

STEREO ANALOG  
AMBIENT PROCESSOR

**USER  
GUIDE**

BEFORE PROCEEDING WITH INSTALLATION AND SETUP, PLEASE  
READ THESE INSTRUCTION PAGES

## Introduction

Congratulations on your purchase of the MCAudioLab LUNA Vari-Amb analog processor.

### **The MCAudioLab LUNA Concept:**

The idea behind the LUNA project is to change the acoustics of ambient processing on a stereo or mid-side track. Unlike digital plugins, we have developed fully analog audio gear to accomplish this: LUNA.

The LUNA accepts two input channels in Stereo or Mid-Side mode - The nominal input and output levels are +4 dBu on every XLR/Jack audio connector on the back of the unit. An internal encoder converts the input signal to M-S, while a decoder converts the output signal back to Stereo. The encoder is bypassed when LUNA is in M-S mode.

The audio output is in stereo mode only, controlled by the Master Volume. We have also implemented an additional M-S output.

At the heart of the LUNA is its Analog Ambient Processor.

The LUNA takes information from the track along with two additional parameters: MONO and DEPTH. The Analog Processor processes all this information and, through a complex audio matrix, returns a processed stereo signal.

The MONO and DEPTH controls are key features of the LUNA. In detail, the MONO control handles signal components without significant phase differences between the Left and Right channels.

The DEPTH control, on the other hand, manages signal components with phase differences between the Left and Right channels. This results in the creation of two layers: a foreground managed by the Mono control and a background managed by the Depth control, which can be independently adjusted.

The MONO control emphasizes elements like the lead vocals, bringing them to the forefront, while the DEPTH control enhances the stereo imaging, for example, making instruments in the band sound wider. This allows you to adjust foreground and background elements separately and maintain a high level of independence. Unlike a standard SIDE control, this method does not artificially stretch the entire stereo image, maintaining focus on individual elements. By moving the foreground back and forth and extending the background (its L-R boundaries), you can achieve a three-dimensional sound. The foreground elements become more focused and detailed, while the background elements envelop the L-R soundstage, expanding it. It's akin to drawing on a paper with perspective.

Due to the reasons explained above, we named our LUNA 'Vari-Amb,' representing Variable Ambient.

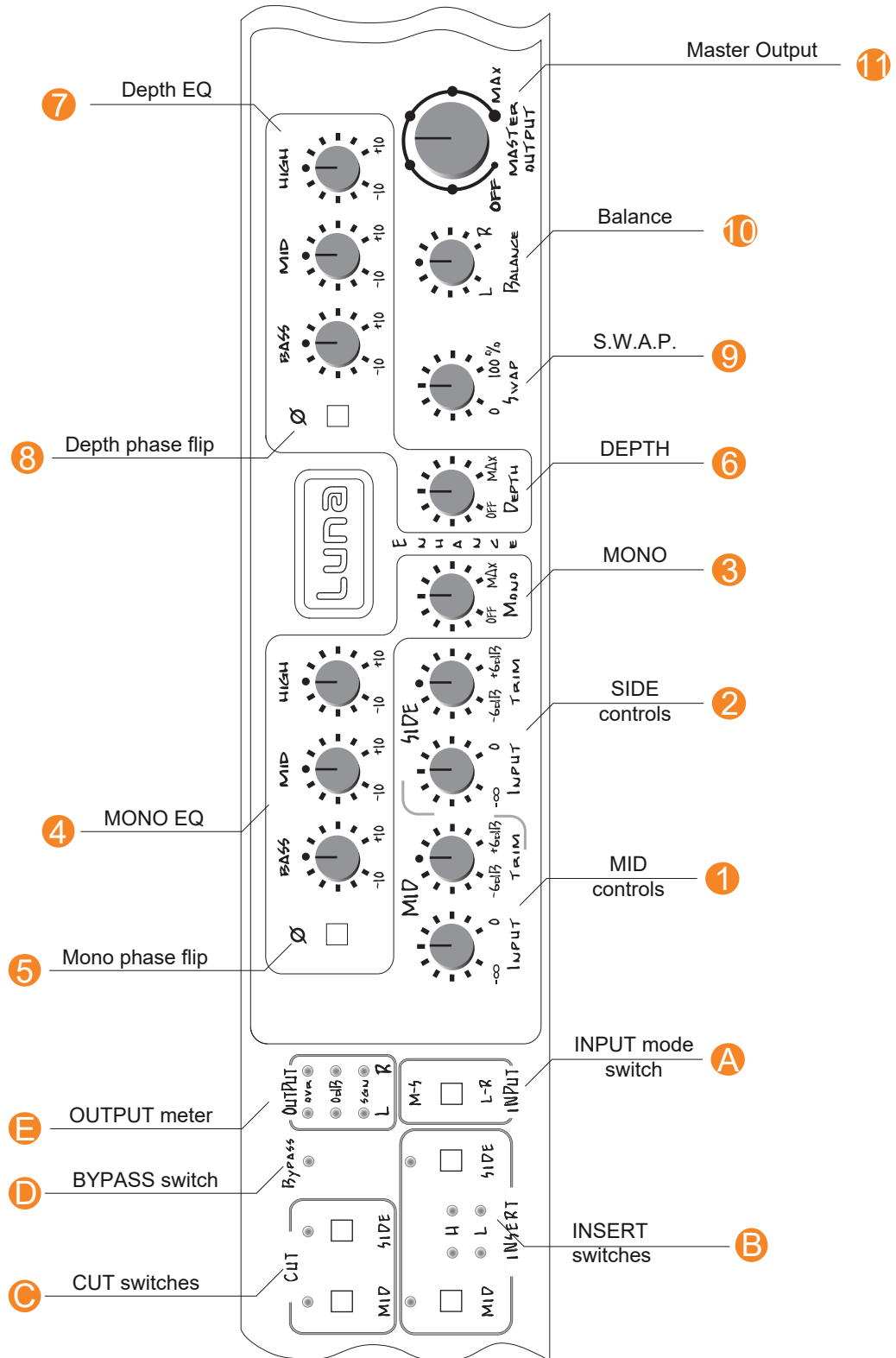
A dedicated three-band EQ is implemented for each MONO and DEPTH control to offer additional flexibility to the engineer. Features such as Inserts management, independent listening of the Mid and Side (the Cut switches), and a true bypass for easy A/B comparison are integrated into LUNA.

### **The MCAudioLab LUNA surpasses a standard Mid-Side processor.**

It is utilized in recording (between the preamp and the converter), mixing, and mastering. This excellent analog tool provides a wide range of controls to help engineers add color and depth to their tracks, and producers to inject creativity.

## Operation

Please refer to the illustrations on the following pages.



- 1 MID control**

It consists of two controls: Input and Trim. The first control is an attenuator, usually set all the way right (position '0' - no attenuation). The Trim control is an active gain with a range of  $\pm 6$ dB. In the vertical position, there is no gain. Consider the Input as a coarse control and the Trim as a fine control. Both the MID Input and Trim knobs adjust the MID channel level.
- 2 SIDE control**

This also consists of two controls: Input and Trim. The first control is an attenuator, typically set all the way right (position '0' - no attenuation). The Trim control is an active gain with a range of  $\pm 6$ dB. In the vertical position, there is no gain. Consider the Input as a coarse control and the Trim as a fine control. Both the SIDE Input and Trim knobs adjust the SIDE channel level.
- 3 MONO**

When you turn this potentiometer clockwise, the signal is sent to the LUNA Analog Processor. The signal components that sit centrally between the left and right channels are referred to as MONO. When in the OFF position, no signal is routed to the LUNA Analog Processor.
- 4 Mono EQ**

This EQ has three controls: Bass, Mid, and High. Each control can cut or boost frequencies by 6dB. The vertical position sets the EQ in flat mode. This EQ is linked to the MONO control. Its effectiveness is directly related to the level of the MONO parameter.
- 5 Mono phase flip**

This switch reverses the phase of the MONO signal by 180 degrees. When activated, the Analog Processor receives the flipped-phase MONO signal at its input. This control can help resolve serious phase issues or can be used as a creative effect. Be cautious of phase cancellation!
- 6 DEPTH**

Turning this potentiometer clockwise sends the signal to the LUNA Analog Processor. The Depth parameter allows you to adjust sound components that are background elements relative to the MONO signal. When in the OFF position, no signal is sent to the LUNA Analog Processor.
- 7 Depth EQ**

Similar to the Mono EQ, this EQ features controls for Bass, Mid, and High frequencies that can cut or boost by 6dB. The vertical position sets the EQ in flat mode. This EQ is linked to the DEPTH control, with its effectiveness dependent on the level of the DEPTH parameter.
- 8 Depth phase flip**

This switch, when activated, reverses the phase of the MONO signal by 180 degrees. This switch can be useful for resolving phase issues or as a creative effect. Be mindful of potential phase cancellation.
- 9 S.W.A.P.**

This acronym, standing for Share With the Analog Processor, controls the signal levels going to the Analog Processor. Think of it as a master volume for the MONO and DEPTH controls. Before adjusting the MONO and/or DEPTH levels, ensure the SWAP knob is turned all the way right (100%). Then, adjust the SWAP knob counterclockwise to achieve the desired effect level. Using only one control adjusts the signal without changing the MONO/DEPTH ratio, making the SWAP control essential.
- 10 BALANCE**

It's crucial for the sound from the left and right channels to reach your listening position simultaneously. However, if you need to adjust this balance or shift the sweet spot, the Balance control is at your disposal. The central position (upright knob mark) signifies the center, functioning as a standard stereo balance control.

## 11 MASTER OUTPUT

This is a stereo master volume control. It's an active control that can be set from -inf (sound off) to +6dB. The '0' position is at 2 o'clock. The Master Output feeds the stereo signal directly to the XLR output on the back of the unit.

## A INPUT Mode switch

This switch allows you to adapt the machine input to the type of track you want to process. The L-R mode refers to a stereo track, while the M-S mode refers to a Mid-Side track. In M-S mode, the rear Left input becomes the Mid channel, and the rear Right input becomes the Side channel.

## B INSERT switches

These two switches allow you to send the LUNA's signal externally. There are two separate switches, one for the Mid channel and the other for the Side channel. Regardless of the source (Stereo or Mid-Side), the LUNA always operates in M-S mode internally. By activating at least one of the switches, the MID and SIDE return inputs on the rear panel are activated. The Send Outputs function even if the Insert switches are turned off. The Send output is post-fader relative to the front panel Mid Input and Side Input controls. A LED light turns on when the switch is active. Two additional LED lights, 'L' and 'H', indicate when the signal at the return input is lower or higher than the corresponding Send signal, respectively. Send and return signal levels are the same when both L and H lights are on.

## C CUT switches

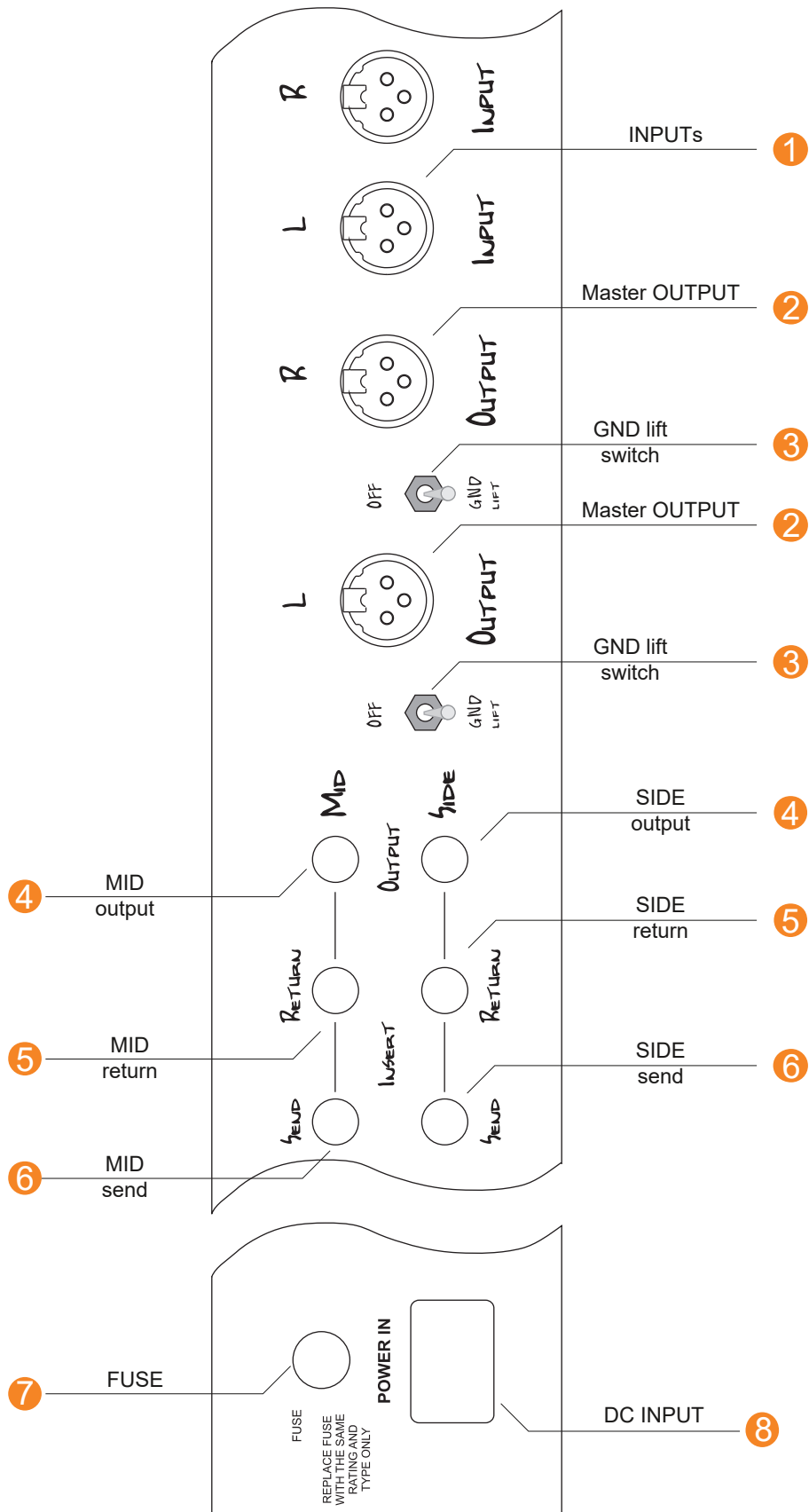
These switches allow you to exclude a channel from listening. When the control is active, it mutes the corresponding channel. The light turns on when the switch is active. This command affects the master output.

## D BYPASS switch

When the switch is activated, it completely bypasses the internal circuitry of the device, allowing the input signal to pass through to the output unaltered. To engage the bypass, simply toggle the switch up. The signal will flow directly from input to output.

## E OUT meter

This is a three-LED peak meter monitoring the Stereo Master Output. The 0dB level corresponds to the +4dBu studio standard (1.23Vac).



## 1 INPUTs

Two balanced XLR connectors provide the input signal. When the track is stereo, the L and R connectors must be connected to their respective L and R channels. For a Mid-Side track, connect the Mid channel to the L connector and the Side channel to the R connector.

## 2 MASTER OUTPUT (L and R)

These two balanced XLR connectors provide the Master stereo output. Their configuration is for stereo only.

## 3 GND lift switches

To avoid ground loop noise, each output is provided with a GND lift switch. Lift the switch up to avoid ground loops when a 'hum-noise' affects the channel.

## 4 MID-SIDE OUTPUTs

These are TRS balanced jack connectors that carry the Mid and Side signals out respectively. These outputs are after the Input-Trim controls block on the front panel.

## 5 MID-SIDE Returns

These are TRS balanced jack connectors that receive the signal from an external source when the LUNA is in insert mode.

## 6 MID-SIDE Sends

These are TRS balanced jack connectors that send the signal to an external device when the LUNA is in insert mode.

## 7 FUSE

The fuse protects the LUNA electrical circuit in case of a malfunction or problems with the electrical network. Please replace the fuse with the same type and rating only.

## 8 DC INPUT (power in)

This is the power cord socket. The unit is equipped with an internal power supply.

Please read the label for the voltage to which the unit is set before connecting the power cord and turning the LUNA on.

**IMPORTANT: The voltage is factory set and cannot be changed by the user.**

A standard IEC power cord is used.

**Disclaimer:**

The information in this manual has been carefully checked and is believed to be accurate at the time of publication. However, we take no responsibility for inaccuracies, errors, or omissions, nor do we assume any liability for any loss or damage resulting directly or indirectly from the use of the information contained within it.

**MCAudioLab** owns the copyright to all information and drawings contained in this user guide. This content must not be copied or reproduced by any means, nor disclosed in part or whole to any third party without written permission.

As part of our policy of continual product improvement, we reserve the right to alter specifications without notice, with due regard to all current legislation.

**Health & Safety Notice**

For your own safety and the protection of others, please observe the following safety instructions:

- Read these instructions, follow all instructions, and keep these instructions.
- Heed all safety warnings.
- Clean only with a dry cloth.
- Unplug when unused for long periods of time.
- Refer all servicing to qualified personnel only.

**WARNING: High Voltage – Risk of electric shock.**

Do not open the chassis. If the device is damaged or does not work, refer to qualified service staff only. Never use damaged power cords. Ensure LUNA is connected via a grounded junction. Keep the device away from water, moisture, and other liquids. Do not use LUNA near water or in wet surroundings.

**CAUTION: Temperature - The chassis may become hot during operation.**

Do not place LUNA close to any heat sources such as radiators or stoves. Avoid exposing it to direct sunlight. Do not block the circulation vents – heat from the device must be allowed to dissipate. Allow free space around the unit in your rack for cooling. Do not install close to devices emitting magnetic fields.

**WARNING: Incorrect installation - Wrong connection may cause damage**

Do not connect power amp outputs to LUNA audio inputs. Install the device on stable surfaces or properly mount it in an appropriate rack only.

**WARNING: Condensation may cause damage**

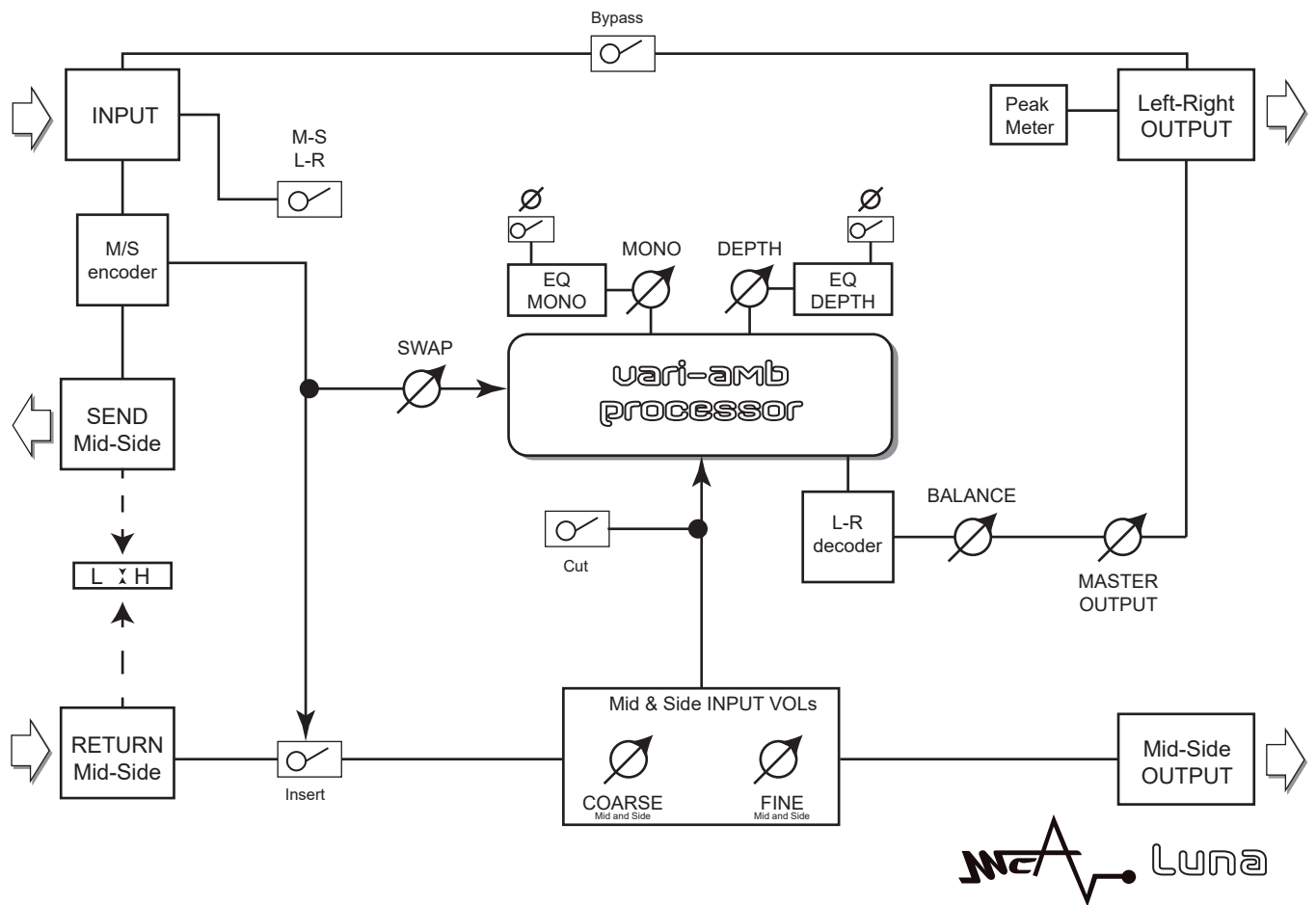
Condensation can form inside the device if you move it from warm to cold temperatures. To avoid damaging LUNA, always wait until the device has reached room temperature before switching it on.

**WARNING: High sound volume level can damage your hearing**

Set the output master volume to the zero position before monitoring sound via headphones or loudspeakers. Increase the volume carefully. Also, pay attention to the output levels of connected devices.



## The LUNA audio path schematics



### Tech Specs :

Frequency Response

20Hz – 22 kHz

Amplification (Output) -inf to +6 dB

Max Output level: +22dBu

Input electronically servo-balanced (all audio inputs)

Input resistance 10kOhm

Output electronically servo-balanced (all audio outputs)

Output resistance <500hm