

# COMPACT and POWERFUL LS600 FUEL CELL TESTER



## Main specifications

- Electronic load: 660 W
- Maximum current: 132 A
- Voltage range: 0 - 150 V
- Anode flow: 0.1 - 10 slpm
- Cathode flow: 0.4 - 36 slpm
- 4 temperature PID controllers

## Key features

- Powerful yet simple to use real-time software
- Built-in precision and reliable instrumentation
- Table-top design
- Software and hardware safety interlocks
- Gas humidification by sparger bottles
- Design flexibility

The LS600 is the best solution to start fuel cell stacks testing up to 600W. The table-top chassis integrates all the functionalities required to achieve efficient and accurate results in stack testing: gas management, load management, stack configuration, data acquisition.

LS600 fuel cell tester connects directly to a PC through RS485 and USB links for quick installation and ease-of-use.

Accessories can be added to extend the capabilities of the station and tailor it to your technical needs.

The LS600 is operated by the powerful FC Manager Software.

FC Manager gives full control to the user on tester functionalities with real-time graphs display. The easy-to-use and variable graphical interface allows on-the-fly parameters setting as well as test sequence programming.

The station is served by a state-of-the-art electronic load with zero volt capability up to 132 Amps. The load control is fully embedded in FC Manager with the level of automation required by professional users.

ACCURACY

EFFICIENCY

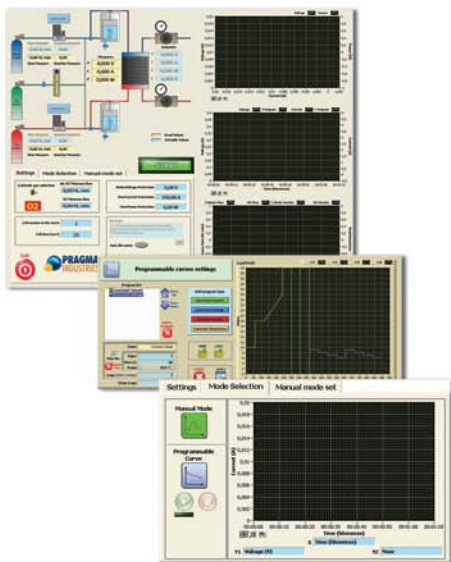
RELIABILITY



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# FC MANAGER SOFTWARE DESCRIPTION



FC Manager is designed to give the best and most efficient user experience in fuel cell testing.

All configurable parameters are accessible through tabs navigation. Setpoints and physical values are displayed in real time in a Process & Instrumentation Diagram as well as in selectable graphs.

Stack testing can be done by setting values on the P&I Diagram on the fly or through a programming interface. Test sequence programming is made easy thanks to a graphical interface.

Safety levels (over power, over current, under voltage...) are selectable by user.

## Gas management

- Flows control/display as constant value or constant stoichiometry
- Pressure control/display (optional)
- Temperature control/display (optional)

## Load management

- Constant/dynamic current
- Constant/dynamic voltage
- Constant power / constant resistance
- Current density display

## Analysis setup

- On-the-fly setup
- Programmed constant values or ramp setup
- Current/voltage scan/pulse/loop
- Open circuit voltage
- Data logging rate selectable, log in CVS format

[Download a trial version of the software on our website](#)

# LS600 SPECIFICATIONS

| Electronic Load                   |   |
|-----------------------------------|---|
| Power rating                      | 660 W   |
| Current rating                    | 132 A   |
| Voltage rating                    | 0 V - 150 V   |
| Minimum start voltage             | 0.3V  |
| Regulation mode                   | Constant Current, Constant Voltage, Constant Power, Constant Resistance   |
| Resolution CC mode                | 0.1 mA  |
| Resolution CR mode                | 16 $\mu$ S  |
| Resolution CV mode                | 1 mV  |
| Resolution CP mode                | 0.2 mW  |
| Multiple voltage monitoring       | 60 cells. Optional  |
| Communication                     |   |
| Communication Tester/PC           | USB + RS485 (+ CAN bus with multi-cells voltage monitoring)   |
| Data acquisition                  | 100 samples/s, adjustable frequency   |
| Gas Management                    |   |
| Mass flow control                 | Automatic regulation: constant flow / constant stoichiometry. Anode dead-end mode optional<br>Anode: 0.1 - 10 slpm, H <sub>2</sub><br>Cathode: 0.4 - 36 slpm, air / O <sub>2</sub> (dual calibration) |
| Back pressure control             | 0 - 4 barg manual<br>Automatic pressure control optional  |
| Humidification by sparger bottles | 100% relative humidity at 80°C and maximum flow<br>Manual refill. Automatic refill optional<br>Sparger bottles temperature control with manual PID controller. Automatic temperature control optional |
| Inlets                            | 1 anode gas, 1 cathode gas, 1 N <sub>2</sub> purge, 1 DI water<br>Additional gas lines on demand  |

| Temperature management                       |   |
|--|---|
| Gas heating                                  | Up to 100°C on both lines. Gas heated down to cell/stack. Manual control with PID controller<br>Automatic control through software optional |
| Relative humidity control                    | When automatic control selected on humidifiers and gas lines, RH is displayed in software interface in realtime                             |
| Stack liquid cooling/heating                 | Liquid cooling/heating loop optional with LS600 interfacing   |
| Stack air cooling                            | 12/24 V fan control. Optional   |
| Safety                                       |   |
| External signal input for emergency shut-off |   |
| Front panel emergency shut-off button        |   |
| Purge  | N <sub>2</sub> , manual. Selectable flow up to 40 slpm<br>Automatic with software control optional  |
| User selectable alarm levels                 | Over power, over current, under voltage<br>Over temperature and over pressure with selected options   |
| General                                      |   |
| Dimensions                                   | Depth 70 cm, height 96 cm, width 77 cm  |
| Weight                                       | 75 kg   |
| Power  | 110/220 V   |
| PC configuration                             | Windows 32 bits   |



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