

Microfuel cell enables ubiquitous computing

This fall's Intel Developer Forum in San Francisco included a section on technologies that will help extend the computing time of laptop computers. Medis Technologies (www.medistechnologies.com) demonstrated its fuel-cell-based, \$19.95, 1W 24/7 Power Pack for handheld devices, such as cell phones and MP3 players. The 3.8×2.7×1.4-in. device provides approximately 20 Whrs of energy—enough to power an iPod for at least 60 hours or provide approximately 30 hours of cell-phone talk time. It comes with a standard connector and multiple adapter tips. It complies with ROHS (restriction-of-hazardous-substances) directives, and you can recycle; just mail it back in its original box to the manufacturer. The company's next-generation product will be a 20W device capable of powering a laptop.



The company based the power pack's fuel cell on a proprietary DLFC (direct-liquid-fuel-cell) technology using a liquid-sodium-borohydride chemistry. You can store the fuel cell indefinitely and then activate it by removing the protective green band (not shown) and squeezing the top and bottom of the pack (as the above photo shows).

Each bladder has a "dagger," which serves as a conductive path for the liquids and regulates the speed at which the chemicals combine.

The PCB (printed-circuit-board) assembly includes a proprietary power-control chip. It has an output voltage of 3.6 to 5.45V, a continuous-current output as high as 220 mA, nominal power as great as 1W, and full short-circuit protection.

The internal fuel-cell stack has three bladders. One contains a borohydride paste that serves as the fuel. A second bladder contains a saline solvent, and the third bladder contains an electrolyte. Activating the fuel cell forces the paste and the saline solvent to combine with the electrolyte and starts the electrochemical reaction.

