

ElectraGen™ Family of Backup Power Systems

Reliable Backup Power

Those familiar with Valve Regulated Lead Acid (VRLA) batteries know that there are a host of challenges that must be overcome in the operation and maintenance of systems utilizing these batteries. IdaTech's CE, ANSI/CSA FC 1, and NEBS Level 3 certified ElectraGen™ family of critical backup power systems are a cost-effective alternative to battery power systems for markets

The ElectraGen™ family offers an ideal replacement for VRLA battery backup providing ten years or more of higher system reliability at an attractive initial cost and lower lifecycle cost.

such as telecommunications, utilities, UPS and other applications requiring highly reliable critical backup power with long lifetimes. The systems in the ElectraGen™ family provide an ideal alternative for VRLA battery backup, allowing ten or more years of higher

system reliability at an attractive initial cost and overall lower lifecycle cost. Additionally, the classic problems associated with lead acid batteries, including unpredictable performance and costly disposal of hazardous waste, are eliminated.

The ElectraGen™ family is based on proton exchange membrane (PEM) technology. The ElectraGen™3 system manages loads of up to three kilowatts and the ElectraGen™5 can be paralleled to produce backup power of up to 15 kilowatts, or five kilowatts individually. The IdaTech systems are compact, versatile and easy to operate. These backup power solutions feature fueling options that enable extended run times, including hot swappable hydrogen cylinders and the reformer-based ElectraGen™ Extended Run Module, a methanol reformer providing extended run capabilities.



Potential Applications

IdaTech has developed its hydrogen-fueled ElectraGen™ family of backup power systems as an alternative to battery powered systems for markets requiring high reliability, low maintenance and long lifetimes, such as telecommunications sites and data centers. ElectraGen™ solutions enable customers with high power reliability requirements to reduce cost by effectively eliminating the traditional and unreliable lead acid battery systems with fuel cell systems.

Advantages

- CE and ANSI/CSA FC 1 and NEBS Level 3 Certified
- Predictable and reliable performance year after year for a full 10 years or more
- Similar first cost and lower life cycle cost compared to VRLA
- Near zero maintenance with annual inspection periods
- Superior performance over a wide range of temperatures (-40C to +50C)
- Scalable family of backup solutions up to 15 kW
- Remote monitoring and control capabilities
- Compact and lightweight as compared to VRLA
- Zero emissions, environmentally friendly
- Integrates with the IdaTech ElectraGen™ XTR Module for longer run times from liquid fuel



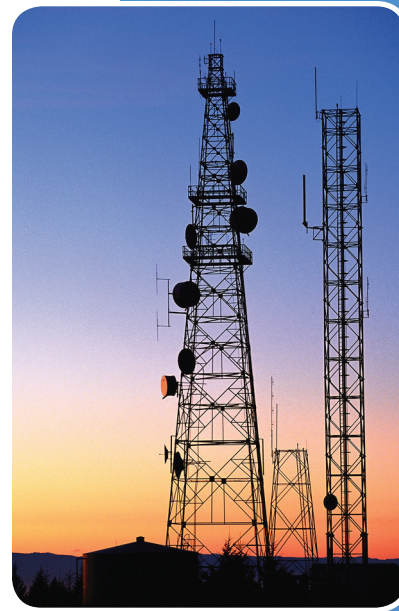
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How it Works

The products in the ElectraGen™ family are direct hydrogen PEM fuel cell systems. These systems utilize readily available commercial grade hydrogen, or hydrogen derived from reformed methanol. Hydrogen and air are combined inside the fuel cell system to produce electricity with water vapor being the only emission.

IdaTech's ElectraGen™ products are capable of providing full rated power for more than eight hours using only six standard cylinders of hydrogen. For extended run purposes, customers are able to "hot-swap" these cylinders, replacing them while the system is in operation. Another option is to pair the ElectraGen™ system with the IdaTech ElectraGen™ XTR Module, a methanol fuel reformer designed to provide a direct hydrogen feed when storage space is limited or weight restrictions are enforced. All ElectraGen™ systems can incorporate IdaTech's remote monitoring and controls capabilities, making it possible for the customer to receive regular updates on system status as well as enabling the system to sense grid failure and automatically support critical loads up to 15 kW.



The ElectraGen™ family of backup power products provides a scalable, reliable and cost-effective solution for critical backup and remote power applications.

Performance Rated Specifications:

	ElectraGen™3	ElectraGen™5
Continuous Power Output	3000 Watts, load following	5000 Watts, load following
System Time to Full Power	Seamless ride through	Seamless ride through
Voltage, input	200-240 VAC, 50-60 Hz	200-240 VAC, 50-60 Hz
Voltage, output	Nominal -48 VDC (with the option for +48). Limit -48 VDC to -52 VDC	Nominal -48 VDC (optional +48 VDC). Limit -48 VDC to -52 VDC
Fuel Consumption	45 slpm of H2 at full output	75 slpm of H2 at full output
Target Temperature Range	-40°C to +50°C (-40°F to 122°F)	-40°C to +50°C (-40°F to 122°F)

Fuel Specifications:

Hydrogen Quality	Commercial grade Hydrogen (99.95% dry)	Commercial grade Hydrogen (99.95% dry)
Refueling	Hot swappable refueling option	Hot swappable refueling option

Physical Specifications:

Dimensions (WxDxH)	648 x 997 x 1345 mm (25.5 x 39.25 x 53.0 in.)	648 x 997 x 1345 mm (25.5 x 39.25 x 53.0 in.)
Weight (approximate)	220 kg (485lbs)	226 kg (500 lbs)
Enclosure	CS Topotec	CS Topotec
Noise	<70 dB @ 1 meter/3.28 feet	<70 dB @ 1 meter/3.28 feet
Relative Humidity	0% - 95%, no condensate	0% - 95%, no condensate
Elevation	0 - 2000 meters/0 - 6562 ft	0 - 2000 meters/0 - 6562 ft
Location	Outdoor rated	Outdoor rated

Certifications/Safety:

Certifications	CE, ANSI/CSA FC-1, NEBS Level 3	CE, ANSI/CSA FC-1, NEBS Level 3
Seismic Rating	Seismic Zone 4	Seismic Zone 4

Monitoring/Controls:

Remote Monitor & Control System and fuel cell status. Historic and operational data. Eight configurable dry contacts

Options:

Ultra-capacitor Option	Ultra-capacitor energy storage module available
Communications	Ethernet/IP, RS232
Hydrogen Safety	Hydrogen detection sensors/alarms
Hydrogen Storage Cabinet	Fuel storage cabinet options are available

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Other U.S. and foreign patents pending.

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