

GlassWare

AUDIO DESIGN

www.glass-ware.com · sales@glass-ware.com

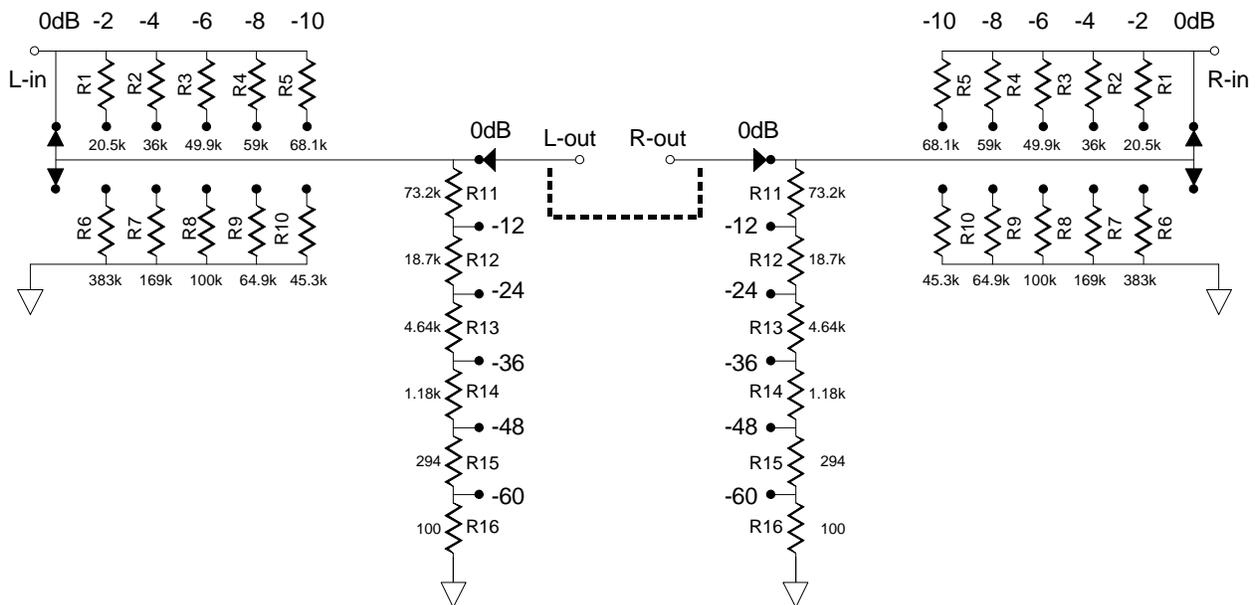
Dear Audiophile,

Thank you for your purchase of the TCJ stepped attenuator PCB and rotary switches. This specially designed stereo attenuator uses three rotary switches and 32 resistors to yield 36 volume positions. This hybrid attenuator uses a combination of both ladder and series attenuators. In the first six positions, the attenuator is just a ladder attenuator, with no more than two resistors in the signal path; thereafter, the attenuator uses both a ladder and series configurations, with never more than eight resistors in the signal path. With -2dB decrements, a maximum of -70dB of attenuation is possible; and with -1dB decrements, a maximum of -35dB of attenuation.

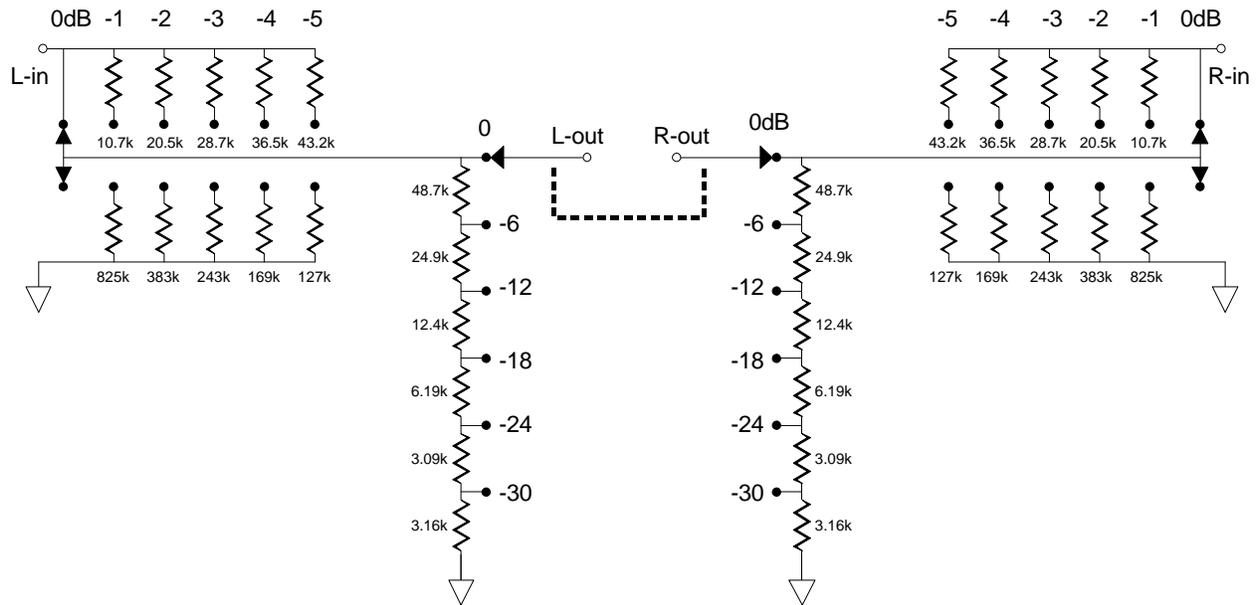
The center knob controls both channels, and offers six large decrements; the flanking knobs offer six fine decrements for each channel, creating a volume control and balance control in one easy-to-use stepped attenuator.

The builder must add resistors. Resistors vary in quality and in price; some go for as much as \$12 each. Fortunately, this clever attenuator uses fewer resistors (only 32) than would be expected from a conventional 36-position stepped attenuator, as two series attenuators would need a total of 72 resistors; and two ladder attenuators would require 140 resistors. (Resistors, like capacitors, are the objects of hot debates, where one audiophile's "rich tonality" is another's blurry and bloated mess, and one audiophile's "clarity" is another's cold and harsh stridency; so, I have left the choice up to the individual. But really, any type of resistor in this attenuator will make a better sounding volume control than even the best potentiometer.) In addition, the PCB holds dual sets of resistor pads, one wide and one narrow, so that axial (composition, wire-wound, and film) and radial (bulk-foil) resistors can be used without extra lead bending.

Shown below is a 100K, -2dB decrement stereo attenuator.

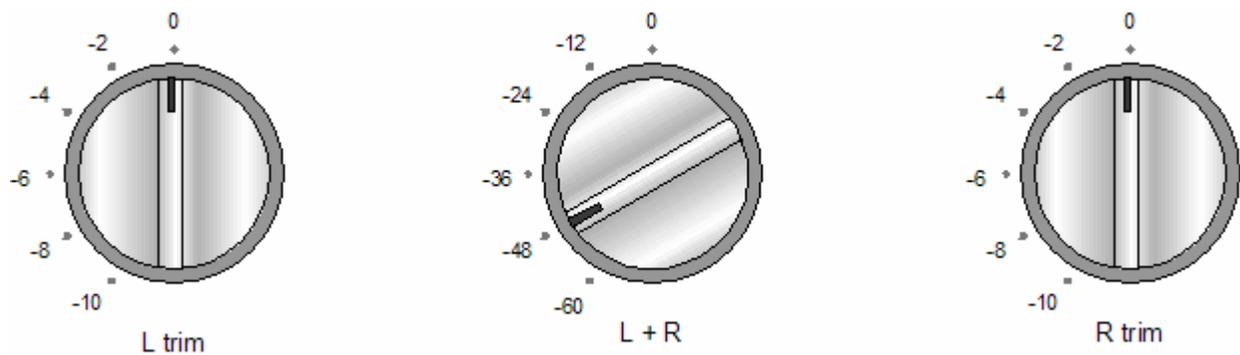


Shown below is a 100K, -1dB decrement stereo attenuator.



Assembly

The resistors mount on the side of PCB with the white lettering and the switches mount on the other side. (Before soldering, be sure to clean both sides the PCB with 99% isopropyl alcohol.) First solder the resistors in place, then the switches.



The spacing between switches is 2.5 inches.

Let us know what you think

If you would like to see some new audio PCB or kit or recommend a change to an existing product or if you need a different attenuator load impedance or decrement step, drop us a line by e-mail to the address above.

100k Stepped Attenuator Values

R1			20.5k
R2			36k
R3			49.9k
R4			59k
R5			68.1k
R6			383k
R7			169k
R8			100k
R9			64.9k
R10			45.3k
R11			73.2k
R12			18.7k
R13			4.64k
R14			1.18k
R15			294
R16			100

Color Code

1 Brown

2 Red

3 Orange

4 Yellow

5 Green

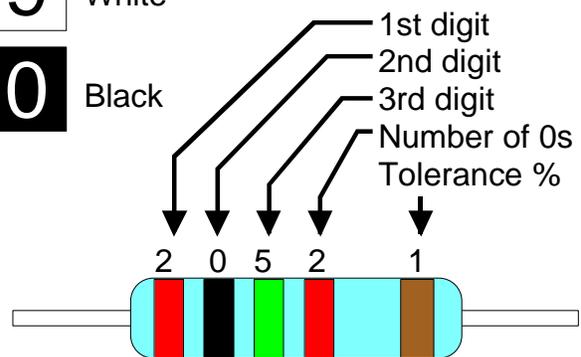
6 Blue

7 Violet

8 Gray

9 White

0 Black



for example, 20.5k