

Owner's Manual

MOON Series

300 D


Digital-to-Analog Converter



M O O N

MOON 300D Digital-to-Analog Converter

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves or another apparatus that produces heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for safety. If the provided plug does not fit into the outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments and accessories specified by the manufacturer.
12.  Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power cord or plug has been damaged; liquid has been spilled or objects have fallen into the apparatus; or the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. No naked flame sources, such as candles, should be placed on the apparatus.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK,
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.



MOON 300D Digital-to-Analog Converter

Important Safety Instructions (cont'd)



The lightning flash with the arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



Marking by the "CE" symbol (shown left) indicates compliance of this device with the EMC (Electromagnetic Compatibility) and LVD (Low Voltage Directive) standards of the European Community

Please read all instructions and precautions carefully and completely before operating your Simaudio MOON 300D Digital-to-Analog Converter.

1. **ALWAYS** disconnect your entire system from the AC mains before connecting or disconnecting any cables, or when cleaning any component.
 2. The MOON 300D must be terminated with a three-conductor AC mains power cord which includes an earth ground connection. To prevent shock hazard, all three connections must **ALWAYS** be used. Connect the MOON 300 D only to an AC source of the proper voltage; Both the shipping box and rear panel serial number label will indicate the correct voltage. Use of any other voltage will likely damage the unit and void the warranty
 3. AC extension cords are **NOT** recommended for use with this product.
 4. **NEVER** use flammable or combustible chemicals for cleaning audio components.
 5. **NEVER** operate the MOON 300 D with any covers removed. There are no user-serviceable parts inside. An open unit, especially if it is still connected to an AC source, presents a potentially lethal shock hazard. Refer all questions to authorized service personnel only.
 6. **NEVER** wet the inside of the MOON 300 D with any liquid. If a liquid substance does enter your MOON 300 D, immediately disconnect it from the AC mains and take it to your MOON dealer for a complete check-up.
 7. **NEVER** spill or pour liquids directly onto the MOON 300D.
 8. **NEVER** block air flow through ventilation slots or heatsinks.
 9. **NEVER** bypass any fuse.
 10. **NEVER** replace any fuse with a value or type other than those specified
 11. **NEVER** attempt to repair the MOON 300D. If a problem occurs contact your MOON dealer.
 12. **NEVER** expose the MOON 300D to extremely high or low temperatures.
 13. **NEVER** operate the MOON 300D in an explosive atmosphere.
 14. **ALWAYS** keep electrical equipment out of reach of children.
 15. **ALWAYS** unplug sensitive electronic equipment during lightning storms.
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MOON 300D Digital-to-Analog Converter

Congratulations!

Thank you for selecting the **MOON 300D Digital-to-Analog Converter (DAC)** as a part of your hi-fi reproduction system. This DAC 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 amongst the finest Digital-to-Analog Converters available in its class. We have been building high-performance audio equipment for 30 years, and the know-how gained through our cumulative experience is an important reason why **MOON** digital audio components are so musically satisfying.

The performance of your **300D** will continue to improve during the first 400 hours of listening. This is the result of a “break-in” period required for the numerous high quality electronic parts used throughout this DAC.

Before setting up your new **MOON 300D**, we encourage you to please read this manual thoroughly to properly acquaint yourself with its features. We hope you enjoy listening to the **MOON 300D DAC** 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.

The information contained in this manual is subject to change without notice. The most current version of this manual is available on our official website at <http://www.simaudio.com/manuals.htm>

Unpacking

The **MOON 300D DAC** should be removed from its box with care. The following accessories should be included inside the box with your DAC:

- ✓ *AC power cable*
- ✓ *This owner's manual*
- ✓ *Warranty and product registration information (USA and Canada only)*

As soon as the DAC is safely removed from its box and placed down, perform a thorough physical inspection and report any physical 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 DAC. The customized packaging is specially designed to protect the **MOON 300D DAC** from potential damage that may occur during shipping.

Please write the serial number of your new Simaudio **MOON 300D** in the space provided below for future reference.

Serial No.: _____

MOON 300D Digital-to-Analog Converter

Introduction

Your **MOON 300D DAC** incorporates many significant design features to achieve its “world class” level of performance. This is an abbreviated list of the more important features:

Over-sized power supply with **8 stages** of voltage regulation

Internal upsampling which uses **24-bit/352.8kHz** processing.

BurrBrown PCM1793 high-resolution 24-bit/192-kHz Digital-to-Analog Converter and 8X oversampling digital filter

IR input for external control.

Accurate digital clocking system for exceptionally low intrinsic jitter levels

Single-ended RCA and **Balanced** XLR analog outputs

Advanced analog signal path using a **DC servo circuit** and **proprietary analog filter**

Pure copper circuit board tracings with extremely low impedance characteristics.

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.

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 300D** requires reasonable ventilation to maintain an optimum and consistent operating temperature. As a result, it should be placed in a location with empty space around it for proper heat dissipation. As well, it should be placed on a solid level surface. You should avoid placing it near a heat source as this could compromise the DAC's performance and reliability. The **300D** uses a toroidal transformer; even though it is well shielded, you should not place the player too close to source components sensitive to EMI, such as turntables and phono preamplifiers. *You should never place another component directly on top of this DAC.*

MOON 300D Digital-to-Analog Converter

Front Panel Controls

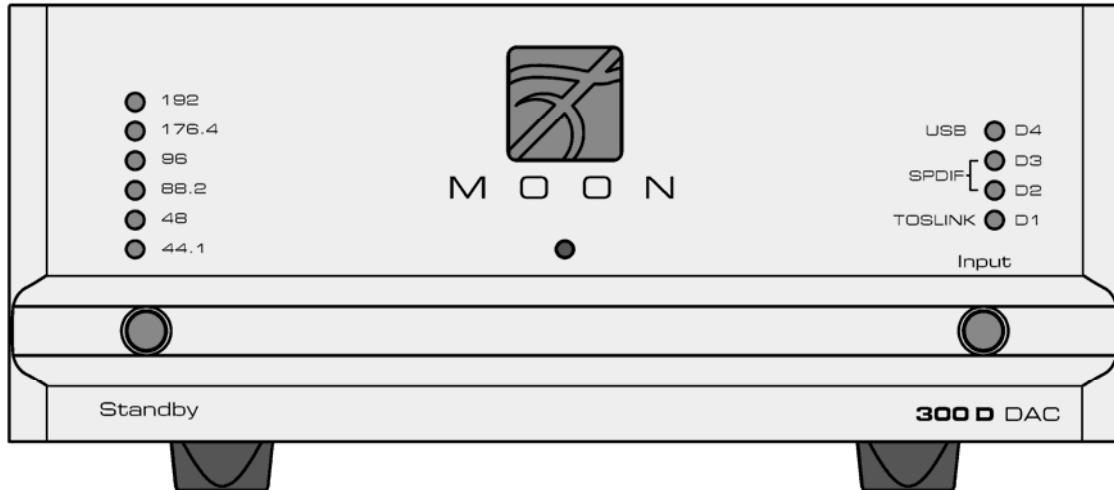


Figure 1: MOON 300D Front panel

The front panel will look similar to Figure 1 (above). The “Standby” button is located in the lower left corner and toggles the **MOON 300D** between standby mode and operational mode. When in “Standby” mode, the **300D**’s output signal is muted, however, all digital and analog audio circuitry remains powered up to help maintain optimal performance. As well, the blue LED on the **300D** will no longer be illuminated when the player is in “Standby” mode.

Directly above the “Standby” button is a vertical array of six (6) red LED’s to indicate the sampling frequency of the digital input signal: 192 kHz, 176.4 kHz, 96 kHz, 88.2 kHz, 48 kHz and 44.1kHz. Only when the **MOON 300D** has successfully locked onto an input signal will one of these LED’s illuminate.

The “Input” button, located in the lower right corner, allows you to sequentially scroll through the four (4) different digital inputs; each time you press the “Input” button, the **300D** scrolls to the next input. Directly above the “Input” button are four (4) red LED’s to indicate the selected input:

| | |
|----|---------|
| D1 | TosLink |
| D2 | S/PDIF |
| D3 | S/PDIF |
| D4 | USB |

In the event that the **300D** cannot successfully lock onto the digital signal from the selected input, a sampling frequency LED will not illuminate. This may be the result of i) no digital source component connected to the selected input ii) a faulty digital audio cable between **300 D** and your digital source component, your digital source iii) your digital source component not being powered up or iv) your digital source component malfunctioning.

When you put the **MOON 300D** into “Standby”mode, the currently selected input will remain the same when you put the unit back into operational mode. However, when the AC power is interrupted, the **300 D** will automatically default to the “D1” input upon powering up.

MOON 300D Digital-to-Analog Converter

Rear Panel Connections

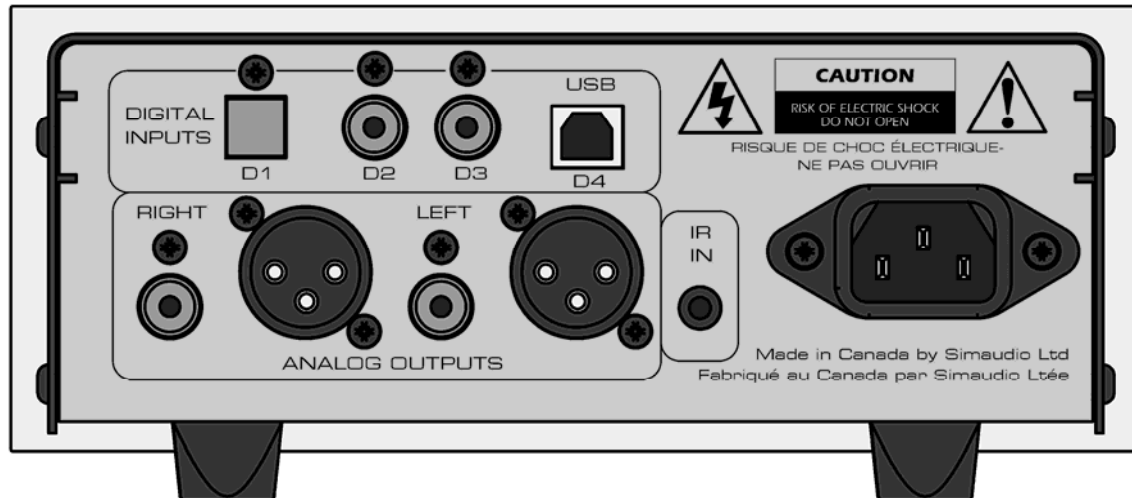


Figure 2: MOON 300D Rear panel

The rear panel will look similar to Figure 2 (above). The top left section has four (4) digital inputs – “D1” is an optical Toslink connector and is intended for use with devices equipped with a digital Toslink output such as a DVD player or digital satellite receiver; Both “D2” and “D3” are S/PDIF on a coaxial RCA connector and are meant to be used with devices equipped with an S/PDIF output such as music servers and disc transports. note: you should use a 75Ω digital audio cable terminated with RCA connectors to make an S/PDIF connection. “D4” uses a USB (type-B) connector and is intended for use with a computer.

Directly below the digital inputs, are two (2) pairs of analog output connectors; There is one pair of single-ended RCA analog audio output connectors that you should connect to a stereo analog input on your preamplifier or integrated amplifier. Don’t hesitate to use good quality interconnect cables. Immediately beside each RCA analog output is an XLR balanced outputs. We strongly recommend that you use the balanced XLR connectors on your **300D** to maximize its level of performance:

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 +4 Volts, the other will be carrying a signal of –4 Volts. When these two inverted signals on a balanced line are input into a differential preamplifier, 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.

Your **MOON 300D** is equipped with a 1/8” mini jack input for use with aftermarket infrared remote control receivers. The “IR in” connector is located to the right of the analog audio outputs. Finally on the right side is the “AC Power” section with a main power switch (“0”=off, “1”=on) and IEC receptacle for the included AC power cord. Alternatively, you may use a dedicated high-performance AC power cord designed for digital audio components.

All rear panel connectors have been chosen because they provide the best possible connections for your unit. A poor contact will degrade the signal substantially, and plugs and sockets should all look clean and free of dirt and corrosion. The easiest way to clean them is to remove the cables from their sockets and push them back in again. This procedure requires that your DAC and the rest of your components be completely turned off. Not heeding this warning may result in serious damage to your equipment. Special contact cleaning fluids and enhancers should not be used, as they deposit a difficult to remove residue which degrades the performance of your components.

MOON 300D Digital-to-Analog Converter

Operating the MOON 300D

We recommend that you leave your **MOON 300 D** DAC 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, switching the **300 D** into “Standby” mode may not be a bad idea. Once fully “broken-in”, please keep in mind that your **300 D** will require several hours of playing time before it reaches its peak performance after you’ve powered it up again.

Making the AC Connection

Connect the supplied AC power cable to the IEC receptacle, located on the rear panel of the DAC’s chassis. Ensure that the AC wall outlet you use has a functioning ground. For the best sonic performance, it is preferable that you plug your **MOON 300 D** directly into a dedicated AC outlet and avoid using an extension cord.

In order to obtain the maximum performance from your audio system, we strongly recommend that the detachable power cord not come into physical contact with any of the interconnect cables running to and from your **300 D**. In the event that this can’t be avoided, you should ensure that any cables coming into contact with each other are crossed at ninety degree angle to minimize the contact area.

Powering up your MOON 300D for the first time

Since this Digital-to-Analog Converter is not equipped with an on/off power switch, when connecting/disconnecting the AC power cord you are actually turning the unit on/off. Prior to making the AC connection for the first time, make sure that every cable is properly connected to avoid any problems. Once the **300 D** is connected to an AC source it will be in “Standby mode”. When you press the “Standby” button on the front panel, the **300 D** will be ready for use and the blue LED will illuminate.

On and Off Sequence

To avoid having any annoying noises (ie. “thumps” and “pops”) emanate from your speakers when powering your **300 D** on or off, you should

- 1) Always power up your **300 D** before powering up your preamplifier and/or integrated amplifier.
- 2) Always power down your **300 D** after powering down your preamplifier and/or integrated amplifier.

MOON 300D Digital-to-Analog Converter

Specifications

| | |
|---------------------------------------------|--------------------------------------------|
| Type | Solid State |
| Power Supply Transformer | 10VA |
| Power Supply Capacitance | 13,200 μ F |
| Digital Input Types | S/PDIF (RCA) x 2 USB x 1 TosLink x 1 |
| Digital Input Impedance (S/PDIF) | 75 ohms @ 0.5 Volts |
| DAC / Digital Filter | BurrBrown PCM1793 |
| Bit-depth range | 16 - 24 bits |
| Sampling Frequency Rates | 44.1, 48, 88.2, 96, 176.4 and 192kHz |
| Frequency Response (audible) | 20Hz - 20kHz +0/-0.2dB |
| Frequency Response (full range) | 2Hz - 72kHz +0/-3dB |
| THD @ 1kHz, 0dBFS (A-weighted) | < 0.001 % |
| IMD | < 0.004 % |
| Dynamic Range | > 116dB |
| Signal-to-noise ratio | > 115dB @ full output |
| Slew Rate | 50V/ μ s |
| Channel Separation | > 115dB |
| Low Level Linearity | \pm 1.0dB to below 120dBFS |
| Intrinsic Jitter | < 25 picoseconds RMS |
| Single-ended Analog Output (RCA) | 1 pair |
| Balanced Analog Output (XLR) | 1 pair |
| Max. Analog Output @ 0dBFS - Standard | 2.0 Volts RMS |
| Output Impedance – Single-Ended | 100 Ω |
| Output Impedance – Balanced | 100 Ω |
| IR Input..... | 1/8" Mini jack |
| Power Consumption @ idle | 5 Watts |
| AC Power Requirements | 120V / 60Hz or 240V / 50Hz |
| Shipping Weight | 7 lbs / 3 Kgs |
| Dimensions (W x H x D, inches) | 7.5 x 3.25 x 11 |

| | |
|-------------------------------------|----------|
| Balanced Pin Assignment: Pin 1..... | Ground |
| Pin 2..... | Positive |
| Pin 3 | Negative |



Fuse Replacement:

For the 120V version use a 0.2A slow blow (5 x 20mm size).
For the 230V version use a 0.1A slow blow (5 x 20mm size).