

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.

Tokamak gamma detector

By modifying the electrometer in its widely-used Senti 1011 gamma-radiation monitor, Reuter-Stokes has developed an instrument capable of detecting the fast-pulse radiation characteristic of tokamaks. The new instrumentation leaves the sensitive, pressurized ion chambers unaltered. Changes made in the electrometers allow measurement of pulse radiation fields of 0.1 second duration at a repetition rate of 5 minutes. The monitor covers two ranges: from background to 100 mR/hr and from 100 mR/hr to 20 R/hr. These monitors were developed for use at the Princeton Large Torus tokamak. They are also said to be potentially applicable at high-energy accelerators. *Reuter-Stokes, 18530 South Miles Parkway, Cleveland, Ohio 44128*

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Laser diode optics

Melles Griot has introduced a new line of components for laser-diode optics. These optical components allow one to collimate, focus, correct beam asymmetry, expand beam diameter and collect far-field radiation from the majority of currently available GaAs laser diodes. All components are diffraction limited from 740nm to 850nm; all are anti-reflection coated.



Five 8-mm-diameter lenses provide low divergence (0.13 milliradians), collimation or focusing to small spot sizes (0.82 microns for the shortest focal length). A sixth lens, 20 nm in diameter, provides collection into a 6.11-micron spot. Anamorphic prism pairs convert the elliptical output of laser diodes to near circular; they are available in elliptical ratios of 2:1, 4:1 and 6:1. A 6x beam expander provides a beam divergence of only 0.022 milliradians, and two 48-nm-diameter receiver lenses provide far-field angle collection at focal ratios of f/2.5 and f/4.4. *Melles Griot, Optical Components Division, 1770 Kettering Street, Irvine, California 92714*

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SQUID electronics

CTF Systems has introduced a digital electronics package for SQUID superconducting magnetometers. It is suitable for laboratory systems or field configurations requiring up to 100 meters of separation between sensor and control. This digital SQUID electronics package, designated DSQ-400, may be used in manual or computer-interfaced modes ranging from single-channel recording to applications requiring 15 channels of data acquisition, with sampling synchronized to within 30 nsec.

Features of the electronics package include: a 32-bit (9 decade) dynamic range; a digital acquisition sample rate (with octave settings) from $\frac{1}{32}$ Hz to 32 kHz; a second order, low-pass digital filter (with octave settings) from $\frac{1}{32}$ Hz to 16 kHz; a 14 bit, range-selectable digital-to-analog output with second-order analog filtering in decade settings from 1 Hz to 10 kHz; convenient set-up circuitry; and a digital-logic, transient-recovery mode. Data acquisition includes analog display and recording, a serial RS-232C port, and a high-speed 16-line, parallel data/control port for single or multiunit operation, with added provision for control by an external data-acquisition unit.



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Light generator

Berkeley Nucleonics is offering a new kind of light generator that is said to offer the versatility and functions found previously only in pulse generators. The manufacturer describes it as "an industry first." With this instrument, designate model 6010, one can control and vary pulse repetition rate, pulse width, pulse delay and peak light power. The 6010 is both a light-pulse generator and cw light source. One can select a stabilized mode, which will compensate for light level fluctuations.

Pulse rates can be varied from 0 to 20 MHz. Pulse widths and delays are variable from 15 ns to 10 ms. A double-pulse mode, which provides two pulses of variable separation is useful for pulse-pair resolution and timing tests. External drive and trigger provisions will cause the light pulse either to follow an incoming waveform or to be triggered by an incoming signal. The Model 6010 is available at wavelengths of 670 and 820 nm. It provides an electronic pulse coincident with the light pulse. The instrument is said to be useful for converting data trains into light pulse trains and for generating pulses for time, amplitude and domain testing. *Berkeley, Nucleonics, 1198 Tenth St., Berkeley, California 94710*

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Broadband receiver

Matec's new model 625 is a broadband receiver suitable for both pulsed and continuous-wave operation in nuclear-resonance systems, ultrasonics and other laboratory applications requiring rf pulse sources. The receiver incorporates three major sections—low level rf, final rf, and detector/low-pass-filter—all accessible by front-panel coaxial connectors for easy insertion of interstage filters or tuned preamplifiers. Covering the 2 to 200 MHz frequency range, this high-linearity unit provides a typical recovery time of 5 microseconds following a high power pulse.

The model 625 offers typical rf gain of 80 dB (down 3 dB at 2 MHz and 200 MHz), adjustable over a 50 dB range. Additional rf gain is available from various Matec broadband or tuned amplifiers. Both rf and detected, filtered

outputs are provided, and one may use either phase or amplitude detection. Detector output linearity is said to be



± 0.2 dB from 4 V down to 100 mV. The model 625 is priced at \$3195. *Matec, 60 Montebello Road, Warwick, Rhode Island 02886*

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Infrared detectors

The New England Research Center has introduced a new line of mercury cadmium telluride photovoltaic infrared detectors. These high-speed devices



are offered in a variety of dewar packages. They are optimized for peak response in the 3 to 5 micron or 8 to 12 micron regions. The standard devices may be operated at frequencies from dc to 100 megahertz. Quantum efficiencies are claimed to be as high as 60%, with R_0A (resistance times active area) ranging from 0.1 to 0.3 ohm cm^2 .

Minimum detectivity at 10.6 microns, we are told, is 5×10^9 cm $\text{Hz}^{1/2}$ /Watt. Greater sensitivity is available on special order. Detector active area ranges from $(0.015\text{mm})^2$ to $(1.0\text{mm})^2$. Several preamplifiers are produced for use with these detectors. *New England Research Center, Inc., Minuteman Drive, Longfellow Center, Sudbury, Massachusetts 01776*

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Discriminator logic

Two new NIM modules are available from Phillips Scientific. The model 704 is a quad, leading-edge discriminator, and the model 754 is a quad, coincidence/logic unit. Together these new modules operate with throughput rates to 300 MHz—the highest rate capability commercially available, we are told. The model 704 accepts inputs from -25 mV to -1 volt and produces restandardized outputs with adjustable widths from 2 to 50 nanoseconds. Its ability to respond to inputs as narrow as 1 ns makes it attractive for fast channel-plate detectors.

The model 754 is a quad, four-input universal logic unit. It performs logical functions, majority logic, fan-in/fan-out, and anti-coincidence. Like the 704, it has a standardized output that is independent of input pulse shapes or overlap times. Both modules have five current-switching outputs per channel. The outputs are double-amplitude, NIM logic levels. This helps to overcome the attenuation effects of long cables when driven with narrow pulses. The modules are available with either LEMO or BNC connectors. The model 704 costs \$1045, and the model 754 costs \$1195. *Phillips Scientific, 13 Ackerman Avenue, Suffern, New York 10901*

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Photon counting

EG&G Parc's IDA is an integrated detector assembly for photon counting. It is claimed to simplify greatly the complexities of light measurement by photon-counting techniques. The IDA is a fully integrated, factory calibrated, light detection package. The compact instrument contains a biased photo-multiplier tube, including socket and dynode string, an rfi-shielded tube



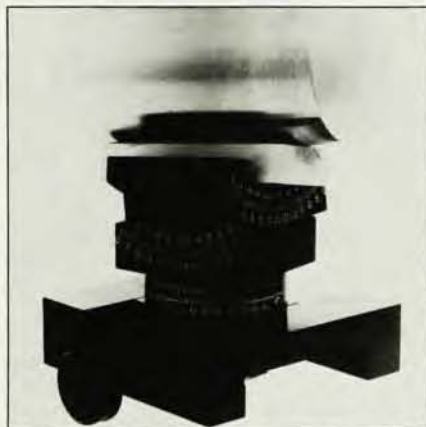
housing, a fast amplifier and discriminator, and a regulated high-voltage power supply. The IDA, we are told, eliminates the drudgery of assembling components from various sources and then matching them to optimize performance.

The IDA is described as "the first... true turn-key 'light in-pulses out' front end package for photon counting... offered commercially." It is compatible with all EG&G Parc digital counters. Prices range from \$2450 to \$9995, depending on tube selection and cooling requirements. *EG&G Princeton Applied Research, P. O. Box 2565 Princeton, New Jersey 08540*

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Goniometer

South Bay Technology has introduced its new model 260 3-Axis goniometer. The instrument is designed for cutting oriented single crystals. It can be mounted on an x-ray track for orienta-



tion and then transferred to a saw for cutting oriented slices or surfaces. It will fit on an x-ray track of width up to 2.19 inches. *South Bay Technology, 5209 Tyler Avenue Temple City, California 91780*

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New literature

Ion gauges—MKS offers its 12-page *Practical Guide to the Use of Ion Gauges*, available from *MKS Instruments, 34 Third Ave., Burlington, Mass. 01803*

Vacuum valves—A new 16-page bulletin describes CVC's complete line of vacuum valves and baffles. Valve types include gate, right-angle and bellowsport valves. CVC offers water-cooled, multi-coolant, liquid-nitrogen and thermoelectric baffles. *CVC Products, 525 Lee Road, P. O. Box 1886, Rochester, New York, 14603* □

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