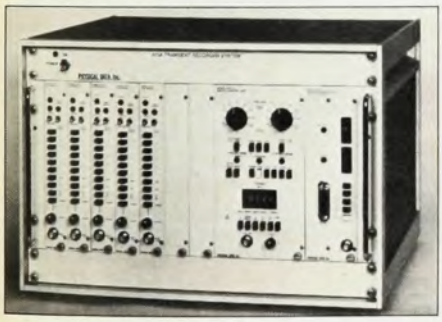
new products

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.

Waveform recorder

The model 515A transient waveform recording system captures events, stretches or compresses the information desired, and reproduces it. Simultaneous analog signals are recorded on multiple channels for later playback in digital and/or analog form to a computer, calculator, oscilloscope, teletypewriter, stripchart recorder, or other output device. Other features include choice of 1k, 2k, or 4k word memory per channel; 10 bits per word (0.1%) amplitude resolution; up to 2 MHz



sampling rate; pre-event and post-event trigger delay with 4-digit resolution; dual timebase facilities; variable play back rates for timebase expansion or compression; and controller-interfacing options that include digital-analog module, computer interface, paper tape interface, IEEE 488-1975 interface, nine track magtape interface, CAMAC crate controller.—*Physical Data, Inc., 8220 S.W. Nimbus Ave., Beaverton, OR 97005.*

Circle No. 140 on Reader Service Card

Mass flowmeter

The model 810L linear flowmeter for measurement of true mass flow or velocity of gasses provides, when used with series 1200 mass flow transducers, direct readout of mass flow from 30 000 S l^{-1} m^{-1} to less than 10 S cm^{-3} m^{-1} with better than 100 to 1 range for each transducer. For air or gas velocity measurement, the meter provides direct readout of velocity from 30 m/s to less than 0.05 m/s with a single sensor. Higher ranges are optional. An output signal, 0–10 V dc, linearly proportional to flow or velocity, is provided for recording or process control. Readout of mass flow or velocity is displayed in the user's choice of engineering units in either digital or analog form with 0.1% full scale resolution. A heat transfer sensor-signal conditioner compensates for temperature and pressure variations. Response time is milliseconds.—*Datametrics, 340 Fordham Rd., Wilmington, MA 01887.*

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X-ray diffractometer

The Miniflex direct measurement x-ray powder diffractometer is a desktop, recording x-ray diffraction system that uses a prealigned wide-angle goniometer that needs no adjustment. The instrument consists of the goniometer, x-ray generator, 100-mm stripchart recorder, and all related electronics in a single package that measures 30 × 15 × 27 in. The x-ray generator provides a 30-kV fixed tube voltage and tube current fixed at 10 mA. A sealed, argon-filled proportional counter probe with 4-μs time resolution serves as detector. The goniometer scans from +3° to +160° (2θ) range. Accessories include a water to air cooler–circulator, ac line voltage stabilizer, sample spinner, and camera

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adapter kit.—*Rigaku/USA, Inc., 3 Electronics Ave., Danvers, MA 01923.*

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Dosimeter

The model 409A digital alarm dosimeter offers a preset dose alarm capability that can be adjusted externally in binary steps from 4 to 1024 basic dose increments. It is available with increments either 1 mR or 0.01 mR. As each increment of dose is received, the 4-digit display advances by

one unit. Each advance is accompanied by an audible tone; a continuous tone is sounded when the preset alarm level is reached. The dosimeter operates for more than 300 h from a single 9-V transistor radio type battery and is provided with a battery check pushbutton. —*Xetex, Inc., 1486 Oddstad Dr., Redwood City, CA 94063.*

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Radioactivity standards

The National Bureau of Standards issues a variety of radioactivity standards. These include various radioactivity concentrations of Gallium-67, Iodine-123, Tin-113-Indium-113m, and Phosphorus-32.—*Office of Standard Reference Materials, National Bureau of Standards, Washington, DC 20234.*

Circle No. 144 on Reader Service Card

Delay generator

The model 7075 digital delay generator offers variable delays and gates up to 1 ms, selectable in 1-ns increments. An option extends the maximum range to 1 s. The instrument includes a self-trigger generator with a 5 Hz–5 MHz range. An internal clock pulse generator eliminates the indeterminacy between random input trigger pulses and the instrument's output pulses. Jitter is less than ±100 ps. The instrument can be supplied to operate from an external ultraprecise time standard. An error indicator lights to warn the operator when the triggering period is shorter than the delay time setting, and thereby indicates any missed delay cycles. The unit is said to approach ±0.5-ns accuracy for long delays. Standard operating capabilities include 3-ns rise-time pulses independently adjustable in width and amplitude; positive and negative outputs; and input trigger level and slope selection. Optionally available are BCD or IEEE Std. 488 programming. —*Berkeley Nucleonics Corp., 1198 Tenth St., Berkeley, CA 94710.*

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Vacuum coater

The Desk-1 cold sputter unit is designed to deposit a conductive coating on all types of scanning electron microscope specimens without the distorting effects of heat and radiation. A mechanical shutter prevents contamination by redeposition of etched material. The chamber is evacuated by a 2 ft^3/min, two-stage, direct drive mechanical pump. After initial roughing, an argon bleed automatically opens to flush the chamber to minimize oil backstreaming; an etch mode is

provided for removing surface layers or to clean specimens contaminated with molecular films of water and oil. Both the etch cycle and the sputter coat cycle are controlled by a 0–3 min adjustable timer with manual override. A conductive coating of 100 Å gold is deposited in 25–30 s, and sputter rate can be adjusted while the specimen is covered by the shutter.—*Denton Vacuum, Inc., 8 Springdale Rd., Cherry Hill Industrial Center, Cherry Hill, NJ 08003.*

Circle No. 146 on Reader Service Card

Volume fraction analyzer

The model 1090 volume fraction analyzing system is a real-time instrument that continuously measures

and controls the relative volume fractions of nonconducting, two component flow—liquid–liquid, solid–liquid, liquid–gas, and solid–gas. The nonintrusive and noncontact instrument uses a rotated field sensor that permits measurement over the entire cross section of a circular pipe, so that the measurement is not affected by inhomogeneity of the stream. Repeatability is said to be better than 1% from 0° to 500°F. System response time is 5 ms or better. The sensor spool replaces an equal length of pipe of identical inside diameter in the flow system so that no additional pressure drop is introduced. Multichannel-multisensor capability is available.—*Auburn International, Inc., One Southside Rd., Danvers, Massachusetts 01923.*

Circle No. 147 on Reader Service Card

Pulse generator

A new generator provides high-voltage, high-power bipolar pulses. The Model 605-BP generates alternating positive and negative pulses that are continuously adjustable from 0 to 2200 V at 11 A. The pulse duration is variable from 60 ns to 3 ms at duty cycles of 1.5% and to 10 ms at reduced power. For applications requiring higher voltages or higher currents the unit can also be connected to provide either positive or negative pulses variable from 0–4400 V at 11 A or 0–2200 volts at 22 A.—*Cober Electronics, Inc., 7 Gleason Ave., Stamford, CT 06902.*

Circle No. 148 on Reader Service Card

Temperature module

The Model 601 is a portable, self-contained solid-state temperature measuring module designed to plug directly into the input terminals of conventional digital voltmeters. It allows the advantage of an accurate digital temperature meter at low cost. The Model 601 is powered by a standard 9 V transistor battery. If an alkaline type battery is used, it will last about 50 h before replacement. The output is displayed in units of degrees centigrade. A value of +1.00 V corresponds to 100°C and 0.00 V to 0°C. The transducer has a sensitivity of 10 mv/°C. A switch provides on-off and battery test functions. The temperature range of probe is −50 to +150°C. The temperature range of the electronics is −20° to +40°C. Overall accuracy is ±0.25°C. The probe is in a stainless-steel case, ⅛ in. diameter and 8 in. long with a 15-ft. vinyl cable. Probe response time is approximately 10 s.—*Kurz Instruments, Inc., P.O. Box 849, 20 Village Square, Carmel Valley, CA 93924.*

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New Literature

Lasers—A 9-pp. technical memo discusses Fabry–Perot etalons used intercavity in lasers and describes coarse and fine frequency selection criteria, spatial hole burning mode problems, insertion losses and tuning techniques, and use of etalons in pulsed lasers.—*Burleigh Instruments, Inc., Burleigh Park, Fishers, NY 14453.*

Mass spectrometry—The operational and analytical advantages of simultaneous but separate chemical ionization and electron impact ionization for analysis of components eluting from a gas chromatograph by mass spectrometry are discussed in a 6-pp. technical journal.—*Extranuclear Laboratories, Inc., Box 11512 Pittsburgh, PA 15283.*

"High Voltage Power Supplies"—Catalog No. 7800, 12 pp., contains comprehensive information on solid state, regulated and unregulated, rack mounted, miniature, modular and series regulated supplies. Photos, general information, and detailed specifications are included for over 1300 models.—*Spellman High Voltage Electronics Corp., 7 Fairchild Ave., Plainview, NY 11803.*

X-Y recorder—A 6-pp. brochure describes the series 100 recorder that uses a capacitance feedback transducer in place of slidewires and potentiometers.—*Houston Instrument, One Houston Square, Austin, TX 78753.*

Titanium sublimator cartridge—A manufacturers brochure, 5 pp., describes an easily mounted inexpensive device for fast ultrahigh vacuum pumping of chemically active gases. Cartridges are designed for use singly or in multi-unit arrays which make a wide range of titanium available for pumping without breaking vacuum.—*National Electrostatics Corp., Box 117, Graber Rd., Middleton, WI 53562.* □