

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

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

hybrid 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 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 features an outdoor enclosure and flexible mounting options 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 signaling, sensing and telemetry, security, and telecommunications applications, including PV and wind hybrid configurations. Signaling applications can include battery charging for portable traffic signals in construction zones and emergency conditions, railroad crossings and control points, and navigational aids for marine and air industries. For telecommunication micro base stations and sensing/transmitting applications, the iGen™ system can provide back-up to the grid or can be incorporated into a PV or wind hybrid system to increase overall system availability in unfavorable weather conditions. The iGen™ solution offers a reduction in system cost through reduced PV panel area and 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.




Performance Specifications:

Fuel Specification:	IdaTech HydroPlus (1.1 to 1 molar blend of water and methanol)
Nominal Power:	250 Watts (continuous)
Nominal Voltage:	12 or 24 VDC
Temperature, min to max operating:	-20° ¹ to 50° C (-4° to 122° F)
Fuel Consumption:	500 ml/hour (approximate)
Dimensions:	338 mm x 437 mm x 445 mm (13.313" x 17.25" x 17.5")
Ventilation Air, m ³ /hr (cfm):	160 (95)
Enclosure:	IP43
Certifications:	CE certified

¹ Cold weather kit required for freezing conditions; rated 1° to 50° C

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.

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