

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.

Power supply

LeCroy's model 2415 is a versatile, general-purpose, programmable, high-voltage power supply. It offers up to 2.5 mA at 0 to ± 3.5 kV, or up to 1.0 mA at 0 to ± 7 kV. Both current and voltage can be set and read manually or remotely. Programming and monitoring are accomplished by front-panel or CAMAC-standard (IEEE 583) control. Because of their modular format, several 2415s can be used and controlled side by side in a single standard CAMAC crate. The module can also be used without CAMAC overhead if it is powered from external +6, -24 or +24 low-voltage supplies.

The 2415 is said to be useful for photomultipliers, proportional tubes and chambers, channeltrons and other electron multipliers, microchannel plates, image intensifiers, many solid-state detectors and electrostatic defectors. Output ripple is claimed to be less than 50 mV rms, and output voltage is regulated to less than 0.014% of the range chosen. The 2415 is short-circuit protected. It has an hv on/off control switch, and a front panel LED indicates current overloads. *LeCroy Research Systems, 700 South Main Street, Spring Valley, New York 10977*

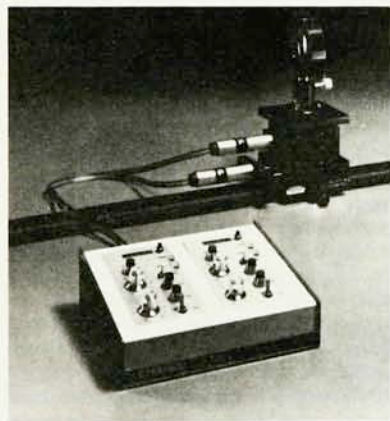
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Micrometer with optical encoder

Oriel has introduced the Motor Mike micrometer with optical encoders. These dc-motor-driven micrometers provide a position readout to 0.1 micron. Utilizing a fine-pitched lead screw combined with a 485:1 gear reduction, the micrometer provides a resolution of 0.02 microns. The miniaturized encoder, dc motor and integral gearhead are contained in a package the size and shape of a conventional micrometer. They are available in 0.5", 1.0", and 2.0" travel. The mount-

ing configuration and drive spindle are designed to match many standard manual micrometers.

Oriel controllers interpret the Motor Mike optical encoder signals and display the position in units of 0.1 micron. The controllers have a six-digit display and + - signs indicating direction. A feedback circuit automatically adjusts



for fluctuations from a set speed. Controllers are available for driving from 1 to 3 Motor Mikes. Input/output ports on controllers for 2 or 3 Motor Mikes provide TTL output pulses of direction, distance, and they accept TTL input commands to drive the motor. Motor Mike micrometers with encoder start at \$347. The controllers start at \$595. A complete drive system with position readout to 0.1 micron is available for under \$950. *Oriel Corp., 15 Market St., Stamford, Conn. 06902*

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Data acquisition board

The new DT2801 from Data Acquisition is a single-board data-acquisition system, plug-compatible with the IBM personal computer. This digital and analog input/output system is designed for data acquisition applications in lab-

Cooling to 76K on your desktop. (No Liquid N₂)



Save lab space, time and scarce research funds by using MMR Technologies' new temperature characterization system to cool small samples and electronic devices from +100°C to -197°C (76K).

The Innovators in research are using this versatile system in a wide range of experiments, including Hall effect tests, transmission and reflection spectroscopy and microscopy, signal-to-noise characterizations of detectors and amplifiers, and efficiency and life expectancy tests of laser diodes.

MMR has combined its patented MicroMiniature Refrigerator with a new temperature controller to provide a system with:

- Single knob temperature control
- Automatic temperature stabilization
- LCD readout in degree C and K
- Rapid temperature response over the 300 degree range

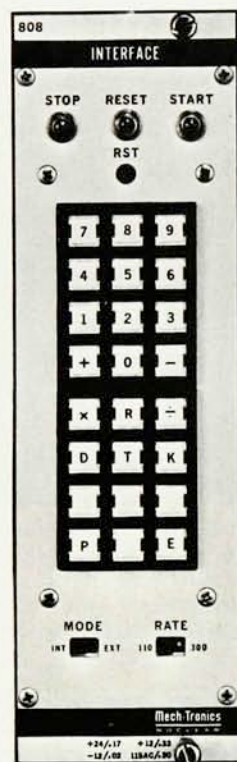
Call or write our technical staff for unique solutions to nearly all your research and OEM cooling problems.

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atories and industrial processes. Together with the IBM personal computer, we are told, the DT2801 brings the cost of a complete data acquisition system (computer, display, disk, printer and analog I/O hardware) down to about \$5000.

The DT2802 has sixteen channels of 12-bit analog inputs (a/d) with software-programmable gains of 1, 2, 4 or 8; two channels of 12-bit analog outputs (d/a); sixteen lines of digital I/O; and an on-board programmable clock. The DT2801 is easily programmed from the IBM computer's interpreted and compiled BASIC languages. The board contains an on-board microcomputer that acts as the interface between the DT2801 and the computer, controls all on-board analog and digital I/O operations, and performs board self-testing functions. Programming the DT2801 is made easier by the analog I/O microcode built into the onboard microcomputer. All I/O and clock functions can be accessed from three BASIC commands that read from or write to the DT2801's command/status and data registers.

The multifunction architecture of the DT2801 combines a/d, d/a and digital I/O functions with 5 programmable operating modes, including direct memory access and programmed I/O data transfers. I/O functions may be initiated by either hardware or software control. An on-board programmable clock may be used for clocking a/d or d/a operations; intervals can be set in 2.5 microsecond increments. Provision is also included for using an external clock. The price of the DT2801 is \$1195. *Data Translation, 100 Locke Drive, Marlboro, Mass. 01752*

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Programmable multimeter

Keithley's new model 195 System DMM, priced at \$995, is claimed to be the lowest priced programmable digital multimeter on the market with built-in IEEE-488 bus. Yet it has features, we are told, typically found only on much more expensive system digital multimeters. It is a full-function, programmable, 5½ digit meter with 100 μΩ, 100 nV, 100 pA sensitivity and front/rear panel inputs. A 100-reading data logger with programmable measurement intervals allows for data storage and analysis. High, low and average readings are retrievable from the instrument's front panel or over the bus. Other features include auto/manual ranging with displayed exponent, digital filtering, front-panel and external triggering and 9 selectable programs, including programmable IEEE address.

All functions of the 195 can be actuated either from the front panel or the bus. Its command set and large vocabulary are claimed to make the 195 extremely versatile. The 195 shares the same simplified command and data format as the other instruments in



Keithley's System Components line. Because the 195 may be digitally calibrated over the bus, it need not be removed from its setup for calibration. *Keithley Instruments, 28775 Aurora Road, Cleveland, Ohio 44139*

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Microscopic infrared thermometer

A new microscopic infrared thermometer from Everest Interscience measures the temperatures of target spots as small as 250 microns from -30° to 2000 °C. The Lasite Intra-Optical Light Sighting System provides a pulsating light that goes directly through the infrared optics, illuminating the exact field of view. A universal (360°) positioning microscope head mount is optional. Everest's line of indicators/controllers offers the following possibilities: standard control-panel mount or bench-top cabinet packaging; on-off, limit or time-proportioning set-point controls; single or dual set points; and, digital and/or fast analog displays.

The response time of these instruments is 1.0 second in the digital mode, and 0.060 seconds (including read-out) in the fast analog scan mode. This is said to make the instruments particularly useful for rapid scanning of large numbers of components. The thermometer can be utilized, for example to map thermal distribution of microelectronic chips. *Everest Interscience, PO Box 345, Tustin, California 94680*

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Vacuum furnace

Ceramaseal has introduced a new compact vacuum furnace designed for a variety of uses in research and industry. This table-top furnace has a work

zone measuring $5\frac{1}{2} \times 3 \times 1\frac{1}{2}$ inches. Overall dimensions are $30" \times 36"$ wide $\times 27"$ high. Among the applications of the furnace are sintering, degassing, heat treating, crystal annealing and brazing.

The furnace has a pumping system that can produce a vacuum of less than 10^{-6} torr. It is capable of temperatures to 1100°C , with temperature in the work zone held to within $\pm 5^\circ\text{C}$ of the set point. An advantage of the new unit, we are told, is its rapid cycle time, which, depending on the mass being heated, typically runs 70 minutes. Contributing to the rapid cycle are a high-speed, baffled stainless-steel diffusion pump and a low-heat-loss muffle that opens to allow forced cooling. The vacuum manifold is stainless steel, and an all-metal seal joins it to the ceramic retort. The control panel offers analog monitoring of vacuum and digital mon-



itoring of the furnace charge temperature. The power requirement of the furnace is 25 amp at 240 volt. *Ceramaseal, New Lebanon Center, New York 12126*

Circle number 145 on Reader Service Card

Ultraviolet laser source

Candela has introduced a new, tunable ultraviolet laser source. The model UV-500 is based on second-harmonic conversion of the output from Candela's tunable, coaxial-flashlamp-excited dye laser. This combination generates tunable ultraviolet light at a very low cost, we are told—about a fourth the cost of a laser-pumped dye laser and second-harmonic generator combination.

The second-harmonic generator (SHG) is angle tuned for maximum output. To meet the stringent beam-divergence requirement, a long, folded cavity is used. Beam divergence is further reduced by Candela's gallery mode suppressor. Ultraviolet wave-length coverage is 260 to 370 nm.

The SHG accessory is composed of an AR-coated, focusing cylindrical lens, mounted on an xy lens positioner mount. The SHG crystal is enclosed with a desiccant within AR coated windows. The SHG cell is mounted on a gimbal mount with $\pm 10^\circ$ rotatability.

The frequency-doubled beam is recollimated by a second cylindrical lens mounted in an xy position. A visible-light-rejecting filter blocks the fundamental. The SHG accessory can be mounted in the laser cabinet or on a rail exterior to the cabinet.

The coaxial-flashlamp-excited dye laser is capable of 1 joule output in a bandwidth of 0.2 nm. Narrower bandwidths are obtainable with an intracavity etalon. The flashlamp dye laser includes regulated switchmode power supply, trigger generator with dual delay, high-capacity dye circulator with solvent recovery system, and rugged laser resonator. The laser system is operable up to 0.5 Hz. The UV-500 system is offered as a package with 1 SHG crystal. *Candela, 96 South Avenue, Natick, Massachusetts 01760*

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X-ray spectrograph

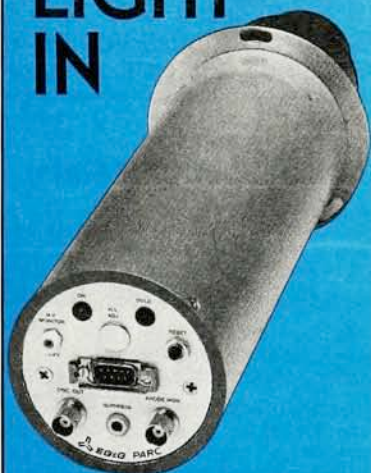
ARACOR has introduced a non-scanning x-ray diffraction crystal spectrograph for use in pulsed-source characterization and EXAFS applications, and in high-temperature plasma experimentation. The model HW-1000 x-ray spectrograph is claimed to be first commercially available unit of its type that provides accurate control of x-ray dispersion geometry (a prerequisite for precise measurements with this class of instrument) and accommodates interchangeable critical beam-line components.

The HW-1000 spectrograph is designed to obtain high resolution x-ray spectral measurements in the 0.5–80 keV photon energy range. Coverage over specific regions of interest within this range is achieved by installing interchangeable limited-region (element-specific) and broad-region curved diffraction crystals prepared by ARACOR. Spectra are recorded by direct-exposure photographic film or intensifying-screen film detectors, carried in cylindrically-curved, daylight-installing cassettes. The relative geometry of the crystals and detectors is accurately controlled, and an optional coaxial gimbal-mount laser pointing system is available to obtain precise source-instrument alignment.

The instrument is designed for external mounting to standard 6" vacuum chamber ports. Critical beamline components are attached to a stable optical bench incorporated in the instrument. In addition to the diffraction crystals and detector cassettes, these components include collimators, filters, graded-Z shielding, and optional image-forming slit apertures. *Advanced Research and Applications Corp., 1223 East Argus Avenue, Sunnyvale, California 94086*

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