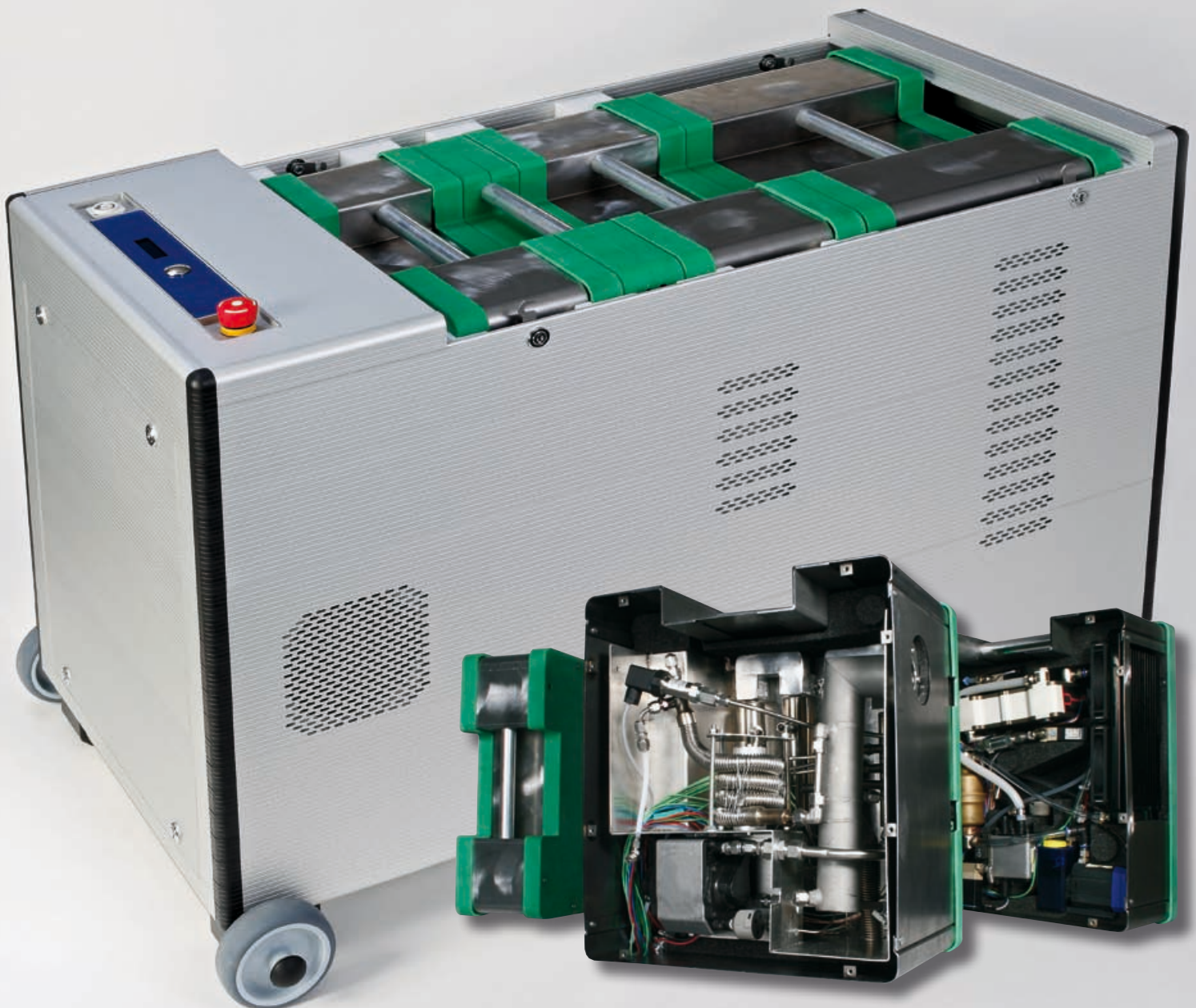


**REFORMER FUEL CELL SYSTEM  
FOR BIOETHANOL**  
Renewable, mobile, available worldwide



# REFORMER FUEL CELL SYSTEM FOR BIOETHANOL

## Renewable, mobile, available worldwide

Researchers at the Fraunhofer Institute for Solar Energy Systems ISE in Freiburg developed an automated ethanol reformer fuel cell system in cooperation with partners from industry. The electric power output of the system is 250 Watt. The system is fueled by denatured bioethanol. This fuel is inexpensive, non-toxic und commercially available to users throughout the world. One of the various applications envisioned is the off-grid power supply for medical equipment in emerging and developing countries.

The core pieces of the system are a PEM fuel cell with 300 Watt electric power output and an ethanol reformer, which constitute two of the four modules. The fuel tank and the electronics are integrated in the remaining two modules. The modular design allows modules to be removed separately, for instance to refill the tanks or to transport the system more easily. The system can be operated at temperatures ranging from -10 to +40 degrees Celsius. The electric power is available upon system start-up.

The project partners are in the position to offer the developed technology to interested manufacturers for commercialization in series production.

*photo: modules of the reformer fuel cell system*

*Please contact us! We look forward to your request.*

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### Technical Data of the Ethanol Reformer Fuel Cell System

electric power output	continuous 250 W, peak 400 W
output voltage	24 to 28 V DC
output current (maximum)	17 A
fuel	ethanol, bioethanol
ambient operating temperatures	-10 °C to +40 °C
weight	approx. 35 kg, including wheels and handles
volume	195 liters
interfaces	RS232, LAN, control panel, electrical connection
controls and automation	micro controller, IPC

The development of the reformer fuel cell system was funded by the Federal Ministry of Economics and Technology. The following companies and research institutes participated in the development:



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