

## 3. SPECIFICATION

All parameters measured with a resistive load.

### Models Available

Model N°	P max	V range	I range
AP500/2080	500W	0-20V	0-80A
AP500/7030	500W	0-70V	0-30A
AP500/4005	500W	0-400V	0-5A

### A.C Input

90 to 264Vac 48 to 63Hz

### Input Current

10A max. r.m.s. (14A peak)

### Inrush Current

34A max. for 240V a.c.

### Efficiency

70% typical at max. output power

### Output Control

Three methods of control:

1. Front panel ten turn potentiometers.
2. Remote programming by resistance, voltage or current.
3. IEEE488 bus control

### Resolution of Controls

0.07% typical of max. output voltage.  
0.07% typical of max. output current.

### Line Regulation

For a change of a.c. input from 115 to 230V

Less than 0.001% + 0.0005% fs or in constant voltage (CV) mode.

Less than 0.001% + 0.001% fs in constant current (CI) mode.

### Load Regulation

For a zero to full load change

Less than  $\pm 0.01\% + 0.01\%$  fs or 5mV in CV mode.  
Less than  $\pm 0.01\% + 0.01\%$  fs or 5mA in CI mode.

### Ripple and Noise

$\Delta f = 20\text{Hz to } 20\text{MHz}$   
Typical

AP500/4005 20mV r.m.s./100mV p-p CV  
AP500/2080 & /7030 4mV r.m.s./40mV p-p CV  
25mA r.m.s. (CI)

### Temperature Coefficient

Typical after 30 min. warm up

CV: 0.01% + 0.005% f.s. /°C  
CI: 0.01% + 0.01% f.s. /°C

### Stability

Typical drift in output over an 8 hour interval (assuming constant line, load and ambient temperature) after a 30 min. warm up:  
 $\pm 0.03\%$  of output  $\pm 5\text{mV}$  (CV)  
 $\pm 0.03\%$  of output  $\pm 5\text{mA}$  (CI)

<b>Output Impedance</b>	0.2mΩ at d.c., typical.																								
<b>Load Inductance</b>	<b>When using the power supply close to short circuit</b> it is recommended that all possible precautions be taken to maintain a low load inductance. (Load leads should be short and where possible twisted together.)																								
<b>Response Time to Transient Loads</b>	Less than 2ms typical for output to recover within 100mV of nominal (CV mode) following a change in output current of from 90-100% or 100-90% of maximum current.																								
<b>Programming Response Time</b>	<p>Maximum time for output voltage to change from 2 volts to maximum or from maximum to 2V and settle within 200mV band:</p> <p>AP500/2080 &amp; /7030</p> <table><tr><td>UP</td><td>Full load</td><td>120ms</td></tr><tr><td></td><td>No load</td><td>120ms</td></tr><tr><td>DOWN</td><td>Full load</td><td>400ms</td></tr><tr><td></td><td>No load</td><td>1.2s</td></tr></table> <p>AP500/4005</p> <table><tr><td>UP</td><td>Full load</td><td>350ms</td></tr><tr><td></td><td>No load</td><td>350ms</td></tr><tr><td>DOWN</td><td>Full load</td><td>400ms</td></tr><tr><td></td><td>No load</td><td>1.2s (max to 20V)</td></tr></table>	UP	Full load	120ms		No load	120ms	DOWN	Full load	400ms		No load	1.2s	UP	Full load	350ms		No load	350ms	DOWN	Full load	400ms		No load	1.2s (max to 20V)
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<b>Overvoltage Limit (OVL)</b>	Front panel adjustable multiturn potentiometer. Trip level adjustable from approx. 2V to a level above rated output voltage. Accuracy of trip setting 1% approx. +1.5V.																								
<b>Current Monitor</b>	0-5V amplified current monitor output for zero to full output current. Accuracy 1% +10mV. Output impedance 5kΩ nominal.																								
<b>Remote Programming</b>	<p><b>Resistance</b> 0 to 4k7Ω provides zero to full output voltage or current. Common terminal connected to negative sense terminal. Accuracy at 23°C 0.2% +60mV (CV) 1.1% +50mA (CI).</p> <p><b>Voltage</b> 0 to 5V provides zero to full output voltage or current. Accuracy at 23°C 0.1% +60mV (CV) 1% +50mA (CI).</p>																								
<b>Remote Inhibit</b>	Applying a voltage between approximately 2 and 60 volts to rear panel terminal will shut down output.																								
<b>Remote Sensing</b>	Maintains nominal voltage at load by correcting for up to 0.5V drop in each output lead.																								



<b>E.M.C.</b>	Complies with EN61326(1997).  Note: In a 3V/m field deviations may be seen in CV or CI mode of up to 1%.
<b>Safety Standards</b>	Designed to comply with EN61010-1.
<b>Metering &amp; Status</b>	Twin 3 digit panel meters on front panel
<b>Indication</b>	<p>12.5mm character height. High efficiency, red LED, digital display of voltage and current output. Overvoltage limit (OVL trip point) can also be displayed.</p> <p>Twin bargraphs of 20 segments each give approximate indication of voltage and current availability and will show trends.</p> <p>Status flags give LED indication of CV and CI within panel meters. Central status window indicates unregulated condition (UNREG), overtemperature trip (OT), and overvoltage limit (OVL). In addition, if the IEEE488 bus option is fitted BUS indicates the unit is under bus control; LSN indicates receiving data from the bus; TLK indicates transmitting data on the bus; and SRQ indicates that a 'service request' has been initiated</p>
<b>Meter Accuracy Resolution &amp; F.S.D</b>	<p><b>VOLTAGE</b> Accuracy at 23°C: <math>\pm 0.2\%</math> rdg <math>\pm 1</math> digit AP500/2080 &amp; /7030 Resolution: 100mV f.s.d 99.9V AP500/4005 Resolution: 1V f.s.d. 999V</p> <p><b>CURRENT</b> Accuracy at 23°C: <math>\pm 1\%</math> rdg <math>\pm 1</math> digit AP500/2080 &amp; /7030 Resolution: 100mA f.s.d. 99.9A AP500/4005 Resolution: 10mA f.s.d. 9.99A</p>
<b>IEEE (488) Interface (When Fitted)</b>	Refer to supplementary handbook (part no 9HAPHIBUS).
<b>Float Voltage</b>	<p>These units are designed for either terminal to be floated up to 200V d.c. from earth (including output voltage). <b>The float sources must be impulse free (see IEC664) i.e. do not attempt to float on unisolated a.c. supply.</b></p> <p>On the 400V model - Maximum float voltage from earth for either terminal is 400V (including the output voltage).</p>
<b>Environmental</b>	Operating temperature 0-40°C Storage temperature -20 to +60°C

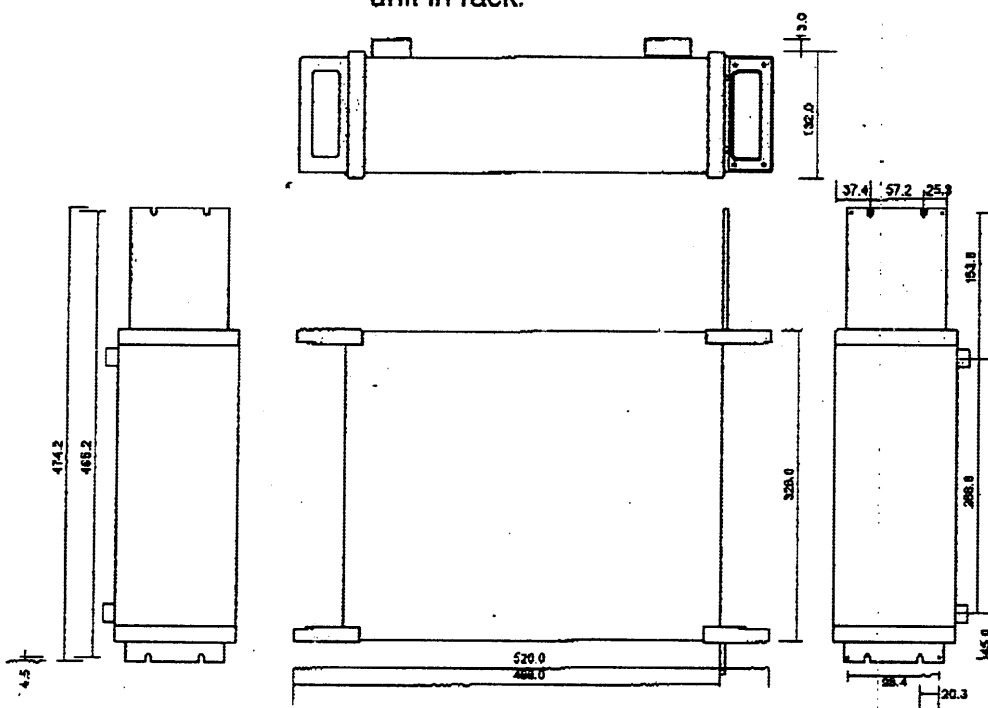
Cooling: Fan cooled. Air intake on front panel.  
 Overtemperature trip protection is featured.  
 RH <80% Non-condensing  
 Altitude <2000m  
 Pollution degree 2 (Normally non-conductive pollution)  
 Non corrosive, non-explosive atmosphere.  
 Installation category 2 (Connected via a plug and socket to the supply)  
 Indoor use only.

**Mechanical**

Height 145mm )  
 Width 326mm ) approximate overall dimensions  
 Depth 520mm )  
 Weight 11kg  
 Rack height 3U

**Rack Mounting**

Easily fitted into a standard 19" rack using optional mounting ears (see Page 14 Section 4.3.). Support rear of unit in rack.



*Fig 3.1 Mechanical Dimensions*



# PROVISIONAL

H1027509 Issue A

## Panel Symbols Used



Refer to handbook.



Alternating current



Earth (ground) terminal



CAUTION – Risk of electric shock.



Supply On – push button



Supply Off – push button

## Order Codes

AP500/2080 20V 80A autoranging PSU

AP500/7030 70V 30A autoranging PSU

AP500/4005 400V 5A autoranging PSU

Add suffix 'H' to above order codes for IEEE488.2 interface.

Add suffix 'R' to above order codes for rack mount kit.

We reserve the right to amend specifications without notification.