

Owner's Manual

MOON Series

Aurora

Multi-Channel Power Amplifier



M O O N

Table of Contents

Congratulations	3
Unpacking.....	3
Introduction	4
Installation & Placement	4
Rear Panel Layout	5
Connecting the Aurora	6
Operating the Aurora.....	7
Specifications	8

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**IMPORTANT: Please read this entire manual before using this product.
Installation and operating instructions inside.**

MOON Aurora Multi-Channel Power Amplifier

Congratulations!

Thank you for selecting the **MOON Aurora** Multi-Channel power amplifier as a part of your hi-fi reproduction system. This power amplifier has been designed to offer state-of-the-art high-end performance in an elegant package, while retaining all the sonic hallmarks on which Simaudio has made its reputation. We have spared no effort to ensure that it is among the finest amplifiers available. We have been building high-performance audio equipment for over 25 years, and the know-how gained through our cumulative experience is an important reason why **MOON** amplifiers are so musically satisfying.

Your new amplifier is configured in either five or seven channels depending on the choice you made. The five channel model can be upgraded to seven channels since it allows for the two additional channels to be added in at a later time. Both the five and seven channel versions of the **Aurora** share the exact same chassis and dimensions. The performance of your **Aurora** will continue to improve during the first 300 hours of listening. This is the result of a “break-in” period required for the numerous high quality electronic parts used throughout this amplifier.

Before setting up your new **MOON Aurora**, we encourage you to please read this manual thoroughly to properly acquaint yourself with its features. We hope you enjoy listening to the **MOON Aurora** Multi-Channel Power Amplifier as much as the pride we have taken in creating this fine audio product. We understand the power and emotion of music and build our products with the goal of faithfully capturing these elusive qualities.

Unpacking

The **MOON Aurora** Multi-Channel Power Amplifier is a large and heavy component that should be removed from its box with care. We strongly advise that you seek another person to help lift the amplifier out of its box, and place it in its final location.

The following accessories should be included inside the box with your amplifier:

- ✓ *AC power cable*
- ✓ *2 removeable vertically mounted silver aluminum removeable cheeks that cover the faceplate rack-mount holes*
- ✓ *A set of either 5 or 7 XLR jumper plugs (already mounted on rear panel)*
- ✓ *This owner's manual*
- ✓ *Warranty and product registration information (USA and Canada only)*

As soon as the amplifier is safely removed from its box and placed down, perform a thorough physical inspection and report any damage to your dealer immediately. We suggest that you keep all of the original packaging, storing it in a safe, dry place in the event that you're required to transport the amplifier. The customized packaging is specially designed to protect the **MOON Aurora** amplifier from potential damage that may occur during shipping.

WARNING!

To reduce the risk of fire or electric shock, do not expose this product to rain or moisture. Do not attempt to “lift the ground” by removing the ground pin from the AC cable. Make sure that your household electrical wiring supports proper AC grounding techniques before plugging in this product. Keep the heat sinks and top cover free of dust to allow for proper heat dissipation. Never expose this product to extreme temperatures. Always connect the audio signal path cables prior to connecting the AC mains.

CAUTION!

No user-serviceable parts inside. Do not remove top cover, as severe electrical shock may result.

IMPORTANT!

Make sure that your local AC voltage complies with the unit's label. Damage caused by plugging this component into an AC receptacle of the wrong voltage will not be covered by warranty.

MOON Aurora Multi-Channel Power Amplifier

Introduction

Your **MOON Aurora** Multi-Channel amplifier incorporates many significant design features to achieve its “world class” level of performance. This is an abbreviated list of the more important features:

An **oversized** power supply employing a custom **proprietary toroidal transformer design** with lower magnetic, electrical and thermal loss, yielding an improved power transfer and lower regulation factor, resulting in increased current speed and better dynamics.

"Rack mount ready" faceplate with removeable aluminum cheeks to cover the rack holes when not in use.

Fully **balanced differential** circuitry up to the output stage.

Class A output to 5 watts for greater efficiency.

Extremely fast circuitry yielding **real-time amplification**.

Virtually non-existent transient intermodulation (TIM) distortion.

Precision matched **Bipolar output devices** yielding superb linearity across the entire audio spectrum.

A **high damping factor** which yields superior musical dynamics, improved signal speed and refined timbre accuracy.

Rigid chassis construction to minimize the effects of external vibrations.

Accurate matching of the very finest high quality electronic components in a **symmetrical** circuit design..

A **very short signal path** for a faster transient response.

Pure copper circuit board tracings with extremely low impedance characteristics.

A **12 Volt trigger** for remote operations.

Designed to be **powered up at all times** for optimal performance.

Low operating temperature for a longer than normal life expectancy.

Installation & Placement

The **MOON Aurora** Multi-Channel Power Amplifier is powerful and heavy. It requires reasonable ventilation to maintain an optimum and consistent operating temperature, especially since it will radiate a large amount of heat when driven hard. Consequently, it should be placed in a location with empty space around it for proper heat dissipation. You should never place another component on top of this amplifier. As well, the amplifier should be placed on a solid level surface. You should avoid placing it near a heat source or inside a closed cabinet that is not well ventilated as this could compromise the amplifier's performance and reliability. The **Aurora** uses a very large toroidal transformer in its power supply; even though it is well shielded, you should not place this amplifier too close to source components sensitive to EMI, such as turntables, phono preamplifiers and CD Players.

In the event that you intend to place your **Aurora** in a rack mount type installation, we've made the setup as user-friendly as possible. Simply remove each of the two (2) vertically mounted silver colored aluminum cheeks found on either side of the front faceplate using an SAE 1/8 inch allen key; You will find two (2) screws located on the rear of each side of the front faceplate which hold each aluminum cheek in place. When removing these screws, make sure to keep one hand on the aluminum cheek so that it won't fall and cause any damage. Once all four (4) screws have been removed, you will have exposed the four (4) rack mount holes and the **MOON Aurora** will be ready for mounting in a five (5) rack space area. We recommend that you store the aluminum cheeks and their accompanying mounting screws in a safe place in the event that you require them in the future.

MOON Aurora Multi-Channel Power Amplifier

Rear Panel Layout

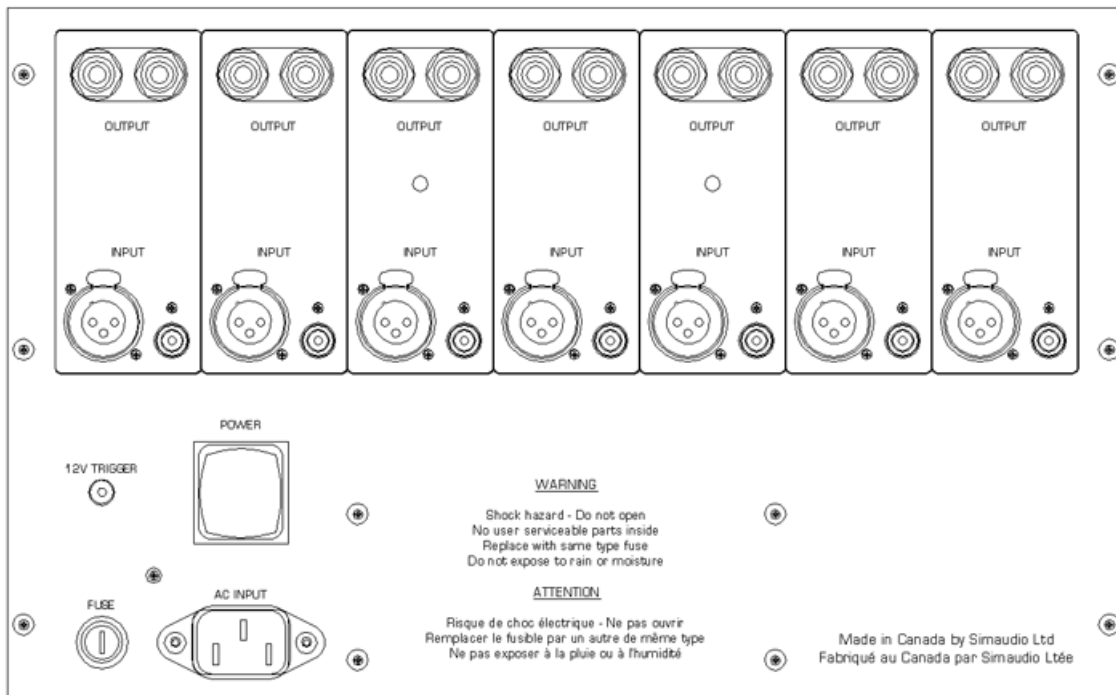


Figure 1: MOON Aurora Rear panel

Regardless of the number of channels your amplifier has, the rear panel will look similar to Figure 1 (above). Depending on the number of channels built into your **MOON Aurora** Multi-Channel power amplifier, a corresponding number of input connectors and output connectors are located on the back panel. If your amplifier has, for example, five channels, then the two extra sets of connectors for the non-existing 6th and 7th channels are replaced by factory-inserted hole plugs. Should you wish us to upgrade your amplifier by adding extra channels, we will remove the plugs and install the necessary connectors to accommodate the extra channels.

Each channel has a balanced input on an XLR connector and a single-ended (unbalanced) input on RCA connector. There is no switch to toggle from balanced mode to single-ended mode. You may operate the amplifier in either mode, but only one mode at one time for each channel. Above each of these inputs is a pair of heavy duty gold-plated speaker binding posts ("- and "+) for each speaker.

On the bottom left you will find; The power "main switch" ("0"=off, "1"=on); The "AC Fuse" socket cover; and the "AC in" IEC receptacle for the power cord.

Directly to the left of the power "main switch" is a "12V trigger" input on a 1/8" mini-jack. This allows for the **MOON Aurora** to be turned "on" or "off" using a hard wired remote connected to this input.

MOON Aurora Multi-Channel Power Amplifier

Connecting the Aurora

1. Connect the input cables, whether balanced or single-ended to the XLR or RCA inputs respectively of each channel you want to use. Needless to say, the signal on the input labeled "1" will be amplified and available to the output labeled "SPEAKER 1", the signal on the input labeled "2" will be amplified and available to the output labeled "SPEAKER 2" and so on. All channels in the **MOON Aurora** Multi-Channel power amplifier are identical.

In the event that you're using the balanced XLR inputs, **you must first remove the factory installed "dummy" XLR jumpers** (see figure 2 below) from the back panel XLR connectors and store them in a safe place. These jumpers are required **ONLY** when using the single-ended RCA inputs. In the event that you decide to switch to single-ended input mode, you must reinstall the XLR jumpers (between pins 1 and 3) exactly as show below:

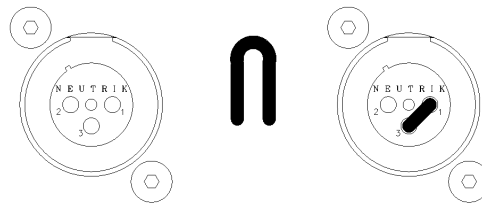


Figure 2: XLR connector without and with jumper accessory

Don't hesitate to use high quality interconnect cables; Poor quality interconnect cables can degrade the overall sonic performance of your system. It is recommended, though not mandatory, to use balanced interconnects between your preamplifier/processor and the **Aurora** Multi-Channel power amplifier, especially when using long cable runs (i.e. more than 3 meters in length). Here's a brief explanation describing the advantages of balanced cable runs:

When using an unbalanced interconnect, the audio signal runs through both the center wire and the shield/ground wire. Any noise picked up by this interconnect (ie. nearby magnetic fields such as an AC power cord) will be reproduced by the amplifier and heard through the loudspeakers. Conversely, a balanced interconnect has three separate conductors; one for the ground and two for the actual signal. These two signals are identical except that one is 180 degrees out of phase with the other. For example, when one conductor is carrying a signal of +5 Volts, the other will be carrying a signal of -5 Volts. When these two inverted signals on a balanced line are input into a differential power amplifier such as the **MOON Aurora** Multi-Channel power amplifier, any noise picked up by the interconnect will be eliminated since a differential circuit amplifies only the difference between these two signals: Noise on a balanced interconnect will be equal on both conductors and therefore not be processed.

The gain in each channel is the same among all balanced inputs and among all unbalanced inputs, but **NOT** the same among balanced and unbalanced inputs. Keep this in mind when level matching, if you are using a combination of both types of inputs.

2. Connect your speakers, with the cables of your choice, to the **Aurora's** speaker binding posts. Take care to respect the polarity (+ , -) of the output. Once again, don't hesitate to use high quality speaker cables. Poor quality speaker cables can degrade the overall sonic performance of your system.
3. Connect the supplied AC power cable to the IEC receptacle. Ensure that the AC wall outlet you use has a functioning ground. For the best sonic performance, it is preferable that you plug your **Aurora** directly into a dedicated AC outlet and avoid using an extension cord. If you have the time and willingness, consider installing a superior quality AC wall outlet such as a hospital grade Hubbell.

MOON Aurora Multi-Channel Power Amplifier

Operating the Aurora

We recommend that you leave your **MOON Aurora** Multi-Channel Power Amplifier powered up at all times to maintain optimal performance. In the event that you plan to be away from your home for a few days, powering off the amplifier may not be a bad idea. Once fully “broken-in”, please keep in mind that your **Aurora** will require several hours of playing time before it reaches its peak performance after you’ve powered it up again.

Turning on your MOON Aurora for the first time

Prior to turning the amplifier on for the first time, make sure that every cable is properly connected to avoid any problems. Then, turn on your preamplifier/processor connected to the **Aurora**. Finally, power up your **Aurora** in the following manner:

- 1) Flick the main rocker switch labeled “POWER” to the ‘1’ (on) position
- 2) Next, momentarily press the push button labeled “Standby” located on the front panel. The amplifier will make a faint click sound, confirming that everything is in order. The blue LED on the front panel indicates the that the amplifier is powered up and ready for use.

On and Off Sequence

To avoid having any annoying noises (i.e. “thumps” and “pops”) emanate from your speakers when powering your **Aurora** on or off, you should:

- 1) Always power up your preamp/processor prior to powering up your **Aurora**
- 2) Always power down your **Aurora** prior to your powering down your preamp/processor

Using the 12 Volt Trigger

When the **Aurora** is off, it can be powered on by either the trigger or the push button. When the **Aurora** is on, it can be powered off by the trigger. It can also be powered off using the push button, but only if the trigger isn’t in «on» mode. *The “MAIN POWER” switch must remain in the “on” position (“1”) at all times for the 12 V trigger to function.*

Troubleshooting

Your **MOON Aurora** Multi-Channel amplifier is equipped with a unique self-diagnostic system that will automatically shut itself down when it detects DC (direct current) from any input. If your **Aurora** amplifier turns itself off or will not power up, there may very well be DC present in one (or more) of the amplifier’s inputs coming from one (or more) of your preamplifier/processor’s outputs. You must determine if there is any DC present. The best way to accomplish this is by first powering down the **Aurora** via the main power rocker switch, then disconnecting all inputs to the **Aurora** leaving only the speakers connected. Attempt to power up your **Aurora** again: A successful power up will indicate the presence of DC coming from your preamplifier/processor or one of your signal sources (i.e. DVD Player).

If your **Aurora** still doesn’t power up, turn off the main power switch and check the AC fuse. If the fuse appears OK, put it back in its socket and then try to power up again the usual way. If the fuse is blown, replace it with a fuse of the same rating, and repeat the above process. At this point, you should be able to power up your **Aurora**. If not, immediately consult your dealer for assistance.

MOON Aurora Multi-Channel Power Amplifier

Specifications

Configuration	5 or 7 channels
Power Supply Transformer	2kVA
Power Supply Capacitance	177,000 μ F (5-ch) / 183,000 μ F (7-ch)
Class Of Operation	A/AB
Input Impedance	22,000 Ω
Input Sensitivity	1420mV
Output Device Type	Bipolars - 6 per channel
Power Output at 8 Ω (any channel)	200 Watts
Power Output at 4 Ω (any channel)	400 Watts
Frequency Response	10Hz - 100kHz +0/-3dB
Output Impedance	0.01 Ω
Damping Factor (static)	800
Gain	29dB
Dynamic Headroom	6dB
Signal-to-noise Ratio	> 98dB @ full power
Maximum Output Voltage	42 Volts
Slew Rate	75V/ μ s
Maximum Current – Peak	28 amperes
Maximum Current – Continuous	14 amperes
Crosstalk @ 1kHz	< -96dB
Intermodulation Distortion	Unmeasurable
THD (20Hz - 20kHz @ 1 watt)	< 0.05 %
THD (20Hz - 20kHz @ 200 watts)	< 0.08 %
Power Consumption @ idle	45 Watts
Rack Mount Size.....	5 spaces
AC Power Requirements	120V / 60Hz or 240V / 50Hz
Fuse Replacement - 120V (5-ch / 7-ch)	Long fast blow - 10A / 15A (3AG size)
Fuse Replacement - 230V (5-ch / 7-ch)	Long fast blow - 6A / 8A (3AG size)
Dimensions (W x H x D, inches)	19 x 9-5/8 x 22

Balanced Input Pin Assignment:

Pin 1.....	Ground
Pin 2.....	Positive
Pin 3	Negative

12 Volt Trigger:

Logic	Direct (0V off, 12V on)
Connector	1/8" mini-jack
Input Impedance.....	2000 Ω
Current Consumption.....	6mA

Shipping weight:

5 channels	106 lbs / 47 kgs
7 channels	112 lbs / 50 kgs