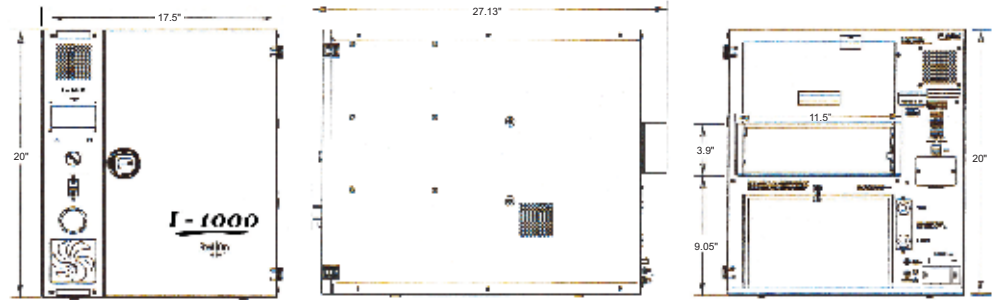
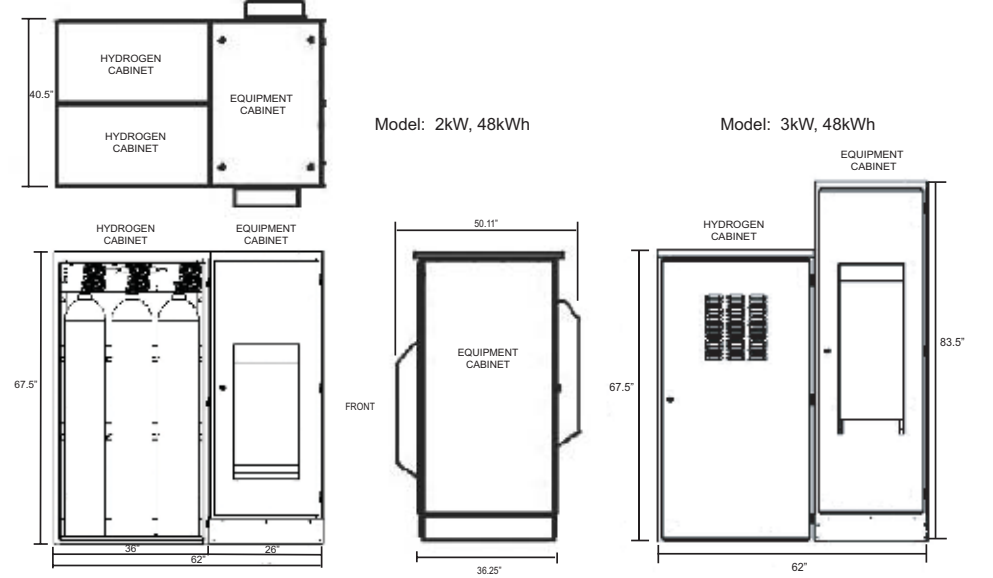


# I-1000™ Dimensions



# Outdoor Enclosure Dimensions



Power Solution



Model shown: 2kW, 48kWh fuel cell power system

CE U NEBS

**Reli|On**  
+ -™

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**Reli|On**  
+ -™



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Protected by U.S. Patent Nos. 6,030,718; 6,096,449;  
6,218,035; 6,387,556; 6,428,918; 6,468,682; 6,773,839  
and other patents pending.  
Product specifications are subject to change at any time.

## High Reliability, Low Maintenance

ReliOn is focused on providing solutions to meet customer back up power needs. The ReliOn solution is designed for superior performance when compared to battery strings and for extended runtime capability normally attributed to generators without the drawbacks associated with those systems. Additionally, our solution provides cost benefits over many other backup power options on a life cycle basis -- and, in most cases, lower initial cost as well.

The I - 1000™ is our 1kW PEM fuel cell building block. It can be used alone to provide up to 1kW of power or can be combined to provide up to 5kW of power. The Outdoor Enclosure has been designed to meet the rigorous standards of outdoor operation. Together, the I - 1000™ and the Outdoor Enclosure combine to provide a hardened system capable of powering customer equipment under harsh environmental conditions. The fuel storage system components are scalable to provide up to 48kWh of operation without refueling.

### Applications

- Wireless cellular installations
- Wireline installations out of plant
- Microwave communications sites
- Utility substation SCADA & communication systems
- Remote monitoring sites
- Long haul fiber nodes
- Telemetry repeater systems



Modular Electronics Bay



650 Series Cartridge

## Reliable, Modular, Scalable

### Reliable

- Modular Cartridge Technology® enables selective deactivation of fuel cell cartridges as well as individualized "care and feeding" of membranes, which adds up to increased reliability of the system
- Hydrogen storage wings give customers from 24 to 48 kWh of runtime at full load
- A redundant fan system makes sure that even our one moving component is ultra-reliable

### Modular

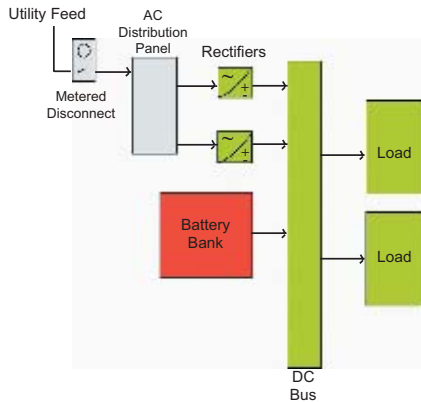
- Modular Cartridge Technology® design enables easy maintenance in seconds, without tools, and while continuing to provide power to the customer's load
- Changing DC voltage output is as simple as swapping an electronics module at the customer site

### Scalable

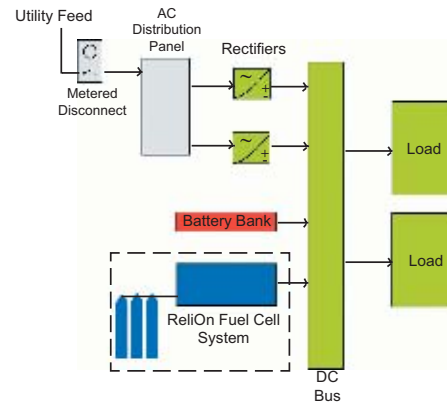
- I - 1000™s are capable of being connected in parallel to provide power up to 5 kW in 1kW increments
- The Outdoor Enclosure can be configured to meet a customer's power and runtime requirements by providing multiple fuel cell bays and hydrogen storage wings

The ReliOn power solution connects directly to a customer's DC Bus, allowing it to sense a power outage or low battery voltage and instantaneously come online to provide power to the load.

### Battery back up solution



### ReliOn fuel cell back up solution



Smaller battery bank - 20 Ah / kW of fuel cells

## Product Specifications

Product Specifications		Outdoor Enclosure Systems*		
		I -1000™	2kW	3kW
Physical	Dimensions	17.5" w x 27.13" d x 20" h (44.5cm w x 69cm d x 51cm h)	62" w x 50.11" d x 67.5" h (157.5cm w x 127.3cm d x 171.5cm h)	62" w x 50.11" d x 83.5" h (157.5cm w x 127.3cm d x 212.1cm h)
	Weight	146 lbs / 66 kg	882 lbs / 401 kg	1043 lbs / 474 kg
Performance	Rated net power	Continuous 1000 Watts	Continuous 2000 Watts	Continuous 3000 Watts
	Rated current	40A or 20A, depending on voltage	80A or 40A, depending on voltage	120A or 60A, depending on voltage
	DC voltage range	24 or 48 VDC nominal	24 or 48 VDC nominal	
	Estimated MTBF	22,000 hours	22,000 hours	
Fuel	Composition	Standard industrial grade hydrogen (99.95%)	Standard industrial grade hydrogen (99.95%)	
	Supply pressure to unit	25 to 100 psig 172 to 689 KPag 1.72 bar to 6.89 bar	25 to 100 psig 172 to 689 KPag 1.72 bar to 6.89 bar	
Consumption		7.7 slpm @ 500 Watts 15 slpm @ 1000 Watts	15 slpm @ 1000 Watts 30 slpm @ 2000 Watts	45 slpm @ 3000 Watts
	Hydrogen Storage Capacity	N/A	6 – 261 ft <sup>3</sup> cylinders 48 kWh storage	
Operation	Ambient temperature	32°F to 115°F 0°C to 46°C	-40°F to 115°F -40°C to 46°C	
	Relative humidity	0-90%	0-90%	
	Altitude	-197 ft. to 13,800 ft.	-197 ft. to 13,800 ft.	
	Location	Indoors	Outdoors	
Safety	Compliance	UL CE	NEBS	
	Emissions	Water Noise	Max. 30mL / kWh 53 dBA @ 1 meter	Max. 60mL / kWh < 65 dBA @ 1.5 meters

\* Dependant on configuration – standard configuration is 2kW size enclosure, including two I - 1000™ fuel cells and two 24 kWh hydrogen storage wings; 3kW size enclosure, including three I-1000™ fuel cells and two 24 kWh hydrogen storage wings also available

Specifications subject to change without notice.