



# CUSTOM POWER DESIGN

ELECTRONICS CONSULTANTS PROVIDING CUSTOM DESIGN, DEVELOPMENT, TEST & SUPPORT



Tel: +44 (0)118 930 2299

A DIVISION OF SMET LTD

Fax: +44 (0)118 930 2206

www.custompsdesign.com

Unit 19, The Markham Centre, Station Road, Theale, Berks. RG7 4PE.

custom@custompsdesign.com

## WIDE RANGE DC-DC HYDROGEN STACK CONVERTERS.

### UP TO 1500W INPUT, WITH WIDE STACK VOLTAGE RANGE.

Model Number Selection (other input and output voltages available).

OUTPUT	INPUT: 12-36V	18-48V	24-60V	30-84V
5.0V at 250A (750W)	SM5550	SM5560	SM5570	SM5580
9.0V at 140A (1260W)	SM5551	SM5561	SM5571	SM5581
12.0V at 125A	SM5552	SM5562	SM5572	SM5582
15.0V at 100A	SM5553	SM5563	SM5573	SM5583
18.0V at 83.3A	SM5554	SM5564	SM5574	SM5584
21.0V at 71.4A	SM5555	SM5565	SM5575	SM5585
24.0V at 62.5A	SM5556	SM5566	SM5576	SM5586
48.0V at 31.3A	SM5557	SM5567	SM5577	SM5587
13.8V at 108.7A	SM5558	SM5568	SM5578	SM5588
27.6V at 54.4A	SM5559	SM5569	SM5579	SM5589

- HIGH OUTPUT POWER IN COMPACT SIZE.
- FEATURES 'STACKLIMIT'© CONTROL.
- REMOTE ON / OFF CONTROL FACILITY.
- MANUAL OR PROCESSOR BASED VERSIONS.



TEMPORARY PICTURE REPRESENTATIVE OF SHAPE AND CONNECTIONS.

**GENERAL DESCRIPTION.** A small converter handling up to 1500W from a hydrogen stack, with various dc outputs, model dependent. The input and output are ohmically isolated, making installation very simple. The output has a constant current limit and the unit can be turned on/off remotely, via a logic compatible / stack voltage control input. Note that connection terminals are underneath.

The unit is intended for use with fuel cell stacks, where maximum power is available at a well defined stack voltage, typically 45% of the stack's open circuit voltage. By setting the 'STACKLIMIT'© of the converter to this voltage, the unit will start to fold back with high load, balancing the stack at maximum possible stack output.

A fixed output current limit applies, but normally the stack will limit before the current limit is reached.

Other units available for N x 12V battery charging.

The output impedance of the unit is deliberately degraded to permit parallel use, with reasonable load sharing.

Power input and output is via 5mm female terminal posts, underneath the raised base of the unit.

#### SPECIFICATION.

**INPUT VOLTAGE:** See model listing above.  
The 'STACKLIMIT'© is variable by potentiometer, from minimum input voltage to 55% of maximum input, see text.

**OUTPUT:**

Voltage (10% Load): -	Nominal + 100mV ±50mV.
Line Regulation: -	< ± 0.05V for a 10% input change.
Load Regulation: -	< -0.1V for a 10% to 90% change.
Low Frequency Ripple: -	Less than 100mV pp.
Current Limit: -	Nominal plus 10%, ± 7%.
On/Off Control: -	The unit will draw less than 0.1mA until voltage (3V to 84V) is applied to the control input.

**GENERAL:**  
Protection: Over-current output limit with input fusing.

Size: 295mm x 133mm x 88mm.

Weight: 2400 grams.

Storage Temp Range: -40 to +70C.

Operating Temp Range: -40 to +40C.

Manufacturer: Made in UK.

**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.

Made in the UK

We reserve the right to change the specification without notice.

Document 5550-993