

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.

High voltage meter

Accurate measurement of high voltages with minimum current requirements are the primary facilities offered by the new Zi-Tech model 139D ultra-high-impedance digital high-voltage meter. This compact, portable unit has an input impedance of greater than 30 000 megohms. It has two switchable full-scale ranges of 20 kV and 40 kV. Current drain on the highest range is said to be less than 2 microamps. The liquid-crystal display has 3½ digits. The accuracy of reading is better than 0.25% at 20kV, and the meter will accept both positive or negative inputs. The instrument includes a precision 10 mV/kV recorder output.

The 139D is designed to operate under a wide range of environmental



conditions. It is battery powered. Modern solid-state techniques are used, and the circuitry is fully protected against transients and flashover. This unit is said to be particularly useful for accurate direct-reading measurements of dc line voltages, particularly where the currents involved are small, and minimum disturbance is desired. Applications include uses involving x-ray and photomultiplier supplies. The 139D is priced at \$795. Zi-Tech Division of Aikenwood Corp., Box 11456, Palo Alto, Calif. 94306

Circle number 140 on Reader Service Card

Neutron bottle

Oxford Instruments announces that it has delivered the world's first commer-

cially produced cryogenic neutron bottle to the Institute Laue-Langevin in Grenoble. The 3-meter-long stainless steel bottle can be filled with pure liquid helium and operated indefinitely at a temperature of 0.6 K.

Neutrons are cooled by the pure helium and are stored in the bottle as ultra-cold neutrons. The neutrons can be released through a mechanical valve operated at 0.6 K into the experimental chamber. One of the primary experiments to use this bottle will be a search for the electric dipole moment of the neutron with much greater sensitivity than previous searches. This high sensitivity is made possible by the large number of ultra-cold neutrons that can be stored and released into the experiment. Oxford Instruments, Osney Mead, Oxford OX2 0DX, England.

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Instrumentation interface

The IEC11 from DEC is an instrumentation bus interface. It can interface as many as 14 instruments to a PDP-11 or VAX computer, using an IEEE-488 bus. The IEC11 attaches to the computer's Unibus, enabling users to incorporate any of more than 800 devices in their system designs. The IEC11 enables researchers to interface their computer systems easily to laboratory instruments and control operations using high-level languages.

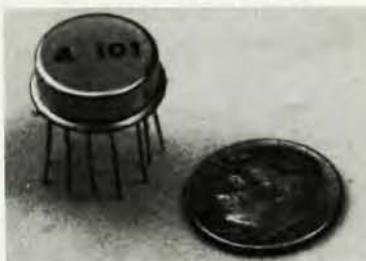
An option for direct-memory-access data transfers is available as a complement to the Unibus interface. Full software support packages for the RSX-11M, RSX-11M-PLUS, and VMS operating systems are available for the IEC11 boards. The IEC11 Unibus interface is priced at \$1950, with the matching option priced at \$2100. Digital Equipment Corporation, Maynard, Mass. 01754

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Infrared detector

The New England Research Center has introduced a standard photovoltaic

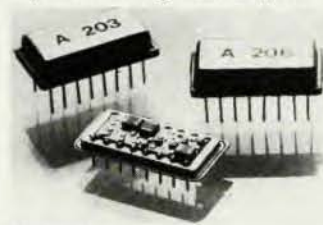
NEW PRODUCT CHARGE SENSITIVE PREAMPLIFIERS



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.



FEATURING

- Thin film hybrid technology
- Small size (TO-8, DIP)
- Low power (5-18 milliwatts)
- Low noise
- Single supply voltage
- 168 hours of burn-in time
- 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



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new products

mercury cadmium telluride infrared detector housed in a small cryostatally cooled dewar. This high-speed device is optimized for 10.6 micron operation, and it has a quantum efficiency above 50% at frequencies in excess of 100 MHz. The minimum D^* is 3×10^{10} cm $\text{Hz}^{1/2}/\text{W}$. This value is said to be maintained down to a frequency of 100 Hz. The active area is $(0.2 \text{ mm})^2$. The device is cooled with standard Joule-Thomson cryostat whose bore diameter



is 0.204 inches. Applications include CO_2 laser detection, heterodyne detection, pointing and tracking systems, laser designators and range finders, and beam-rider systems. It is claimed to be particularly useful in prototype development. The price is \$699. *New England Research Center Inc., Minute-man Drive, Longfellow Center, Sudbury, Mass. 01776*

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Crystallography computer

Molecular Structure Corporation offers an inexpensive laboratory computer system designed primarily for the solution and refinement of x-ray crystal structures. The Texray is said to be a versatile computer system with many potential applications other than crystallography. In addition to a complete crystallographic program library, software is included for hardcopy graphics, powder diffraction, mass spectroscopy, nmr and other laboratory uses. The software is interactive in nature, written predominantly in FORTRAN, with extensive documentation.

The system is powered by a PDP 11/23 processor, 256 Kbytes of memory and the new DEC FPF11 floating point. It utilizes FSX11M, a multi-user, multi-job operating system. Other system hardware includes a printer/plotter with color capabilities, VT100 video terminal, 4 serial RS232 ports, 31.2 Mbyte Winchester disk and a 1.0-Mbyte floppy disk. The Texray system,

including processor, devices, software, documentation and licenses is priced at less than \$35 000. *Molecular Structure Corporation, 3304 Longmire Drive, College Station, Texas 77840*

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Flux voltmeter

LDJ Electronics has introduced the model 702V flux voltmeter. The 702V is a precision instrument that measures the peak-to-peak flux change in a sense coil for periodic waveforms. It is said to be well suited for the measurement of saturation of induction (ac) and B-H curves. The flux voltmeter provides a dc output proportional to flux change as well as an ac output from the integrator. The ac output can be used to display the hysteresis loop of a material on an oscilloscope, provided that a signal proportional to the drive field is available.

The system comes with a precision auto-nulled integrator, positive and negative peak detectors, a differential amplifier, and a $3\frac{1}{2}$ digit LED display. *LDJ Engineering, P.O. Box 219, Troy, Michigan 48099*

Circle number 145 on Reader Service Card

Silicon avalanche photodiodes

RMD has introduced a new line of large-area, ultrathin silicon avalanche photodiodes with sizes up to 1" diameter. These devices, .025" thick, can replace photomultiplier tubes, typically 3" to 4" long, in a variety of applications with a large reduction in overall size. This is said to be particularly important for reducing shielding requirements when using a nuclear scintillation detector. Originally designed for use with NaI gamma-ray scintillation detectors, these photodiodes offer energy resolution of better than 9.5% for Cs-137 irradiation (662 keV). The solid-state design of the photodiode is claimed to make it non-microphonic and insensitive to magnetic fields. *Radiation Monitoring Devices, 44 Hunt Street, Watertown, Mass. 02172*

Circle number 146 on Reader Service Card

Trigger generator

The model TG8610 from LeCroy is a trigger generator designed to cover a wide range of input-signal conditions and to give the user the flexible but simple controls needed to define the conditions under which a trigger pulse is generated. The module provides the normal single-level, slope-sensitive (+ or -) triggering over selectable full-scale input ranges of $\pm 0.5 \text{ V}$ and $\pm 10 \text{ V}$. In addition, a slope-independent

mode ($\pm$) is included for increased flexibility. A "window" trigger is implemented by providing two trigger circuits, each with fully independent controls, whose outputs are added to produce the final trigger signal. By selecting suitable levels and slopes for each of the trigger circuits, windows of various kinds and of any size can be generated. The levels may be referred to external analog inputs. This permits, among other possibilities, time-varying trigger levels.

The input is bridged for convenient trigger pickoff. One may select either high-impedance or 50-ohm termination. Signal-coupling choices to the trigger stage are dc, ac, ac-lfr and ac-hfr. A 50/60-Hz notch filter can also be inserted to reduce sensitivity to line-frequency signals. The TG8610 provides for complete control of trigger setup from both the front panel and the computer. Trigger status may be read at any time by the computer or from LED displays. Three trigger outputs are available at the front panel, and the trigger can generate an interrupt to the computer.

The TG8610 is packaged as a CAMAC module and it is GPIB-compatible. The price is \$1500. *LeCroy Research Systems, 1806 Embarcadero Road, Palo Alto, California 94303*

Circle number 147 on Reader Service Card

Charged-particle detectors

The Comstock channel-plate charged-particle detector is described as a "versatile" electron or ion detector for use in atomic and molecular physics, photoelectron spectroscopy, surface analysis and related fields. Model CP-601 employs a single channel-plate detector, while model CP-602 employs dual channel plates for series gain. Both are complete units with channel plates mounted and wired with vacuum-compatible high-voltage resistors and capacitors that allow easy hookup. Only one voltage supply and two vacuum feedthrough connections are required: one for the high voltage and one for the output signal. Both units feature an off-center entrance aperture so that eventual loss of gain may be compensated by exposure of fresh channel-plate surface through a simple rotation of the channel plate inside its mount. CP-601 and CP-602 can be mounted to the exit of the Comstock AC-901 double-focusing energy analyzer.

Both units feature high gain (10^4 at 1000 V applied voltage for CP-601, 10^6 at 2000 V applied voltage for CP-602) and high saturation levels. They are suitable for detection of charged particles from pulsed laser experiments, and the well defined entrance distance is advantageous for time-of-flight mea-

surements. They retain gain after exposure to most gases, can be baked to 200 °C, and can be used in either particle counting or current mode. The CP-602 is recommended for particle counting. The CP-601 is priced at \$850, the CP-602 at \$1000. *Comstock, P.O. Box 199, Oak Ridge, Tennessee 37830*

Circle number 148 on Reader Service Card

Ion gauge controller

A new ion gauge controller designed for production vacuum processes has been introduced by MKS. This new model 290 is said to be especially well suited for production situations. The basic 290 provides digital display of pressure in a single continuous range from 10^{-8} to 10^{-3} Torr. Its charge-rate circuitry renders the unit virtually immune to effects of high rfi or emi fields. Analog and bcd outputs and two-process control setpoints are standard for interfacing with process controllers and microprocessors. For full external control,



the 290 accepts remote commands for filament on/off, degas, and gauge-tube select (on dual-filament gauges). Protection against gauge-tube shorts and overpressure (10^{-3} Torr) is standard on all models.

Options offered for the model 290 include dual gauge-tube selection, adjustable sensitivity and multi-filament selection. The unit can also be supplied with dual-filament selects for use with dual-filament gauge tubes. *MKS Instruments, 34 Third Avenue, Burlington, Mass. 01803*

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New literature

Cryogenic products offered by CVI are described in the firm's new 112-page catalog. The catalog includes photographs and technical information on cryogenic valves, off-the-shelf cryogenic systems, pumps, piping, liquid-helium storage containers and bayonets. It provides installation diagrams and engineering and performance data on heat leaks, flow rates and pressure ratings. *CVI, Cryogenic Products Dept., P.O. Box 2138, Columbus, Ohio 43216* □

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