

Hydrogen Electrolyser

Modules & Packages

Using ANION EXCHANGE MEMBRANE (AEM)

BLISS
AMERICAS

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Our Hydrogen Electrolyser package is an Anion Exchange Membrane setup for the generation of low cost and high throughput Green Hydrogen. This state-of-the-art technology combines the benefits of previous Electrolyser technologies namely AEL and PEM that it uses non noble and abundant electrode materials such as Nickel, Iron, Cobalt etc. and it utilizes a solid polymer membrane as it's conduction medium.



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Advantages over AEL and PEM

- Significantly lower CAPEX than PEM. 20% higher savings in energy consumption compared to conventional electrolysis.
- Inexpensive stack components and non - noble electrodes such as Nickel, Iron, Cobalt etc.
- Higher Ionic conductivity
- Excellent chemical and mechanical stability
- Highest current efficiencies

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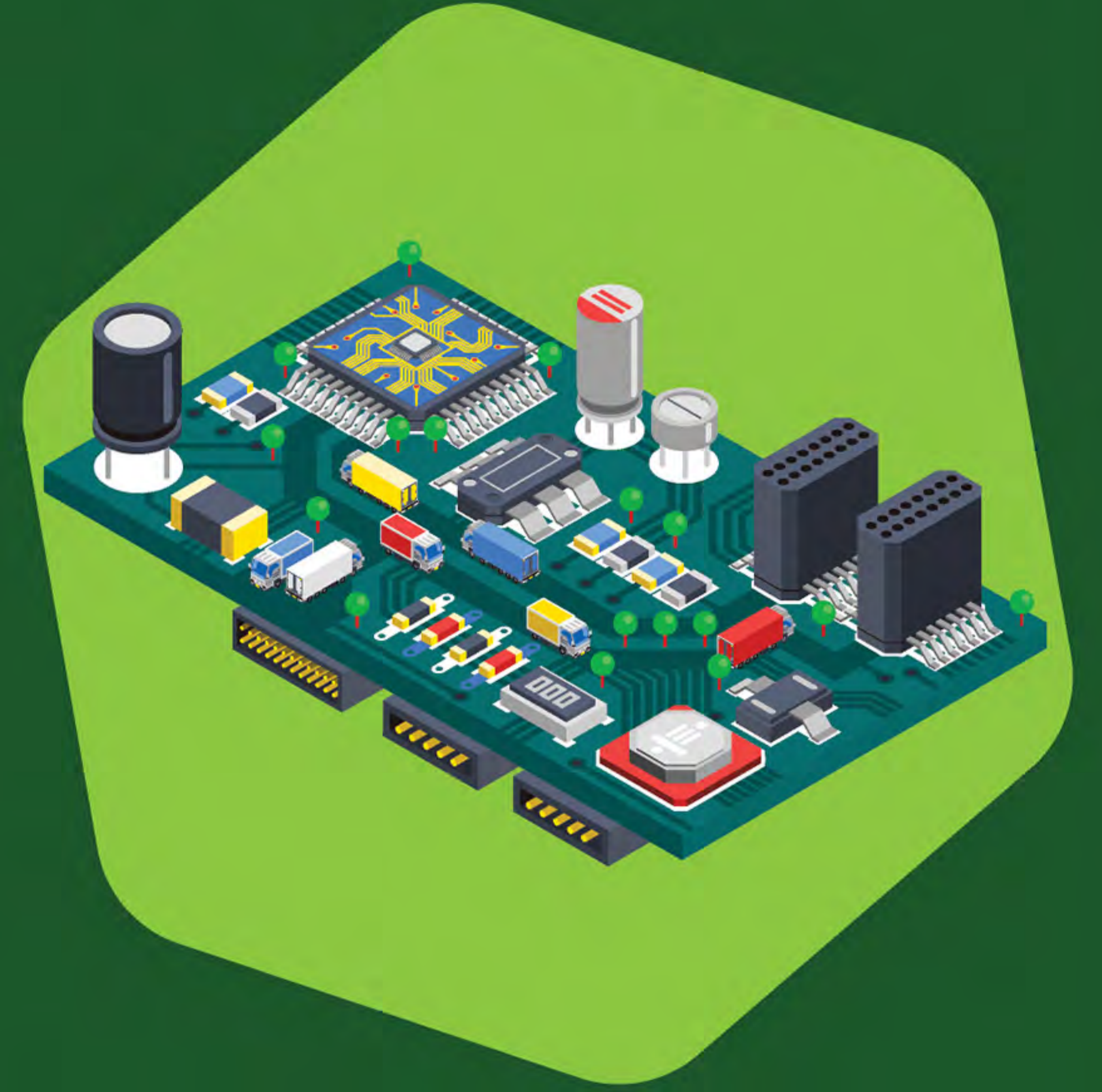
We propose to manufacture a low cost and high throughput AEM Electrolyser for the generation of Green Hydrogen. This will consist of efficient membranes, long lasting coatings and materials and a novel micro processor coupled with specially developed software for seamless performance monitoring of multiple Electrolyser modules. Our research goals are to carry out extensive membrane testing to improve their efficiency, durability, stability, and ionic conductivity under varying conditions. We would also be using automation in the manufacturing of the Electrolysers parts to increase manufacturing capacity and save time on production of units to a large extent.

Our Innovations and Improvements

- A novel microprocessor coupled with in house software to monitor performance of each cell and help with malfunction control.
- We have also planned to conduct studies on several types of plating options to assess the membrane's conductivity and durability.
- Using best in class membranes, metals and coatings with higher efficiency, durability, ionic conductivity, and lower costs.

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We have designed and optimized our module using special materials and alloys with specific surface treatments, combined with a novel microprocessor control system to achieve maximum efficiency. This would allow us to: Achieve maximum cell efficiency, Optimize Electrical Power consumption for higher production throughput & Ensure consistent production throughout.



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AEM

Applications of the Technology

- Defossilization of mobility and transportation
- Chemical industry for manufacturing of ammonia and fertilizers
- Research labs for testing purposes
- In petrochemical industries to produce petroleum products
- Energy management solutions (storage and management)

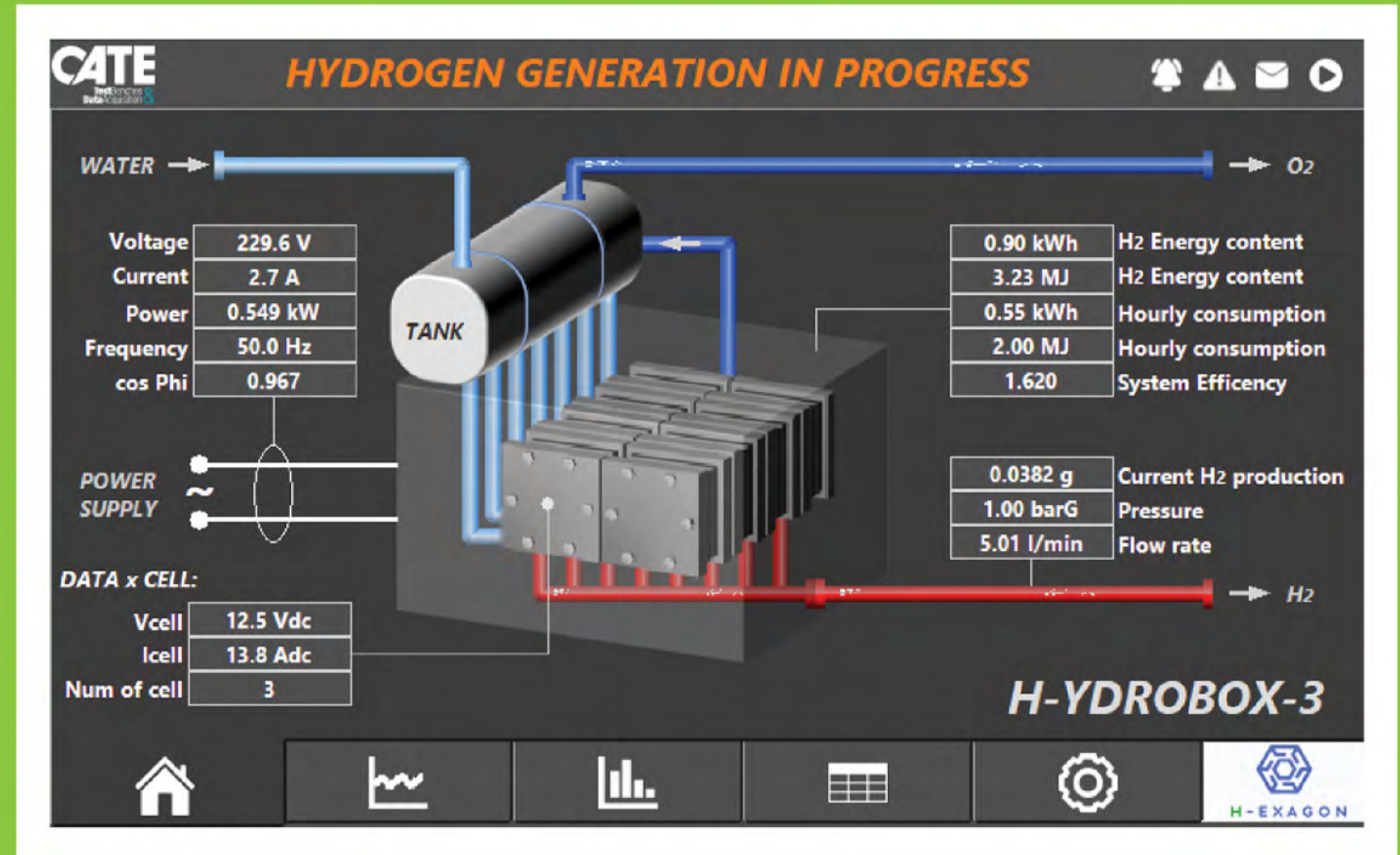


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LAB SCALE PILOT ELECTROLYSER MODULE

- Single Module
- 15+4 Cells
- AECT/AEM Process
- 1.66kg/24 hr

AEM



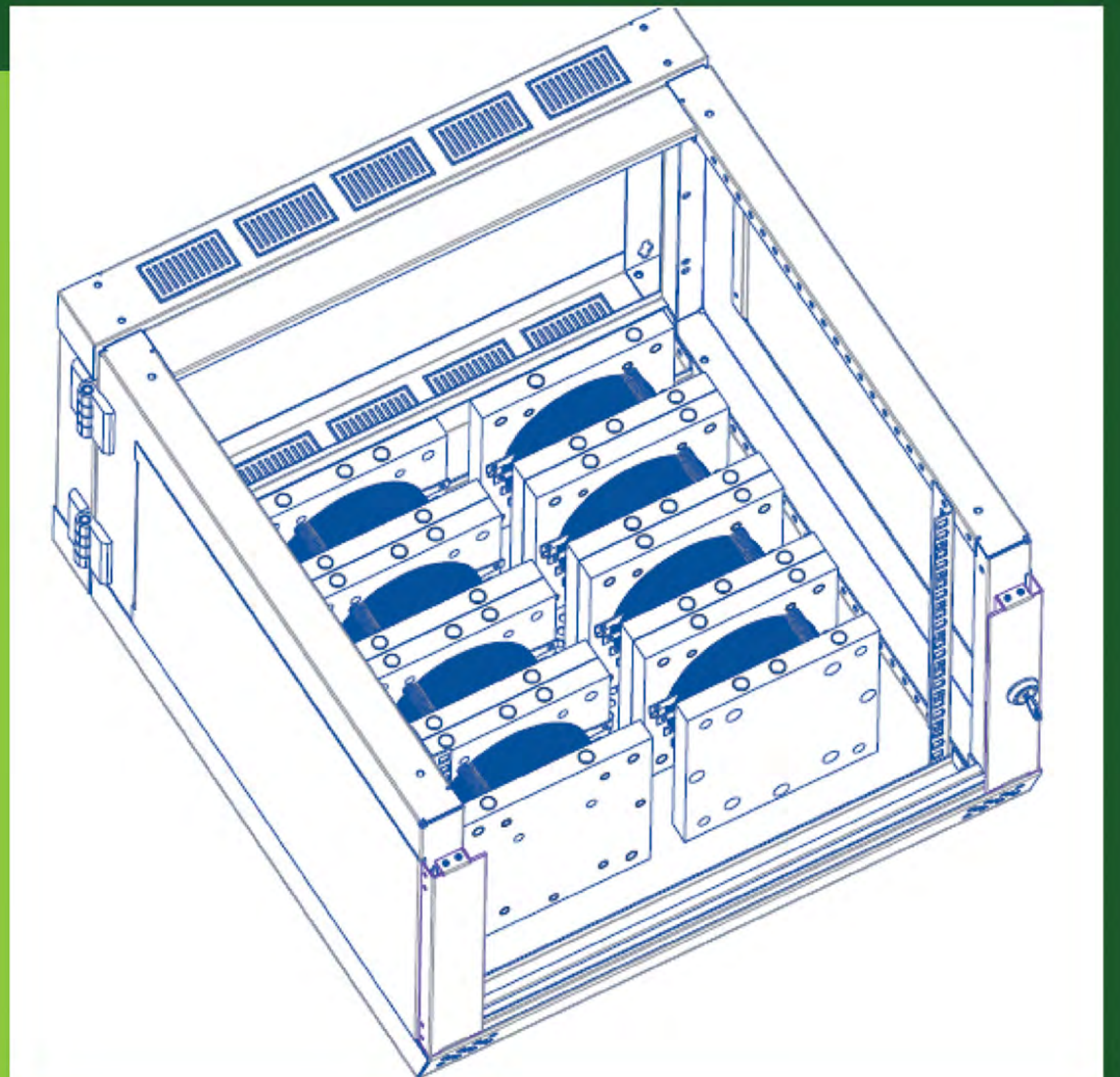
- Fully Operational
- Enclosed in cabinet
- Compact Standard Module
- 132.8 Kg/24 hr
- Can be scaled up to even higher capacities.



COMMERCIAL SCALE ELECTROLYSER MODULE

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AEM





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