

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.

High-vacuum uv deuterium lamp

The new Hamamatsu L1835 water-cooled deuterium lamp, we are told, provides three to four times greater output energy than previous models. Its spectral distribution spans 115 to



400 nm, peaking in the 155-170 nm high-vacuum uv region. A special vacuum flange is available as an option. *Hamamatsu, 420 South Avenue, Middlesex, New Jersey 08846*

Circle number 140 on Reader Service Card

Photon counter for low light levels

McPherson has introduced its model 7701 photon counting system. Designed to help photomultiplier tube users cope with the low light levels of luminescence, photoemission and the like, the system consists of a remote amplifier-discriminator, digital display unit and a ten-foot interconnecting cable. The 7701 display unit has an eight-digit LED display, TTL and analog outputs, and it can be interfaced to an external host for automated control and data reduction by way of an external parallel port. Compatible with available side-on and end-on photomultiplier tubes, the system offers an op-

tional stepper-scan controller for monochromators and spectrometers. *McPherson Division of Schoeffel International, 530 Main Street, Acton, Massachusetts 01720*

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Fiber-optic emitters and detectors

A high-output LED emitter with matching high-sensitivity photodiode detector for transmitting fiber-optic data over distances on the order of a mile is being introduced by Amperex. The Amperex CQF24 LED emitter is a single-heterojunction GaAlAs device that emits typically at 830 nm peak wavelengths, produces up to 400 microwatts of radiant power when coupled into a 200 micron core-diameter optical fiber and switches typically in 10 nsec at 100 mA I_F . Signals are received by the BPF24 photodiode detector, a silicon p-i-n device with a sensitivity of 0.4 milliamps per milliwatt.

Optimized for coupling into 200 micron fibers via a built-in microlens system, the emitter and detector can also be used with 50- or 100-micron fibers. Hermetically sealed in TO-46 packages, they can fit into SMA-style TO-18 or TO-46 type active connectors. The CQF24 LED emitter is priced from \$8.60. The BPF24 photodiode 2 detector is priced from \$7.30. *Amperex Electronic Corporation, Providence Pike, Slatersville, Rhode Island 02876*

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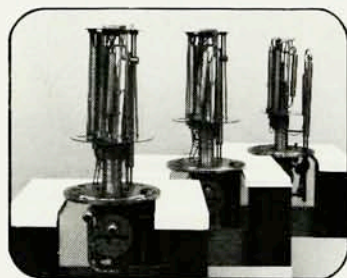
Spectral analyzer for fiber optics

Photodyne's model 1100XM, a high-resolution monochromator, is designed specifically for fiber optics. This new instrument is said to be particularly useful in wavelength-division multiplexing applications. Typical capabili-

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CHARGE SENSITIVE PREAMPLIFIERS

NEW
PRODUCT



FEATURING

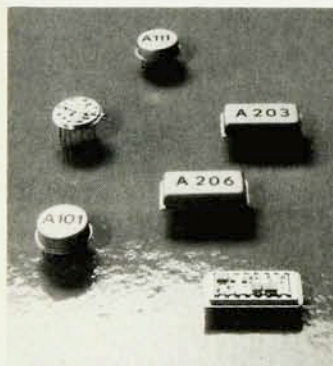
- Thin film hybrid technology
- Small size (TO-8, DIP)
- Low power (5-18 milliwatts)
- Low noise
- Single supply voltage
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- MIL-STD-883/B
- One year warranty

APPLICATIONS

- Aerospace
- Portable instrumentation
- Mass spectrometers
- Particle detection
- Imaging
- Research experiments
- Medical and nuclear electronics
- Electro-optical systems

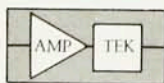
ULTRA LOW NOISE < 280 electrons r.m.s.!

Model A-225 Charge Sensitive Preamplifier and Shaping Amplifier is an FET input preamp designed for high resolution systems employing solid state detectors, proportional counters etc. It represents the state of the art in our industry!



Models A-101 and A-111 are Charge Sensitive Preamplifier-Discriminators developed especially for instrumentation employing photomultiplier tubes, channel electron multipliers (CEM), microchannel plates (MCP), channel electron multiplier arrays (CEMA) and other charge producing detectors in the pulse counting mode.

Models A-203 and A-206 are a Charge Sensitive Preamplifier/Shaping Amplifier and a matching Voltage Amplifier/Low Level Discriminator developed especially for instrumentation employing solid state detectors, proportional counters, photomultipliers or any charge producing detectors in the pulse height analysis or pulse counting mode of operation.



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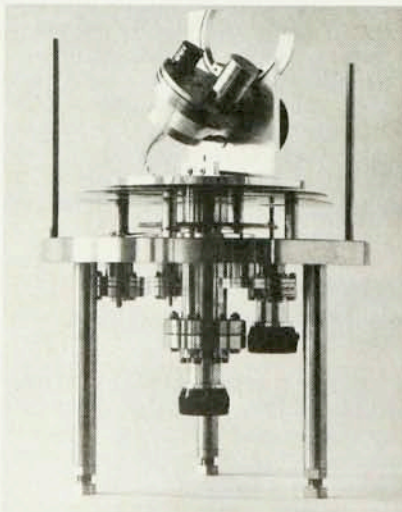
ties include determining peak wavelength and spectral profile of LED and laser-diode sources, spectral transmission characteristics of optical fibers, responsivity of p-i-n diodes, acceptance testing of double window fibers and the like.

In use, the model 1100XM isolates and selects wavelengths between input and output optical ports. The input and output can both be fiber cables or other optical assemblies. The input and output fiber cable assemblies are removable and replaceable with other parts. All Photodyne sensor heads thread directly into the output port when the output fiber optic cable assembly is removed. An optical assembly mounts into the input port for use in measuring sources that do not have fiber pigtailed.

Wavelength selection is accomplished with a calibrated micrometer driver. The wavelength range is 600 nm to 1800 nm; thus both short wave and long wave fiber optic systems are accommodated. The micrometer dial readout is digital. Bandwidth is selectable from 4 nm to 25 nm. The price is \$1650. *Photodyne, 948 Tourmaline Drive, Newbury Park, California 91320*
Circle number 143 on Reader Service Card

Analyzer—goniometer for synchrotron beams

A combined hemispherical analyzer and uhv goniometer from Vacuum Science Workshop Ltd., a British firm, is designed especially for use with synchrotron beam lines for angular resolved ion and electron spectroscopy. The analyzer provides high resolution and sensitivity in a compact design small enough for easy mounting to a goniometer inside the analytical chamber. This permits the analyzer to be moved with 100° of freedom in the



vertical plane and 360° in the horizontal. The mounting is such that the input lens is vertically in line above the detector so that the input lens can be brought into close angular proximity with the incident beam; the bulk of the analyzer does not occlude the beam. Resolution is maintained over a wide range of energies by use of a multi-element retardation lens and matching electronics to scan the analyzer from 0 to 300 eV.

Applications include angular-resolved electron spectroscopy, ultraviolet photo-emission, Auger spectroscopy, electron-energy-loss spectroscopy and ion-scattering spectroscopy. Vacuum vessels are available complete with mu-metal lining and other accessories to form a complete beamline experimental station. Contact US distributor: *Microscience, PO Box 633, Cohasset, Mass. 02025*
Circle number 144 on Reader Service Card

One-meter grazing incidence spectrograph

Acton has introduced a new 1.0-meter grazing incidence spectrograph, the model GS-541. The instrument incorporates all its major components in the same vacuum chamber for maximum compactness, portability and ease of operation. The GS-541 is based on the Rowland circle mounting of a concave grating. It uses 35-mm film to photograph the spectral region from soft x-rays (10 Å, 1240 eV) to the ultraviolet (2600 Å, 4.77 eV). Performance is dependent on the choice of gratings, which are available with groove spacings from 133 g/mm to 3600 g/mm. Other options include angle of incidence from 82° to 88°, and the choice of single or multiple exposure film cassettes. The GS-541 is 19 inches long by 10 inches wide by 10 inches high and weighs approximately 60 lbs. *Acton Research, PO Box 215, Acton, Mass. 01720*
Circle number 145 on Reader Service Card

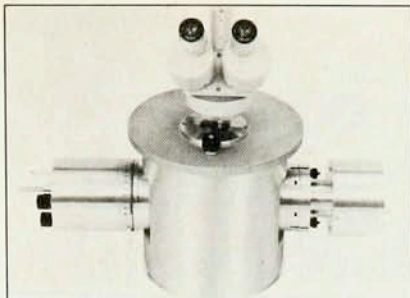
Multichannel analyzer with color terminal

Nuclear Data announces a new multichannel analyzer with a color display terminal. The ND76, an enhanced version of the firm's well-known ND66 MCA, offers the new Octachrome color display and an optional detached keyboard. User selection of any of 16 different color schemes for each ADC interface allows easy identification of experiments. New data reduction options and optional BASIC programming also make use of the color display to contrast isotope types and other spectral features. A split-screen display

allows convenient viewing and comparison of spectral data and analysis results.

A new firmware automatic peak-search function includes doublet resolution. Unlike other firmware-based systems, we are told, the ND76 reports doublets that can be resolved as two peaks. It also reports doublets and multiplets that cannot be resolved, to indicate where further computer processing of the spectral data is required. The ND76 offers large data-storage group sizes of up to 16K channels for PHA and up to 32K channels for MCS or LIST. High speed error-detecting communications to ND6600/6700 systems, PDP-11, VAX and other computer systems is also available. *Nuclear Data, Instrumentation Division, Golf and Meacham Roads, Schaumburg, Illinois 60196*

Circle number 146 on Reader Service Card



Differentially pumped rotary feedthrough

Vacuum Generators has introduced the compact DPRF25 rotary feedthrough to satisfy the need for a device which allows full 360° rotation of ancillary feedthroughs in a true ultra-high-vacuum ($<10^{-10}$ torr) environment. The DPRF25 is bakeable to 200 °C, and both the system mounting flange and rotating flange are of the standard 2 3/4-inch (outer diameter) FC38 type. The through bore is 1-inch diameter, and a miniature 1.33-inch (outer diameter) FC919 cooper gasket flanged port is provided to pump the vacuum interspace. An adjustable calibration ring is provided with 1° divisions, and the rotating member is electrically insulated (to 3 kV) from the system mounting flange assembly.

A typical application would be for mounting a rotating liquid-helium cooled specimen mount to the firm's precision HPT-style x, y, z manipulator stages. The DPRF25 is marketed in the US by the Kurt J. Lesker Company, 5635 Horning Road, Pittsburg, Pennsylvania 15236.

Circle number 147 on Reader Service Card

Electron microscope sample preparation

Ion Tech Ltd. has introduced the model FAB 306A fast-atom-bombardment specimen milling module. This instrument is claimed to offer "an exciting breakthrough" in specimen preparation techniques for both transmission and scanning electron microscopy. As well as milling conventional materials such as metals, ceramics and glasses, the module enables more exotic materials to be thinned safely, thus extending

the process into the latest semiconductor, polymer and biological technologies. It can process such materials as gallium arsenide, silicon, oxides and sensitive biological specimens.

The trick, we are told, is the combination of improved wide-dynamic-range fast atom guns that produce beams from very low to high current density equivalents of neutral atoms and an efficient liquid-nitrogen cooled specimen stage. Both charge and radiation damage are thus greatly reduced, and a sensitive automatic terminator allows the milling process to be stopped instantly as desired. A wide-beam atom gun facility also enables large area SEM specimens to be surface etched, and it removes smears and debris caused by mechanical polishing or other preparation techniques. Important surface and sub-surface features are thus rendered visible, and misleading artifacts can be removed easily. *Ion Tech Ltd, 2 Park Street, Teddington, Middlesex TW11 0LT, England*

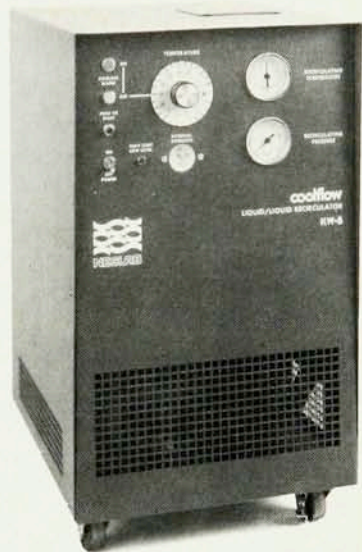
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New literature

Lock-in amplifier—A 16-page brochure from EG&G Princeton describes their computer-controlled model 5301 lock-in amplifier. It describes the technique of phase-sensitive detection and details the complete performance specifications of the system. Among the amplifier's capabilities are linear averaging, automatic phasing, ranging and tuning, internal curve storage, interchangeable preamps, and IEEE-488 and RS-232 standard interfaces. *EG&G Princeton Applied Research, PO Box 2562, Princeton, New Jersey 08540*

Gases—MG Scientific Gases offers a comprehensive catalog entitled *Specialty Gases and Equipment for Electronics, Lasers and Fiber Optics*. It outlines and details more than 64 gases applicable to lasers, excimers, fiber optics, semiconductors, ion implanting, plasma etching and electronic gas mixtures. Also included are descriptions of their extensive line of regulators, valves, flow-meters and purifiers. *MG Scientific Gases, 175 Meister Avenue, North Branch, New Jersey 08876* □

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