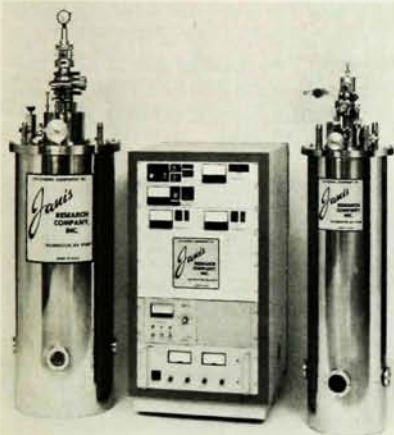


new products

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.

Cryogenic system for magneto-optical research

Janis Research has introduced a new set of standardized instruments for magneto-optical experiments between 1.5 and 300 K. Superconducting split solenoids are available that produce both horizontal and vertical fields of 5, 6 and 7 T; the optical access can be parallel or perpendicular to the field. The cryostats, which are equipped with top-loading sample mounts that can be



changed at any temperature, can produce temperatures between 4.2 and 300 K. One can obtain even lower temperatures by allowing helium vapor cooled to about 1.7 K to flow into the sample tube or by flooding the sample tube with liquid helium and reducing the pressure. Complete systems include power supplies, programming units and automatic controllers. Janis Research Company, 2 Jewel Drive, P.O. Box 696, Wilmington, Massachusetts 01887

Circle number 140 on Reader Service Card

Automation package for scanning electron microscopes

KeveX has introduced Sesame, a new automation package for scanning elec-

tron microscopes that integrates a large number of such a microscope's analytical functions. The system automates SEM stages, wavelength-dispersive spectrometry, unattended operation, standardless analysis and quantitative analysis of data provided by wavelength-dispersive and energy-dispersive spectrometers. Some of the automation capabilities included in the system are microstep precision to $1/32$ of a motor step, multi-tasking capabilities for two or more terminals, direct control of WDS detector bias, printouts of screen displays, real-time pulse-height analysis, and digital beam scanning and stage control.

The system contains a 16-32-bit Motorola 68000 microprocessor with a 12.5-MHz clock rate; a keyboard, a user-programmable joystick and a flat-screen electroluminescent graphics display are also included. KeveX, 1101 Chess Drive, Foster City, California 94404

Circle number 141 on Reader Service Card

High-precision quartz oscillator for reference frequencies

Frequency and Time Systems has introduced the FTS 1000 quartz oscillator for applications in telecommunications. Units with output frequencies between 4 and 18 MHz are available; oscillators producing 5 and 10 MHz are normally in stock for off-the-shelf delivery. We are told that the aging rates are below 1 part in 10^{10} per day. Features include linear voltage tuning and multiple, independently buffered outputs. Under normal operating conditions the mean time until failure is 900 000 hours.

A metal case ($7\frac{3}{8} \times 3 \times 3$ inches) houses the oscillator. Also available is an ac-powered instrument that can be rack mounted and that incorporates the FTS 1000 as a frequency source. Frequency and Time Systems, 34 Tozer Road, Beverly, Massachusetts 01915

Circle number 142 on Reader Service Card

CHARGE SENSITIVE PREAMPLIFIERS



FEATURING

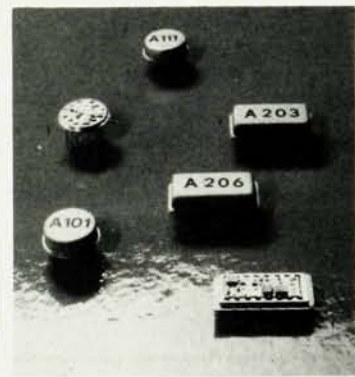
- Thin film hybrid technology
- Small size (TO-8, DIP)
- Low power (5-18 milliwatts)
- Low noise
- Single supply voltage
- 168 hours of burn-in time
- MIL-STD-883/B
- One year warranty

APPLICATIONS

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

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.



AMPTEK INC.

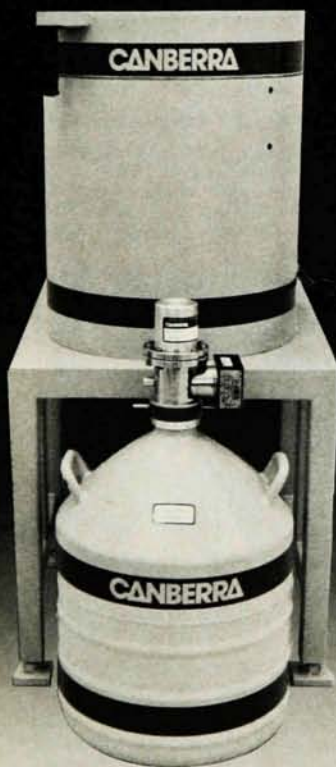
6 DE ANGELO DRIVE, BEDFORD, MA 01730
U.S.A. TEL: (617) 275-2242
With representatives around the world.

Circle number 28 on Reader Service Card

GAMMA SPECTROSCOPY

NOBODY DOES IT BETTER

You can buy the odd component of a Germanium Detector System just about anywhere. Putting together these components to achieve excellent results in gamma spectroscopy is another matter. Canberra Detectors, MCAs, NIMs, and yes — Lead Shields are designed and built for optimum performance in systems — after all, isn't that the way you use them? As the world's leading supplier of gamma analysis systems, we demand the best in system components — shouldn't you?



Circle number 29 on Reader Service Card

CANBERRA

Canberra Industries, Inc.
One State Street
Meriden, Connecticut 06450
(203) 238-2351
TX: 643251

new products

Optical sensor for distance measurements

Cyberoptics has introduced a non-contact dimension-measuring system, based on a laser, that can measure the distance from the sensor to the surface of a sample with a resolution of 0.2 micron. The system consists of a small laser-sensor head, a multiplexer and driver box, an interface card for the IBM PC family of computers and software. The three components are connected by detachable ribbon cables. One system can support up to 16 sensor heads with a single interface card. Several sensors with different ranges and resolutions are available. All sensor heads are packaged in $0.66 \times 2 \times 3.5$ -inch boxes.



For extremely difficult measurements one can display on the computer monitor the actual optical signal received by the two-dimensional detector array in the sensor head. This requires that an IBM color-graphics or equivalent adapter be used in the IBM computer. An override feature in the software allows the operator to adjust manually the exposure times and data-processing parameters and even to select windows within the detector array in order to reject erroneous data such as those produced by multiple reflections. *Cyberoptics, 2331 University Avenue SE, Minneapolis, Minnesota 55414*

Circle number 143 on Reader Service Card

Closed-cycle cooler providing 2.8-K helium bath

Quantum Technology has developed a small, self-contained cryocooler system for liquid-helium temperatures. The system, called Quantumcooler, uses only electricity; no supply of liquid hydrogen or helium is required. The cooler consists of a conventional two-stage Gifford-McMahon system with an additional Joule-Thomson third stage. The three heat stations produce cooling powers of 5, 0.5 and 0.25 W at

temperatures of 70, 15 and 4.2 K, respectively. One can obtain a continuous temperature of 2.8 K with a reduced heat load and maintain 2 K for three hours by pumping on the liquid bath.

One can cool instrumentation probes by inserting them in a dip tube. The dip tube is 2.44 cm in diameter and 73.1 cm long. The version of the Quantumcooler for use in radiotelescopes can operate in any orientation and is not equipped with a dip tube. *Quantum Technology, 6237-148 Street, Surrey, British Columbia, Canada V3S 3C3*
Circle number 144 on Reader Service Card

Optical-pulse and word generator

The OPG10 optical-pulse generator from Opto-Electronics is the optical equivalent of an electrical-pulse or square-wave generator. The instrument functions as an optical word generator or digital transmitter when it is modulated by an electrical word generator or by a digital input.

One can adjust the optical output power between 0.5 and 3 mW for a multi-mode connector, and between 0.2 and 1 mW for a single-mode connector at single wavelengths of 850, 1300 and 1550 nm. Two-wavelength models producing outputs at 850 and 1300 nm, 850 and 1550 nm, and 1300 and 1550 nm are also available.



The OPG10 operates in pulses or continuously. In the pulsed mode one can adjust the pulse width continuously from 5 nsec to 5 msec and the frequency from 10 Hz to 10 MHz. External frequency control from a single pulse to 10 MHz is also possible; it is this feature that allows the system to function as an optical digital transmitter. The rise and fall times of the optical pulses are 2 nsec and the pulses have flat tops. Of the two electrical trigger outputs one is coincident with the optical pulse and the other has a delay adjustable from 50 nsec to 5 msec. The unit is priced at \$7950. *Opto-Electronics, Unit 9, 2538 Speers Road, Oakville, Ontario L6L 5K9, Canada*
Circle number 145 on Reader Service Card

Optical inspection system with motorized zoom

Powerzoom, introduced by Lab-Pro, is a motorized uniaxial video zoom system. Used in conjunction with a 9-inch monitor, it produces images with magnifications ranging from $2.5\times$ to $420\times$. The working distance can range from 36 to 266 mm. The system consists of a motorized zoom adapter and the new Monozoom-7 optical system from Bausch & Lomb. Zooming speeds are variable and the system remains in focus throughout the entire one-to-seven zoom range.

The Powerzoom system fits all existing Bausch & Lomb Stereo Series stands. One can attach a large variety of color and monochrome cameras to the standardized C-mount. Lab-Pro, 855 Kifer Road, Sunnyvale, California 94086

Circle number 146 on Reader Service Card

Preamplifier for low-noise applications

The new Model JMH-4 high-gain preamplifier made available by Princeton Special Devices has a gain that can be set by front-panel controls to any value between unity and 50 000. One can select either 100 M Ω or 100 k Ω for the input impedance and amplify both ac and dc signals. Dual-signal inputs provide high common-mode rejection and can be used in either a true differential or a single-ended mode. A front-panel control allows one to set a low-pass filter at cutoff frequencies of 100 Hz, 1 kHz, 10 kHz, 100 kHz and 300 kHz. The unit is priced at \$1595. Princeton Special Devices, 781 Shady Lane, Trenton, New Jersey 08690

Circle number 147 on Reader Service Card

Resistance simulator for temperature detectors

General Resistance has introduced the RTD-100, a resistance temperature-detector simulator based on the Waidner-Wolf shunt-type decade. The simulator has an absolute accuracy of $\pm 0.01\%$ over its entire range of 10.000–1111.110 Ω . One can cover the entire range in steps of 1 m Ω .

The contribution of contact resistance is insignificant, it is claimed, because for the three lowest decades the contacts are in the high-resistance branches. The high-resistance branch is shunted by a resistor with a resistance approximately 20 times smaller than that of the circuit containing the contacts; thus variations in contact resistance contribute very little to the

total resistance. The price of the unit is \$1125. General Resistance, Twin Lakes Road, P.O. Box 185, North Branford, Connecticut 06471

Circle number 148 on Reader Service Card

New literature

Third-party software—Floating Point Systems's new 74-page catalog, *Third-Party Software for Scientific Computers and Array Processors*, describes available programs for array processors (32- or 38-bit words) and minicomputers (64-bit words). For each program, the catalog supplies the application, computers supported, environment, services, product description and the name and address of the developer. Floating Point Systems, Mail Stop S586, P.O. Box 23489, Portland, Oregon 97223

New software

Parallel processing—Intel and Gold Hill Computers have introduced Concurrent Common LISP, a system that allows both numeric and symbolic processing and control of 16–64 processing nodes of Intel's iPSC family of concurrent computers. Intel Scientific Computers, 15201 N.W. Greenbrier Parkway, Beaverton, Oregon 97006

Data analysis—Infometrix has introduced Version 4.1 of ARTHUR, an interactive data-analysis system that has multivariate exploratory and pattern-recognition capabilities. The program runs on the VAX 11xx series with vms or on IBM computers with the mvs operating system. Infometrix, 2200 Sixth Avenue, Suite 833, Seattle, Washington 98121

Data analysis—New Unit has introduced PLOT, a data-analysis program with quality graphic output for scientific users. The program is available for all PDP-11 and LSI-11 systems running TSX-Plus and all VAX/vms systems. New Unit, Dewitt Building, 215 North Cayuga Street, Ithaca, New York 14850

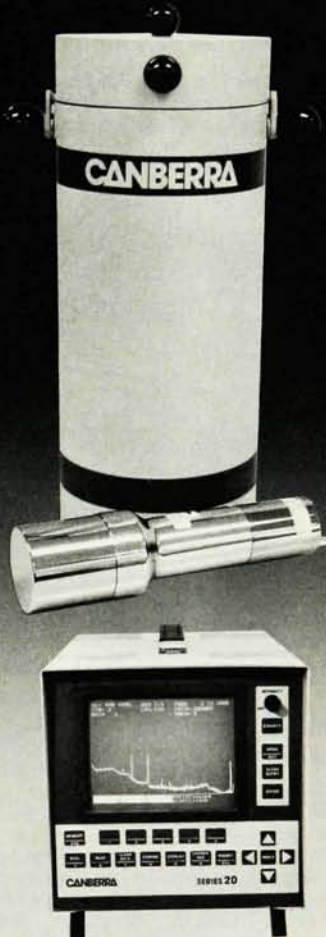
Image processing—Data Translation's PC Semper image-processing operating environment provides over 100 image-processing and analysis functions using 32-bit floating-point arithmetic. The system runs on the IBM PC family of computers and can process images of up to 512×512 pixels. Data Translation, 100 Locke Drive, Marlboro, Massachusetts 01752

Optical-ray tracing—Stellar Software has announced Beam 2 Optical Ray Tracer, a package that runs on the IBM PC family and compatible computers with graphics capabilities. The program is delivered with a tutorial and six examples of optical systems. Stellar Software, P.O. Box 10183, Berkeley, California 94709

GAMMA SPECTROSCOPY

NOBODY DOES IT FOR LESS

Nal(Tl) detector based gamma analysis systems are given short shrift by most suppliers. Not so Canberra. Our 727 shield, for example, handles a wide variety of detector sizes, accommodates test tube or bulk samples and is built with quality you can see. Our chrome-plated Nal(Tl) detectors and matching tube-based preamplifiers offer unexcelled quality, performance, and reliability. The New Series 20 MCA with built-in H.V. power supply and amplifier completes the system without cumbersome NIM Bins or bench-top accessories — true elegance at very affordable prices.



Circle number 30 on Reader Service Card

CANBERRA

Canberra Industries, Inc.
One State Street
Meriden, Connecticut 06450
(203) 238-2351
TX: 643251