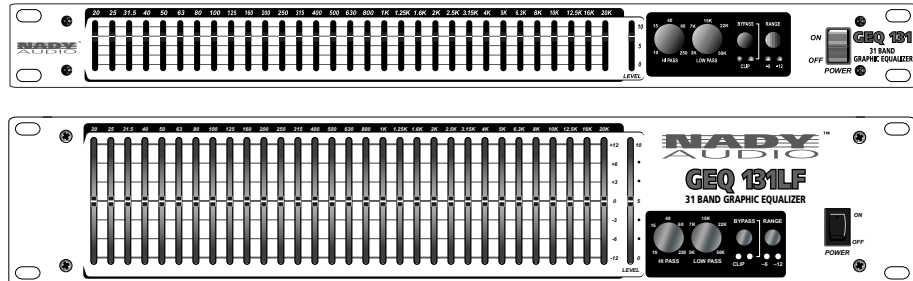
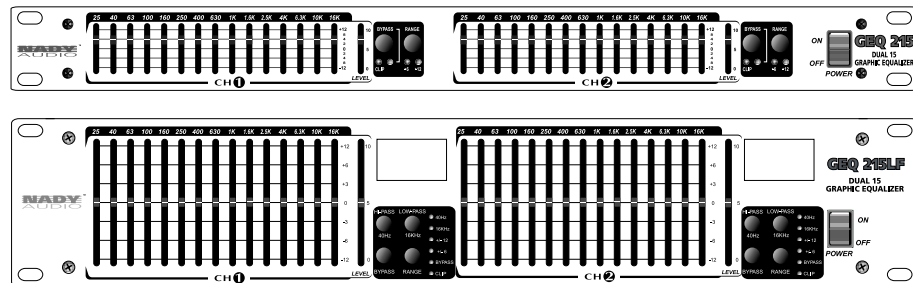


NADY AUDIO™



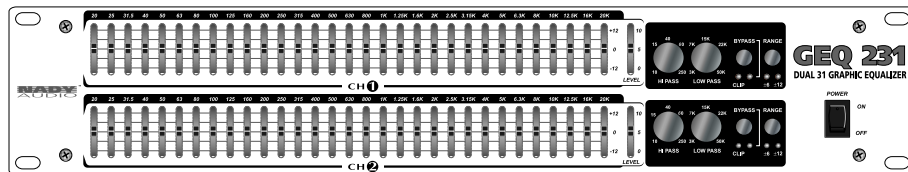
GEQ 131/ 131LF

Single Channel 31 Band Graphic Equalizer



GEQ 215/ 215LF

2 Channel 15 Band Graphic Equalizer



GEQ 231

2 Channel 31 Band Graphic Equalizer

OWNER'S MANUAL

GEQ-Series

GRAPHIC EQUALIZER SERIES



Congratulations!

You have just purchased one of the finest graphic equalizers on the market today. This EQ was developed using the expertise of professional sound engineers and working musicians. You will find your new NADY AUDIO EQ has superior performance and greater flexibility than any other graphic equalizer in its price range.

Read this manual carefully to get the most out of your new EQ. Thanks for selecting NADY AUDIO for your choice in graphic equalizers.

Date of Purchase _____

Dealer's Name _____

City _____

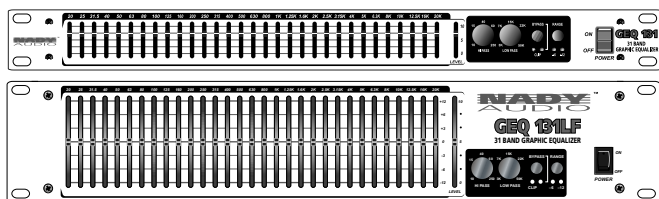
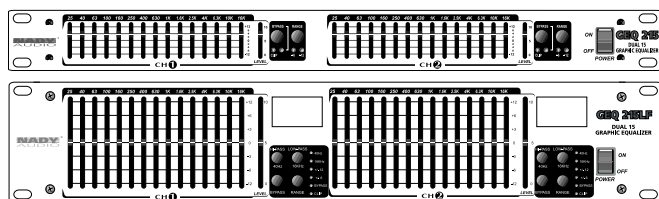
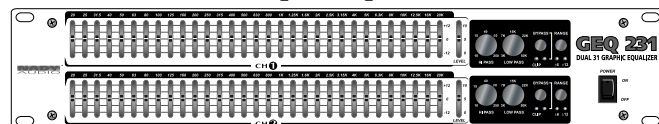
State _____ Zip _____

Model# _____

Serial # _____

Contents

FEATURES	3
WARNING	3
INSTALLATION	4
Input/Output Connections	4
Power Connection	4
Precautions	5
Signal Levels	5
Chassis Grounding	5
OPERATING INSTRUCTIONS	5
FRONT PANEL CONTROLS AND CONNECTIONS	6
REAR PANEL CONTROLS AND CONNECTIONS	7
TYPICAL SET-UP	8
Sound Reinforcement Applications	8
Musical Instrument Application	8
Studio Applications	8
SPECIFICATIONS	9

GEQ 131/131LF**Single Channel 31 Band Graphic Equalizers****GEQ 215/215LF****2 Channel 15 Band Graphic Equalizers****GEQ 231****2 Channel 31 Band Graphic Equalizer****Graphic Equalizer GEQ Series**

- **GEQ 131:** 1 Channel, Single Rack Space, 31—1/3rd Octave Bands
- **GEQ 131LF:** 1 Channel, Double Rack Space, 31—1/3rd Octave Bands, Long Throw Faders (60mm travel)
- **GEQ 215:** 2 Channel, Single Rack Space, 15—2/3rd Octave Bands Each Channel
- **GEQ 215LF:** 2 Channel, Double Rack Space, 15—2/3rd Octave Bands Each Channel, Long Throw Faders (60mm travel)
- **GEQ 231:** 2 Channel, Double Rack Space, 31—1/3rd Octave Bands Each Channel
- Active balanced (XLR and 1/4" TRS) and unbalanced (RCA) input/output connectors
- Constant Q bandwidth from each filter with a 3% center frequency accuracy
- Parallel filter design for minimal phase distortion
- Ultra low-noise circuitry
- Variable low-cut and low pass filters, 12dB/octave (GEQ 131/131LF/GEQ 231), switchable filters (GEQ 215LF)
- Selectable range 6dB or 12dB
- Variable input level control
- Equalizer ON/OFF bypass switch
- Peak (overload threshold) LED
- Internal power supply with AC input and selectable line voltage (110-240VAC, 50/60Hz)
- Ground lift switch
- Power off automatic bypass function

CAUTION!

TO REDUCE THE RISK OF FIRE, REPLACE ONLY WITH SAME TYPE FUSE.

ATTENTION!

UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE.

WARNING!

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK. DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT REMOVE CHASSIS (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.



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.

INSTALLATION

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

These five 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 single rack (1.75") or double rack (3.5") as noted. All five models are 8.66 inches deep.

Install the equalizer in a rack with the rack screws provided. 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's chassis 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, RCA 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.

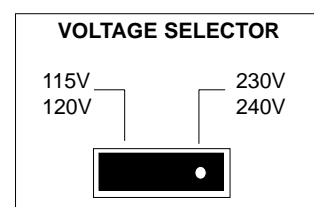
Note: The 1/4" TRS are normally used for this function.

Power Connection

Each of these five NADY AUDIO graphic equalizers is designed for operation from 120-240 volts, 50-60 Hz AC supplies. 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: 120V, 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.
- Never allow a child to put anything, especially metal, 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.

Signal Levels

Signal levels from -18dBu to +18dBu are considered normal. Do not directly connect microphones into the equalizers. Microphones require a pre amp.

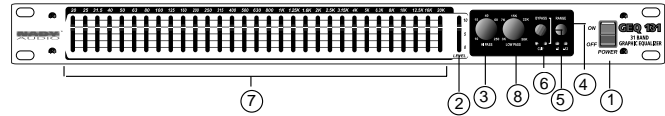
Chassis Grounding

NADY AUDIO equalizers are equipped with a rear panel ground lift switch. If, after setting up your system, the system exhibits excessive hum or buzzing, the problem may be that there is a ground incompatibility between your equalizer the 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 with the 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.

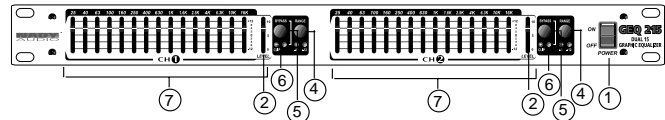
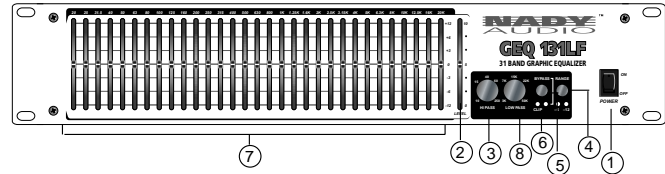
Before starting to equalize your sound system there is some information you should know and procedures you should follow:

- These NADY AUDIO equalizers are equipped with a BYPASS switch with an LED indicator. If you disable the BYPASS switch, the LED will turn off and all equalization settings will be restored. In bypass mode, the audio signal will flow through at unity gain.
 - Use the range selection switch to select between a 6dB or 12dB level adjust range. The dual color range LED will indicate green for 6dB and red for 12dB.
 - The input level control allows adjustment between OFF (center detent) and +/-6dB. Note: The unit is equipped with a red overload LED, which illuminates when the signal reaches 5dB prior to clipping. It is normal for the overload LED to flash occasionally, but if the overload LED is on steady you must readjust the level control. Below are some tips to follow while doing the initial set-up.
1. Set channel levels to the center detent (0dB-unity gain) on the front panel.
 2. Enable the BYPASS switch (Note: The red LED is ON).
 3. Set all slide controls to the center detent or 0dB (unity gain) position.
 4. Select the 6dB range switch (green LED ON).
 5. Apply signal to the system.
 6. Disable the BYPASS switch, red LED OFF.
 7. If the CLIP (overload) LED is on you must turn down the level control.
 8. You may now start equalizing your system.
 9. Switch the range switch to 12dB (red LED is lit) if the 6dB range does not provide sufficient gain.

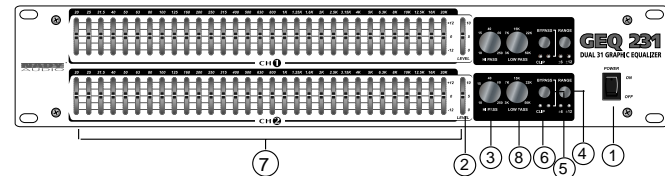
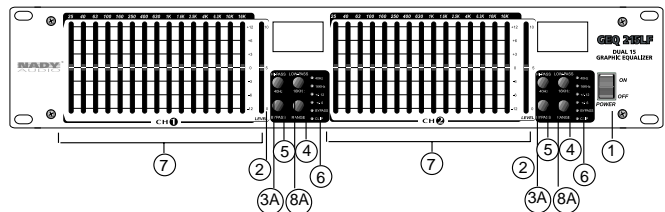
GEQ 131/131LF
Single Channel 31 Band Graphic Equalizers



GEQ 215/215LF
2 Channel 15 Band Graphic Equalizers



GEQ 231
2 Channel 31 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. Input Level Control
This controls the level of signal to the equalizer. It is capable of +/- 6dB of gain.
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. Turn this control down if the CLIP LED illuminates steady (meaning too strong an input signal). Unity gain can be set by turning this knob to its center detent position.

3. Low-Cut/High-Pass Filter (GEQ 131/131LF/231)
These equalizers are equipped with a 10Hz, 12dB/octave, variable Low Cut/High-Pass Filter (HPF) to cut down unwanted low frequency signal. Because of its high roll-off slope, the HPF can be efficiently used to attenuate the "HUM" noise from preceding instruments, or to prevent the low frequency resonance that can occur when speakers are installed in an enclosed acoustic environment.

3A. High-pass Filter Switch and Indicator (GEQ 215/215LF)
40 Hz, 12dB/octave HPF. LED lights when activated.

4. Filter Range Switch & Indicators
The gain range of the filter sliders is switchable (as a group) from +/-6dB to +/-12dB for maximum boost/cut capability. At 6dB the green LED will illuminate and at 12 dB the red LED will illuminate.

5. In/Out Bypass Switch & Indicator
This switch inserts or removes the equalizer channel from the signal path. The red LED lights when the switch is depressed to indicate that the unit or channel is in the equalizing mode. In the bypass mode, the signal is routed from the input directly to the output. The bypass function is FET switched to prevent switching transients when inserting the equalizer into the circuit path. Use this switch to compare equalized and unequalized material. When there is no power to the unit, the equalizer automatically reverts to bypass.

6. Peak/Clip 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.

7. Filter Level Slider Controls
Each one of these linear potentiometers will boost or cut its noted frequency by either +/-6dB or +/-12dB depending on the filter range selected. When all of the sliders are in center detented position, the output of the equalizer is flat. Each slider is marked with the center frequency of its band pass filter.

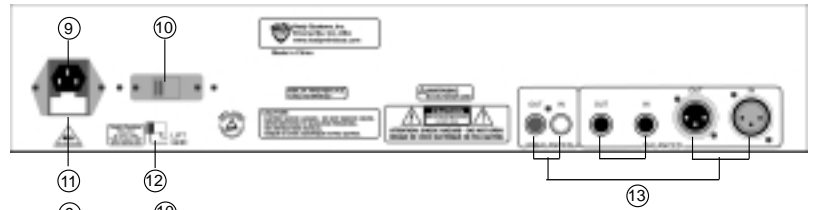
8. Low-Pass/High-Cut Filter (GEQ 131/131LF/231)
This filter rolls off higher frequencies. This is useful for reducing hiss or sibilance from a signal. Its range is adjustable from 3KHz to 50KHz.

8A. Low-Pass Filter Switch and Indicator (GEQ 215/215LF)
16KHz, 12 dB/octave LPF. LED lights when activated.

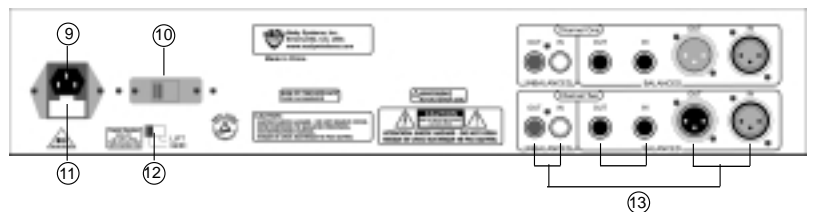
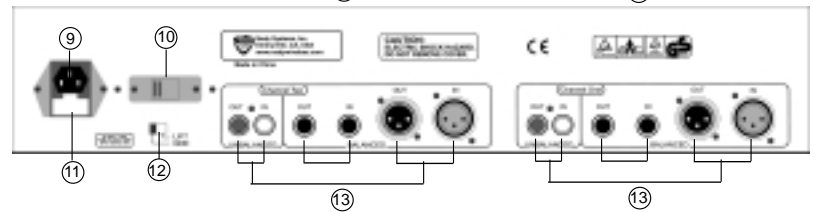
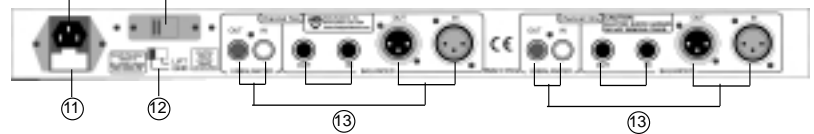
GEQ 131/131LF
Single Channel 31 Band Graphic Equalizers



GEQ 215/215LF
2 Channel 15 Band Graphic Equalizers



GEQ 231
2 Channel 31 Band Graphic Equalizer



9. IEC Power Cord Receptacle

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

10. 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.

11. 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: 0.5 Amp for 100-130VAC and for 220-240V AC.

12. Ground-Lift Switch

This switch is used to disconnect the signal ground from the AC power and chassis earth ground. This switch should be put in the LIFT position if the speakers produce humming sounds caused by a ground loop.

13. Input/Output Connectors

See INPUT/OUTPUT CONNECTIONS section (page 2) for proper wiring of the XLR, 1/4" TRS and RCA connectors for desired active balanced or unbalanced operation. Paralleling inputs and outputs may be accomplished by using any of the 3 connectors. Note: The 1/4" TRS connectors are normally used for this function.

Note: while you can use any input connector with any output connector, only one of these connectors is to be used at a time.

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.

INSTALLATION TYPICAL SET-UP

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.
- E. Also when you use the equalizer with other pieces of equipment, such as the NADY AUDIO CL-5000 Compressor Limiter with Gate, you can do real signal processing magic. Emphasizing the HIGH frequencies of a signal and feeding the modified signal to the side chain of the compressor makes the compressor a DE-ESSER; or, emphasizing the LOW frequencies and putting that through the side chain, makes the compressor a "DE-THUMPER". Also, you can reduce unwanted frequency-dependent noise in a signal by cutting the offending frequencies with an equalizer and letting the noise gate of the CL-5000 "KEY" on the modified signal, while letting the original signal pass and gating the unwanted sounds. (See the instruction manual for the NADY AUDIO CL-5000 for more ideas and detail on methods to utilize your equalizer in the fullest).

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

60mm (Center Detent) for GEQ 131LF/215LF

Level Control Range

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

Inputs:

Type

Active Balanced/Unbalanced

Connectors

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

Impedance

20K Ohms Balanced; 15K Ohms Unbalanced

Maximum Level

+/-18dBV

Outputs:

Type

Active Balanced/Unbalanced

Connectors

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

Impedance

Typically < 600 Ohms

Maximum Level

+/-16dBV

Clip LED Threshold

5dB (Below Clipping)

Low Cut (High Pass) Filter

(GEQ 131/131LF/231)

10Hz to 250Hz (12dB/Octave), variable

(GEQ 215LF)

40Hz (12dB/Octave), switchable

Low Pass (High Cut) Filter

(GEQ 131/131LF/231)

3KHz to 50KHz (12dB/Octave), variable

(GEQ 215LF)

16KHz (12dB/Octave), switchable

Frequency Response

20Hz – 20KHz, +/- 1dB

THD + Noise

<0.02% (@ 1KHz, all faders at mid position)

Signal to Noise Ratio

93dB (@ 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 8.66"D (2U)

(48.2cm X 8.8cm X 22.0cm) For GEQ 131LF/215LF/231

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

(48.2cm X 4.4cm X 22.0cm) For GEQ 131/215

Weight:

6.16lbs. (2.8Kg.) GEQ 215

6.38lbs. (2.9Kg.) GEQ 131

7.04lbs. (3.2Kg.) GEQ 131LF

7.7lbs. (3.5Kg.) GEQ 215LF

11.44 lbs. (5.2Kg.) GEQ 231

For improvement purposes, all specifications and design are subject to change without notice

NOTES

SERVICE FOR YOUR NADY AUDIO PRODUCT

(U.S.) Should your NADY AUDIO Product require service, please contact the Nady Service Department via phone at (510) 652-2411 or E-mail at service@nadywireless.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 ALSO WILL
VOID THE WARRANTY.**



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