

120 WATT SINGLE AND MULTI OUTPUT AC/DC CONVERTERS



- Single, dual or triple outputs**
- 108 - 118 Volts input**
- High power factor (0.35 typ)**
- Operating temperature -55°C to +100°C**
- Low output noise**
- Utilises surface mount technology**
- EMC compatability to MIL-STD -461C**
- High power density**
- 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, dual 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-120	+5V	24.0A	3
CAG-120	+12V	10.0A	3
CAH-120	+15V	8.0A	3
CAD-120	+24V	5.0A	3
CAK-120	+28V	4.3A	3
CAB-120	±12V	±5.0A	3
CAC-120	±15V	±4.0A	3
CAL-120	±18V	±3.3A	3
CAE-120	+5V 12.0A	±12V 2.5A	3
CAF-120	+5V 12.0A	±15V 2.0A	3

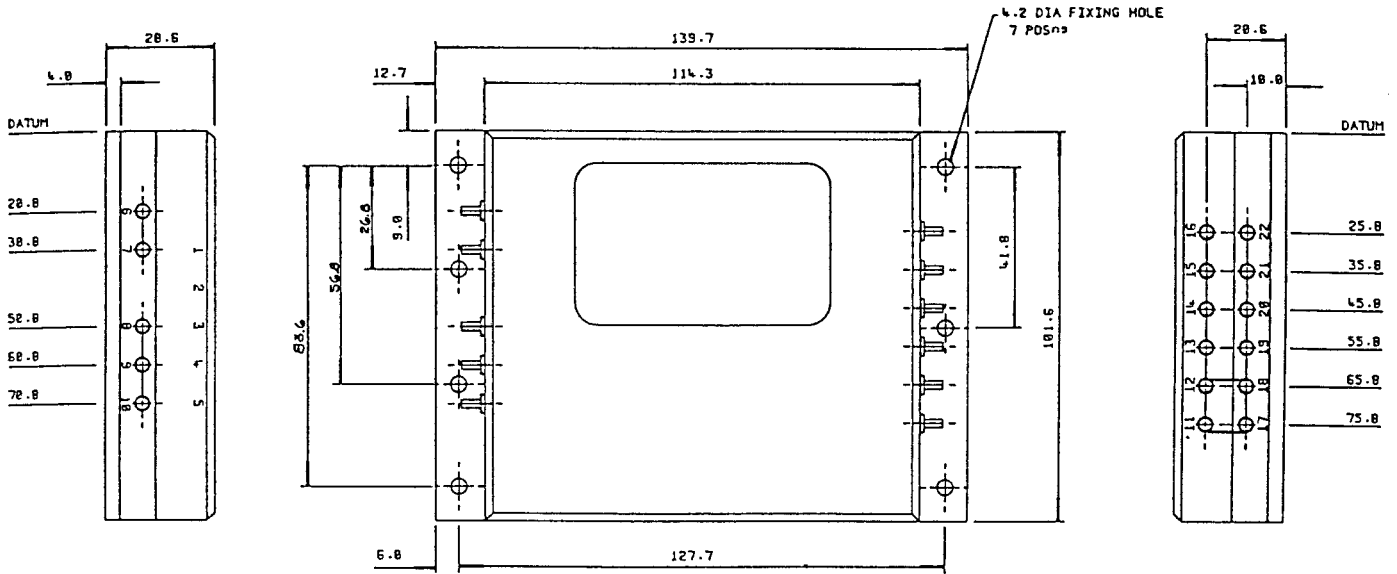
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Input Voltage: AC Input models	108V to 118V single phase 400Hz. For operation from 50/60Hz supplies please consult our sales office.
Input Power Characteristics	MIL-STD-704E, Transients as per Figure 4, including voltage spikes specified in MIL-E-6051. BS3G100, excluding limit 1 of variable frequency and limit 2 of variable or constant frequency.
Power Factor	Typically 0.85 or higher.
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 25°C 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 (PAR)	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 + PAR + 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%)

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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 ($\pm 0.4V$) 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	Please consult our sales office for details.
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 -55°C to +100°C.
Storage Temperature	-55°C to +125°C
Cooling	Conduction cooling via baseplate.
Humidity	MIL-STD-810C, Method 507.3, 95% at 25°C. 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 Achromate finish.
Weight and dimensions	The maximum weight is 575 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 provided 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 85°C baseplate temperature. High reliability versions are subjected to 10 minutes of random vibration followed by 48 hours of power and temperature cycling between -55°C and +85°C, with full load applied.

Outline dimensions



Dimensions in mm

Pin Designations

1.	Not fitted	11.	-
2.	Not fitted	12.	+) Remote Sense
3.	Not fitted	13.	Shutdown
4.	Not fitted	14.	Frequency Shift
5.	Not fitted	15.	Sync In
6.	Line) AC Input	16.	Sync Out
7.	Neutral	17.	-) Prime Output
8.	Not Fitted	18.	+) Aux 1
9.	Not Fitted	19.	-) Aux 2
10.	Chassis	20.	+) Aux 2
		21.	-
		22.	+

Further Information

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