

iGen™ Fuel Cell Power Supply

The CE certified iGen™ fuel cell power supply is IdaTech's 250 watt portable fuel cell solution. The compact powerful system incorporates a fuel processor with IdaTech's HyPurium™ metal membrane, an IdaTech PEM fuel cell stack and electronics for automated battery charging and a user interface for service and troubleshooting.

The iGen™ system allows quiet, efficient battery charging in stand alone or hybrid configurations for a variety of applications. Through constant battery monitoring, the iGen™ system senses low battery voltage and automatically starts up to recharge the batteries and power the load. Upon recharge, the system returns to the stand-by state. The iGen™ system integrates with hybrid

By operating on liquid fuel, IdaTech's iGen™ system provides a dependable, flexible and practical solution for both primary and backup power needs.

solar-battery systems to provide backup power during inclement weather, offering an alternative to redundant batteries and costly generators.

IdaTech's HydroPlus fuel, a mix of water and methanol, fuels the iGen™

system. The system converts the fuel into high purity hydrogen through the onboard fuel processor. Once the iGen™ system is enabled and in stand-by state, battery voltage is monitored and maintained at a healthy level through automatic operation of the iGen™ system. If low battery voltage is detected, the iGen™ system starts and begins delivering up to 250 watts of electric power to recharge the batteries and power the load. The iGen™ system output current is controlled and adjusted to avoid battery overcharging. Once the battery is recharged, the iGen™ system automatically returns to the stand-by state. The iGen™ fuel cell power supply provides full power for extended durations since runtime is only limited by the amount of methanol-water fuel available. The HydroPlus fuel is available globally in various container sizes, making the iGen™ system a reliable backup power solution for hybrid and remote applications.



Potential Applications

Methanol is an ideal source of hydrogen to power today's fuel cells due to its consistent high quality, extremely low freezing point (-76°C), lower reforming temperature and readily available supply options. Its very low sulfur content (a maximum of 0.5 ppm) simplifies the reforming process; reduces the capital, operating and maintenance costs of the fuel cell system; and greatly reduces the risk of fuel cell damage. Methanol's lower reforming temperature (250°–350°C vs. 800°–900°C) ensures faster startup, improved system efficiencies, lower fuel processor capital costs, and a longer fuel processor life.

How it Works

IdaTech's iGen™ fuel cell power supply is capable of providing up to 250 watts of grid-independent continuous DC power for battery charging and extension as needed. The compact enclosure and automated battery charging offers a flexible and practical solution to meet both primary and backup power requirements. The system may be conveniently integrated into ventilated OEM enclosures, compartments, locker spaces, and equipment huts to meet most battery charging needs. For higher power applications, systems can be combined in parallel on the battery bus.

Potential applications for the iGen™ system include automated battery charging in marine, recreational, and remote sensing and telecommunications applications, including PV and wind hybrid configurations. For sailboats, the iGen™ system can free-up deck space from PV panels and wind machines, and even reduce the number of batteries, offering customers a unique level of independence and quiet, vibration free autonomy. For telecommunications and remote sensing/transmitting applications, the iGen™ system can be incorporated into a PV or wind hybrid system to provide backup power and increase overall system availability in unfavorable weather conditions. The iGen™ solution offers a reduction in system cost through the elimination of redundant battery strings as well as improved battery health by maintaining desirable battery voltage. Specialized military and niche applications for the iGen™ system include squad level battery charging, robotics, and remote surveillance and monitoring.



HydroPlus Fuel

HydroPlus pre-mixed fuel (a mixture of water and methanol) is conveniently available on demand through a global supply network of blending, warehousing, and distribution facilities. The fuel is shipped and dispensed in UN-rated containers, in a wide range of sizes, with capacities and delivery schedules matched to customer requirements. Contact your local IdaTech commercial representative for ordering and shipping information.

Performance Specifications:

Fuel Specification:	IdaTech HydroPlus (1.1 to 1 molar blend of water and methanol)
Nominal Power:	250 Watts (continuous)
Nominal Voltage:	12 & 24 VDC
Fuel Consumption:	500 ml/hour (approximate)
Dimensions:	358 mm x 166.4 mm x 504.1 mm (14.1" x 6.55" x 19.85")
Ventilation Air, m ³ /hr (cfm):	72 (42)
Enclosure:	IP20 (NEMA 1)
Exhaust:	Heat resistant exhaust duct sized for unrestricted flow required
Certifications:	CE certified (12V)

© 2002-2007 IdaTech, LLC All Rights Reserved. Protected by one or more of the following patents: **U.S. Patent Nos.** 5,861,137 5,997,594 6,152,995 6,221,117 6,242,120 6,319,306 6,375,906 6,376,113 6,383,670 6,419,728 6,451,464 6,458,189 6,465,118 6,494,937 6,495,277 D467,191 6,537,352 6,547,858 6,562,111 6,569,227 6,596,057 6,858,341 6,835,481 6,824,593 6,818,335 6,811,908 6,783,741 6,767,389 6,723,156 6,719,832 6,719,831 6,667,128 6,632,270 6,869,707 6,887,605 6,878,474 6,890,672 6,858,341 6,878,474 6,687,605 6,953,497 6,979,507 6,994,927 7,005,113 7,008,708 7,101,421 7,052,530 **Canadian Patent Nos.** 2,345,966 2,367,839 2,374,361 2,384,353 2,393,475 2,447,220 2,467,012 2,392,881 2,435,013 2,374,359 2,427,464 2,413,994 2,392,724 2,371,657 2,377,412 2,274,904 2,474,237 2,477,077 2,483,224 **Taiwanese Patent Nos.** 151,534 151,606 159,862 169,342 I221097 I221041 192,145 284,870 180,673 178,391 173,620 I226,872 I243,253 I244,234 **Japanese Patent Nos.** 3,556,638 3,537,768 3,454,362 3,688,271 **United Kingdom Patent Nos.** GB 2,384,447 GB 2,389,702 GB 2,405,029 **Singapore Patent Nos.** 100,100 103,047 96,462 107,836 101,766 108,556 107,220 **Australian Patent Nos.** 745,858 754,812 2002303161 **European Patent Nos.** 1,272,259 **Korean Patent Nos.** 415,235 513,691 **Hong Kong Patents** HK1051332 HK1053995 HK1058577 **China Patents** 1818158.9 Other U.S. and foreign patents pending.

Specifications, descriptions and images contained in this document were in effect at the time of publication. IdaTech, LLC reserves the right to discontinue any equipment or change specifications without notice and without incurring obligation.

All company names, logos, and products mentioned herein are trademarks of their respective companies.