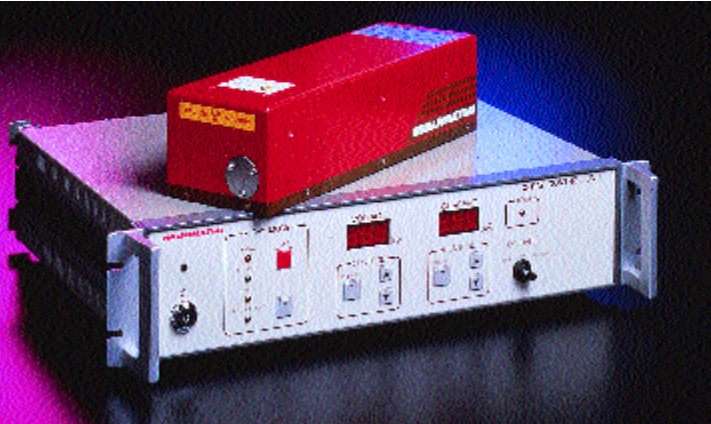


Industrial X-ray Sources

Hamamatsu Corp. has introduced two X-ray sources designed to withstand the rigors of the industrial environment. The



two devices can perform a wide array of industrial-inspection and testing procedures in areas including printed circuit boards, semiconductors, electric and electronic components, soldered parts, ceramics, rubber, and plastics. The L6731-01 provides an 8- μm spot size and a distance between the target and X-ray window of 12 mm. It operates with a tube voltage of 80 kV and a current up to 100 μA , has a maximum output power of 8 W, and weighs about 11 lb. The L6622-01 has a 10- μm spot size and a distance from target to X-ray window of 18 mm. It operates with an adjustable tube voltage up to 130 kV and current up to 360 μA , offers a choice of focal spot sizes of 10 μm (delivered at 10 W) and 40 μm (delivered at 39 W), and weighs about 25 lb. Both units can be controlled remotely, which allows their integration into production lines.

Hamamatsu Corp.

360 Foothill Road, Box 6910

Bridgewater, NJ 08807-0910

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Switching Card

Keithley Instruments now offers a low-current switching card optimized for high-performance switching of semiconductor I-V (current vs. voltage) and C-V (capacitance vs. voltage) signals. The Model 7174A 8 \times 12 low current matrix card provides low current leakage and minimal dielectric absorption to

ensure device measurement performance much faster than that of current switching technologies. The device offers eight low-current pathways rather than the two low-current pathways available with today's standard low-leakage current switches. The 7174A is designed for use in Keithley's Model 707 six-slot switch system and Model 708 single-slot switch system. It is also compatible with Keithley Models 236, 237, as well as 238 source-measure units, its Model 590 and 595 C-V instruments, and Hewlett-Packard Models 4155 and 4156 semiconductor parametric analyzers.

Keithley Instruments, Inc.

28775 Aurora Road

Cleveland, OH 44139

Circle No. 181 on Reader Service Card

Off-Axis Paraboloids

Optical Surfaces provides an extensive range of off-axis parabolic mirrors, mounted or unmounted, for use in demanding applications. Using its custom-designed production tools, the company can produce standard paraboloids and customer-specified components without the long delivery times often associated with these mirrors. It supplies paraboloids up to 600 mm in diameter with a surface accuracy of $\lambda/20$ and off-axis angles up to 25° for use in broadband and multiple-wavelength applications, including telescopes, beam expanders, collimators, spectrometers, and laser-beam focusing. Optical Surfaces offers a wide range of coatings, from simple metallic with or without a protective overcoat, to multilayer dielectrics or ultrahard coatings for high-power lasers, for both standard (available on short delivery) and customer-specified components.



Optical Surfaces Ltd.

Godstone Road, Kenley

Surrey, England CR8 5AA

Circle No. 182 on Reader Service Card

Upgraded Oscilloscopes

LeCroy's three new entries into the high-performance, color digital oscilloscope market are designed to help engineers save time in debugging high-speed digital and analog circuits. The new LC584A family of oscilloscopes offers four input channels with 1 GHz bandwidth and 2 billion voltage measurements per second on each channel. They record up to 2 MB on each of the four channels or 8 MB on a single channel. The new oscilloscopes have been upgraded with 10 proprietary integrated circuits that give the LC584A series a faster sampling rate, lower cost, and a price/performance ratio not previously available in digital oscilloscopes. Applications include use in automotive design, semiconductors, aerospace electron-



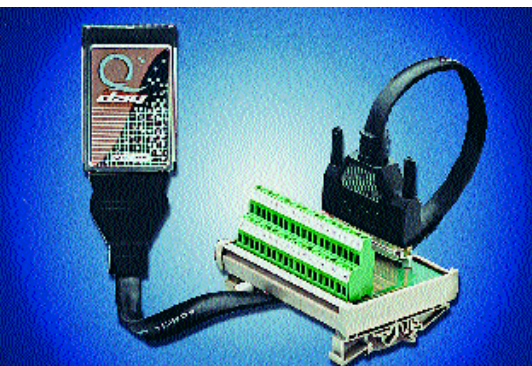
ics, microprocessor-based products, disk drives, telecommunications, and wireless.

LeCroy Corp.

700 Chestnut Ridge Road

Chestnut Ridge, NY 10977

Circle No. 183 on Reader Service Card



Data-Acquisition Adapter

Quatech has brought its newest high-gain data-acquisition adapter to market. The DAQP-12H provides 12-bit resolution for 8 differential or 16 single-ended analog input channels (expandable to 256 channels), sampling rates to 100 kHz, and 8 digital input-output channels. Its bipolar input range extends from ± 0.01 V to ± 10 V. Programmable gains are available in steps of 1, 10, 100, and 1,000, which allows users to take full advantage of the card's input range and achieve higher resolution at lower ranges. The DAQP-12H includes Quatech's Daqdrive universal software driver and the 1998 version of DaqEZ, the company's Windows-based, data-acquisition application software package, which provides additional graphing and monitoring functions.

Quatech, Inc.

662 Wolf Ledges Parkway
Akron, OH 44311

Circle No. 184 on Reader Service Card

Laser Marking Kit

Synrad now offers its new all-digital laser marking kit, which it says makes laser-marking technology "as unthreatening as a 100-W light bulb." The new sealed RF-excited CO₂ laser provides users all the advantages



of laser marking now available to large manufacturers or end users doing low-volume custom work. Synrad's DH series marking head, part of the kit, is based on digital and

fiber-optic technology that delivers accurate, crisp marking in an electrically noisy industrial environment. The unit comes as a partially assembled, self-contained group of components that with some minor integration yields a production-line operating system in a few hours. As a sealed unit, the laser has no consumable parts. It is designed to perform at specification for 35,000 continuous hours without maintenance.

Synrad

6500 Harbour Heights Parkway
Mukilteo, WA 98275

Circle No. 185 on Reader Service Card

Solid-State Lasers

Spectra-Physics has announced its new series of compact, high-power, diode-pumped solid-state lasers for industry, the Millennia i. They are machined from a block of solid aluminum, feature a sealed laser head, are completely air-cooled, and measure only $3.1 \times 4.8 \times 10.5$ in., which enables companies to readily integrate them into any industrial system. The 5-W Millennia Vi and 2-W Millennia Ili are continuous-wave green lasers emitting at 532 nm. Both offer a variety of beam-delivery options and can be customized to meet a wide range of applications, including disk texturing, semiconductor wafer inspection, and materials processing. The lasers require only 110 V or 220 V single-phase power and offer RS-232 port control or optional digital remote operation.

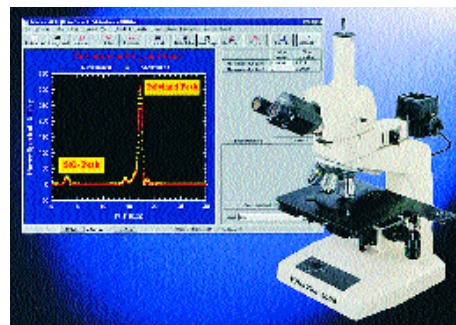
Spectra-Physics Lasers, Inc.

1335 Terra Bella Avenue, P.O. 7013
Mountain View, CA 94039-7013

Circle No. 186 on Reader Service Card

Thin-Film Measurement

Scientific Computing International's FilmTek 2000 provides a new dimension in thin-film measurement technology. The system combines a fiber-optic-based spectrophotometer with new material-modeling software to enable users to simultaneously measure film thickness, surface roughness, index of refraction, and extinction coefficient. The company says that essentially all translucent films ranging in thickness from 25 \AA to 50 \mu m can be measured with high



precision using FilmTek 2000's new deep-ultraviolet to near-infrared spectrophotometric technology. Typical applications include single and multilayer films such as silicon-on-sapphire, photoresist, polysilicon, and antireflective layers.

Scientific Computing International
910 Monte Mira Drive
Encinitas, CA 92924

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Goniometric Radiometer

Photon has introduced a new goniometric radiometer designed to measure the radiation pattern emitted from a highly divergent source such as a laser diode or light-emitting diode. Photon's LD 8800 precisely measures the angular divergence and the intensity distribution from the emitting source. This information enables optical systems to be optimized and the best laser diodes to be selected for any particular application. The LD 8800 provides a set of measured intensity parameters and statistical data, and its software graphically depicts the measured data. The company describes the instrument's speed as a "drastic improvement" over other scanning radiometers. Measurements that previously required two hours now need only seconds.

Photon, Inc.

1115 Space Park Drive
Santa Clara, CA 95054

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This section is based on information supplied by the manufacturers, and in some cases by independent sources. *The Industrial Physicist* assumes no responsibility for its accuracy. To facilitate inquiries, a Reader Service Card is attached between pages 50 and 51.