

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.

Multichannel analyzer

The new Series 85 from Canberra Industries is claimed to be the only multichannel analyzer on the market that can accommodate three self-contained 100-MHz analog-to-digital converters. The instrument also has a NIM modular front end; the integral, triple-width NIM bin permits the user to choose from Canberra's extensive line of research NIMs to meet his signal processing needs—from basic spectroscopy to picosecond timing.

The instrument's enhanced analysis firmware package includes six functions for preprocessing of spectral data: smoothing, integration, differentiation, normalization, fraction stripping and ratio computation. After preprocessing, the peak-analysis functions provide energy calibration with as many as 20 simultaneous calibration equations, a peak-search routine and computation



puting, real-time, multi-task data acquisition, display and control. *Canberra Industries, 45 Gracey Avenue, Meriden, Conn. 06450*

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Infrared thermometer

Land Instruments, a subsidiary of Land Pyrometers, the British firm, has introduced the Minolta-Land Cyclops 51, an infrared thermometer designed to let the user make accurate temperature measurements in the range 600 to 1600 °C at a considerable distance from a hot surface. One simply sights through the instrument and focuses the target inside a measurement spot. When the trigger is pressed, a digital display of the spot temperature appears in the viewer. This procedure replaces the traditional "disappearing-filament" optical pyrometer, which requires a subjective assessment to obtain an accurate measurement. The Cyclops 51, we are told, "gives a faster, more consistent accuracy."

The detector is a silicon photocell with spectral response from 0.7 to 1.1 microns in the infrared. The manufacturer stresses the quality of the instruments optics (from Minolta) and the range of operating-mode options. One can readily extend the operation of the thermometer to provide continuous temperature monitoring by using its continuous analog output. By employing an optional digital printer, one gets from the digital output a record of a series of readings. An alternative fahrenheit model, Cyclops 51F, reads from 1200 to 3000 °F. The accuracy of the 51 or 51F is claimed to be $\pm 1\%$ of reading at an emissivity of 1.0 and ambient room temperature. *Land Instruments, P. O. Box 1623, Tullytown, Pennsylvania 19007*

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Fiber-optic source

Fotec offers the Fotec S, which it describes as "a new type of fiber-optic test

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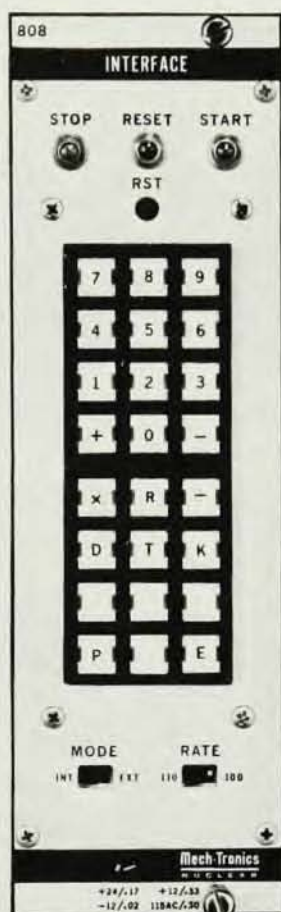


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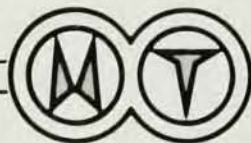
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of area above background. A centroid energy having been thus determined, one can use the model 8543 isotope-analysis option for further isotopic analysis with user-definable libraries. For applications requiring more analytic capacity and automatic control, the Series 85 can be incorporated into the Jupiter computer system. Using a PDP-11 as the host processor, the Jupiter system is said to provide "an optimum combination" of centralized com-

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new products

instrument." The instrument functions as a pulse generator, providing the optical signals necessary for testing fiber-optic cables, receivers, repeaters or complete systems. Until now, we are told, fiber-optic test instrumentation has consisted mainly of devices for measuring optical power. Optical sources, when available, provided dc outputs and were useful only for measuring cable attenuation. But the Fotec S, the manufacturer explains, "is the fiber-optic equivalent of a pulse generator." It can test functions of all active and passive components used in fiber-optic transmission systems.

When combined with an instrument for measuring system power, the Fotec S is said to provide complete test capability for any fiber-optic communication system. It provides a fast-risetime, pulse-train output optical signal, with variable frequency and amplitude. Frequency is adjustable from 5 to 100 kHz (square wave). Pulse frequency and width can also be controlled by an external pulse generator. The user can select from standard LED sources of wavelengths 700, 820, 880 and 940 nanometers. The Fotec S sells for \$295. *Fotec, PO Box 246, Boston, Mass. 02129*

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Fast data logger

LeCroy's model 8212A/n is a multi-input, 12-bit analog-to-digital converter, intended for use with LeCroy's 8800 series of 32-K word memory modules in low-frequency monitoring applications. The 8212A/n is an improved version of model 8212. We are told that improvements in components and design have brought channel gain accuracy up to $\pm 0.1\%$, "unprecedented in a 100-kHz logger." This ultra-fast data logger is claimed to be suitable for logging fast thermocouple and strain-gauge readings on tokamaks and other fusion devices.

The 8212A/n can be purchased with $n = 4, 8, 16$, or 32 , referring to the number of input channels the data logger can sample simultaneously. Furthermore, the number of active inputs is programmable. If fewer inputs are used, available memory storage per channel is increased, as is the maximum achievable sampling rate. This permits flexible reorganization of sampling and storage parameters to meet special data-logging situations.

The logger can be used in either of two modes. The "sweep-and-log" mode continually samples all channels simultaneously. Analog signals put out from the track and holds are converted sequentially. A complete scan of 32 inputs takes 176 microseconds. Digitiz-

ing is governed either by the internal clock or an external clock input. The data are stored sequentially in as many as 16 32-K-word memory modules. Each memory segment is assigned the programmed number of active channels. In this mode, memory is continually overwritten, retaining only the most recent conversions. The "single-scan" mode allows one sample in each



active input to be acquired under direct computer supervision, for real-time control applications. *LeCroy Research Systems of California, 1806 Embarcadero Rd., Palo Alto, Calif. 94303*

Circle number 143 on Reader Service Card

Array processor

The MSP-3000 from Computer Design and Applications is a floating-point array processor compatible with the full line of DEC minicomputers. The manufacturer stresses the modest cost of the MSP-3000—starting at \$19 500 for the board set. An array processor greatly enhances the arithmetic speed of a minicomputer, especially when the input is in the form of large arrays and processing consists mainly of extensive iterations. The host computer to which one attaches the MSP-3000 as a peripheral device controls program flow, shares the computational workload, allocates memory and controls system input and output. The combination, CDA tells us, offers an economical alternative to a large mainframe computer.

The MSP-3000 uses DEC's 32-bit floating-point data format. Constructed on six circuit boards and designed around an integral minicomputer and large dual-ported memory (64K to 2 megabytes), it typically computes a complex multiplication in 1.6 microseconds, or a 1024-point, real, fast Fourier transform in 7 milliseconds. The on-board 32-bit minicomputer handles both array and scalar operations without interruption. The memory's dual-port design and the processor's DMA

interface are said to minimize unibus loading and transfer times between the MSP-3000 and the host computer. *Computer Design and Applications*, 377 Elliot Street, Newton, Mass. 02164
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Gaussmeter

Walker's model MG-4D is a self-contained, hand-held, Hall-effect gaussmeter for measuring dc and ac (rms) magnetic fields. It measures field intensities from ± 1 gauss to ± 19.99 kilogauss, with true rms readings in the frequency range 5 Hz to 20 kHz. With two full-scale bipolar ranges of ± 1 and ± 10 kG of 100% overrange and 0.05% resolution, the MG-4D shows measured values on a $3\frac{1}{2}$ -digit, $\pm 0.05\%$ bipolar LCD display.

This portable instrument is compact, measuring only $1.3 \times 3.6 \times 6.1$ inches—less probe. The battery powered MG-4D can be furnished with a wide selection of precalibrated, interchangeable transverse and axial Hall probes, some of which are capable of extending field readings to 150 kG. An automatic



charger/eliminator is optional. The price of the basic Walker MG-4D is \$500. *Walker Scientific*, Rockdale Street, Worcester, Mass. 01606
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Ionization gauge

The model IGC10 from Vacuum Generators, a British firm, is described as "a new low-cost ionization controller," intended for use in the pressure range from 10^{-3} to 10^{-9} millibars (10^{-1} to 10^{-7} pascals). The controller is designed for failsafe operation; it trips out automatically if the pressure rises above 5×10^{-3} mbar. Two preset controls allow filament degassing at either

15 or 30 watts, and a visual warning device indicates filament breakage or any other gauge malfunction. We are told that "the modern electronic design of the IGC10 combines reliability and robustness in a low profile unit for the research and industrial user."

The IGC10 is to be used with a new hot-cathode ionization gauge, the model VIG8. Its non-burnout thoriated iridium filament is said to assure long filament lifetime, especially when combined with the overpressure trip circuit of the IGC10 controller. We are told that the IGC10 controller and VIG8 are being offered as a special introductory package. *Vacuum Generators Ltd.*, Menzies Road, Hastings, Sussex, England TN34 1YQ

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Vacuum gauge

MKS describes its new Spinning-Rotor Friction Gauge (SRG-1) as "the first new concept in pressure measurement and vacuum-gauge calibration in over twelve years." The instrument is intended for measuring medium and high-vacuum pressures down to 10^{-6} pascals (10^{-7} Torr). The gauge works by detecting the amount of molecular drag on a rotating steel ball magnetically levitated in the vacuum being measured. We are told that the new MKS gauge is the first commercially available device to use this technique.

One measures the rotational deceleration of the ball to determine the pressure. The system has two components, a gauge head (mounted on a standard CF-35 Conflat flange) and an electronics unit, incorporating a microprocessor that converts a frequency signal to pressure, producing a digital display and hard copy. The instrument includes a keyboard for entering a calibration factor, pressure offset, sampling period and other parameters. The linear operating range is said to extend from 1 to 10^{-5} pascals for nitrogen, with a 24-hour repeatability of 1% at 10^{-3} Pa. The SRG-1 is claimed to be more accurate and easier to use than the volumetric-expansion techniques it is designed to replace. *MKS*, 34 Third Avenue, Burlington, Mass. 01803.

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New literature

Ultra-high vacuum—A new wall chart entitled *Materials for clean and ultra-high-vacuum applications* can be had from Vacuum Generators. The chart gives detailed information on the properties of such materials, and information about viewports, uhv flanges and feedthroughs. *Vacuum Generators Ltd.*, Menzies Road, Hastings, Sussex, England TN34 1YQ □

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