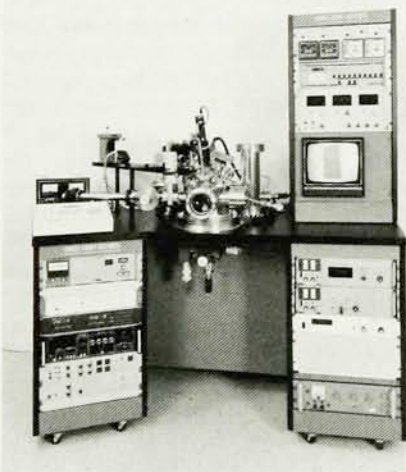


The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers, and in some cases by independent sources. PHYSICS TODAY can assume no responsibility for their accuracy. To facilitate inquiries about a particular product, a Reader Service Card is attached inside the back cover of the magazine.

Electron-Beam Electroreflectance Spectrometer

The EBER-1240 from Charles Evans & Associates, a firm that specializes in materials characterization, is an electron-beam electroreflectance spectrometer. It measures such electronic properties as the direct band-gap energy and carrier mobility in compound semiconductors such as aluminum gallium arsenide and mercury cadmium telluride. Electron-beam electroreflectance is a nondestructive and noncontaminating spectroscopic method that employs a low-energy electron beam to modu-



late the electric field at the semiconductor sample surface. Using a xenon arc light source, the EBER-1240 can study energy bands in the range from 1.2 to 4.0 eV. Band energy measurements give precise measures of stoichiometry, and linewidths are inversely proportional to carrier mobility.

The EBER-1240 includes an ultra-high-vacuum chamber, sample introduction airlock, temperature control from 100 to 400 K, and computer software and hardware for data acquisition, instrument control and line-

shape analysis. *Charles Evans & Associates, 301 Chesapeake Drive, Redwood City, California 94063*

Circle number 140 on Reader Service Card

Power Supply for NIM Bins

The EG&G Ortec Model 4002E Black Max power supply is designed to supply dc power to a NIM bin when the application requires exceptionally high power. The power supply can be purchased separately for use with existing NIM bins, or it can be ordered attached to a 4001C NIM bin. Mounting hardware is supplied. The EG&G Ortec 4001C NIM bin distributes the power with copper bus bars to minimize the voltage drop at each module's power plug. The Black Max is designed to exceed recommended power supply specifications for type V-H supplies.

Regulated dc power supplied to the attached bin by the Black Max is rated at ± 6 V at 12 A, ± 12 V at 4 A, and ± 24 V at 2 A, provided the total output dc power does not exceed 300 W. In addition, 115 V ac is available up to 0.5 A.

Protection against overload is provided by a warning indicator on the bin control panel, followed by automatic shutdown. Recovery from thermal overload is automatic when the load is reduced. Output dc currents are internally limited to 120% of their rated values by foldback circuits. *EG&G Ortec, 100 Midland Road, Oak Ridge, Tennessee 37831*

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Soldering System for Superconducting Ceramics

A new ultrasonic soldering system and specialized solder able to bond directly onto ceramic superconductor materials is now available from Ori-

Quick & Easy Superconductivity Measurements



LR-400

Four Wire AC Resistance & Mutual Inductance Bridge

Ideal for direct four wire contact resistance measurements with 1 micro-ohm resolution

Ideal for non-contact transformer method measurements where superconducting sample is placed between primary & secondary coils and flux exclusion causes a change in mutual inductance

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entation Inc, marketing agents for the Japanese manufacturer, Asahi Glass Ltd.

This new system lets one bond lead wire directly to the superconductor material. It also allows bonding to glass, other ceramics, copper and copper alloys, stainless steel, aluminum and aluminum alloys, Si, Ge, Ti, Ta, Nb, W, Mo, Ru, Zr, Be, Cr, Ni, Zn, Pb, Sn, Ni-Cr, tin dioxide, indium oxide and ruthenium dioxide, all without the use of flux, silver baking or other bonding aids.

Other applications include solar-cell lead wire bonding, optical fiber edge soldering, piezoelectric ceramics and the bonding of metals to nonmetals. The firm markets four types of ultrasonic applicators and six types of proprietary solder for various requirements. An evaluation kit designed for small-scale production facilities or laboratory testing is priced at \$4500. *Orientation, 101 Coolidge Street, Hudson, Massachusetts 01749*
Circle number 142 on Reader Service Card

Precision Light Chopper

Monolight Instruments (formerly Rofin-Sinar Laser UK Ltd) has introduced the Model 9000, describing it as a "new generation of light chopper." The new system, we are told, offers particularly good jitter performance. The precision oscillator, with digital push-button selection, is claimed to ensure high accuracy and stability. A new high-torque ironless motor provides fast frequency lock over the chopping frequency range 15-300 Hz. No blade changing is necessary; the full frequency is achieved with one dual-aperture blade system.

The unit may also be driven from an external frequency source. It can provide synchronous outputs from both optical channels. The compact unit has its chopping blade integrated into the housing, which measures 27×122×104 mm. *Monolight Instruments, 2-3 Waterside, Hamm Moor Lane, Weybridge, Surrey, KT15 2SN, England*

Circle number 143 on Reader Service Card

Vacuum Protection in Power Failure

The HPS Division of MKS Instruments has introduced its Series 145 Vacuum Sentry safety valve, designed to protect a vacuum system in the event of power failure, by isolating it and venting the mechanical

pump. Oil backup is avoided, and the motor restarts the pump more easily. The Vacuum Sentry is offered with the ISO-KF flange sizes and solenoid voltages and frequencies most commonly found on mechanical pumps. Because it operates at atmospheric pressure and activates upon loss of electrical power, the safety valve requires no external pressurized gas sources.

The Vacuum Sentry is lightweight,



is constructed of vacuum-compatible materials and is claimed to maximize pumping conductance. The opening burst is less than the critical backing pressure for turbomolecular and diffusion pumps when appropriately sized mechanical pumps are used. The closing burst is minimized by a proprietary buffer volume design. The safety valve consumes little power, and the use of standard ISO-KF dimensions simplifies installation. *HPS, 5330 Sterling Drive, Boulder, Colorado 80301*

Circle number 144 on Reader Service Card

Fabry-Perot Demultiplexer

The WD1 Fabry-Perot wavelength demultiplexer from Queensgate Instruments is a new miniature demultiplexer designed for general laboratory use in fiberoptic and laser applications. The optical unit consists of a piezoelectrically scanned Fabry-Perot etalon with a clear working aperture of 4 mm. Cavity spacing is specified by the buyer and fixed at manufacture in the range 2 μ m to 10 mm. A typical cavity spacing of 2.4 μ m gives a free spectral range of 0.3 μ m and resolution of 6 nm at a wavelength of 1.25 μ m. Insertion loss is typically 0.15 dB.

An internal capacitance micrometer allows closed-loop control and random-access tuning of the transmitted wavelength when used with the firm's DX100 control unit. The electronic noise associated with the DX100 is equivalent to a stability in the transmitted wavelength of better than 0.6 nm rms at a wavelength of 1.25 μ m. Standard coatings are available for the 1.25-1.55-micron spectral

region. The devices can also be coated to user specifications for visible and infrared wavelengths. *Queensgate Instruments, 112 Windmill Road, Sunbury-on-Thames, Middlesex TW16 7HB, England*

Circle number 145 on Reader Service Card

High-Resolution Spectrum Analyzer

Newport's new Supercavity optical spectrum analyzer is a miniaturized, ultrahigh-resolution scanning interferometer. Two configurations allow one to use it either as a narrow-band optical spectrum analyzer or as a spectrometer. The Supercavity offers 200 times better resolution and stability, we are told, than other products in its class.



By taking advantage of new, ultra-high-reflectivity mirrors, the Supercavity can resolve a $3\text{-}\mu\text{Å}$ linewidth within a free spectral range of 0.13 Å at a wavelength of 8000 Å . An alternate configuration is available with a broader spectral range. Both models come in a compact 7-cm package that is actively temperature stabilized to eliminate mechanical and thermal drift. *Newport Corporation, 18234 Mount Baldy Circle, P. O. Box 8020, Fountain Valley, California 92728*

Circle number 146 on Reader Service Card

200-Watt, 30-GHz Traveling-Wave Tube

Varian has developed a new 200-watt addition to its Millitron line of lower-cost, coupled-cavity traveling-wave tubes operating at millimeter-wave frequencies. The new 200-watt, 30-GHz tube is designed specifically for use in extremely high-frequency commercial ground-system satellite communications.

Like other Millitron tubes, it incorporates an advanced ladder circuit technology developed by Varian. The ladder design is relatively easy to make in production quantities, and therefore costs considerably less, we are told, than tubes using previous structures that require exotic machining techniques and many more

parts. The ladder circuit is thermally robust, making operation possible at higher than usual power levels. Because the tube is compact and lightweight, it can be mounted directly on the ground-system antenna.

For satellite communications and other applications demanding increased transmitter power under unfavorable conditions, one can double the transmitted power output of Varian's 200-watt Millitron tube by changing the modulating anode voltage and increasing the beam current. This power increase is made possible by controlling the beam with confined-flow periodic permanent-magnet focusing, a technique recently developed at Varian. *Varian Associates, Microwave Tube Division, 611 Hansen Way, Palo Alto, California 94303*

Circle number 147 on Reader Service Card

High-Power Ultraviolet Ion Laser

Spectra-Physics has introduced a new high-power cw ion laser with 3.5 watts of ultraviolet output power and uniquely high power in the deep ultraviolet—400 mW at 275 nm. This Model 2035 ion laser employs a plasma tube that obviates frequent replacement of Brewster windows or plasma tubes.

High ultraviolet power has always been difficult to maintain. Contamination on the Brewster windows disturbs beam quality and attenuates power. Spectra-Physics claims to have solved this problem with a new proprietary window technology that eliminates internal window contamination. The 2035 is said to be the first commercial laser with a guaranteed power specification in the deep ultraviolet. *Spectra-Physics, 1250 West Middlefield Road, P. O. Box 7013, Mountain View, California 94039*

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New Literature

Data acquisition—Anasco Corporation has announced its new catalog of data acquisition hardware and application-specific software for microcomputers. The catalog contains over 600 products for scientific and industrial users of personal computers. It also describes a range of low-cost panel-mounted industrial monitors and controllers with RS232/422 communications capabilities for local area networking and display of process variables. *Anasco, 42A Cherry Hill Drive, Danvers, Massachusetts 01923*

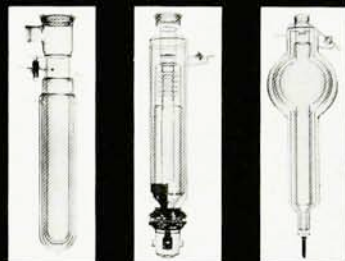
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