

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.

Computer-based 200 Megahertz Oscilloscopes

PC Instruments has introduced two oscilloscope cards that convert an IBM PC into an oscilloscope. Each card in the PCI 420 and 430 series occupies one PC/AT expansion slot and provides 200 MHz bandwidth, time base settings from 500 picoseconds to 200 milliseconds per division, an automatic trigger level algorithm and a 200 gigasample per second equivalent sampling rate.

The basic system includes a software package that enables the user to view and print the waveform, translate the waveform into an ASCII list or spreadsheet format and control the oscilloscope card from DOS and Windows applications via a dynamic link library. An optional software package provides a "point and click" graphics interface and the ability to store and recall waveforms and test setups.

PC Instruments, 9262 Ravenna Road, Building B11, Twinsburg, Ohio, 44087

Circle number 180 on Reader Service Card

Fast Area Detector for Analytical X-Ray Instrumentation

Siemens Industrial Automation has introduced a new area detector with a two-dimensional imaging device that uses a fiber-optic-coupled charge-coupled device. The manufacturer claims that for the x-rays used in measurements of inorganic, organic and organometallic compounds, the new system combines high spatial resolution, sensitivity and conversion efficiency with fast data collection and readout. This allows the

user to collect and read out data at a rate of about ten seconds per frame. We are told the resulting data compares favorably with that from traditional single-crystal diffractometers, making possible an unambiguous determination of the three-dimensional structure of organic and inorganic crystals within hours (rather than days) per crystal.

Siemens Industrial Automation, c/o CMD, 2684 Peachtree Square, Atlanta, Georgia 30360

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Broad-Band Spectrographs

Now Optics AB of Sweden has released a new series of optical spectrographs, the multichannel echelle spectrographs. These spectrographs have an optical mounting with an echelle grating and use infrared-and-visible-light-sensitive charge-coupled devices to record a large-wavelength range in a single exposure. Sensitivity in the ultraviolet is achieved by covering the UV CCDs with a coating that turns UV light into visible light. The MES 5000 records the spectral range from 380 to 1050 nm in 5000 channels. The spectral range from 180 to 1050 nm is recorded in 15 000 channels by the MES 15000 and in 30 000 channels by the MES 30000. Among the applications suggested by the manufacturer are observations of sparks and of laser-generated plasmas.

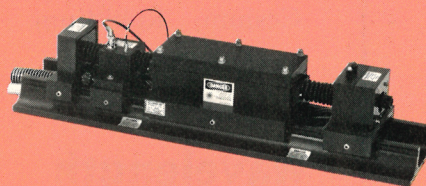
Now Optics AB, Isaffjordsgatan 11, S-164 40 Kista, Sweden

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Ultrahigh Sensitivity Gaussmeter/Hall Probes

Lake Shore Cryotronics has made available its Gamma series of ultra-

"User Friendly" Nd:YAG Laser



CW and Q-Switched

■ TEM₀₀-Mode Lasers

- 5 models 3-18 Watts
- Active Stabilization
- Q-Switch Option
- Applications

Resistor Trimming
Scribing/Cutting
Spectroscopy
Mode-Locking

■ Multimode Lasers

- Models 25W-1.8 kW
- Q-Switching up to 200 W
- Applications

Marking / Engraving
Soldering / TAB
Welding

■ Features

- Computer Interface
- OEM Configurations
- Optical Accessories

Fiber Optics
Beam Expanders
Focusing Optics

LEE LASER

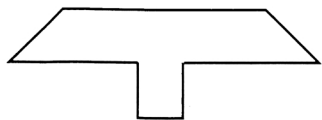
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Vapor Cells

Argon Lithium
Cesium Rubidium
Iodine Sodium
Krypton Xenon

Wavelength



References Iodine cells

Low frequency shifts
Brewster windows

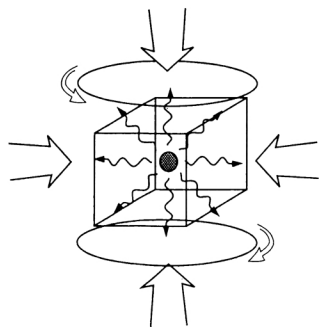
Rubidium Cells

Single Isotope
99.8 percent pure
Brewster windows

Optical Atom Trap Cells

Rubidium or Cesium

10^{-8} torr base pressure
Bakeable
includes vacuum pump



Environmental Optical Sensors Inc.

6395 Gunpark Drive,
Unit K
Boulder, CO 80301
Phone (303) 530-7785
Fax (303) 530-7794

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high-sensitivity gaussmeter/Hall probes for use with its 400 series gaussmeters. The probes are available in two models, each with an active sensing length of 79.4 mm. The MLA-5009-HJ has a rigid body that is 229 mm long, while the MLA-5006-HJ measures 144.8 mm. Either can be used for magnetic measurements on the 30 microtesla, 300 microtesla and 3 tesla full-scale ranges. The probes can be operated between 0°C and 75°C , and they provide resolutions better than 20 nanotesla. According to Lake Shore, the probes are suitable for measuring small variations in or small values of large-volume magnetic fields, such as those of the Earth or the fringe fields around large solenoids.

Lake Shore Cryotronics, 64 East Walnut Street, Westerville, Ohio 43081-2399

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Low-Power, Portable ESR/EPR Spectrometer

Micro-Now Instruments has introduced the Model 8400, an electron-spin-resonance and electron-paramagnetic resonance spectrometer. Its compact electromagnet, low power consumption and ability to run without water lines make the 8400, according to Micro-Now, suitable for transportable applications such as dosimetry as well as superconductor studies and detection of free-radical intermediaries in semiconductors. The system features automatic tuning of its balanced bridge and field parameters, and it includes software for mathematical modeling and manipulation of data.

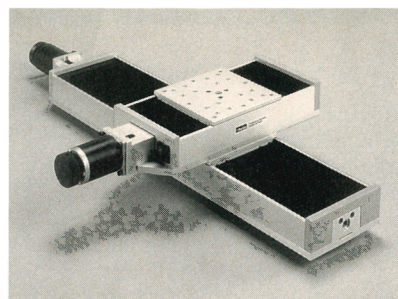
Micro-Now Instruments, 8260 North Elmwood Street, P.O. 1488, Skokie, Illinois 60076

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Positioning Tables with Minimal Vibration

The Daedal division of Parker Hannifin has introduced the 406000LN series of positioning tables, designed to provide high-precision motion with minimal vibration. A linear motion-guide bearing system and high-performance, 0.2-inch lead ball screw provide constant-support geometry for smooth motion at high load or high acceleration.

The 406000LN tables offer 4 to 24



inches of travel in 2-inch increments, a load capacity up to 600 pounds, side load capacity to 320 pounds and a lifetime of 100 million inches of travel. Repeatability is specified to ± 0.000050 inches, position accuracy to 0.08% and straight-line accuracy to 0.0004%. Options available for this system include step and servo motors, encoders and z-axis brackets. Suggested applications include semiconductor fabrication and surface interferometry.

Parker Hannifin, Daedal Division, P.O. Box 500, Harrison City, Pennsylvania 15636-0500

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6.5 K Two-Stage Laboratory Refrigerator

APD Cryogenics has introduced the CSW-202-6.5 and the CSW-204SL-6.5, two laboratory refrigerator systems for experimentation in the temperature range from 6.5 to 350 Kelvin. Both models use high-thermal-capacity second stage regenerator materials and an improved thermodynamic design to achieve a lower minimum temperature in a two-stage, Gifford-McMahon refrigerator. The systems' simple pneumatic drive has only two moving parts, allowing for easy field maintenance. The hermetic compressor component is designed for helium service for maximum reliability. Suggested applications include spectroscopy, material characterization, radio astronomy and matrix isolation.

APD Cryogenics, 1833 Vultee Street, Allentown, Pennsylvania 18103-4783

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125-kV End Window Microfocus X-Ray Tube

KeveX X-Ray has produced a new microfocus 125-kV x-ray tube, the KM12506E-A, capable of producing

NEW PRODUCTS



Integrated Photon-Counting System

Research Support Instruments has developed an integrated photon counting system, the Series 200. The system comprises a 0–4 kV high-voltage power supply; a variable-threshold, 10-MHz pulse amplifier discriminator; photon-counting electronics; 1–99 millisecond count interval timing; 15–30 kilobyte data memory and microprocessor control—all in a 1.3-pound, flight-qualified package.

When connected to an external photomultiplier tube, the system reads data into the host computer via a serial data link. A software system compatible with the user's computer is included in the base system.

*Research Support Instruments,
318 Clubhouse Lane, Hunt Valley,
Maryland 21031*

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a 10-micron spot size with 10 watts of power or, for applications requiring a higher x-ray flux, a 45 micron spot size with 62.5 watts. The x-ray source can be placed within 1 inch of any size object for generating direct x-ray magnified images of small components. The vacuum envelope of the tube is hermetically sealed in a steel cylinder so that operation is maintenance free throughout its working life. Cooling is by air conduction at 10 watts or forced air at 62.5 watts. A compatible high-voltage generator-controller is available from the manufacturer.

*KeveX X-Ray, 320 El Pueblo Road,
Scotts Valley, California 95066*

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Bench-Top, Delayed-Sweep Oscilloscope

Hewlett-Packard has introduced the HP 54610A, a bench-top, delayed-sweep, 500-MHz vertical bandwidth oscilloscope priced at \$4995. The 2-channel oscilloscope has viewable external trigger and digital features such as pretrigger viewing, waveform storage and measurement automation. The manufacturer claims the scope's 1 ns per division sweep speed is fast enough to display the fast edges of emitter-coupled logic circuits and that the system is accurate to 0.01 % of full scale. The 54610A can be upgraded to have the following capabilities: remote control, hard-copy output, test automation, unattended signal monitoring, and fast Fourier transform.

*Hewlett-Packard, 3000 Hanover
Street, Palo Alto, California 94304*

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Portable, 4-channel Recorder with Multiple Signal Windows

Gould Electronics has introduced the Windograf, a portable recorder with up to 20 megabytes of nonvolatile memory. The manufacturer claims that up to 2.5 megasamples per channel can be captured at rates up to 10 kilosamples per second per channel. The system features an integral four-channel, thermal-array recorder, which operates independently of the system's seven-inch real-time monitor and signal storage so that hard copy is generated only as needed. The system weighs 30 pounds and measures 12"×17"×12".

*Gould Test & Measurement Group,
8333 Rockside Road, Valley View,
Ohio 44125*

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New Literature

Artifacts in SPM—Topometrix has published a 20-page technical report on image artifacts in scanning probe microscopy. The intent of the report is to increase understanding of the sources and interpretation of these artifacts so that SPM data can be interpreted and used with confidence.

*Topometrix, 5403 Betsy Ross
Drive, Santa Clara, California
95054-1162*

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*What makes a curve
ball curve?*

THE PHYSICS OF SPORTS

Edited by Angelo Armenti, Jr.,
Villanova University

Applying fundamental laws of physics, this armchair volume puts to rest a number of popular sports-related misconceptions and accounts for phenomena that, for many, have been a source of wonder since childhood. Why does a golf ball have dimples? How can a sailboat travel almost directly into the wind? The answers are eye-opening—for professionals, students, and teachers in the fields of both physics and sports. *An AIP Book*

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