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 **ADVANCE**  
**POWER SUPPLIES**  
A Farnell Electronics Company



**Powerite**  
**A200 Series**  
**Open Frame**  
**Power Supplies**

# Powerite A200 Series Open Frame Power Supplies

Powerite A200 Series Power Supplies are 5-output, 200W open frame products that utilize 100kHz FET technology and fit conventional "industry standard" footprints. A200B units provide a power supply with terminal block connections, whilst A200D units offer DIN41612 connectors. The latter option, coupled with a 6U x 12HP front panel, make the units fully compatible with Euroframe equipment practice. Powerite A200S units offer a form, fit and function alternative to many power supplies currently on the market. They are however, differentiated from others by the amount of power trading available to the user.

All Powerite power supplies run cooler and deliver more power on a cubic volume basis than their competitors. This is due, in the main, to the transformer design coupled with the use of FETs. The

Powerite series exhibit what is believed to be an unique degree of power trading between outputs, which means that in many applications, one Powerite unit can fulfill all the power requirements of a typical modern system that needs power – not only to drive semiconductor elements – but, in addition, associated electro-mechanical components.

Powerite A200 power supplies share a common electrical specification, the difference between models being in their mechanical construction.

All A200 products have full filtering to VDE 0871(78) Curve A as standard, and have been designed to comply with the safety requirements of UL478, CSA154, BABT-BS6484 (BS6301) and VDE0806 (Approvals are currently in application). In addition, all outputs are overvoltage, overload and short circuit protected.



**Specification**  
(typical at 25°C)

**Input Voltage**

Dual input—user selectable.  
90-132Vac (110 Vrms—18%, + 20%)  
on 110V tap  
176-264 Vac (220 Vrms ± 20%)  
on 220V tap  
A200 units will also operate from  
250-370 Vdc on the 220V tap.

**Input Frequency**  
44-440 Hz.

**Input Current**

At full output power of 200W.

Input Volts rms	110V	220V	240V
repetitive peak	3.24A	1.80A	1.60A
switch-on peak	8.00A	5.85A	5.75A
	<15A	<30A	

**Inrush current**

Electronic soft start circuitry limits the inrush peak to less than 30A.

**Input Fuse**

5A HRC mounted in easily accessible holder.

**Output Power**

200W maximum continuous at up to 50°C ambient. See Figs 1-4.

**Output Voltages**

Two basic models are available with the following outputs.

Output:	1	2	3	4	5
	+5	-12V	+12V	+24V	-5V
OR	+5V	-15V	+15V	+24V	-5V

The main +5V output is fully stabilised and adjustable between 4.75V and 5.75V by means of a potentiometer. Auxiliary outputs are semi-stabilised. The +24V output may be specified as fully floating. Other output voltages may be available on request.

**Output Currents**

+5V	40A	Total current from both 12V outputs not to exceed 10A. (8A total on 15V outputs).
+12V	10A	
-12V	10A	
+24V	8A	
-5V	5A	

These are maximum current ratings, subject to 200W maximum total output power being drawn from the power supply.

**Efficiency**

>75%

**Operating Temperature**

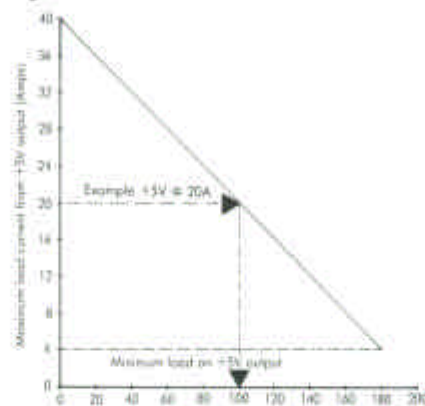
0°C—70°C. De-rating from 50°C to 70°C by 3W/°C. The units may be operated under force-air cooled, cold wall mounting or convection cooled conditions.

**Output Power Limits for Powerite A200 Units at a maximum ambient of 50°C**

Refer to the following graphs (figs. 1-4) for ratings.

Force air cooled at 1m/sec linear flow.

Fig 1.

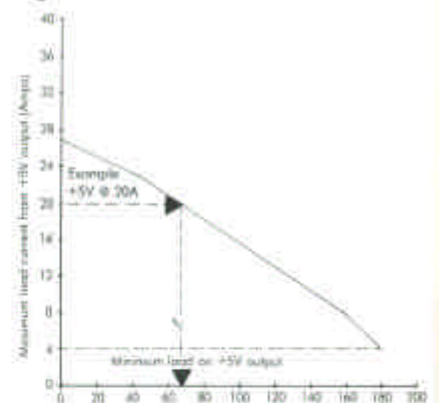


Maximum total power drawn from all auxiliary outputs (Watts)

The 200 Watt limit is set by a combination of thermal and electrical constraints. 200 Watts is the maximum power that may be drawn from the units at 50°C.

Convection cooled A200 B or D units.

Fig 3.

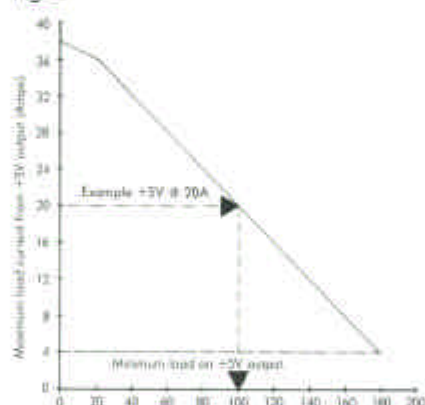


Maximum total power drawn from all auxiliary outputs (Watts)

This graph shows the maximum power that may be supplied without additional heat sinking.

Cold wall mounted (heatsink temperature 80°C maximum).

Fig 2.

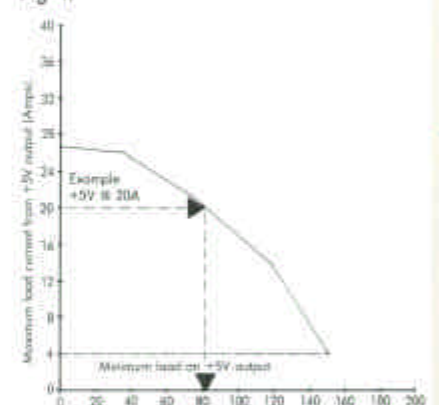


Maximum total power drawn from all auxiliary outputs (Watts)

The above graph shows the maximum power that may be supplied with additional heatsinking only.

Convection cooled A200S units.

Fig 4.



Maximum total power drawn from all auxiliary outputs (Watts)

This graph shows the maximum power that may be supplied without additional heatsinking.

### Storage Temperature

-25°C to +70°C

### Temperature Coefficient

0.015%/°C for main output.

### Ripple and Noise

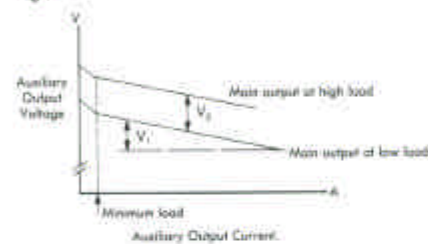
Measured differentially with a 30MHz bandwidth

Main output: < 2.0% pk/pk  
(< 0.35% rms)

Auxiliary outputs: < 2.0% pk/pk  
(< 150mV rms)

### Regulation

Semistabilised auxiliary outputs exhibit a regulation characteristic as shown in Fig. 5.



$V_1$  is the effect of load regulation, i.e. The auxiliary output voltage change as a function of auxiliary output current with the main output load constant.

$V_2$  is the effect of cross regulation, i.e. The auxiliary output voltage change as a function of main output current, with the auxiliary output load constant.

	+5V	+24V	±12V ±15V	-5V
Combined line and load main o/p 2A-30A	±0.2%			
Combined line & load (Aux. o/p) per 1A change.	—	300mV	300mV	150mV
Cross regulation from +5V (load) (per 2A change).	—	195mV	95mV	40mV
Cross regulation from another auxiliary output (per 1A change)	—	60mV	50mV	20mV
Cross regulation from another 12V (or 15V) output (per 1A change)	—	—	90mV	—
Minimum load to meet regulation spec.	on +5V	2A	—	—
	on Aux.	4A	0.5A	0.5A

### Remote Sensing

Remote sensing is available on the main +5V output only.

### Hold-up (at full load)

Greater than 18mS ( $\frac{1}{5}$  cycle) from 198 Vrms or from 99 Vrms.

### Protection

#### (i) Overvoltage

On main +5V output. When tripped, reset by recycling mains.

#### (ii) Overload

Electronic limit on all outputs. Factory set at 110% of output current rating. Under normal overload conditions, the outputs will recover on removal of the overload. However, under extreme overload conditions (e.g. short circuit) the power supply will self protect by tripping off. Reset by recycling the mains supply.

### RFI

Inbuilt filter to VDE 0871 (78) Curve A. Earth leakage current is less than 0.75 mA rms at 250V rms, 50Hz input (as per IEC 435).

### Insulation

All units are tested at 2500V rms input to output for one minute as per VDE 0806 (0730) (input to chassis 2000 Vrms, and output to chassis 500 Vrms simultaneously). Transformers are tested at 4000 Vrms input to output prior to assembly in the power supply.

### Isolation

Creepage distance 8mm minimum input to output (6mm for transformers), 4mm minimum input to earth and 2mm minimum output to earth.

### Safety Standards

All Powerite A200 units are designed to meet the relevant requirements of UL478, CSA154, BABT-BS6484 (BS6301) and VDE 0806. Formal applications for approval are in process.

### Optional Accessories

#### Mains Fail Alarm

(MFA Modules) give 10mS warning of output voltage dropout with 200 Watt loading at 198V rms input.

### Cover

Covers are available as an added safety feature to protect against accidental human contact with live parts.

### Front Panel

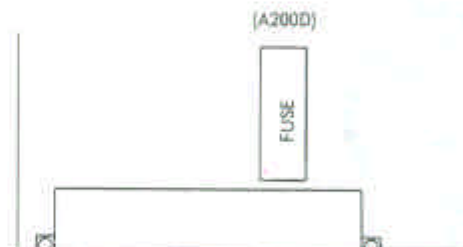
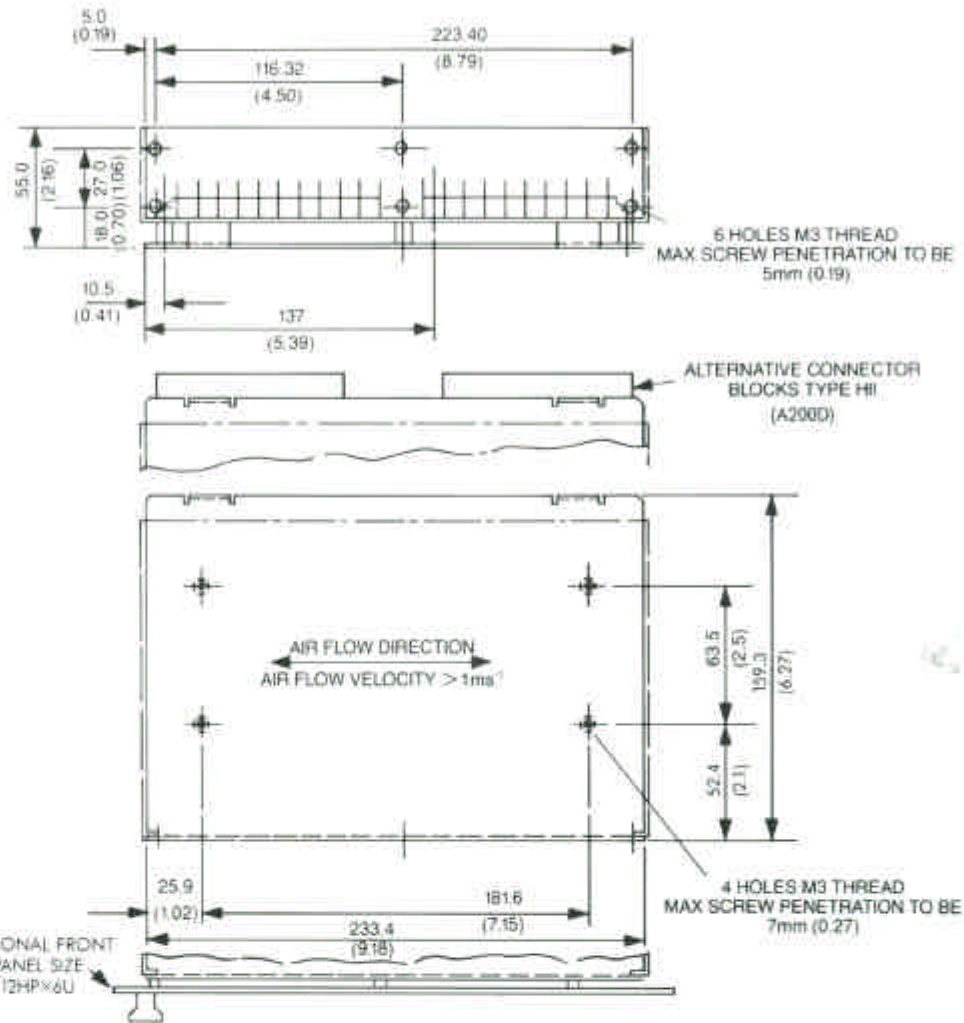
An aluminium front panel 12HP x 6U with handle fits A200 B or D units, for use with Euroframe equipment practice.

### DIN terminals

Powerite units may be specified with DIN 41612 connectors (A200D) instead of screw terminal blocks (A200B)

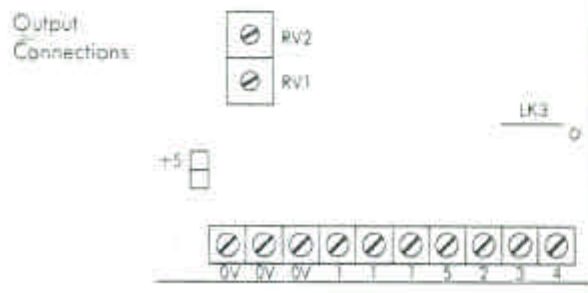
Advance Power Supplies Ltd. reserve the right to amend specifications at any time and without notice.

Dimensions  
A200B/A200D



Screw Terminals

Din Connectors

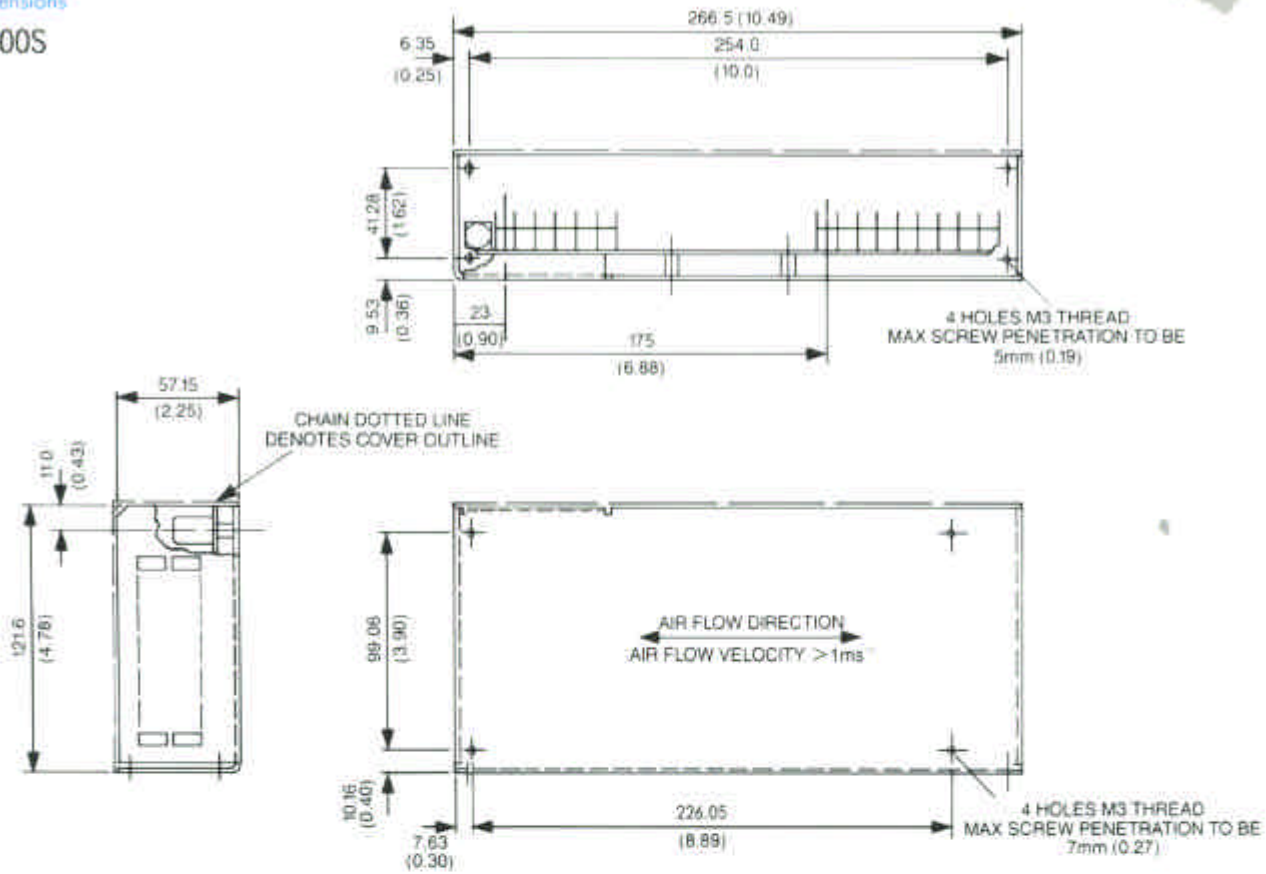


Screw Terminals

Din Connections

Dimensions

A200S



Input Connections



Output Connections

