

**NEW**

# OPTO-ELECTRONICS

proudly presents the company's

## PRODUCT-OF-THE-MONTH

# SERIES CGD TE COOLED GERMANIUM PHOTODETECTORS

Circle 234

- TE cooled to  $-50^{\circ}\text{C}$  in a thermally insulated, permanently sealed, vacuum head.
- Dark current reduced to near silicon diode values.
- N.E.P. values start at less than  $5 \times 10^{-16} \text{ W}/\sqrt{\text{Hz}}$ .
- Minimum detectable signal at  $1.5\mu$  below 1 nW optical power.
- Sensitive from 0.5 to  $1.8\mu$ .
- Range of photosensitive areas from 0.01 to  $4 \text{ mm}^2$ .
- Window or optical fiber input.
- Complete turnkey instrument, power supply included.

and a preview of the company's  
soon-to-be-introduced

## HIGH RESOLUTION, SHORT HAUL OTDR SYSTEM

featuring interchangeable detector and laser modules to operate between 0.8 and  $1.5\mu$  for fault, splice, or connector location to within several millimeters.

### ALONG WITH THE COMPANY'S UPDATED PRODUCT GUIDE

- PICOSECOND PHOTODETECTORS (PD)** Circle 224  
 • Multigigahertz bandwidth • Risetimes as fast as 35 psec • Si, Ge, and InGaAsP • Avalanche and nonavalanche • Lens, fiber, window and SELFOC lens types • Complete with portable power supply.
- AMPLIFIED PHOTODETECTORS (AD)** Circle 225  
 • Picosecond photodiodes coupled to microwave amplifiers in a single head • Microwatt sensitivity • Si and Ge • Avalanche and nonavalanche • Lens or fiber input • Line or portable power supply.
- COMPONENT PHOTODETECTORS (CD)** Circle 226  
 • Picosecond photodiodes in TO-3 cans • Si and Ge • PC board mountable • Inexpensive for OEM applications.
- GERMANIUM PHOTODIODES (GD)** Circle 227  
 • State-of-the-art performance Ge diodes in TO-18 cans • Lens, fiber, and window types • Sizes from  $100 \times 130 \mu\text{m}$  to  $1 \times 1 \text{ mm}$  • Attractive quantity discounts.
- PICOSECOND DIODE LASERS (PLS)** Circle 228  
 • Turnkey systems • Sub 100 psec pulsewidth • 5 to 500 mW peak power • 770 to 1500 nm wavelength • Window or fiber output.
- NANOSECOND DIODE LASERS (NLS)** Circle 229  
 • Turnkey systems • Pulsewidths from 5 to 20 nsec • 770 to 1500 nm wavelengths featuring 1060 nm for YAG laser simulation • High peak power • Window output.
- SIGNAL ENHANCER (SE)** Circle 230  
 • Improves S/N of weak repetitive signals by 220x • Used to increase sensitivity of PD's and AD's to microwatt and nanowatt levels • RS232 and GPIB digital outputs.
- FOURIER PROCESSING SYSTEM (FPS)** Circle 231  
 • Calculates frequency response curve and bandwidth of optical fiber from measured pulse response • 100 GHz • Km capability • Incorporates Signal Enhancer SE10 features • Printer and RS232 digital outputs.
- PICOSECOND FIBEROPTIC SYSTEM (PFS)** Circle 232  
 • All fiber testing components in one mainframe • Over 30 stock plug-ins available, including psec/GHz photodetectors, psec pulsed and GHz modulated diode lasers, and fiber couplers • SMA optical connectors standard • Custom plug-ins and singlemode connectors available.
- FIBER COUPLERS (FS)** Circle 233  
 • Singlemode •  $1 \times 2$ ,  $2 \times 2$ , or  $N \times M$  configurations • Low excess loss • Superb directivity • Vibration and temperature insensitive — tested to Mil. Std. 202E • Standard models made with numerous types of factory-supplied fibers • Custom models made with customer-supplied fibers • Rugged, miniature packages • Attractive quantity discounts.



RESEARCH IN ELECTRO-OPTICS

For more information, call or write: Opto-Electronics Inc., 2538 Speers Road, Oakville, Ontario, Canada L6L 5K9 Telephone (416) 827-6214 Telex 06-982392

#### OVERSEAS REPRESENTATIVES:

Australia: QUENTRON, Adelaide (08) 223-8224; Belgium/Netherlands: FAIRLIGHT, Rotterdam 010-333418; France: PHOTON SCIENCE INSTRUMENTS, Palaiseau (6) 011795; Germany: ORIEL, Darmstadt (06151) 82076; Japan: JAPAN LASERS, Tokyo (03) 798-0741; New Zealand: MASER, Auckland 444-3583; Sweden: SAVEN, Vaxholm 0764 31580; United Kingdom: ORIEL, Kingston-upon-Thames 01-549 4525.

## Communications News

satellite-based systems appears unlikely — the costs are roughly equal and the demand is seemingly high enough to support both.

—Richard Cunningham

### Fiberoptics Move Closer to Home

The communications industry first used fiberoptics in long distance, point-to-point trunk lines between central offices. Recently, the technology moved one step closer to the customer. Telecommunications companies now use fiberoptics in feeder systems that connect central office lines to local carrier service distribution areas, such as major subdivisions or industrial parks. Siecior Corp., Hickory NC, responded with a line of singlemode fiberoptic products that meet the unique requirements of this subscriber-feeder environment.

A feeder system is a 9 or 10 mile long, tree-shaped cable configuration that starts with several dozens of fibers at the central office and drops off two pairs of fibers (one working and one backup) at each carrier service area. Each pair consists of one incoming and one outgoing fiber. The four fibers travel to a remote—a multiplexer/demultiplexer that spreads the optical signals to several electronic cables for the final journey to individual subscriber homes and office buildings.

For efficiency, remotes must be easily added to the feeder when new construction goes up. A new cable design, called Feeder-Bundle, allows separate access to each fiber without disturbing the operation of other fibers. The cables contain up to 18 buffer tubes in a loose-tube construction, each buffer tube carrying one to 12 fibers. The original feeder configuration uses only a fraction of the fibers available. As new construction goes up in the feeder area, a field worker cuts into the cable, finds the unused buffer tubes (identified by color), and splices in new branch fibers.

To go along with the cable, the company developed a silicon array fiber connector that can be either preconnectorized or installed in the field, a splice closure "patch panel" that allows route changes in the field without cutting cables, and a fiberoptic distribution center for central office switching that can be used with any connector.

—Holly Bigelow