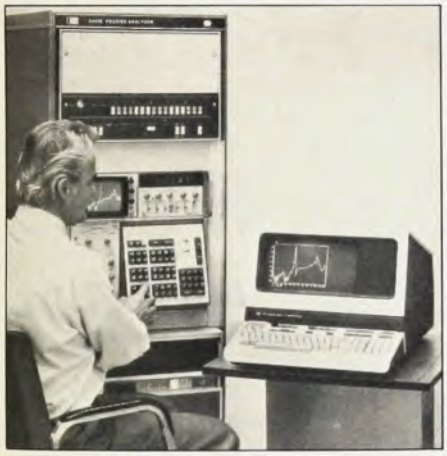
new products

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.

Fourier analyzer

The model 5451C analyzer, with 48k word processor and a dual disk memory, provides digital time and frequency domain analysis of signals up to 50 kHz. Included in the system are a model 2648A graphics terminal and a 7900A disk memory for additional program and data storage. Dual channel simultaneous operation is provided for input signals from dc to 50 kHz, and the



analyzer is expandable to 4-channel simultaneous operation. Space is provided in the processor for storing 16k words of data; software is provided on 5 disk packs. Dynamic range is greater than 75 dB. Included as standard is band selectable Fourier analysis for high-resolution analysis of narrow band spectrum centered about any desired frequency. Standard measurements include linear Fourier transform correlation, power spectrum, convolution, transfer function and coherence function, histogramming, and time record averaging. Measurement programs can be created by the user from a keyboard and run automatically. Transfer function and power spectrum measurement routines, with question and answer type format and automatic plotting, are preprogrammed. Options include application packages for modal analysis of elastic structures and for signature analysis of rotating machinery.—*Hewlett-Packard Company, 1507 Page Mill Rd., Palo Alto, CA 94304.*

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Dye laser

Coherent CR-590 series dye lasers have yielded cw output from 400 nm to 1.015 μm. These results were made possible by two new cw laser dyes, Stilbene 3 and IR 140, and by the design of the CR-590 series with both a low-loss birefringent filter as the tuning element and variable cavity geometry to optimize gain. A complete set of optics is available for this operating range. Greater than 50 mW should be obtainable from 420 to greater than 980 nm with a single ion/dye laser system.—*Coherent, 3210 Porter Dr., Palo Alto, CA 94304.*

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Radiometer

The model LEM-1 laser energy monitor is capable of measuring average power output of repetitively pulsed lasers operating in the 500–1100 nm range, and can be used as a diagnostic tool to align systems dynamically. It is capable of measuring peak power and energy per pulse with accuracy ±7.5%. The radiometer has been specifically designed for measurement of the 1064-nm output of Q-switched, neodymium doped, yttrium aluminum garnet lasers and neodymium doped glass lasers operating at pulse rates up to more than 30/s. System calibration is performed at the factory for the fundamental wavelength 1064 nm as

well as for its second harmonic at 532 nm. The instrument consists of a measuring unit, detector head, and support stand. The measuring unit contains the power supply and an energy-power meter. The detector head contains a thermally controlled PIN photodiode, a 2-in.-diam opal glass energy input window, electronic circuitry for amplification and control, and two-scale modifying filters and their control mechanism.—*International Laser Systems, Inc., 3404 N. Orange Blossom Trail, Orlando, FL 32804.*

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Radiation detectors

The latest configuration in a line of semiconductor radiation detectors is the new Model 7900 Si(Li) x-ray detector, designed for electron microscope applications. While each detector is tailored to an individual electron microscope, certain features are common to all: resolution of 149 eV FWHM at the 5.89-keV energy-measurement level, when excited with an ^{55}Fe isotopic source at 1000 counts per second; peak-to-background ratio of 1500:1, with background measured at 1.0 keV; 12.5-mm² active area detector with 3-mm depletion depth, in a 13-mm-diam cryostat which is convenient for optimum positioning within the electron-beam columns of compact microscopes; an external collimator which eliminates second-order fluorescence and reduces high-energy scattering effects; a bottom-feed Dewar (7.5 l or larger) designed to save space around the microscope; a telescoping interface which allows a maximum detector movement of 100 mm and permits external adjustment of detector-to-specimen distance, x-ray take-off angle, and count rate; and a dynamic-charge-restoring FET preamplifier which eliminates preamplifier dead-time caused by optical pulsing.—*Mat'ls. Analysis Div., EG&G/ORTEC, 100 Midland Rd., Oak Ridge, TN 37830.*

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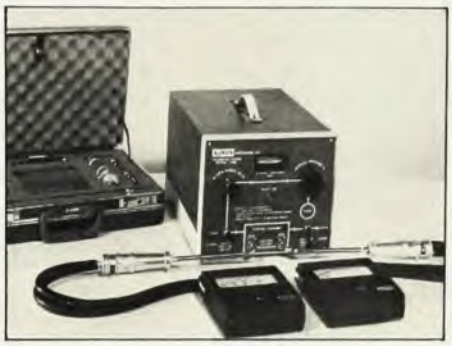
Velocity meter tester

The model 5888 tester for calibration of the manufacturer's air velocity measuring instruments consists of a model 5899 portable precision pressure source and a model 5855 standards kit. The standards kit contains an air velocity meter that has been standardized at the factory and a calibrated set of range selectors and probes that duplicate those of the manufacturer's 6000P series velocity meters. The standard meter and the unit undergoing test are operated in parallel using the controlled pressure source which simulates air flow. An indicator on the front panel is used to detect leaks in the system and the operator can determine whether the leaks are caused by improperly sealed connections or by equipment failure. Features include traceability to NBS and system accuracy



±2% of full scale.—*Alnor Instrument Company, 7301 N. Caldwell Avenue, Miles, IL 60648.*

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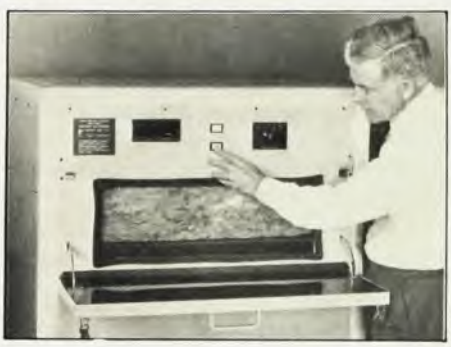
Thermal conductivity tester

The R-Matic is a thermal conductivity measuring system that permits testing of a variety of low density insulation samples measuring up to 24 × 24 × 8 in. The thickness accommodation elim-



inates the need to split thick samples and to extrapolate results. Measurements are completed in from 30 min to 1 h; the instrument can operate unattended. Accuracy is stated to be ±2% and repeatability ±1%. The instrument incorporates an integrating heat flow transducer. All measurements are made a 75°F mean temperature. Readings provided by the instrument are used to calculate R-value of the insulation.—*Dynatech Corporation, 99 Erie St., Cambridge, MA 02139.*

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Position sensor

The SC 10 sensor, a light detection device, is capable of providing *X*- and *Y*-axis position information to within one millionth of an inch. It senses the centroid of a light spot and provides an analog input which is proportional to the location of the spot anywhere on the device from center or null point to the limits of the active area. The device is optimized for spectral response from 350 to 1150 nm. Active area of the detector is 1.0 cm.—*United Detector Technology, Inc., 2644 30th St., Santa Monica, CA 90405.*

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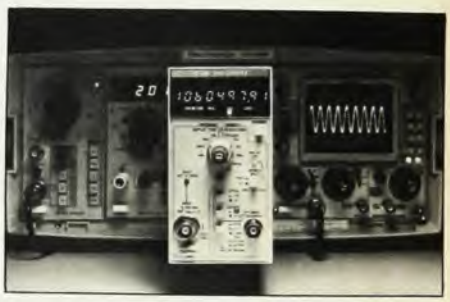
Counter

The DC 508 1-GHz counter is aimed at applications in the 806-947 MHz two-way communication band. A direct input connection is provided for frequencies from 10 Hz to 100 MHz, and a prescalar input covers 75 MHz to 1 GHz. Sensitivity is 20 mV rms. Decimal point is automatically positioned and range is indicated in Hz or MHz. A 100



times resolution multiplier is provided for audio frequency signals making possible measurements with 10-mHz resolution in one second measurement time. Other features include automatic gain control and wideband limiting on the prescaler input, resulting in a dynamic range 20 mV to 2 V rms; nine digit readout; a choice of a standard ±5 ppm temperature drift time base, 0° to 50°C, or an optional ±0.2 ppm oven controlled time base; and an option that provides interface to sweep generators and spectrum analyzers.—*Tektronix, Inc., Box 500, Beaverton, OR 97077.*

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NMR spectrometer

The CXP 200 nuclear magnetic resonance spectrometer incorporates a computer controlled programmer that provides flexibility to perform foreground-background operations in multitask projects in both liquid and solid NMR studies. Pulse powers, 1 kW nominal, and low receiver recovery times enable observation of signals from materials with very low spin–spin and spin–lattice relaxation times. Third generation electronics accomplish rf phase shifting and switching. Frequency range is 10–100 + 200 MHz. The superconducting magnet Dewar reduces helium consumption so

that operating costs are said to be less than for conventional magnets. Sample tubes up to 30 mm diameter are accommodated. Accessories are included for high power double resonance experiments and magic-angle spinning. —*Bruker Instruments, Inc., Manning Park, Billerica, MA 01821.*

Circle No. 148 on Reader Service Card

Data acquisition and control

Designed to provide real-time computation in multiple process and control loops, COMPUDAS incorporates a microcomputer, analog and digital *I/O*, and integrated software in a single chassis. The system accepts analog and digital inputs; performs real time computations; outputs in analog and digital; displays, prints and accepts commands from the front panel—all under control of a "basic" language, easily programmed by the operator. A PROM-resident DABIL language (similar to BASIC) allows users familiar with BASIC to manipulate data and add engineering units for display or output to magnetic storage devices.—*Signal Laboratories, Subsidiary of Ithaca, 202 N. State College Boulevard, Orange, CA. 92668.*

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New Literature

Plasma spectroscopy—A new quarterly publication, the Jarrell-Ash Plasma Newsletter, offers applications and technical information for users and potential users of the inductively coupled argon plasma spectrometer. The first issue includes application notes on methods contributed by users and technical aid notes for day to day operation.—*Fisher Scientific Co., 711 Forbes Ave., Pittsburgh, PA 15219.*

Temperature indicators—An 8-pp. catalog gives details on temperature indicators, protective coatings, and industrial markers. The temperature indicators include crayons, paints, pellets, inks and labels. Protective coatings include: rust preventive, heat sink compound, and high temperature coatings.—*Tempil Div., Big Three Industries, Inc., Hamilton Blvd., South Plainfield, NJ 07080.*

Time interval—Three application notes, A191-1, A191-2, and A-191-3, discuss, respectively, the techniques used to calibrate time at an external remote location, the determination of operating limits of complex logic circuits, and the use of precise time interval measurements in radar applications.—*Hewlett-Packard, 1501 Page Mill Rd., Palo Alto, CA 94304.* □