

new products

The items listed have been selected from among those appearing concurrently in "New Instruments" or "New Materials and Components" in *Review of Scientific Instruments*. We gratefully acknowledge the cooperation of the editor of *RSI*, J. B. Horner Kuper, the associate editor for New Instruments, Joshua Stern, and the associate editor for New Materials and Components, R. K. Eby.

These descriptions are based on information supplied by the manufacturer and in some cases from independent sources. Neither *Review of Scientific Instruments* nor *PHYSICS TODAY* assume responsibility for their correctness.

Holographic camera

A mobile pulsed ruby laser holographic camera, designed in cooperation with Spectrum Development Corp., provides 360° articulation in any vertical plane in addition to pan and tilt adjustments. This flexibility allows holo-



grams to be taken of objects directly below or directly above the camera. The camera will accommodate the manufacturer's standard holographic ruby lasers delivering up to 4 J/pulse with coherence lengths to 7 m.—*Apollo Lasers, 6357 Arizona Circle, Los Angeles, CA 90045.*

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Spectrophotometers

The series 634 double beam spectrophotometers, featuring low cost, measure absorption in either absorbance units, %T, or concentration units, and offer chart recorder compatibility and provision for employing a range of accessories, including kinetics equipment. Double beam operation is standard, with single beam operation selectable by pushbutton. The model 634 covers the wavelength range 190–900 nm, with automatic scanning and choice of four speeds. The model 634

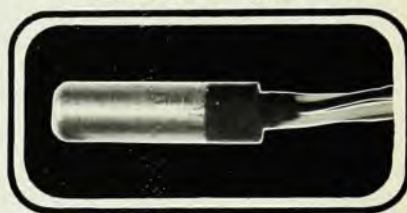
UV covers the wavelength range 190–900 nm and offers manual scanning only. The model 634 covers the range 300–900 nm with manual scanning only. The manual instruments can be converted into scanning spectrophotometers by adding a wavelength programmer accessory. Wavelength accuracy is better than ± 0.5 nm, and repeatability better than ± 0.25 nm. Photometric data are presented by a 4-digit counter with automatic decimal positioning in absorbance and %T, and automatic minus sign for negative absorbance measurements. Photometric accuracy is better than ± 0.002 A at 1.0 A and repeatability better than ± 0.001 A at 1.0 A. Photometric ranges are: -0.5 to $+2.0$ A; 0–100% T; concentration to 1999.—*Varian, 611 Hansen Way, Palo Alto, CA 94303.*

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Computer interface system

The 8000 computer interface system places series 8800 process controllers under computer supervision using bi-directional digital data highway techniques. Total backup control is provided in case the computer fails. The heart of the system is a 6 × 6-in. printed circuit board that incorporates an Intel 8080 microprocessor. A microcomputer is placed inside each controller to link the analog functions of the control loop with a centrally located host computer. Each loop has an individual controller dedicated to providing closed loop feedback control using analog proportional-integral-derivative algorithms and either supervisory or DDC control strategies. Data acquisition and control functions are automatically transferred down to the microcomputer-controller level without disrupting the process. Access is provided to each individual controller and controller settings can be manually changed on each loop through an interactive cathode-ray-tube terminal. All

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new products

communication between the micro-computer in each controller and the host computer takes place in a time-shared, five-wire, bidirectional data highway in ASCII language. Reliability is provided by 100% data verification using an echo check procedure.—*Beckman Instruments, Inc.*, 2500 Harbor Blvd., Fullerton, CA 92634.

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Vacuum pumping controller

In its automatic mode, the Sequentorr digital controller for vacuum pumping stations for use in thin film deposition applications controls sequential opening and closing of system valves as the system cycles from atmospheric pressure, through the deposition process, and back to atmospheric pressure. The controller also carries out the measurements of rough and high vacuum pressures required for appropriate valve sequencing. Manual override controls permit actuation of valves and measurement of pressures in any sequence. Thermocouple gauges are used to measure chamber and foreline pressures during the roughing stage. Two digital displays cover the range 0–999 μm Hg. An automatic abort is actuated if pressure rises above 500 μm Hg during pumpdown. For high vacuum measurements use is made of Bayard-Alpert ionization gauges. The pressures appear in scientific notation on a four-digit display covering the range 0.1×10^{-8} – 9.9×10^{-4} Torr. Pressure measurement display in pascal or millibar units is available as an option. Two adjustable set points are available in conjunction with the high vacuum gauging components for use to start other system elements.—*Sloan Technology Corp.*, 535 East Montecito St., Santa Barbara, CA 93103.

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Scintillation detectors

Polyscin detectors are available in a wide range of sizes and geometries. For example, gamma ray detectors using rods up to 20 in. in length are said to exhibit typical pulse height uniformities of 4% or better along the length of the detector. Available geometries include circular, square, rectangular, and hexagonal rods plus large-diameter plates. The wavelength of maximum emission is 410 nm and the cutoff wavelength is 320 nm. The decay constant is 0.23 μsec . Hardness (MOHS) is 2.1; density is 3.67 g cm^{-3} ; and the index of refraction is 1.85. The elastic moduli are in the range 3×10^6 – 12×10^6 psi. The melting

temperature is 650°C; volume expansion coefficient is $135 \times 10^{-6} \text{ K}^{-1}$ at 293 K.—*Harshaw Chemical Co.*, Crystal & Electronic Products Dept., 6801 Cochran Rd., Solon, OH 44139.

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Translation stages

Prestressed, precision ball bearings are used in this translation stage to achieve a straightness of $\pm \mu\text{m}$ in 10 mm of travel. The translators are available in sizes 3×3.5 in. and 5×5 in., capable of supporting loads of 90 and 130 lb, respectively. They are driven by spring-loaded micrometer screws



with negligible backlash. Either metric or inch graduations are available. Travel of the 3-in. stage is $\frac{1}{2}$ in.; travels of 1 or 2 in. are available for the 5-in. stage.—*Oriel Corp. of America*, Box 1395, 15 Market St., Stamford, CT 06904.

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Spectrometer

The model 2001 grazing incidence spectrometer-monochromator covers the range 0–250 nm at incidence angles from 84° to 87°, a region compatible with plasma fusion sources such as Tokamacs. Essentially non-magnetic, it is operable remotely and can be evacuated to the 10^{-7} Torr range. Two independent scanning slits are available; they are driven by a micro-processed mechanism that allows for a compact housing. Options are offered for photographic, polychromator, or Channeltron detection.—*Spex Industries, Inc.*, 3880 Park Ave., Metuchen, NJ 08840.

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Radioassay counter

The model 1600 counter for iodine-125 assay uses simultaneous counting to achieve high throughput. A batch of 96 samples is counted in 6 min and sufficient data to derive a standard curve are available within 2 min. The counter achieves 75% counting efficiency at a low background. Two controls are used in routine assays. The loaded cassette is placed in position, the time is selected,

and the start button is pressed. Data are automatically printed at the end of the preset interval. Three special modes



of operation may be selected by push-button. Data are visually displayed as well as permanently recorded either by the in-built printer or by a teletypewriter page printer with tape perforator. Other peripheral devices may be used for computation. The in-built printer is provided as standard for automatic listing of sample number, count accrued, and counting time.—*Nuclear Enterprises Ltd.*, Sighthill, EH11 4EY Edinburgh.

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Servo recorders

The 500 series of 4-in. laboratory servo recorders uses plugin range cards to provide thirty temperature ranges, six dc current ranges, and eleven dc voltage ranges. Basic sensitivity is 100 mV dc. Full scale response time is 0.5 sec, accuracy is $\pm 0.5\%$ of span, and 8 chart speeds are offered, from 1 to 300 cm/h. Tearoff and Z-fold chart styles



are available, as well as internal rewind. Writing is accomplished with a disposable, snapin, filter-tip pen cartridge. Electric pen lift, switch-selectable multiple spans, multiple chart speeds, and custom scales are options.—*Gulton Industries, Inc.*, E. Greenwich, RI 02818.

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Microdensitometer

The 3CS computer-controlled microdensitometer is a high-resolution, flat-bed instrument that scans the speci-

men and plots density against position as a graphical trace on an integral X-Y recorder. The microdensitometer features bilaterally adjustable pre- and post-specimen slits, specimen-to-record magnification from 1 to 1000, and density measurement up to 6.0D in 11 ranges. The computer controls the scanning pattern and also performs analysis of the data and output results. The software package provided enables the user to program his operations around his requirements.—*Joyce-Loebl, Ltd., Princeway, Team Valley, Gateshead NE11 0UJ, England.*

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NEW LITERATURE

Function generator—A 12-pp. brochure specifies the FG 504 40-MHz function generator and describes thirteen application configurations of instrumentation utilizing the function generator, including biphasic clock and logic design packages, audio log sweep test sets, and a suggested college laboratory assembly of instruments that synthesizes square waves by phase-locked addition of odd harmonic sine waves.—*Tektronix, Inc., Box 500, Beaverton, OR 97077.*

Noise monitor—A 4-pp. folder describes the model 614 portable noise monitor that measures, calculates, and provides digital printout of community noise levels according to Federal, state and local regulations.—*Bolt, Beranek, and Newman, Inc., 50 Moulton St., Cambridge, MA 02138.*

Electronic balances—A manufacturer's data sheet describes a new line of electronic top loading balances. All models include full range tare, no leveling, BCD output, and bipolar display. The "Thor" design concept features double permanent magnets, force motor, clip-in electronic circuitry, and overload protection. The design directly attacks and resolves the problems of calibration drift, zero drift, linearity, and reproducibility. The electronic design reduces heat buildup and the resultant need for vent/louvers. This reduces potential damage from dust and spillage. The top pan support has a high lip to prevent liquid spills into the mechanism. This series of balances includes models with capacities and accuracies of 40 ± 0.001 g, 400 ± 0.01 g, and 2000 ± 0.1 g. A dual range model, $400/1600 \pm 0.01/0.1$ g, is also available. Accessories include printers, counters, and plastic covers.—*Bench Scale Equipment Co., P.O. Box 1123, Dayton, OH 45401.* □

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Tunable diode laser spectrometer

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Tunable diode lasers are the source of infrared radiation in Laser Analytics' Model LS Laser Source Spectrometers. These unique instruments provide spectral measurement capability throughout the 3 to $33 \mu\text{m}$ range with a resolution limited essentially by the laser linewidth, which is much less than 10^{-4} cm^{-1} . For example, completely resolved absorption spectra of gases in the Doppler or sub-Doppler regimes can be measured rapidly and conveniently.

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