

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.

LAWRENCE G. RUBIN

FOCUS ON POWER SUPPLIES AND AMPLIFIERS

1500 W Modules Added to Hot-Swap Line

Kepco's series of plug-in hot-swap power (HSP) supplies now includes three 1500-watt models with outputs of 24, 28 and 48 V. The new models incorporate an advanced power factor correction circuit and are the same size and form factor as the 1000 W models in the series. They can be mounted in a selection of housings; a 19-inch rack will accommodate up to three modules. Output voltage and current limit can be preset and adjusted via remote analog programming, so that the HSP can be installed without powering down the system. Voltage stabilization is typically 0.05% (0.1% maximum) for source and load. Sufficient energy storage is provided to ride through a full cycle of lost main power. For longer periods of power loss, the HSP models provide a flag 5 ms before the output loses stabilization lock. *Kepco Inc, 131-38 Sanford Avenue, Flushing, New York 11352*

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Precision High-Voltage Reference Supply

The TREK model 668B is a precision, high-voltage reference power supply with an adjustable output voltage range of 0 to ± 3 kV and an output current of up to ± 5 mA DC. Output accuracy exceeds 0.015% of full scale. Front-panel push-buttons are used to select the output voltage (with 100 mV resolution) and current control (either supply trip-off or limiting at the preset current value). Nine programmable memory locations can store frequently used output voltage and current settings and can be accessed from the

front panel or through an optional digital communications interface. A 16-character LED display indicates the output voltage, the current limit (or current value) and the memory location currently selected. The digital enable feature provides a connection for a TTL signal or a switching device to control and monitor the system. *TREK Inc, P.O. Box 728, 3932 Salt Works Road, Medina, New York 14103*

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Ion Gun Power Supplies

Applied Kilovolts has introduced the IG series of ion gun power supply modules, for powering ion sources that have

to be heated to emit ions in applications such as surface analysis, where the ions arrive with sufficient force to dislodge ions from the surface. Normally, the ion source and its electrical heater are operated at voltages up to 20 kV. The positive ions are then repelled by the positive potential and are attracted to the grounded target.

The three models, IG5 at 5 kV output, IG10 at 10 kV and IG20 at 20 kV, all have a floating heater capable of 5 V at 3 A and a separately controllable focus supply. The units run from 24 V input, and outputs are controlled by 0 to 10 V signals at ground potential. Line and load regulation are better than 1%. Monitor signals are available (also at ground potential) to display voltage and current readings or for

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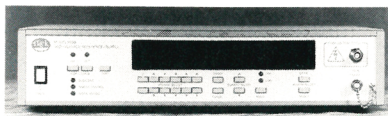
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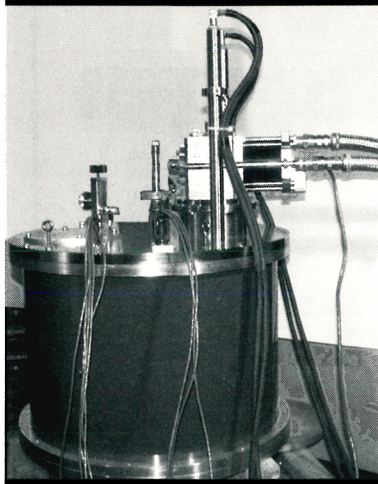
What's New?

Cryogen-Free Superconducting Magnet Systems to 14 Tesla!!

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computer monitoring. *Applied Kilovolts Ltd, 38/40 Eastbrook Road, Portslade, Sussex BN41 1PB, England*
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Capacitor Charging Power Supplies

The CCS12 series of high-voltage switching power supplies from Maxwell Energy Products provides 12 kJ/s output power in a 19-inch, air-cooled rack chassis. The twelve models in the series offer output voltages from 1 to 65 kV, and can be used in both single-shot and repetition rate systems. The increased power, small size and high reliability of the CCS series are intended to encourage users of high-power modulators to switch from conventional resonant charging systems to a solid-state direct charging system. The CCS units can be upgraded to higher power by simple parallel operation; they come with full front-panel instrumentation and provide complete operational and safety protection. *Maxwell Energy Products Inc, 4949 Greencraig Lane, San Diego, California 92123*

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Miniature 5 and 6 kV DC Converters

EMCO has announced two miniaturized printed circuit board-mountable DC-to-high-voltage-DC converters that occupy only 38 × 38 × 16 mm of space. The G 50 (5 kV) and G 60 (6 kV) converters can supply 1.5 W and are said to provide twice as much high voltage than similarly sized competitive models. The converters minimize electromagnetic interference by means of a quasi-sine wave oscillator and shielded transformer design. An isolated output means that either the positive or negative terminal can be grounded. An output center-tap option provides a simultaneous ±3 kV (G 60) output. The input voltage of 0 to 12 V controls the high voltage; only 0.7 V is



required for a turn-on voltage. Both models feature short-circuit protection. *EMCO High Voltage Corp, 11126 Ridge Road, Sutter Creek, California 95685*
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Hot Plug Redundant Power System

Pioneer Magnetics's Hot Plug power supplies eliminate switches and circuit breakers, enabling the user to swap a supply while the system is at full power by pulling it out of the rack and plugging in a replacement. The company uses a standard line of 99.9% power factor corrected switching power supplies to provide from 1 to 5 kW in a package with a 5-inch square cross section; up to three supplies can be housed in a standard 19-inch rack to provide from 3 to 15 kW (or from 4 to 20 kW in a 24-inch rack). Built-in single-wire paralleling gives excellent load division among the supplies regardless of their number, and load is properly distributed as supplies are removed or added. Standard output voltages are 1.2 to 60 V DC. *Pioneer Magnetics Inc, 1745 Berkeley Street, Santa Monica, California 90404*

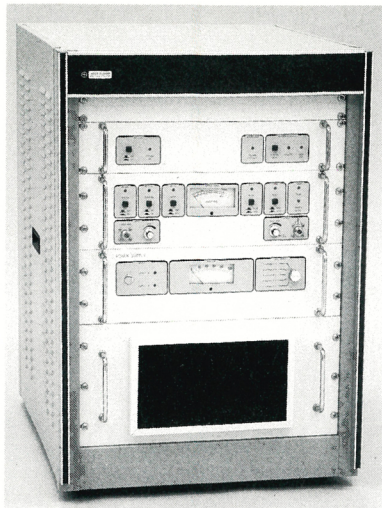
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Capacitor Charging Power Supply

The model 5753 from Analog Modules is designed to repeatedly charge energy storage capacitors for pulsed, solid-state laser applications. It provides 3 kW of output power at maximum output voltages from 400 to 1500 V; to attain 2800 V, the output power is derated to 2.5 kW. The output voltage is controlled from a 0 to 10 V proportional input. We are told that the power supply provides a higher power density than any competing unit. The 5753 can be configured for either positive or negative output voltage and is designed to meet the isolation and leakage current specifications for the most stringent medical requirements. It is protected from open circuits, short circuits, thermal overloads and overvoltages. *Analog Modules Inc, 126 Baywood Avenue, Longwood, Florida 32750-3426*
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Broadband Pulse Amplifier

Kalmus has introduced the model LP1000UE broadband, radio-frequency (RF) pulse amplifier, designed primarily for use in magnetic resonance imaging. The system provides



15-Megawatt Pulse Modulator

A solid-state modulator for high power applications has been introduced by Diversified Technologies. The applications include plasma source ion implantation, particle accelerators and semiconductor and flat panel display manufacturing. The PowerMod HVPM 100-150 provides 1-100 kV peak voltage, 75 A average pulse current, 150 A peak current, 1 to 100 μ s nominal pulse widths with less than 1 μ s rise and fall times and 0-5 kHz pulse repetition frequency; the duty cycle can be as great as 50%. The unit's modular, redundant construction is 98% efficient because it eliminates the need for cooling systems, filament power supplies and other infrastructure related to vacuum-tube-based pulse modulators. *Diversified Technologies Inc, 35 Wiggins Avenue, Bedford, Massachusetts 01730-2345*

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in excess of 1000 W pulse power over the frequency range of 200 to 500 MHz with a minimum power gain of 60 dB. No tuning, band switching or other adjustments are required for system operation. The maximum duty cycle is 10% with pulse rise/fall times of 200 ns. The amplifier features forward and reflected power indication, automatic level control, RF gain control and overdrive, over-temperature and full VSWR (voltage standing-wave ratio) protection. These features, plus power on/off, are also controllable through an optional interface. *Kalmus, 11807 North Creek Parkway South, Suite 109, Bothell, Washington 98011*

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Solid-State Microwave Amplifier

The model 100S1G4 from Amplifier Research is a solid-state, broadband amplifier designed for applications where instantaneous bandwidth and high gain are required, such as testing RF susceptibility, calibrating wattmeters, testing antennas and other components, and driving frequency multipliers and higher power amplifiers. The 100S1G4 provides 100 W minimum power from 0.8 to 4.2 GHz, a combination said to be new to the marketplace.

Local and remote control of the amplifier is available through its digital control panel (DCP). Other DCP features include menu assigned softkeys, four dedicated switches that offer extensive control and status reporting, internal and external automatic level control and RF output level protection. An IEEE-488 interface is built in. *Amplifier Research, 160 School House Road, Souderton, Pennsylvania 18964-9990*

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company's linear and rotary driven stages and systems, and are compatible with brushless linear servo, AC servo and induction motors. The drives come in power models ranging from 2 to 40 kVA and bus voltage ratings from 160 to 650 V DC. System software is used to configure drive system parameters and includes extensive diagnostic routines to assist the user in autotuning the servo system during startup and troubleshooting. An optional keypad allows setup and parameter changes to be made in the field without a computer. Commutation is provided via software control or by resolver feedback. *Anorad Corp, 110 Oser Avenue, Hauppauge, New York 11788*

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New Literature

A 113-page catalog from Avtech Electrosystems has descriptions of more than 500 models of ultrahigh speed and general-purpose pulse generators, laser diode drivers, amplifiers, samplers and impulse, monocycle and delay generators. Also included are accessories such as transformers, power splitters and oscilloscope probes. *Avtech Electrosystems Ltd, P.O. Box 5120, Station F, Ottawa K2C 3H4, Canada*

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Digital Servo Amplifiers

Anorad's Expert Series digital servo amplifiers are designed to control the

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