



## Fuel Cell Automatic Battery Charger (ABC) Indicative Product Datasheet



The Voller Automatic Battery Charger (ABC) provides robust portable power whenever and wherever you need it. Simply plug in like the mains in the wall or use the automobile 'cigar lighter' DC output to recharge your batteries. Features include a USB charging socket, low temperature capability and enhanced software.

This versatile product can either be used manually or it can be programmed, using our uniquely intelligent software, to automatically charge any battery. It is powered by hydrogen gas which can be supplied in one of two ways: a refillable canister which is mounted within the product or from a normal hydrogen cylinder, available from any compressed gas supplier, which can be connected externally. The beauty of using this fuel source is that there are no toxic emissions whatsoever, thus providing quiet, clean power anywhere - the only outputs from the ABC are electricity, heat and pure water.

A water-cooled PEM fuel cell stack is incorporated in the ABC. This is connected to a heat exchanger required to remove excess heat and control an even temperature across the stack.

An air pump is used to provide the oxygen for the stack. The exact amount is determined by the amount of power being generated, which in turn depends upon the load being applied to it.

The ABC is managed by a sophisticated microcontroller which continually monitors the output from the stack and adjusts water, gas and airflow to optimize the system performance. It is also equipped with a frost sensor which, provided the system is in standby mode, monitors the outside temperature and switches the system on automatically if the temperature falls below +2°C. A built in hydrogen gas sensor gives you peace of mind in the unlikely event of system failure.

### Features:

- Internal or external hydrogen supply
- Selectable fully automatic recharging
- Extended temperature range
- Diagnostics software / cable and manual supplied free of charge
- Remote diagnostics via modem available
- Systems parameters can be user-defined
- Clear back-lit LCD interface
- USB charging socket built in

### Benefits:

- No external battery – fully integrated
- Mains inverter built in – system provides AC as well as DC output
- Fully integrated for ease of carrying
- Uses non-toxic fuel
- System does not emit any carbon dioxide
- Quiet, compact, portable, emission-free power for use anywhere - even underground!



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## ABC INDICATIVE SPECIFICATION

Dimensions	38cm x 30cm x 20cm.
Weight	9 kg
Power Output	70 Watts Maximum @ 13.8V DC max / 65 Watts Maximum AC
Operational Temperature range	+5° – +40°C (system is equipped with a frost sensor which, provided the system is in standby mode, monitors the outside temperature and switches the system on automatically if the temperature falls below +2°C.)
Fuel	99.99% pure Hydrogen (maximum of 5 parts per million (ppm) of carbon monoxide) supplied from any standard size cylinder at 1 - 3 bar pressure. The ABC can also be fitted with a smaller internal low pressure hydride cylinder – details upon request.  With a 50 Watt load, the unit consumes 1.4 standard litres of hydrogen per minute (SLPM).
Emissions	Zero greenhouse gases or toxic emissions.  During normal operation a very small amount of pure water is produced.
Software	All software is supplied as standard. Updates are available via an RS232 serial port, via a local computer or a modem.
Support & Maintenance	First 12 months warranty free of charge. Remote diagnostics available via integrated RS232 serial port and modem (modem not supplied). Optional connection through local VPN and TCP/IP link.  Diagnostic cable & software included free of charge  Modem Cable available at a charge.
System Safety Management	The microcontroller will automatically manage the system and warn on certain failure conditions. In the unlikely event that a hydrogen leak is detected, the unit will shut down, however it is essential that adequate ventilation exists in any installation.  The AC supply can be switched off using the menu and selection buttons.
Approvals	CE Approved (FCC15B). Made in the UK

	Peak Power	Continuous Power	Voltage Output	Amps Continuous
*AC	200W	65W	230V / 110V	0.28 / 0.59
DC	200W	70W	13.8VDC	5
**USB	1.5W	1.5W	5VDC	300mA

\* The 200 watt AC load can be supported for longer periods by adding an external battery.

\*\* NOTE: The USB socket delivers +5V only – no data connection.

### AVAILABLE FROM:

Voller Energy is a UK-based manufacturer of fuel cell systems for portable and battery charging applications.



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