

# **FutureE**

**Fuel Cell Solutions**



## ***Jupiter Smart Grid Solution***

### ***Peak power to the grid***

### ***Backup to the user***

FutureE's fuel cell systems provide ideal solutions for premium power applications. They offer good opportunities to reduce energy costs and increase the overall energy efficiency.

FutureE's fuel cell systems are smaller, lighter, cheaper to install and run than batteries for extended runtimes – and minimize the use of lead and acid. Compared to internal combustion engines, fuel cell systems offer zero pollutant emissions, lower noise signatures and reduced maintenance.

## JUPITER SMART GRID FEATURES

<b>Fuel Cell Type</b>	PEM (Proton Exchange Membrane)
<b>Voltage</b>	400 VAC or 230 VAC
<b>Power *</b>	up to 50 kW **
<b>Response Time</b>	uninterrupted
<b>Electrical Energy Storage ***</b>	customer specific
<b>Standby Power</b>	< 10 W / module
<b>Fuel</b>	Hydrogen 99,9%
<b>Hydrogen Consumption</b>	12 slpm/kW
<b>Hydrogen Supply Pressure</b>	10 bar
<b>Runtime</b>	proportional to stored amount of Hydrogen 1 H <sub>2</sub> bottle, 50 l @ 200 bar ~ 12 kWh <sub>el</sub> 1 H <sub>2</sub> bottle, 50 l @ 300 bar ~ 17 kWh <sub>el</sub> 1 H <sub>2</sub> bundle, 12 x 50 l @ 300 bar ~ 204 kWh <sub>el</sub>
<b>Cooling</b>	Air
<b>Environmental Temperature</b>	-5°C to 45°C Outdoor version -45°C to 45°C
<b>Maximum Altitude</b>	4000 m ****

<b>Weight per Unit</b>	< 30 kg
<b>Height per Rack</b>	up to 2200 mm
<b>Width per Rack</b>	800 mm
<b>Depth per Rack</b>	600 mm
<b>Operating Life</b>	> 3.000 hours
<b>Service Interface</b>	Ethernet, Modem optional
<b>Certification</b>	CE

The equipment is built to customer specification.

### Jupiter Smart Grid Solution

- supports the grid with minute reserve (tertiary power), and therefore avoids the involvement of CO<sub>2</sub>-emitting peak load generators
- covers local peak loads (peak power shaving), and therefore minimizes the provision of reserve power and increases the overall grid efficiency

\* Beginning of Life; ambient temperature <40°C

\*\* Racks can be configured in 2.5 kW increments (max. 12.5 kW/rack)

\*\*\* Electrical energy storage (e.g. UltraCaps, Lilon- or LeadAcid Batteries) is required for fuel cell startup

\*\*\*\* 5% / 1000 m power de-rating starting from 2000 m

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## OUR APPROACH

Reducing complexity to **maximize reliability**

Applying cutting edge technology to **maximize durability**

The result: **meeting customer's exacting power demands – at minimized total cost of ownership**

## HOW WE WORK

We offer customized solutions based on standardized products. If required, we scope a customer's precise power needs, including a complete power solutions analysis. We are able to offer engineering advice and full installation service. Our after-sales service includes training and maintenance right through to monitoring of our systems.

## ABOUT US

FutureE Fuel Cell Solutions GmbH is a German company specialized in advanced fuel cell systems and energy solutions. High efficiency, low complexity and fast response are core values for us, both for our products and the organization. Our team is stable, enthusiastic and has a many years' experience in fuel cell technology. We are working with high motivation for a cleaner world.