

## Aleph Current Gain Setting Notes

Thank you for participating the Classic Aleph Group Buy!

This document is a supplement to the Aleph Build Notes documents. This document focuses the AC Current Gain Setting Procedure for the “Classic” Aleph circuit.

Project Difficulty: NOVICE **INTERMEDIATE** EXPERT



### Questions?

You're probably not alone!

Post your question(s) on the DIYAudio forums.



This project uses line/mains voltages and has a power supply with large capacitors. The voltages in this amplifier can kill – even at miniscule current. If you are not competent / confident with working with these voltages, please seek advice from either a qualified electrician, or an audio DIYer who is competent and experienced in this area. Always work safe and work smart!

The original schematic has been updated and a new PCB layout devised. The PCBs for this project are offered without any warranty, guarantee provided, or liability taken.

#### Version / Date

V1.0a 17 May 2022

#### Revision History

Original Release

## AC Gain Setting Procedure

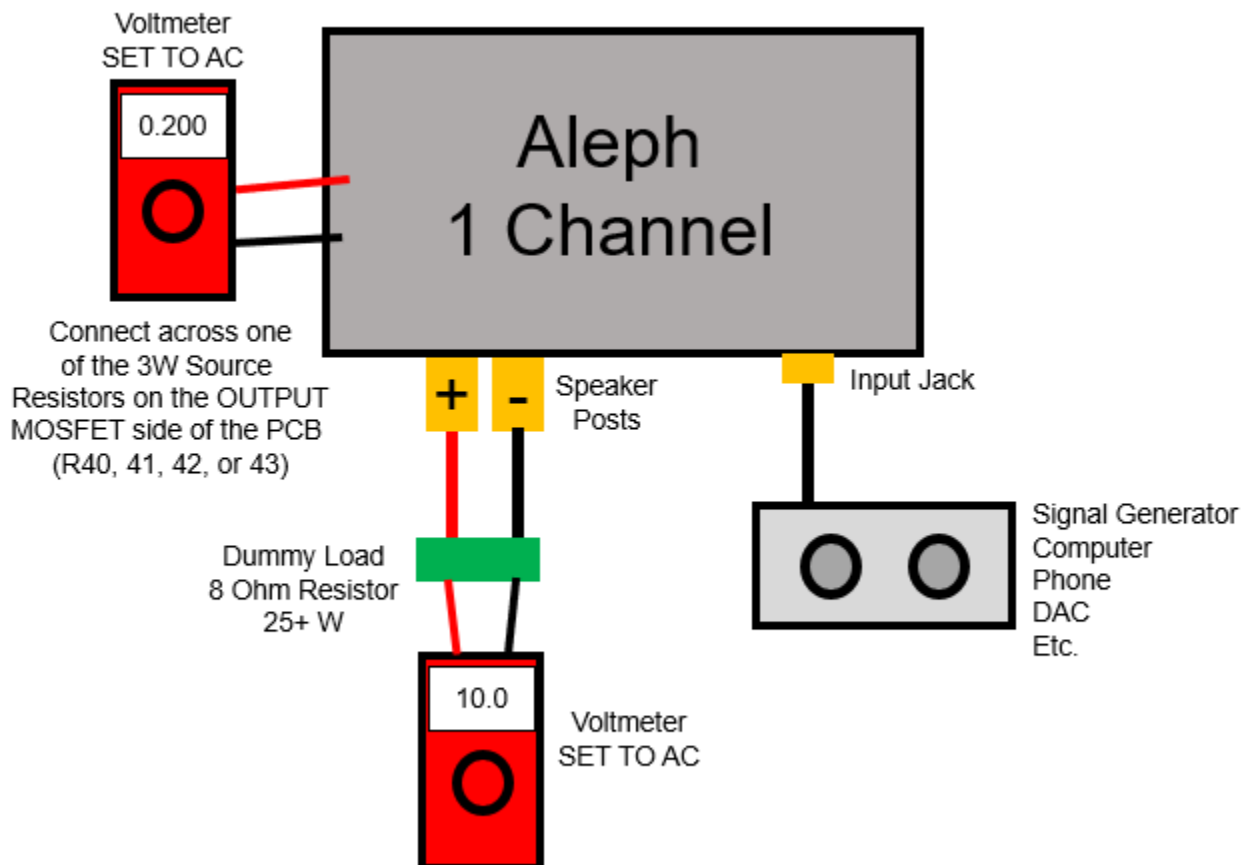
See Posts 2 & 3 here for guidance

<https://www.diyaudio.com/forums/pass-labs/38033-proper-current-source-adjustment.html>

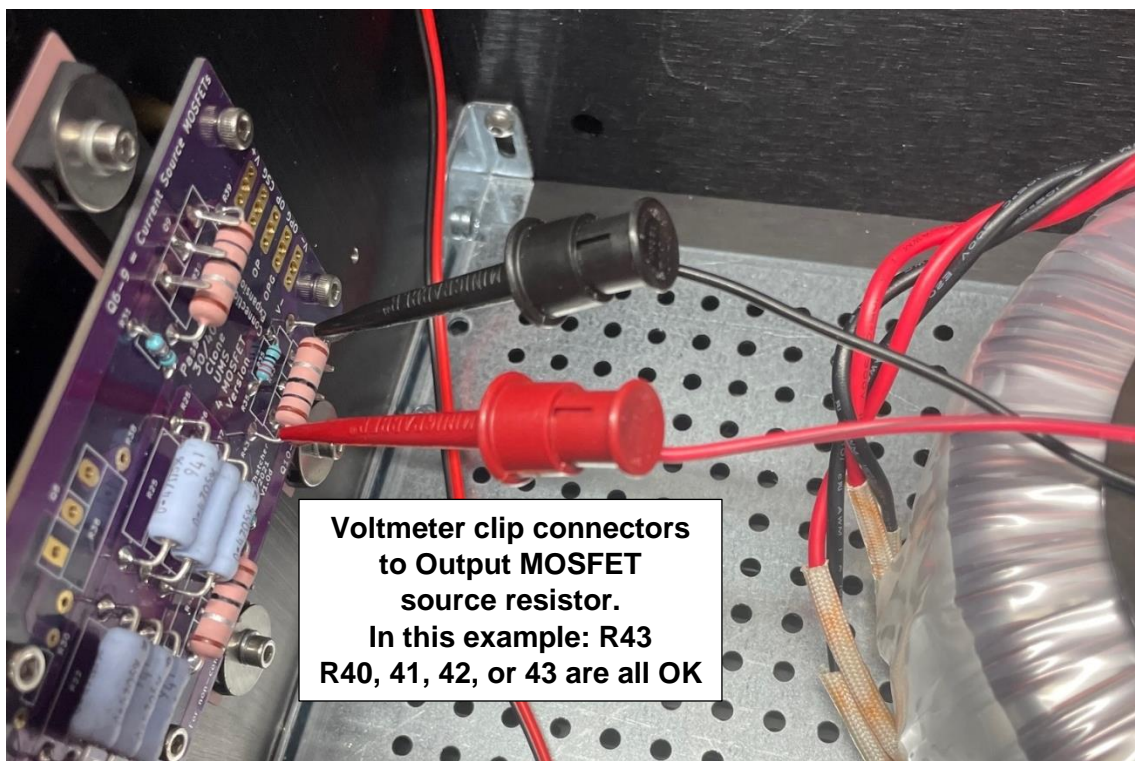
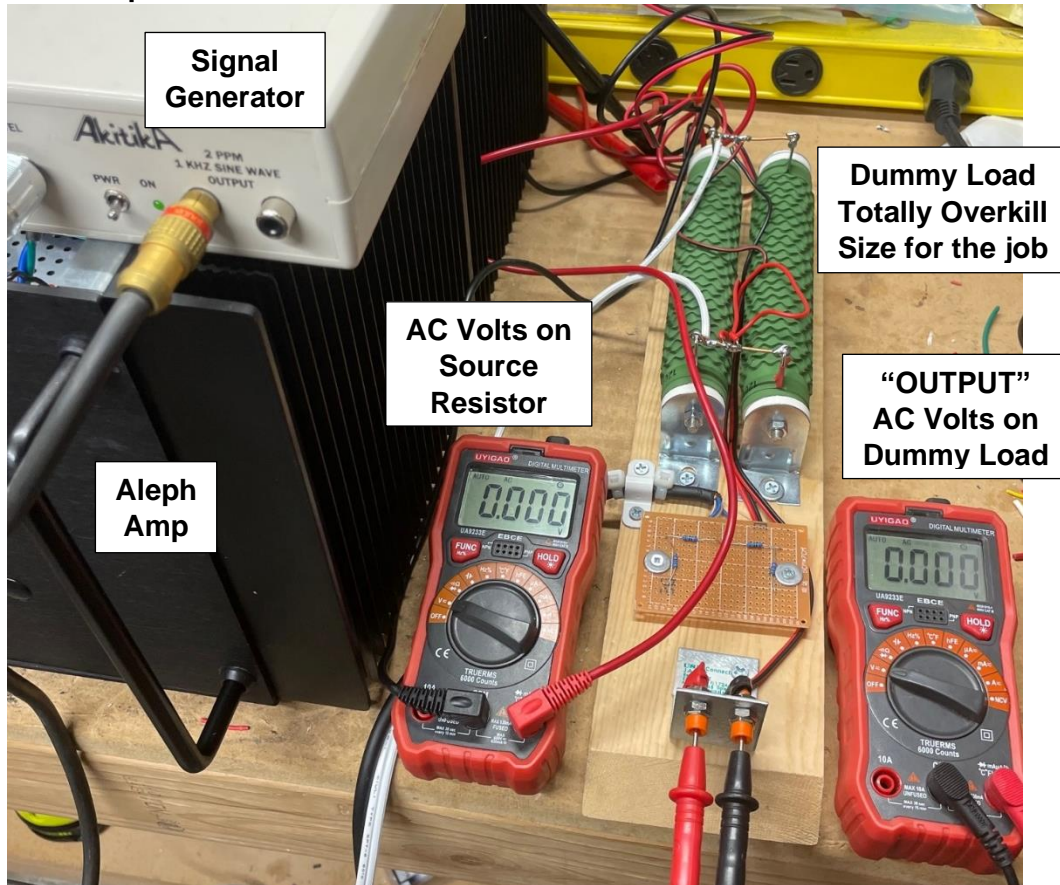
## Required Tools

- 2 voltmeters – ideally with clip leads so you can work with them “hands-free”
  - The voltmeters need to be able to read AC at the frequency you use for signal generation
- 8 Ohm Dummy Load Resistor. Ideally 25W or more. Bigger is OK.
- Signal Generator to produce a sine wave into your amp’s input. This could be a dedicated signal generator, a phone app that generates a sine wave, a CD or digital file fed through a DAC or preamp, a PC, etc.
- Screwdriver or Bourns H-90 Potentiometer Adjustment Tool

## Set-up Concept

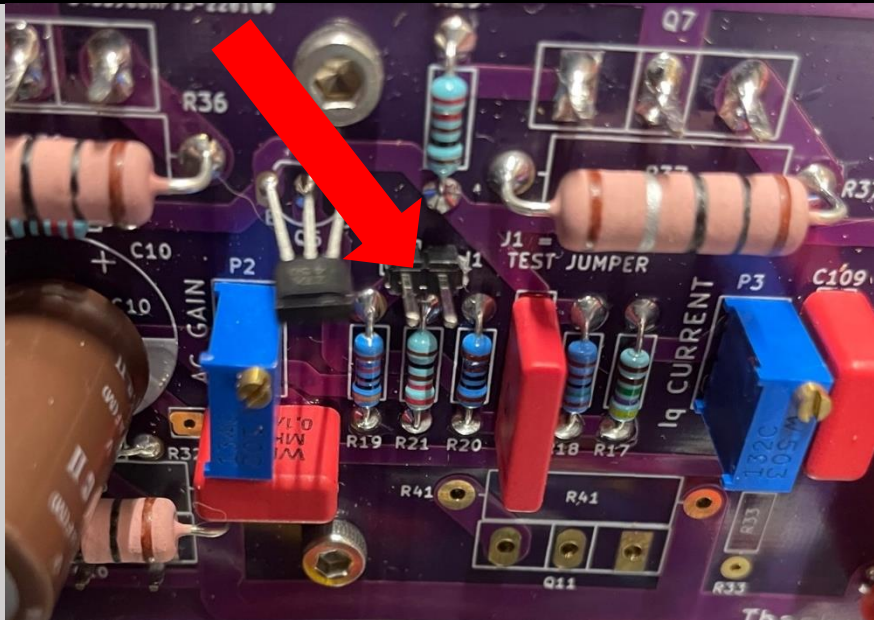
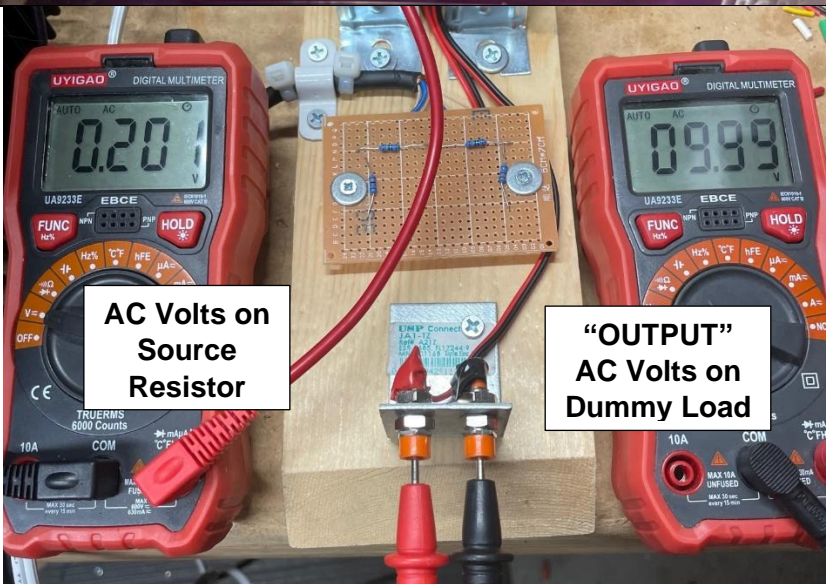



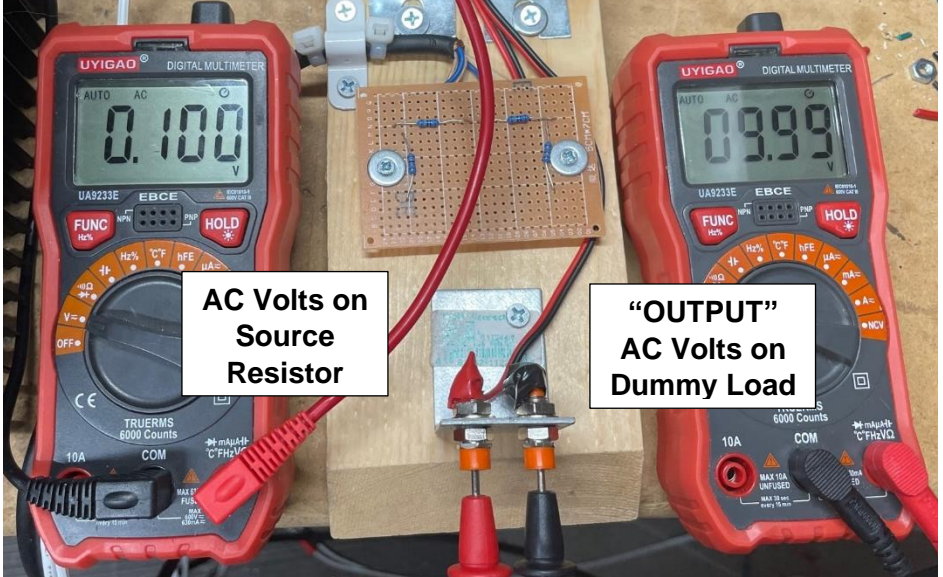
## Set-up – Practical Example





## Procedure - Example

Step	Procedure	
1	<p>Remove AC Gain Jumper</p> <p>This is "J1" between Q6 and Q7 on the PCB.</p>	
2	<p>Set the signal generator so that the amplifier is driving a sine wave into the dummy load (let's say 10 Vrms into 8 ohms)</p> <p>Here 9.99V is shown on righthand voltmeter.</p> <p>10V is arbitrary. You could choose 12V, 16V, etc.</p>	
3	<p>Measure voltage on one of the source resistors on Amp / V-Side (R40-43)</p> <p>Set meter to read AC Volts. Confirm it's AC, not DC.</p>	<p>See lefthand voltmeter above. It is showing 0.201V as measured on R43</p>
4	<p>Calculate 50% of the voltage measured in Step 3</p>	<p>Using the figure above, we calculate 50% of 0.201V = 0.1005V</p>

5	Install AC Gain Jumper	
6	<p>Set the signal generator so that the amplifier is driving a sine wave into the dummy load (let's say 10 Vrms into 8 ohms)</p> <p>NOTE: when re-installing the jumper the output voltage on the righthand Voltmeter will change slightly. You will need to re-adjust your signal generator to get the same output voltage used in Step 2.</p>	
7	<p>Measure the same source resistor as used in Step 3. Adjust P2 to match the value calculated in Step 4</p> <p>Set meter to read AC Volts. Is it set for AC, not DC?</p>	<p>See picture above. This after adjusting P2 for a target of 0.100 – 0.101V.</p>
8	DONE	<p>Once you've set P2 to the 50% value as calculated in Step 4, you're done.</p> <p><b>Leave the jumper in place.</b></p>

**Procedure - Notes**

Step	Procedure	Measurements	
		Left Channel	Right Channel
1	Remove AC Gain Jumper		
2	Set the signal generator so that the amplifier is driving a sine wave into the dummy load (let's say 10 Vrms into 8 ohms)	V = _____ into 8R Freq = _____ Hz	V = _____ into 8R Freq = _____ Hz
3	Measure voltage on one of the source resistors on Amp / V- Side (R40-43)  Set meter to read AC Volts. Confirm it's AC, not DC.	R4__ = _____ mV	R4__ = _____ mV
4	Calculate 50% of the voltage measured in Step 3	R4__ = _____ mV	R4__ = _____ mV
5	Install AC Gain Jumper		
6	Set the signal generator so that the amplifier is driving a sine wave into the dummy load (let's say 10 Vrms into 8 ohms)  NOTE: when re-installing the jumper the output voltage on the righthand Voltmeter will change slightly. You will need to re-adjust your signal generator to get the same output voltage used in Step 2.	V = _____ into 8R Freq = _____ Hz	V = _____ into 8R Freq = _____ Hz
7	Measure the same source resistor as used in Step 3. Adjust P2 to match the value calculated in Step 4  Set meter to read AC Volts. Is it set for AC, not DC?	R4__ = _____ mV	R4__ = _____ mV
8	DONE	Once you've set P2 to the 50% value as calculated in Step 4, you're done.  <b>Leave the jumper in place.</b>	