

# HP 600



Heliocentris (Berlin) and UBzM (Ulm), proudly presents the further development of the HP series. Using the HP 600 you can investigate the relationship between the electrical output and heat output of a water cooled fuel cell stack.

The fuel cell stack with an electrical output rated at approximately 600 W. The stack is supplied with atmospheric oxygen through an air pump. With the integrated DC/DC-converter incl. battery and battery charger you can investigate a complete hybrid system. The DC/AC-inverter allows to power standard 230 V AC devices.

Using a PC and the included monitoring software, all experiments and the collected data can easily be saved, processed and interpreted. Ideal for more advanced study projects.

## HP 600 Basic System

- Water cooled PEM Fuel Cell Stack
- DC/DC-Converter
- Back-up Battery
- DC/AC-Inverter
- Water/Air heat exchanger
- Microcontroller
- Data monitoring software
- Connection set for compressed hydrogen cylinders
- Hydrogen safety and detection set

## HP 600 Complete System

- HP 600 Basic System
- DC Electronic Load
- Hydrogen Mass Flow Meter

# HP 600

Technical Data

## Fuel Cell System

### PEM-Type (24 cells)

Rated net power	600 W
DC voltage Range	12...22 V
Rated voltage	14,4 V DC
Rated current	40 A
Rated Temperature	40... 60°C
Pressure	5 ... 25 bar
Hydrogen consumption	max. 7 NI/min
Purity	≥ 5.0 (99,999 %)

### Air supply

Axial Flow Fan

### Cooling system

Circulation pump  
Water/air heat exchanger with cooling fans

### DC/DC Converter

Nominal output voltage	12 V DC
Output voltage	10,5..15 V DC
Power	600 W
Indigrated charge controller	

### DC/AC Inverter

Output voltage	230 V AC
Power	700 W

### Battery

Nominal voltage	12 V DC
Capacity	10 Ah
Dimension	1000 x 1000 x 400 mm
Weight	35 kg
Operating conditions	15..35°C

## 19" DC Electronic Load Module

### Electronic Load

Electronic load module for Nexa® or DC/DC-converter usage;  
19 inch case for rack mounting or table use; CC,  
CR and CP load modes;  
Integrated current and voltage measurement;

Load voltage	1 ... 75 V DC
Load current	1 ... 100 A
Load power	max. 1500 W
Power supply	115 / 230 V (60 / 50 Hz)

Integrated IEEE488.2/RS232 interface incl. LabView driver;

## Measurement devices

### Fuel cell

- Voltage
- Current

### Hydrogen supply

- Input pressure
- Hydrogen concentration (safty shut down)

### Ambient Air

- Temperature
- Humidity

### Cooling System

- Cooling circuit inlet/outlet temperatur
- Cooling water volume flow

### Battery

- Voltage
- Current

### Power

- Net Power

## Hydrogen Sensor

Sensor type	Hydrogen 4 %
Measuring principle	3-electrode-sensor
Standard range	0,00 ... 4,00 % vol.

## Hydrogen Connection Set

Single stage pressure regulator for compressed hydrogen gas cylinders;

Primary pressure	max. 200 bar (2.900 PSIG)
Secondary pressure	0 ... 15 bar (0 ... 218 PSIG)

## Electronic Flow Meter

Measuring principle	thermal massflow
Standard range	0,6 ... 30 NI/min
Signal	0 ... 5 V DC