

NEW PRODUCTS

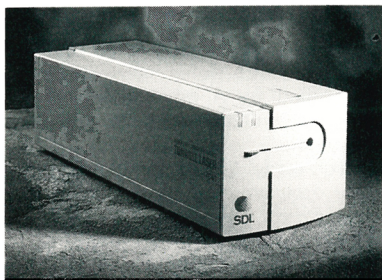
The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers. PHYSICS TODAY can assume no responsibility for their accuracy. To facilitate inquiries about a particular product, a Reader Service Card is attached inside the back cover of the magazine.

FOCUS ON LASERS

Single-Frequency Tunable Diode Laser Systems

SDL describes its new TC40 series of tunable diode lasers as "revolutionary." They provide continuous single-frequency tuning and diffraction-limited narrow-linewidth output at 0.5 watts. The instruments are compact and inexpensive, and we are assured that they require little maintenance. They are designed to substitute for Ti:Sapphire and dye-laser systems.

Applications foreseen for the new



diode laser series include high-precision spectroscopy, laser cooling of gases, nonlinear frequency conversion, chemical analysis, millimeter-wave generation, process monitoring, and characterization of materials. *SDL Inc, 80 Rose Orchard Way, San Jose, California 95134-1365*

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Diode-Pumped High-Average-Power Nd:YAG Slab Lasers

Cutting Edge Optonics has introduced a new line of diode-pumped, high-average-power Nd:YAG lasers intended for scientific and industrial uses. The



line includes continuous-wave models putting out 50 and 85 watts, pulsed models at 100 and 200 millijoules, and several other electro-optically and acousto-optically triggered systems.

The electro-optic q-switched systems are optimized to run at 400 Hz; at low-pulsed power they can be operated at repetition rates as high as 1.2 kHz. The CW unit can be acousto-optically q-switched beyond 40 Hz.

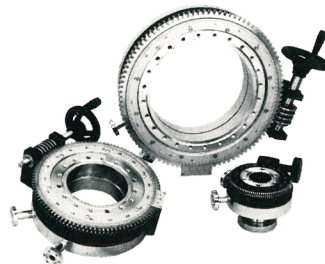
Diode-pumped lasers, we are told, are encroaching on the former domain of flashlamp systems at low power, and now even at medium power. On production lines, for example, they eliminate the stoppages required to replace flashlamps. Diodes, we are informed, "degrade gracefully over time," unlike the admittedly less expensive flashlamps. *Cutting Edge Optonics, 3753 Pennridge Drive, St. Louis, Missouri 63044*

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Excimer Laser Annealing for Thin-Film Transistor Fabrication

The German firms Lambda Physik and Microlas have jointly developed a new line of excimer laser systems for thin-film transistor annealing. These systems include an excimer laser, line-

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McAllister Technical Services

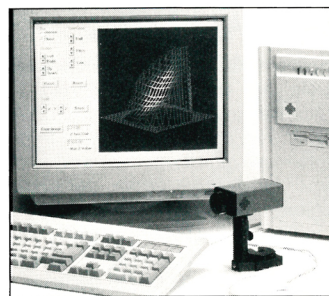
Manufacturers of surface analytical instruments and devices

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beam annealing optics and a system controller. Systems can be customized for research or high-duty-cycle industrial requirements with up to 200 W output power, 670 mJ pulse energy, 300 Hz repetition rate and 300 mm line-beam length on the substrate.

In the annealing process, a line-shaped laser beam is scanned over the surface of the substrate coated with amorphous silicon. After a few nanoseconds of heating, the silicon melts and then recrystallizes into a polycrystalline phase. The virtues of making polycrystalline-silicon thin-film transistors by excimer laser, we are told, include good reproducibility, uniformly high carrier mobility, grain uniformity, no need for quartz substrates, flexibility and significant cost reduction.

In these systems, Lambda Physik's proprietary Novatube metal-ceramic laser tube is claimed to offer excellent tube longevity and reliability. The system's Halosafe solid-state halogen generator significantly simplifies gas handling, and the line-beam optics, specifically designed for annealing, transform the raw laser beam into a highly homogeneous line-shaped beam. *Lambda Physik, 3201 West Commercial Boulevard, Fort Lauderdale, Florida 33309*

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Advanced Beam-Pointing Accessory for Nd:YAG Lasers

Spectra-Physics has introduced BeamLok, an accessory designed for its Quanta-Ray Pro series of Nd:YAG lasers. The device is designed to provide advanced pointing with active control and beam-divergence reduction, to counter the effects of lamp aging.

The BeamLok accessory incorporates three active detection and correction systems: a far-field detector, a corrective mirror and what the firm calls a D-Lok sensor. They are all integrated by a microprocessor-based controller that provides feedback control. This, we are told, results in faster warmup, longer flashlamp life and exceptional pointing stability.

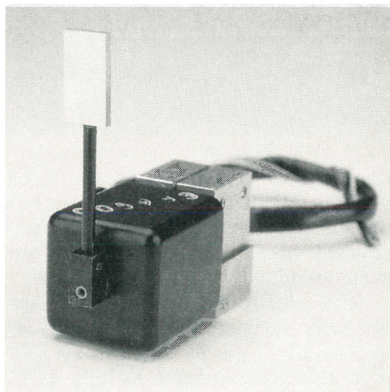
The monitoring and control system is self-contained within the laser. The stand-alone controller is provided with a graphical interface. RS-232/IEEE compatibility lets the user incorporate the BeamLok into existing automated systems. Applications include pumping OPOs, regenerative and multipass lasers, and other uses that require good

beam stability in the fundamental and higher harmonics. *Spectra-Physics Lasers, 1335 Terra Bella Avenue, P.O. Box 7013, Mountain View, California 94039-7013*

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Variable Low-Frequency Beam Modulator, Deflector and Chopper

Electro-Optical Products has introduced its new model CH-40, a variable, low-frequency modulator/beam deflector/chopper for positioning and manipulating large, clear-aperture laser beams. The chopping vane is mounted on a motor with a limited rotation angle. The position of the rotor follows the input current with respect to amplitude and frequency.



The CH-40 is intended for use when one wants very slow modulation frequencies—30 Hz or less. It can hold very large vanes, mirrors gratings and other electro-optical devices. Deflectors and emitters can be attached to the vanes. *Electro-Optical Products Corp., P.O. Box 650441, Fresh Meadows, New York 11365*

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Green Light from Inexpensive Single-Piece Nd:YAG Lasers

Power Technology's new DY series of single-piece Nd:YAG lasers, we are told, makes green laser light more affordable for laboratories and original equipment manufacturers. The various models put out 532 nm light at six different power output ratings, from 0.3 to 20 milliwatts. The units require an input voltage of only 12 volts DC

with a maximum input current of 3 amps. Axial beam alignment and centering are standard. LED indicators tell the user whether the laser is on or in standby mode. These CW lasers tolerate a wide range of temperatures. A built-in TE cooler automatically maintains optimum temperature. A nonvolatile digital temperature is available for controlling the laser drive current.

The DYH series of two-piece lasers provides output powers up to 150 mW. Like the DY lasers, they require inputs of only 12 volts DC and 3.5 amp maximum input current. Options include telescopes, beam expanders and optical-bench mounts. Single-piece prices for the DY series begin at \$1700. *Power Technology Inc., P.O. Box 191117, Little Rock, Arkansas 72219-1117*

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Eight-Channel Digital Pulse Generator for Lasers

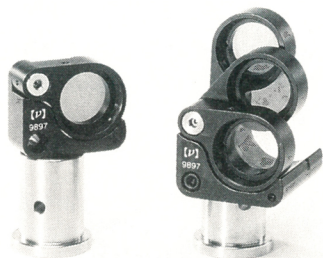
Merchantek Electro-Optics is offering its new model 9318, an inexpensive 8-channel, 8-output digital pulse generator designed for a variety of research, clinical and original-equipment manufacturing uses, including high-speed imaging and the control and testing of YAG and excimer lasers. The instrument is claimed to be immune to most high-noise environments. Controlled by a microprocessor, the unit can synchronize up to eight instruments.

The model 9318 is designed to produce accurate and repeatable pulses even at low pulse rates, we are told. A new feature provides a "divide by n " function for four channels, so that the user can generate submultiples of the fundamental frequency. Delay and pulse width for each channel can be selected over the range from a microsecond to 99 seconds. The system includes a back-lit liquid-crystal display and GPIB and RS-232 interfaces. *Merchantek Electro-Optics, P.O. Box 4316, Bozeman, Montana 59772*

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Stackable, Flippable Optics Mount

The new model 9897 "Flip-Up" optics mount from New Focus is designed to facilitate addition and removal of filters and lenses from experimental optical setups. The user simply flips a filter into the beam path when it's needed, and afterwards flips it away



again. The Flip-Up can be conveniently stacked for quick filter changes. Both thin and thick optics are held firmly, we are told, either by a standard set screw or by a threaded Delrin insert. *New Focus*, 2630 Walsh Avenue, Santa Clara, California 95051-0905
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New Literature

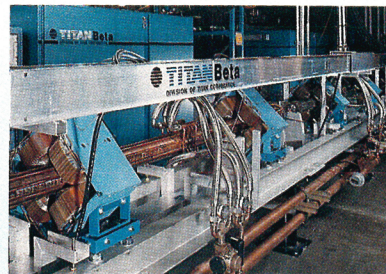
The 1997-98 Melles Griot Catalog contains over a thousand new optical products. It is offered in the 700-page printed edition or on CD-ROM. The catalog introduces new table-enclosure systems, enhanced opto-mechanical hardware, new high-energy and micro-cylindrical optics and filters, advanced fiber-optics products and optical laboratory accessories. A tutorial section discusses optics principles, materials and lens design. *Melles Griot Photonics Components*, 1770 Kettering Street, Irvine California 92614
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Laser optimization—A new brochure from Koolant Coolers describes the firm's air-cooled chillers for laser applications. Among their virtues, we are told, are vertical air discharge to minimize user discomfort, reduced floor space requirements, layout flexibility and ease of maintenance. Even relatively small temperature fluctuations can affect laser performance. The chiller system can be modified to meet specified temperature requirements. Cooling capacity ranges from 1 to 300 kW. Single- and dual-circuit systems are available. We are assured that the refrigerants are environmentally acceptable. *Koolant Coolers*, 2625 Emerald Drive, Kalamazoo, Michigan 49001-4524
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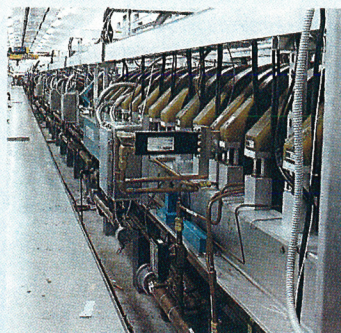
Correction

Last month in this department, the name of the firm JEOL USA was inadvertently misspelled on pages 74 and 76. ■

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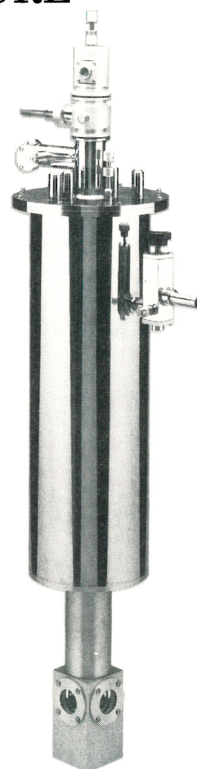
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