

new products

FOR HIGH COUNT RATES RANDOM Pulse Generator

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.

Laser power meter

The model 504 portable power meter presents a flat response over virtually the entire visible wavelength range by utilizing internal electronic compensation. By dialing the wavelength being measured on the front panel of the instrument, the laser power can be read directly for any wavelength from 440 to 680 nm in 1-nm steps. Laser power can be measured over the range of a fraction of a milliwatt to 10 W in seven power ranges, permitting use of the meter with helium neon, helium cadmium, and helium selenium lasers as well as argon and krypton ion lasers.



Meter response is quick enough to be used for laser tuning.—*Lexel Corp.*, 928 East Meadow Dr., Palo Alto, California 94303.

Circle No. 142 on Reader Service Card

Digital oscilloscope

The Explorer digital oscilloscope uses an analog-to-digital converter to digitize the input signal and store it in a solid-state memory. The stored signal is then reconstructed by digital-to-analog conversion for display on the cathode ray tube. Points of interest may be selected by a movable electronic cursor for alphanumeric display of actual time and voltage values on the same CRT. Stored data may be output in digital form or in analog form to a pen recorder. Both the X and the Y axes may be expanded, in steps of 2, up to 64 times. Two signals from an event may be recorded and displayed as functions of time, or

of each other, at the flip of a switch. Bandwidth is dc to 5 MHz. Memory capacity of 4096 12-bit words may also be used in halves or quarters for measurement, display, or readout. One- and two-input plug-in modules are offered with choice of single-ended or differential amplifiers.—*Nicolet Instrument Corp.*, 5225 Verona Rd., Madison, Wisconsin 53711.

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Spectrophotometers

Two dual-beam atomic absorption spectrophotometers feature built-in background correction. The model 1150 offers meter readout; the model 1250 is equipped with digital display. Both instruments offer high energy mode and peak signal readout. The two instruments provide radiation from a hollow cathode lamp and a hydrogen continuum lamp. The radiation always coincides with the spectrophotometer's optical path. The two light beams are thus focused on the same absorption zone, and each beam sees the same absorption component. Analytical signals derived from the two lamps are electronically separated by the background corrector module which uses the information obtained to correct, simultaneously, the final absorbance measurement. Both models provide signal integration, peak signal retrieval, curve correction, signal damping, and baseline correction.—*Varian Instrument Division*, 611 Hansen Way, Palo Alto, California 94303.

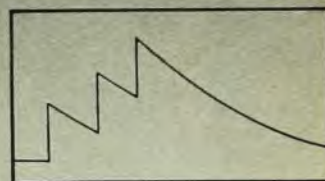
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Dye laser

Designed to replace the conventional monochromator source for many applications, the Spectroscan 10 couples the high power, coherence, narrow linewidth, and small spot size of the laser into an integrated, safety-interlocked package. In conjunction with the manufacturer's LP20 laser photometer, the instrument forms a scanning spectrophotometer. Operation requires only



MODEL
DB-2



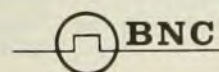
Random mode showing
pileup

At last—a true random pulse generator to simulate live sources! The Model DB-2 provides monoenergetic pulses at both random and periodic rates exceeding 100 kHz.

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Applications must be postmarked by January 15, 1976. Awards will be announced in April.

Information on specific research opportunities and application materials are available from:

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Rutherford Laboratory, Oxfordshire, England

Research Associate Posts in Experimental High Energy Physics

The Rutherford Laboratory invites applications for appointments as Research Associates in experimental high energy physics. The appointments will be made for a three year period in the first instance with the possibility of extension for a further period of up to two years. Applicants should preferably be under 30 years of age and should have or should be expecting to obtain a Ph.D. in high energy physics.

Those appointed will be expected to participate in the research programme of the Rutherford Laboratory which includes experimentation on Nimrod, the 7 GeV proton accelerator at the Laboratory, and also on accelerators at CERN. Posts are available for both counter and bubble chamber work.

The posts are superannuable and are in the range £2500 to £4000 depending on age and experience.

Applicants should send a curriculum vitae, list of publications and names of 2 referees to:—

Dr. J. J. Thresher,
High Energy Physics Division,
Rutherford Laboratory, Chilton,
Didcot, Oxon,
OX11 0QX England.

RUTHERFORD LABORATORY
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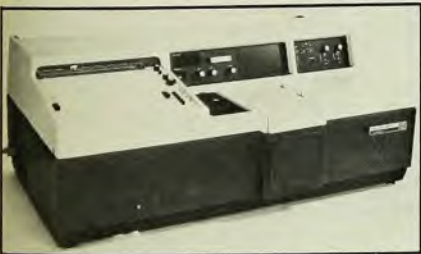
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turning a key and depressing a button after a 7 min warmup period. Dye cell interchange is accomplished by replacing the magnetically stirred cuvette in use with the appropriate new plug-in cell. Scan is either manual or by means of an optional built-in stepping motor drive. Wavelength is displayed digitally directly in nanometers. Specifications include wavelength range 360–740 nm with no gaps, resolution 0.3 nm, peak power at 580 nm 7 kW, pulse energy at 580 nm 35 microjoules, average power at 580 nm 3.5 mW, pulse length 5 nsec (nominal), standard repetition rate 100 Hz, beam diameter 0.3 nm for $1/e^2$ intensity, and beam divergence 1.5 mrad. The scanning option provides scan speeds of 5, 10, 25, and 50 nm/min, linear in wavelength.—*Moletron Corp., 177 N. Wolfe Rd., Sunnyvale, California 94086.*

Circle No. 145 on Reader Service Card

uv spectrophotometers

The 57 series of four uv spectrophotometers feature dark cycle stepping and a photometric system that measures the ratio of sample and reference beam energy at identical wavelengths, thus eliminating photometric errors due to wavelength derivative effects. The instruments cover the 190–750 nm spectral range and keep stray light to less than 0.1% at 220 nm. The four-digit display can be utilized in the concentration mode over the full 0–3 absorbance range. The model 570 has an optional built-in recorder, 0–3 absorbance, delta A and concentration ranges, and step-variable bandpass. The model 571 includes a built-in format recorder



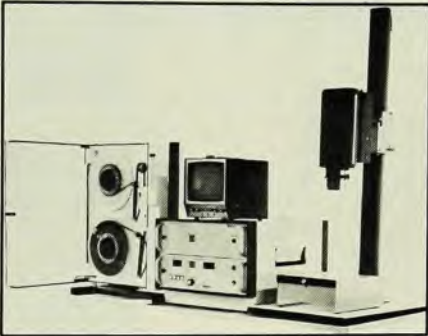
in addition to the features of the 570. The model 572 adds variable response time, and the model 575 further includes autozero A, automatic source changer, and BCD output.—*Perkin-Elmer Corp., Main Ave., Mail Station 222, Norwalk, Connecticut 06856.*

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Image digitizer

The ARAD digitizer equipment and scanner provide a direct link between an optical image and a digital machine. Designed specifically for the computerization of imagery rather than for its

transmission, the system avoids speed buffering by programming the data flow for digital computers and industry compatible tape units. The system is furnished with an image illuminator, a scanner, and the digital machine interface. It permits the operator to pre-select an area from the scanned scene for digitization, while monitoring the composite view on a TV monitor. The scanner can resolve 500×700 image points in a single field of view to 90 levels of the image gray scale. Adjustable magnification permits selective



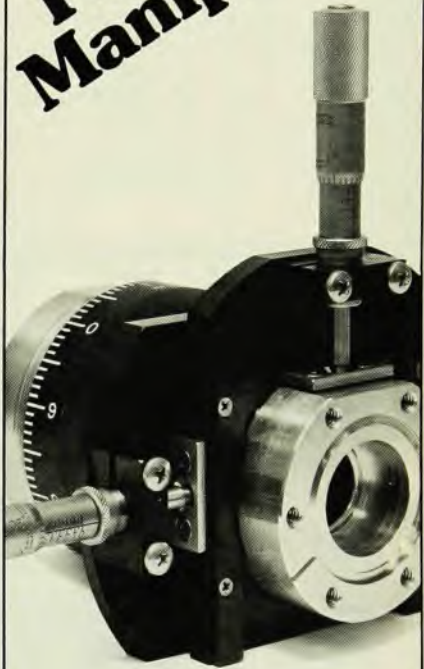
blowup for details of interest. An adjustable window gate on the scanning matrix provides control over the area of digitization and the total number of image points. The need for correction of light response is eliminated by logarithmic signal conditioning over a three-decade dynamic range. Digitization of the image gray scale in terms of image brightness or photodensity units is available by switch selection.—*Antech Inc., 252 Calvary St., Waltham, Massachusetts 02154.*

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Field emission source

For scanning electron microscopes, this source provides an electron beam with up to several thousand times the brightness of a standard tungsten thermionic source. The maker guarantees 30 Å in secondary electron image and 15 Å in scanning transmission for the Autoscan. The new electronics and vacuum system are utilized by the standard thermionic source instrument, and the changeover is said to be accomplished in a few hours. Double-differentially pumped, the electron source's cathode chamber is unaffected by repeated venting of the instrument's specimen chamber, so that specimen change cycles are completed rapidly and without the need of an airlock. The use of standard 10^{-6} or 10^{-6} Torr vacuum levels in the specimen chamber has the added advantage of allowing the study of specimens which outgas or otherwise generally degrade the vacuum. Sufficient isolation from normal magnetic field and mechanical and acoustic vibration disturbances is provided to per-

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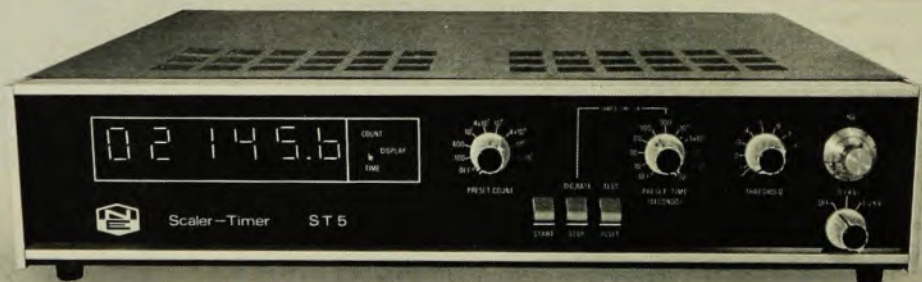
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Catalog No.	Cap (μF)	Volt (kV)	Energy (J)		Catalog No.	Cap (μF)	Volt (kV)	Energy (J)
33001	240	5	3000	ESL: .04 μH Case Size (Nominal): 7" x 14" x 24" Weight: 150 lbs.	33502	240	6	4300
33002	180	6	3240		33503	180	8	5750
33003	120	7	2940		33504	100	10	5000
33004	60	10	3000		33505	42	15	4700
33005	30	15	3375		33506	25	20	5000
33006	14	20	2800		33507	14	25	4400
33007	8.5	25	2656		33508	8.5	30	3800
33008	6	30	2700					
32001	4.5	40	3600	ESL: .02 μH Case Size (Nominal): 11" x 14" x 25" Weight: 220 lbs.	32501	6	40	4800
32002	2.8	50	3500		32502	4	50	5000
32003	1.8	60	3300		32503	2.8	60	5000
32004	1.0	75	2800	ESL: .03 μH Case Size (Nominal): 11" x 14" x 26" Weight: 230 lbs.	32504	1.8	75	5000
32005	.7	100	3500		32505	1.0	100	5000



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Scaler timer/ratemeter/discriminator

Crowded labs with crowded budgets need to get the most they can out of every piece of equipment. That's where the triple-duty ST5 earns its keep.

In the scaler timer mode, the ST5 counts events continuously or counts up to a preset time or count limit. The digital ratemeter mode provides direct readout of counts per second with sample times adjustable from 1 second to 10⁴ seconds. With its adjustable threshold control, the ST5 is an excellent level discriminator.

Also ask about our single-channel analyzer—the SR5 Scaler Ratemeter with digital and analog readout and printout capabilities.

Other features offered are ☐ high voltage supply with adjustable output from 0 to 2kV and resetting accuracy of ±0.2V ☐ variable quench unit ☐ crystal-controlled timer ☐ 6-decade scaler/timer ☐ operates with Geiger or scintillation probes and head units.

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mit use with microscopes capable of better than 20 Å resolution.—*ETEC Corp., Marketing Dept., 3392 Investment Blvd., Hayward, California 94545.*

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Light chopper

The model 192 utilizes a brushless motor and solid state circuitry to provide smooth operation. It has built-in circuitry which automatically provides dual reference signals at the chopping rates for synchronizing the reference signals of lock-in amplifiers, photon counters, signal averagers, and most other types of signal processors. The motor shaft speed is continuously variable from 2.5 to 100 revolutions per second by means of a calibrated turn knob, or by an externally derived source. Chopper blades are available in 2, 6, 20, or 60 slots and 19/3, 6/5, 60/53 slots in dual frequency blades.—*Princeton Applied Research Corp., P. O. Box 2565, Princeton, New Jersey 08540.*

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Pulse height analyzer

The model 1800 is a 256-channel pulse height analyzer featuring low cost. It provides true peak sampling and is insensitive to pulse shape. An adjustable strobe window can be varied from 2 microsec to 1 millisecc. A trigger mode permits sampling of noisy dc signals for measurement of stochastic properties.



Features include anticoincidence-coincidence sampling control, single channel analyzer input processing, addition-subtraction accumulation, 256 or 128-128 memory of 64 000 counts per channel, automatic and manual count time control, and positive, negative, or bipolar input pulse modes.—*Measurement Laboratories, Inc., Box 174, North Reading, Massachusetts 01864.*

Circle No. 150 on Reader Service Card

New Literature

Standard reference materials—A new catalog describes more than 900 Standard Reference Materials currently prepared, certified, and issued by the National Bureau of Standards. These are materials whose chemical compositions

or particular chemical or physical properties have been accurately determined and certified. They are used to calibrate and evaluate measurement instruments and test methods. Because of their well-defined composition, preparation conditions, and properties, they have also been utilized in scientific research. The standards are listed in the catalog under the headings: standards of certified chemical composition, standards of certified physical properties, and engineering type standards. In addition to standards the catalog lists research materials and general materials. Research materials are not issued with certificates of analysis but are accompanied by a report of investigation, the sole authority of which is the author of the report. A research material is intended primarily to further scientific or technical research on that particular material. General materials are distributed by NBS to meet industry needs. However, they have been standardized by some government agency other than NBS, or by some standards-making bodies such as the American Society for Testing and Materials, the American National Standards Institute, or the Organization for International Standardization. The catalog also contains information on other services offered by NBS. It can be ordered by SD catalog no. C13.10:260-1975-76 cat for \$1.50.—*Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.*

Dual-output dc power supplies—Data sheet DEPS-475 provides technical information on a line of repairable open construction modular power supplies. The open construction permits repair, which lowers costs compared to encapsulated types. Four models are offered: two with PC-board mounting configurations and two designed for chassis mounting. Each is available in ratings of ± 12 V dc at 0.1 A or ± 15 V dc at 0.1 A.—*Adtech Power, Inc., 1621 South Sinclair St., Anaheim, California 92806.*

Fused glass capillary filter—Data sheet 1100 describes arrays which are made entirely of glass and offer advantages not offered by most types of filter materials. Besides the high flow rate resulting from an open area of over 50%, they offer a sieve-like filtration with a positive particle size cutoff. They can be cleaned and offer a high degree of chemical and thermal stability. These filters can withstand temperatures greater than 450°C in most applications. Capillary pore sizes from 2 to 50 microns, overall diameters of 1.3–4.7 cm, and thickness of 0.05–0.3 cm are outlined in the data sheet. Special configurations are also discussed.—*Galileo Electro-Optics Corp., Galileo Park, Sturbridge, Massachusetts 01518.* □

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