

Displacement Sensor

Omron Electronics' new Z4D-F microdisplacement sensor contains a built-in micro-processor and provides precise, cost-effective sensing with resolution to $5\ \mu\text{m}$. Applications include sensing the presence or absence of small parts or solder points, double-feed detection in printers and copiers, and vibration detection. The Z4D-F is available in both analog and digital versions. Integrating the analog model with Omron's K3TX

intelligent-signal processors allows digital outputs in monitoring operations. The analog model has a power and alarm indicator for immediate identification of sensing problems. The digital version includes a distance adjuster for more precise sensing.

Omron Electronics, Inc.
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Schaumburg, IL 60173
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Eye-Safe Sensors

Acuity Research has released its new AccuRange 4000-RET line of laser-diode-based range-finding sensors. The sensors feature low-power, eye-safe laser output for use with retroreflective material. The devices are suitable for use in distance-measurement systems and applications up to 50 ft. This normal range can be extended with retroreflective targets. The AccuRange 4000's accuracy is 0.1 in., and sample rates may reach 50,000 per second. The 22-oz unit comes in a $6.5 \times 3 \times 3$ in. aluminum housing. Available interfaces include a standard RS-232 serial port and an optional RS-485 serial port. Applications of these sensors include

use in automated industrial positioning and scanned three-dimensional vision systems as well as in robotics, autonomous-vehicle, and laboratory-research applications.

Acuity Research, Inc.
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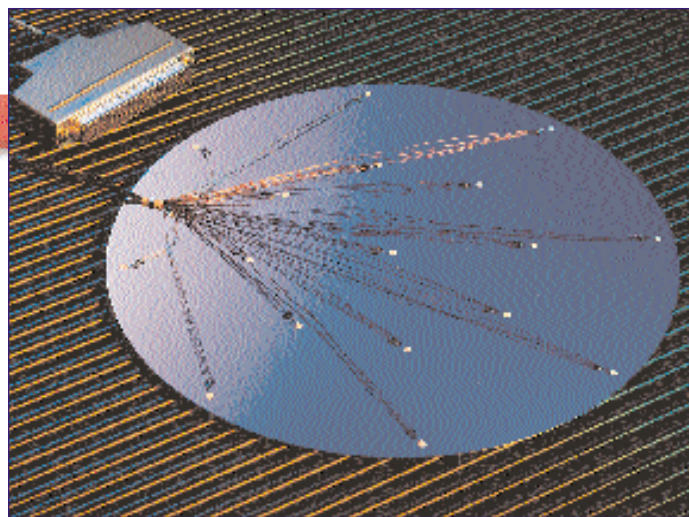
Vacuum Systems

CTI-Cryogenics, a division of Helix Technology, has introduced its new line of vacuum pumping systems, the On-Board TurboPlus. The line's key advantage, the company says, is that it allows deposition processes at significantly lower background pressures, which can save hours of tool pump-down to base pressure following atmospheric exposures. The On-Board TurboPlus systems operate from a standard helium compressor and thus allow easy pump interchanges. The 10-in. outer diameter ConFlat and ISO 200



versions, each with a net water pumping speed of more than 3,800 L/s, are said to stand less than 1 in. higher than comparable turbo pumps.

CTI-Cryogenics
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Temperature Detectors

SensArray offers Process Probe 1840, its instrumented silicon wafers for the direct measurement of lithography bake temperatures in situ under process conditions. Each wafer contains an array of up to 31 integrated resistance temperature detectors (RTDs) that measure wafer process temperatures from 0 to 230°C with an absolute accuracy of $<0.1^\circ\text{C}$ and temperature uniformity to $<0.05^\circ\text{C}$ point-to-point precision at the wafer. Measuring wafer temperature directly in situ allows precise determination of the influences of exhaust flow, purge-gas flow rate, and chamber design in proximity-bake processes. The wafers meet temperature-measurement accuracy requirements for both I-line lithography processes and high-temperature wafer probing applications. Process Probe 1840 wafers, from 100 to 300 mm, are available factory-calibrated to NIST-traceable temperature standards.

SensArray Corp.
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Digital-Camera Board

EPIX's new PIXCI-D imaging board is now available for the Hitachi KP-F100 and KP-F110 10-bit high-resolution digital cameras. The imaging board captures the KP-F100's $1,300 \times 1,024$ -pixel line image at 12 images per second, or the $1,024 \times 1,024$ -pixel line image of the KP-F110 at 30 images per second, and it stores the image sequence in the PCI motherboard memory. Camera-control hardware and software are provided for asynchronous-triggered capture and integration. The PIXCI-D package also includes ready-to-run Windows 95 or Windows NT software for camera setup, image-sequence capture, image print, and image save-to-disk. Soft-

ware is available for design, development, and production of machine-vision products.

EPIX, Inc.

381 Lexington Dr.

Buffalo Grove, IL 60089

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Flat-Panel Monitor

Nortech has announced its new FPI1500 series of XGA video monitors and workstation assemblies, available in rack-mount or panel-mount configurations, and designed to serve a broad range of industrial personal computer options. Both the monitors and workstations are available with a 14.5-in. TFT display or a 15.1-in. CSTN passive display that provide a superior viewing angle and better contrast. The LCDs used have a minimum luminance of 200 nits and a resolution of $1,024 \times 768$ pixels. The workstation, totally enclosed in an aluminum housing, is intended for use in factory environments that include dirt, grease, grime, oil, water, dust, and heat.

Nortech Engineering, Inc.

153 Washington St., P.O. Box 266

East Walpole, MA 02032-0266

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Water-Vapor Cryopump

Polycold Systems International has introduced its new PFC-330 fast-cycle water-vapor cryopump to replace its previous model, the PFC-400. The new version boasts upgraded instrumentation and superior process performance, and it cools to cryogenic temperatures significantly faster than the PFC-400, thus providing shorter process-cycle times and greater product throughput. Typical performance data and physical specifications are summarized in the company's latest PFC brochure.

Polycold Systems International

67 Mark Dr.

San Rafael, CA 94903

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SQUID Magnetometer

Quantum Design has expanded the capabilities of its Magnetic Property Measure-

ment System (MPMS) 7 Tesla line with the introduction of SQUID alternating-current (AC) susceptibility and ultralow-field (ULF) measurement capability. SQUID AC-susceptibility measurement offers an essentially flat signal response over a frequency range of 0.01 Hz to 1.0 kHz, which allows a minimal variation in sensitivity of 1×10^{-8} emu (electromagnetic units) over this frequency range and opens new regimes for scientific study at fields up to 7 Tesla. The ULF option cancels residual magnetic flux in superconducting coils and allows cooling in very low fields, typically less than 0.05 G. Applications include measurements of high-temperature superconductors and spin-glass materials. The AC and ULF options, which greatly extend the MPMS-7's capabilities, can be ordered separately or together with any new 7 Tesla system or as an upgrade to existing 7 Tesla MPMS systems.

Quantum Design

11578 Sorrento Valley Road

San Diego, CA 92121-1311

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New Software

Maple V Release 5



ing applications. The Maple V system allows users to learn one interface but interact with a large number of commercially available packages. Release 5 provides for the manipulation of symbolic-algebraic expressions, arbitrary-precision numerics, both two-dimensional and three-dimensional graphics, and programming. New features include spreadsheet functionality, a simplified means

of creating World Wide Web sites, an enhanced graphical-user interface, and context-sensitive menus that guide users through mathematical operations.

Waterloo Maple, Inc.
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of creating World Wide Web sites, an enhanced graphical-user interface, and context-sensitive menus that guide users through mathematical operations.

Waterloo Maple, Inc.

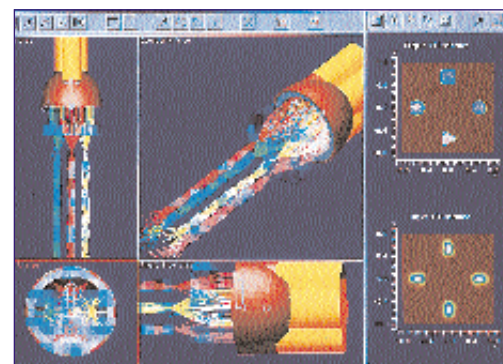
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Illumination Module

Optical Research Associates has added an illumination module to its LightTools optomechanical modeling software. The LightTools Illumination Module uses a menu-dri-



ven interface. Monte Carlo ray-tracing allows users to visualize system performance, such as illuminance or intensity patterns, with photographic-quality graphics that can be zoomed or rotated. Designers can quickly explore the performance tradeoffs of alternative design forms, minimizing design time. Applications include use in designing projection and machine-vision systems, flat-panel displays, lighting for vehicle interiors and signs, and segmented mirrors.

Optical Research Associates

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Pasadena, CA 91107

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This section is based on information supplied by the manufacturers, and in some cases by independent sources. *The Industrial Physicist* can assume no responsibility for its accuracy. To facilitate inquires, a Reader Service Card is attached between pages 44 and 45.