



AMERICAN AUDIO®

Dual 15 Band Graphic Equalizer



Instruction Manual

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General

Two channel 15 2/3 octave band graphic equalizer with frequency control of 25Hz to 16KHz. Is a incorporates constant Q circuitry with a 3% center frequency accuracy. Special features include selectable range 6dB or 12dB, active balanced and unbalanced input/output connectors, RFI filters, variable level control, passive bypass switch, overload threshold LED, ground lift switch and selectable line voltage switch.

Installation

Equalizers are designed for mounting in a standard 19" equipment rack or one of the many rack type portable cases available on the market. The vertical space is 1.75 inches (44,5mm). The XEQ-152B has 8.5inches (216mm) in depth.

Power connectors

The XEQ-152B integrates an IEC Connector to operate at 120/50Hz or 240 volt/50Hz. Before use, check the slide switch to match your line voltage supply. CAUTION: To new installations and portable sound systems, or any situation in which the mains power is suspect, it is wise to confirm appropriate voltage and line polarity BEFORE connecting the instrument to power source.

DO NOT REMOVE THE CENTER GROUNDING PIN; In new installations and portable sound systems, or any situation in which the mains power is in question, it is wise to confirm the voltage and select the appropriate line voltage switch **BEFORE** connecting the instrument to power sources.

Input Output Connections

The XEQ-152B graphic equalizer has three paralleled input and output connectors. XLR and 1/4 TRS are actively balanced with Pin 2 or the tip being Hi, Pin 3 or the ring being Lo, and Pin 1 or sleeve being ground. Unbalanced operation requires using the RCA phono connector or use Pin 2 of the XLR or tip 1/4" TRS as Hi(+) and Pin 1 of the XLR or sleeve of the 1/4" TRS as ground.

Balanced output requires using Pin 2 of the XLR or the tip of the 1/4" TRS as output Hi (+) and using pin 3 of the XLR or the ring of the 1/4" TRS as Lo(-).It does not require pin 1 or signal ground. The signal exists differentially between the two balanced leads. Ground is used only for shielding to prevent potential hum.

Signal levels

Signal levels from -10 dBu to +4 dBu are considered normal and at least 20dB of headroom exists above these levels. Do not directly connect microphones into the equalizer. Microphones require a pre-amp.

Chassis Grounding

The equalizer is equipped with a rear panel Ground lift switch. After setting up your system and the system exhibits excessive hum or buzzing, the problem is that there is a ground incompatibility between your equalizer and other equipment in the same system. There are several combinations that can be attempted. **Note: ALWAYS TURN YOUR AMPLIFIERS DOWN BEFORE CHANGING YOUR GROUNDS AROUND.**

Try different combinations of lifting grounds on units that are supplied with ground lift switches or make sure all chassis are connected to earth ground, either through the A.C. power cord ground or by the front panel rack mount screws.

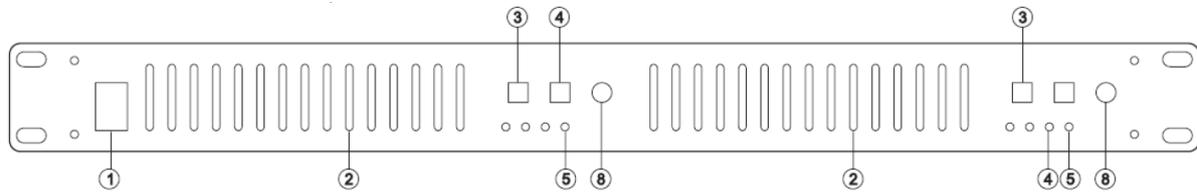
Operating Instructions

Before starting to equalize your sound system there is some information you should know and procedures you should follow. The XEQ-152B is equipped with a bypass switch with a LED indicator. The bypass switch, when activated, the LED is on and cancels all equalization settings, signal flows through at unity gain. Also included is a range selection switch with LED indicators, 6dB = green, 12dB= yellow. In conjunction to the range selection switch there is a level control potentiometer. The level control operates between off and +6dB. Note: If there is too much gain your equalizer has a red overload LED. The overload LED illuminates when signal reaches 5dB prior to clipping. If this situation occurs and the overload LED flashes occasionally, this is okay, but if the overload LED is steadily on you must re-adjust the level control. Below are some tips while doing the initial set up.

1. Set channel levels to the center detent 0dB on the front panel.
2. Select the bypass switch (Note: The RED LED is ON.)
3. All slide controls to the center detent or 0dB.
4. Select the 6dB range switch (green LED on).
5. Apply signal to the system.
6. Release the bypass switch, red LED off.
7. If the OL (overload) LED is on you must turn down the level control.
8. You may now start equalizing your system.
9. If you are not receiving enough gain out of your equalizer switch the range switch to 12dB (yellow LED will light).
10. Note: If the OL (overload) LED illuminates steadily turn down the level control until the LED is off. Note: After you have the proper settings and you do not want it to be tampered with, a security cover may be purchased at a local international dealer for your convenience.

Front Panel Controls

DUAL 15 BAND GRAPHIC EQUALIZER



1. Power Switch

To turn the equalizer ON or OFF, press the upper or lower portion of this button.

CAUTION: Always turn on your equalizer BEFORE your power amplifiers are turned on, and always turn off your equalizer AFTER your power amplifiers have been turned off.

2. Filter Level Controls

Each of these sliders control the output level of each of the 15 bandpass filters. Center detent position is grounded for guaranteed flat response.

3. Filter Range Switch & Indicators

The gain range of the filter sliders is switchable (as a group) from ± 6 dB to ± 12 dB for maximum boost/cut capability. At 6dB the green LED will illuminate and at 12dB the yellow LED will illuminate.

4. Bypass Switch & Indicator

When the red LED is illuminated, this indicates that the unit or channel is the bypass mode. Signal is routed directly from the input to the output without passing through any circuit (often referred to as "hard-wire bypass"). Use this switch to compare equalized and unequalized material, or to bypass the EQ section in the event of power loss or unit failure.

5. Overload Indicator

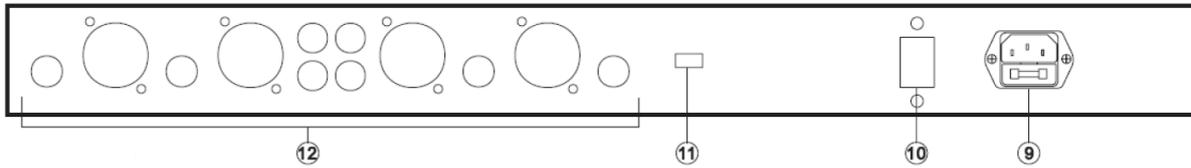
This red LED illuminates if any section of the equalizer is within 5dB of clipping. Occasional blinking of this LED is acceptable, but if it remains on more than intermittently you should turn down either the equalizer's level controls or reduce the output level of the preceding component to avoid audible distortion.

8. Level Control

This controls the level of signal coming into the instrument. Turn this control down if the OVERLOAD LED illuminates steadily (meaning too strong on input signal). Unity gain can be set by turning this knob to its center detent position.

Rear Panel Connectors & Controls

DUAL 15 BAND GRAPHIC EQUALIZER



9.IEC Socket

This cord is used connect the AC power source your equalizer. CAUTION: Equipment for USA consumption includes a captive power cord with a three-pin polarized plug. DO NOT REMOVE THE CENTER GROUNDING PIN.

This IEC Socket contains an AC primary fuse. This fuse should be replaced by the same type of fuse when this is blown out. If they continuously blow, stop replacing fuse and refer servicing to qualified personnel. CAUTION: After checking the AC supply voltage, be sure that the correct fuse is used; 0.5 Amp for 100-120V AC as well for 220-240V AC.

10.AC Voltage Selector (only for EQ of AC power supply)

Set this slide switch to match your line voltage supply. CAUTION: To new installations and portable sound systems, or any situation in which the mains power is suspect, it is wise to confirm appropriate voltage and line polarity BEFORE connecting the instrument to power source.

11.Ground-Lift Switch

This switch is used to disconnect the signal ground from the mains and chassis earth ground. User is suggested to put the switch to LIFT position if "HUM", caused by ground-loop, can be heard at the speakers.

12.Input/Output Connectors

1/4 "TRS

The TRS (Tip Ring Sleeve) connector is balanced and wired as tip = Hi(+), Ring = Lo(-), and the Sleeve = Ground.

CAUTION: Only one of these sockets can be chosen for audio connection at the same time.

XLR

The XLR input connector is balanced and wired as Pin 2 = Hi(+),Pin 3 = Lo(-), Pin 1 = Ground.

CAUTION: Only one of these sockets can be chosen for audio connection at the same time.

RCA Phono

The RCA Phono input is unbalanced at the tip = Hi(+) and the Sleeve = Ground.

CAUTION: Only one of these sockets can be chosen for audio connection at the same time.

FOR BALANCED CONNECTION -

FOR UNBALANCED CONNECTION

Wire the connector's as follows:

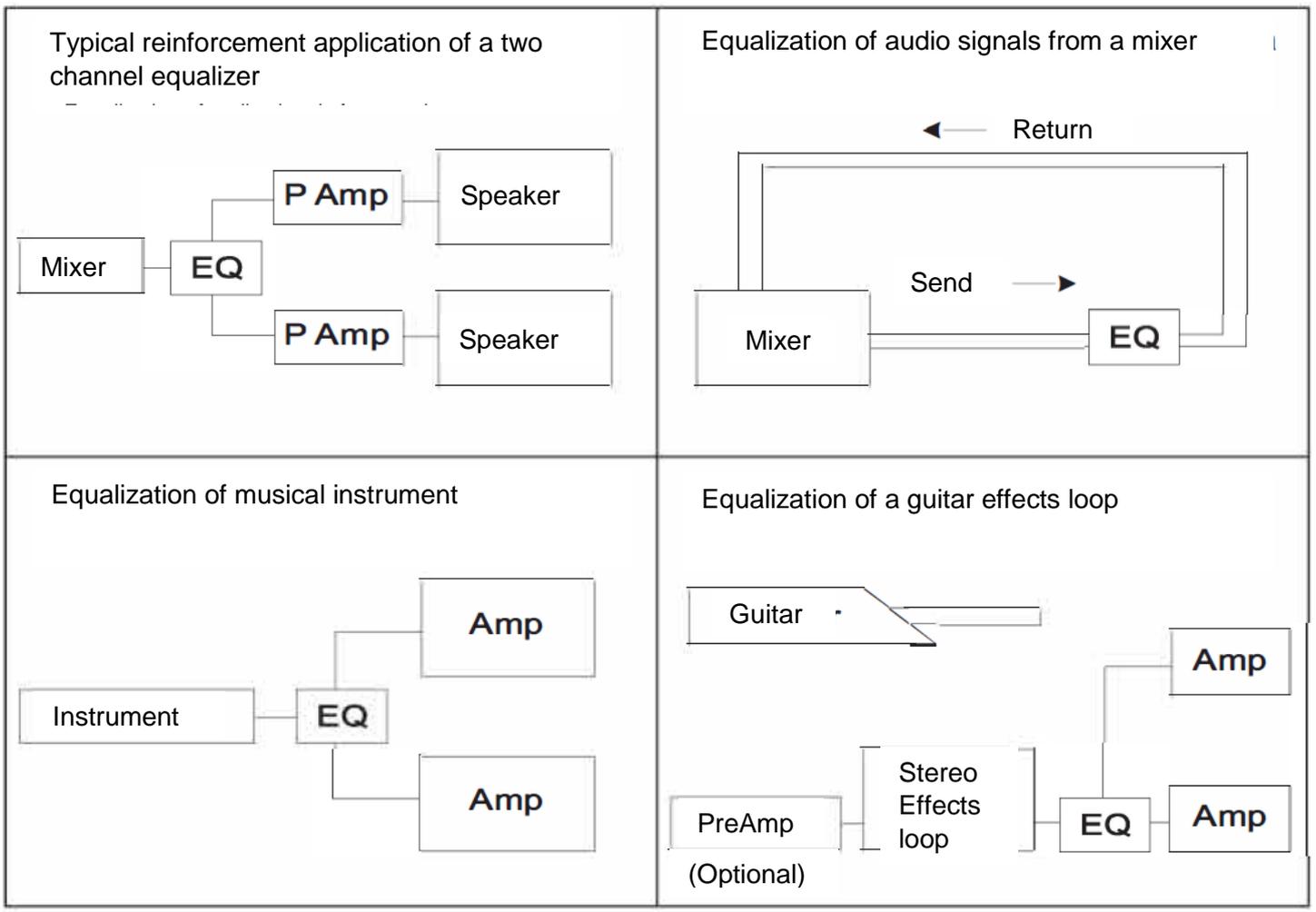
Phone Jack	Connection
tip	high
ring	low
sleeve	ground

Use 1/4 inch tip-ring-sleeve or mono phone plug connectors or RCA phone jack connectors wired as follows.

Phone Jack	Connection
tip	high
ring	no connection
sleeve	ground

APPLICATIONS

Graphic equalizers may be used wherever modification of the frequency contour of a sound system is needed. A graphic equalizer is a solution to any number of sound problems or creative urges.



Specifications

Equalizer:

Bands 2x15, 2/3 Octave ISO Spacing From 25Hz to 16KHz.

Type Constant Q
Accuracy 3% Center Frequency
Travel for 2x15 60mm (Positive Center Detent)

Range +/-6dB or +/-12dB (Selectable)

Inputs:

Type Active Balanced/Unbalanced
Connectors 3-Pin, 1/4" TRS-(Bal.). RCA. (Unbal.)
Impedance 20K. Ohms Balanced; 15K Ohms Unbalanced
Maximum Level +22dBm (Level Control at Center)

Outputs:

Type Active Balanced/Unbalanced
Connectors 3-Pin, 1/4" TRS (Balanced). RCA (Unbalanced)
Impedance Typ. < 150 Ohms
Maximum Level +22dBm (2K Ohms)
+ 18dBm (600 Ohms)

Overall Gain Range: off to +6dB (Unbalanced Out)
Sliders Centered
Off to +12dB (Balanced out)
Sliders Centered

Rfi filters Yes
Passive Bypass Switches Yes
Overload LED Threshold 5 dB (Below Clipping)
Low Cut Filter 10-25Hz, 12dB/Oct
High Cut Filter 3K-40KHz, 12dB/Oct
Frequency Response 20-20KHz, +0.5dB
THD +Noise 0.01 % (20Hz-40KHz+ 10dBu)
IM Distortion (SMPTE) 0.005%
Signal - to - Noise Ratio -94dB(20KHz Noise Bandwidth)
Channel Separation 50dB (1 KHz)
Common Mode Rejection 50:1

Input Power: IEC, Voltage Switch 110V/50Hz or 240V/60Hz.
Construction: all Steel

Size: 1.75" H x 19" Wx 8.5"D (1U)
4.45cm x 48.3cm x 21.6cm

Weight: 4.51bs/ 2.5kg

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