Pascall
ELECTRONICS LIMITED

Pascall Electronics Limited
Westridge Business Park
Cothey Way
Ryde, Isle of Wight
PO33 1QT UK

Tel +44 (0) 1983 817300
Fax +44 (0) 1983 564708
Email enquiries@pascall.co.uk
www.pascall.co.uk

A subsidiary of Emrise Electronics

500 WATT SINGLE AND MULTI OUTPUT AC/DC CONVERTERS

Single, dual or triple outputs
108 - 118 Volts input
Active Power Factor Correction
EMC Compatibility to MIL-STD-461C
High power density
Operating temperature -55°C to +100°C
Low output noise
Utilises surface mount technology
Remote ON/OFF
External synchronisation facility
High Efficiency (≥70%)
Fixed switching frequency
HI-REL versions available
Designed to NAVMAT guidelines
Semi - Custom options available

This series of switch-mode AC-DC power converters provides the military electronics designer with a highly specified, cost effective and space efficient solution for airborne, shipboard and ground based applications.

These converters accept a wide input voltage range, conforming with standard military 115V AC supplies and are available in single, and triple output configurations.

In order to satisfy military requirements the Powermite series has been designed and tested in accordance with stringent NAVMAT guidelines to provide exceptional electrical and environmental performance.

AC Input	Output Voltages & Currents	Case Code
CAA-500	+5V 100.0A	5
CAE-500	+5V 50.0A ±12V 10.4A	5
CAF-500	+5V 50.0A ±15V 8.3A	5

Pascall
ELECTRONICS LIMITED

500 WATT SINGLE AND MULTI OUTPUT AC/DC CONVERTERS

Input Voltage:

108V to 118V single phase 400Hz. For operation from 50/60Hz supplies can be accomodated by means of an external capacitor. Please contact our sales office for further details.

Input Power Characteristics

MIL-STD-704E, Transients as per Figure 4, including voltage spikes specified in MIL-E-6051. BS3G100, excluding limit 1 of variable frequency and limit 2 of variable or constant frequency.

Power Factor

Incorporates active Power Factor Correction circuitry and achieve a power factors in excess of 0.95.

Isolation

Input to Output > 10MΩ @ 1KVDC
Input to Chassis > 10MΩ @ 1KVDC
Outputs to Chassis > 10MΩ @ 500VDC

Efficiency

Not less than 70% at full load, nominal input voltage and at 25ºC baseplate temperature.

Output Voltages

See output rating Table for details. Other V/A combinations are available. Contact sales team for further information.

Load, Line & Temperature Regulation (CEB)

Prime Output ±2% of output voltage
Auxillary Outputs ±2% of output voltage

Noise and Ripple (PARD)

Measured over bandwidth DC-20MHz
Prime Output ±2% of output voltage
Auxillary Outputs ±2% of output voltage

Total Effect Band (TEB)

Total combination of CEB + PARD + drift and warm-up.
Prime Output ±5% of output voltage
Auxillary Outputs ±5% of output voltage

Cross Regulation

Prime Output ±2% of output voltage
Auxillary Outputs ±2% of output voltage

Dynamic Load Regulation

Maximum transient over or undershoot of 5% of nominal output voltage for a 50% step load change in 20µs. Recovery within 1ms.

Dynamic Line Regulation

Maximum transient over or undershoot of 5% of nominal output voltage with recovery within 1ms for all line transients and surges defined in Input Power Characteristics above.

Minimum Load Conditions

For full specified performance.
Prime Output 10% of maximum current.
Auxillary Outputs 10% of maximum current.

Output Protection

Individual outputs are protected against indefinite overload and short circuit. Current limiting circuitry operates at 110-130% of full rated current. Output voltages recover automatically following removal of overload.

Remote Sense

Fitted as standard on the prime output only.

Output Overvoltage Protection

All outputs are protected by means of zener diode clamps. These limit the output voltage to 120%, typically, of the nominal value.

Soft Start

Under all conditions the converters start up in an orderly fashion. Rise time of supplies is less than 10ms.

Synchronisation

These modules can be synchronised to an external source or to other modules in the Powermite range. (Synchronisation frequency = 400kHz ±5%)

Pascall
ELECTRONICS LIMITED

500 WATT SINGLE AND MULTI OUTPUT AC/DC CONVERTERS

Undervoltage Lockout

To protect internal circuits against low input voltages, the converters will not operate below an input of 13V dc.

Remote Shutdown

Connecting the shutdown terminal to a voltage of (±0.4V) with respect to the output return terminal, will cause the unit to shutdown. Leaving the terminal open circuit or connecting it to a logic high signal (3V to 5.5V) will allow the unit to operate.

Hold Up

On DC Models pins are provided which permit the connection of an external hold-up capacitor.

EMI

The units are designed to meet the following requirements of MIL-STD-461C, Part 2, category A1b : CE01 CE03 CE07, CS01 CS02 CS06, RE02 RS02 RS03

Operating Temperature

Full specified performance with the baseplate temperature maintained within the range -55ºC to +100ºC.

Storage Temperature

-55ºC to +125ºC

Cooling

Conduction cooling via baseplate.

Humidity

MIL-STD-810C, Method 507.3, 95% at 25ºC. BS3G100, Part 2, Section 3, Sub-section 3.2, Para 6.2.

Construction

Fully enclosed construction utilising Aluminium Alloy LM25M to BS1490. Paint finish Matt Black to DTD 5555A. Mounting surface Alochromate finish.

Weight and dimensions

The maximum weight is 2400 grams. Refer to outline drawing for unit dimensions and fixing positions.

Vibration

MIL-STD-810E, Method 514.4 Category 5. BS3G100, Part 2, Section 3, Sub-Section 3.1, tests 4.3, 4.4.2 and 4.4.4.

Acceleration

MIL-STD-810E, Method 513.4 Procedure 11. BS3G100, Part 2, Section 3, Sub-Section 3.6.

Shock

MIL-STD-810E, Method 516.4 Procedure V. DEF-STAN-07-55 Part 2, Section 1.1, Test A2 (100g, 6ms, 3 shocks per axis).

Salt Mist

BS3G100, Part 2, Section 3, Sub-Section 3.8.

Explosion Proofness

BS3G100, Part 2, Section 3, Sub-Section 3.5.

Nuclear Hardening

The circuitry of all Powermite converters is designed to limit the effects of nuclear radiation.

Maintainability

Units are constructed in a non-hermetically sealed two part housing. Internal circuitry is protected by means of conformal coating. All Powermite modules are repairable.

MTBF

The MTBF for any unit in the Powermite range, calculated in accordance with MIL-HDBK-217, can be provide upon request. HI-REL versions with active components screened to JANTX, MIL-STD-883 or similar are available.

Shelf Life

The shelf life of the units is ten years, they may be left in deep store, without the need for intermittent powering-up or any form of servicing for the period of the shelf life.

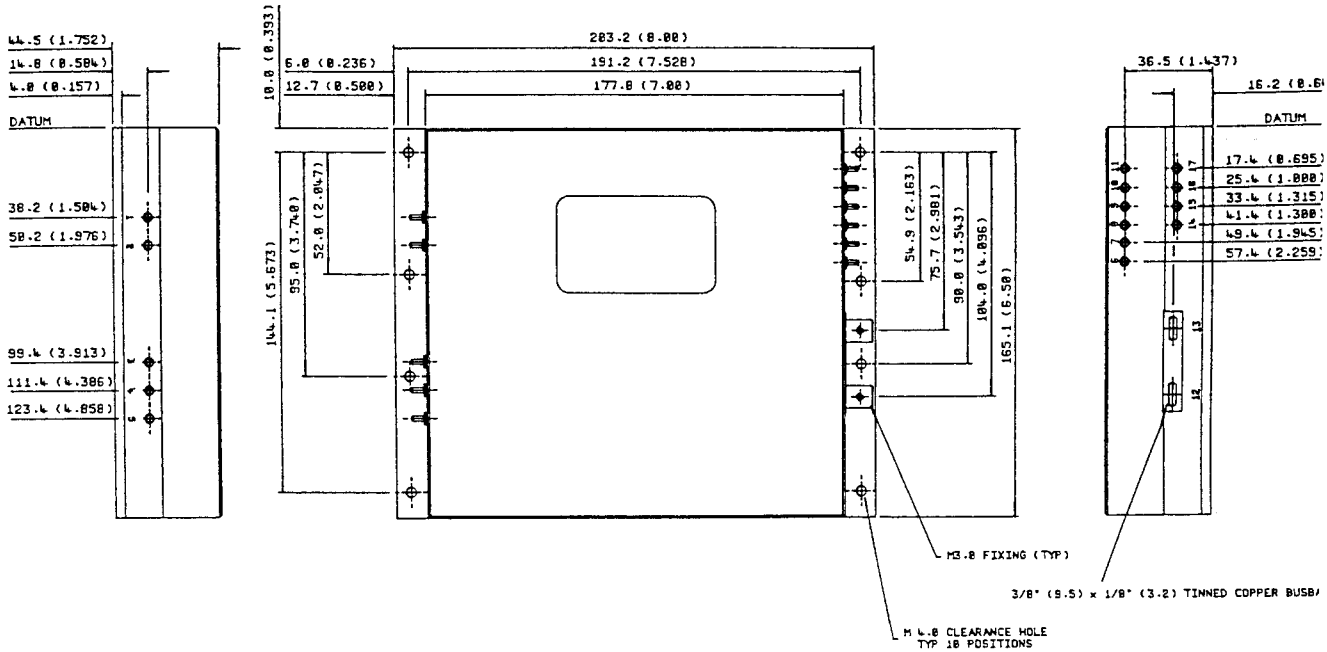
Burn In

All units are subjected to an environmental stress screening programme. For standard versions this consists of a 48 hour bake at 85ºC baseplate temperature. High reliability versions are subjected to 10 minutes of random vibration followed by 48 hours of power and temperature cycling between -55ºC and +85ºC, with full load applied.

Pascall
ELECTRONICS LIMITED

500 WATT SINGLE AND MULTI OUTPUT AC/DC CONVERTERS

Outline dimensions



Dimensions in mm

Pin Designations

1.	ACHI	) Input
2.	AC-LO	
3.	+	) Hold-up
4.	-	
5.	Chassis	
6.	-	) Remote Sense
7.	+	
8.	Shutdown	
9.	Frequency Shift	
10.	Sync In	
11.	Sync Out	
12.	-	) Prime Output
13.	+	
14.	-	) Aux 1
15.	+	
16.	-	) Aux 2
17.	+	

Further Information A detailed specification is available upon request. Please contact our sales office.