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.

Resistance thermometer with reference-grade accuracy

Minco's new precision resistance thermometer, the Model S1059, is claimed to provide reference grade accuracy from −260 °C to 260 °C (13 to 533 K). The strain-free element shifts less than 0.0025 °C per year in normal use and exhibits repeatability within 0.0005 °C.

The miniature element is interchangeable with germanium sensors, which are often used at the lower end of the cryogenic scale. Its platinum element is compatible with standard platinum thermometers, which are rarely rated below 90 K. This makes the S1059 an interpolation instrument for the 13–90-K span.

The S1059 meets International Practical Temperature Scale requirements for use as a secondary standard, with a temperature coefficient greater than 0.003925 ohms/ohm/°C and a residual resistance ratio ($R_{4.2\,K}/R_{273.15\,K}$) of 4×10^{-4}.

The element consists of a helically wound strain-free platinum element, a gold-plated copper case of 0.125-inch diameter and 0.38-inch length, helium backfill, and a glass-to-metal hermetic seal. *Minco, 7300 Commerce Lane, Minneapolis, Minnesota 55432*

Circle number 140 on Reader Service Card

Radiation survey instrument with ion chamber

Victoreen has announced its new Model 450 radiation survey meter for applications in health physics and medical physics. The instrument incorporates an ion-chamber radiation detector and a CMOS microprocessor, and is designed for use in x-ray, beta- and gamma-ray dose-rate measurements.

The LCD display offers both a 101-element analog bar graph that is fully labeled with scale digits, and a 2½-digit display that also provides the proper units of measurement. The bar graph has a faster response time than the digital display and makes the instrument suitable for dose-rate surveys.

The Model 450 is fully provided with gaskets and is delivered with an overlay that covers the display and control switches, making the instrument both submersible and shock-resistant. *Victoreen, 10101 Woodland Avenue, Cleveland, Ohio 44104*

Circle number 141 on Reader Service Card

Hot-filament ionization gauge tube without glass envelope

Varian has introduced the Model 580 nude gauge tube that fits directly into a vacuum chamber. The Bayard–Alpert hot-filament ionization gauge measures pressures ranging from 1×10^{-1} to 4×10^{-10} torr for nitrogen. We are told that, because the tube has no glass envelope and can be mounted inside a vacuum chamber, there is no risk for breakage, and that one can obtain better characterizations of the vacuum than with tubes mounted outside the chamber.

new products

The thorium-coated filament of the gauge is replaceable. The tube is available either with the Varian $2\frac{3}{4}$-inch bakable, all-metal Conflat flange for ultra-high vacuum applications, or with the Varian NW40 clamp flange for easier replacement. The tube is compatible with a variety of Varian gauge controls, including Models 880, 890, 844 and 845. It is priced at $290 with the Conflat flange, and at $280 with the clamp flange. *Varian, 611 Hansen Way, Palo Alto, California 94303*

Circle number 142 on Reader Service Card

Superconducting magnets for laboratory applications

Nicolet has announced two new superconducting magnets, the KT22 and ER33, which provide field strengths of 2 and 3 Tesla, respectively. The horizontal, room-temperature bore of the KT22 is 8 inches in diameter and the bore of the ER33 is 6 inches in diameter. The central magnetic field is said to be highly homogeneous and to experience minimal drift and a very low decay rate. *Nicolet Analytical Instruments, 5225-1 Verona Road, Madison, Wisconsin 53711*

Circle number 143 on Reader Service Card

Fast Fourier transforms for IBM PC and compatible systems

Rapid Imaging Software has announced the FFT87, a fast-Fourier-transform program for the IBM-PC (or IBM-XT or AT) and compatible microcomputers using the 8087 (or 80287) numeric coprocessor chip. The software has been developed for maximum speed, and is able to transform a 128-element, complex array in less than $\frac{1}{2}$ second. Although written in assembly language, it is available as a FORTRAN or BASIC callable subroutine, interfacing to Microsoft FORTRAN 77 (version 3.2), SuperSoft FORTRAN 66, Microsoft BASIC, IBM BASIC, and other higher-level languages. The program includes object modules that will provide forward transforms, forward-inverse transforms, and forward-inverse transforms with normalization. The package includes a stand-alone demonstration program, FFT87 object modules, a user's manual with example test cases, and one year of free software updates. The object module requires a microcomputer with the 8087 coprocessor and the MS-DOS operating system. The demonstration program requires MS-DOS 2.0 or 2.1 and an IBM-compatible color-graphics board. The total price is $150.00. *Rapid Imaging Software, P.O. Box 941, Tijeras, New Mexico 87059*

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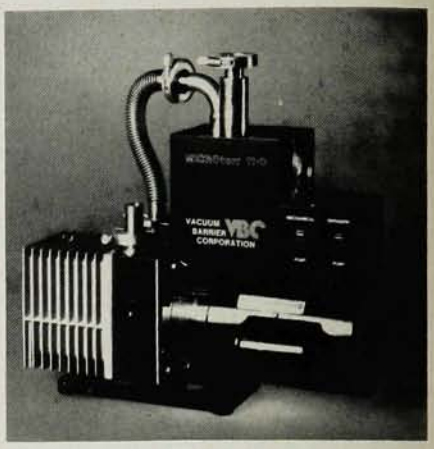
High-vacuum pump for continuous operation

Vacuum Barrier has introduced its newest series of vacuum pumps, the Microtorr 11-D, usable for pressures up



to 10^{-6} torr. The pump features direct drive, an anti-suckback valve and an air-cooled diffusion pump with cooling fan. The pumping speed of the diffusion pump is 11 liter/sec. The pump operates without vibration and maintaining it requires only routine oil-level checks. *Vacuum Barrier Corporation, Barten Lane, Box 529, Woburn, Massachusetts 01801-0529*

Circle number 145 on Reader Service Card

Load-stabilized rf power generators for plasma heating

The CPS Series, a line of compact, modular rf power supplies for a wide range of plasma-heating and rf-heating applications, is introduced by Comdel.

The rf power generators automatically stabilize forward power against variations in line or load impedance, and require no tuning. The units are internally protected against high-voltage standing-wave ratio conditions, and one can modulate the pulse width in excess of 100 kHz.

Specially designed to drive loads with large impedance changes, the series includes 0.5-, 1-, 2- and 3-kW models operating at 5.5, 13.56 and 27.12 MHz; they all have built-in metering for forward and reverse power. The rf generators fit 19-inch racks and are priced from $4800. *Comdel, Beverly Airport, Beverly, Massachusetts 01915.*

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Conductance bridge and temperature controller

SHE's new Model 1000 combines a potentiometric conductance bridge and an automatic temperature controller in a single instrument. The instrument covers the range of 400 μmho to 4 mho (full scale) in five steps, which can be set manually or automatically. Excitation at 27 Hz (10 μV to 300 μV) is crystal controlled. The resistance value for the temperature control can be preset with a 40 000-count display. Temperature control can either be proportional, integral or differential, and the output to the heating element ranges from 0.3 microwatt to 1 watt. The Model 1000 can be supplied without the plug-in computer interface (TTL) and temperature controller boards for manual operation of the bridge alone. The instrument is designed primarily for measuring and controlling ultra-low temperatures, but can be applied in general laboratory experiments. *SHE Corporation, 4174 Sorrento Valley Boulevard, San Diego, California 92121*

Circle number 147 on Reader Service Card

Lock-in amplifier with 10-nanovolt sensitivity

Stanford Research Systems have introduced their new SR10 lock-in amplifier that has a full-scale sensitivity of 10 nanovolts. The instrument operates over the range of 12 Hz to 100 kHz without the use of frequency cards. It is fully programmable through both the RS232 port and the GPIB, and has 80 dB dynamic reserve. The front-end noise is 7 nV/Hz. Extra features include a tracking bandpass filter, two line-notch filters, a current input, differential voltage inputs and six general-purpose 13-bit ports for the transmission and reception of voltages from a computer. Also included are a ratio output, digital and analog output metering and digital readout of frequency or phase. The instrument allows one to measure noise density in a 1- or 10-Hz bandwidth.

The instrument is priced at $2990. *Stanford Research Systems, 460 California Avenue, Palo Alto California 94306*

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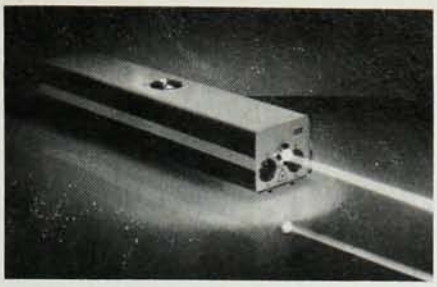
Air-cooled gold-vapor laser with low power requirements

Oxford Lasers has introduced its model AU2 air-cooled gold-vapor laser. The specified power output at 628 nm is 1.5



W at a pulse repetition frequency of 10 kHz. The maximum pulse energy is 0.2 mJ and the maximum peak power is 5 kW. The pulse width can be set between 20 and 60 ns, and the pulse jitter is ± 2 ns. The power requirement is less than 3 kW. Available options include unstable resonator optics and copper-gold conversion kits. The guaranteed thyrathron life of the unit is 1000 hours or 12 months. The price of the unit is $34 500. *Oxford Lasers, 60/62 Magdalen Road, Oxford, OX4 1RD, England.*

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Prism holders with spring-loaded thumb screws

Melles Griot has introduced three new prism holders designed to hold and adjust right-angle and equilateral prisms of standard sizes, cube beamsplitters, thin film polarizers and similar components. The prism holders accommodate cube sizes up to 25.4, 30.0 and 50.8 mm.

The padded-top thumb screw allows one to hold prisms in place with firm yet adjustable pressure. Spring-loaded thumb screws allow smooth control of tilt of the holder's top plate through a range of ± 3 degrees in two orthogonal planes perpendicular to the table surface. A third knob provides ± 3-degree rotation about a vertical axis. These controls have an angular resolution of 5 arcseconds.

The bases of the prism holders are provided with a set of holes with $^1/_4$-inch clearance on multiple-inch centers for convenient mounting. Metric mounting configurations are also available. *Melles Griot, 1770 Kettering Street, Irvine, California 92714*

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New literature

Turbo-molecular pumps—Balzer's new 37-page brochure of Pfeiffer turbo-molecular pumps includes design fundamentals, applications examples and performance data. *Balzers, 8 Sagamore Park Road, Hudson, New Hampshire 03051* □