

PROGEN

FUEL CELL POWER Moving UAVs into the Future

Plug Power's ProGen 300W fuel cell engines are lightweight and rugged UAV propulsion systems designed specifically to deliver extended flight endurance under the most demanding of weather conditions.

Powerful Benefits

COMPLETE FUEL CELL SYSTEM

To ensure seamless integration into your UAV airframe, the ProGen 300W fuel cell is fully-integrated and self-contained to include all of the necessary subsystems to provide reliable and efficient UAV propulsion power. Its design has been optimized based on extensive UAV flight testing in many different platform configurations and environmental conditions.

ZERO-EMISSION

Plug Power's zero-emission ProGen engines enable users to meet transportation emission reduction targets. Using hydrogen as a fuel, only heat and water are generated as by-products.

FLEXIBLE ARCHITECTURE AND SCALABLE POWER

ProGen engines are designed with simplicity in mind. Their design allows for packaging flexibility including both complete, integrated systems and those with distributed air and cooling sub-systems. Longer range, faster fueling and up to 9x the specific energy over batteries are enablers for high-performance UAV applications.

RUGGED RELIABILITY

ProGen provides superior power even in the most rugged conditions, operating in a wide range of climates including sub-freezing temperatures. System reliability is backed up by Plug Power's experience operating more than 35,000 fuel cell systems in the field.



Powering Your Possibilities.



SYSTEM EFFICIENCY

What separates the ProGen 300W fuel cell from the competition is its system efficiency. We produce more power with less hydrogen, making our fuel cell systems lighter. Designed for operation at very high efficiency, the total net energies quoted are at a usable power level that will actually fly your UAV.

FUEL CELLS VS. LIPO

Plug Power fuel cell systems provide up to 9x the energy available from rechargeable lithium polymer (LiPo) batteries, the incumbent electric UAV propulsion technology. The output voltage range of the fuel cell system is similar to that of an 8 to 10S LiPo battery pack, eliminating the need for any power conditioning between the fuel cell system and your propulsion motor - no DC/DC converter required.

SYSTEM FEATURES

- Hybrid battery for peak power demands
- In-flight battery charging to ensure high power is available in the most demanding weather conditions
- Modular design for optimal UAV integration
- System level specific energy of over 450 Wh / kg
- Exceptional system efficiency for longer flight endurance
- Low heat and noise signature

FULL PRODUCT CONFIGURATION

- Fully integrated fuel cell stack
- Hybrid LiPo batteries
- Electronic controller & power distribution board
- Proprietary power management system, including battery charging
- Air delivery & cooling subsystems
- Hydrogen valves
- Hydrogen delivery system with regulator & integrated pressure sensor
- Human machine interface for system monitoring while on the ground or in the air
- Data link for all fuel cell system parameters

Other product configurations available depending on mission requirements and UAV platform

PRODUCT SPECIFICATIONS

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|----------------------|--|--|
| PERFORMANCE | RATED NET OUTPUT POWER (W) | 310 |
| | MAX CONTINUOUS NET OUTPUT POWER (W) | 450 ¹ |
| | PEAK NET OUTPUT POWER (TAKEOFF) | 1000 |
| | DC OUTPUT VOLTAGE RANGE | 32V - 45V |
| | SYSTEM EFFICIENCY @ 310W | 54% |
| | DESIGN LIFETIME | UP TO 3,000 HOURS |
| | NET ENERGY AVAILABLE @ 310W | 1,790 WH |
| ENVIRONMENTAL | AMBIENT TEMPERATURE (MAX) | 40°C ² |
| | FLIGHT ALTITUDE | 1,000m ³ |
| PHYSICAL | TOTAL SYSTEM MASS (INCLUDING H2 DELIVERY SYSTEM, H2 FUEL & BATTERY) | 3.95KG |
| | DIMENSIONS / VOLUME | Fully configurable depending on UAV airframe |

Product specifications are subject to change without notice.

¹ At STP (20°C, 1 atm)

² System configurations for ambient temperatures up to 45°C available

³ Higher altitudes available on request

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