

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.

Tunable laser

The model 215G is a grating-tuned, uv-preionized TEA laser capable of providing output on more than 60 lines between 9.21 and 10.83 μm . Output energy is 1.5 J, multimode, or 0.5 J TEM₀₀ at 10.59 μm , with peak power greater than 10 MW in the 40-nsec (FWHM) gain-switched spike. Repeti-



tion rate is 0–2 pulses/sec. The unit is self-contained, with all controls, power supply, and laser discharge head housed in a shielded enclosure measuring $5\frac{1}{4} \times 22\frac{3}{4} \times 7\frac{3}{4}$ in.—*Tachisto Inc.*, 13 Highland Circle, Needham, MA 02194.

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Electron microscope

The STEM–SEM electron microscope permits 25-Å resolution in the scanning transmission electron microscope mode and 125-Å resolution in the scanning electron microscope mode. The instrument features 75-kV accelerating voltage; 500–300 000 magnification range; prealigned electron optical column; variable scan speeds; side entry specimen stage, with airlock, accommodating a 3.2-mm-diam, 1.5-mm-thick specimen; separate viewing and recording display tubes; and an automatic, push-button-operated vacuum system.—*International Scientific Instruments, Inc.*, 1400 Stierlin Rd., Mountain View, CA 94043.

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Spectrophotometer

The model 17D research grade spectrophotometer offers digital readout, broad recorder ranges, and derivative

presentation, for ultraviolet, visible, or near-infrared work over the wavelength range 186–2650 nm. Special configurations can extend the range to 3000 nm. The recorder provides 14 ranges, seven for absorbance and seven for transmittance. Concentration can be measured directly in unknown samples, without the need for calibration plots, using the five-digit display and concentration-adjust controls. Full zero suppression is provided on all absorbance and transmittance ranges. Zero suppression controls govern the digital panel meter and the recorder simultaneously. On any transmittance scale, any fraction of a unit up to 1.0 T may be suppressed by using a continuously adjustable control graduated in increments of 0.002 T. Absorbance, transmittance, and concentration outputs are available from an internal connector for computer input. The wavelength-scanning system is driven by a stepping motor with pulses available for computer tracking of wavelength. Scattered transmission, fluorescence, and reflectance accessories are available.—*Varian Instrument Div.*, 611 Hansen Way, Palo Alto, CA 94303.

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Integrators

A series of computing integrators includes three models, the Super 1, Super 2, and Super 3. All models perform automatic signal analysis for area or height measurement. In the Super 1, automatic calculations are limited to area percent; in the Super 2 and Super 3, stored programs are provided to automate operation and calculation, and perform automatically any of the three standard calculations, internal standard, external standard, and normalization. These two models also offer automatic calculation of response factors and a four-function printing calculator. The Super 3 also provides automatic identification features. The instruments interact with the operator by providing step-by-step instruction. A lighted panel presents messages that guide the operator through most steps

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new products

of normal operation. Entering a program is also part of this man-machine dialog. When a program is prepared ahead of time, however, the operation may be reduced to a start function alone.—*Columbia Scientific Industries, Box 9908, Austin, TX 78766.*

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Electrostatic voltmeter

The model 166 electrostatic voltmeter uses a small noncontacting probe to permit drift-free measurement of the electrostatic potential on a small area with 0.05% accuracy. Measurement range is ± 1 to ± 2000 V, full scale, with input impedance greater than $10^{18} \Omega$. The instrument is available for single-, dual-, or three-channel operation by means of plug-in voltage follower modules and probes. Each channel is effectively a separate instrument, and thus up to three simultaneous measurements are possible. Construction is all solid state with interchangeable plug-in boards as well as interchangeable modules and probes.—*Monroe Electronics, Inc., 100 Housel Ave., Lyndonville, NY 14098.*

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Hybrid potentiometers

A new hybrid technique involves automatic application of conductive plastic material to the wire-wound element. As a result, hybrid elements can be produced in a variety of forms, including rectilinear, rotary, and multiturn with either linear or nonlinear functions. It is said that through the hybrid method the element attains the temperature stability of wire.—*Electronics, 2865 Fairview Rd., Costa Mesa, CA 92626.*

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Recorders

Two new 10-in. strip chart recorders with accuracy to $\pm 0.5\%$ have been introduced. Models 7210 and 7212 are fast-response laboratory instruments utilizing the convenient flat-bed design. Model 7210 features single-channel operation and model 7212 is a dual-channel instrument with an overlapping pen system that allows both channels the full 10-in. paper width. Standard on both models are a critically damped 30-in./sec pen movement, high input impedance, stabilized Zener reference voltage, and a custom-fabricated shielded power transformer that protects against both normal- and com-

mon-mode errors. Both combine a floating input with full-span zero adjustment/zero suppression to provide measurement of positive and negative signals. Both models feature five switch-selectable spans plus a variable attenuator to permit recording of signals from 1 mV to 100 V, and both offer 12 chart speeds in either English or metric units. The recorders have disposable felt pens, easy-access panel controls, a simplified paper-loading system, a standby switch that allows pen position adjustment without wasting paper, and manual paper reroll. Compact and lightweight, the recorders measure $4.4 \times 14 \times 15$ in., and ship at 11 lb.—*Data Technology Corp., 2700 South Fairview Rd., Santa Ana, CA 92704.*

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Marx generator

The MiniMarx modular Marx generator measures $15 \times 10 \times 12$ in. for a single stage unit, and adds 5 in. for each additional stage. Each stage provides a 25- to 100-kV output at an energy range 50–500 J. The system



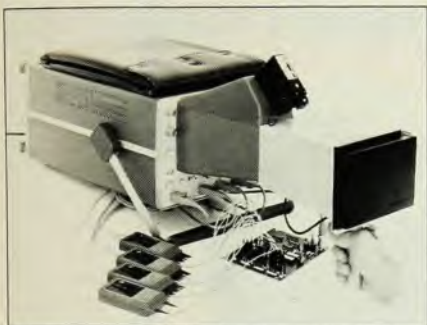
is constructed with series S plastic case capacitors, pressurized low-inductance spark gap switches, and charging resistors. Each stage capacitor is charged in parallel and, when the Marx erects, all stages are added in series to provide the high-voltage output. A trigger generator is built into the bottom to provide a high-voltage trigger to the first stage spark gap switch. The generator can be installed in vertical or horizontal orientation, or inverted. For nominal voltage requirements, the instrument can be operated in air; above 40 kV, the system should be operated in SF₆ or oil.—*Maxwell Laboratories, Inc., 9244 Balboa Ave., San Diego, CA 92123.*

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Oscilloscope camera

The model 124A oscilloscope camera is operated by placing its hood over the oscilloscope bezel, without adapters, and pressing the trigger. The camera is prefocused and framed without adjustments. The f stop is fixed, as is the shutter speed. The moderate size of the

lens aperture assures adequate depth of field for fixed focus. An electronic flash, powered by two AA batteries, provides graticule illumination if the oscilloscope lacks it, and can be shut off if it is not needed. If the trace is overexposed, the oscilloscope's intensity control is adjusted; if too faint,

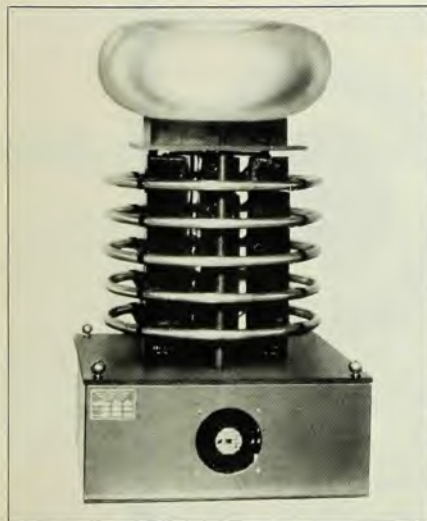


the trigger is pressed several times to integrate the trace. The graticule is not overexposed because the electronic flash requires 10 sec to recharge. Flash output and lens and shutter speeds are coordinated for proper exposure of a single wide-latitude film, type 107 (ASA 3000). The camera will record traces bright and steady enough for normal viewing. An entire 8×10 -cm format is photographed with a reduction ratio 1:0.88. The camera can also be used to photograph printed material, its own photos, PC boards, etc.—*Hewlett-Packard Co., 1501 Page Mill Rd., Palo Alto, CA 94304.*

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Power supplies

The ARD series of air-insulated, regulated, high-voltage power supplies offers dc output from 60 to 400 kV, with



power ratings from 200 W to 1 kW. Line regulation is $\pm 0.01\%$ for a 10% line change, and load regulation is $\pm 0.1\%$ no load to full load. Ripple is 0.1% peak to peak. The units feature

the high-frequency approach, with equipotential deck design, and are protected against vacuum shorts and overload.—*Del Electronics Corp., 250 E. Sanford Blvd., Mt. Vernon, NY 10550.*

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New Literature

Power supply test equipment—A 4-pp. brochure describes a number of special-purpose measuring instruments to expedite the testing and verification of power supplies, including a precision divider and sensitive comparator for static measurements; an isolated noise meter for measuring the ripple and noise riding on a dc output; a static load rheostat for simulating dc loads; and a number of modulating amplifiers for simulating dynamically varying loads.—*Kepeco, Inc., 131-138 Sanford Ave., Flushing, NY 11352.*

"101 analog IC designs"—This 150-pp. book contains practical designs for amplifiers, comparators, current sources, flip-flops, gain control circuits, gates, op amps, oscillators, phase detectors, phase-locked loops, Schmitt triggers, timers, and voltage regulators. The book is available for \$3.00.—*Inter-design, 1255 Reamwood Ave., Sunnyvale, CA 94086.*

Solvent for waterless degreasing—Data sheet No. 66-26 describes Metro solvent EM, a noncorrosive, nonflammable safety solvent for removing oil and grease deposits from electrical motors, switches, panels, and instruments. It replaces toxic and flammable solvents, will not harm most plastics or motor insulation, and is described as being effective where water cannot be tolerated. It dries rapidly, leaving a film-free surface.—*Metropolitan Refining Co., Inc., 50-23 23rd St., Long Island City, NY 11101.*

High voltage power supply modules—A data sheet describes the FWRM line of well-regulated high-voltage dc power supply modules. General specifications: input, output, polarity, regulation, and ripple are given along with individual data on 75 specific FRM models. Outline drawings, dimensions, and installation instructions are also included. FWRM models are considered "slot" supplies with voltage variable over a narrow range. They are available with output ratings up to 30 kV and 30 W. All models feature both remote voltage and remote resistance programming and can be obtained with either positive or negative output polarity with respect to ground.—*Spellman High Voltage Electronics Corp., 1930 Adele Ave., Bronx, NY 10469.* □

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