

Pacific Antenna Wall Wart Tamer 2.0 Kit



Description

The Wall Wart Tamer lets you utilize those surplus computer and wall pack power supplies as a clean, adjustable voltage, DC power source for radios and equipment.

Designed to filter input power and remove most of the receiver “hash” noise that results from common wall warts and laptop supplies, especially switching supply types.


The project itself is straightforward and if you follow the steps you will have a working Wall Wart Tamer module putting out CLEAN DC power when you finish.

Specifications

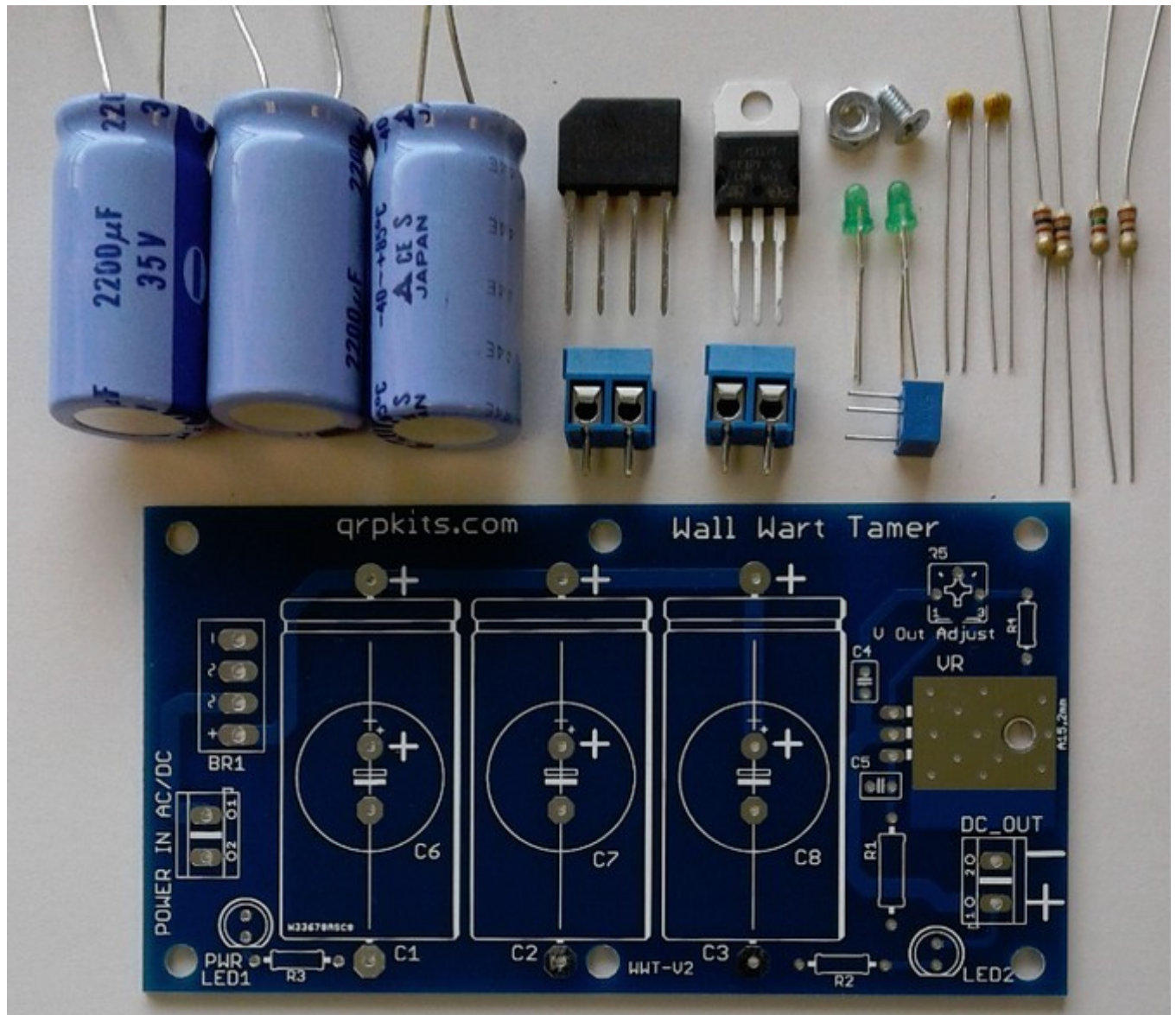
- Converts AC or DC into clean, adjustable DC output
- Reuse those surplus wall warts or computer supplies as DC power sources
- Constructed with a bridge rectifier, capacitive filter and LM317 Adjustable Regulator
- Recommended Input voltage range of 5-25 Volts
- Output adjustable from 1.25V to approximately 3V below the input voltage
- Supplies up to 1.5A current
- Board size of 2.3” x 4.3”

Assembly Instructions

Parts List

Picture	Name	Quantity	Description	Marking
	R1	1	2.7K ohm resistor 1/4 watt	red-vio-red-gold
	R2	1	1.5K ohm resistor 1/4 watt	brn-grn-red-gold
	R3	1	3.3K ohm resistor 1/4 watt	org-org-red-gold
	R4	1	220 ohm resistor 1/4 watt	red-red-brn-gold
	R5	1	5K Trimpot	502
	C4, C5	2	0.1uf monolithic cap	104
	BR1	1	2 Amp bridge rectifier	4 pin Inline Package Note polarity
	LED	2	LEDS,	N/A
	Power IN, OUT	2	Terminal Blocks	N/A
	VR	1	LM7317 voltage regulator	LM317T
	C6, C7, C8	3	2200uF 35V Radial	2200uF 35
	Screw	1	#4 x 1/4 screw, metal	N/A
	Nut	1	#4 nut, metal	N/A

Typical Parts Included



Note: The parts in the kit may sometimes vary slightly from those shown here

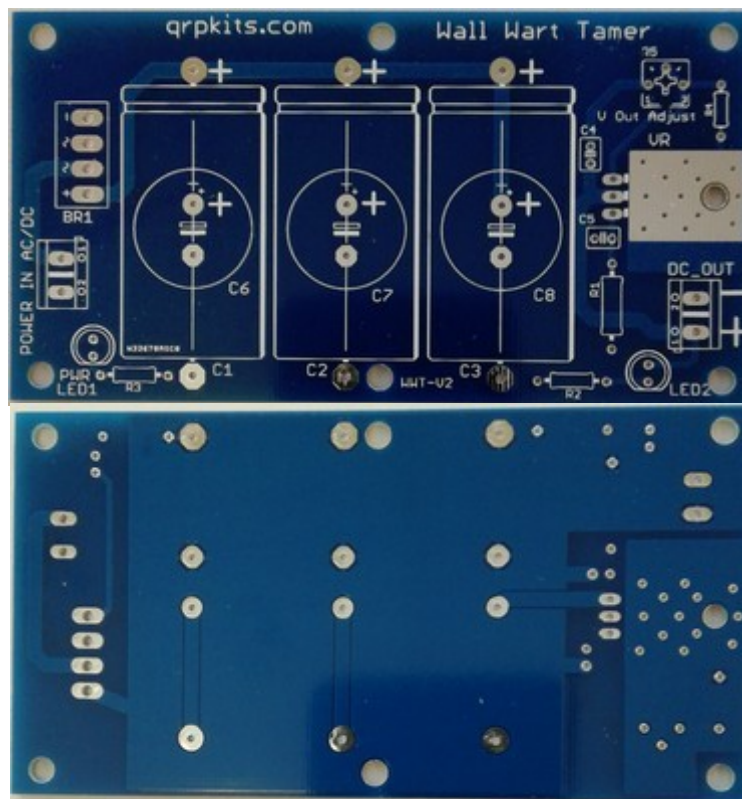
Parts Assembly

The Pacific Antenna Wall Wart Tamer is a fairly simple device to assemble and test.

It is easiest if you follow these instructions, checking off steps as they are performed.

This will lead you through the assembly installing components generally from shortest/smallest to tallest.

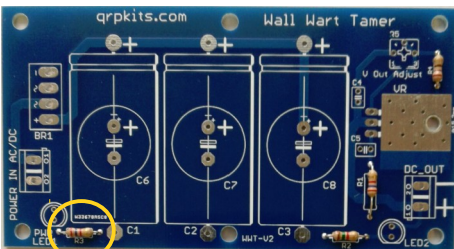
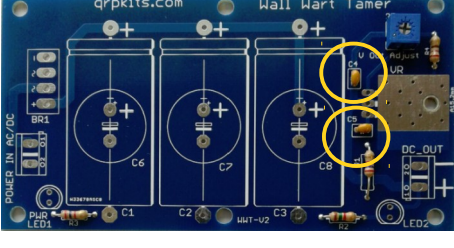
Begin by inspecting the PCBs to look for any defects and to familiarize yourself with the layout.

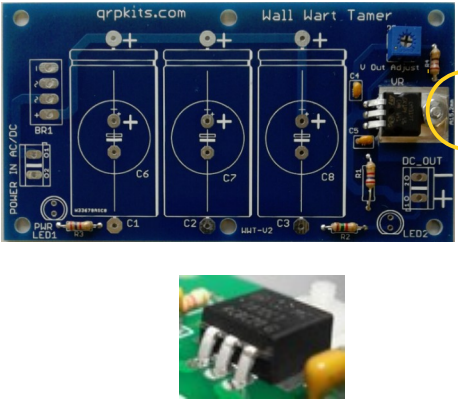

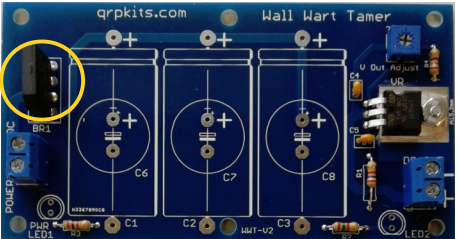

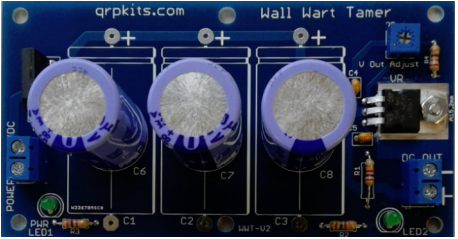


Next inspect inventory and sort out the various parts for the board. Make sure you understand which parts are which, and things like resistor codes and component orientation. A Google search will yield a plethora of information including resource sites like Wikipedia

Generally, the following component assembly order is grouped from shortest to tallest parts to make assembly easier.

Special instructions for component orientation should be listed if a component has any. Don't stress it- we try to make this as easy as possible!

#	✓	Instructions	Photos
1		Install the 2.7K ohm (red-violet-red) resistor at location R1. Note: Resistors do not have a specific orientation!	
2		Install the 1.5K ohm (brown-green-red) resistor at location R2.	
3		Install the 3.3K ohm (orange-orange-red) resistor at location R3.	
4		Install the 220 ohm (red-red-brown) resistor at location R4	
5		Install the 5K trimmer(blue) into the location marked R5 Note: the trimmer will only fit one way	
6		Install the 0.1uf Ceramic Capacitors at locations C4, C5. <i>Note: Bypass caps do NOT have a specific orientation. .1uf is also known as 100nf.</i>	

#	Instructions	Photos
7	<p>Install the LM317 voltage regulator at IC1.</p> <p>Note: The voltage regulator is polarized. Gently bend the leads of the regulator down at a curving angle so that they will fit the board holes and the mounting hole in the tab aligns with the board hole.</p> <p>Fasten the regulator to the board using the supplied #4 screw and nut. Tighten the screw securely and verify that the regulator is flat on the board. Solder and clip the leads A thin layer of heat sink grease between the regulator and board is recommended.</p>	
8	<p>Install 2 terminal blocks at locations Power IN and DC Out</p> <p>Note: The terminal blocks should be oriented facing outward.</p>	
	<p>Install the bridge rectifier at location BR1.</p> <p>Note: this part has a specific orientation. Notice that one end of this device has a small (+) on it and the other a (-) with two (~) symbols between. This corresponds to the symbols on the board.</p>	
9	<p>Install the 2 LED's at locations LED1 and LED2</p> <p>Note: These parts have a specific orientation. The flat side of the LED aligns with the flat side on the silkscreen marking. The lead on the flat side is the negative lead and will usually be the shorter lead as well.</p>	
10	<p>Install 3 electrolytic capacitors at C6, C7 and C8.</p> <p>Note: Electrolytic Caps DO have a specific orientation! + goes in the upper solder pad nearer the top of the board, and - in the lower pad. Usually the - lead is marked with negative signs. Double check orientation. Solder one lead first and check that the capacitor is seated to the board. If not, reheat that lead and seat the capacitor fully before soldering the second lead.</p>	

Note: The board was designed to support either axial lead capacitors (the leads come out on opposite ends), OR radial lead caps (the leads come out on the same side of the cap). This version of the kit is supplied with radial lead capacitors.

Congratulations! You have completed assembly of your Wall Wart Tamer!

Your board should now look something like this:



Inspection and Testing

Inspect all connections and solder joints for any problems including shorts between pads or unsoldered connections.

Check that all excess leads are trimmed so that they will not contact other pads.

Double check component orientation, especially, the bridge rectifier, the two LEDs and the electrolytic capacitors.

With the components supplied, the peak input voltage can go up to as high as 30V and should be at least approximately 3V above the desired output voltage.

For example, a good range of input voltage for producing 12VDC output is from about 15- 25V.

This covers the range of most wall wart supplies and surplus laptop power supplies. If in doubt, check the output of your supply with a voltmeter.

The Wall Wart Tamer can be used with a wide range of AC or DC input sources including wall packs, transformers, DC power supplies and batteries. Just make sure that the output voltage of the supply used does not exceed the 30V upper limit of the Wall Wart Tamer.

It is strongly recommended to include a fuse of 3A or less on the input supply or to use a current limited supply for protection in the event of a short circuit.

Apply power to the Wall Wart Tamer by connecting a source of voltage to the input terminals labeled “POWER IN AC/DC”. Polarity of the input supply does not matter.

Both LEDs should illuminate, if not, remove power and recheck the component installations.

Using a voltmeter, check the output voltage on the “DC OUT” TERMINALS. The output voltage depends on the position of trimmer R5.

Turning R5 with a small screwdriver should change the output voltage over the range of approximately 1.2V at the minimum up to approximately 3V below the input voltage.

Once proper operation is verified, you are ready to use your Wall Wart Tamer as a power source.

Note that the maximum output is 1.5A. Exceeding this level for an extended time may damage the bridge rectifier and/or the regulator due to heating.

We hope you enjoy your Wall Wart Tamer kit. Please do not hesitate to contact us if we can provide assistance or answer any questions.

Thanks from the Pacific Antenna and Qrpkits.com team!

Support: qrpkits.com@gmail.com