new products

The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers, and in some cases by independent sources. PHYSICS TODAY can assume no responsibility for their accuracy.

Pulse generators

Avtech's new AVR series of pulse generators provide up to 200 volts of output, with rise times of 10 nanoseconds and pulse widths variable up to 10 microseconds. Pulse repetition frequency can be varied up to a kilohertz—and beyond, with reduced output pulse widths. The output repetition frequency equals the frequency of the externally applied TTL trigger signal.

In all models of the AVR series, the output amplitude is continuously variable up to 200 V with a 50-ohm load. For models AVR-1 and -2, the output pulse width is equal to the width of the input trigger pulse. By contrast, models AVR-1-PW and -2-PW have continuously variable output widths (*via* a front-panel pot) from 40 nanosec to 5 microsec. AVR-1 and -1-PW are line powered (60 Hz, 110 V), while their miniature counterparts, AVR-2 and -2-PW, require only a 15-volt dc supply. All models can be supplied with optional voltage-controlled output pulse width and amplitude. Prices range from $990 to $1150 (US). *Avtech Electrosystems Ltd., PO Box 5611, Station, F, Ottawa, Ontario, Canada K2C 3Ml*
Circle number 140 on Reader Service Card

Photoelastic modulators

Hinds International's JCK line of very-large-aperture photoelastic modulators are used to modulate the polarization or amplitude of light, and to perform very precise measurements of linear or circular dichroism. They can also be used for spectropolarimetry and magnetometry.

The central element of each modulator is an octagonal strain-free crystal, resonating at particular discrete frequencies. The JCK line includes photoelastic modulators with resonant frequencies ranging from 20 to 84 kHz, with apertures up to 5 cm in diameter. Lower frequencies—5 to 10 kHz—can be achieved by means of the JCK beat-frequency system, which uses a combination of two modulators with frequency-difference control. Hinds photoelastic modulators are said to be suitable for applications in solid-state and astrophysics, laser information technology, and biological fields such as enzyme kinetics. *Hinds International, PO Box 4327, Portland, Oregon 97208*
Circle number 141 on Reader Service Card

Autocorrelator

The Spectra Physics model 409 is a rapid-scanning autocorrelator for the monitoring of pulsed laser systems. It is claimed to be the first commercially available instrument that displays autocorrelation functions on high-speed, real-time oscilloscopes. Thus it provides instant feedback for monitoring pulse characteristics of picosecond pulsed laser systems while laser performance is being fine tuned.

The autocorrelator has a scan range of 80 picoseconds, wide enough to permit examination of the energy distribution in the wings of laser pulses. Because the instrument operates with inputs as small as 4 mW (average power), it can serve effectively as an on-line monitor. All optical components

new products

of the model 409 are coated for broadbaned operation (400 to 850 nm). One need only select the appropriate frequency-doubling crystals and ultraviolet filters to use the instrument over a wide range of lasing wavelengths. *Spectra Physics, Laser Instruments Division, 1250 W. Middlefield Road, Mountain View, California 94042*

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Fiber optics receiver

EG&G Electro-Optics is offering a new high-speed fiber-optics receiver. The model FOD-100 is designed specifically for precision, wide-bandwidth optical communication and data transmission. The receiver has a rise time of less than a nanosecond, with responsivity better than 0.65 amps per watt at 900 nanometers.

The total spectral range of the FOD-100 extends from 350 to 1100 nanometers. The light-collecting efficiency of the device is enhanced by its large receiver area—5.1 mm^2. The receiver is designed around the (separately available) EG&G high-speed FND-100 silicon photodiode. To facilitate interfacing, the FOD-100 is completely self-contained within a fiber-optics connector. *EG&G Electro-Optics, 35 Congress Street, Salem, Mass. 01970*

Circle number 143 on Reader Service Card

Differential discriminator

Phillips Scientific's model 730 is a 100-MHz five-channel discriminator. It is claimed to offer unusual versatility and density in a single-width NIM module. By flipping a switch, the user can select one of several operating modes; the device can serve as a conventional leading-edge discriminator, an amplitude and risetime-compensated discriminator, or as a window discriminator.

When used as an amplitude and risetime-compensated discriminator, the 730's dual-threshold, low-level timing technique reduces adverse risetime effects in direct proportion to the ratio of the threshold settings. Time walk plus slewing are typically ± 200 picoseconds over the input range from -25 mV to -25 V. As a window discriminator, the device produces an output pulse when the input lies in a "window" between upper and lower thresholds. This does away with the need for the two channels plus coincidence unit and delay cables normally required for fast energy discrimination. Upper and lower thresholds can be controlled independently in each of the five channels. Output widths are variable from 5 to 150 nanoseconds.

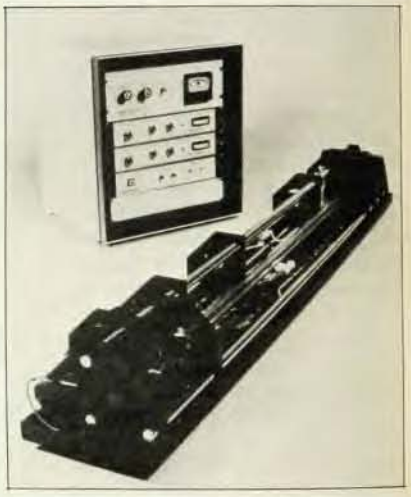
An internal delay control is common to all five channels. An input can be delayed from 2 to 40 nanosec. A test point facilitates monitoring of the delay setting. The model 730 is priced at $1295. *Phillips Scientific, 13 Ackerman Avenue, Suffern, New York 10901*

Circle number 144 on Reader Service Card

Infrared laser

Apollo claims that their new model 122 far-infrared laser offers unusual stability. It is suitable for plasma diagnostics, solid-state experimentation, spectroscopy, astronomy and far-infrared imaging. The system includes a grating-tunable CO_2 pump laser and a Fabry–Perot submillimeter-waveguide resonator. One-inch Invar bars are said to give the 122 extreme mechanical and thermal stability. A cavity isolator between the CO_2 and far-infrared resonators provides good amplitude stability.

The CO_2 laser is tunable over 85 discrete CO_2 lasing frequencies between 9.17 and 10.9 microns, delivering CW power up to 55 watts. More than 1000 discrete far-infrared lasing frequencies are said to have been obtained in the 40-micron to 1.8-mm region with several dozen gases. The strongest line is at 118.8 microns, at a power of 90 milliwatts, using methanol. The model 112 is priced at about $35 000. *Apollo Lasers, 6357 Arizona Circle, Los Angeles, California 90045*



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Counter/timer

Data Precision's model 5845 is a 150-MHz multifunction counter/timer. In addition to counting events, it is de-

signed to measure frequency, period, average period and elapsed time. Besides measuring the frequency of sinusoidal trains, it can resolve pulsed inputs as close together as 15 nanoseconds. A digital input/output option puts out full measurement and

status data and permits remote control.

The model 5845 has a sensitivity of 10 mV rms for sinewaves, or 30 mV peak-to-peak for pulses. It will accept signals up to 250 volts. The instrument has a selectable input-range attenuator and front-panel adjustable trigger level. It also offers a switchable, 100-KHz low-pass filter, to maximize noise rejection when measuring low-frequency square-wave or pulse signals. All readouts are on an 8-digit LED display. In its frequency mode, the 5845 allows one to select resolutions for 0.1 to 100 Hz by varying the gate time in decade increments. Individual events can be counted at rates up to 2 megapulses per second. The instrument's standard time base is a 10 MHz crystal with a basic accuracy of ± 4 ppm per year. The price of the counter/timer (without options) is $325. *Data Precision, Electronics Avenue, Danvers, Mass. 01923*

Circle number 146 on Reader Service Card

Histogramming memory

LeCroy's model 8810 CAMAC module is a 1-MHz histogramming memory that can perform a read-add one-write operation in a microsecond. The unit is available in two configurations. With 16-thousand 24-bit words one has 16 thousand channels, with 17 million counts per channel. Alternatively 48-thousand 8-bit words provide 48 thousand channels capable of storing 256 counts per channel. 20-bit addressing permits cascading up to a million words. With the multiple-histogram capacity of the model 8810 one can choose to accumulate up to 4 thousand histograms, or 8 thousand channels per histogram, and up to 17 million counts per channel.

This model is described as a hardware solution to time-resolved spectroscopy and multiparameter analysis. It has list-mode capability, and it reduces or eliminates computer loading in pulsed measurements. It significantly raises data rates and permits correlation analysis and data display during acquisition. The model 8810 is priced at $2200. *LeCroy Research Systems, 1806 Embarcadero Road, Palo Alto, California 94303*

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Mono/polychromator

Minuteman Laboratories have designed an ultra-high vacuum, grazing-incidence spectrograph-monochromator-polychromator. It is intended for plasma diagnosis on tokomaks, "bumpy tori", laser-induced plasmas and other fusion devices. It is also said to be useful with synchrotrons and other high-energy producing devices in the spectral region from 2 to 3100 angstroms.

The instrument is compact and lightweight, and operable in any attitude close to the source. It has metal-bellows feedthroughs for external control and remote operations. All units are calibrated on an NBS synchrotron. *Minuteman Laboratories, 916 Main Street, Acton, Mass. 01720*

Circle number 148 on Reader Service Card

New literature

Connectors—Viking's new 48-page catalog describes their extensive line of printed-circuit connectors and accessories. Included are dip-solder, wire-wrap and round-tail connectors, and the Erik series of low-cost, selectively plated printed-circuit edgebroad connectors. *Viking Connectors, 2100 Nordhoff Street, Chatsworth, California 91311*

Scintillators—The *Scintillation and Radiation Detectors* catalog (#126) from Nuclear Enterprise includes "an unrivalled choice" of plastic scintillators, loaded and unloaded liquid scintillators, alpha, beta and neutron detectors, and gas scintillators. A comprehensive selection of crystal scintillators, demountable assemblies and radiation detector probes is also offered. *Nuclear Enterprises Ltd., Sighthill, Edinburgh EH11 4EY, UK*

Spectrometers—Kevex's Bulletin #7055 describes their Unispec Systems 53 and 55 for sequential spectrometry and x-ray energy spectrometry. The System 55 is designed for simultaneous acquisition of x-ray and Auger data, thus avoiding the compounding of systematic errors. *Kevex, 1101 Chess Drive, P.O. Box 4050, Foster City, California 94404* □