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Capacitor Charger And Power Supply Eases Design Of Medical Laser Systems

[Advanced Energy Industries'](#) FlexiCharge FC2500 is an addition to the company's portfolio of all-in-one, intelligent system power and capacitor charger platforms. This product simplifies and speeds design of medical laser systems and electrosurgery applications such as intense pulsed light (IPL) therapy and pulsed magnetic (PM) therapy.

The FlexiCharge FC2500 combines high-voltage capacitor charging to 2.5 kJ with multiple-output, low-voltage ac-dc power up to 800 W for a total output power of 3300 W. It delivers constant power over charge voltages from 250 V to 1,000 V. This ensures faster charging at lower voltages, which enables shorter treatment times and increases the number of patients that can be treated.

The use of a single power supply for capacitor charging and system power reduces application development times and complexity, reduces size and weight up to 30%, and simplifies compliance with safety and EMI standards. The unit measures 13.701 in. (l) x 5.709 in. (w) x 4.173 in. (h) (see the figure).

The second member of the FlexiCharge series, the FC2500 builds on the previously introduced FC1500, a high-voltage 1.5-kJ capacitor charger and low-voltage power supply in one package. That unit delivers up to 2300 W of total power.

IPL and PM systems typically have capacitors in aesthetic and surgical lasers that are charged to high voltages and then discharged to generate high-current pulses. Traditionally, charging was provided by a separate power supply to the system power supply. According to Advanced Energy, it is the industry's first and only company to deliver a single integrated platform for providing both the high-voltage inputs for capacitor charging and multiple output low-voltage ac-dc conversion for system electronics such as touch panels, pumps, cooling elements and other treatments.

"This latest addition to Advanced Energy's revolutionary FlexiCharge series of capacitor chargers underscores our continued commitment to developing innovative solutions that meet the power and performance demands for next-generation laser, IPL and pulsed power systems," said Shrinidhi Chandrasekharan, senior vice president of medical products at Advanced Energy.

Designed for optimum flexibility, the FC2500 offers configuration and programming of outputs and charge voltages and allows connection of outputs in series and parallel to support higher voltages and currents. Intelligent analog and digital control via the PMBus with "set and forget" features and storage capabilities, enable faster time-to-market for medical OEMs and can be used in the field to simplify system maintenance and servicing resulting in longer term reliability and reduced down time.

The FC2500 is compliant with IEC60601-1 (3rd edition) and IEC60601-1-2 (4th edition). For more information, see the FC2500 [page](#).



Figure. Delivering up to 3300 W of total power, the FC2500 is a high-voltage 2.5-kJ capacitor charger and low-voltage power supply in one package. It serves as a power supply for laser, IPL and electrosurgery systems, saving size, weight and development time and enabling faster patient treatment through faster charging.