

250 Watt Subwoofer Amplifier

Thank you for purchasing the #300-794 Subwoofer Amplifier. Ideal for building subwoofer projects for audio and home theatre systems, this amp includes both high and low level inputs, adjustable phase control, volume control, auto on/off (activated by input signal), and an electronic low pass filter that is continuously variable from 40 to 160 Hz. The amplifier sums the right and left stereo inputs to a mono output, so that only one amp is required per system. It also features a 6dB high pass filter (125Hz, 8ohm) output for satellite speakers. The amp has thermal, overload and fuse protection for years of reliable use.



Controls

Crossover Frequency Control:
Adjustable Phase Control:

Continuously variable from 40Hz to 160Hz at 12dB/Octave
Continuously variable phase from 0° to 180°. This will aid in subwoofer room placement. The correct position will be the one that provides the most apparent bass output.

Power Switch (Auto On/Off):

When the power switch is in the auto on position, the amplifier will automatically turn on when a signal is present. Note: In auto on/off mode, the Power On LED is always on, even when the amp is in rest mode (off).

Volume Control:

Adjusts the output level of the amplifier.

Input/Outputs

Line-in:

These are line level RCA inputs. Use to connect pre-out or preamplifier outputs directly to subwoofer amplifier's internal crossover. These inputs are summed to mono. This is the preferred way to connect the subwoofer amplifier. If you have a mono line level signal from a "ProLogic" or Digital Dolby "AC-3" receiver use the right "red" input. If preamplifier outputs are not available, use the High-level inputs.

Line-out:

This line level RCA output provides a full range (20-20kHz) output and is used to connect "daisy chain" the line level signal to other amplifiers. Note: Line out is only active when a signal is present at the line-in input.

High-level In:

Speaker level input. Input connects directly to receiver via speaker cables.

High-level Out:

Speaker level output. Used to connect satellite speakers. Note: Signal only present when hi-level input is used. Features 6dB high pass circuit (125Hz @ 8ohm).

Subwoofer Connection:

Connect the black lead to the negative (-) terminal of the speaker. Connect the red lead to the positive (+) terminal of the speaker.

Specifications

Rated Power Output:

150 Watts into 8 ohms at .1% THD
250 Watts into 4 ohms at .1% THD

Signal to Noise Ratio:

101dB (A-weighted)

Dimensions:

10-3/8"W x 10-7/16"H x 4-1/4"D

Enclosure Cut-out:

9"W x 9-1/4"H

Weight:

12 lbs.

Voltage:

Switchable 115/230V, 50-60Hz, 450W

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PARTS EXPRESS
725 Pleasant Valley Dr., Springboro, OH 45066-1158
PHONE: 937-743-3000 ♦ FAX: 937-743-1677
E-MAIL: sales@partsexpress.com

Adjusting EQ “Bass Boost”

By changing two (2) resistor values, you can adjust the pre-amp filter Q to obtain the desired level and frequency of bass boost for your particular subwoofer design.

Note: Soldering and basic electronic skills are required. Only qualified electronic technicians should perform this modification. Any damage to the amp due to improper modifications, is the sole responsibility of the user. We strongly recommend that the user thoroughly test the performance of the amplifier prior to making any modifications.

Instructions for Modifying EQ

1. Removing the pre-amp board: Take care not to scratch the amp faceplate while removing the pre-amp board.

- A. Remove the knobs from the Phase, Crossover and Level controls.
Note: Knobs are pressed-on (no set screws) and at times may be difficult to remove.
- B. Using needle nose pliers, remove nut and washers holding Phase, Crossover and Level controls.
- C. Remove screws holding binding posts, RCA connectors and on/off switch.
Note: Do not remove AC jack and voltage selector screws.
- D. Unplug the wiring harness from main board and remove the pre-amp board.
Note: You will need to cut the wire tie holding the wire bundle.

2. Changing the Resistors

- A. Locate R26 and R27 on the pre-amp board. The default values for these resistors are R26=56K, R27=120K (no boost).
- B. Using a low wattage soldering iron and desoldering braid, remove the two (2) resistors.
Be careful not to apply too much heat to the p.c. board traces.
- C. Using the charts below, determine the proper resistor values to achieve the desired boost.
Note: Resistors are 1/4 watt and values listed should be multiplied by 1,000.
Example: 56 = 56,000 ohms or 56K ohms. The Fc indicates the “corner or cut-off” frequency (Hz). This is the frequency where the amp starts to roll off on the low end. The higher the level and frequency of the boost, the higher the Fc (corner frequency). The Fc is also an indication of the frequency where the “rumble” filter starts to take effect.
- D. Install the resistors making sure that you put the correct resistor (R26 or R27) in the proper location on the p.c. board. **Tip: If you plan on experimenting with different boost levels, mount the resistors on the back side of the p.c. board so they can be easily changed without removing the pre-amp board.**

3. Reinstall pre-amp board

- A. Reinstall the pre-amp board in reverse to the removal procedure listed above.
- B. Make sure that you remember to reconnect the wiring harness to the main amp board.
- C. When reinstalling the control knobs, first turn all controls fully counter clock wise to help align the white indicator markings on the knobs to their proper positions.

1dB of Bass Boost				
Boost Freq. (Hz)	R26 (k Ohms)	R27 (k Ohms)	Filter Fc (Hz)	Filter Q
20-24 Hz	56	220	14	1
25-30 Hz	47	180	17	1
31-35 Hz	39	150	21	1
36-40 Hz	27	120	28	1.1

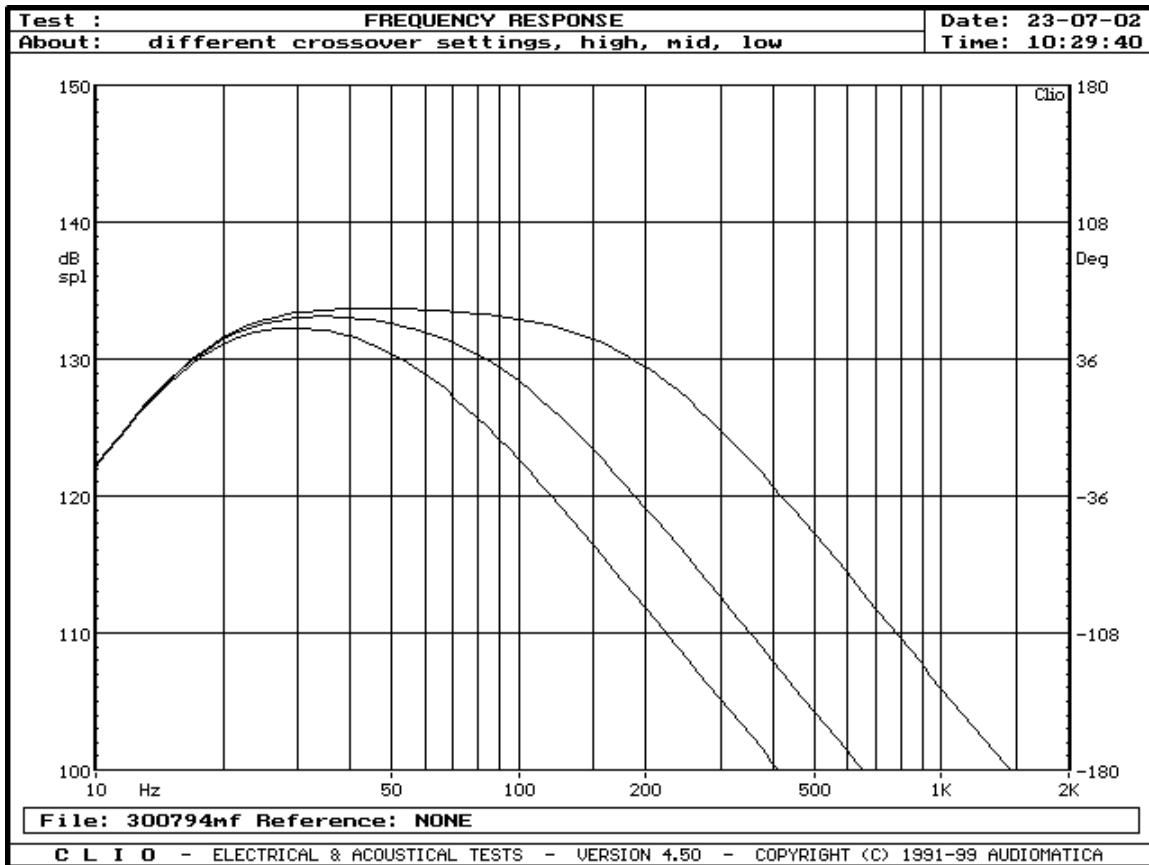
2dB of Bass Boost				
Boost Freq. (Hz)	R26 (k Ohms)	R27 (k Ohms)	Filter Fc (Hz)	Filter Q
20-24 Hz	47	220	16	1.1
25-30 Hz	33	180	21	1.2
31-35 Hz	27	150	25	1.2
36-40 Hz	22	120	31	1.2

3dB of Bass Boost				
Boost Freq. (Hz)	R26 (k Ohms)	R27 (k Ohms)	Filter Fc (Hz)	Filter Q
20-23 Hz	33	220	19	1.3
24-30 Hz	27	180	23	1.3
31-35 Hz	22	150	28	1.3
36-40 Hz	18	120	34	1.3

4dB of Bass Boost				
Boost Freq. (Hz)	R26 (k Ohms)	R27 (k Ohms)	Filter Fc (Hz)	Filter Q
20-23 Hz	27	270	19	1.6
24-30 Hz	22	220	23	1.6
31-35 Hz	18	160	29	1.5
36-40 Hz	15	150	34	1.6

5dB of Bass Boost				
Boost Freq. (Hz)	R26 (k Ohms)	R27 (k Ohms)	Filter Fc (Hz)	Filter Q
20-23 Hz	22	330	19	1.9
24-30 Hz	18	220	23	1.7
31-35 Hz	15	180	31	1.7
36-40 Hz	12	150	35	1.8

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The above graph is an actual measurement of the frequency response of the #300-794 subwoofer amplifier. The frequency response was measured while running the amplifier into an 8 ohm dummy load. However, the absolute levels in dB that are expressed are of no meaning. The three lines shown in the graph are with the crossover point set to the highest level, in the middle, and to the lowest level.

As it can be seen in the graph, even with the "no boost" setting, the rumble filter is still in effect. The low frequency F3 is roughly 19 Hz.