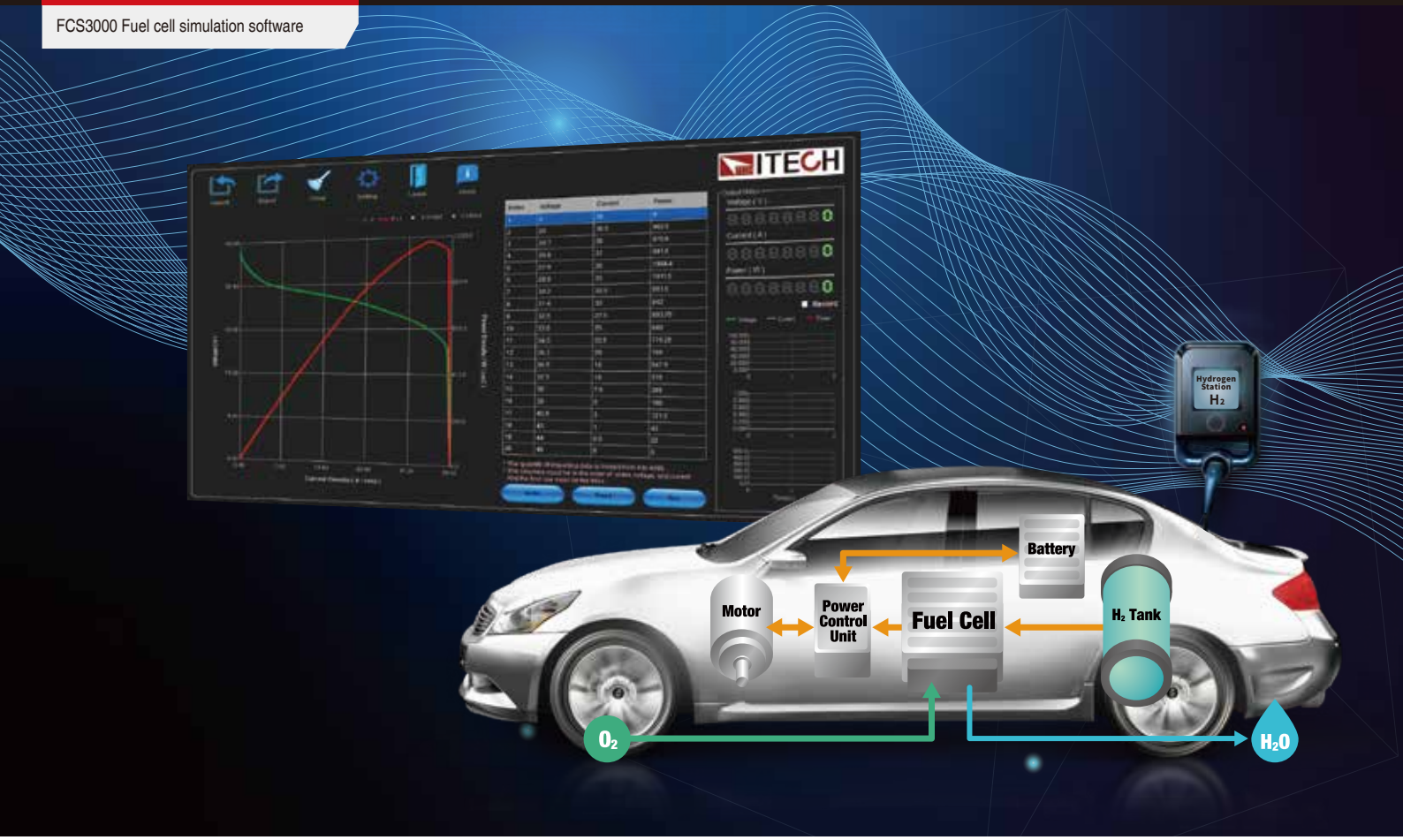
ITECH

YOUR POWER TESTING SOLUTION

Product

FCS3000 Fuel cell simulation software



FCS3000 Fuel cell simulation software

APPLICATIONS

- Rail transportation
- EV
- distributed energy
- ship building industry

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Application fields

- Electric ships and boats (Fuel cell/lithium-ion battery ships, FC AIP submarine…)
- Rail transportation (HFC Tram…)
- EV (HFC bus, HFC passenger car…)
- Distributed energy (Fuel cell peak shaving…)

The FCS3000 fuel cell simulation software matched with power supplies IT6000B/IT6000C/IT-M3900B/IT-M3900C, can accurately simulate the polarization characteristic curve of the fuel cell stack. The maximum voltage can reach 2250V and the power can be expanded to 1152kW to meet the test requirement of high-power fuel cell simulation.

FCS3000 is designed to replace real fuel cell systems and provide an efficient simulation platform for research on hydrogen energy hybrid propulsion systems. It can overcome the weakness of high cost, complex platform building and weakening of fuel cell performance in experiments testing with real fuel cell stacks. FCS3000 has simple interfaces which is easy for configuration. At the same time, the complete data report also provides important data support for theoretical research.

FEATURE

- Auto range output,10V~2250V
- The power of the fuel cell simulator can be expanded to 1152kW
- User-defined FC polarization curve (4096 points can be edited)
- Support .csv file import
- Data storage and export
- Graphical software operation interface, real-time display the output voltage, current and power

Application

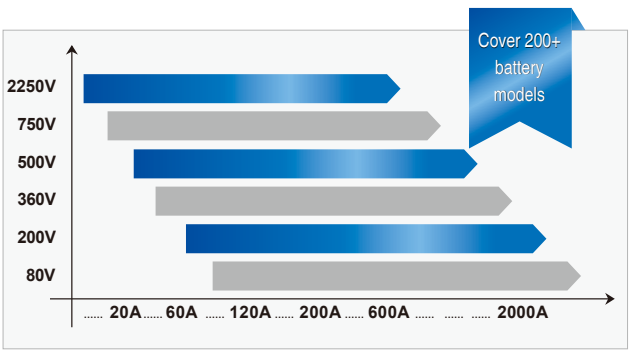
- Study the power performance and economic performance of FC propulsion systems
- Verify the input performance of the FC DC-DC module
- Study the parameter matching of the key components of the FC propulsion system
- Research on vehicle energy management strategies for FC propulsion systems
- Verify the control strategy of peak and valley adjustment in distributed energy applications

Flexible parallel connection, power extended to max. 1152kW

The ITECH power supplies can be expanded to 1152kW through a simple master-slave parallel configuration. Different from the traditional parallel connection, IT6000B/IT6000C/IT-M3900B/IT-M3900C use optical fiber parallel technology.

After paralleling, the synchronization and performance of master and slave are almost the same as one single unit.

And there is no need to calibrate again, which greatly simplifies the parallel connection.Meanwhile it's helpful on cost control and high equipment utilization.

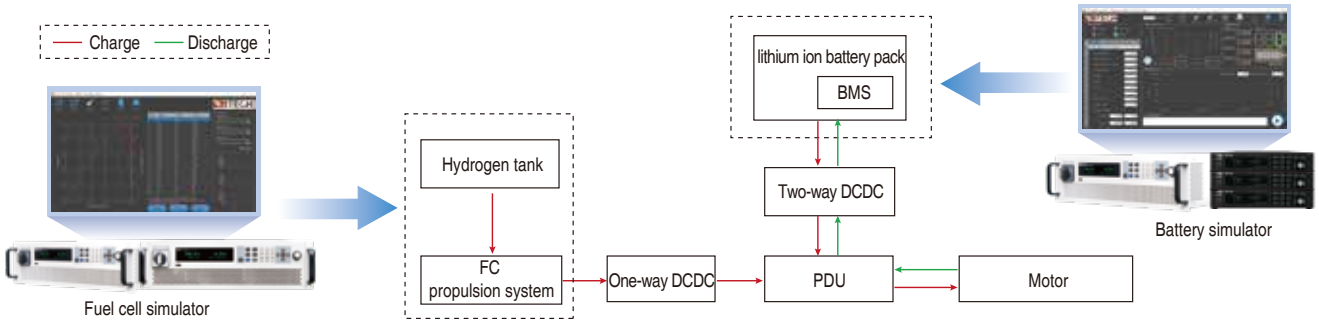


01 FCS3000 Fuel cell simulation software

The fuel cell simulator is of great significance to the study of fuel cell propulsion systems.

What is fuel cell propulsion systems ?

A typical fuel cell propulsion system is mainly composed of a fuel cell stack, a hydrogen tank, a fuel cell boost DC-DC module, a lithium ion battery pack and an energy distribution control unit. When start-up of the ship or vehicle, the fuel cell is in a warm-up state, and the lithium ion battery pack provides energy to drive the motor; during driving, the fuel cell provides energy for the motor; when acceleration, both the fuel cell stack and the lithium ion battery pack provide energy for the motor; when braking, the recovered energy is stored in the power batteries.



Compared with the traditional diesel engine as the motive power, the fuel cell power propulsion system has the advantages of no pollution, no emission and low noise. It is very suitable for applications requiring long driving mileage and high stability.

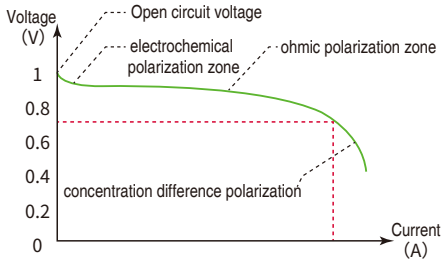
What is a fuel cell simulator ?

The fuel cell simulator replaces the real fuel cell stack and complex devices such as hydrogen and oxygen device, and provides an easy operating simulation platform for theoretical research. It also avoids the problems of high hydrogen cost and complex device building when using real fuel cells for testing. It's good for studying the energy distribution of the fuel cell propulsion system and evaluation of overall dynamic performance and economic value.

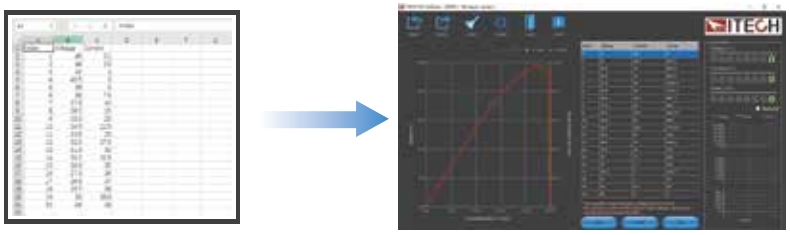
FCS3000 with IT6000B/IT6000C/IT-M3900B/IT-M3900C can provide a complete fuel cell simulation solution.

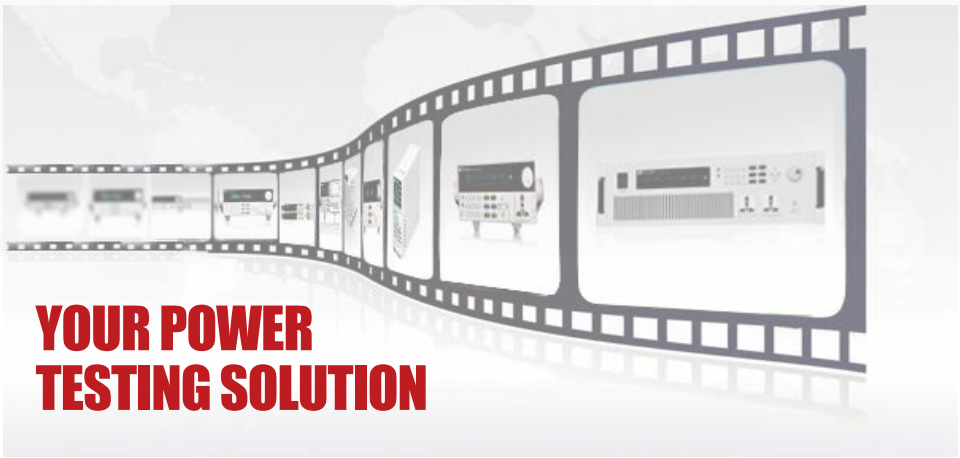
FCS3000-Graphical design interface to simulate fuel cell output polarization curve

The output voltage of a real fuel cell stack is affected by driving conditions. When the working current changes, the output voltage of the FC stack is a three-stage curve due to the internal polarization reaction, including electrochemical polarization zone and ohmic polarization zone and the concentration difference polarization zone.



The FCS3000 software is based on the measured fuel cell polarization curve, and allows users to import the .csv file, download it to the device and realize the fuel cell output polarization characteristic curve simulation. In the experiment, the FCS3000 fuel cell simulation software changes the output voltage of the control system according to the polarization curve, and records the parameters such as voltage, current and power in real time, which helps to study fuel cell propulsion systems to provide important experimental data.





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This information is subject to change without notice.For more information, please contact ITECH.

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