

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. To facilitate inquiries about a particular product, a Reader Service Card is attached inside the back cover of the magazine.

Fizeau wavemeter for pulsed and cw lasers

The new Model 100-F Fizeau wavemeter from Lasertechnics is designed for real-time measurements of pulsed or cw laser wavelengths in the 400–1100-nm range with an accuracy of one



part in 10^6 . The wavemeter operates either as a stand-alone unit with a hand-held display or connected to a host laboratory computer by the standard RS-232 or optional IEEE-488 interface. *Lasertechnics, 5500 Wilshire Avenue NE, Albuquerque, New Mexico 87113*

Circle number 140 on Reader Service Card

Four-channel waveform recorder with 12-bit resolution

A new waveform recorder from LeCroy, the Model 6810, is equipped with four input channels, each with a programmable front-end amplifier and signal conditioner, as well as independent track-and-hold circuits. The input channels are multiplexed into a single 5-MHz, 12-bit digitizer. Four-channel operation is possible at 1.0 megasamples per second each; single-channel operation at 5 megasamples per second.

The waveform recorder has a built-in dynamic RAM of 512 000 words that can be expanded to 8 million words with the addition of up to 15 Model 6310 memory-expansion modules. An "importance sampling" feature con-

serves memory by optimally sampling fast-rising pulses with long decay times at different rates during recording. The dual sample rate can be trigger activated or preprogrammed.

One can operate the Model 6810 via the GPIB or RS-232 ports using a computer and the Model 6010 controller. LeCroy's Waveform-Catalyst digital-oscilloscope software for the IBM PC can be used for displaying, processing and archiving waveforms. The Model 6810 is priced at \$5500. *LeCroy, 700 South Main Street, Spring Valley, New York 10977*

Circle number 141 on Reader Service Card

Waveform digitizer with 1-GHz sampling rate

The Model 3000 waveform digitizer introduced by Sequence features selectable real-time sampling intervals from 1 to 505 nsec, yielding acquisition windows from 1 to 505 μ sec. A dc–350-MHz input amplifier with a programmable input attenuator gives the instrument the flexibility to capture a wide variety of input signals. Each signal-acquisition window produces 1024 data points, which are digitized with an amplitude resolution of 10 bits. One can store data in a 1024-word acquisition memory with pre- and post-triggering capability.

One can use an IBM PC, XT, AT or compatible computer with math co-processor in conjunction with Sequence's Multi-Function Software package for display and signal analysis. Up to eight Model 3000 units can be connected to the computer via a dedicated parallel interface.

The Multi-Function Software uses a mouse to control, for example, volts per division, sampling rate, triggering parameters, waveform storage and retrieval, and communication with other systems. The software operates in both time and frequency domains. As a

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a reliable, high-speed interface to the General Purpose Interface Bus

3988 GPIB Crate Controller

- supports data transfer rates up to 600 kilobytes per second
- acts as a main or auxiliary crate controller
- meets all IEEE-488 requirements
- supports Q-scan and Q-stop block data transfers
- handles Read and Write data transfers in 8, 16, or 24 bit form (one, two, or three GPIB bytes)
- includes full GPIB service request capability
- offers standard IEEE-488 24-contact ribbon or IEC (European) 25-contact "D" connector options

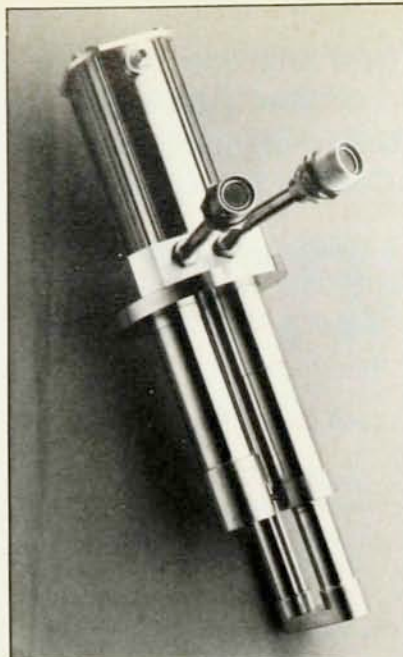


KineticSystems Corporation

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The biggest G-M yet.

Cryomech's new GB37, a two-stage Gifford McMahon closed cycle cryorefrigerator, has more power than any other G-M available because of our unique, parallel piston design: 10 watts < 11K or 30 watts < 18K with 60 watts at 70K on the first stage.

Plus, the GB37 uses a field-proven compressor with built-in safety controls to ensure proper operation and extra oil separators for enhanced gas filtration.

Cryomech manufactures a full line of standard size, single- and two-stage cryorefrigerators for temperatures down to 7K. Customized UHV systems are also available. And applications assistance—for any capacity, at any temperature—is our specialty.

Call today for more details.

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new products

spectrum analyzer, the Model 3000 and the software package provide fast Fourier transforms and phase and power spectrum calculations. It can display fast Fourier transforms at least once every second in the continuous acquisition mode. The price of the Model 3000, including the Multi-Function Software package, is \$28 000. *Sequence, 1650 Zanker Road, San Jose, California 95112*

Circle number 142 on Reader Service Card

Precision phasemeter operating from 10 Hz to 10 MHz

Krohn-Hite has introduced the Model 6620, a precision phasemeter that provides phase-angle measurements with an accuracy of 0.02° over the 10 Hz–10 MHz range, with 0.01° resolution. The instrument measures sine, square and triangle input waveforms and pulses that are longer than 50 nsec. It accepts input voltage levels of 10 mV to 320 V rms. Zero and full-scale errors are immediately corrected. A five-digit liquid crystal display provides continuous readout of phase angles in 0–360.00° or ±180.00° ranges. One can select these two ranges manually or by automatic control.

Standard features include a relative measurement mode that allows the monitoring of phase deviations, automatic selection of the input voltage range, front-panel indicators for too low or too high input voltages, and an analog output. The unit is programmable through an IEEE-488 port; an optional RS-232 port can replace that port. The instrument costs \$3695.00. *Krohn-Hite Corporation, Avon Industrial Park, Bodwell Street, Avon, Massachusetts 02322*

Circle number 143 on Reader Service Card

Wide-bandwidth rf amplifier with 10-W output power

Amplifier Research has made available the Model 10A250 solid-state amplifier, delivering 10 W of rf power throughout the 10 kHz–250 MHz frequency range. No frequency tuning or band switching is required, making the amplifier usable for swept-frequency applications. We are told that the amplifier is immune to gross load-impedance mismatch: It will not oscillate or become damaged under such circumstances.

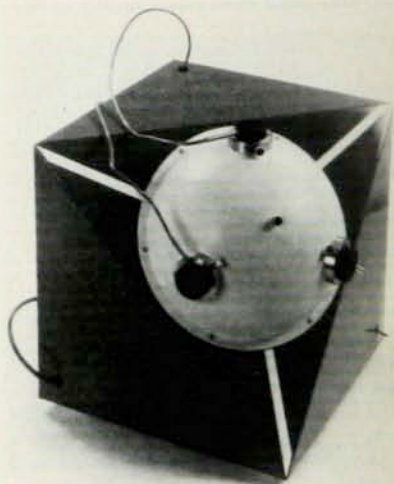
The amplifier is designed for a wide range of uses, including the amplification of pulsed and non-sinusoidal waveforms, ultrasonics, plasma physics ex-

periments, nmr spectroscopy and rfi-susceptibility testing. The unit occupies 14½ × 6½ × 8 inches of benchtop space and weighs 11 lb. The US price is \$2200. *Amplifier Research, 160 School House Road, Souderton, Pennsylvania 18964*

Circle number 144 on Reader Service Card

Integrating sphere for laser-power measurements

International Light has made available the Model INS-250, an integrating sphere that measures the output of light sources under 1 inch in diameter. The 10-inch sphere is coated with Kodak 6080 white reflecting surface coating, which produces a stable and highly diffuse reflectance over the 300–1400-nm range. The sphere has three interchangeable input or detector ports and is supplied with a calibrated transfer standard lamp.



The International Light IL 1700 Series radiometer-photometer used with the integrating sphere provides direct readings in a wide variety of optical units, including candelas, watts/steradian, watts, watts/cm², foot-candles and joules. A tabletop cube with 14.4-inch sides supports the integrating sphere. The sphere is priced at \$1072. *International Light, Dexter Industrial Green, Newburyport, Massachusetts 01950*

Circle number 145 on Reader Service Card

Hall voltage measurement controller card

Keithley Instruments have developed the Model 7065 Hall-effect card for use in Keithley scanner Model 705 or 706. The card is designed for characterizing

gallium arsenide and other semiconductor materials. All the switching and buffering functions are located on the card. One can switch off the buffers for measurements on low-resistance samples where microvolt-level Hall voltages are encountered. The card can be used to measure Hall voltages as low as 50 nV and sample resistances to $10^{12} \Omega$. The Model 7065 card alone is priced at \$4995; the card and the Model 705 scanner at \$5495. A package including the Model 7065 card, the Model 705 scanner, a picoammeter, a digital multimeter and a programmable current source costs \$9900. Prices for full turn-key systems start at \$19 000. *Keithley Instruments, 28775 Aurora Road, Solon, Ohio 44139*

Circle number 146 on Reader Service Card

Closed-cycle refrigerator for the 3.6–300-K range

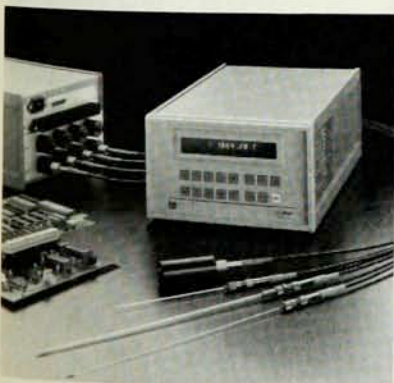
The Heliplex HS-4 closed-cycle helium refrigeration system introduced by Air Products provides cooling of 1.5 W at 4.5 K and 1 W at 4.2 K. It can reach temperatures down to 3.6 K. The cool-down time to 4 K is three hours. The refrigerator unit can operate in any orientation and requires only electrical power and water supplies. *Air Products and Chemicals, P. O. Box 2802, Allentown, Pennsylvania 18105*

Circle number 147 on Reader Service Card

Optical-fiber thermometer with eight inputs

Accufiber has introduced its Model 100, a multichannel optical-fiber thermometer capable of measuring temperatures from 300 to 1900 °C at eight locations. By selecting input modules one can operate the instrument with standard resolution (0.1 °C), high resolution (0.01 °C) or wide bandwidth (0–10 kHz).

The instrument uses wide-bandwidth blackbody and light-pipe sensors immune to electromagnetic interference.



One can control the instrument from a terminal or controller. A wide selection of output features is also available, including an RS-232 port, analog output (0–10 V, 4–20 mA) and simulated thermocouple outputs. Several types of output configurations are available on a single card for direct connection to standard external controllers.

One can obtain the Model 100 configured for one to eight channels. The cost of an eight-channel model with an RS-232 port is \$12 400. *Accufiber, 2000 East Columbia Way, Building 7, Vancouver, Washington 98661*

Circle number 148 on Reader Service Card

Energy analyzer for electrons and ions

The new electrostatic energy analyzer for charged particles from Comstock, System III, has a resolution of 0.4% or better when used with 0.05-cm apertures. The system is designed for applications in atomic and molecular physics, photoelectron spectroscopy, surface analysis, beam and plasma diagnosis, laser ionization studies and chemical physics.

The analyzer consists of a compact double-focusing electrostatic energy analyzer machined from oxygen-free copper, three sets of interchangeable apertures, an electrostatic and magnetic shield and mounting boxes, a compact *einzel* lens, a dual channel-plate detector with a vacuum-compatible divider network, and a stabilized power supply.

One can program the power supply externally for operation of the system. The long-term stability of the system is within 1 mV over 8 hours. The power supply permits analysis over the range 0–150 V and the system can be floated to 2 kV. All the components for use in vacuum are bakable and can be used in uHV applications. The system is priced at \$9250. *Comstock, P. O. Box 199, Oak Ridge, Tennessee 37831*

Circle number 149 on Reader Service Card

New software

Scientific subroutines—Magus has made available Version 2 of Numerical Analyst, a library of FORTRAN subroutines that include numerical integration, solution of linear and differential functions and a wide selection of mathematical functions. The software may be used with the FORTRAN compiler from Microsoft for the IBM PC and compatible computers. *Magus, P. O. Box 390965, Mountain View, California 94039*

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Now Available for Your CAMAC (IEEE-583) Data Acquisition and Control Applications...

- high-speed sampling
- precise digitizing
- dynamic accuracy

4 New Waveform Digitizers

4010 - 2-channel Transient Recorder (on-board memory)

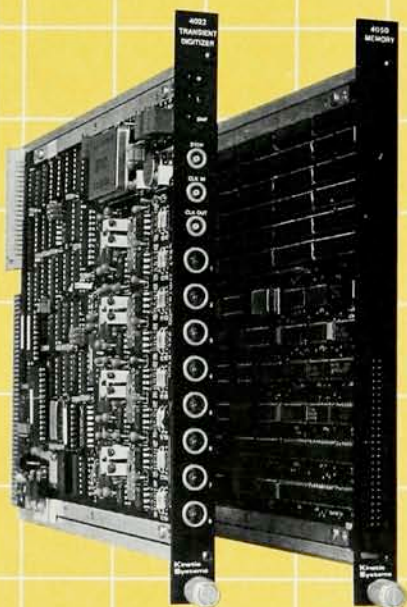
4020/4050 - 2-channel Transient Recorder

4022/4050 - 8 to 64-channel Transient Recorder

4024/4050 - 32 to 64-channel Recording Datalogger

Features:

- 12 bit resolution
- simultaneous sampling
- sample rates to 250 kilosamples per second
- expandable input channels (1-64)
- pretrigger and post-trigger recording
- direct readout at full Dataway speed
- programmable active memory
- programmable selection of internal clock
- full-speed memory readout



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