

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.

High-vacuum pumping

The new Parta-Vac series of mechanical Roots pumps from Partagas is described as "a new dimension in the field of high-vacuum, fully-integrated pumping systems." Three basic models with backing rotary mechanical pumps offer combined nominal pumping speeds of 200, 350, and 400 CFMs. The new pumping systems were developed in response to the rising need for continuous and reliable pump operation, particularly in environments of highly corrosive gases. They are claimed to be particularly useful for semiconductor and chemical processing.

The system features two main pumping groups—Roots-type and mechanical vacuum. Both are air-cooled and are said to stand up to the most severe conditions with fewer shutdowns, increased productivity, greater cost effectiveness and prolonged pump life. The Roots-type pump consists of two figure-eight impellers in a stator, with lobes that rotate rapidly as gas enters the inlet compressors. This system has obvious advantages for high pumping speeds, both in the critical pressure range and in high-gas-load regions. The mechanical Roots-type blowers offer labyrinth seals, cast-iron stators, and automatic overload protection of free-wheeling impellers for fast pumpdown, external direct-drive motors, and dynamically balanced couplings. *Partagas, 1128 Cornell Avenue, Cherry Hill, New Jersey 08002*

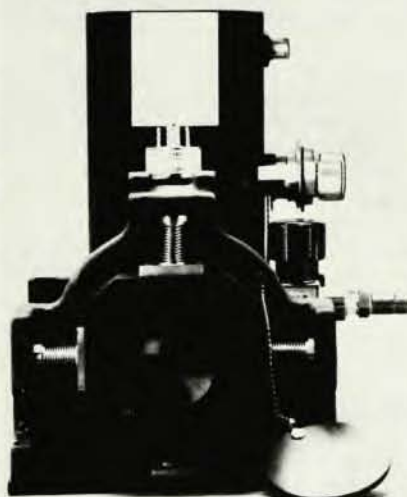
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Laser mount

A new ultra-stable laser mount from Spectra Physics is said to reduce laser vibration dramatically, providing significant improvement in signal-to-noise ratio in infrared laser spectrometers and laser-source assemblies. The new mount is designed for use with the company's SP5000 laser-source spectrometer, SP5800 laser-source assem-

bly and SP5700 temperature-controlled refrigerator.

Designed with three support rods instead of the usual two, the new laser mount essentially eliminates rotational motion about the horizontal axis and substantially reduces acceleration along two axes. As a result, it provides



a virtually vibration-free optical platform for the tunable diode laser. The new mount, which will be used on all of the company's future laser-based products, can also be added to systems presently in the field, to upgrade performance: Retrofitting must be performed at the factory. *Spectra-Physics, Laser Analytics Division, 25 Wiggins Avenue, Bedford, Mass. 01730*

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Plasma generator

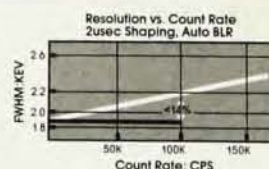
The Plasmaloc 3 plasma generator from ENI is described as "an extremely versatile" source of high frequency excitation energy for gas-plasma applications. The generator provides up to 3200 watts of power to drive any parallel-plate plasma reactor or sputtering

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new products

arrangement. Variable frequency control (25 Hz to 125 kHz) permits the user to select the optimum frequency for proper plasma reaction. Power lock control is available from either the front panel or an external computer-selected level. One can set the plasma power to within ± 10 watts, with an absolute accuracy of ± 35 watts. This permits extremely accurate calibration of etch rates versus plasma power output.

A built-in, wideband, variable matching transformer eliminates the need for any external impedance-matching network between the Plasmaloc 3 and the plasma reactor. The output of the generator is fed directly through a coaxial cable to the reactor electrodes, facilitating system integration. Electromagnetic filtering and shielding, plus the relatively low operating frequency of the Plasmaloc 3, eliminates rf interference problems associated with plasma reactor pressure-measuring, flow-controller and computer circuits.

No single transistor can supply the high power levels needed by modern plasma systems. The Plasmaloc 3 uses a hybrid coupling technique to add the power outputs of 96 transistor stages. If any of these transistors should fail, the others continue to supply their power, without disturbance. *ENI Power Systems, 3000 Winton Road South, Rochester, N. Y. 14623*

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Transient recorder

LeCroy's model TR8837 is a transient recorder that can digitize and store sequences of up to eight independent transient signals on each of two channels. The internal 16 K sample memory is divided equally between two channels operated at conversion rates up to 25 Megasamples/sec, but it is all available to a single channel converting at rates to 50 Msamples/sec. Analog signal processing before the 8-bit analog-to-digital converter provides digital signal offset, 25-MHz analog bandwidth and full-scale sensitivities from 250 mV to 16 V. Selectable portions of each record contain portions of the signal waveform that occurred prior to the trigger. Two independent internal sampling clocks are available for importance sampling.

Full programmability and computer I/O are supplemented by a companion control-and-display unit (not required for basic operation), which allows complete manual control of up to 7 transient recorders (14 channels). This model CD8837 also puts out signals to an oscilloscope or chart recorder. Up to

8 signal records can be viewed simultaneously on the 8-trace scope display that the CD8837 will generate from a single scope input. The prices are \$5900 for the transient recorder and \$4000 for the control-and-display unit. *LeCroy, 1806 Embarcadero Road, Palo Alto, California 94304*

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Waveform recorder

Hewlett-Packard's model HP5180A is a waveform recorder with a high-speed analog-to-digital converter and digital memory. The manufacturer stresses the newly developed 10-bit adc, with a 20 MHz sample rate. It is claimed to deliver "exceptional dynamic perfor-



mance, fully specified and characterized under dynamic operating conditions." This, we are told, lets the HP 5180A reproduce rapidly changing signals accurately.

Applications include the recording of transient phenomena in such fields as laser fusion, laser spectroscopy, flash photolysis, reaction kinetics and ultrasonics. Hewlett-Packard describes the 5180A as a "universal waveform recorder, combining features traditionally found only in digital-storage oscilloscopes with exceptionally powerful system features."

The 5180A comes with a 16K word high-speed memory. To conserve memory, dual time bases permit the time base to be switched to a slower or faster sampling rate during recording. Memory may be segmented into as many as 32 different records. Any two records may be viewed simultaneously on an external crt. An automatic advance feature causes memory to cycle after each trigger to the next memory location, for unattended capture of multiple transients in different record locations. As many as 32 records may be filled automatically. A trigger time feature records the time of the trigger (with 50 msec resolution) for each of the 32 possible record locations. The price is \$18 000. *Hewlett-Packard, 1820 Embarcadero Road, Palo Alto, California 94303*

Circle number 144 on Reader Service Card

Magnetic susceptometer

The Series 900 susceptometer from SHE utilizes a superconducting (sQUID) detector to make ultrahigh-resolution measurements of magnetic moment and susceptibility on small samples in magnetic fields up to 5 tesla. It operates over the temperature range from 2 to 400 K. Reproducibility is said to be better than 0.5%. True-mass susceptibility can be determined without reference to sample density or correction for thermal expansion. The instrument accepts liquid, powdered, or solid samples, and it will accommodate controlled atmosphere measurements and investigations of time-dependent phenomena.

An optional programmable controller allows unattended operation, including complete data acquisition and analysis, over the full range of temperature and field. All Series 900 magnetometers can resolve changes in magnetic moment as small as 10^{-8} ergs/gauss at all temperatures and in fields up to 1 Tesla. This provides an ultimate sensitivity of 10^{-12} emu/gauss (for a 1-gram sample). Such sensitivity is claimed to exceed by far that of any other commercially available instrument. *S.H.E. Corporation, 4174 Sorrento Valley Blvd., San Diego, California 92121*

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Ionization gauge controller

Granville-Phillips describes its Series 280 as "a new generation of digital vacuum ionization gauge controllers." Four models are available: the basic ionization gauge controller with or without a thermocouple gauge option, and with or without the process control. Direct readout of vacuum is given in torr, millibar or pascal, over the pressure range from 1×10^{-9} to 1.99×10^{-3} torr or 1×10^{-9} to 1.99×10^{-3} mbar. Applications include thin-film sputtering and evaporation systems, optical coaters, ion implanters, ion-milling systems, vacuum furnaces, particle accelerators, mass spectrometers, ion-scattering spectrometers, electron microscopes, molecular-beam epitaxy systems and similar vacuum apparatus.

The controller has up to four independent set points to provide process control over eight decades of pressure. The unit uses both Bayard-Alpert tubes and thermocouple gauges to provide a broad range of pressure measurement and process control. An optional BCD output provides computer interface capabilities. *Granville-Phillips, 5675 East Arapahoe Avenue, Boulder, Colorado 80303*

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High-voltage supply

Spellman's new model RHSR30PN60 is a laboratory-grade, reversible-polarity, high-voltage power supply. Applications include scanning electron microscopy, x-ray mass spectroscopy, and x-ray crystallography. The rack-mounted RHSR30PN60 is said to offer solid-state reliability, with output continuously adjustable from 0 to 60 kV at 2 mA. Operating from an input voltage of 115 V rms at 60 Hz, this unit features the convenience of reversible polarity. Reversal is accomplished by a manual switch on the rear of the unit. Front panel meters present both voltage and current. A ten-turn potentiometer controls output from 0 to 30 kV.

Housed in a standard rack enclosure measuring $5\frac{1}{4} \times 19 \times 16\frac{1}{2}$ inches, the power supply offers 0.001% regulation and ripple, built-in current limiting, and remote voltage and resistance programming. It is fully protected against overload, short circuit and arc-over by means of fast acting, self-restoring circuitry. The RHSR30PN60 is priced at \$4600. *Spellman High Voltage Electronics, 7 Fairchild Avenue, Plainview, New York 11803*

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Scanning adc

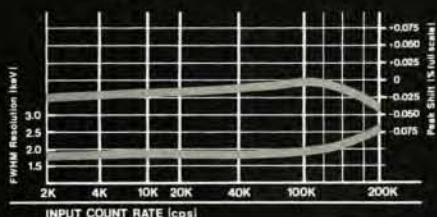
LeCroy's new model 2232C is a 32-input scanning adc intended for use in general-purpose voltage-monitoring applications. The voltage on each input is converted with 12-bit precision (0.025%) and stored in individual registers. The choice between voltage ranges ± 5 V and 0-10 V is determined by a side panel switch. Inputs are differential, with a common mode range of ± 5 V; they have an input resistance of greater than 10 megohms.

The complete scan of all inputs requires 18 msec. The scanning mode may be either continuous, in which case the register for each input is automatically updated every 18 msec, or it may be single-shot, in which case the results of a single scan are held in the registers indefinitely. In either case, readout of a register and the scanning process will not interfere with one other.

The model 2232C is a successor to the 2232-series, this version offering additional computer compatibility with the choice of offset binary or "two's-complement" format for digital readout. The model 2232C is packaged as a CAMAC instrumentation module (IEEE-588, 1975). The price is \$1250. *LeCroy Research Systems, 1806 Embarcadero Road, Palo Alto, California 94303*

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