# GENSURE FUEL CELL SYSTEMS

Issue Date: March 2016

**Product Catalog** 



**Powering Your Possibilities.** 

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GenSure<sup>™</sup>, E-200<sup>™</sup>, E-1100<sup>™</sup>, E-1000x<sup>™</sup>, E-1100v<sup>™</sup>, E-2200x<sup>™</sup> and E-2500<sup>™</sup> are trademarks of Plug Power. Other product and company names mentioned herein may be the trademarks of their respective owners. Plug Power retains all rights to the patents, patent applications, or other intellectual property rights covering the E-200<sup>™</sup>, E-1100<sup>™</sup>, E-1100v<sup>™</sup>, E-1000x<sup>™</sup>, E-200<sup>™</sup> and E-2200x<sup>™</sup>, which include U.S. Patent Nos. 6,030,718; 6,096,449; 6,218,035; 6,387,556; 6,428,918; 6,468,682; 7,833,645, 8,192,889 and other patents pending.

#### Certifications

GenSure products are tested or certified to stringent standards from CSA, UL, CE, Telcordia NEBS and China TTL Labs.

### **PLUG POWER: POWERING YOUR POSSIBILITIES**

Our philosophy is that new technology should be innovative and ultimately more reliable than traditional technologies – otherwise, why change? Plug Power's forward-thinking design philosophy results in fuel cell power solutions that give You, the customer, a highly reliable, cost-effective and clean energy solution with a seamless upgrade path, maximizing initial investments in fuel cell systems, and dramatically reducing the impact on operating budgets and the environment. Through proven field performance and third-party testing, Plug Power's GenSure fuel cell systems have demonstrated many of the benefits associated with traditional technologies while minimizing the limitations associated with battery systems and combustion generators. This is the Plug Power difference.

#### **Robust High Reliability**

GenSure fuel cells have a reliability rating of 99.6%, arrived at through multiple third-party testing in commercial customer environments over the course of several years. Simplicity of design and very few moving parts result in a robust, reliable power solution.

Batteries offer a moderate level of reliability to customer equipment locations needing a low level of power. Use is limited by the need to increase the size of the footprint linearly in order to add runtime. Temperature sensitivity can shorten battery life and reduce capacity, so care must be taken to ensure proper maintenance.

Diesel generators of the size routinely used at telecommunication outside plant sites have a reliability rating of 88.4% according to third-party reports. With hundreds of moving and sliding parts, generators have many points of potential failure.

#### **Cost Effective**

A critical element in capital procurements is the cost of ownership of equipment. Plug Power's GenSure fuel cell solution is a cost-effective solution when compared to traditional technologies, both in terms of capital and ongoing costs.

A fuel cell maintenance call generally happens once a year and involves inspection of and possible exchange of a standard air filter. This low maintenance is attributable to the simplicity of fuel cell design. Simple maintenance and fewer site visits mean up to 84% lower operational costs when compared to combustion generators.

#### Sustainability - Clean Technology

As a clean technology, fuel cells have minimal impact on the environment. GenSure fuel cell "emissions" are DC electricity, warm air and a small amount of water. Plug Power fuel cell products utilize environmentally-benign hydrogen as a fuel source, which eliminates the environmental impact of fuel spillage, leaks or air pollution and results in simplified zoning requirements. Because of this, they are exempted from the very stringent California Air Resources Board (CARB) and a number of other states' emission permitting requirements. Additionally, the GenSure fuel cell system has noise levels of a typical telecom cabinet, allowing it to be placed in applications where the noise level of a generator is not acceptable.

#### A Modular Product Line: Scalability

The advantages of using a modular product are simple. Greater reliability. Easier to service.

But the most important benefit may be scalability – and the savings that feature provides when purchasing and using a fuel cell.

#### HOW DOES A GENSURE FUEL CELL WORK?

A hydrogen fuel cell generates electricity through an electrochemical reaction using hydrogen and oxygen. In simplified terms, it works like this: Hydrogen is sent to one side of a proton exchange membrane. The hydrogen proton travels through the membrane, while the electron enters an electrical circuit, creating a DC electrical current. On the other side of the membrane, the proton and electron are recombined and mixed with oxygen from room air, forming pure water. Because there is no combustion in the process, there are no other emissions, making fuel cells an extremely clean and renewable source of electricity.



With its patented technology, Plug Power creates solutions that are engineered precisely to meet a variety of customer power needs. Instead of buying a 5,000 Watt product to meet a 3,300 Watt requirement, our customers can buy a 3,300 Watt unit. Paying for only what you need just makes good business sense. As your power requirements increase, our modular design allows for the addition of further rack-mounted products to meet the new requirement without having to replace the existing system.

#### **Environmentally-hardened**

Plug Power's GenSure E-series fuel cells may be rack-mounted or housed in a rugged, compact enclosure designed to meet Telcordia GR-487-CORE and CSA safety regulations. Enclosures are designed to provide a variety of power configurations and are suitable for concrete or composite pad or steel platform installation. Enclosures are available for both fuel cell and hydrogen storage.



### GENSURE E-SERIES FUEL CELL SYSTEMS FOR BACKUP POWER APPLICATIONS



### **GENSURE E-200™ HYDROGEN FUEL CELL**

Designed specifically for small-scale backup power applications, the E-200 fuel cell system increases the site reliability for critical equipment while affordably providing hundreds of hours of highly reliable runtime between refueling visits.

PRODUCT SPECIFICATIONS		
PHYSICAL	DIMENSIONS (W X D X H)	3.38" x 18.75" x 17.25" / 8.6cm x 47.63cm x 43.8cm
	WEIGHT	16.5 lbs / 7.5 kg
	MOUNTING	19" or 23" rack mount
PERFORMANCE	RATED POWER	200W (16.6A @ 12V / 8.3A @ 24V / 5.5A @ 36V / 4.1A @ 48V)
	DC VOLTAGE	12 / 24 / 36 / 48V nominal - field-selectable
OPERATION	AMBIENT TEMP	23°F to 122°F / -5°C to 50°C (Optional -40°F to 122°F / -40°C to 50°C in hardened outdoor cabinet)
	RELATIVE HUMIDITY	0-95% non-condensing
	ALTITUDE	-197 ft to 13,800 ft / -60m to 4,206m
	LOCATION	Indoors or hardened outdoor cabinet
EMISSIONS	WATER	Max 8mL / 200W (primarily vapor)
	NOISE	51.6dBA@23ft (7m) / 65dBA@4.9ft (1.5m)
MONITORING/CONTROL	REMOTE	System configuration & status / Historical & operational data
	COMMUNICATIONS	Standard: USB / Dry contact / Ethernet / SNMP / Web interface Optional: Wireless modem - CDMA / GSM / Ethernet switch
FUEL: STANDARD INDUSTRIAL-GRADE HYDROGEN (99.95%)		
	SUPPLY PRESSURE TO UNIT	8 to 12 psig / 55.1 to 82.8 KPag / 0.55 bar to 0.83 bar
	CONSUMPTION	3 slpm @ rated power
	H <sub>2</sub> STORAGE CAPACITY	n/a (multiple fueling solutions available separately)

### **GENSURE E-200<sup>™</sup> FUEL CELL ENCLOSURE OPTIONS**



PRODUCT SPECIFICATIONS			
PRODUCT	4U19V 7U19V		
MAXIMUM POWER	200W TO 400W	200W to 600W	
HEIGHT	33.1" / 84cm	39.4" / 100cm	
WIDTH	13.2" / 33.5cm	17.8" / 45.2cm	
DEPTH	26.8" / 68cm 29.3" / 74.4cm		
WEIGHT (WITHOUT CHASSIS)	44 lbs / 19.9 kg 55 lbs / 24.9 kg		
HYDROGEN STORAGE	Multiple options available		
AMBIENT TEMPERATURE	-40°F to 122°F / -40°C to 50°C		

### **GENSURE E-200<sup>™</sup> ENCLOSURE CONFIGURATIONS**



PRODUCT SPECIFICATIONS			
PRODUCT	4U19V 3Cyl80	4U19V 5Cyl80	4U19V 6Cyl300
MAXIMUM NUMBER CHASSIS	2	2	2
HEIGHT	39.5" / 100.3cm	39.5" / 100.3cm	72" / 182.9cm
WIDTH	24.3" / 61.7cm	30.8" / 78.2cm	38.4" / 97.5cm
DEPTH	26.8" / 68cm	26.8" / 68cm	35" / 88.9cm
WEIGHT (WITHOUT CYLINDERS)	144 lbs / 65.3 kg	154 lbs / 69.8 kg	394 lbs / 178.7 kg
HYDROGEN STORAGE	8kWh	13kWh	54kWh
AMBIENT TEMPERATURE	-40°F to 122°F / -40°C to 50°C		





PRODUCT SPECIFICATIONS			
PRODUCT	7U19V 3Cyl80	7U19V 5Cyl80	7U19V 6Cyl300
MAXIMUM NUMBER CHASSIS	3	3	3
HEIGHT	39.5" / 100.3cm	39.5" / 100.3cm	72" / 182.9cm
WIDTH	28.9" / 73.4cm	35.2" / 89.4cm	43.1" / 109.5cm
DEPTH	29.3" / 74.4cm	29.3" / 74.4cm	35" / 88.9cm
WEIGHT (WITHOUT CYLINDERS)	155 lbs / 70.3 kg	165 lbs / 74.8 kg	405 lbs / 183.7 kg
HYDROGEN STORAGE	8kWh	13kWh	54kWh
AMBIENT TEMPERATURE	-40°F to 122°F / -40°C to 50°C		

### **GENSURE E-1100™ HYDROGEN FUEL CELL**

Designed for backup power applications within the telecommunications, utility, transportation and government sectors, Plug Power's GenSure E-1100 fuel cell system delivers robust reliability, providing extended runtime for critical stationary applications. Multiple systems may be combined for higher power or N+1 redundancy.



PRODUCT SPECIFICATIONS		
PHYSICAL	DIMENSIONS (W X D X H)	17.25" x 24" x 7" / 43.8cm x 61cm x 18cm
	WEIGHT	58 lbs / 26.4 kg
	MOUNTING	19" or 23" rack mount
PERFORMANCE	RATED POWER	1,100W (46A @ 24V / 23A @ 48V)
	DC VOLTAGE	24 / 48V nominal
OPERATION	AMBIENT TEMP	23°F to 122°F / -5°C to 50°C (Optional -40°F to 122°F / -40°C to 50°C in hardened outdoor cabinet)
	RELATIVE HUMIDITY	0-95% non-condensing
	ALTITUDE	-197 ft to 13,800 ft / -60m to 4,206m
	LOCATION	Indoors or hardened outdoor cabinet
EMISSIONS	WATER	Max 25mL / kWh (primarily vapor)
	NOISE	51.6dBA @ 23ft (7m) / 65dBA @ 4.9ft (1.5m)
MONITORING/CONTROL	REMOTE	System configuration & status / Historical & operational data
	COMMUNICATIONS	Standard: USB / Dry contact / Ethernet / SNMP / Web interface Optional: Wireless modem - CDMA / GSM / Ethernet switch
FUEL: STANDARD INDUSTRIAL-GRADE HYDROGEN (99.95%)		
	SUPPLY PRESSURE TO UNIT	8 to 12 psig / 55.1 to 82.8 KPag / 0.55 bar to 0.83 bar
	CONSUMPTION	14 slpm @ 1,100W
	H <sub>2</sub> STORAGE CAPACITY	n/a (multiple fueling solutions available separately)

### **GENSURE E-1100<sup>™</sup> FUEL CELL ENCLOSURE OPTIONS**



PRODUCT SPECIFICATIONS		
PRODUCT	16U23	
MAXIMUM POWER	1.1 kW to 4.4 kW	
HEIGHT	39.5" / 100.4cm	
WIDTH	28.5" / 72.4cm	
DEPTH	45.5" / 115.6cm	
WEIGHT (WITHOUT CHASSIS)	250 lbs / 113.4 kg	
HYDROGEN STORAGE	Multiple options available	
AMBIENT TEMPERATURE	-40°F to 122°F / -40°C to 50°C	

### **GENSURE E-1100<sup>™</sup> ENCLOSURE CONFIGURATIONS**



PRODUCT SPECIFICATIONS		
PRODUCT	16U23 6CYL300	
MAXIMUM NUMBER CHASSIS	4	
HEIGHT	72" / 183cm	
WIDTH	54.5" / 138.4cm	
DEPTH	45.5" / 115.6cm	
WEIGHT (WITHOUT CYLINDERS)	900 lbs / 408 kg	
HYDROGEN STORAGE	54kWh	
AMBIENT TEMPERATURE	-40°F to 122°F / -40°C to 50°C	

### **GENSURE E-1100V™ HYDROGEN FUEL CELL**

Plug Power's GenSure E-1100v fuel cell is an industry-first vertical rack-mount chassis for space-sensitive backup power applications within the telecommunications, utility, transportation and government sectors. The E-1100v is fueled by hydrogen and can affordably provide highly reliable extended runtime for critical equipment.



PRODUCT SPECIFICATIONS		
PHYSICAL	DIMENSIONS (W X D X H)	18.75" x 7.375" x 27" / 47.6cm x 18.71cm x 68.6cm
	WEIGHT	63 lbs / 28.6 kg
	MOUNTING	23" rack mount
PERFORMANCE	RATED POWER	1,100W (46A @ 24V / 23A @ 48V)
	DC VOLTAGE	24 / 48V nominal
OPERATION	AMBIENT TEMP	23°F to 122°F / -5°C to 50°C (Optional -40°F to 122°F / -40°C to 50°C in hardened outdoor cabinet)
	RELATIVE HUMIDITY	0-95% non-condensing
	ALTITUDE	-197 ft to 13,800 ft / -60m to 4,206m
	LOCATION	Indoors or hardened outdoor cabinet
EMISSIONS	WATER	Max 25mL / kWh (primarily vapor)
	NOISE	51.6dBA @ 23ft (7m) / 65dBA @ 4.9ft (1.5m)
MONITORING/CONTROL	REMOTE	System configuration & status / Historical & operational data
	COMMUNICATIONS	Standard: USB / Dry contact / Ethernet / SNMP / Web interface Optional: Wireless modem - CDMA / GSM / Ethernet switch
FUEL: STANDARD INDUSTRIAL-GRADE HYDROGEN (99.95%)		
	SUPPLY PRESSURE TO UNIT	8 to 12 psig / 55.1 to 82.8 KPag / 0.55 bar to 0.83 bar
	CONSUMPTION	14 slpm @ 1,100W
	H <sub>2</sub> STORAGE CAPACITY	n/a (multiple fueling solutions available separately)

### **GENSURE E-1100V<sup>™</sup> FUEL CELL ENCLOSURE OPTIONS**



PRODUCT SPECIFICATIONS		
PRODUCT	16U2OV	
MAXIMUM POWER	1.1 kW	
HEIGHT	38" / 96.5cm	
WIDTH	26" / 66cm	
DEPTH	16.1" / 40.9cm	
WEIGHT (WITHOUT CHASSIS)	65 lbs / 29.5 kg	
HYDROGEN STORAGE	Multiple options available	
AMBIENT TEMPERATURE	-40°F to 122°F / -40°C to 50°C	

### **GENSURE E-1100V<sup>™</sup> ENCLOSURE CONFIGURATIONS**



PRODUCT SPECIFICATIONS	
PRODUCT	16U20V 6CYL300
MAXIMUM NUMBER CHASSIS	1
HEIGHT	72" / 183cm
WIDTH	41.3" / 105cm
DEPTH	34.3" / 87.12cm
WEIGHT (WITHOUT CYLINDERS)	548 lbs / 248.5 kg
HYDROGEN STORAGE	54kWh
AMBIENT TEMPERATURE	-40°F to 122°F / -40°C to 50°C

### **GENSURE E-2500™ HYDROGEN FUEL CELL**

Plug Power's GenSure E-2500<sup>™</sup> fuel cell system delivers robust reliability, providing extended runtime for critical stationary power applications in a compact, rack-mountable package. GenSure E-2500<sup>™</sup> PEM technology has been optimized for higher power traditional backup and emergency power applications. Multiple systems may be combined, allowing for power configurations up to 10kW in one environmentally-hardened outdoor enclosure.



PRODUCT SPECIFICATIONS		
PHYSICAL	DIMENSIONS (W X D X H)	21.34" x 24" x 14" / 54.2cm x 61cm x35.6cm
	WEIGHT	113 lbs / 51.2 kg
	MOUNTING	23" rack mount
PERFORMANCE	RATED POWER	2,500W (105A @ 24V / 52.5A @ 48V)
	DC VOLTAGE	24 / 48V nominal
OPERATION	AMBIENT TEMP	23°F to 122°F / -5°C to 50°C (Optional -40°F to 122°F / -40°C to 50°C in hardened outdoor cabinet)
	RELATIVE HUMIDITY	0-95% non-condensing
	ALTITUDE	-197 ft to 13,800 ft / -60m to 4,206m
	LOCATION	Indoors or hardened outdoor cabinet
EMISSIONS	WATER	Max 32mL / kWh (primarily vapor)
	NOISE	58.6dBA @ 23ft (7m) / 72dBA @ 4.9ft (1.5m)
MONITORING/CONTROL	REMOTE	System configuration & status / Historical & operational data
	COMMUNICATIONS	Standard: USB / Dry contact / Ethernet / SNMP / Web interface Optional: Wireless modem - CDMA / GSM / Ethernet switch
FUEL: STANDARD INDUSTRIAL-GRADE HYDROGEN (99.95%)		
	SUPPLY PRESSURE TO UNIT	8 to 12 psig / 55.1 to 82.8 KPag / 0.55 bar to 0.83 bar
	CONSUMPTION	32 slpm @ 2,500W
	H <sub>2</sub> STORAGE CAPACITY	n/a (multiple fueling solutions available separately)

### **GENSURE E-2500<sup>™</sup> FUEL CELL ENCLOSURE OPTIONS**



PRODUCT SPECIFICATIONS			
PRODUCT	16U23	32U23	
MAXIMUM POWER	2.5 kW or 5 kW	2.5 kW to 10 kW	
HEIGHT	39.5" / 100.4cm	72" / 183cm	
WIDTH	28.5" / 72.4cm	28.5" / 72.4cm	
DEPTH	45.5" / 115.6cm	49.8" / 126.5cm	
WEIGHT (WITHOUT CHASSIS)	250 lbs / 113.4 kg	315 lbs / 142.9 kg	
HYDROGEN STORAGE	Multiple options available		
AMBIENT TEMPERATURE	-40°F to 122°F / -40°C to 50°C		

### **GENSURE E-2500<sup>™</sup> ENCLOSURE CONFIGURATIONS**





PRODUCT SPECIFICATIONS				
PRODUCT	16U23 6Cyl300	32U23 6Cyl300		
MAXIMUM NUMBER CHASSIS	2	4		
HEIGHT	72" / 183cm	72" / 183cm		
WIDTH	54.5" / 138.4cm	53.75" / 136.5cm		
DEPTH	45.5" / 115.6cm	49.8" / 126.5cm		
WEIGHT (WITHOUT CYLINDERS)	900 lbs / 408.2 kg (5kW)	1,290 lbs /585 kg (10kW)		
HYDROGEN STORAGE	54kWh	54kWh		
AMBIENT TEMPERATURE	-40°F to 122°F / -40°C to 50°C			

### GENSURE E-SERIES FUEL CELL SYSTEMS FOR GRID SUPPORT/HIGH DUTY CYCLE APPLICATIONS

### **GENSURE E-1000X<sup>™</sup> HYDROGEN FUEL CELL**

Plug Power's GenSure E-1000x<sup>™</sup> hydrogen fuel cell is optimized for grid support and high duty cycle customer applications. It offers robust reliability, providing extended runtime for critical equipment. Multiple systems may be combined for higher power applications and N+1 redundancy.



PRODUCT SPECIFICATIONS			
PHYSICAL	DIMENSIONS (W X D X H)	17.25" x 24" x 7" / 43.8cm x 61cm x 18cm	
	WEIGHT	58 lbs / 26.4 kg	
	MOUNTING	19" or 23" rack mount	
PERFORMANCE	RATED POWER	1,000W (42A @ 24V / 21A @ 48V)	
	DC VOLTAGE	24 / 48V nominal	
OPERATION	AMBIENT TEMP	23°F to 122°F / -5°C to 50°C (Optional -40°F to 122°F / -40°C to 50°C in hardened outdoor cabinet)	
	RELATIVE HUMIDITY	0-95% non-condensing	
	ALTITUDE	-197 ft to 13,800 ft / -60m to 4,206m	
	LOCATION	Indoors or hardened outdoor cabinet	
EMISSIONS	WATER	Max 25mL / kWh (primarily vapor)	
	NOISE	51.6dBA @ 23ft (7m) / 65dBA @ 4.9ft (1.5m)	
MONITORING/CONTROL	REMOTE	System configuration & status / Historical & operational data	
	COMMUNICATIONS	Standard: USB / Dry contact / Ethernet / SNMP / Web interface Optional: Wireless modem - CDMA / GSM / Ethernet switch	
FUEL: STANDARD INDUSTRIAL-GRADE HYDROGEN (99.95%)			
	SUPPLY PRESSURE TO UNIT	8 to 12 psig / 55.1 to 82.8 KPag / 0.55 bar to 0.83 bar	
	CONSUMPTION	13.2 slpm @ 1,000W	
	H <sub>2</sub> STORAGE CAPACITY	n/a (multiple fueling solutions available separately)	

### **GENSURE E-1000X<sup>™</sup> FUEL CELL ENCLOSURE OPTIONS**



PRODUCT SPECIFICATIONS			
PRODUCT	16U23		
MAXIMUM POWER	1 kW to 4kW		
HEIGHT	39.5" / 100.4cm		
WIDTH	28.5" / 72.4cm		
DEPTH	45.5" / 115.6cm		
WEIGHT (WITHOUT CHASSIS)	250 lbs / 113.4 kg		
HYDROGEN STORAGE Multiple options available			
AMBIENT TEMPERATURE	-40°F to 122°F / -40°C to 50°C		

### **GENSURE E-1000X<sup>™</sup> ENCLOSURE CONFIGURATIONS**



PRODUCT SPECIFICATIONS			
PRODUCT	16U23 6CYL300		
MAXIMUM NUMBER CHASSIS	4		
HEIGHT	72" / 183cm		
WIDTH	54.5" / 138.4cm		
DEPTH	45.5" / 115.6cm		
WEIGHT (WITHOUT CYLINDERS)	900 lbs / 408 kg		
HYDROGEN STORAGE	54kWh		
AMBIENT TEMPERATURE	-40°F to 122°F / -40°C to 50°C		

### **GENSURE E-2200X<sup>™</sup> HYDROGEN FUEL CELL**

Plug Power's GenSure E-2200x<sup>™</sup> hydrogen fuel cell is optimized for grid support and high duty cycle customer applications. It offers robust reliability, providing extended runtime for critical equipment. Multiple systems may be combined for higher power applications and N+1 redundancy.



PRODUCT SPECIFICATIONS			
PHYSICAL	DIMENSIONS (W X D X H)	21.34" x 24" x 14" / 54.2cm x 61cm x 35.6cm	
	WEIGHT	113 lbs / 52.4 kg	
	MOUNTING	23" rack mount	
PERFORMANCE	RATED POWER	2,200W (93A @ 24V / 46.5A @ 48V)	
	DC VOLTAGE	24 / 48V nominal	
OPERATION	AMBIENT TEMP	23°F to 122°F / -5°C to 50°C (Optional -40°F to 122°F / -40°C to 50°C in hardened outdoor cabinet)	
	RELATIVE HUMIDITY	0-95% non-condensing	
	ALTITUDE	-197 ft to 13,800 ft / -60m to 4,206m	
	LOCATION	Indoors or hardened outdoor cabinet	
EMISSIONS	WATER	Max 25mL / kWh (primarily vapor)	
	NOISE	58.6dBA @ 23ft (7m) / 72dBA @ 4.9ft (1.5m)	
MONITORING/CONTROL	REMOTE	System configuration & status / Historical & operational data	
	COMMUNICATIONS	Standard: USB / Dry contact / Ethernet / SNMP / Web interface Optional: Wireless modem - CDMA / GSM / Ethernet switch	
FUEL: STANDARD INDUSTRIAL-GRADE HYDROGEN (99.95%)			
	SUPPLY PRESSURE TO UNIT	8 to 12 psig / 55.1 to 82.8 KPag / 0.55 bar to 0.83 bar	
	CONSUMPTION	28 slpm @ 2,200W	
	H <sub>2</sub> STORAGE CAPACITY	n/a (multiple fueling solutions available separately)	

### **GENSURE E-2200X<sup>™</sup> FUEL CELL ENCLOSURE OPTIONS**



PRODUCT SPECIFICATIONS			
PRODUCT	16U23	32U23	
MAXIMUM POWER	2.2 kW or 4.4 kW	2.2 kW to 8.8 kW	
HEIGHT	39.5" / 100.4cm	72" / 183cm	
WIDTH	28.5" / 72.4cm	28.5" / 72.4cm	
DEPTH	45.5" / 115.6cm	49.8" / 126.5cm	
WEIGHT (WITHOUT CHASSIS)	250 lbs / 113.4 kg	315 lbs / 142.9 kg	
HYDROGEN STORAGE	Multiple options available		
AMBIENT TEMPERATURE	-40°F to 122°F / -40°C to 50°C		

### **GENSURE E-2200X<sup>™</sup> ENCLOSURE CONFIGURATIONS**





PRODUCT SPECIFICATIONS			
PRODUCT	16U23 6Cyl300	32U23 6Cyl300	
MAXIMUM NUMBER CHASSIS	2	4	
HEIGHT	72" / 183cm	72" / 183cm	
WIDTH	54.5" / 138.4cm	53.75" / 136.5cm	
DEPTH	45.5" / 115.6cm	49.8" / 126.5cm	
WEIGHT (WITHOUT CYLINDERS)	900 lbs / 408.2 kg (5kW)	1,290 lbs /585 kg (10kW)	
HYDROGEN STORAGE	54kWh	54kWh	
AMBIENT TEMPERATURE	-40°F to 122°F / -40°C to 50°C		

## **GENFUEL HYDROGEN STORAGE SOLUTIONS**

Comprehensive GenFuel hydrogen storage enables customers to house fuel on site, maintaining a constant fuel supply as needed for their highly-reliable GenSure fuel cell systems. A variety of storage options are available, providing the ability to scale the hydrogen supply to meet a wide array of runtime requirements. One and two-stage hydrogen control options are available for all hydrogen storage cabinets. GenFuel turnkey hydrogen fueling, a tiered response offering by Plug Power, allows you to manage both normal refills and disaster recovery models. Plug Power's hydrogen solutions are fueling global operations today.



#### 6Cyl300 fuel cabinet

The 6-cylinder fuel cabinet provides storage for six standard "300" hydrogen cylinders. The cabinet is powdercoated aluminum, meeting Telcordia GR-487-CORE requirements and is appropriate for Seismic Zone 4 locations. Front and rear swing doors allow access for cylinder swaps during refueling. Multiple six cylinder fuel cabinets may be located at a site in order to provide more runtime.

#### 3Cyl80 fuel cabinet

The 3-cylinder fuel cabinet provides storage for three standard "80" hydrogen cylinders. The cabinet is powder-coated aluminum, meeting Telcordia GR-487-CORE requirements and is appropriate for Seismic Zone 4 locations. Front door allows access for cylinder swaps during refueling. The fuel storage volume in this product falls below 400 cubic feet, keeping it under the exemption limit expressed in NFPA55 and the International Fire Code.





#### 5Cyl80 fuel cabinet

The 5-cylinder fuel cabinet provides storage for five standard "80" hydrogen cylinders. The cabinet is powdercoated aluminum, meeting Telcordia GR-487-CORE requirements and is appropriate for Seismic Zone 4 locations. Front door allows access for cylinder swaps during refueling. The fuel storage volume in this product falls below 400 cubic feet, keeping it under the exemption limit expressed in NFPA55 and the International Fire Code.

PRODUCT SPECIFICATIONS			
PRODUCT	6Cyl300	3Cyl80	5Cyl80
HEIGHT	72" / 183cm	39.4" / 100cm	39.4" / 100cm
WIDTH	26" / 66cm	26.75" / 67.9cm	26.75" / 67.9cm
DEPTH	35" / 89cm	11" / 27.9cm	17.6" / 44.7cm
WEIGHT (WITHOUT CYLINDERS)	350 lbs / 159 kg	100 lbs / 45.4 kg	110 lbs / 50 kg
HYDROGEN STORAGE @ 2,400PSI	54kWh	8kWh	13kWh

\*Fuel consumption rate depends on product

### **GENFUEL HYDROGEN STORAGE SOLUTIONS**



#### HSM16 fuel cabinet

The HSM16 (available only in the U.S.) is also used with the bulk refueling model. This cabinet provides space for sixteen (16) 510 scf @ 3,000 psi hydrogen cylinders. Lockable lift-off doors secure the hydrogen cylinders against the environment.

#### HSM9 fuel cabinet

The HSM9 (available only in the U.S.) is also used with the bulk refueling model. This cabinet provides space for nine (9) 510 scf @ 3,000 psi hydrogen cylinders. Lockable lift-off doors secure the hydrogen cylinders against the environment.

PRODUCT SPECIFICATIONS				
PRODUCT	HSM16	HSM9		
HEIGHT	72" / 183cm	73.63" / 187cm		
WIDTH	52" / 132cm	39.5" / 100.3cm		
DEPTH	56" / 142.3cm	50.17" / 127.4cm		
WEIGHT (WITHOUT CYLINDERS)	6,200 lbs / 2,818 kg	3,280 lbs / 1,488 kg		
HYDROGEN STORAGE @ 2,400PSI	225kWh	134kWh		
HYDROGEN STORAGE @ 3,000PSI	281kWh	167kWh		

\*Fuel consumption rate depends on product

### **GENCARE SERVICES**



With tested knowledge and know-how, Plug Power has developed a strong expertise in keeping customer DC power plants up and running. The GenCare program offers planning and aftermarket service options to stationary customers in order to make the move to hydrogen and fuel cells even easier.

GenCare provides ongoing service for both GenSure fuel cells and GenFuel hydrogen infrastructure, offering a menu of tiered services on either a comprehensive or a la carte basis. Services include everything from preventive maintenance, health checks and managed spares programs to monitoring, in-the-field service and extended warranty options.

Proactive one-stop shopping makes it easy to ensure that your GenSure fuel cells are ready to provide optimal power when power is critical. With comprehensive customer care, our customers Power Their Possibilities.

#### Planning

Pre-installation audits feature site power analysis, site layout parameters, battery analysis and other issues.

- Site assessment
- Design and planning
- Project management

#### Installation & Commissioning

Basic fuel cell site design and installation and turnkey installations are offered. Fuel cell permit acquisition is a specialty. Post-installation audit offerings typically include inspection of customer-provided installations, commissioning of equipment, alarm activation and verification.

#### **Preventive Maintenance**

Make maintenance our concern instead of yours. Offerings include systems monitoring, extended warranty, upgrade services and ongoing maintenance programs. Most scheduled maintenance is easily accomplished without ever having to remove the GenSure unit from service.

#### **Advanced System Monitoring**

For customer locations with network connectivity, consistent diagnostics of the GenSure and GenFuel systems allow the customer and the GenCare service team to monitor uptime and reliability of the hydrogen and fuel cell system.

#### 24/7 Technical Assistance Center

Plug Power provides a team of highly professional engineers and technicians, having extensive knowledge in communications technologies as well as deep understanding of GenSure fuel cell product operation. Team members are available 24/7 to assist in answering technical questions and troubleshooting.

#### **Factory and On-site Training**

GenSure product training is designed for those who are responsible for the design, acquisition, installation, operation or maintenance of hydrogen fuel cell backup power systems. Factory training is offered at our Spokane, Washington office. Train-the-trainer and on-site classes are also available.

### **ORDERING INFORMATION**

#### **CONTACT PLUG POWER**

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