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Fuel Cell Power Source with Twice the Energy Density of Lithium Batteries

Reformed methanol fuel cell (RMFC) technology

UltraCell Corporation announces a new fuel cell power source for portable electronic devices that has twice the energy density of lithium batteries. UltraCell's reformed methanol fuel cell (RMFC) technology uses a revolutionary micro reformer to generate fuel-cell-ready hydrogen from a highly concentrated methanol solution. This new portable power system has the power density of a hydrogen fuel cell but uses readily available, low cost methanol fuel in a convenient, compact package. Weighing just 40 ounces, the power unit is about the size of a paperback novel. This new technology has already been developed by UltraCell as a prototype for the military. This original system, the XX90, was designed for up to 45 watts of continuous power. Subsequently, the U.S. Army's Communications-Electronics Research, Development and Engineering Center (CERDEC) awarded UltraCell a contract to accelerate its development of a more compact portable system to run at 25 watts. This new power source is being developed for commercial use as the UltraCell25 and will be available in 2006 for professional, industrial and mobile computing applications. Its name for the military will be the XX25. UltraCell's micro reformer technology is designed to work in a user-friendly package that, with the push of a power button, self starts and feeds power as needed. The system's spent fuel canisters can be instantly "hot swapped," as needed, to provide continuous power in any remote situation. Whether for a soldier on mission or for the on-the-go laptop user, mobile executive, emergency first responder, researcher in a remote location, industrial video maker, or remote electronic monitoring, this means a nonstop supply of power anywhere, anytime. For greater flexibility, the system can even support batteries by serving as a portable recharging power supply. The complete UltraCell system includes fuel processor, fuel cell stack, control system, balance of plant and easily replaceable fuel cartridge. Based on proprietary control algorithms, the control system manages a steady flow of power by adjusting pump and compressor settings. The revolutionary micro fuel cell generates no excess water, and consequently does not need a water management system, saving size, weight and cost versus alternative micro fuel cell systems. In addition, the UltraCell system uses a high temperature membrane assembly (MEA) from Pemeas in its fuel cell stack, resulting in high tolerance to CO and impurities.