

GEQ Series

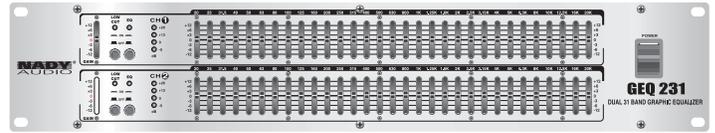
Graphic Equalizers



GEQ 131 — 1 channel, single rack space (1U), 31-1/3 Octave bands with 1/3 octave ISO spacing from 20Hz to 20KHz



GEQ 215 — 2 channel, single rack space (1U), 15-2/3 octave bands each channel with 2/3 octave ISO spacing from 25Hz to 16KHz.



GEQ 231 — 2 channel, double rack space (2U), 31-1/3 octave bands each channel with 1/3 octave ISO spacing from 20Hz to 20KHz

Congratulations on your choice of graphic equalizers — you have purchased one of the finest graphic equalizers on the market today. This unit was developed using the expertise of professional sound engineers and working musicians. You will find that your new NADY AUDIO Equalizers has superior performance and greater flexibility than any other equalizers in its price range. Please read this manual carefully to get the most out of your new unit.

Thanks for selecting NADY AUDIO as your choice in graphic equalizers.

FEATURES

Compact and durable all-steel chassis design, the GEQ Series provides optimum audio control for all live and recording applications, plus ultimate operating convenience and maximum reliability.

- **GEQ 131:** 1 Channel, Single Rack Space, 31 -1/3rd Octave Bands
- **GEQ 215:** 2 Channel, Single Rack Space, 15 -2/3rd Octave Bands Each Channel
- **GEQ 231:** 2 Channel, Double Rack Space, 31 -1/3rd Octave Bands Each Channel
- Active balanced (XLR and 1/4"TRS) input/output connectors
- Constant Q bandwidth from each filter with 3% center frequency accuracy
- Parallel filter design for minimal phase distortion
- Ultra low-noise circuitry
- Low-cut filter at 40Hz, 12dB/octave, switchable, with status LED
- Band range: +/- 12dB gain
- Center detents on faders
- Variable input level control (+/-12dB)
- Equalizer ON/OFF bypass switch with status LED
- Gain status LED bargraph with peak LED
- Power switch with integral LED "ON" indicator
- Shielded internal power supply with AC input and selectable line voltage (~115V/60Hz or ~230V/50Hz)
- Compact and durable all-steel chassis design

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Date of Purchase _____

Dealer's Name _____

City _____

State _____ Zip _____

Model # _____

Serial # _____

WARNING



An equilateral triangle enclosing a lightning flash/arrowhead symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure which may be of sufficient magnitude to constitute a risk of electric shock.



An equilateral triangle enclosing an exclamation point is intended to alert the user to the presence of important operating and service instructions in the literature enclosed with this unit.

IMPORTANT SAFETY INSTRUCTIONS

When using this electronic device, basic precautions should always be taken, including the following:

1. Read all instructions before using the product.
2. Do not use this product near water (e.g., near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, etc.).
3. This product should be used only with a cart or stand that will keep it level and stable and prevent wobbling.
4. This product, in combination with headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
5. The product should be positioned so that proper ventilation is maintained.
6. The product should be located away from heat sources such as radiators, heat vents, or other devices (including amplifiers) that produce heat.
7. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product. Replace the fuse only with one of the specified type, size, and correct rating.
8. The power supply cord should: (1) be undamaged, (2) never share an outlet or extension cord with other devices so that the outlet's or extension cord's power rating is exceeded, and (3) never be left plugged into the outlet when not being used for a long period of time.
9. Care should be taken so that objects do not fall into, and liquids are not spilled through, the enclosure's openings.
10. The product should be serviced by qualified service personnel if:
 - A. The power supply cord or the plug has been damaged.
 - B. Objects have fallen into, or liquid has been spilled onto the product.
 - C. The product has been exposed to rain.
 - D. The product does not appear to operate normally or exhibits a marked change in performance.
 - E. The product has been dropped, or the enclosure damaged.
11. Do not attempt to service the product beyond what is described in the user maintenance instructions. All other servicing should be referred to qualified service personnel.

INSTALLATION

To ensure years of enjoyment from your NADY AUDIO graphic equalizer, please read and understand this manual thoroughly before using the unit.

These three equalizer models are each designed for mounting in a standard 19" equipment rack or one of the many rack type portable cases available on the market. The units are either 1u single rack (1.75") or 2u double rack (3.5") as noted. All three models are 5 inches deep.

Install the equalizer in a rack with rack screws (not included). Route the A.C. power cord to a convenient power outlet away from audio lines. The unit may be turned on and off from the front panel power switch or a master equipment power switch. Since the unit draws a relatively small amount of current during idle, the unit may be left on continuously. NADY AUDIO equalizers do not generate an unduly large amount of heat and do not need to be specially ventilated or cooled. The units should not be subjected, however, to high heat environments.

Although the unit is shielded against radio frequency (RF) and electromagnetic interference (EMI), extremely high fields of RF and EMI should be avoided.

INPUT/OUTPUT CONNECTIONS

The 1/4" phone jack and XLR connector inputs and outputs can be used for balanced and unbalanced connections. CAUTION: Using more than one connector at a time for the INPUT/OUTPUT pair could unbalance balanced lines, cause phase cancellation, short a conductor to ground, or cause damage to the other equipment connected to the equalizer.

For balanced connection, wire the connectors as follows:

XLR JACK	CONNECTION
PIN 1	GROUND <small>(optional, use as shielding to prevent hum)</small>
PIN 2	HIGH (+)
PIN 3	LOW (-)

1/4" TRS JACK	CONNECTION
TIP	HIGH (+)
RING	LOW (-)
SLEEVE	GROUND <small>(optional, use as shielding to prevent hum)</small>

For unbalanced operation, wire the connectors as follows:

XLR JACK	CONNECTION
PIN 1	GROUND
PIN 2	HIGH (+)

1/4" TRS JACK	CONNECTION
TIP	HIGH (+)
SLEEVE	GROUND

RCA JACK	CONNECTION
TIP	HIGH (+)
SLEEVE	GROUND

Paralleling inputs and outputs may be accomplished by using any of the 3 connectors.

Note: The 1/4" TRS are normally used for this function.

POWER CONNECTION

Each of these three NADY AUDIO graphic equalizers is designed for operation with 105-130 volts AC at 60Hz or 210-240 volts AC at 50Hz power sources. Power requirements for electrical equipment differ from area to area. In new installations and portable sound systems, or any situation in which the AC 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.

Check to see that the unit is set to the voltage for your area by referring to the table below:

Europe (except UK): 230V, 50Hz

UK and Australia: 240V, 50Hz

USA and Canada: 115V, 60 Hz

For other areas, please check with local authorities.

If the voltage selector is not set for your area: Confirm that the power cord is not plugged into a wall outlet. Move the voltage selector switch with a small screwdriver so that the marker is set to the voltage for your area.

PRECAUTIONS

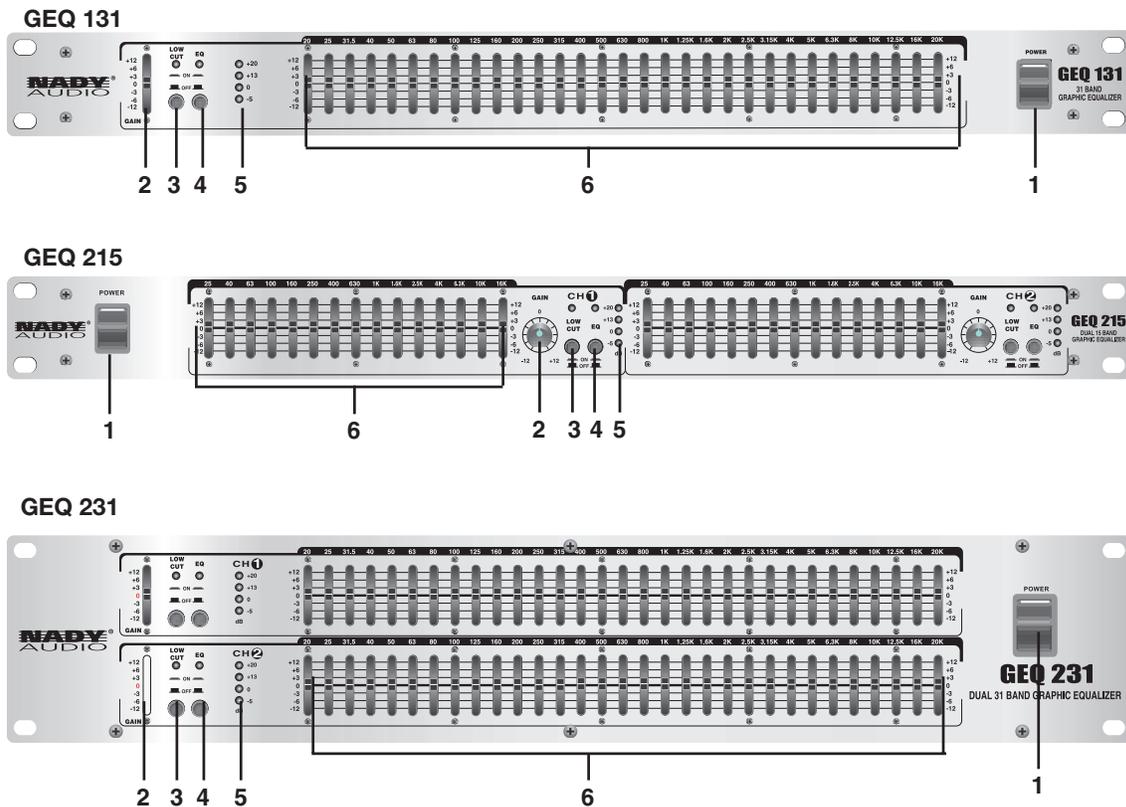
Protecting yourself from electric shock:

- Never touch the plug with wet hands.
- Always pull out by the plug and never the cord.
- Only let a qualified professional repair the equipment. An unauthorized person might touch the internal parts and receive a serious electric shock. Note: Removing the chassis screws and opening the unit will automatically void your warranty.
- Never allow a child to put anything into the equipment.

Protecting your NADY AUDIO Graphic Equalizer:

- Use only a household AC power source. Never use a DC power source.
- If water is spilled on or in the unit, unplug it and call for service.
- Make sure that the equipment is well ventilated and away from direct sunlight
- Avoid damage to the internal circuits and the external surface by keeping the unit away from sources of high heat.
- Avoid using spray type insecticide or solvents near the equipment. It can damage the finish and might ignite suddenly
- To avoid damaging the finish, never use denatured alcohol, paint thinner or other similar chemicals to clean the equipment.
- Place the unit on a flat and solid surface or in a rack.
- To enjoy your NADY AUDIO graphic equalizer for a long time, please read this owner's manual thoroughly.

FRONT PANEL CONTROLS & CONNECTIONS



1. Power Switch

To turn the equalizer ON or OFF, press the upper or lower portion of this button. The internal LED indicator will light when the unit is on.

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 to avoid any turn on/off transient noise.

2. Gain Control

The Gain control allows adjustment between OFF (center detent) and +/-12dB. This control is used to adjust for variation in input level to the equalizer channel, or to compensate for the equalization applied to the input signal. Unity gain can be achieved by setting this control to its center detent position. The unit is equipped with a red Peak LED, which illuminates when the signal reaches 3dB prior to clipping. It is acceptable for the Peak LED to flash occasionally, however, if the Peak LED is flashing steadily, the Gain control should be reduced to avoid distortion.

3. Low-Cut Filter

This switch enables a low cut filter at 40Hz, 12dB/octave to remove unwanted low frequencies from the signal to prevent stage rumble and low frequency resonance that can occur while using speakers in an enclosed acoustic environment. The LED status indicator will light yellow when the Low Cut is enabled.

4. EQ ON/OFF

This switch enables or bypasses the equalizer filters. If you disable the EQ ON/OFF switch, the LED will turn off and the unit will be in bypass mode. In bypass mode, the audio signal will flow through without any equalization although the Gain control will still be active.

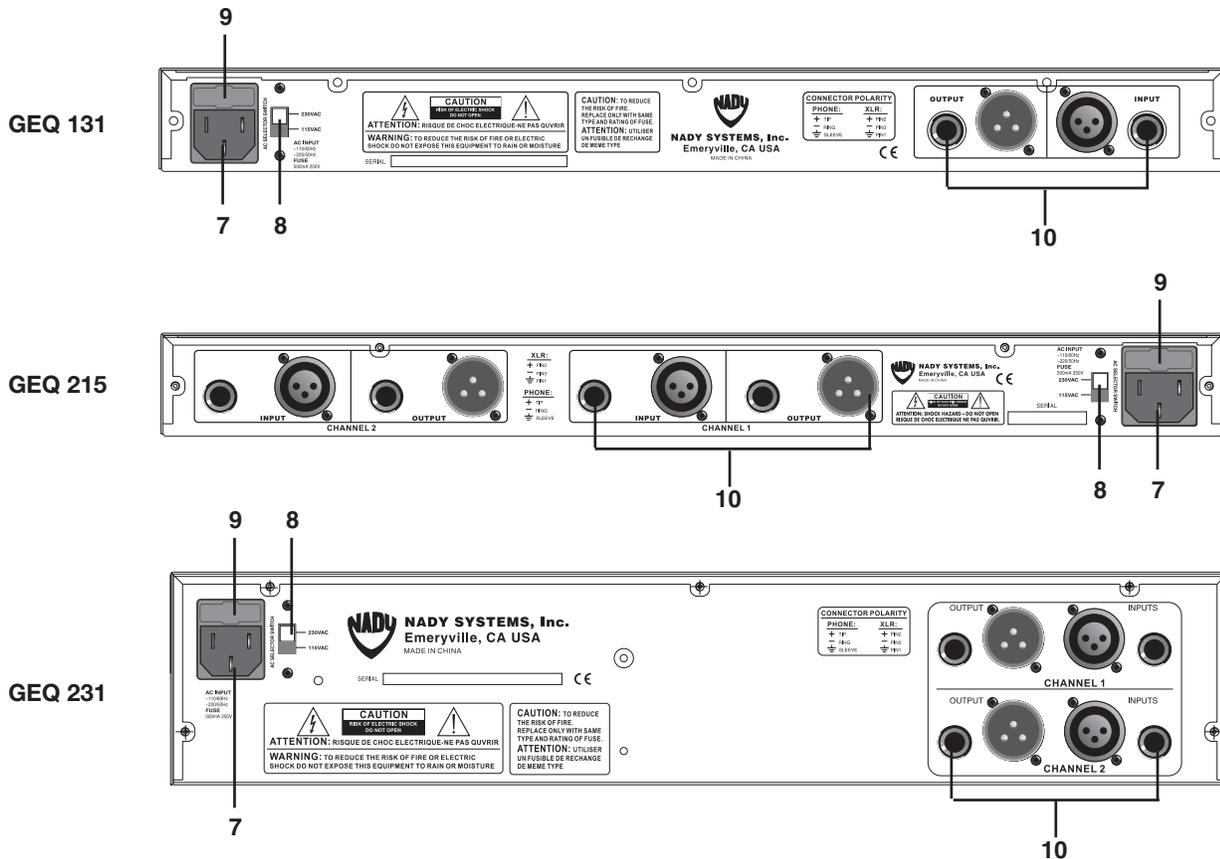
5. Output Level LED Bargraph

This four-stage LED bargraph illuminates according to the output signal level. The red Peak LED lights at 3dB prior to clipping. Occasional blinking of the Peak LED is acceptable, but if it remains on more than intermittently you should turn down either the equalizer's level controls or reduce the input Gain level.

6. Filter Level Slider Controls

Each one of these linear potentiometers will boost or cut its noted frequency by +/-12dB. When all of the sliders are in center detent position, the output of the equalizer is flat. Each slider is marked with the center frequency of its band pass filter.

REAR PANEL CONTROLS & CONNECTIONS



7. IEC Power Cord Receptacle

This is used to connect the AC power source to your equalizer. Power requirements: 115/230VAC, 50/60Hz

8. AC Voltage Selector

Set this slide switch to match your line voltage supply.

CAUTION: For new installations and portable sound systems, or in any situation in which the AC power is suspect, it is wise to confirm appropriate voltage and line polarity BEFORE connecting the instrument to the power source.

9. Fuse Holder

This fuse holder contains an AC primary fuse. This fuse should be replaced with the same type fuse when this is blown out. If they continuously blow, stop replacing the fuse and refer servicing to qualified personnel.

CAUTION: After checking the AC supply voltage, be sure that the correct fuse is in the fuse holder. A 20mm glass tube 200mA 250V fast-blow fuse should be used.

10. Input/Output Connectors

XLR and 1/4" TRS balanced Input/Output jacks for desired active balanced or unbalanced line level operation. Line level signals from -18dBu to +18dBu are considered normal. Do not directly connect microphones into the equalizers. Microphones require a pre amp.

Note: Only one input and one output connector should be used at a time.

TYPICAL SET-UP

NADY AUDIO 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.

SOUND REINFORCEMENT APPLICATIONS

By routing the signal from the mixer to the main power amplifiers (or crossover), the overall frequency of the mix may be altered to do a number of things.

- A. Through the use of a real-time audio spectrum analyzer, a calibrated microphone, and a pink noise source, the audio system may be "TUNED" to make the overall audio spectrum response of the audio reinforcement system and the room environment flatter in its frequency response.
- B. By turning up the audio reinforcement system to the feedback point, then attenuating the oscillating frequency (1/3 octave resolution), then turning the system up to attenuate the 2nd oscillating frequency, and then the 3rd, and so on, you can enable the entire audio system to have much more gain before feedback.
- C. Amplifiers and speakers may be protected by the use of the LOW CUT feature of the equalizer. Wind noise or the loud percussive sound of dropped microphones, etc., could potentially cause damage to the amps and/or speakers. By rolling off the extreme LOW frequencies with the LOW CUT filter, a measure of protection is added to the system without severely affecting the overall sound quality.
- D. In noisy environments, the audio signal may be tailored for better intelligibility and penetration. This is especially useful for public address systems.
- E. Creative use of the equalizer allows shaping of the signal for a more pleasing sound or for special effects. The only limits are those of taste and imagination.

MUSICAL INSTRUMENT APPLICATIONS

- A. Putting an equalizer in line with a musical instrument allows you to modify the sound of the instrument. You can brighten the sound, or add body to a thin sounding instrument, or even give the sound a totally different character.
- B. An equalizer will allow you to eliminate unwanted sounds, like a 60-cycle HUM from a badly grounded amplifier.

STUDIO APPLICATIONS

A graphic equalizer is one of the most useful tools in the sound engineer's bag. NADY AUDIO equalizers offer the features and flexibility to perform where it counts in the studio.

- A. Fix a track that doesn't sound quite right. Put the equalizer in an effects send and return it to the MIX bus.
- B. Create an artificial stereo by splitting a monaural signal and equalizing the split signals differently, then panning one equalized signal to the right and the other signal to the left.
- C. Shape the sound by changing the frequency response of the track.
- D. Special effects, like a telephone sound, can be created by cutting off the LOW end to 200Hz and the HIGH end to 6KHz.

SPECIFICATIONS

EQUALIZER:

Equalizer Control Bands

1X31, 1/3 Octave ISO Spacing From 20Hz to 20KHz

2X31, 1/3 Octave ISO Spacing From 20Hz to 20KHz

2X15, 2/3 Octave ISO Spacing From 25Hz to 16KHz

Filter Type

Constant Q

Slider Travel

20mm (Center Detent) for GEQ 131/215/231

Level Control Range

+/-12dB

INPUTS:

Type

Active Balanced/Unbalanced

Connectors

3-Pin XLR, 1/4" TRS (Balanced), RCA (Unbalanced)

Impedance

40K Ohms Balanced; 20K Ohms Unbalanced

Maximum Level

28dBV

OUTPUTS:

Type

Active Balanced/Unbalanced

Connectors

3-Pin XLR, 1/4" TRS (Balanced).

Impedance

Typically < 400 Ohms

Maximum Level

+/-20dBV

Clip LED Threshold

3dB (Below Clipping)

Low Cut Filter

40Hz, 12dB/octave

Frequency Response

20Hz - 20KHz, +/- 1dB

THD + Noise

<0.008% (@ 1KHz, all faders at mid position)

Signal to Noise Ratio

95dB (@ 1KHz)

Channel Separation

60dB (1KHz)

Line Voltage

100-130V AC, 50/60Hz

200-240V AC, 50Hz

Power Consumption

Maximum: 15 watts

SIZE:

19"W X 3.5"H X 5"D (2U)

(48.2cm X 8.8cm X 12.7cm) For 231

19"W X 1.75"H X 8.66"D (1U)

(48.2cm X 4.4cm X 12.7cm) For GEQ 131/215

WEIGHT:

4.15lbs. (1.9Kg.) GEQ 215

4lbs. (1.81Kg.) GEQ 131

6.85 lbs. (3.1Kg.) GEQ 231

The specifications above are correct at the time of printing of this manual. For improvement purposes, all specifications for this unit, including design and appearance, are subject to change without prior notice.

NOTES

SERVICE FOR YOUR NADY AUDIO PRODUCT

(U.S.) Should your NADY AUDIO product require service, please contact the Nady Service Department via telephone at (510) 652-2411, or e-mail at service@nady.com.

(International) For service, please contact the NADY AUDIO distributor in your country through the dealer from whom you purchased this product.

DO NOT ATTEMPT TO SERVICE THIS UNIT
YOURSELF AS IT CAN BE DANGEROUS AND
WILL ALSO VOID THE WARRANTY.

