

## Features

- 1000W of power for audio amplification
- Universal AC input Range (90-265VAC)
- 48v @ 23 amps
- +5v @ 1.5 amps
- +12v @ 0.5 amps
- -12v @ 0.5 amps
- +3.3 @ 1.5 amps
- Efficiency > 84%
- AC input Power Factor Correction.
- Over Current Protection for shorted loads
- Over Temperature Protection
- Standby Operation with +3.3v Active

## Product Description:

Designed from the ground up to power your complete audio system. This power supply can provide a total of 1000W of audio power. It also provides +5v, +/-12v, +3.3v for other system components including pre-amps and DSPs. The supply has a universal AC input range (90-265VAC) with power factor correction. The supply is fully protected against short circuits on the outputs and over temperature conditions. It has a output over current and over temperature protection. In addition, the power supply can go into a low power Standby state that shuts off the main converter and 5v output, leaving the 3.3v output active for continued audio system monitor.

### BLOCK DIAGRAM OF POWER SUPPLY

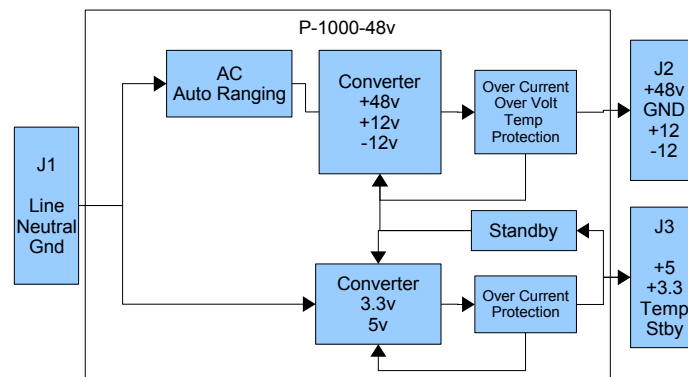
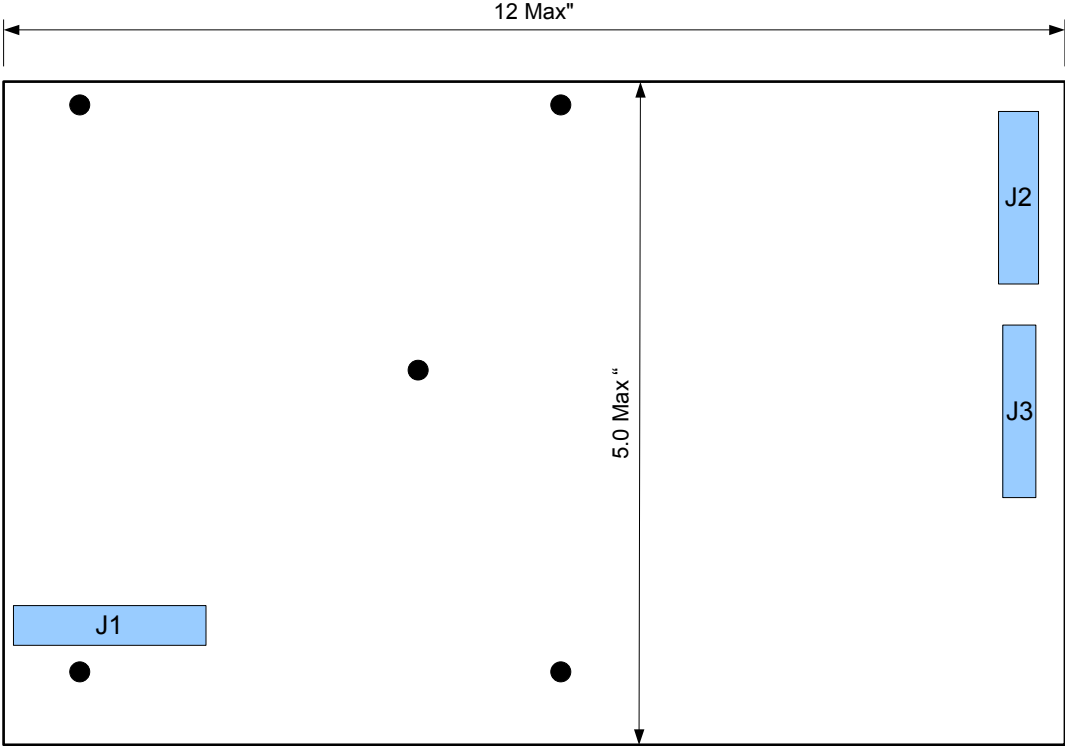


Figure 1: P-1000-48 Outline and Mounting Hole Locations



Maximum Height with U Chassis = 1.6"

### P-1000-48 specifications:

Unless otherwise specified, VAC=120v, Ta=25 °C

<i>Parameters</i>	<i>Symbols</i>	<i>Test Condition/ Comment</i>	<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Unit</i>
Output Voltage	V <sub>o</sub>			48		V
Maximum Continuous Current	I <sub>lim</sub>	P <sub>o</sub> = 1104 watts. Operation over this limit for more than 2 seconds will enable over current protection.		23	-	A
Maximum Current	I <sub>max</sub>	Above this value output voltage will droop		27		A
Max Power	P <sub>max</sub>	Continuous operation for 1 Minute operation after heat soaking at 1/8 at 125watts	1000	-	1100	W
Output Power Continuous	P <sub>oc</sub>	With U chassis connected to proper heat sink	-	250	-	W
Output Voltage Regulation	V <sub>reg</sub>	0 < P <sub>o</sub> < P <sub>max</sub>		1		%
Input Voltage	V <sub>ac</sub>		90		265	Vrms
Power Factor			.98			-
Efficiency	Eff	P <sub>o</sub> = P <sub>max</sub> , V <sub>ac</sub> = 220V		84		%
Standby Power	P <sub>stby</sub>	I <sub>3.3</sub> = 0.5A, V <sub>ac</sub> = 220v			5	W
Leakage Current	I <sub>LEAK</sub>	V <sub>ac</sub> = 220v			1.3	mA
+5V Output	V <sub>5</sub>	Current ≤ I <sub>5max</sub>	4.85	5	5.15	V
+5V Current	I <sub>5max</sub>	Maximum continuous operation		2.5		A
+12v Output	V <sub>15</sub>	Current ≤ I <sub>15max</sub>	14.55	15	15.45	V
+12v Current	I <sub>15max</sub>	Maximum continuous operation		0.5		A
-12v Output	V <sub>-12</sub>	Current ≤ I <sub>-12max</sub>	-12.45	-12	14.55	V

Parameters	Symbols	Test Condition/ Comment	Min	Typ	Max	Unit
-12v Current	$I_{15max}$	Maximum Continuous operation		0.5		A
+3.3v Output	$V_{3.3}$	Current $\leq I_{-3.3max}$	3.2	3.3	3.4	V
+3.3v Current	$I_{3.3max}$	Maximum continuous operation		1.5		A

Connector pin out:

**AC Power Connector (J2: Header man. Man pn)**

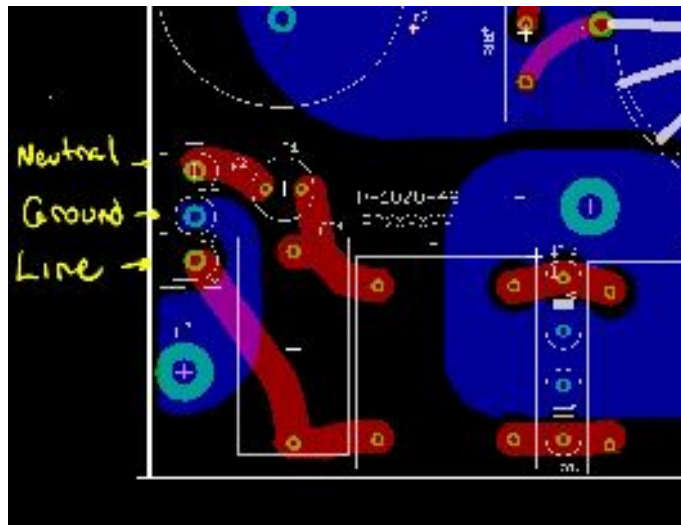


Illustration 1: Location of Pins on J2

Pin	SIGNAL
1	Line
2	CHASSIS GND
3	Neutral

**Output Power Connector (J1: 1x9 pin JST B9P-VH.)**

Pin	SIGNAL
1	+48v
2	+48v
3	+48v

4	POWER GND
5	POWER GND
6	POWER GND
7	+12
8	-12
9	AGND

### **Auxiliary Power and Temp (J3 (1x5 JST B5P-VH) optionally (1x6 JST B5P-VH))**

Optionally, a sixth pin header may be populated to bring out an extra -5v.

Pin	SIGNAL
1	+5v
2	+3.3v
3	AGND
4	TEMP MONITOR
5	STANDBY
6	-5 (optional)

## **Power Supply Operation:**

### **MAIN OUTPUT SUPPLY:**

The power supply will provide 48v up to 20.8 amps of average output current for 1 minute of operation using a properly heat sinked configuration. The supply will handle a certain amount of overload operation before either over current or over temperature protection will be enabled.

### **UNIVERSAL INPUT AND POWER FACTOR CORRECTION:**

The Power supply will operate with any AC voltage between 90vac and 265vac while providing a power factor greater an .98. The wide input range ensures that the supply will work in any world wide AC environment. Voltage sags or surges will go unnoticed by the audio output.

The large power factor means that almost all the current provided to the power supply will be transferred to the load maximizing the AC wiring capabilities of the mains. This become very important when multiple power supplies are hooked up to the same AC breaker and each is required to provide maximum output power. Now you won't being tripping breakers. Instead the supply will provide all the power the AC wiring can deliver.

**OVER CURRENT OPERATION:**

For output powers up to 1000W, The supply will provide continuous operation until thermal limits. For momentary durations (i.e. Less than 2 seconds), the supply can provide a maximum of 27 amps of output current. Above this limit the output 48v will droop. If the current draw over 23 amps is maintained continuously for more than 2 seconds, the primary over current protection will be enabled and the supply will shut down and then restart after approximately one second.

**TEMPERATURE PROTECTION:**

Each power supply has a robust temperature protection circuit at both the PFC and output stage to protect the supply in the case of an over temperature condition. The power supply will go into PROTECT mode and will shutdown if either sensed temperature goes above 80°C. If the power supply goes into protect mode, it will shut down and immediately attempt to restart after one second.

There is a TEMP MONITOR pin that can be used to monitor the temperature of the power supply and can be used to provide off board thermal management techniques.

**STANDBY OPERATION:**

The power supply is has a standby mode of operation. By pulling the STANDBY pin high, the power supply will turn off the +48v, +12v, and -12v, and +5v outputs leaving the +3.3v output active. The input circuit for this pin is shown below. To put the unit into STANDBY, the STANDBY pin voltage needs to be higher than approximately 2v. One way to drive this signal is to use a 1k pullup resistor and tie it to 3.3v. An transistor can then be used to pull this 1k resistor to ground to return from standby operation. This auxiliary supply will pull less then 5 watts from the AC line (220VAC) with a 0.75 amp load on the 3.3v output. **If the STANDBY pin is unconnected, the power supply will default to the ON position.**

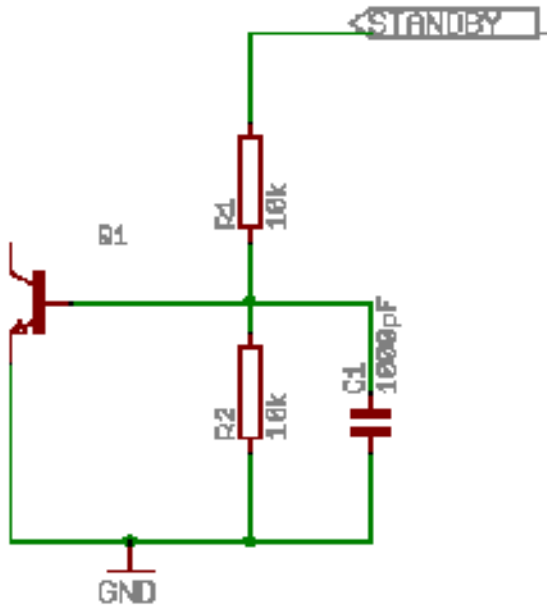


Figure 2: STANDBY pin Circuit