产品质量证明书

Product Quality Certificate

产品： 氢燃料电池堆（200W） Product: Hydrogen Fuel Cell Stack (200W)	产品序列号 Serial Number	SZFC-200

主要技术指标 Key Specifications		
检验标准 Quality Inspection Standard		实测结果 Test Results
输出性能 Output Performance	功率 Power	200W
	操作电压 Operating Voltage	20V-37V
	操作电流 Operating Current	0A-9.6A
	效率 Efficiency	>40%
燃料 Fuel	氢气纯度 Hydrogen Purity	≥99.99% (CO<1PPM)
	氢气压力 Hydrogen Pressure	0.035Mpa~0.05Mpa
	氢气耗量 Hydrogen Consumption	（9.6A）3L/min
工作环境 Working Environment	环境温度 Ambient Temperature	0-35℃
	环境湿度 Ambient Humidity	10%-90%
	储存环境 Storage Environment	0-60℃
物理参数 Physical Parameter	片数 Number of Cells	40
	电堆尺寸 Stack Dimensions	95*78*162mm
	重量 Weight	975g

200W 氢燃料电池堆使用说明书
200W Hydrogen Fuel Cell Stack User's Manual

1. 管路连接：将氢气连接→减压阀→连接燃料电池电堆进气阀。逐步调节氢气减压阀。调低到0.05MPa。

   Pipeline Connection:
   Connect hydrogen gas to → the pressure reducing valve → connect with the fuel cell stack intake valve. Gradually adjust the hydrogen pressure reducing valve to 0.05MPa.

2. 启动：

   （1）打开控制器外接电源，外接电源 13V。

   （2）控制器正常运行。

   （3）氢气进入燃料电池堆，燃料电池系统就开始运转，风扇开始转动。

   Start-up:

   （1）Turn on the external power supply of the controller. The external power supply is 13V.

   （2）The controller is operating normally.

   （3）The fuel cell system starts to operate after hydrogen enters the fuel cell stack, and the fan starts to spin.

3. 燃料电池启动后，可以根据需要在额定功率范围内用恒流方式，以 1.6A斜率逐步增加负载，设置电流值分别为：1.6A 、3.2A ……、9.6A，加载斜率1.6A/10S，建议最大电流值设定不超过 9.6A。

   After starting the fuel cell, the load can be gradually increased within the rated power range as needed using a constant current method. The current values are set at 1.6A, 3.2A, ..., 9.6A, with a loading slope of 1.6A/10S. It is recommended not to exceed 9.6A for the maximum current setting.

4. 燃料电池在不同的运行电压下，输出功率不同，可参考尾页放电曲线图。

   The output power of the fuel cell differs at different operating voltages. Please refer to the discharge curve graph on the last page.

5. 关闭氢燃料电池：

   当准备关闭燃料电池时，关闭负载（关闭负载有条件的情况下，以 5A 斜率 逐步缩小电流值，降载斜率 5A/2S，起到保护燃料电池寿命作用），关闭氢 气阀门，按下控制盒 ON/OFF 按钮，关闭控制盒外接电源，风扇会全速转动，直至燃料电池中的氢气耗完。

Shut down the hydrogen fuel cell:

When preparing to shut down the fuel cell, turn off the load (under conditional load shutdown, gradually reduce the current value at a slope of 5A, unload slope 5A/2S, to protect the fuel cell lifespan). Close the hydrogen valve, press the ON/OFF button on the control box, turn off the external power supply of the control box, and the fan will run at full speed until the hydrogen in the fuel cell is exhausted.

6. 控制保护：

控制盒指示灯绿灯闪烁，燃料电池正常工作，指示灯红绿加交替闪烁，电池运行故障（高温或者运行电压低于保护值）。氢燃料电池运行电压不要低于20V，电压低于20V 控制板会保护,电堆会降载直至停止工作。重新正常工作，需重新按ON/OFF按钮。如此操作无法解决报警工作，请联系我司工作人员。

Control Protection:

The control box indicator light flashing green indicates normal operation of the fuel cell. If the indicator light alternates between red and green, it signals a fuel cell operation fault (either high temperature or operating voltage below the protection threshold). The hydrogen fuel cell operating voltage should not drop below 20V. If the voltage falls below 20V, the control board initiates protection, leading to stack derating until it ceases operation. To resume normal operation, press the ON/OFF button again. If this procedure does not resolve the alarm, please contact our company's personnel for assistance.

注意事项
Precautions

1. 当燃料电池运转时，一定要确保燃料电池中氢气的压力在 0.05MPa，同时一定要确保足够的氢气流量。如果供氢系统中，氢气压力太高、太低或者流量不足都会对燃料电池造成损害。

   When the fuel cell is in operation, it is essential to ensure that the pressure of hydrogen in the fuel cell is 0.05MPa, as well as sufficient hydrogen flow. Damages to the fuel cell can occur due to a much higher, lower hydrogen pressure or insufficient supply in the hydrogen supply system.

2. 氢燃料电池电堆氢气进口确保在上氢燃料电池电堆氢气进口确保在上，电堆排气口向下，保持排水流畅（否侧会损坏电池）。请在排气阀出口端使用 PU 管将排出的部分氢气远离电堆, 防止余气吸入电堆会对电堆造成损伤！！

   Ensure that the hydrogen fuel cell stack's hydrogen inlet is positioned upwards, and the stack exhaust outlet is facing downwards to maintain smooth drainage (tilting may damage the cell). Please use a PU tube at the exhaust valve outlet to direct released hydrogen away from the cell, preventing residual gas from entering the cell and causing damage!!!

3. 请将电堆在合适环境温度内进行使用。

   Operate the fuel cell stack within the appropriate ambient temperature.

4. 一定要先启动燃料电池，然后加负载。

   Be sure to start the fuel cell first and then add the load.

5. 电池系统不使用时请妥善保存。放置于阴凉处，最佳储存环境条件：20-25℃/30-60RH%

   When the battery system is not in use, please store it properly. Keep it in a cool place, and the optimal storage conditions are 20-25℃/ 30-60RH%.

申明与警示
Declaration and Warning

1. 在操作燃料电池电堆前请通读此说明书，并在操作过程中将本说明书放于手边。
   Please read this manual carefully before operating the fuel cell stack, and keep this manual within reach during the operation.

2. 按照本说明书所列说明进行操作。
   Operate according to the instructions listed in this manual.

3. 禁止对 200W 燃料电池电堆进行拆解或改装。对该电堆的任何修改都会构成重大的安全隐患。智达盛世（广州）氢能与环境科技有限公司不对任何由于未经允许的改装所造成的损伤负责。
   It is forbidden to disassemble or modify the 200W fuel cell stack. Any modification to the stack will constitute a major safety hazard. SENZA Hydrogen Energy And Environmental Technology Co., Ltd. is not responsible for any damage caused by unauthorized modification.

4. 200W 燃料电池电堆在运行过程中需消耗氧气。为防止缺氧，仅可在良好的通风环境中运行。
   The 200W fuel cell stack consumes oxygen during operation. A well- ventilated environment is required to prevent hypoxia during operation.

5. 由于氢气属无色、无嗅的可燃气体，因此严禁在 200W 燃料电池电堆附近吸烟，并应确保燃料电池电堆远离火源和热源。
   Given that hydrogen is a colorless and odorless flammable gas, smoking is strictly prohibited near the 200W fuel cell stack, and the fuel cell stack should be kept away from fire sources and heat sources.

6. 确保 200W 燃料电池电堆远离儿童。
   Ensure that the 200W fuel cell stack is kept away from children.

200W 氢燃料电池电堆

200W Hydrogen Fuel Cell Stack