

## Multiple Speaker Impedance Matching Volume Control

**MODELS: SVC-104M: 50 Watts RMS power / 150 Watts Average / 300 Watts Peak Music power**

NuTone Impedance Matching Volume Control enables the total volume of up to four pairs of stereo speakers to be controlled simultaneously from one point when the speaker pair(s) are connected to a 4 or 8 Ohm stereo amplifier without the fear of amplifier overloading. The volume can be controlled from all of the connected speakers simultaneously. *Note: If desired, the volume can be controlled from an individual pair of speakers in this system by using a separate volume control such as NuTone stereo volume control SVC-102 for each pair.* Detachable connector design makes it very easy to make field connection and get the system started quickly.

**Turn off** the amplifier and turn the volume control knob counterclockwise to its minimum position before making any connection.

### INSTALLATION

1. The volume control has an eight position detachable connector to which the amplifier and the right channel speaker wires should be connected. Notice that one of the speaker wires has some form of identification such as raised ribs, a colored band or colored line. Strip about 1/4" to 1/2" of insulation from each wire at each end. Twist the individual strands into a tight spiral so that no loose wires exist. Insert the wire with identification into the "RED" or "+" push terminal to the left channel speaker. Insert the other conductor into the "BLACK" or "-" push terminal to the left channel speaker. Connect the other end of the speaker wires to the OUTPUT terminals on the volume control by terminating the left channel speaker wire with identification wire and the other wire to L+ and L- respectively. Repeat this for the right channel speaker by connecting the right speaker wires to R+ and R- terminals on the OUTPUT terminals of the connector. Connect the left and right channels from your amplifier/receiver (the RED (+) and BLACK (-) terminals from each channel on your TV or amplifier/receiver to the INPUT terminals on the volume control. When inserting the wires in the terminal block, make sure that it is the wire that goes into the slot in the terminal block and not the wire insulation. Make sure proper polarity is maintained. **CAUTION: Do not reverse INPUT and OUTPUT connections, or serious damage will result.**
2. Determine whether your amplifier impedance is 4 or 8 Ohms. Look for this information in the amplifier owner's manual or on the backside of the amplifier.
3. Refer to Figure 1 to determine the control settings:

### JUMPER SETTINGS FOR 4 OHM AMPLIFIERS

		8 Ohm Speaker Pairs																
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4 Ohm Speaker Pairs	0	-	1X	1X	2X	2X	4X	4X	4X	4X	8X	8X	8X	8X	8X	8X	8X	8X
	1	1X	2X	2X	4X	4X	4X	4X	8X	8X	8X	8X	8X	8X	8X	8X		
	2	2X	4X	4X	4X	4X	8X	8X	8X	8X	8X	8X	8X	8X				
	3	4X	4X	4X	8X	8X	8X	8X	8X	8X	8X	8X						
	4	4X	8X	8X	8X	8X	8X	8X	8X	8X								
	5	8X	8X	8X	8X	8X	8X	8X										
	6	8X	8X	8X	8X	8X												
	7	8X	8X	8X														
	8	8X																

**FIGURE 1**

### JUMPER SETTINGS FOR 8 OHM AMPLIFIERS

		8 Ohm Speaker Pairs								
		0	1	2	3	4	5	6	7	8
4 Ohm Speaker Pairs	0	-	1X	2X	4X	4X	8X	8X	8X	8X
	1	2X	4X	4X	8X	8X	8X	8X		
	2	4X	8X	8X	8X	8X				
	3	8X	8X	8X						
	4	8X								

**FIGURE 2**

In Figure 1 and Figure 2, the line running across the top is for 8 Ohm speakers in 1, 2, 3 etc. pairs. The line running down the first column on the left is for 4 Ohm speakers in 1, 2, 3 etc. pairs.

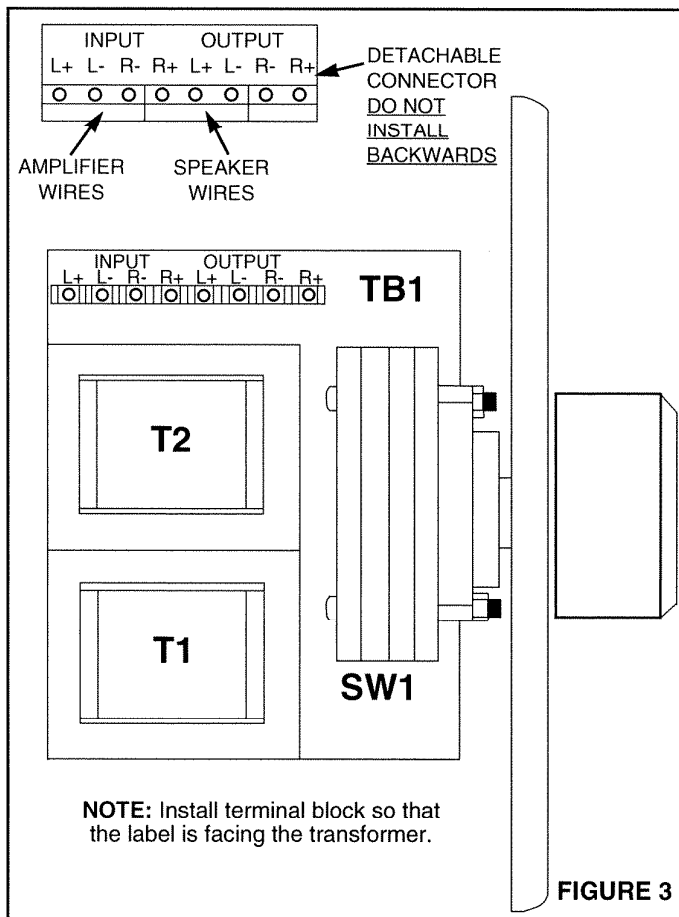
**Refer to Figure 1.** This chart is to be used with a 4 Ohm amplifier. If you have 8 Ohm speaker then according to the top row of the Figure 2, you can connect up to 16 pairs of speakers to your volume control. For one or two pairs of speakers the setting on the volume control should be at X1 for each channel. For three or four pairs, the setting should be at X2. For speaker pairs between 9 and 16 the setting is X8 as shown. If you had 4 Ohm speakers, then, for one pair the setting should be at X1 for each channel and so on. Note that only ONE setting has to be used and it should be the same for both channels.

If there is a combination of 4 and 8 Ohm speakers, then Figure 1 gives the correct setting. For example, if there is an 8 Ohm amplifier, three 4 Ohm speakers and two 8 Ohm speakers, then looking across 3 and down 2, we see that the two lines intersect at the X8 position. This is the setting for this combination of speakers. Apply this same method for other combinations. Simply look for the intersecting point. Figure 2 is for an 8 Ohm amplifier, and 4 or 8 Ohm speakers and work the same way as before. *Please note that although combinations of 4 Ohm and 8 Ohm speakers are possible, and the volume control can be used under conditions as described above. NuTone does not recommend using speakers with different impedances in a system for best sound quality.*

4. **Refer to Figure 3.** Notice two small, four position pin headers on the track (copper) side of the printed circuit board, J1 and J2 with a small shorting bar on each of them. Depending on your amplifier impedance (4 Ohms or 8 Ohms), and the number of 4 Ohm, 8 Ohm speaker pairs you need to connect. Select the correct impedance setting (X1, X2, X3 or X4) on the volume control according to Table 1 and as described above. Once the setting from Table 1 is determined, remove the two shorting bars and place them firmly on the appropriate set of pin for each channel. Make sure that both the shorting bars have been placed on identical location on the each of the two pin headers. And that all volume controls in a system are set to the same position.
5. **Mounting:** Mount the volume control on a single gang standard electrical box approximately 18 cubic inches or greater or at any convenient height from the floor. An open back electrical box may be more convenient to work with. The volume control insert and the decorative plate are packed separately in the carton. Mount the insert on the electrical box using the screw provided. Plug in the plug connector with speaker and amplifier wires onto the plug on the socket located at the back of the volume control. Do not apply undue pressure while plugging it into the socket. Make sure the plug is engaged in the socket properly and is not loose. Note: Avoid mounting the switch next to AC lines or dimmers.
6. **Operational Check:** After making all connections, check for proper operation. Switch the system to the ON position. Using either the television or music, slowly increase the volume on the amplifier/receiver to mid position. Now, slowly advance the volume control knob on SVC-104M, clockwise from its minimum position towards its maximum position. You should hear sound emanating from the speakers, increasing in volume as you rotate the volume control knob, through its twelve steps. Select the level of sound that is most pleasing to you. If no sound is heard from any or all speakers, switch the system **OFF** immediately and check for open or loose connections, wrong polarity or shorts in the wires.

### TROUBLESHOOTING CHART

TROUBLE	POSSIBLE CAUSE	POSSIBLE SOLUTION
Non linear attenuation.	Terminal block not installed properly.	Install terminal block properly.
Power amplifier shuts down.	Shorted wire.	Remove volume control from electrical box and check for any shorts.
	Improper jumper setting.	Make sure jumpers are properly set.
No audio.	Terminal block loose.	Make sure terminal is making proper contact with the pins on the volume control PCB.
Line on Knob is not pointing at minimum when control is selected to it's lowest volume step.	Knob needs to be adjusted.	With a small straight blade screw driver, loosen the set screw. Reposition the knob and tighten screw.



Product specifications subject to change without notice.

