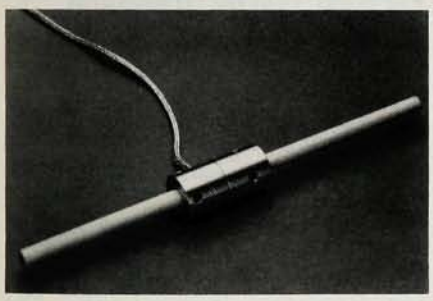
new products

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.
To facilitate inquiries about a particular product, a Reader Service Card is attached inside the back cover of the magazine.

Long-travel positioning with 10-nm resolution

Burleigh Instruments has added two new piezoelectric motors, suitable for translations of 6.25 and 8.25 inches (15.9 and 21.0 cm), to its line of Inchworm micropositioning instruments. The motors do not generate backlash because they contain no gears or lead screws and convert electrical currents



to linear motion directly. The mechanical resolution is 10 nm over the entire travel range. *Burleigh Instruments, Burleigh Park, Fishers, New York 14453*

Circle number 140 on Reader Service Card

Fast logic modules for CAMAC and FAST BUS systems

Nova has introduced a new line of programmable, fast logic modules for the CAMAC and FAST BUS systems. The modules are suitable for computer-controlled coincidence and anticoincidence applications; units with many different variations of input and output parameters can be custom built to fit specific applications.

A sample module was designed for a counter consisting of two long bars of sodium iodide crystal viewed at each end by a photomultiplier tube in coincidence and shielded by anticoincidence counters for charged particles. This module contains two channels of two inputs each. The input channels contain mean-time circuits to compensate for time differences caused by different optical path lengths to the photomultiplier tubes. The delays and pulse widths can be varied with 1-nsec steps up to 64 nsec. The inherent minimum delays and widths are 8 nsec. The outputs of the coincidence circuits are sent to two programmable pulse generators. Pulse widths can be varied in steps of 1 nsec up to 64 nsec in one of the pulse generators, and in steps of 10 nsec up to 640 nsec in the second pulse generator; the inherent pulse widths are again 8 nsec. Several NIM outputs with delays of 3 and 15 nsec, as well as TTL outputs, were provided in this example. *Nova, 1044 East La Cadena Drive, Suite 200, Riverside, California 92501*

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Silicon spectrometer detectors for high-energy applications

The new silicon spectrometers of the L series introduced by EG&G Ortec are capable of completely stopping high-energy protons, deuterons, alpha particles and other highly penetrating charged particles. The detectors of this series are available in three sizes: 25, 75 and 200 mm^2. The lithium-drifted devices are intended for use at room temperature and are said to offer a good energy resolution. *EG&G Ortec, 100 Midland Road, Oak Ridge, Tennessee 37830*

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Temperature indicator with primary standard sensors

The new programmable temperature indicator introduced by Instrulab, model 4221, operates with 25.5-ohm primary standard sensors and provides an instrument accuracy of ± 0.007 °C and

new products

resolution of 0.001 °C. Readout is directly in degrees Celsius and Fahrenheit with a resolution and repeatability of 0.001 degree. The resolution for resistance measurements is 0.0001 ohm. The system accuracy (instrument plus sensor) is ±0.008 °C.

One can program the instrument digitally, without the use of calibration equipment. To match a specific sensor the operator has only to enter the calibration constants that are supplied by the manufacturer of the sensor into the memory of the instrument. Options include RS-232C and IEEE-488 interfaces. The unit is priced at $3995. *Instrulab, P.O. Box 98, N.D. Station, Dayton, Ohio 45404*

Circle number 143 on Reader Service Card

Grating-tunable CO_2 lasers with high repetition rate

Two grating-tunable lasers have been added to the PRF Series of pulsed CO_2 lasers of Laser Science, the PRF-150GT and the PRF-300GT. These lasers are tunable over 60 CO_2 lines. They can produce pulse energies up to 300 mJ in the steady-state mode and up to 380 mJ in the burst mode. An adjustable transverse-mode-limiting aperture in the cavity provides for a TEM_∞ output beam with a Gaussian profile, as well as for multitransverse-mode operation. *Laser Science, 80 Prospect Street, Cambridge, Massachusetts 02139*

Circle number 144 on Reader Service Card

Liquid-medium integrating sphere for optical fibers

The new integrating sphere announced by Labsphere is designed for measuring the output of optical fibers in a liquid medium. The LMIS–040 system consists of a sealed integrating sphere of 4-inch diameter, a DA–100 detector assembly and an LM–3000 photometer–radiometer. The inside of the sphere is covered with a chemically inert coating that has a high reflectance for the 250–2500-nm range. The DA–100 detector can be set in either a radiometric or photometric configuration. A filter holder can be mounted at the viewing end for measurements in narrower spectral regions. *Labsphere, P.O. Box 70, North Sutton, New Hampshire 03260*

Circle number 145 on Reader Service Card

Mobile sampling system for vacuum systems

The new mobile sampling system from Inficon Leybold–Heraeus, the IPC-50, is designed for the continuous sampling of any vacuum process from 2 atmospheres to 10^{-8} torr. The IPC-50 can serve as a mass spectrometer for the range of 1–100 AMU or 1–200 AMU with an Inficon Quadrex 100 or Quadrex 200 residual gas analyzer.

The basic components of the IPC-50 are a turbomolecular pump and a rotary-vane mechanical pump mounted on a laboratory cart. An orifice-style pressure reducer, such as Inficon's IPC-2, and a high-pressure capillary inlet as well as a high-pressure multicapillary inlet that allows the sampling of four capillaries are optional. *Inficon Leybold–Heraeus, 6500 Fly Road, East Syracuse, New York 13057*

Circle number 146 on Reader Service Card

Portable Fourier-transform infrared spectrometer

The new DA2 Series of Fourier-transform infrared spectrometers introduced by Bomem cover the 400–45 000 cm^{-1} wavelength range with a resolution of up to 0.01 cm^{-1}. The optical sensor is a Michelson interferometer; optimal alignment is achieved by an automatic servo control system. The interferometer mirror velocity is also servo controlled. Accelerations up to 3*g* at 1 Hz, 1*g* at 5 Hz and 0.1*g* at 50 Hz do not affect operation. Thermostated enclosures and dewar enclosures for operation at liquid-nitrogen temperatures of the interferometer are available. The wavelength accuracy is less than ±0.005 cm^{-1} and the scanning speed can be set between 0.01 and 3.1 cm per second in 16 steps.

The host computer is a high-speed vector processor that allows interaction between the operator and the spectrometer and performs spectral analysis and data storage. The software for spectral analysis includes full radiometric calibration functions and a wide selection of analytical tools.

Several input optical systems (such as a collimator and telescopes), output optical systems, detectors and beam splitters are available. The interferometer weighs 50 kg and the host computer 60 kg; the total power consumption—at either 120 V, 60 Hz or 240 V, 50 Hz—is 3 kW. *Bomem, 625 rue Marais, Vanier, Québec, Canada G1M 2Y2*

Circle number 147 on Reader Service Card

Large gimbal mounts for precision positioning

Newport's new 640A Series gimbal mounts are suited for stable and precise positioning of 8-, 10- and 12-inch optical elements. The mounts are cast in hardened alloy and allow continuous two-axis rotation over 360 degrees with fine positioning over 5 degrees. Using differential micrometers or motorizers, the mounts provide a mechanical resolution of up to 0.13 arcseconds. The

supports for mounting the optical elements are compliantly loaded, allowing the mounted optics to expand thermally without stress distortion. The 8-inch model is priced at $1635, the 10-inch model at $1725 and the 12-inch model at $1820. *Newport Corporation, 18235 Mount Baldy Circle, Fountain Valley, California 92728*

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Langmuir troughs for research and production

Vickers Instruments has announced two new Langmuir troughs: the Langmuir Mini Trough, a compact benchtop unit, and the Langmuir Computer-Controlled Trough, a larger unit for systematic research and production applications.

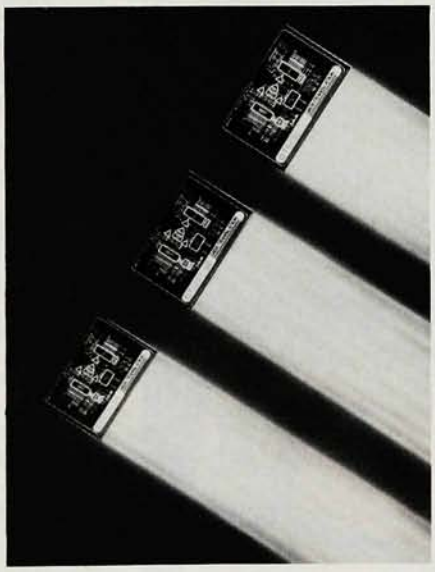
The mini trough has a constant-perimeter barrier mechanism that encloses a working area of maximum 500 cm^2 and minimum 90 cm^2. The rate of area change can be varied from 0–40 cm^2 per second. One can measure film pressures over the range of 0–50 mN per meter with a resolution and accuracy of $\pm$ 0.2 mN per meter. The sample dipping speed can be varied from 1 mm/sec to 1 mm/min; the dipping range can be set between 0 and 80 mm. The Teflon trough has a capacity of 5 liters and is supported by a gas cushion. An electronic control system allows either simple automatic operation or gives access to, and control of, experimental parameters. An optically coupled electrobalance monitors surface pressure for readout or for control of the barrier position during dipping.

The computer-controlled trough is designed for applied work with programmable dipping sequences and for the establishment of sets of deposition parameters. The constant-perimeter barrier encloses a working area of maximum 1000 cm^2 and minimum 60 cm^2. The rate of area change can be varied from 0–120 cm^2 per second. The resolution and accuracy for the measurement of film pressure is $\pm$ 0.1 mN; the range is 0–50 mN. One can set the dipping range between 0 and 75 mm. Two trough options are available: a glass trough of 12 liters and a Teflon trough of 5 liters. *Vickers Instruments, P. O. Box 99, Malden, Massachusetts 02148*

Circle number 149 on Reader Service Card

Data-acquisition module for 12-bit data at 800 kHz

A new 12-bit data-acquisition module for the digitization of data at a throughput rate of 800 kHz is available from Data Translation. The DT5732 is fully self-contained and includes an input multiplexer, a separate instrumentation amplifier for each of its four differential input channels, a sample-and-hold circuit and a high-speed, 12-bit analog-to-digital converter. The outputs are bus compatible and designed for use with multiple microcomputer



busses such as the DEC's Q-bus, MULTIBUS, and the IBM PC/AT bus.

The module accepts analog inputs in the range $\pm$ 5 V. Amplifier input protection circuits allow voltages of up to 20 V. The module is packaged in a low-profile insulated and shielded steel case with dimensions of 4.6 $\times$ 3.0 $\times$ 0.375 inches (116.84 $\times$ 76.2 $\times$ 9.53 mm). The unit price is $1995. *Data Translation, Locke Drive, Marlboro, Massachusetts 01752* □

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