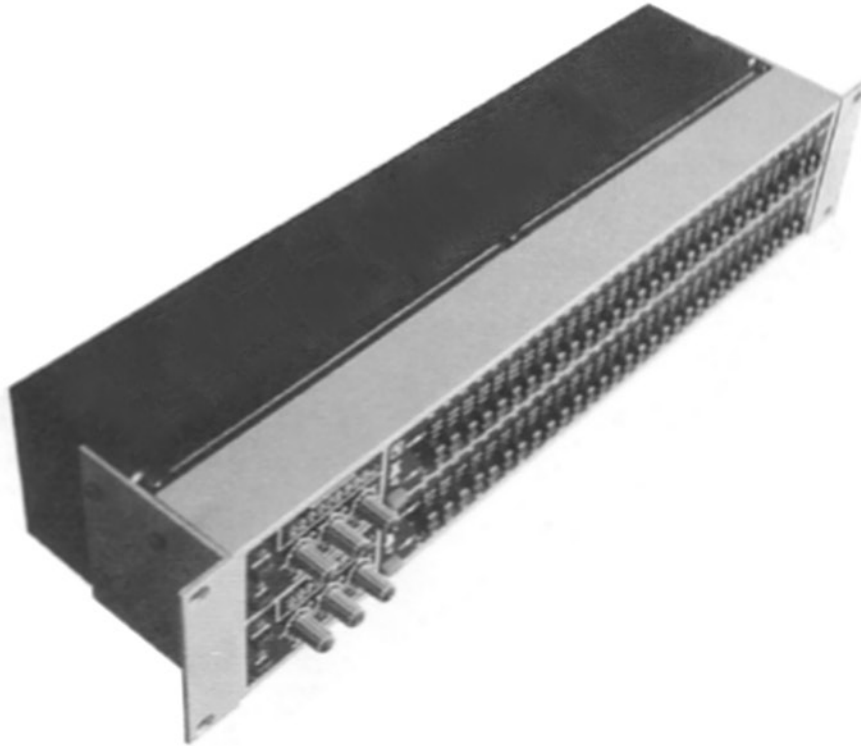
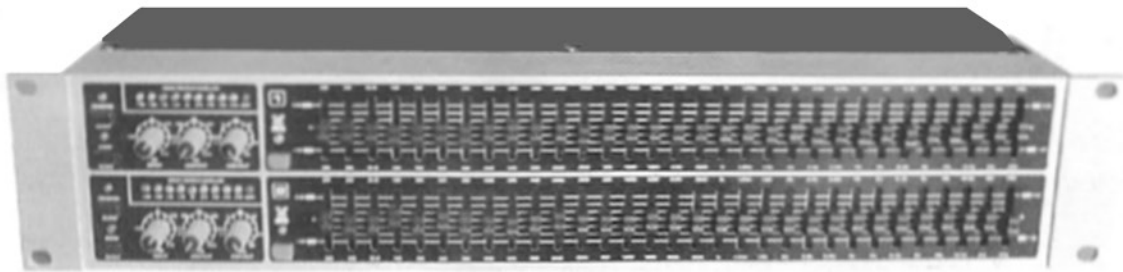


Guardian Audio



EQ231L
Owners Manual

GRAPHIC EQUALIZER

IMPORTANT SAFETY INSTRUCTIONS



CAUTION: To reduce the risk of electric shock, do not remove the top cover (or the rear section). No user serviceable parts inside: refer servicing to qualified personnel.

WARNING: To reduce the risk of electric shock, do not expose this apparatus to rain and moisture. The apparatus shall be not be exposed to dropping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.




This symbol, whenever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure – voltage that may be sufficient to constitute a risk of shock.



This symbol, whenever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.

DETAILED SAFETY INSTRUCTIONS:

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding – type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachment / accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/ apparatus combination to avoid injury from tip-over. 

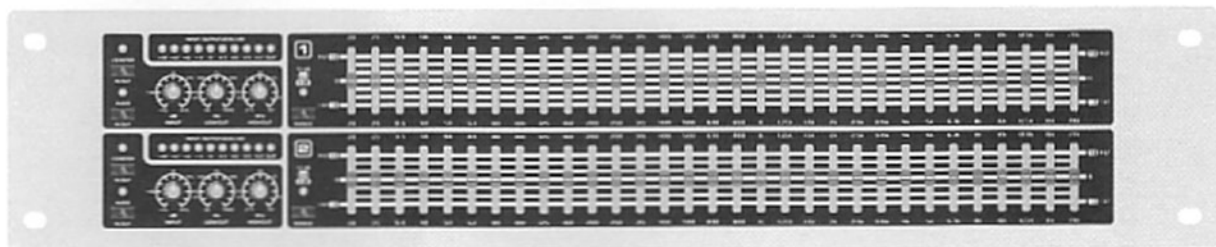


13) Unplug this apparatus during lightning storms or when unused for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been exposed to rain or moisture, does not operate normally, or has been dropped.

15) Caution—These service instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operation instructions unless you are qualified to do so.

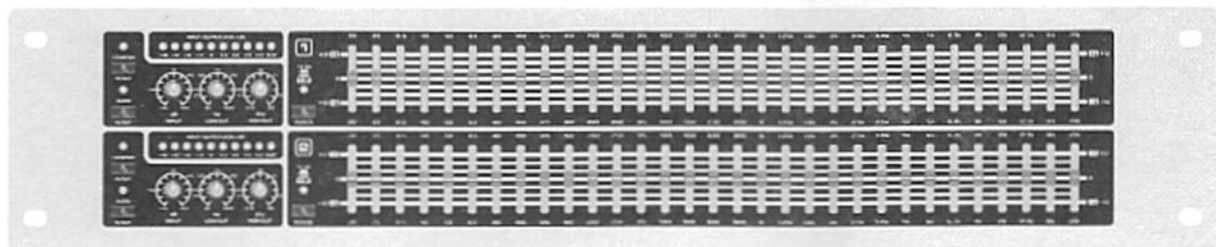
GRAPHIC EQUALIZER



- ▲ Delivers outstanding equalization both in live applications and in the studio
- ▲ For contouring and audio sweetening in audio post-production and recording studios
- ▲ Perfectly suited for room equalization and notching out unwanted frequencies (feedback etc)
- ▲ 2 x 31 ISO frequencies controllable via slide controls with boost / cut range switchable from 12 dB to 6 dB
- ▲ Additional sweepable High and Low Cut filters remove unwanted frequencies e.g. floor rumble and tape hiss etc.
- ▲ Servo-balanced inputs and outputs on XLR and 1/4" jack connectors
- ▲ Relay-controlled hard - bypass with an auto - bypass function during power failure (failsafe relay)
- ▲ Ultra-low noise audio operational amplifiers offer outstanding sound performance
- ▲ Accurate 10-segment LED input/output metering for easy level setting
- ▲ High-quality detented potentiometers and illuminated switches
- ▲ High-grade toroidal transformer for a minimum of interference
- ▲ High-quality components and exceptionally rugged construction ensures long life

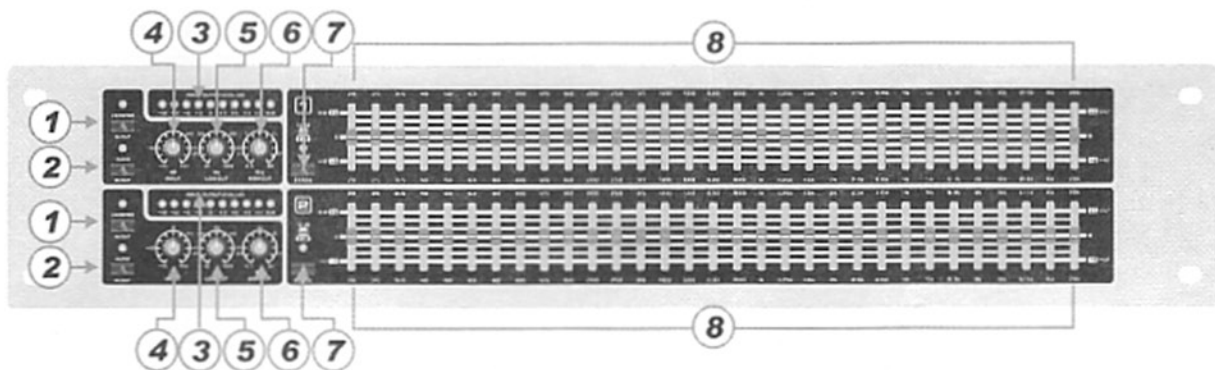
GRAPHIC EQUALIZER

Control elements



The front panel features six controls, six switches and 2 x 31 slide controls. Additionally, it is equipped with two 12 - digit LED meters. As all control elements are the same on both channels, this chapter deals with one channel only.

The front panel



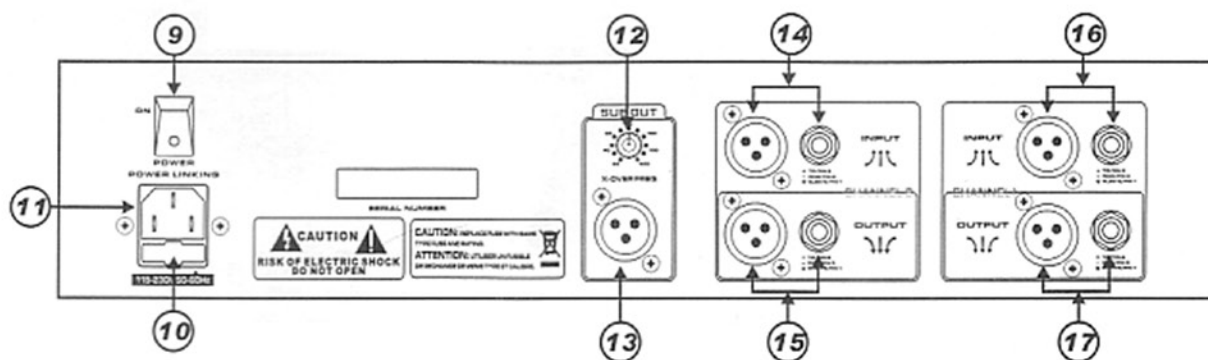
1. Use the I/O METER IN / OUT switch to toggle the meter between input and out output level. When the switch is pressed, this displays the output level.
2. The AUDIO IN/OUT switch enables/disables the entire Equalizer section in the audio path. As this is a relay -controlled hard-bypass circuit, the inputs/outputs are directly connected as soon as the switch is released or the unit is switch off. Use the AUDIO IN / OUT switch to make A / B comparisons between direct and processed signals.
3. The LEVEL METER monitors the signal level to warn you of distortion. Depending the setting of the I/O METER IN/OUT switch ,this meter reads the input or output level (switch pressed)The red CLIP LED lights up at about +12 dB, i.e.3 dB below clipping.
4. The INPUT control adjusts the input level within a range from -15 dB to +15 dB.
5. The LOW CUT control determines the lower cutoff frequency. The high pass filter (18 dB/oct) can be set from 10 through 400kHz, in position "10 Hz" the signal passes unaffected.
6. The HIGH CUT control adjusts the upper cutoff frequency. The low pass filter (18 dB/oct) can be set from 2.5 through 30 kHz, in position "30kHz" the signal passes unaffected.

GRAPHIC EQUALIZER

Use the high and low cut filters as highly efficient tools to limit the frequency range to be processed.

- The RANGE switch allows you to switch between maximum boost / cut in each frequency band, from 12 dB to 6 dB (switch pressed).
- These are the 31 SLIDE CONTROLS for each frequency band. If set to flat (" 0 "), there is no frequency reponse processing. To boost / cut a specific frequency move the corresponding slide control upwards or downwards respectively.

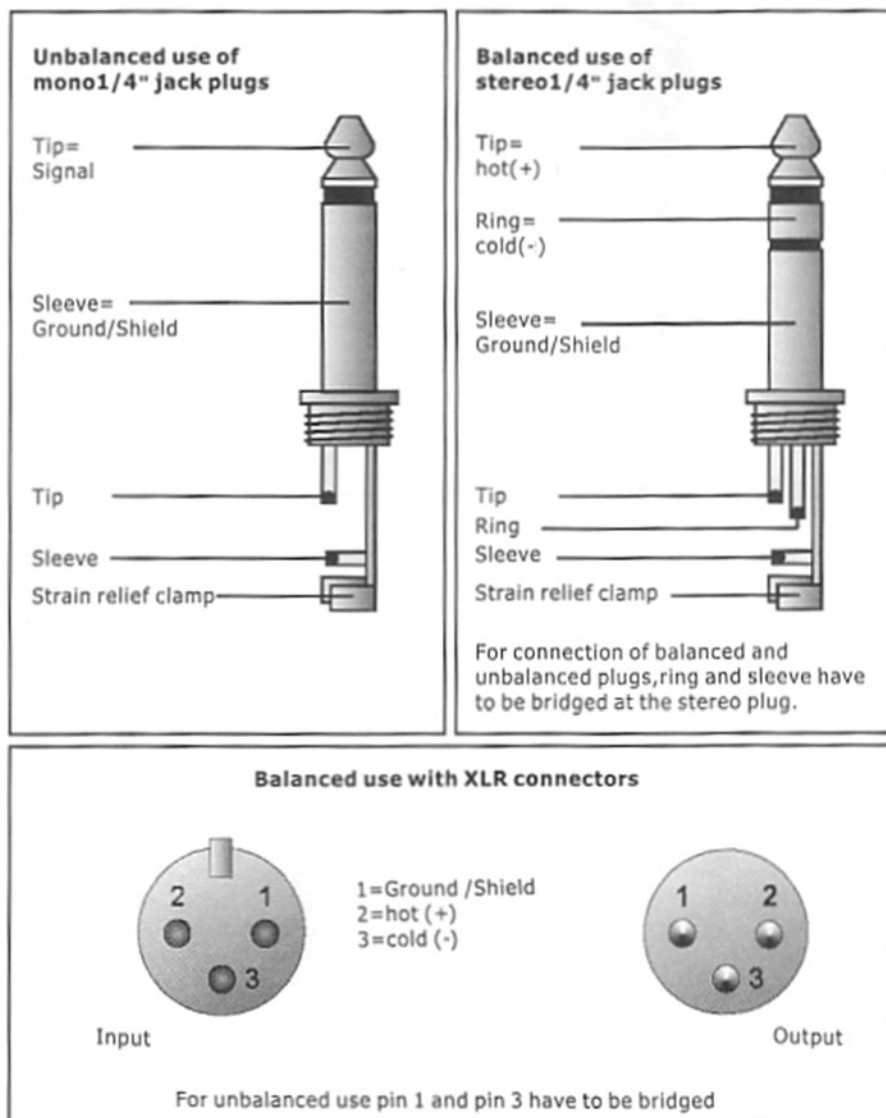
The rear panel



The rear panel connectors

- Use the POWER switch to turn on the product.
- FUSE HOLDER / VOLTAGE SELECTOR. Please make sure that your local voltage matches the voltage indicated on the unit before you attempt to connect and operate the product. Blown fuses may only be replaced by fuses of the same type and rating. Some models allow for inserting the fuse holder in two different positions, in order to switch over from 230V to 115V operation, and vice versa. Please note that for 115V operation outside Europe, you need to use a fuse of higher rating (see chapter 4 "installation")
- Use the enclosed power cord to connect the unit to the local voltage
- SUB OUT this balanced XLR connector provides the output signal for your subwoofer. A summed mono signal for the subwoofer is provided here. Please connect the subwoofer amplifier's input to this connector.
- USE THE X-OVER FREQ control to select the desired crossover frequency for the subwoofer.
- AUDIO IN-CHANNEL 2. These are balanced 1/4" jack and XLR audio inputs.
- AUDIO OUT-CHANNEL 2. These are balanced 1/4" jack and XLR audio outputs.
The 1/4" jack and XLR plugs of each channel are wired in parallel.
- AUDIO IN-CHANNEL 1. These are balanced 1/4" jack and XLR audio inputs.
- AUDIO OUT-CHANNEL 1. These are balanced 1/4" jack and XLR audio outputs.
The 1/4" jack and XLR plugs of each channel are wired in parallel.

GRAPHIC EQUALIZER



Different plug types

GRAPHIC EQUALIZER

SPECIFICATIONS

AUDIO INPUT

Connectors	XLR and 1 / 4" jack
Type	RF filtered, servo-balanced input
Impedance	50 kOhm balanced, 25 kOhm unbalanced
Max. input level	+21 dBu balanced and unbalanced
CMRR	typ. 40 dB, > 53 dB @ 1 kHz

AUDIO OUTPUT

Connectors	XLR and 1 / 4" jack
Type	electronically servo-balanced output stage
Impedance	60 kOhm balanced, 30 kOhm unbalanced
Max. Output level	+21 dBu balanced and unbalanced

SYSTEM SPECIFICATIONS

Frequency response	10Hz to 35 kHz , , +/- 3 dB.
Noise	> 92.3dBu , unweighted , 22Hz to 22kHz
THD	0.004% typ. @ +4 dBu, 1kHz, Gain 1
Crosstalk	< -85 dBu, 22Hz to 22kHz

ROLL-OFF FILTER SECTION

Type	12 dB/oct. Butterworth
Input	variable (-15dB to +15 dB)
Low cut	variable (10Hz to +400Hz)
High cut	variable (2.5kHz to +30kHz)
Subwoofer cut	variable (30Hz to 200 Hz)

GRAPHIC EQUALIZER

Type	analog 1/3 octave equalizer
Frequency range	20Hz to 20kHz in 31 1/3 octave bands (ISO frequencies)
Bandwidth	1/3 octave
Control range	+/- 6 dB or +/- 12dB (switchable)

FUNCTION SWITCHES

Audio in/out	switch to bypass the equalizer functions
I/O meter in/out	switches the meter display from input to output
Range	shift the maximum cut/boost range for all 31 bands

INDICATORS

Input /output level	12-segment LED display :-18/-12/-6/-3/ 0/+3 /+6/+9/+12
Function switch	LED indicator for every switch

POWER SUPPLY

Mains voltages	110-120V or 220-230V AC 50/60Hz
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PHYSICAL

Dimension	48.5 x 14.5 x 8.8cm
Weight	2.6kg