



# O Audio 500W BASH<sup>®</sup> Subwoofer Amplifier

## User's Manual



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## INTRODUCTION:

Thanks for purchasing the O Audio 500W BASH® Subwoofer Amplifier. This amplifier features BASH® technology which enables a high output power amplifier in a small package.

Traditional Class AB amplifiers use a fixed voltage power supply. This approach is wasteful and necessitates extensive heatsinking, particularly for very high power amplifiers such as this one. Additionally, primitive unregulated power supplies are typically used that require a substantial, and expensive, transformer to assure stable supply voltages over a range of load conditions. Inexpensive subwoofer plate amplifiers typically skimp on the transformer size in the interest of low cost.

BASH® amplifier technology marries a robust Class AB amplifier with a smart power supply that adaptively provides the necessary output voltage required to produce low-distortion output power. The O Audio 500W BASH® Subwoofer Amplifier will produce up to 500W RMS into a 4Ω load at a Total Harmonic Distortion (THD) of less than 0.3% and less than 0.05% between 5W – 420W. With an 8Ω load, the amplifier will produce up to 325W RMS at a THD less than 0.01%. Soft limiting circuitry is active above 325W (into an 8Ω load).

In addition to BASH® amplifier technology, the O Audio 500W BASH® Subwoofer Amplifier includes all of the continuously variable controls (output level, phase, crossover frequency, and parametric equalization) required to properly integrate a subwoofer into your listening environment. Also, a subsonic filter/low end EQ control is provided. The 14AWG, 8' long AC cable is long enough to facilitate plugging the amplifier into a nearby AC outlet. The wire gauge of the provided AC cable is the same as your house wiring, thus ensuring optimal performance.

## WARNINGS AND CAUTIONS:

**WARNING** – THIS AMPLIFIER MODULE IS DESIGNED FOR INSTALLATION INTO A SUBWOOFER ENCLOSURE, OR INTO ITS OWN ENCLOSURE. WHEN PROPERLY INSTALLED, ONLY THE EXTERIOR FACEPLATE SHOULD BE ACCESSIBLE TO THE USER – ANY OTHER CONFIGURATION IS NOT SAFE FOR THE CASUAL USER. IT IS IMPORTANT THAT THIS MODULE BE PROPERLY HOUSED TO PREVENT ACCIDENTAL CONTACT WITH DANGEROUS VOLTAGES – BOTH MAINS AC (120VAC) AS WELL AS HIGH VOLTAGE DC ( $>42$ VDC). THESE VOLTAGES CAN INJURE AND KILL AND SHOULD BE TREATED WITH RESPECT.

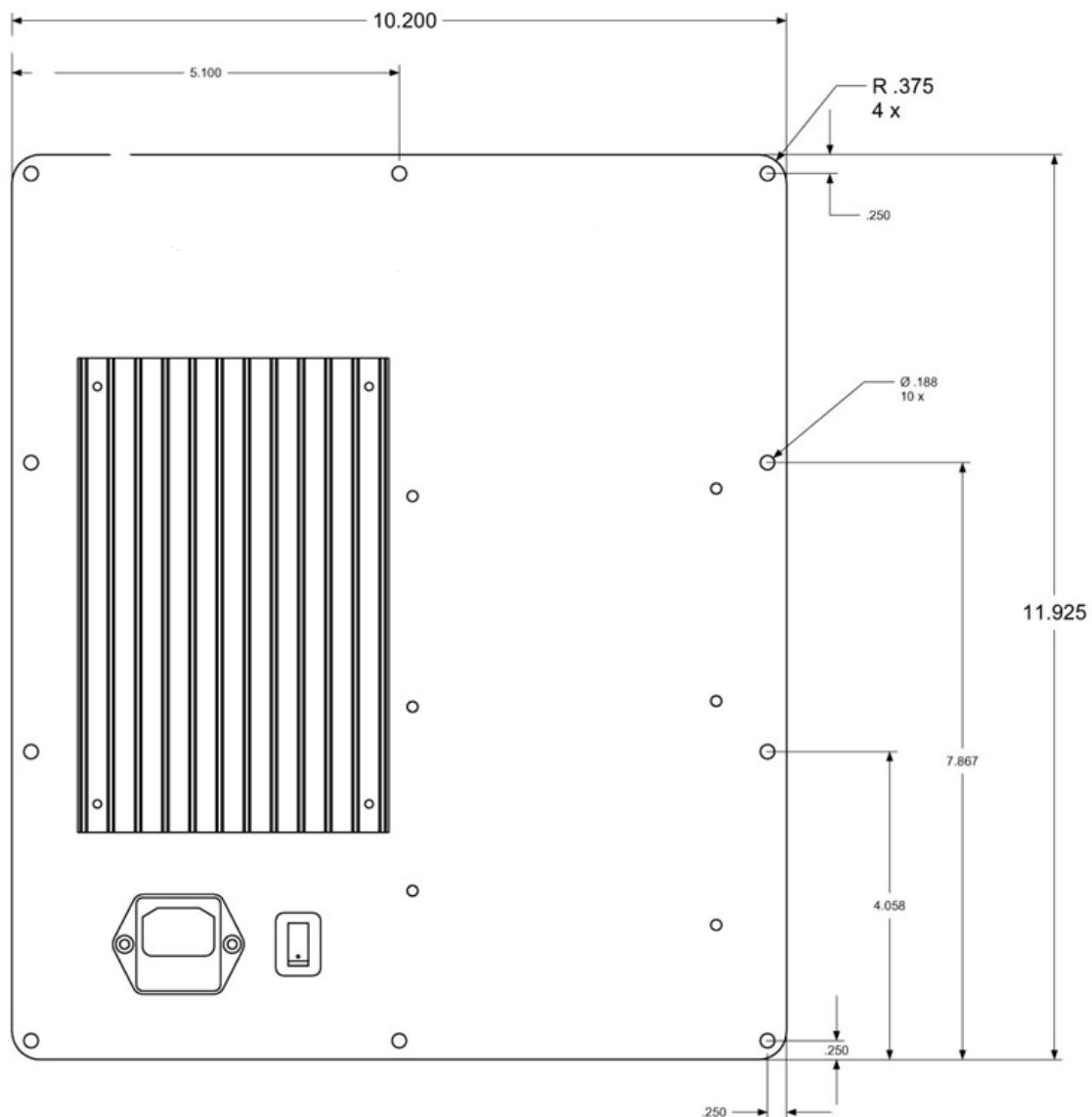
**WARNING** – AS WITH ANY PIECE OF ENTERTAINMENT ELECTRONICS, THIS MODULE IS INTENDED FOR INDOOR USE. IT SHOULD NOT BE EXPOSED TO WATER (INCLUDING CONDENSATION).

**CAUTION** – The amplifier relies on convection cooling, so air must pass freely over the faceplate. Do not mount the amplifier in a location where faceplate airflow is blocked. The amplifier does include overtemperature protection and will shut down if overheated. This thermal protection will automatically reset once the amplifier is cool.

**CAUTION** – This amplifier is designed for use with drivers that are rated at  $4\Omega$  or greater. Drivers whose nominal impedance rating is less than  $4\Omega$  can damage the amplifier. Driver combinations (this includes any configuration where there are multiple voice coils) that result in a load of less than  $4\Omega$  (when calculated using the driver's nominal impedance) can damage the amplifier. Damage caused by low impedance loads are not covered by the warranty.

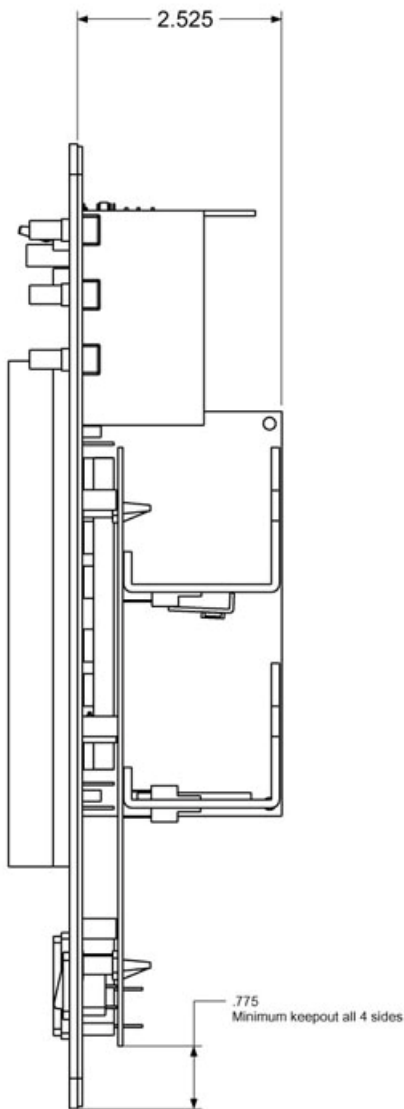
## INSTALLATION:

The O Audio 500W BASH® Subwoofer Amplifier is designed to be installed into a subwoofer enclosure or its own dedicated enclosure. Switches and other orifices are airtight. Also, the back of the faceplate has a gasket to provide an airtight seal when the amplifier module is mounted into a subwoofer enclosure.



## INSTALLATION (continued):

Side View:





## INSTALLATION (continued):

Cutout dimensions are 10.75"H x 9"W.

Electrical connections to the subwoofer amplifier consist of the AC mains input, low level audio input, and speaker output.

AC mains connections are simply made with the provided AC cable. One end of the provided cable (IEC320 style receptacle) plugs into the connector located on the amplifier faceplate – the other end, into a 15A or 20A three-pronged North American AC receptacle. The amplifier is designed to operate on 120VAC, 60Hz.

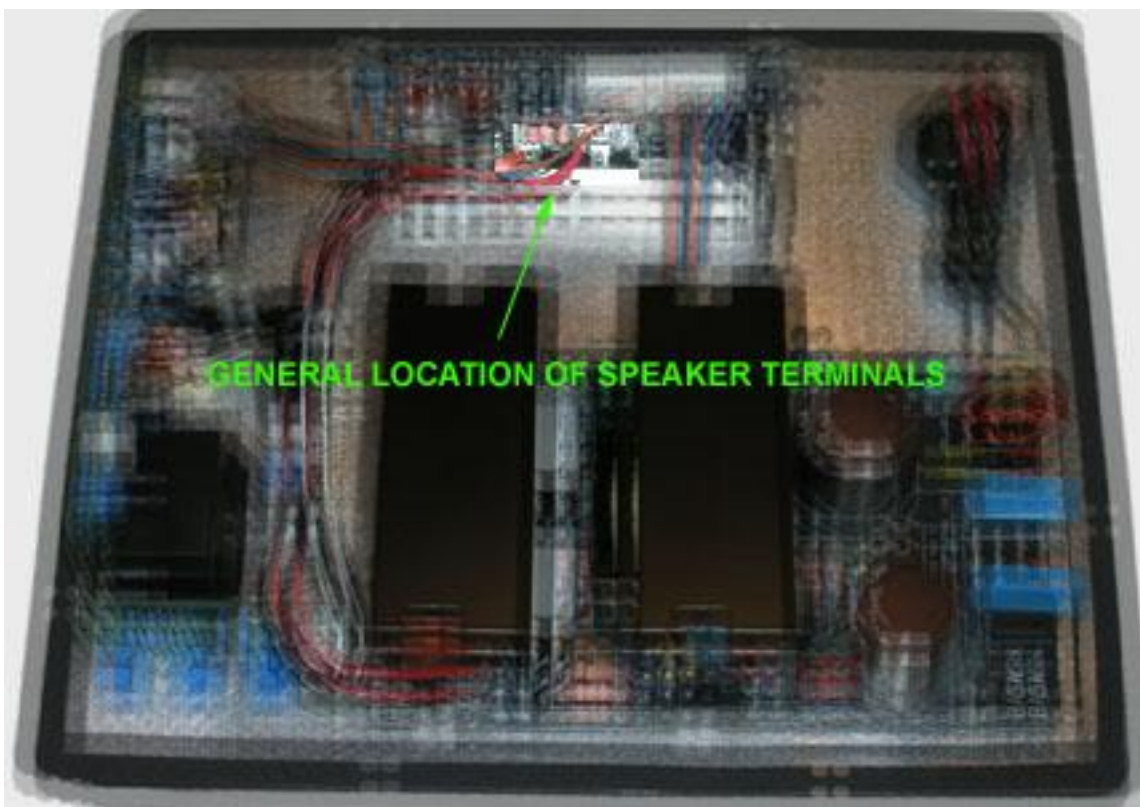
Please note that an AC fuse is part of the AC inlet connector. Should the fuse blow, remove AC power from the unit; then, determine and clear the source of the problem (such as shorted speaker output). With AC power removed, replace the blown fuse with the same fuse as specified on the faceplate silkscreen. Replacing the fuse with a value other than that shown on the faceplate silkscreen will void the warranty.

Low level audio inputs are made via RCA connectors.

In the final installation location, please assure that air can flow freely over the faceplate.

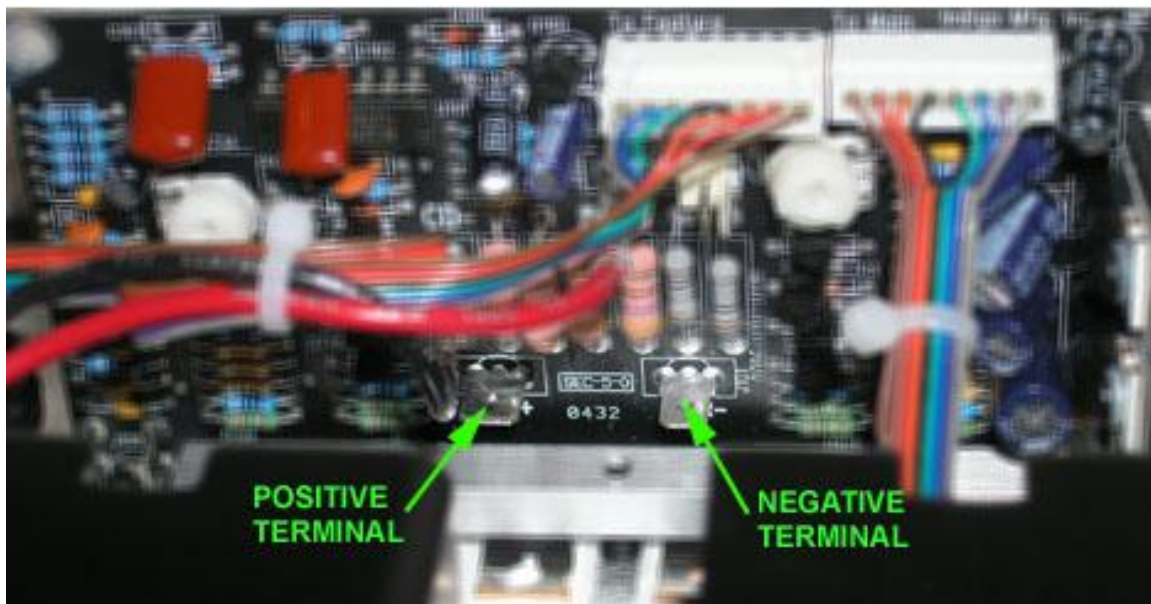
## INSTALLATION (continued):

Speaker connections are made to two spade connectors as shown in the following two photos. Positive and negative are silkscreened onto the PCB under the spades. Suitable crimp lugs have been provided with the amplifier. Do not connect the amplifier to drivers or driver combinations that are less than  $4\Omega$  (based on the driver nominal rating). Refer to the last Caution on page 3 for more information.





## INSTALLATION (continued):



## CONTROL DESCRIPTION:

Here is a list of controls with a brief description of function. Controls are listed in order of appearance on the amplifier starting with the upper left:

**GAIN** – This control is used to set the gain of the amplifier to match the subwoofer's output with the rest of your system.

**PHASE** – This control is used as necessary so the subwoofer does not sound “out of step” with the rest of your system.

**AUTO/ON** – When set to the AUTO mode, the unit senses the input signal and automatically turns on. This action is indicated by the LED (located to the left of the GAIN knob) turning green. Once the unit does not sense any input signal, then the unit enters standby mode after 10-20 minutes. This mode is indicated by LED turning red.

**CROSSOVER FREQUENCY** – The built-in crossover is a 4<sup>th</sup> order (24dB/octave) lowpass crossover which may be adjusted from 40Hz to 120Hz. Refer to Chart 2 in the Specification section for more information.

**CROSSOVER BYPASS SWITCH** – The built-in crossover can be bypassed by setting this switch to DISABLED. Refer to Chart 2 in the Specification section for amplifier frequency response when the crossover is bypassed.

**PARAMETRIC EQUALIZATION** – The parametric equalization feature consists of three controls – Q, LEVEL, and FREQ. The parametric equalizer provides an adjustable notch which is used to tame the effects of room modes. Room modes are resonances that are a function of a room's geometry. For more explanation, refer to <http://www.kettering.edu/~drussell/Demos/RoomModes/driving.html> or search the Web using your favorite search engine for “room mode”. Among other effects, a room mode makes the bass sound tubby and ill-defined at or near the mode's frequency. A notch filter can be used to minimize the effect of a room mode. Use the FREQ knob to set the notch's center frequency. Use the LEVEL knob to set the attenuation level. The parametric equalizer is defeated by setting LEVEL to 0dB. Use the Q knob to set the width of the notch. When the Q knob is set towards the LOW end, the notch is broad. When the knob is set towards the HIGH end, the notch is very narrow.

**SUBSONIC FILTER AND EQ** – This rotary control can be set to 12Hz, 16Hz, 20Hz, or 25Hz and adjusts a combination of low frequency boost and subsonic filter rolloff. Please refer to Chart 1 in the Specifications section for more information.



## CONTROL DESCRIPTION (continued):

**POWER** – Primary AC power control. Works in conjunction with the AUTO/ON switch (see AUTO/ON switch description earlier in this section).

## SERVICE AND WARRANTY:

O Audio warrants the O Audio 500W BASH® Subwoofer Amplifier from material or workmanship defects for a period of one year after purchase. We will provide a replacement (either new or refurbished, at our discretion) with a full one-year warranty. Please retain proof of purchase date. This warranty does not cover damage that results from misuse of this product.

O Audio provides attentive customer service. We want you to be happy with this product. Please e-mail us at [oaudioinfo@oaudio.com](mailto:oaudioinfo@oaudio.com) should you have any questions or comments regarding this product.

## SPECIFICATIONS (subject to change/correction without notification):

### Audio

#### Output Power

500W RMS (into 4Ω load @ 0.3% THD)  
 5W-420W RMS (into 4Ω load @ <0.05% THD)  
 325W RMS (into 8Ω load @ <0.01% THD)

#### Frequency Response

refer to Chart 1 and Chart 2 below

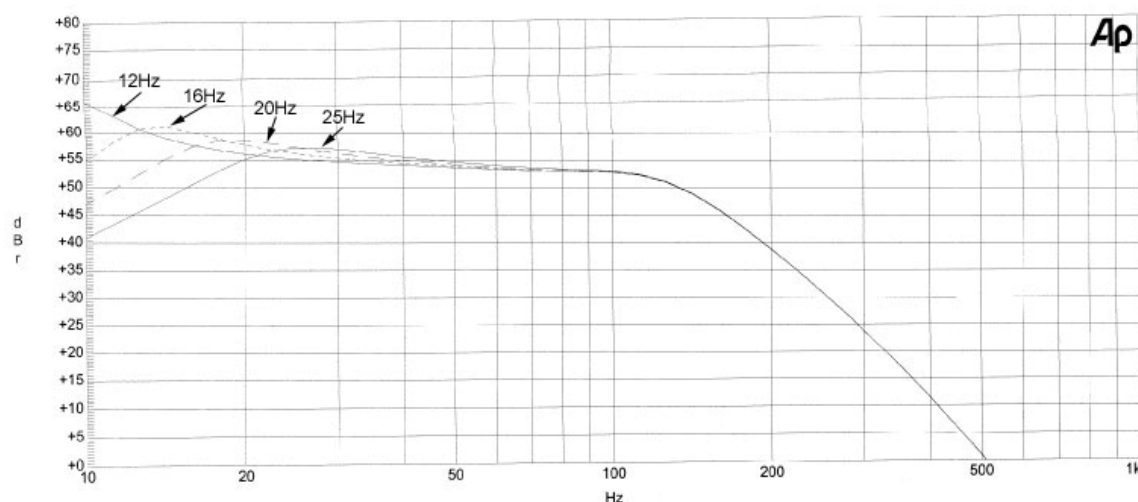


Chart 1 – Frequency Response for all Subsonic Filter and EQ Settings (note – Crossover set to 120Hz)

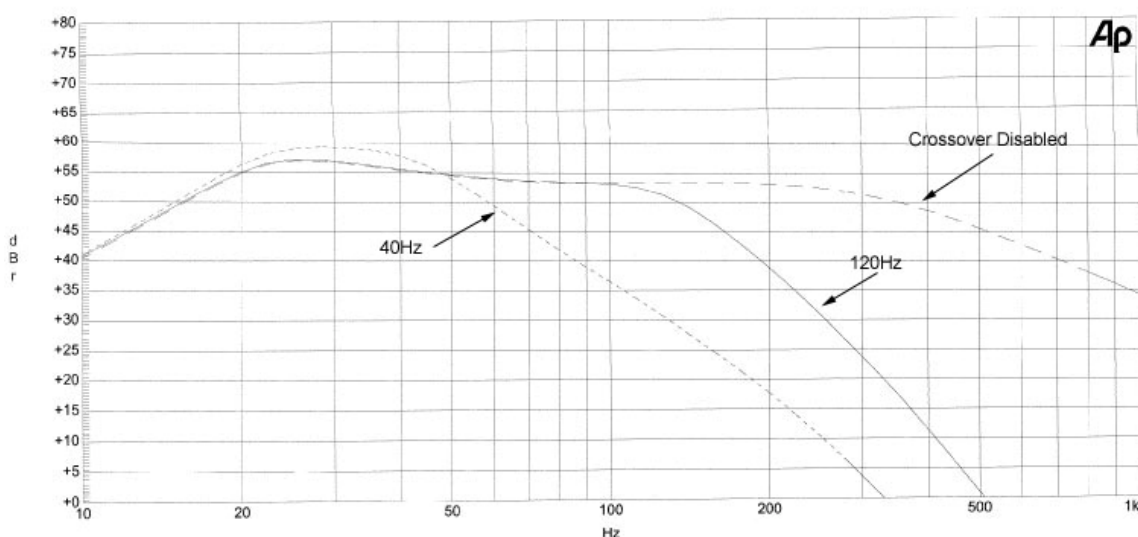


Chart 2 – Frequency Response Showing Range of Crossover Settings (note - Subsonic Filter and EQ set to 25Hz)



## SPECIFICATIONS (subject to change/correction without notification):

### Audio (continued)

Minimum Load Impedance	4Ω (based on nominal driver rating)
Signal to Noise Ratio	105dB
Phase Control	0° to 180°
Crossover Range	40Hz to 120Hz
Crossover Topology	4 <sup>th</sup> order (24dB/octave)

### AC Power

AC Input Voltage	120VAC
AC Input Frequency	60Hz
Max Input Power	600W

### Environmental

Ambient Temperature (Operating)	10°C to 40°C
Humidity	up to 90% non-condensing
Operating Temp Altitude Derating	2°C per 1,000ft