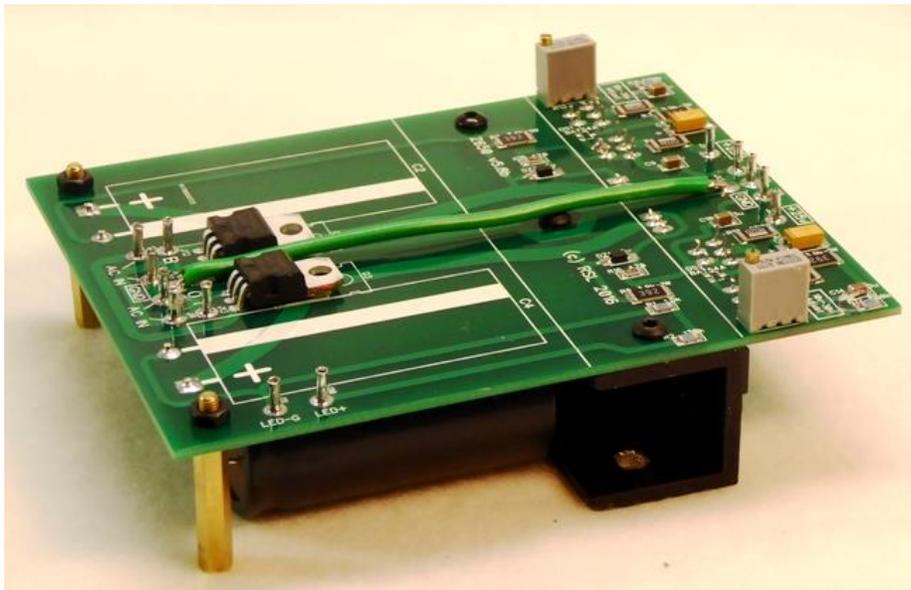


RSL PSM-2 Power Supply Module – Installation Instructions

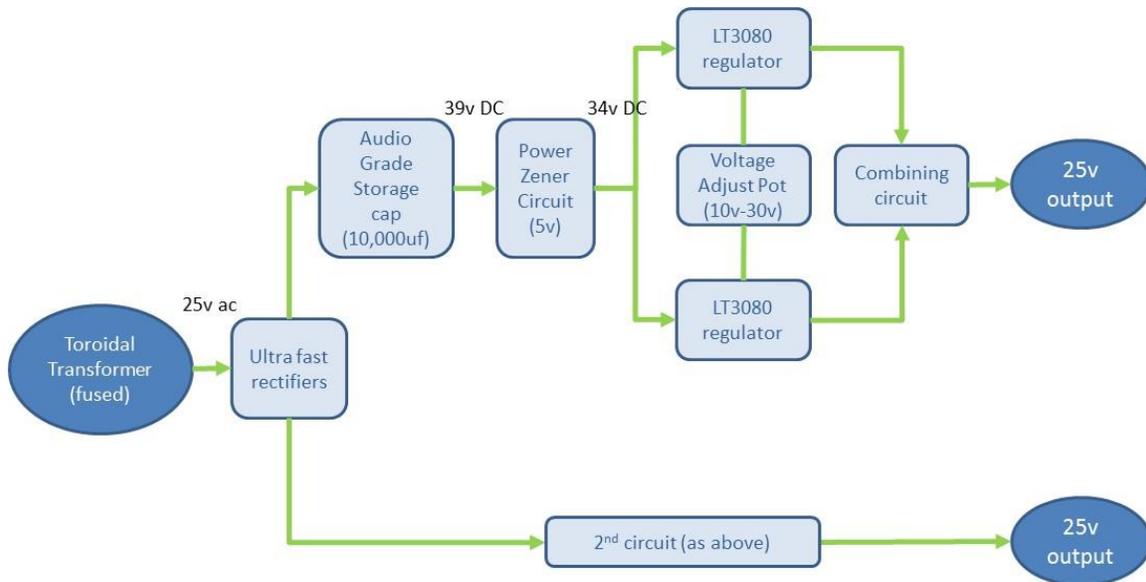
Dear Do-It-Yourselfer,

The RSL PSM-2 module contains the heart of a high-performance hifi power supply system. With this module you can readily build your own supply that will surpass the performance of much more expensive power supplies. The module contains two complete, independently adjustable regulators with a common input and common ground. The low profile height of the module (40mm) makes it usable in many modern enclosures.



Technical info:

1. THE PSM-2 MODULE IS DESIGNED TO BE USED WITH ONE 25V RMS OUTPUT TRANSFORMER (see winding options below). DO NOT USE WITH HIGHER VOLTAGES. Lower voltages can be used but the upper limit of regulation will be reduced.
2. 25v rms transformer input will typically result in a little over 39vdc on the storage capacitors with the light current loads of most preamps and CD players. Since the regulators have a 7vdc drop from input to output, this permits adjusting the regulated outputs up to 30v dc with the on-board trimmer pots. The block diagram below shows the key internal parts of the module.



3. Maximum output current is 2 amps per regulator section (4amps total) but is also limited by power dissipation as described in the next section.
4. Output current rating limited by heat dissipation is a function of input-to-output voltage differential. If you mount the module on a suitable heat dissipating platform, such as a medium-size aluminum enclosure, a total dissipation of about 20watts can be assumed, which will make the enclosure warm but not hot. The total continuous output current for both regulator sections combined should then be approximately as shown in the table which assumes 25v rms input. (Note that the regulators are thermally protected and will limit output current if overheated.)

Output Voltage (vdc)	Heat Dissipation Limited Continuous Output Current (ma total for both regulators)
30	2,200
25	1,400
20	1,000
15	800
10	650

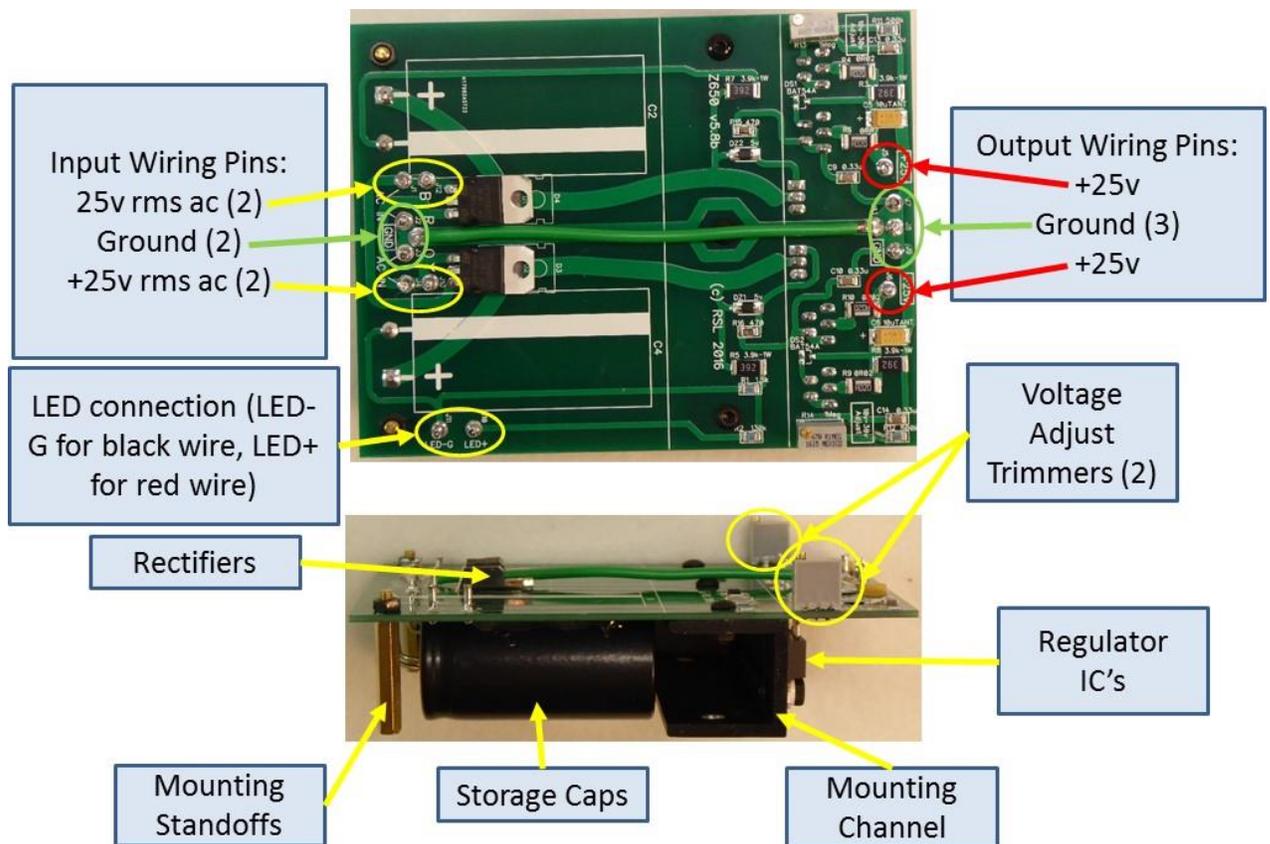
Just for reference, an RSL or Naim 72 preamp draws a total of about 125ma at 25v.

5. The regulator is protected against indefinite short circuits.
6. There are “bleed” resistors on the regulators to discharge the storage capacitors when the power supply is turned off. Please wait about 1 minute for this to occur before performing any circuit work such as soldering wires to the module.
7. The LED is a very high efficiency type and uses only a fraction of a milliamp. If you want to adjust it to be brighter, use high valued resistors (e.g. try 100k) and make small incremental changes.
8. Physical size of the module is 120mm x 92mm x 40mm (L x W x H) (5 5/8” x 3 5/8” x 1 5/8”).

What’s included in the PSM-2 Module kit:

1. Regulator module with dual independent output supplies (common input and ground) including:
 - a. ultra-fast rectifier diodes
 - b. top-quality “KW audio grade” Nichicon capacitors
 - c. state-of-the-art regulator circuitry
 - d. aluminum channel for attaching to a suitable enclosure.
 - e. adjustable output voltage trimmer pots which cover the range 10v-30v.
 - f. pre-tinned hollow connection posts to make it easy to insert and solder wires to the board.
2. A blue LED with extra long (12”) leads for flexible mounting.
3. Necessary screws and standoffs for mounting.
4. Allen wrench for tightening the screws.
5. Drilling template for mounting the module. You will need 4mm and 5mm drill bits.
6. Several wire ties for doing a neat job with the wires.

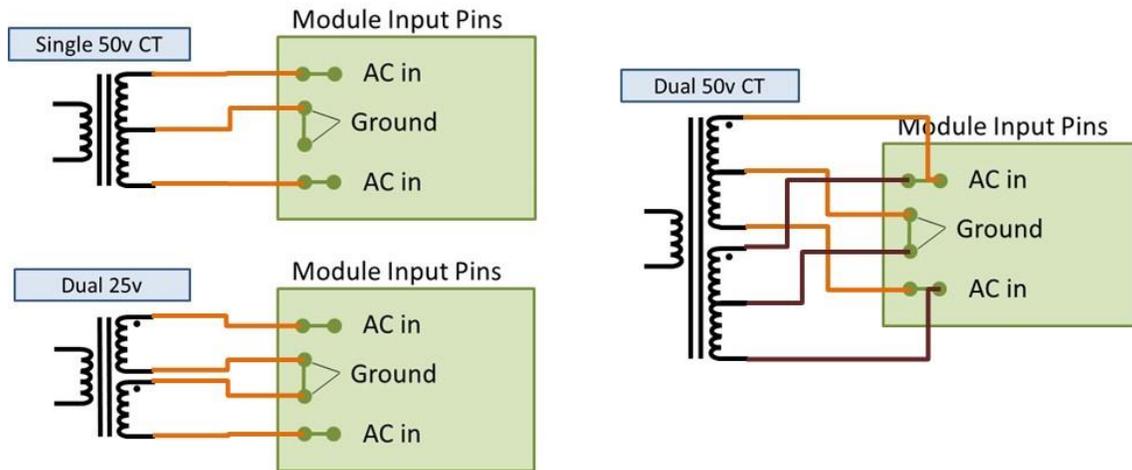
The photo below highlights the key features of the PSM-2 module.



Also needed for installation:

1. Transformer: A toroidal type is recommended (lowest radiated hum potential) of about 120va size. Larger transformers, while seemingly attractive, will actually degrade the dynamic capabilities of the PSM-2. The transformer needs any of the following secondary outputs:
 - a. One (or more) 50v center tap windings
 - b. Two 25v windings

Six (6) attachment pins are provided on the module to accept a wide variety of transformer configurations as shown here:



2. Enclosure: your choice. Remember that the enclosure is also the heat sink. Aluminum will dissipate regulator heat better than steel. Not really much of an issue with typical preamp or CD player loads of 150ma or less (less than 3 watts total dissipation).
3. Output connectors: your choice. 2 regulated voltage outputs and 3 ground pins are provided on the module to make it easy to make connections.
4. Wire size: Transformer wires for this power rating (120va) will usually slip inside the hollow input pins on the module board and allow for direct soldering. Similarly, 20g wire is adequate for the short runs inside a typical enclosure and will also fit into the hollow output pins.
5. The usual soldering iron, solder, mechanical tools, etc.
6. A voltmeter if you want to adjust the outputs to other than 25vdc (RSL factory setting)

Before you get started, here are the mandatory **safety warnings**:

1. MAINS VOLTAGES CAN KILL! Do not connect power to your transformer until all mains connections are covered and safe. Use heat shrink tubing on all high voltage (primary side) connections.
2. Transformer secondary voltages of 25v rms are generally not lethal but can cause sparks if the wires are accidentally shorted. Always inspect all wiring before energizing transformers.
3. Ensure that your enclosure is properly grounded to the safety ground wire (3rd wire of the mains cable) before applying power to your unit. The enclosure should NOT be connected to the “neutral” (2nd wire) from the mains cable!
4. Soldering uses hot irons and molten metal which can burn or potentially start a fire. Use appropriate caution when soldering.
5. Do not leave parts, tools or equipment where small children can get to them.

Now the fun part:

1. Position the PSM-2 module where it will make good contact with a flat section of the enclosure and be oriented to minimize input and output wiring lengths. Don't forget the LED location, which would normally go on a front panel. The long LED leads should allow for almost any desired mounting of the modules itself.
2. Cut out the Mounting Template (attached) and scotch tape it in the desired position on the enclosure.
3. Drill (2) 4mm holes and (2) 5mm holes in the locations indicated on the template attached to this document. Deburr any rough edges on the holes.
4. Loosely mount the module using the provided M4 screws & nuts on the channel plus the M3 button head screws on the standoffs and shown in the photo below. It's easiest to use needle nose pliers to hold the nuts in position while you screw the M4 screws in from the bottom with the Allen wrench. Be patient – this is the hardest part of the installation.
6. Now you can tighten down all (4) screws holding the power supply board in place.
7. Solder transformer wires to the module as shown in the appropriate diagram below. I suggest you heat the hollow solder pins on the board and gently push the individual wires down into them to make a solid contact.
8. Don't forget the two LED wires (black goes to LED-G, red to LED+). Trim the length as needed and solder to the module.
9. Add wire ties to make it look professional.
10. You should be ready to plug it in and check the voltages at the two output pins labeled "25v" on the regulator. Factory set at 25v, you can tweak the two trimmer pots to get the voltage you want (clockwise is higher voltage).

PSM-2 Mounting Template

Drill four holes:

(2) at 4mm (for M3 standoffs) and (2) at 5mm (for M4 screws)

