



Summit Audio, Inc.

Summit Audio Model EQP-200B Dual Program Equalizer Operating Manual



IMPORTANT!: CAREFULLY READ THE ENTIRE INSTRUCTION MANUAL BEFORE HOOKUP OR OPERATION OF THE EQP-200B.

WARNING!: **HIGH VOLTAGE**. THIS UNIT CONTAINS NO USER SERVICEABLE PARTS. SERVICING SHOULD ONLY BE DONE BY QUALIFIED SERVICE PERSONNEL OR FACTORY. DO NOT OPERATE THE EQP-200B WITH THE COVERS REMOVED.

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Introduction

The Summit Audio EQP-200B Program Equalizer uses tube and solid state technologies to produce the warm sounds associated with tubes while providing the reliability of solid state devices. Based on a Pultec type design, the EQP-200B is a very musical sounding passive equalizer followed by a vacuum tube amplifier to overcome any gain loss. Connections are made by using three pin XLR connectors.

Features:

- Two independent channels
- Switch selectable frequencies
- Passive I/O circuits
- In/out/shelf switch
- Extended frequencies and LF shelf
- 105 dB dynamic range
- 990 output stage (balanced or unbalanced)
- Three year warranty
- Transformerless signal path
- Hand crafted in the USA

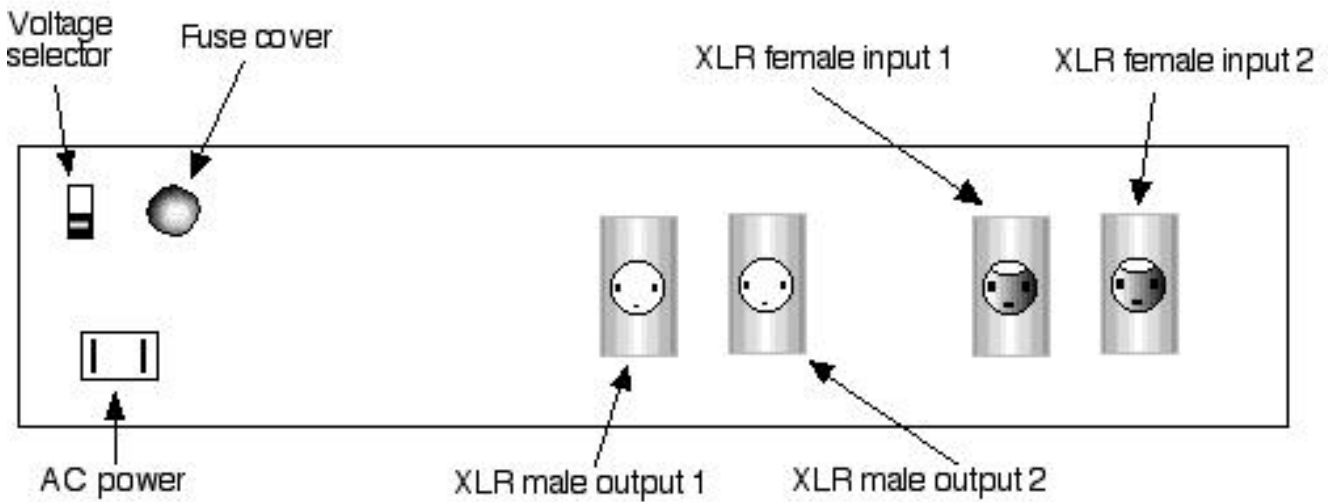
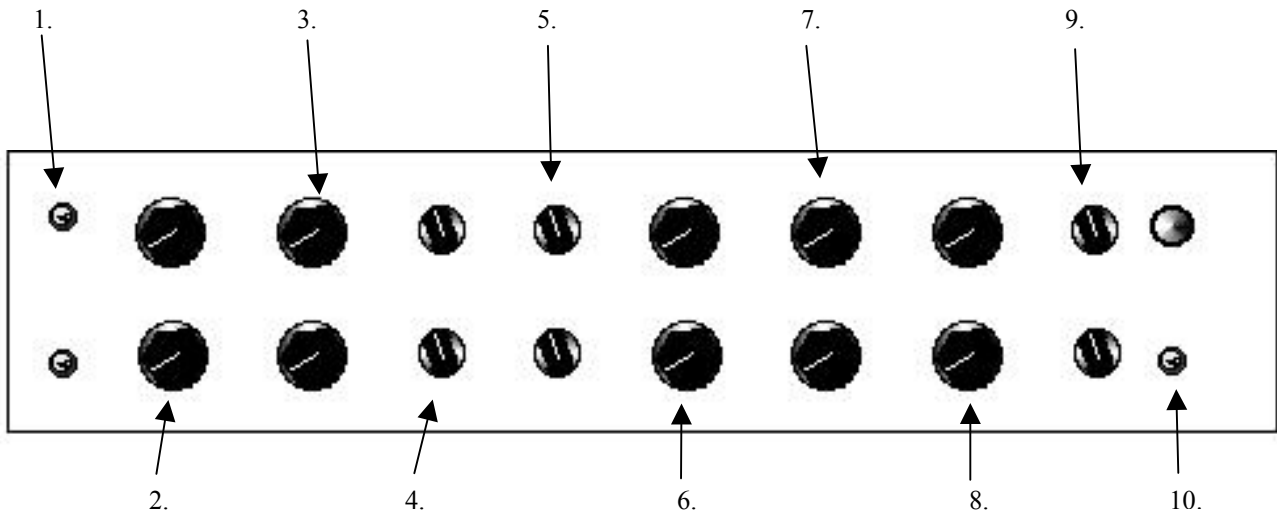
Having found this manual, carefully unpack the EQP-200B and its power cord. Save the carton and packing material should it be needed for future shipping. Before powering the unit, read this manual, observing the cautions for high voltage. Proceed by doing the following:

- Set the line voltage switch to the proper position
- Determine the proper fuse size by referring to the specifications
- Check for pilot lamp illumination when powered up

THE CONTROLS

1. **Low Frequency Shelf / In / Out :** This three-position toggle switch selects between a low frequency 6 dB per octave shelving filter starting at 50 Hz, or standard engaged operation, or bypass mode (which disengages the filters yet still passes through the tubes).
When LF Shelf is engaged the other filters are still accessible.
2. **Low Frequency Boost :** This potentiometer controls the amount of boost engaged for the 20, 30, 60, 100, 180 Hz frequencies. Maximum boost (a setting of 10) is about 16 dB.
3. **Low Frequency Cut :** This potentiometer controls the amount of cut engaged for the 20, 30, 60, 100, 180 Hz frequencies. Maximum cut (a setting of 10) is about 20 dB.
4. **Low Frequency Select :** This five-position rotary switch selects between frequencies of 20, 30, 60, 100, and 180 Hz for which the low frequency boost and cut controls have effect.
5. **Mid-High Frequency Select :** This eight-position rotary switch selects between frequencies of 1.5k, 3k, 5k, 8k, 10k, 12k, and 16k Hz for which the mid-high frequency boost control has effect.
6. **Mid-High Frequency Boost :** This potentiometer controls the amount of boost engaged for the 1.5k, 3k, 5k, 8k, 10k, 12k, and 16k Hz frequencies. Maximum boost (a setting of 10) is about 20 dB.
7. **Mid-High Frequency Bandwidth :** This potentiometer controls the “Q” or bandwidth associated with the boost engaged for the 1.5k, 3k, 5k, 8k, 10k, 12k, and 16k Hz frequencies. It is important to note that minimum setting (0) imposes the tightest filter and a maximum setting (10) imposes the broadest filter. When set for maximum bandwidth, the mid-high frequency boost is limited to boost of about 10 dB.
8. **High Frequency Cut :** This potentiometer controls the amount of cut engaged for the 5k, 10k, and 20k Hz frequencies. Maximum cut (a setting of 10) is about 17 dB. The slope of the filter is 6 dB per octave.
9. **High Frequency Select :** This three-position rotary switch selects between frequencies of 5k, 10k, and 20k Hz for which the high frequency cut has effect.
10. **Power :** This switches power on and off. Note that the red pilot lamp is illuminated when the unit is on. (It is possible that over time the bulb in the pilot lamp may burn out, in which case the unit is still operational, but you won't be able to tell from the pilot lamp if the unit is on. Please contact Summit Audio authorized dealers for bulb replacements.)

[Note: The two channels operate as dual mono. Thus, the top controls have no effect on the bottom channel and vice versa.]



EQP-200B

Circuit Explanation

The EQP-200B is two independent equalizers. The circuit has an electronically balanced input stage that is followed by a passive equalizer. The function of the equalizer can be thought of as three different sections. These are: a low frequency attenuate and boost section, a high frequency boost section that has an adjustable bandwidth, and a high frequency attenuate section. This type of equalizer is made of resistors, capacitors and inductors. The equalizer has approximately a 20dB gain loss which must be overcome. This gain loss is overcome by the vacuum tube amplifier. The equalizer circuit feeds the first stage of the tube amplifier and the second stage of the amplifier has a cathode follower for low output impedance. The cathode follower drives the discrete 990 output stage. The tubes are operated class A with negative feedback. The power supply is all solid state and regulated. The tube heaters are D.C. operated.

A Word About Tubes

The tubes that are used in the EQP-200B are selected to give the best possible performance in the position that they are in on the printed circuit board. Switching them to different positions will cause performance deterioration on the audio path. Replacing them with “gold” or high end tube types may not be desirable. In cases that we have measured, these tubes have shown higher distortion and noise as compared to the tubes we have selected. In some cases, the so called “gold” or high end tubes have made the unit unusable. The reason for this is some of the “gold type” tubes are selected for high distortion in guitar amplifiers. Using gold tubes is no guarantee of better performance. All of these so called “Brand X” types are selected with 6.3 volts AC on the heaters, whereas Summit Audio uses 5 volts DC on the heaters for longer tube life and lower noise. The reduced gain can raise the noise floor, increase distortion, and reduce headroom.

For proper performance from a tube, the replacements must be selected using 5 volts DC on the filaments. The tubes we use are selected in the circuits that they are used in to ensure proper operation, long life, and low distortion and noise.

In at least 50% of the cases we have tested, gear that has been used for several years actually have lower noise and distortion levels than when new. This makes the question of when to replace tubes difficult to answer. If a tube turns micro-phonic, the distortion will be obvious and the tube must be replaced. However, tube life will most likely be greater than 10,000 hours of operation. Tubes are generally very reliable; don't replace them just because they are old. In the EQP-200B there are gain adjustments that will need to be checked when the tubes are replaced, or else the metering could become inaccurate and the noise floor could change. Replacement should be done on the bench with a distortion analyzer attached to ensure that the distortion levels are proper and it is comprised of second order harmonics.

Before replacing the tubes in your EQP-200B, please talk to your dealer, call Summit Audio, or find a technician who has experience working with tubes and high end audio equipment.

Electrical Connections:

(This EQP-200B is wired as a pin 2 hot device. Units made before March 1st 2003 come factory wired with pin 3 hot.)

Input:

Unbalanced:	3 pin XLR Connector	Balanced:	3 pin XLR Connector
	Pin 1 – Ground		Pin 1 – Ground
	Pin 2 – (+) Signal		Pin 2 – (+) Signal
	Pin 3 – Connect to Pin 1		Pin 3 – (-) Signal

Output:

Unbalanced:	3 pin XLR Connector	Balanced:	3 pin XLR Connector
	Pin 1 – Ground		Pin 1 – Ground
	Pin 2 – (+) Signal		Pin 2 – (+) Signal
	Pin 3 – Connect to Pin 1		Pin 3 – (-) Signal

Note: When running an unbalanced output it is best to connect pin 3 to pin 1 in the connector that plugs into the EQP-200B.

Allow the EQP-200B to warm up for at least 15 minutes before using it in your processing chain. The tubes and other circuitry need time to reach an electronic equilibrium before they will operate at optimal specifications. For the longest life, it is recommended that you turn off the unit when it is not in use.

Please mount the unit in your rack, making sure that there is sufficient ventilation, especially on the right and left side of the chassis. The EQP-200B will generate a significant amount of heat; therefore, it is necessary to have good air flow to prevent damage to your EQP-200B or any other pieces of gear housed in the rack with it.

The tubes in your Summit Audio EQP-200B have been intensely screened for desired distortion and gain characteristics. We recommend that you do not replace the tubes with “guitar amp” tubes. Please consult your dealer about availability of appropriate replacement tubes. These can also be ordered directly from Summit Audio. Please fill out the enclosed warranty card. If you have any questions about the operation of your EQP-200B, please do not hesitate to call our customer service department at 775-782-8838 or contact us on the internet at: sound@summitaudio.com.

SPECIFICATIONS

Note on specifications: Summit Audio is uncompromisingly committed to excellence. All of our specifications are made with the latest technology and are UNWEIGHTED measurements. What does this mean? When measurements are “weighted” (e.g. “A” weighted, dB (B), dB C weighted, etc.), the measurement devices are basically EQed or filtered before the measurement is taken. This filtering was developed so that sound pressure level (SPL) measurements can more nearly match human’s non-linear hearing characteristics. However, when used in noise, frequency response, and distortion measurements, weighting will alter the results. Completely flat frequency measurements are key to giving accurate specifications. Summit Audio devices are the highest quality professional audio gear and the specifications below are made with the flattest possible unweighted measurements, giving the most accurate results.

OUTPUT: +4 dBu is the designated operating level. The output is balanced or unbalanced, using discrete 990 operational amplifiers with an impedance of 75 ohms. The recommended load is 600 ohms or more. Maximum output is +25 dBu.

INPUT: The input is electronically balanced with an input impedance of 20K ohms.

FREQUENCY RESPONSE: 5 Hz to 100 kHz (balanced output)

PANEL SIZE: Standard 19” by 3.5” (two units of rack space).

DEPTH BEHIND PANEL:10.5” in addition to users I/O cabling.

POWER: 35 watts 115-230 Volt 50 or 60 Hz

COMPONENTS: (3) Selected 12AX7A Vacuum tubes, (4) high reliability discrete 990 operational amplifiers, (10) integrated circuits, (4) transistors

FUSE SIZE: .5 Amp for 115 VAC, .25 Amp for 230 VAC

SHIPPING WEIGHT: 18 lbs. (8.1 kg)