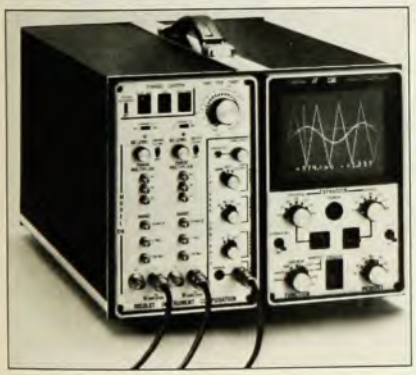
new products

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.

Oscilloscope

The Explorer II digital oscilloscope is designed to replace low frequency analog oscilloscopes, either storage or nonstorage types. It features nonfading high capacity storage with writing rate equivalents up to 100 cm/μsec, depending on the plug-in unit used. Precision is 0.4%–0.025% of full scale and time resolution is 0.025%. Normalized voltage and time values are displayed for any selected point,



either true values with respect to zero or with respect to the time and voltage corresponding to any other selected point. The screen remains live until a hold pushbutton is depressed, at which time either the last signal or the next signal to occur is held, depending on which of two pushbuttons is touched. Stored waveforms may be displayed superimposed on live waveforms, and any region may be viewed with up to 64 times magnification for comparison. Available as an option is an internal high capacity nonvolatile memory for storage of up to 32 waveforms, any of which may be recalled for viewing in 2 sec. Accessories include a single beam 0.025% resolution, 1-MHz plug-in unit and a very low frequency, drift-free, 5-μV sensitivity unit for measurements with sweep speeds ranging from 200 msec per sweep to several days per sweep. Dual channel and higher frequency plug-in units are also available.—*Nicolet Instrument Corporation, 5225 Verona Road, Madison, WI 53711.*

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Multimeter

The model 2505 three-phase, four-wire digital instrumentation system measures true rms voltage and current as well as power with accuracy ±0.25% of reading +0.05% of range. The instrument has the capability of measuring all pertinent phase parameters and covers voltage ranges from 100 to 600 V ac, current ranges from 2 to 20 A, and power from 200 W to 12 kW, all per phase. A feedback time division multiplier system is used to achieve accuracy over frequency ranges 25 Hz to 2 kHz for V and A, and over wide ranges of both power factor and crest factor. The digital display has a maximum reading 11900. Both analog and BCD outputs are provided. The unit annunciator display indicates V, mA, A, W, and kW. Typical input characteristics include input impedance 50 kΩ to 1.5 MΩ on voltage ranges, and power consumption 0.1–2 VA on current ranges.—*Yokogawa Corporation of America, 5 Westchester Plaza, Elmsford, NY 10523.*

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Keyed quick-connects

Swagelok keyed quick-connects have a new positive mechanical lockout system which prevents accidental intermixing of fluids in multiple line applications. The keyed feature has been combined with the standard Swagelok

quick-connect which operates with easy push–pull action and provides automatic shutoff to minimize pressure loss or fluid spillage during uncoupling. Eight different keys are available, each one numbered and color coded. Stems and bodies of unmatched keys will not couple with each other or interchange with any other type of quick-connect. Also, an attempt to couple unlike keys will not open the automatic shutoff system and allow accidental flow. These quick-connects are available in brass and 316 stainless steel, with Swagelok and male or female NPT end connections, in ⅛, ¼, ⅜, and ½ in. sizes.—*Crawford Fitting Co., 29500 Solon Rd., Solon, OH 44139.*

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Exposure monitor

The multiple function model 354 exposure monitor measures pulses, individual or sequential, by integration in mJ/cm², exposure time in 0.01-sec increments, or intensity in mW/cm². A six-digit display reads out in correct units through 9999.99 units; a separate four-digit display shows time through 99.9 sec. Linear integration measurements are performed with better than ±1%

repeatability. Pulsewidths below 1 μsec are said to be integrated accurately. Optical probes are individually calibrated to permit interchangeability, and a variety of probe responses is available to meet spectral measurement requirements. The battery power supply permits up to 8-h continuous operation. A warning light indicates battery depletion and the unit automatically shuts off to prevent erroneous readings.—*Optical Associates, Inc., 3300 Edward Avenue, Santa Clara, CA 95050.*

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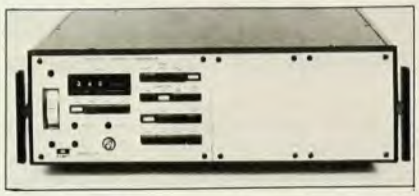
Signal generator

The model 340 generator, designed for material testing applications, uses digital synthesis to generate sine, square, triangle, ramp, haversine, haversquare, havertriangle, and inverted waveforms over a period range 1 msec to 99 900 h. Period may be selected in milliseconds, seconds, minutes, or hours with three-digit resolution in each range. The digits may also be multiplied by 10 and 100. For ramp mode of operation, the ramp step amplitude is resolved



down to 50 μV per step at maximum signal amplitude 20 V p–p. The instrument is equipped with up–down indicators and an analog meter to indicate direction and amount of signal excursion. A standby switch opens the main output at the rear of the unit while maintaining the signal at the front panel monitor. Four direct control functions may be activated either manually or remotely: start, hold, reset, and reverse direction. Other features include manual and external gate or trigger, and null pacing. Available accessory modular plug-in units include a dual rate unit, a trigger unit, an amplitude control unit, and a variable phase unit. Space is provided in the front panel for two of these units.—*Exact Electronics, Inc., 455 S.E. 2nd Avenue, Hillsboro, OR 97123.*

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uv source

A low-pressure gas discharge lamp with a magnesium fluoride window provides a convenient sealed ultraviolet source of high-energy photons for use in a photoionization detector for gas chromatography. A high impedance dc power supply energizes this lamp to produce a stable, monochromatic output. Life expectancy for a krypton filled lamp producing 10-eV photons is many thousands of hours.—*Scientific Services, P. O. Box 317, Rocky Hill, NJ 08553.*

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Aluminum-filled epoxy

Type AP 8006 hardens in 5 min, even in cool weather and in thin sections. The quick-setting feature allows parts to be hand held in position until a strong bond is formed. It is said to be useful for quick metal repairs and particularly suitable for the repair of refrigeration coils. It comes packaged in premeasured, one-use pouches separated into two sections by a removable divider. Each section is filled with a premeasured component. To use, the divider is removed the components mixed by kneading the pouch. After mixing, one corner of the pouch is snipped off to provide dispensing. The dispensing technique minimizes the risk of dermatitis from skin contact with the adhesive. Working time for the adhesive is about 5 min for 100 cm³ at 72°F. With a maximum operating temperature of 180°F, recommended service temperature for minimum tensile shear of 1000 psi is 160°F. The adhesive is available in standard packages of 7, 25, 50, and 100 g quantities.—*Allied Resin Corp., 60 Weymouth Industrial Park, E. Weymouth, MA 02189.*

Circle No. 146 on Reader Service Card

Radiometer

The J-260 portable digital radiometer measures ultraviolet intensities automatically, indicating in radiometric units within the range 1 μW/cm² to 199.9 mW/cm² with accuracy and precision said to be traceable to NBS. The instrument is available with cosine corrected sensors for measuring at 254, 297, or 365 nm. All are precalibrated

and are interchangeable without affecting overall system accuracy. Overrange and low battery indicators are provided. A zero-adjust control permits suppression of background radiation, including ambient illumination. Sensitivity is 1×10^{-6} W/cm². Current measurement linearity is ±0.2% of full scale ±1 digit, accuracy is ±1.0% of full scale, and temperature stability is better than 0.2%/°C. The sensor is calibrated to ±2% at the wavelength of peak response compared to UVP standard traceable to NBS.—*Ultraviolet Products, Inc., 5100 Walnut Grove Avenue, San Gabriel, CA 91778.*

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Spectrophotometers

The 34/35 series uv visible spectrophotometers feature a common optical system with a common beam aperture that makes microsampling as accurate

as macrosampling, a programmable slit system that provides constant signal-to-noise ratio at all wavelengths, and automatic absorbance overrange detection. If samples exceed preselected absorbance or concentration ranges of the chemistry being run, audible and visual indication is provided that dilution is required. Absorbance range is 0–3. Derivative recording is provided for detection of minor impurities; expanded scales are provided for the chart system; time constant selection permits a high signal-to-noise ratio to be maintained when operating in the expanded scale mode. A 25.4-cm strip-chart recorder is integral. Push-button controls are color coded for chart speed selection.—*Beckman Instruments, Inc., Scientific Instruments Division, Box C-19600, Irvine, CA 92713.*

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New Literature

High-temperature materials—Bulletin 523, 4 pp., described high-temperature ceramic materials. The new materials selector includes a chart of 36 special ceramic adhesives, castables, coatings, machinable ceramics, tapes, etc., listing properties, and applications. The brochure also includes application photos.—*Aremco Products, Inc., P. O. Box 429, Ossining, NY 10562.*

"Thermocouple Accessories"—A new 8-pp. catalog provides photos, drawings, general descriptions, and ordering information on a wide selection of accessories. These include mullite and pure alumina insulators, ceramic fish spine bead insulators, asbestos tubing insulation, adjustable flanges, bushings for use with connection heads, protection tubes, general purpose screw cover heads and terminal blocks, plugs, jacks, protective boots, tube adaptors, cable clamps, mounting brackets, jack panels, plug and socket assemblies, fittings, bayonet adaptors, thermocouple switches, extension wire in armored cable, and portable handheld thermocouples.—*Measurement & Control Systems Div., Gulton Industries, Inc., E. Greenwich, RI 02818.*

X-ray energy detectors—A 12-pp. brochure discusses technical criteria for selecting Si(Li) x-ray detectors. Critical parameters such as energy resolution, collimation, peak-to-background ratios, count rate capabilities, light element sensitivity, and reliability are correlated with various materials measurement applications, and general guidelines for choosing, using, and evaluating detectors are set forth.—*Kevex Corporation, 898 Mahler Road, Burlingame, CA 94010.* □