



MIAD AUDIO
Professional Audio Equipment
for Recording, Mixing and Mastering

Operator's Manual

Version 1.0

LCPQ 4040 – MK2

Discrete 4-band EQ



PS230

External Linear Power Supply





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PLEASE READ ALL INSTRUCTIONS, PAY SPECIAL HEED TO SAFETY WARNINGS.

E&OE



Company: MIAD AUDIO Michail Gounelas **VAT No.** PL7010442720

Address: Gazeli 11A/2, Lesznowola, 05-506, Poland

Tel: +48 882153350 **Email:** info@miadaudio.com **Web:** www.miadaudio.com

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Important Safety Notices

GENERAL SAFETY

- Please read these instructions.
- Adhere to all warnings and follow instructions.
- Do not operate this unit in the presence of rain, liquids, or condensing moisture. **Liquid entering the product enclosure presents the risk of fire or electric shock injury.**
- Clean only with a dry cloth and never when the unit is powered.
- Do not place heavy objects on the unit.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other devices that produce heat.
- Use only attachments/accessories specified by the manufacturer.
- Refer all service to qualified personnel.
- MIAD AUDIO does not accept liability for damage caused by maintenance, repair or modification by unauthorized personnel.
- Do NOT modify this unit, alterations may affect performance, safety and/or international compliance standards.

INSTALLATION NOTES

- When installing this apparatus either fix it into a standard 19" rack or place it on a secure level surface.
- If the unit is rack mounted, fit all rack screws. Rack shelves are recommended.
- Ensure that no strain is placed on any cables connected to this apparatus.
- Ensure that all such cables are not placed where they can be stepped on, pulled or tripped over.

POWER SAFETY

- Do not defeat the safety purpose of the polarized or grounding type AC plug.
- Refer to the rating label on rear of the PS230 unit and always use a suitable mains cord.
- Connect only to an AC power source that contains a protective earthing (PE) conductor.
- Only connect units to single phase supplies with the neutral conductor at earth potential.
- Protect both the AC power cord to the power supply and the DC cable between the power supply and the EQ unit from being walked on or pinched.
- Unplug this device during lightning storms or when unused for long periods of time.



CAUTION!

This equipment must be Earthed. Refer to the manual for installation instructions. Disconnect all power sources before removing any panels. No user-serviceable parts inside. To be serviced only by qualified personnel.



WARNING!

Un-earthed metal parts may be present inside the enclosure. Check for hazardous voltages before touching. To reduce the risk of fire or electrical shock, **do not expose** this apparatus to rain or moisture.



WARNING!

Do not use a damaged or excessively worn IEC cable to connect this unit to AC power.



The construction of the LCPQ 4040-MK2 and PS230 are in compliance with the standards and regulations of the European Community.

1.0 LCPQ 4040 – MK2

1.1 Overview

The LCPQ 4040 – MK2 is a high-performance, transformer-balanced, all-discrete equalizer featuring four passive RLC sections arranged in a cascade configuration.

Each band is equipped with a rotary switch for frequency selection and a 31-detent potentiometer for level control, with a user-adjustable range of either +/-6dB or +/-12dB. Bands 1 and 4 offer selectable Shelving or Bell curves, while Bands 2 and 3 allow for HiQ/ LowQ selection.

Additionally, the "Hi-Q" button on Bands 2 and 3 can toggle between +/-6dB and +/-12dB. However, this is optional, and you can choose to maintain a consistent level range for both Low-Q and High-Q if desired. For detailed instructions on setting the level range of each band, please refer to **section 1.4**.

Each band can be bypassed independently. When a band is not engaged, the audio signal still passes through the transformers and discrete circuitry, but not through the RLC circuit, enabling the unit to function as a high-quality, unity-gain line amplifier. In addition to individual band bypass, the unit features a true bypass relay system. If the unit loses power, the relay system automatically engages, connecting the input signal directly to the output, ensuring that the signal is never interrupted.

The LCPQ 4040 – MK2 is built with CARNHILL high-level audio transformers for input and output, along with four custom-made tapped inductors selected after extensive listening tests and measurements.

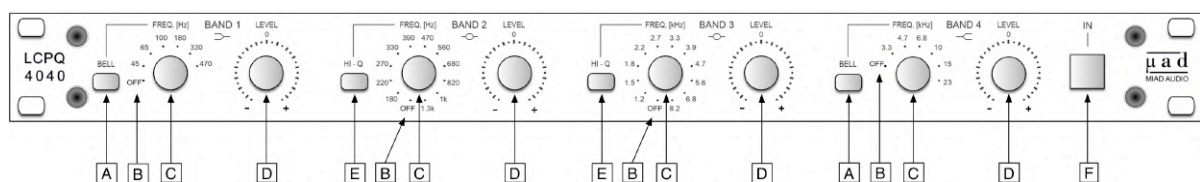
The unit features GRAYHILL rotary stepped switches for frequency selection, hand-matched 31-detent custom potentiometers for level control, WIMA low-tolerance polypropylene film capacitors in the RLC path, PANASONIC audio-grade electrolytic capacitors in the active circuit, and NEUTRIK connectors for both audio and power connections.

Each unit is meticulously hand-built and hand-wired, with components carefully chosen and tested for optimal performance, musicality, and long-term reliability.

1.2 Features

- Fully discrete (transistor) circuit
- Transformer (CARNHILL) balanced input and output
- Custom made tapped inductors
- Selectable +/-6dB or +/-12dB per band
- Thirty four selectable frequencies
- Shelving/ Bell on Band1 and Band4
- HiQ/ LowQ on Band2 and Band3
- True bypass relay system and individual bypass on each band
- Hand-matched components for stereo configuration
- Hand-built and hand-wired
- 3-year limited warranty

1.3 Front Panel



- A. **SHELVING/ BELL SWITCH** – This switch toggles between Shelving and Bell shape. When the switch is pressed, the Bell shape is active.
- B. **OFF** – When the FREQ. rotary switch is in the OFF position, the band is not engaged (i.e. the filter circuit and the LEVEL control are inactive). However, the audio signal still travels through the discrete circuit and the audio transformers.

- C. **FREQ.** – This rotary stepped switch determines the frequency point for each band. The frequency points for each band are as follows:

Band 1: OFF, 45Hz, 65Hz, 100Hz, 180Hz, 330Hz, 470Hz

Band 2: OFF, 180Hz, 220Hz, 270Hz, 330Hz, 390Hz, 470Hz, 560Hz, 680Hz, 820Hz, 1kHz, 1.3kHz

Band 3: OFF, 1.2kHz, 1.5kHz, 1.8kHz, 2.2kHz, 2.7kHz, 3.3kHz, 3.9kHz, 4.7kHz, 5.6kHz, 6.8kHz, 8.2kHz

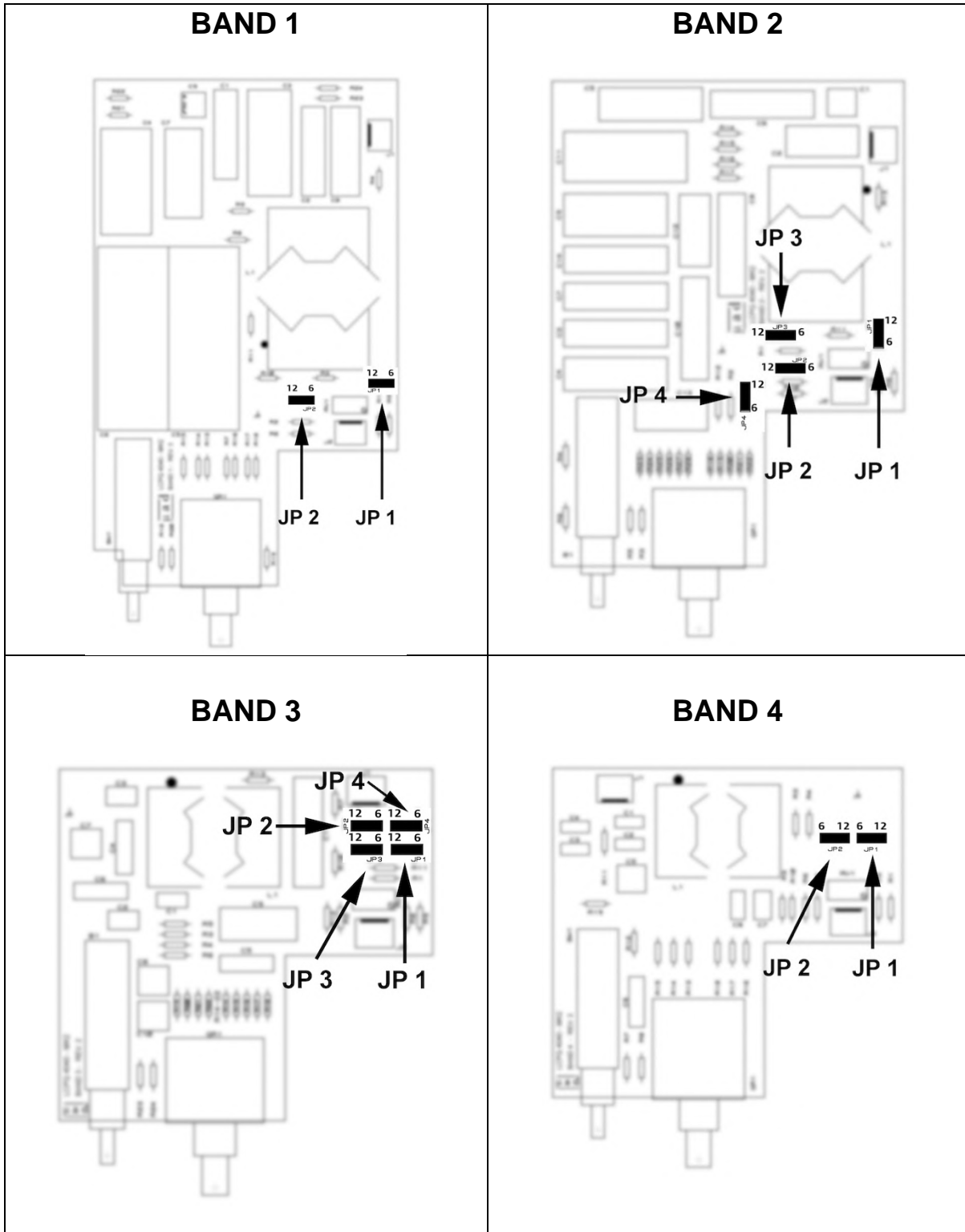
Band 4: OFF, 3.3kHz, 4.7kHz, 6.8kHz, 10kHz, 15kHz, 23kHz

- D. **LEVEL** – Each band has a high quality continuously variable potentiometer that controls the amount of gain or attenuation.

- E. **HI-Q/ LOW-Q SWITCH** – This switch controls the sharpness of the peak or dip and it toggles between High Q and Low Q. When the button is pressed, the High Q is active. In addition, the “Hi-Q” button can be optionally used to switch between +/-6dB and +/-12dB. Please refer to **section 1.4** for more detailed information.

- F. **IN** – This switch toggles between the active (LED ON) and bypassed (LED OFF) modes. Since the unit employs a bypass relay system, no audio signal passes through this switch. Instead, the “IN” switch is a DC voltage switch that controls the relays’ state.

1.4 Setup for +/-6dB or +/-12dB



To manually set the Level range for each band, follow these steps:

- 1) Ensure the external power supply "PS230" is **POWERED OFF** before proceeding!

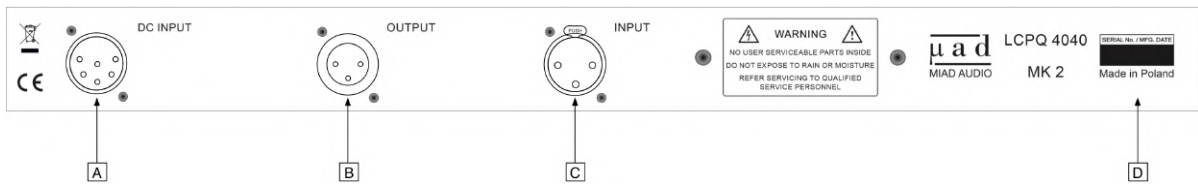
- 2) Use a **2mm HEX DRIVER** or a **2mm HEX KEY (Allen wrench)** to unscrew the seven bolts and carefully remove the top cover.
It is important to use the correct type and size of driver to prevent any damage!

- 3) Locate the jumpers and position them to either the "6" or "12" position, corresponding to +/-6dB and +/-12dB respectively. All jumpers on the same board must be set to the same position. For example, on "Band 1," both JP1 and JP2 should be positioned at "6" to achieve a +/-6dB range or at "12" for a +/-12dB range.

- 4) On Band 2 and Band 3 it is also possible to switch the Level range between +/-6dB or +/-12dB by using the "Hi-Q" button. To do so, please configure the jumpers as follows: **JP1:12 / JP2:12 / JP3:6 / JP4:6**

Now, every time the "Hi-Q" is pressed, the level range will change from +/-6dB to +/-12dB. Of course, this is optional and you can maintain the same level range for Low-Q and High-Q by setting all four jumpers to either "6" or "12" position.

1.5 Rear Panel



- A. 6-PIN DC POWER SUPPLY INPUT – This input allows interconnection of the external supply (PS 230) required for the unit to operate. A 2-meter power supply cable is supplied with every unit.

Pin out is as follows:

Pin 1 = Chassis Ground

Pin 2 = -28V (audio circuit)

Pin 3 = +28V (audio circuit)

Pin 4 = +24V (relay bypass system and bypass indicator)

Pin 5 = 0V (reference for +24V)

Pin 6 = 0V (reference for $\pm 28V$)

- B. 3-PIN AUDIO OUTPUT – This is a transformer balanced XLR output with the following pin configuration:

Pin 1 = Ground

Pin 2 = Hot (+)

Pin 3 = Cold (-)

- C. 3-PIN AUDIO INPUT – This is a transformer balanced XLR input with the following pin configuration:

Pin 1 = Ground

Pin 2 = Hot (+)

Pin 3 = Cold (-)

- D. PRINT – Contains information regarding the model, the serial number and the origin of the unit.

2.0 PS 230

2.1 Overview

The PS 230 is a 3-rail linear power supply capable of powering two LCPQ 4040 – MK2 units, housed in a robust enclosure.

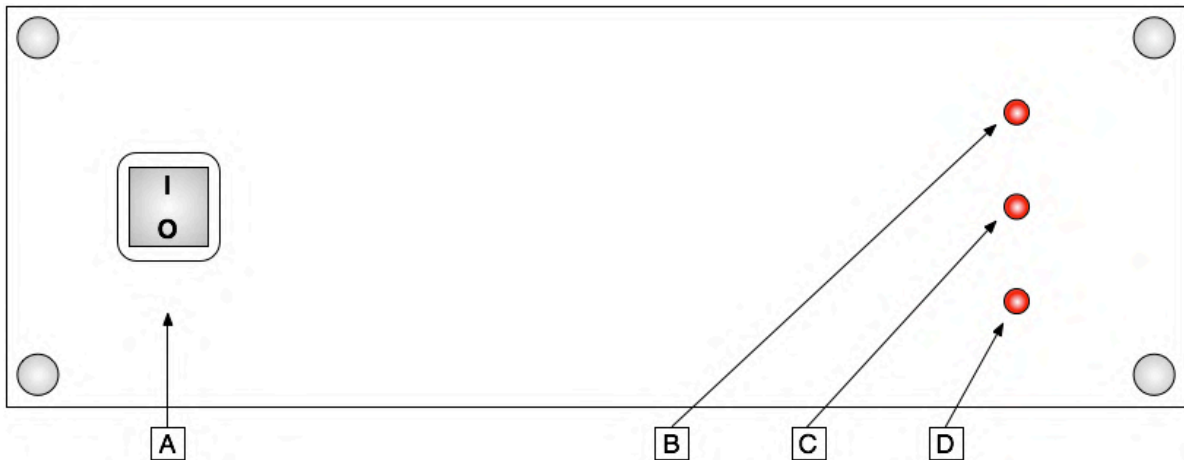
The unit provides $\pm 28\text{V}$ DC for the audio circuit and $+24\text{V}$ DC for the relay bypass system and the bypass indicator (LED). In order to cut the cost (and for the sake of simplicity), a lot of audio equipment use a common power rail for the audio circuit and for other functions such as relays, LEDs, lamps, etc. However, it is a better practice to use a dedicated power rail for all non-audio circuits. Therefore, the PS 230 has an additional $+24\text{V}$ DC rail, which ensures that no unwanted noise (caused by the relays and the bypass indicator) is added to the audio signal.

The PS 230 can be switched for 115V AC or 230V AC operation and the mains fuse is accessible to the user from the rear side of the unit (in the IEC inlet).

2.2 Features

- High efficiency, low noise design
- Switchable 115V/ 230V AC
- Capable of powering two LCPQ 4040 – MK2 units
- Separate power rails for the audio signal and the relay bypass system
- LED indicators for each power rail at the front of the unit
- High quality 6-pin Neutrik connectors
- Hand-built and hand-wired
- 3-year limited warranty

2.3 Front Panel



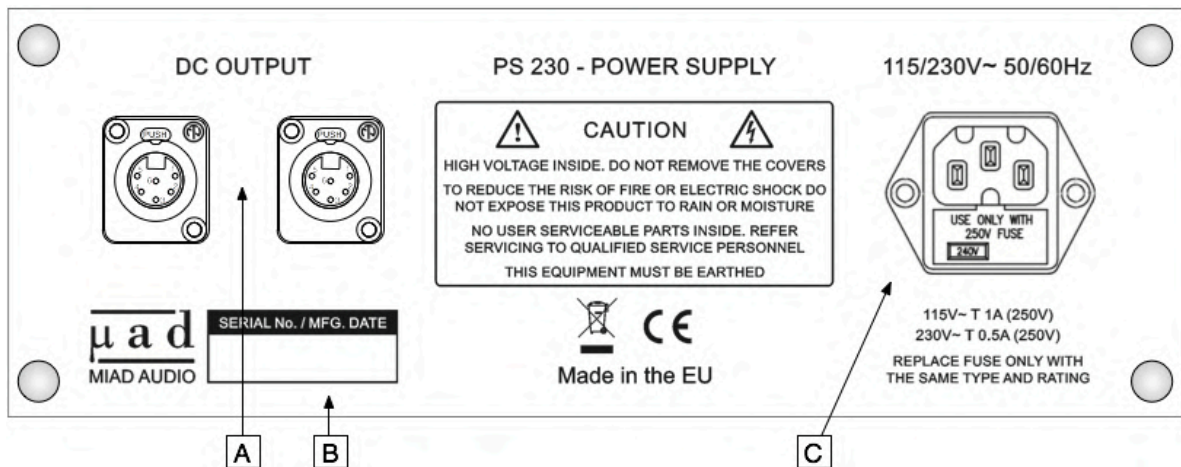
- A. AC POWER SWITCH – This switch turns the unit ON and OFF. **Make sure you do not plug (or unplug) the 6-pin DC cable between the power supply and the EQ unit while the unit (PS 230) is ON. Hot-plugging (i.e connecting the DC cable while the unit is powered on) may damage your equipment.**

- B. POWER INDICATION (-28V) – This LED allows visual confirmation of the presence of -28V.

- C. POWER INDICATION (+28V) – This LED allows visual confirmation of the presence of +28V.

- D. POWER INDICATION (+24V) – This LED allows visual confirmation of the presence of +24V.

2.4 Rear Panel



- A. 6-PIN DC POWER SUPPLY OUTPUTS – This output allows interconnection of the LCPQ 4040 – MK2 unit. Up to two EQs can be connected to the power supply.

Pin out is as follows:

Pin 1= Chassis Ground

Pin 2= -28V (audio circuit)

Pin 3= +28V (audio circuit)

Pin 4= +24V (relay bypass system and bypass indicator)

Pin 5= 0V (reference for +24V)

Pin 6= 0V (reference for $\pm 28V$)

- B. PRINT – Contains information regarding the serial number and the manufacturing date of the unit.
- C. IEC MAINS INLET – Including the 115/230V AC switch and fuse. **Make sure that the AC voltage indicated on the IEC inlet is the same as the mains in your country and that you use the correct fuse.** An IEC mains power cord is supplied with every unit. For instructions on how to switch between 115VAC and 230VAC, please refer to **section 5.6**.

3.0 Troubleshooting

In the event of unit operational failure, contact MIAD AUDIO at info@miadaudio.com or for more contact information, check our website (www.miadaudio.com). Before contacting us, please be prepared to describe in detail the exact problem that the unit is experiencing.

It is highly recommended that customers do not attempt to troubleshoot their own units or have them repaired at unauthorized repair centers. Please note that any modification to the existing product will void the warranty.

4.0 Specifications

4.1 LCPQ 4040 – MK2 Technical Specifications

Frequency Response: 20Hz - 20kHz, +0/ -0.2dB

THD+N: Less than 0.006%, +4dbu, 20Hz -22kHz, unity gain, 22kHz BW

Signal-to-Noise Ratio: < 92dB (A-weighted), re +4dbu, 22kHz BW, unity gain

Maximum Level: +24dbu

Dynamic Range: 116dB re +24dBu, 22kHz BW

I/O Connectors: Transformer Balanced XLR (1.Chassis, 2.Signal +, 3. Signal -)

4.2 LCPQ 4040 – MK2 Dimensions

Unit

Width: 482.6mm (19-inch rack)

Depth: 215mm

Height: 43.7mm (1U rack)

Weight: approx. 4kg

Shipping

Width: 540mm

Depth: 370mm

Height: 180mm

Weight: approx. 5kg

4.3 PS 230 Technical Specifications

Input Voltage: 115V AC or 230V AC, 50/ 60Hz

Output Voltage: -28V DC, +28V DC, +24V DC

4.4 PS 230 Dimensions

Unit

Width: 230mm

Depth: 170mm

Height: 80mm

Weight: Unit approx. 2kg

Shipping

Width: 340mm

Depth: 240mm

Height: 180mm

Weight: approx. 3k

5.0 Appendix

5.1 Warranty Registration

To be eligible for the three (3) year limited warranty, the original purchaser must register the MIAD AUDIO product(s) within **thirty (30) days** of date of purchase. Register online at www.miadaudio.com/ProductRegistration

5.2 Product Warranty

During the first three (3) years from the date of the original purchase, this product is warranted to be free from defects in materials and workmanship under normal use, service and maintenance. This warranty is limited to failures during normal use, which are due to defects in material or workmanship. If any defects are found in the materials or workmanship, or if the product fails to function properly during the applicable warranty period, MIAD Audio, at its option, will repair or replace the product.

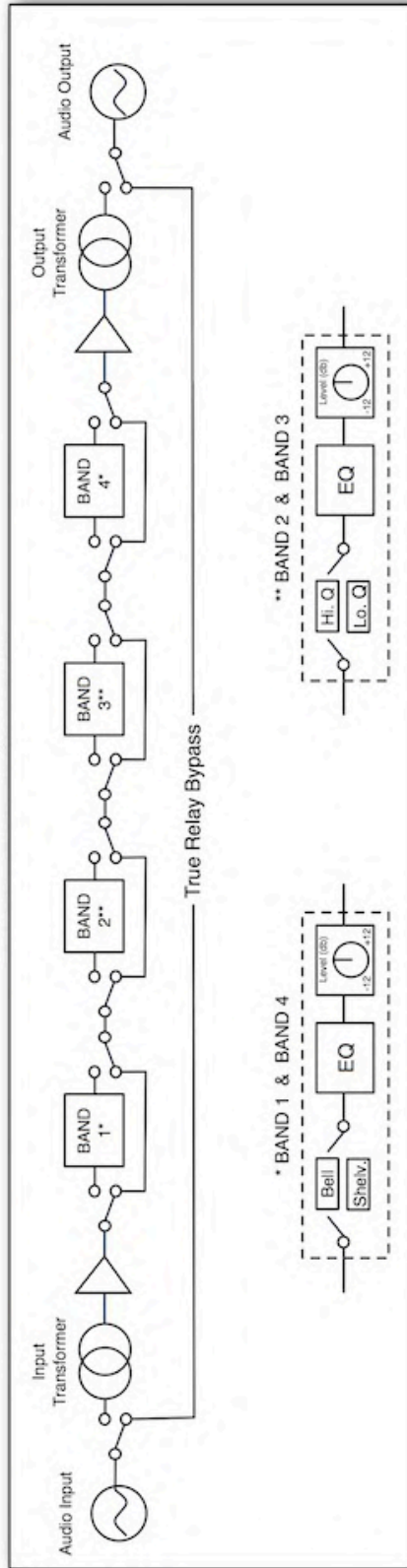
This warranty applies to the original purchaser and is subject to the following terms and conditions:

1. The warranty only applies to MIAD AUDIO products purchased directly from MIAD AUDIO or from authorized MIAD AUDIO dealers.

2. The warranty does not cover any of the following: damage caused by the user; spillages or moisture; neglect, abuse or misuse, including but not limited to the failure to use the MIAD AUDIO product for its normal purpose in accordance with the manufacturer's instructions for usage, failure to properly maintain the MIAD AUDIO product in accordance with the manufacturer's instructions, and/or the failure to use the MIAD AUDIO product in accordance with the manufacturer's specifications; use of product with incompatible or faulty equipment; unauthorized modifications; repairs conducted by unauthorized persons or service centers; the model and/or serial number being altered, removed or made illegible; damage resulting from improper packing or mishandling by a shipper; accidents; acts of God; Cosmetic defects, such as paint finish, and general wear and tear or any cause beyond the control of MIAD AUDIO
3. If the equipment requires warranty repair, return authorization must be obtained from MIAD AUDIO prior to shipment. Equipment should not be shipped until return authorization and proper shipping address is obtained from MIAD AUDIO.
4. Any products returned MIAD AUDIO for repair should be in their original packaging and they should include: (1) complete description of the problem; (2) name, address, phone number and e-mail address; (3) receipt of original purchase; (4) power supply and all accessories and cables.
5. MIAD AUDIO will not accept any warranty replacement without the original proof of purchase of the MIAD Audio, and without the registration of the MIAD AUDIO product. It is the original purchaser's responsibility to keep the original proof of purchase safe at all times, as MIAD AUDIO is not obliged to provide a replacement of the original proof of purchase, and to transfer that proof of purchase to any subsequent owners of the MIAD AUDIO product.
6. The purchaser is responsible for the shipping costs to and from MIAD AUDIO. MIAD AUDIO is not responsible for damage resulting from improper packing and/or mishandling by a shipper.
7. MIAD AUDIO reserves the right to inspect any products that may be the subject of any warranty claims before repair or replacement is carried out. Final determination of warranty coverage lies solely with MIAD AUDIO.

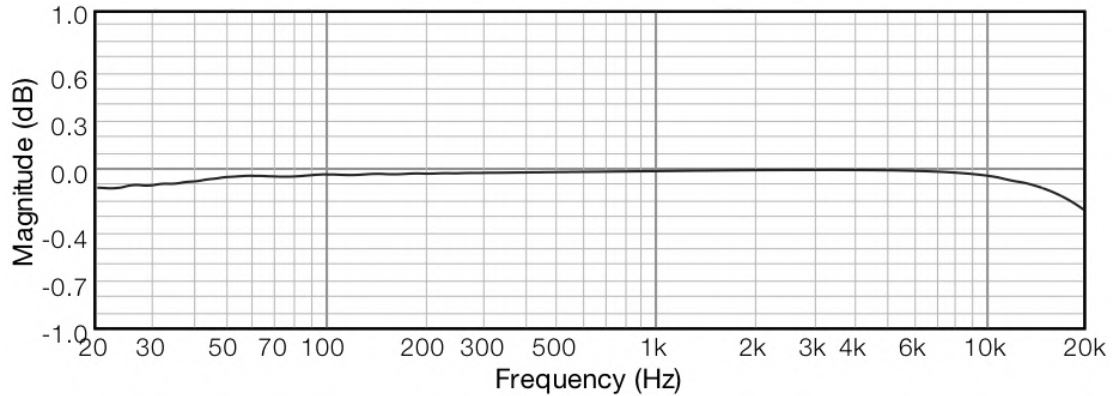
5.3 Block Diagram

LCPQ 4040 - Signal Flow



5.4 Frequency Response

Frequency Range: 20Hz to 20kHz / **Magnitude Range:** -1.0dB to +1.0dB
(All bands 'ON' at unity gain)

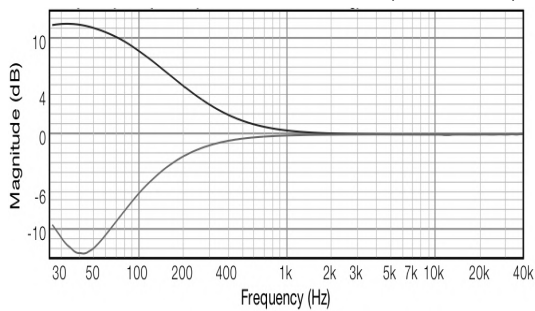


5.5 EQ Response Curves

The graphs below demonstrate some of the measured response curves for each band.

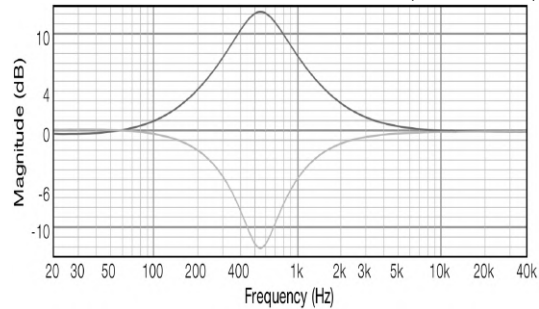
BAND 1

Top Curve: Shelv. - 12dB Boost @ 45Hz (20Hz - 40kHz)
Bottom Curve: Bell - 12dB Cut @ 45Hz (20Hz - 40kHz)



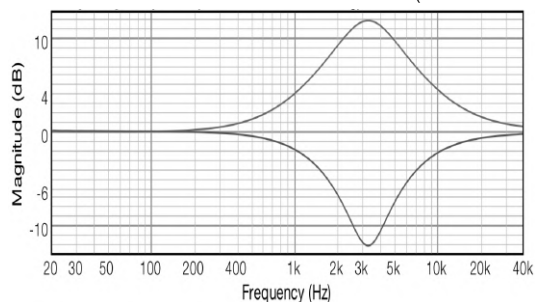
BAND 2

Top Curve: Low Q - 12dB Boost @ 560Hz (20Hz - 40kHz)
Bottom Curve: Hi. Q - 12dB Cut @ 560Hz (20Hz - 40kHz)



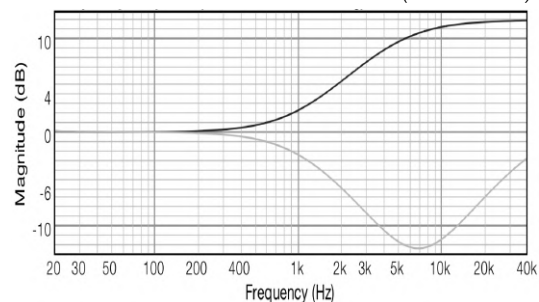
BAND 3

Top Curve: Low Q - 12dB Boost @ 3.3kHz (20Hz - 40kHz)
Bottom Curve: Hi. Q - 12dB Cut @ 3.3kHz (20Hz - 40kHz)



BAND 4

Top Curve: Shelv. - 12dB Boost @ 6.8kHz (20Hz - 40kHz)
Bottom Curve: Bell - 12dB Cut @ 6.8kHz (20Hz - 40kHz)



5.6 PS230 - 115/230 VAC Voltage Selector Instructions

1. Remove the fuse drawer



2. Slide out the Voltage selector



3. Remove the fuse

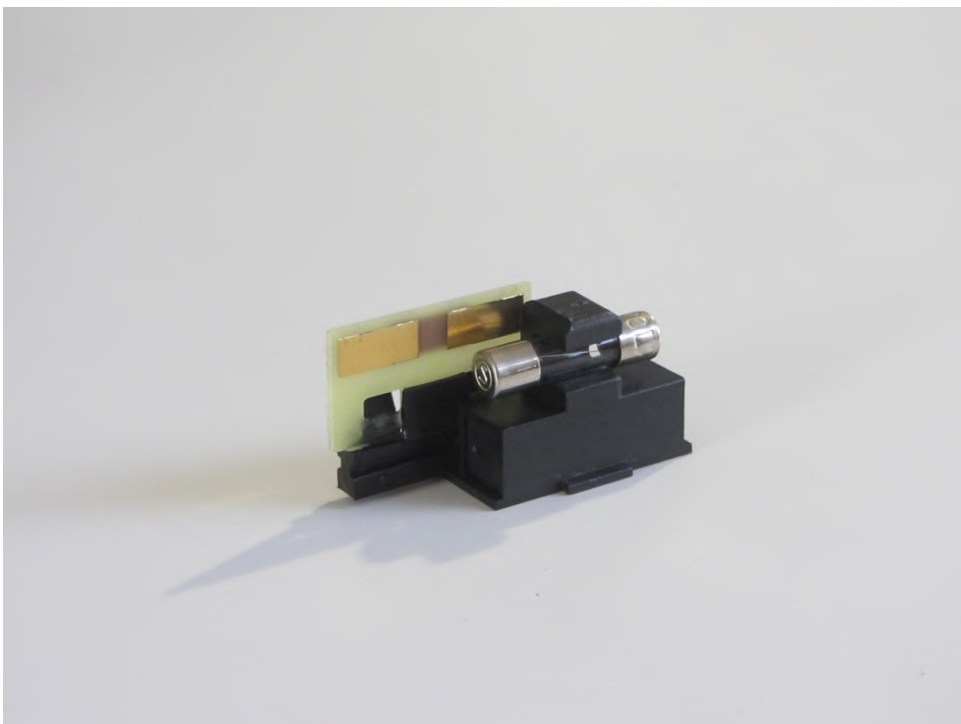


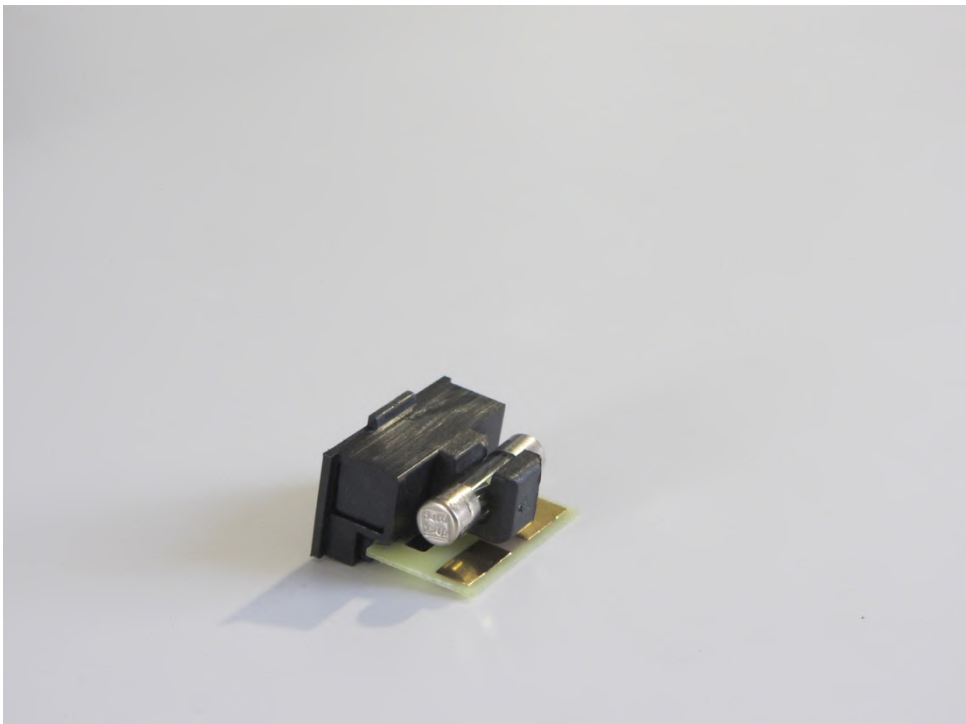
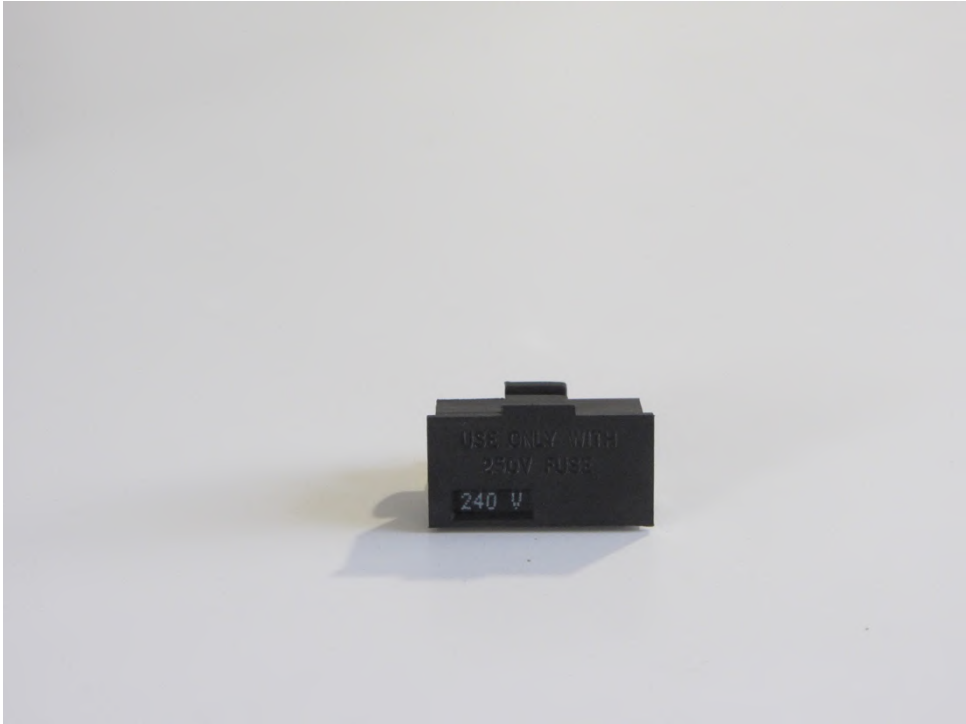
4. Insert the new fuse

Always make sure you use the correct fuse type and rating!



5. Insert the Voltage selector with the correct voltage orientation





6. Insert the fuse drawer back into the Power Inlet



7. Make sure the fuse drawer is fully inserted into the power inlet.

