



CUSTOM POWER DESIGN

ELECTRONICS CONSULTANTS PROVIDING CUSTOM DESIGN, DEVELOPMENT, TEST & SUPPORT



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BATTERY POWER ADAPTORS (BATTERY TO 115V MAINS CONVERTERS). FOR NEGATIVE EARTH BATTERY SYSTEMS ONLY.

115V MAINS DC VERSION:- **SM1990.**

MAINS AC VERSION:- **SM2000.**

GENERAL DESCRIPTION.

A small converter, made in two versions, generating regulated mains level output, capable of powering most small office or laboratory equipment from any battery producing 11-32 Volts (covers 12v and 24v battery systems) The power outlet is a shuttered IEC socket, allowing the use of a free IEC mains lead where appropriate. The unit can be turned on/off by a logic compatible input (maximum voltage 38V).

Models SM1990, with a Mains DC output, is suitable for equipment employing switched mode power conversion, where the incoming 115VAC mains is immediately rectified to produce 160V DC. This is true of most modern equipment.

Version SM2000 has a stepped odd function quasi sine wave AC output of 220V RMS, and a peak voltage of 160V. This output, also suitable for switched mode supplies, is required for machines employing a mains transformer, making it suitable for almost all equipment. (Note however that the DC version is both less expensive and slightly more efficient, where it's use is possible).

The specification allows for up to 120 watts of continuous power to be used, with short surges up to 200 watts (170 watts for AC unit), accommodating disk drive run-up, motor operation, etc.

The power input is via short flying leads terminated in 4mm bullet connectors. The RED lead connects to battery positive and the BLACK lead to battery negative. The on/off input is a YELLOW lead with bullet connector. Input wires enter on one small face, and the outlet socket is mounted on the opposite face.

Full over-current and short circuit protection is provided.

FIXING:

Four M5 (M4 on SM1762) threaded fixing holes are available on the mounting face. They are positioned at each corner of a rectangle measuring 63mm by 113mm placed centrally on the lid of the box. Screw penetration must not exceed 12mm.

CAUTION:

This adaptor is supplied on the basis of the user determining the suitability for the purpose for which it is to be used. Do not use in a moving vehicle without the consent of the vehicle manufacturer. Do not use for aviation or marine applications without our written agreement. Do not use for life dependent applications. The negative input lead is connected to case and output ground making the unit suitable only for negative earth systems.

SPECIFICATION.

MAINS DC UNIT SM1990 OUTPUT:

160V DC $\pm 10\%$, 120W continuous, 150W peak at 11V input, rising linearly to 200W peak above 12V input, on a duty cycle of 10%, 30 seconds maximum for any one pulse. The output is only suitable for use on 115V equipment employing switched mode power conversion (no mains transformer). This covers most modern office equipment.

MAINS AC UNIT SM2000 OUTPUT:

115V AC RMS, 160V peak $\pm 10\%$, stepped square quasi sine pulse output. Power available, 120W continuous, 140W peak at 11V input, rising linearly to 170W peak above 12V input, on a duty cycle of 10%, 30 seconds maximum for any one pulse. The output is suitable for use on most equipment.

INPUT:

11V to 32V DC continuous, 10V to 38V for 10 seconds. This covers both 12V and 24V Battery systems. Input current may be approximated from the expression:- $\text{Input Current} = 1.2 \times \text{Power Out} / \text{Input Voltage}$ (84 % efficiency in to a resistive load). An external fuse is required.

SIZE AND WEIGHT:

The unit is packaged in a powder coated die cast box measuring 50mm by 147mm by 95mm. Weight is less than 880 g

Made in the UK

We reserve the right to change the specification without notice

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