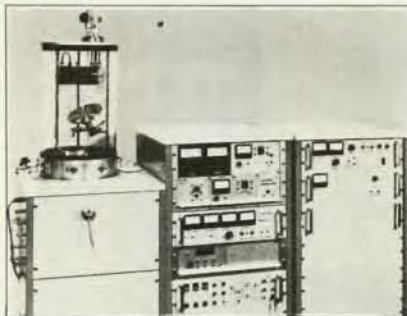
Coherent's CR-699-21 is claimed to be the only commercially available single-frequency, actively stabilized ring dye laser. It is said to represent a new generation in laser design. The optics and electronics are based on Coherent's CR-599-21 scanning dye laser. The new ring configuration offers high power and tunable single-frequency operation. Active stabilization provides narrow wavelengths (less than 1 MHz) and low drift (less than 100 MHz/hr). The "Autolock" feature prevents mode hops over hours of operation. Coherent claims that the CR-699-21 is the first dye laser to combine high power and high resolution. *Coherent, 3210 Porter Drive, Palo Alto, Calif. 94304*

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## Ion etching station

Ion Tech Ltd, a British firm, is offering the model-B600 ion etching station. It is

intended for research and development applications as well as small-scale production, using ion-processing techniques for microcircuit development, infrared, electro-optics and materials research. The system can be used to micromachine intricate patterns with high packing



density and fine resolution. It can polish substrates and deposit high-quality thin films by ion-beam sputtering. One can use both inert and reactive gases, so that both direct-beam physical and chemical etching can be undertaken.

A saddle-field ion source is used to produce a field of energetic neutrals, to process both insulating and conducting materials. A variety of work-chamber options is available to suit the user's needs. *Ion Tech Ltd, 2 Park Street, Teddington, Middlesex TW11 0LT, England.*

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## Photo-acoustic Cell

Photo-Acoustics of Rochester, Michigan is offering a new photoacoustic cell, the model PA-505. It is intended for laser spectroscopy, trace gas measurements, in-line laser power monitoring and monitoring of airborne particulate matter. The manufacturer claims high responsivity (5 mV cm/mW), with background noise typically below 5 microvolts. The model PA-505 is an acoustically resonant cell designed to operate at a laser chop-



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## new products

ing frequency of 3.4 kHz. The background level is kept low by purging the Brewster windows with clean air. The cell has a response time of a half second at a sample flow rate of 5 liters/minute. The price is \$3950. *Photo-Acoustics, 1111 Hemlock Drive, Rochester, Minn. 48063*  
Circle No. 143 on Reader Service Card

## Phototube

The Hamamatsu R1287 phototube employs a newly developed extended-S-20 multi-alkali cathode to obtain high quantum efficiency over the wavelength range 185–950 nanometers. This wide-range, moderately priced tube is suitable for spectrophotometers and other devices



where low dark current and high quantum efficiency are important.

The top cap construction provides low ohmic leakage, thus reducing dark current and minimizing the effects of amplifier bias current. The large cathode (33 × 15 mm) reduces optical constraints. The R1287 is a 1 1/8-inch side-on tube. *Hamamatsu, 420 South Avenue, Middletown, N.J. 08846.*

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## Vacuum gauging system

Datametrics' type-570 Barocel sensor with companion signal conditioner/display is intended for applications requiring accurate vacuum gauging. These include the monitoring of sputtering chambers, vapor-pressure measurement and gauge calibration. The type-570 sensor is a capacitive potentiometer formed by a stretched metal diaphragm between two capacitor plates. The design is said to provide resolutions of better than one part in  $10^6$ , with accuracies of 0.03% of reading.

By selecting appropriate sensor materials from the 570 series, one can have a corrosion-resistant system even with fluorides such as HF and UF<sub>6</sub>.

The signal conditioner/display provides excitation to the sensor and displays the pressure on analog or digital meters. It provides a dc voltage output (up to 10 V) proportional to the pressure. By switching ranges one can have high output levels at low pressure, to make full use of the cell's resolution. *Datametrics, 340 Fordham Road, Wilmington, Massachusetts 01887.*

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## Mini-laser head

The Selectron model SEL-05 helium-neon laser head is claimed to be the smallest available in its power class. It is a cylinder 7 inches long, with a diameter of one inch. It puts out a typical power of 0.75 milliwatts, polarized or unpolarized. Its rugged construction suits it to field applications.

The pre-aligned internal-mirror plasma tube provides a beam divergence of only 1.2 milliradians. The output beam is



precisely aligned to the cylindrical package, allowing precision mounting and easy replacement. The metal protective package comes with a ballast resistor. The package is environmentally sealed. The lifetime of the cold cathode is claimed to be over 25 000 hours. The output frequency is 632.8 nanometers in the red-orange. Before sealing the container, the manufacturer can adjust the front mirror assembly to maximize power for any operating temperature specified by the user. *Selectron Scientific Instruments, 544 Weddel, No. 7, Sunnyvale, California 94086.*

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## Infrared thermometer

E<sup>2</sup> Technology is offering a non-contact thermometer that determines temperature from infrared emission. The most common limitation of non-contact ther-



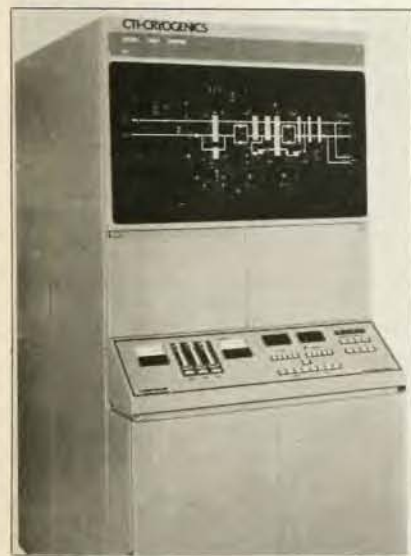
monometers is their narrow single range. Pulsar II is available in either of two computer-calibrated scales, 300–3000 F or 500–5500 F. The instrument exceeds thermocouple temperature spans in a single continuous range. It is designed to replace contact probes in applications where the performance of thermocouple and resistance thermometers is marginal.

The Pulsar II can measure temperatures through glass ports, plastics, flames and a variety of gases. It can be used to measure temperatures of moving objects, corrosive materials and very small specimens. The instrument is claimed to have excellent sight-through optics. The user can select response times from 0.1 to 1 second, deadband sensitivity, and remote or internal control of the setpoint, calibration and emissivity adjustments. Accuracy is claimed to be 1% of reading. Temperatures can be displayed on a digital panel meter, a standard multimeter or a recorder. *E<sup>2</sup> Technology, PO Box 338, Carpinteria, California 93013.*

**Circle No. 147 on Reader Service Card**

## Helium liquifier

CTI-Cryogenics' model 2800 is a high-capacity helium liquifier/refrigerator, suitable for the cryogenic requirements of superconducting apparatus and other large systems. It produces liquid helium



at rates up to 60 liters per hour. The model 2800 can be used as a helium liquifier or as a closed-cycle 4.5-K refrigerator. It can also perform the two roles in combination. It is designed for long-term, unattended operation.

Liquid-nitrogen precooling is available for high-capacity requirements. With LN<sub>2</sub> precooling the system has a refrigeration capacity of 200 watts at 4.5 K.

The system can provide up to 70 watts refrigeration at 3.8 K when two rotary-screw compressors are used. *CTI-Cryogenics, Kelvin Park, Waltham, Mass. 02154.*

**Circle No. 150 on Reader Service Card**

## Arc lamp power supply

The Schoeffel Instrument Division of Kratos has introduced an arc-lamp power supply for xenon and xenon-mercury short arc lamps. The model LPS 255 HR provides power up to 1000 watts. The power supply uses a closed-loop, series-pass transistor regulator with a semiautomatic front-end and tap-change circuit. This is claimed to provide superior regulation and ripple reduction, low noise, and high efficiency and reliability. The tap-change circuit allows one to choose the most suitable voltage for lamp and line supply. LED displays indicate the best position for the tap-change switch.

The series-pass transistor provides the regulation, while the tap-change selection provides operation efficiency. The power supply is equipped with a 50-amp igniter. Regulation and ripple are claimed to be



typically 0.1% and 1% respectively. The LPS 255 HR is compatible with Schoeffel's optical-feedback amplifier. In this way ripple can be further reduced by an order of magnitude for extremely stable lamp operation. *Kratos Inc., Schoeffel Instruments Division, 24 Booker Street, Westwood, N.J. 07675.*

**Circle No. 149 on Reader Service Card**

## Ultrathin Mylar film

Du Pont's Mylar polyester films have long found application in many areas of physics. Du Pont has now introduced six-gauge, type-C Mylar film, only 1.5 microns thick. It is described as the world's thinnest commercially available polyester film. Despite its thinness, it is claimed to have high tensile and tear strength, even in very narrow tapes.

Because of its dielectric strength, the six-gauge film is promoted by DuPont as a dielectric material for metallized films to be used in miniature, low-voltage dc capacitors. Mylar is non-hygroscopic,

resists the effects of aging, and performs well over the temperature range from -70°C to +150°C. *Du Pont Company, Room 37479-PA, Wilmington, Delaware 19898.*

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## Off-axis parabolas

Melles Griot is offering a line of high-quality ( $\lambda/20$  surface) off-axis parabolas. Diameters range from 31 to 98 millimeters; all have a focal length of 1233 mm. Off-axis parabolas are useful for collimator and beam-expander applications. The focal point is accessible without obscuration problems. The image is achromatic and free of spherical aberration. The vertex direction is engraved in the aluminum housing to facilitate alignment. *Melles Griot, 1770 Kittering Street, Irvine, Calif. 92714.*

**Circle No. 151 on Reader Service Card**

## New literature

**Temperature measurement** problems, solutions and applications are the subject of a 16-page booklet from Nanmac. Emphasis is on the various kinds of thermocouples, but other sorts of sensors are also discussed. *Nanmac Corp., 9-11 Mayhew Street, Framingham Centre, Mass. 01701*

**Photomultipliers**—Centronic offers a 16-page brochure on photomultiplier tubes. Factors affecting choice of tube are discussed, as are design and applications. The brochure includes a replacement guide, and discusses energy resolution for counting applications. *Centronic, 1101 Bristol Road, Mountainside, N.J. 07092*

**Vacuum feedthroughs**—Varian has published a 12-page brochure, *Electrical Feedthroughs for High and Ultrahigh Vacuum Applications*. It covers electrical and instrumentation feedthroughs, bakeable to 450°C and capable of operating down to 10<sup>-11</sup> Torr. *Varian Associates, Vacuum Division, 611 Hanson Way, Palo Alto, Calif. 94303*

**Catalog**—CVC is offering its new general products catalog. Its product line includes thin-film deposition equipment, high-vacuum components, mass spectrometers and residual gas analyzers. Applications are discussed. *CVC Products, 525 Lee Road, PO Box 1886, Rochester, N.Y. 14603*

**Teaching materials**—Fisher Scientific has divided the 1980 catalog of its extensive line of college-level educational materials into four volumes, one of which is devoted to physics. It is available from *Fisher Scientific, Educational Materials Division, 4901 W. Lemoyne Avenue, Chicago, Ill. 60651* □