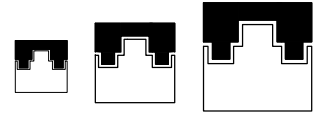


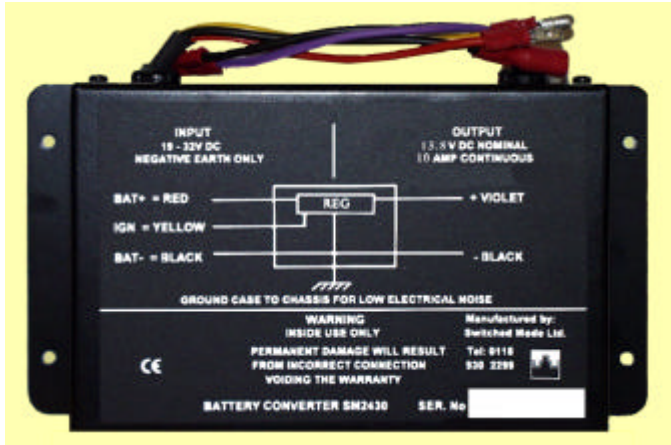
# SWITCHED MODE LTD



THE CUSTOM POWER SPECIALISTS . DESIGN . DEVELOPMENT . TEST . MANUFACTURE

Unit 2, The Markham Centre, Station Road, Theale, Berks. RG7 4PE. Tel: +44 (0)118 930 2113 Fax: +44 (0)118 930 2206.  
Web: <http://www.switchedmode.com> e-mail: [query@switchedmode.com](mailto:query@switchedmode.com).

## INFORMATION SHEET AND USER GUIDE FOR 24V TO 12V BATTERY CONVERTER:- 138W. MODEL SM 2430 13.8 VDC OUTPUT AT 10A.



- VERY HIGH CONVERSION EFFICIENCY.
- HIGH OUTPUT POWER IN COMPACT SIZE.
- USE CAR HI-FI AND MOBILE PHONES IN LORRIES.
- CHARGE A 12V BATTERY FOR HIGH PEAK LOADS.
- REMOTE ON / OFF CONTROL BY IGNITION.
- OUTPUT OVERVOLTAGE CROWBAR PROTECTION.

**GENERAL DESCRIPTION.** A small highly efficient converter, generating 13.8 volts DC, capable of powering most 12 volt battery vehicle equipment when supplied from any battery producing 19-32 Volts. The input and output share a common zero volt return (connected to case), making installation very simple.

The specification, given in detail overleaf, allows for up to 138 watts (10 amps) of continuous power to be used, with operation allowed in current limit. The unit incorporates an electronic relay to turn it on/off remotely, driven by a control input (max. voltage 38V), which may be supplied from any vehicle's ignition switch.

Power input and output is via short flying leads (100mm) terminated in 4mm bullet crimp connectors. The RED lead connects to source battery positive and the BLACK input lead to battery negative. The on/off input is a YELLOW lead terminated in a bullet connector. Positive output is taken from the VIOLET lead (positive) and the BLACK output lead (negative). Note that the BLACK output lead is supplied for convenience, normal output return is vehicle chassis.

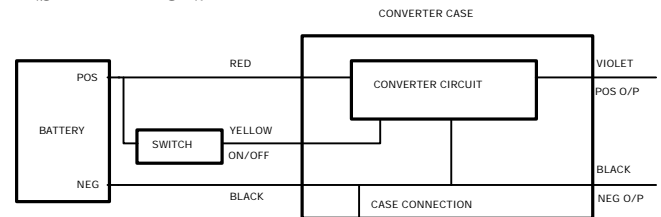
The unit is packaged in a powder coated metal box measuring 39mm high by 94mm wide by 142mm long, with mounting flanges at each end, increasing overall length to 172mm. Weight is 0.6Kg.

**CAUTION:-** This adaptor is supplied on the basis of the user determining the suitability for the purpose for which it is to be used. Not for life dependent use. The case is connected to the negative input.

**WARNING:-** reversal of the battery connections will result in permanent damage voiding the warranty.

The black leads are connected to case. The unit is only suitable for negative earth vehicles.

### INSTALLATION.



**FIXING:-** Four 3.5mm diameter fixing holes are available on the mounting flanges, with centres of 160mm by 60mm, symmetrically placed.

The converter employs switched mode conversion, which generates some electrical noise. In sensitive installations, to minimise interference, it is advisable to ground the unit directly on the vehicle chassis.

### SPECIFICATION.

**INPUT:-** 19V to 32V DC continuous, 19V to 38V for 10 seconds. This covers general 24V Battery systems.

**INPUT FUSE:-** 10A automotive blade (RED).

**NO LOAD OUTPUT VOLTAGE:-** 13.8 VDC  $\pm$  0.1V.

**LINE REGULATION:-** Less than  $\pm$  0.1V for a 6V static input change.

**LOAD REGULATION:-** Less than 0.2V for a 0.5A to 6A static change.

**LOW FREQUENCY RIPPLE:-** Less than 50mV pp.

**MAXIMUM OUTPUT:-** 138W (10A) continuous. Operation in current limit is allowed to facilitate 12V lead acid battery charging.

**CURRENT LIMIT:-** 11.A  $\pm$  0.7A falling to 5A  $\pm$  2A shorted.

**OVERVOLTAGE PROTECTION:-** Limits at 16.5V  $\pm$  1.5V, by SCR crowbar.

**ON/OFF CONTROL:-** The unit draws less than 1mA until a positive voltage between 19V and 38V is applied to the control input (yellow lead).

**SIZE AND WEIGHT:-** 39mm by 94mm by 142mm. 0.6Kg.

**TEMPERATURE RANGE:-** -20C to +50C operating, -40C to +70C storage.

Made in the United Kingdom

Switched Mode Ltd. manufactures a large range of Battery Converters and Battery to 230V/115V AC Mains Inverters.

**TECHNICAL SUPPORT:** Because of the specialist nature of our units, all questions should be directed to Switched Mode Ltd. on +44 (0)118 930 2299. Call if you are not sure about your application, or visit our web site for help. We reserve the right to change the specification without notice Document 2430-993/6 Issue 6 February 1999.