

FEATURES

- 1000W of power for audio amplification
- Universal AC input Range (90-265VAC)
- 48v @ 23 amps
- +5v @ 2.5 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

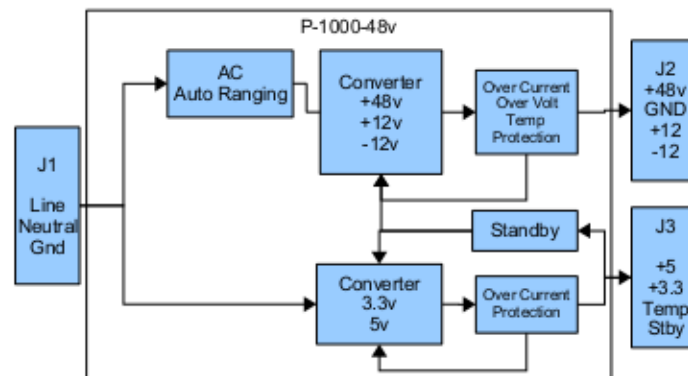
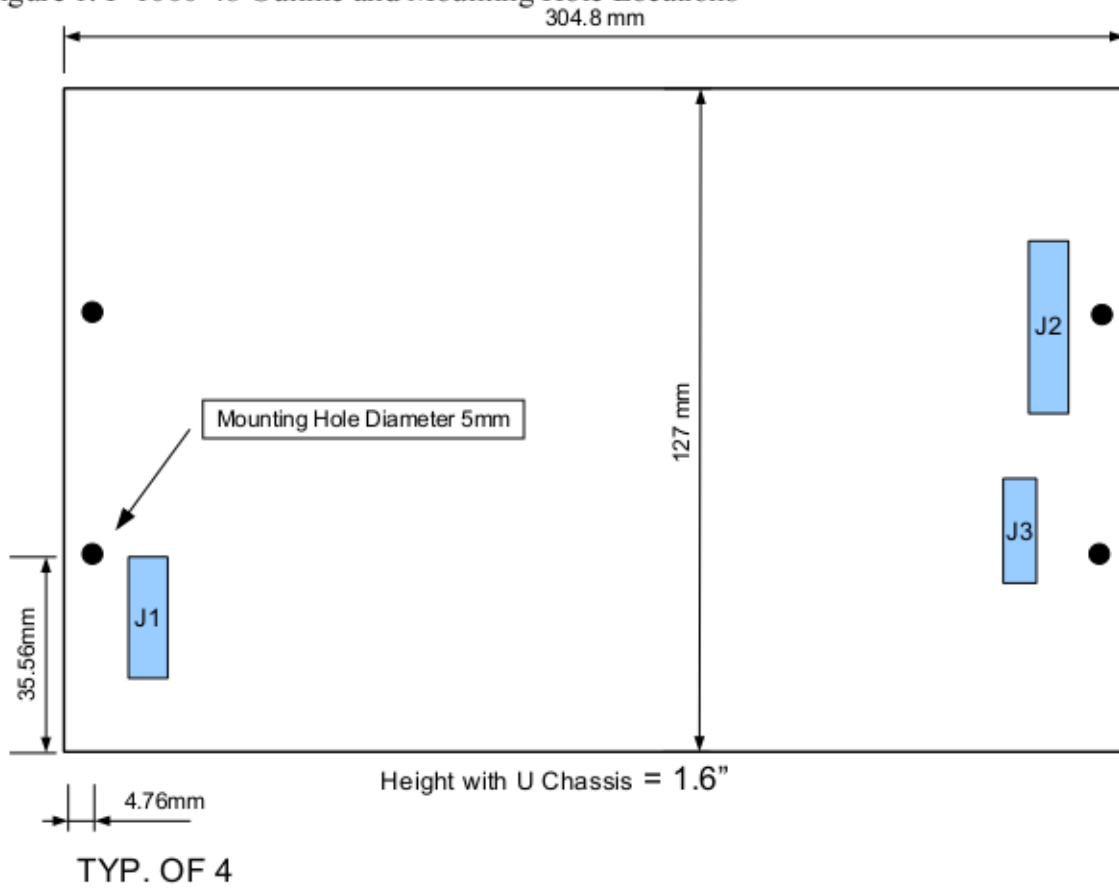


Figure 1: P-1000-48 Outline and Mounting Hole Locations



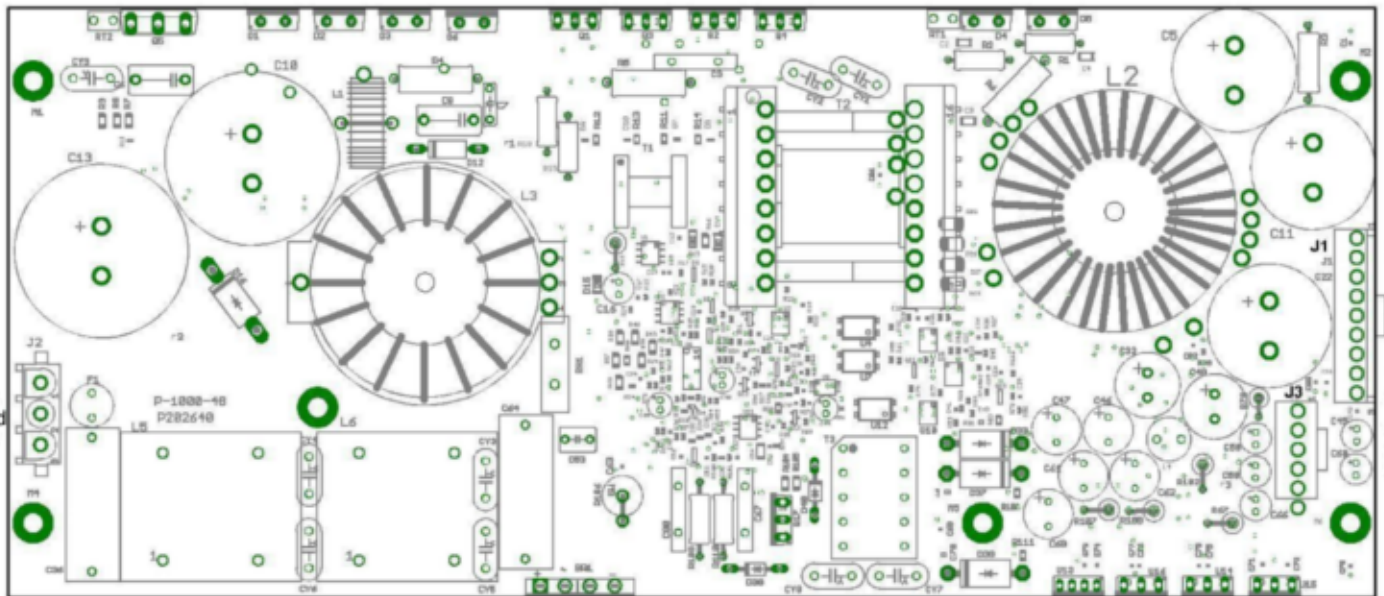
P-1000-48 ELECTRICAL SPECIFICATIONS:

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 _o			48		V
Max Continuous Current	I _{lim}	P _o = 1104 watts. (note 1)		23	-	A
Maximum Current	I _{max}	Note 2		27		A
Max Power	P _{max}	Continuous operation for 1 Min	1000	-	1100	W
Output Power Continuous	P _{oc}	With U chassis connected to proper heat sink	-	250	-	W
Output Voltage Regulation	V _{reg}	0 < P _o < P _{max}		1		%
Input Voltage	V _{ac}		90		265	V _{rms}
Power Factor			.98			-
Efficiency	Eff	P _o = P _{max} , V _{ac} = 220V		84		%
Standby Power	P _{stby}	13.3 = 0.5A, V _{ac} = 220v			5	W
Leakage Current	I _{LEAK}	V _{ac} = 220v			1.3	mA
+5V Output	V ₅	Current <= I _{5max}	4.85	5	5.15	V
+5V Current	I _{5max}	Maximum continuous operation		2.5		A
+12v Output	V ₁₅	Current <= I _{15max}	11.45	12	12.55	V
+12v Current	I _{15max}	Maximum continuous operation		0.5		A
-12v Output	V ₋₁₂	Current <= I _{-12max}	-12.55	-12	-11.45	V
-12v Current	I _{15max}	Maximum Continuous operation		0.5		A
+3.3v Output	V _{3.3}	Current <= I _{3.3max}	3.2	3.3	3.4	V
+3.3v Current	I _{3.3max}	Maximum continuous operation		1.5		A

- Note 1: Time less than 2 seconds. If operated at this power for more than 2 seconds, the supply will trigger over current protection.
- Note 2: Above this value the output voltage will droop.

P-1000-48 Power Supply Pinout



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 FUNCTIONAL DESCRIPTION:

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 sunk 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:

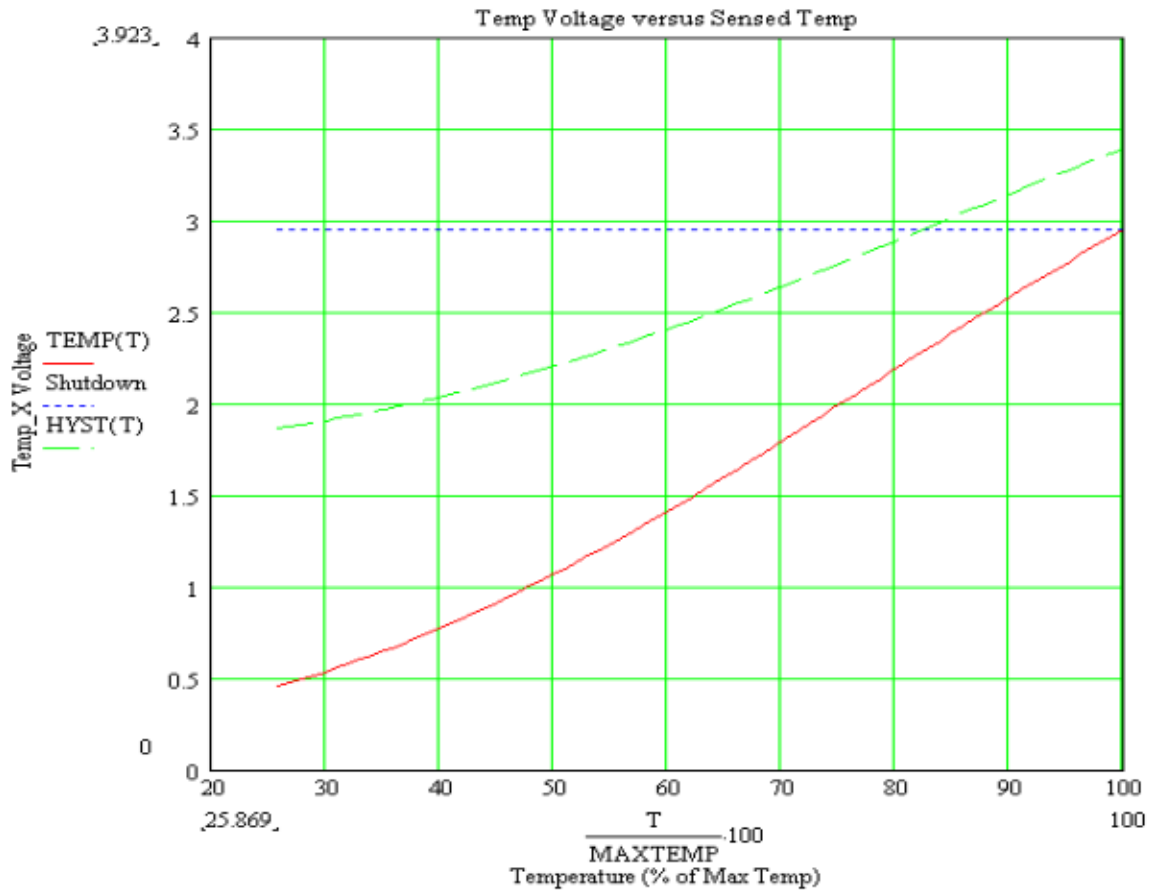


Figure 2: TEMP monitor pin voltage versus temperature

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. The voltage

versus percent of the maximum operating temperature is shown in Figure 2 with the TEMP(T) curve. If the power supply reaches the shutdown limit of 2.9v (i.e. the dashed blue line), The +48v, and +/-12v outputs will turn off and remain off until the TEMP MONITOR pin drops near 80% of the maximum operating condition. During the time the power supply is in thermal protection, the temperature versus voltage follows the HYST(T).

STANDBY OPERATION:

The power supply 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 than 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.**

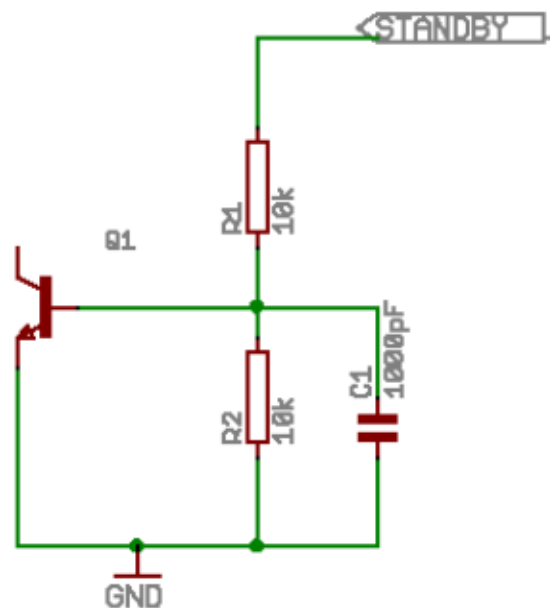


Figure 3: STANDBY pin Circuit