

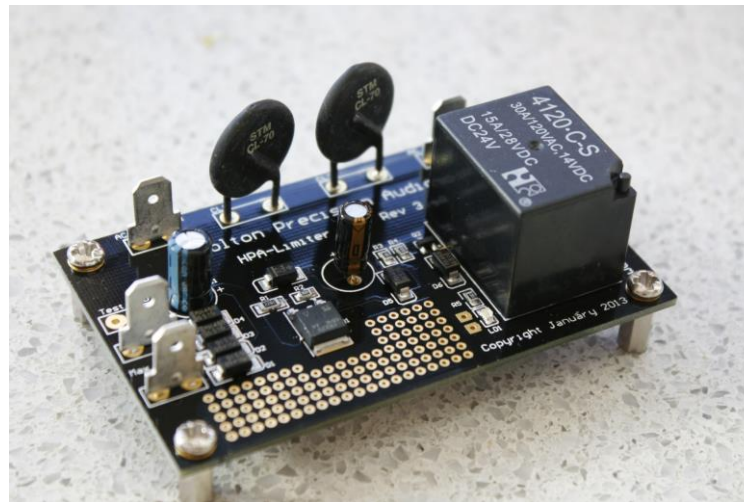
HPA-Limiter-1 Rev 3

AC Mains Soft Start Board

Installation Manual

Version 1.02

**For Technical Support please email
aussieamps@gmail.com**



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DISCLAIMER

All reasonable care has been taken in the design of this device to ensure safety to you and your audio equipment. This product is designed for those with some experience in electronics. It requires working with potentially lethal voltages. Those unsure of the assembly process should seek help from an electronics Technician or an experienced DIY electronics or electrical personnel who can check and verify your work.

In normal operating conditions, with commercial audio equipment and audio sources, providing all assembly instructions have been followed carefully, no damage should occur to the amplifier, source, or loudspeakers so connected to the audio system. Notwithstanding this, no responsibility whatsoever can be taken for any damage of any nature, as Holton Precision Audio is the designer, not the builder or user. The buyer is the sole arbiter regarding suitability of this product for their system.

Since both the assembly and the operation of the amplifier are beyond the control of Holton Precision Audio, neither its agents nor its employees take any responsibility whatsoever for any damage resulting from the use or abuse of this Module, or its resultant amplifier by any person or persons, to any product to which the amplifier is connected or otherwise attached.

Introduction

The HPA-Limiter-1 is designed to limit the excessive inrush current to a safe level, found at turn on in Toroidal transformers of 300VA+ rating. This excessive current surge is mainly caused by the Toroidal core magnetising currents being unstable for the first 250ms or so after power is applied to the primary winding/core. This can in most cases trip the household circuit breakers, which is most irritating and inconvenient. The Limiter has the added bonus of limiting the charging currents passing through the bridge rectifiers as well as the large main filter capacitors found in most conventional linear power supplies. Which in turn help to remove the stress from these vital components.

The HPA-Limiter-1 has been tested to work on Toroidal power transformers as large as 4KVA and load tested to 2400 watts, making it more than tough enough to handle most installations with ease. The HPA-Limiter-1 could also be used to protect most switch mode power supplies.

The practical limit for the Limiter One would be linear power supplies having a storage capacity of approximately 120,000uF. Larger capacities would need the larger Limiter Two which is due for release in the first quarter of 2014.

The HPA-Limiter-1 is designed to work in 100 volts AC to 270 volts AC at 50-60HZ allowing it to be used in most worldwide AC mains installations.

- **Key features of the HPA-Limiter-1**
- **Constructed on a heavy duty 3 Ounce copper FR4 PCB.**
- **30 Amp - 380 volt contact rated relay.**
- **Heavy duty surge limiting NTC thermistors.**
- **Quick and easy installation with FASTON connections.**
- **Fast reset and enable with rapid mains power cycling.**
- **On board 24 volt voltage regulator.**
- **1 sec approximate surge limit delay**

Installation notes for the LSP-1

The HPA-Limiter-1 is very simple to install and no setup procedure is required. Mounting the HPA-Limiter-1 requires four 6mm stand offs with 3mm tapped holes and M3 Bolts to suit.

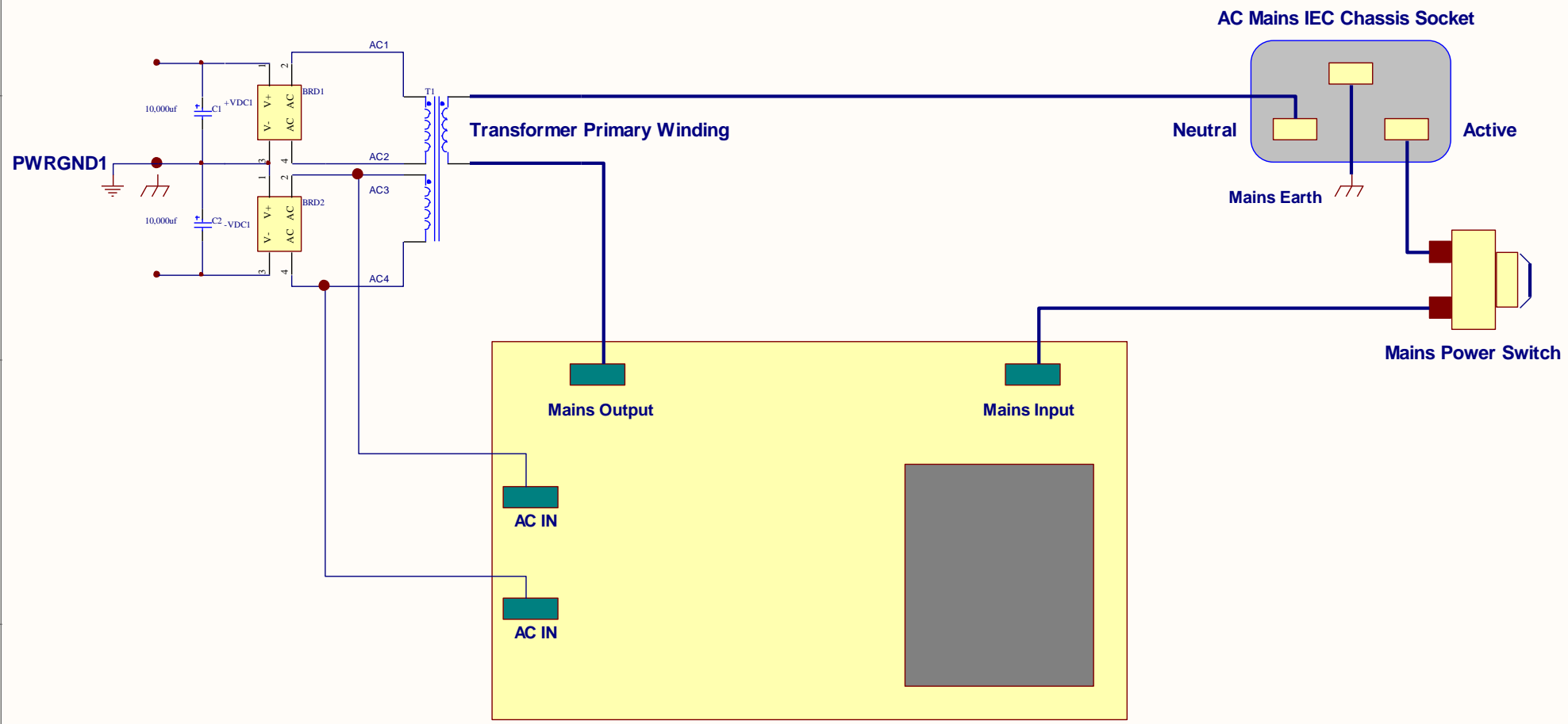
The power supply requirements are listed in the following page. The Limiter-1 has two power supply terminations. Both power connections are AC terminations which feed a full bridge rectifier, so no actual connection to power ground or chassis earth is required. The following connection diagrams shows a connection to a floating AC winding and the second diagram shows a the power connection to a power Ground referenced power supply, both are valid power connections for the Limiter One. This supply must be in the range of 20 volts AC to a maximum of 60 volts AC. For supplies greater than 60vac a 220 Ohm 5 watt resistor can be used as shown in the connection diagram found elsewhere in this document. Normally this can be taken from the main secondary winding supplying the power amplifiers as shown in the winding diagram on the following page, or you can power it from an auxiliary winding or separate power transformer where one side of its secondary winding is tied to the power amplifiers power GND. If you are to use a auxiliary power transformer. The recommended specifications for this transformer would be, 15VA core or larger with 22vac to 30vac secondary winding.

The mains surge limiter connections are at Mains I/P and Mains O/P via 1/4" quick connections points. The first connection is made with mains rated cable from the switched output from the main power switch to the 1/4" connection marked Mains I/P. The second and final connection is made with one of the primary winding wires as shown in the wiring diagram at the 1/4" connection marked Mains O/P.

No further setup or adjustment is required, however do check your wiring very carefully as mistakes done in the mains wiring can be catastrophic and dangerous.

HPA-Limiter-1 Rev 3 Wiring Diagram

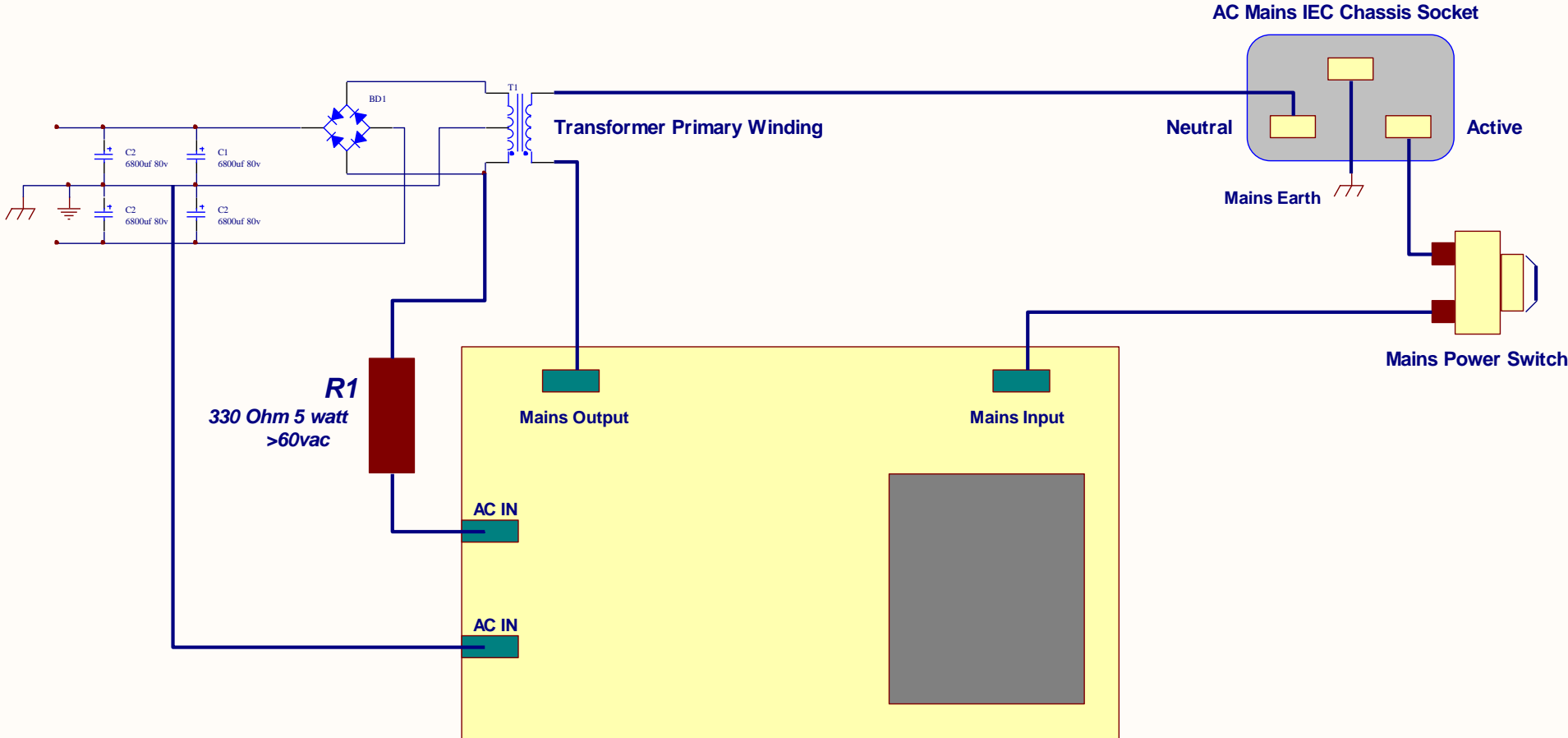
For Connection to floating AC windings



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HPA-Limiter-1 Rev 3 Wiring Diagram

R1 must be used on supply voltages greater than 60vac



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