



M O O N

# TITAN HT-200

*Multi-Channel Power Amplifier*



## Table of Contents

|                                |   |
|--------------------------------|---|
| Congratulations .....          | 3 |
| Unpacking.....                 | 3 |
| Introduction .....             | 4 |
| Installation & Placement ..... | 5 |
| Rear Panel Layout .....        | 6 |
| Connecting the Titan .....     | 7 |
| Operating the Titan .....      | 8 |
| Specifications .....           | 9 |

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

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# MOON Titan HT-200 Multi-Channel Power Amplifier

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## Congratulations!

Thank you for selecting the **MOON Titan HT-200** 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 three, five or seven channels depending on the choice you made. The three and five channel models can be upgraded since they allow additional channels to be added in at a later time, for up to a total of seven channels. The three and five channel versions share the same chassis and dimensions, while the seven channel version use a deeper chassis to house the additional channels. The performance of your **Titan** will continue to improve during the 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 Titan HT-200**, we encourage you to please read this manual thoroughly to properly acquaint yourself with its features. We hope you enjoy listening to the **MOON Titan HT-200** 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 Titan HT-200** 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:

- ✓ *20A AC power cable*
- ✓ *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 Titan HT-200** amplifier from potential damage that may occur during shipping.

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### **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 Titan HT-200 Multi-Channel Power Amplifier

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## Introduction

Your **MOON Titan HT-200** 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.

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

**Class A output** to 5 watts for greater efficiency.

**Thermally interconnected chassis design** which enhances sonic harmony by maintaining identical operating temperatures for all channels.

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.

Extremely **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.

### Installation & Placement

The **MOON Titan HT-200** Multi-Channel Amplifier is powerful and very heavy. It requires reasonable ventilation to maintain an optimum and consistent operating temperature, especially since it will radiate 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 **Titan** uses large toroidal transformers in its power supply; even though they are well shielded, you should not place this amplifier too close to source components sensitive to EMI, such as turntables and phono preamplifiers.

When the amplifier reaches its normal operating temperature you may notice that, not only do the heat sinks become warm, the entire chassis idles at the same temperature. This is normal and intentional in the design of this amplifier: All the parts of the chassis are thermally inter-connected so that each channel reaches approximately the same temperature, even if some channels are driven harder than others. It also allows for previously unattainable sonic matching between channels by eliminating temperature discrepancies as a variable, which normally affects performance. Also, by reducing the average temperature it ensures a longer life for the internal components

The **Titan** is capable of delivering very high power output and its electrical consumption grows accordingly with its power output. The amplifier comes with a 20 ampere power cord and corresponding 20A IEC connector on the back panel. Most domestic 120V household AC circuits are rated at 15 Amperes. This amplifier will function normally on these circuits. To realize the full power potential of this amplifier, more than 15A will be drawn from your AC line on occasion. However, the music/movie material must be simultaneously demanding on all channels. As well, the volume on your preamplifier/processor must be set very high to encounter such a condition. Typically, not all channels are driven hard at the same time, so it is most likely this situation will not be encountered.

If you have the willingness and budget necessary to arrange for a dedicated 20A circuit for this amplifier, you will be able to take full advantage of the power potential of the **MOON Titan HT-200** Multi-Channel power amplifier. If the AC voltage in your home is 220V or 240V, you will not have to worry about any current limitations, as previously described.

# MOON Titan HT-200 Multi-Channel Power Amplifier

## Rear Panel Layout

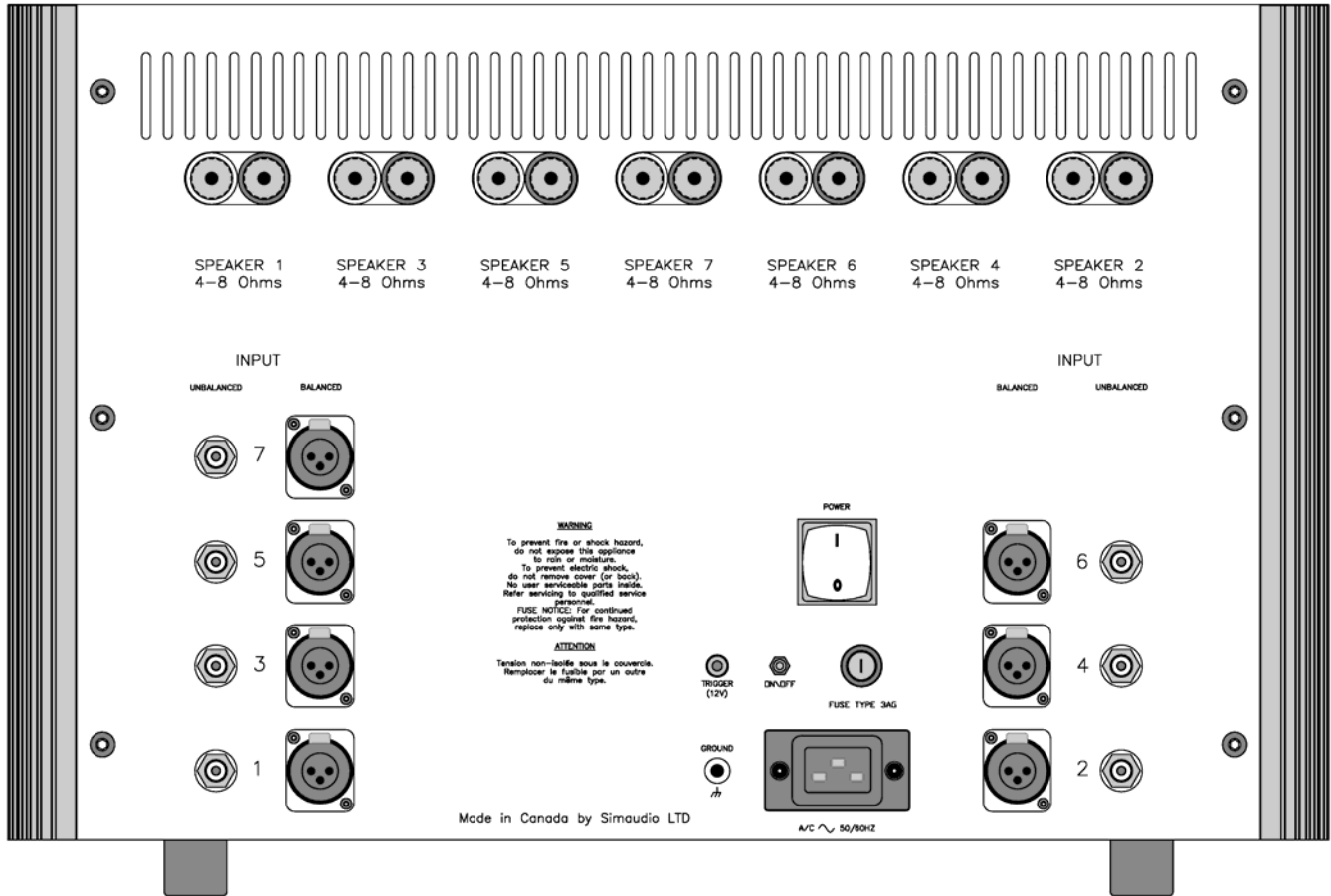


Figure 1: MOON Titan HT-200 Rear panel

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 Titan HT-200** 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 lower mid-section you will find; The power "main switch" ("0"=off, "1"=on); the "on/off" push button; the "AC Fuse" socket cover; and the "AC" 20 ampere IEC receptacle for the power cord. To the left of the "on/off" push-button is a "12V trigger" input on a 1/8" mini-jack. This allows for the **MOON Titan HT-200** to be turned "on" or "off" using a hard wired remote connected to this input.

### Connecting the Titan

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 **Titan** are identical. For optimal performance, careful assignment of each channel is critical as there are two independent power supply transformers in these units: whatever the number of channels, all odd numbered channels are on one transformer and all even numbered channels are on the other transformer. In a typical home theater installation, the front main speakers require the most power. Therefore, they should not both be driven by either two odd numbered or two even numbered channel outputs. To ensure that each front channel speaker is driven by a different power supply transformer, we recommend this configuration: Front Left = Channel 1, Center = Channel 4, Front Right = Channel 2, Rear Left = Channel 3, and Rear Right = Channel 5. In a 3-channel **Titan**, there's only one transformer, therefore you can connect any channel to any speaker, without any variations in performance.

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 **Titan** 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 Titan** 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 **Titan'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. Please familiarize yourself with the tips given on page 7 regarding current consumption to maximize the performance of your amplifier. Alternatively, if you wish, you may use a dedicated high performance AC cable designed for high current applications.

# MOON Titan HT-200 Multi-Channel Power Amplifier

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## Operating the Titan

We recommend that you leave your **MOON Titan HT-200** 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 **Titan** will require several hours of playing time before it reaches its peak performance after you’ve powered it up again.

### Turning on your MOON Titan HT-200 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 **Titan**. Finally, power up your **Titan** 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 “ON/OFF” located on the rear 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 **Titan** on or off, you should:

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

### Using the 12 Volt Trigger

When the **Titan** is off, it can be powered on by either the trigger or the push button. When the **Titan** 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 Titan HT-200** 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 **Titan** 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 **Titan** via the main power rocker switch, then disconnecting all inputs to the **Titan** leaving only the speakers connected. Attempt to power up your **Titan** 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 **Titan** 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 **Titan**. If not, immediately consult your dealer for assistance.

# MOON Titan HT-200 Multi-Channel Power Amplifier

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## Specifications

|  |  |
|--|--|
| Configuration .....                            | 3, 5 or 7 channels                         |
| Power Supply Transformers .....                | 2 x 1.1kVA                                 |
| Power Supply Capacitance .....                 | 216,000 $\mu$ F                            |
| Class Of Operation .....                       | A/AB                                       |
| Input Impedance .....                          | 24,900 $\Omega$                            |
| Input Sensitivity .....                        | 1420mV                                     |
| Output Device Type .....                       | Bipolars - 8 per channel                   |
| Power Output at 8 $\Omega$ (any channel) ..... | 200 Watts                                  |
| Power Output at 4 $\Omega$ (any channel) ..... | 400 Watts                                  |
| Frequency Response .....                       | 10Hz - 100kHz +0/-3dB                      |
| Output Impedance .....                         | 0.01 $\Omega$                              |
| Damping Factor (static) .....                  | 800  |
| Gain .....                                     | 29dB                                       |
| Dynamic Headroom .....                         | 6dB  |
| Signal-to-noise Ratio .....                    | > 100dB @ full power                       |
| Maximum Output Voltage .....                   | 42 Volts                                   |
| Slew Rate .....                                | 80V/ $\mu$ s                               |
| Maximum Current – Peak / Continuous .....      | 30 amperes / 15 amperes                    |
| Crosstalk @ 1kHz .....                         | -90dB                                      |
| Intermodulation Distortion .....               | Unmeasurable                               |
| THD (20Hz - 20kHz @ 1 watt) .....              | < 0.02 %                                   |
| THD (20Hz - 20kHz @ 200 watts) .....           | < 0.05 %                                   |
| Power Consumption @ idle .....                 | 75 Watts                                   |
| AC Power Requirements .....                    | 120V / 60Hz or 240V / 50Hz                 |
| Fuse Replacement - 120V 3 / 5 / 7-ch .....     | long fast blow - 8A / 10A / 15A (3AG size) |
| Fuse Replacement - 230V 3 / 5 / 7-ch .....     | long fast blow - 4A / 6A / 8A (3AG size)   |

### 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 .....    | 300 $\Omega$            |
| Current Consumption..... | 40mA                    |

### Shipping weight:

|                  |                  |
|------------------|------------------|
| 3 channels ..... | 75 lbs / 34 kgs  |
| 5 channels ..... | 104 lbs / 46 kgs |
| 7 channels ..... | 150 lbs / 67 kgs |

### Dimensions:

|                             |                       |
|-----------------------------|-----------------------|
| 3 / 5 channel chassis ..... | 19" w x 12" h x 19" d |
| 7 channel chassis .....     | 19" w x 12" h x 27" d |