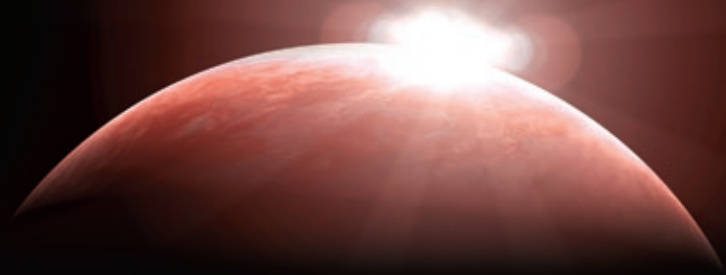


400M Mono Power Amplifier



M O O N

Power

Emotion

Soul

The MOON 400M is a differential mono power amplifier that produces 400 watts into 8Ω and 650 Watts into 4Ω. Based on our highly acclaimed Advanced Renaissance amplifier circuitry, the class A/AB, zero global feedback, DC-coupled 400M is capable of producing tight, deep and powerful bass with lightning fast speed; True high-performance in a compact package without compromise. Possessing a high damping factor, an incredibly low noise floor, excellent dynamic range and a transparent lifelike soundstage, the MOON 400M will effortlessly drive any loudspeaker. Even difficult loads will not impede its ability to remain exceedingly musical and accurate.

For any loudspeaker ...
For any listening environment



Our own unique heat-sink geometry allows for ultra-effective and efficient cooling. The amplifier's oversized power supply contains a large proprietary toroidal transformer and substantial energy storage. Finally, with both balanced (XLR) and single-ended (RCA) inputs, the MOON 400M represents the ultimate choice for performance, reliability and affordability.

Significant Design Features

Extremely rigid chassis construction to minimize the effects of external vibrations.

Proprietary MOON Bipolar Output transistors with unprecedented signal linearity and ultra-low noise characteristics



RS-232 port for i) full unsolicited bidirectional feedback in custom installation setups and ii) firmware updates and 12 Volt Trigger input and output

An exceptionally short signal path for a faster transient response.

An oversized power supply using a large custom proprietary toroidal transformer

- ▲ Fully balanced differential circuitry
- ▲ Our own "no overall feedback" design resulting in genuine real-time amplification, a more accurate musical reproduction with respect to tonality, virtually non-existent intermodulation distortion and the elimination of common phase errors resulting from feedback

- ▲ A high damping factor which yields superior musical dynamics, improved signal speed and refined timbre accuracy
- ▲ Class A output to 10 watts for greater efficiency.
- ▲ Low operating temperature for a longer than normal life expectancy.



Simaudio Ltd. has been designing and manufacturing innovative, leading-edge audio and video products since 1980. MOON products have been globally recognized for their world-class performance, garnering numerous accolades for this outstanding achievement. Our products are engineered and built in Canada, utilizing advanced, efficient, "green" assembly techniques with strict quality control. Furthermore, our manufacturing processes are part of our philosophy, whereas the high quality and long-life of MOON products are the best way to preserve our environment, avoiding premature obsolescence. MOON products meet or exceed all international requirements for safety, performance and durability. At Simaudio, great music matters. However, great music for a lifetime matters most.

The transistors used in the MOON 400M's output stage perform what can be best described as electrical gain of the music signal. Higher quality transistors will yield an amplified signal with greater integrity. In addition, since each channel of an output stage uses numerous transistors, they must all be accurately matched to each other to maintain this integrity.

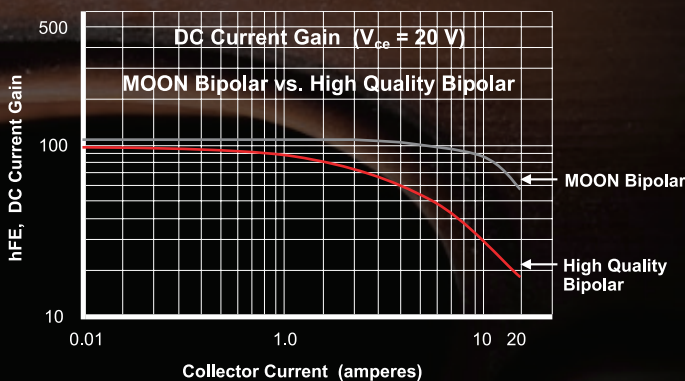
MOON amplifiers have always used bipolar transistors in their output stages for several significant reasons. When compared to other types of amplification transistors, bipolars offer:

- ▲ Wider bandwidth
- ▲ Lower distortion
- ▲ Excellent reliability and a longer life span
- ▲ High Efficiency
- ▲ High resistance to ESD (electrostatic discharge)

We have managed, at a great expense, to have bipolar transistors manufactured to our own exceedingly high standards and specific requirements. When compared to more readily available high quality bipolars for use in audio amplifiers, MOON Bipolars offer the following advantages:

- ▲ Unprecedented gain linearity
- ▲ A green component containing no lead
- ▲ Lower noise floor
- ▲ Even wider bandwidth
- ▲ Improved bass response
- ▲ Greater signal integrity
- ▲ Even greater reliability at higher output levels
- ▲ A more consistent hFE (the DC current gain of a transistor) which allows for more accurate and easier matching of multiple Bipolars.

The exceptional gain linearity of MOON Bipolars is very significant in the sense that it results in many of these aforementioned advantages. To illustrate the significant effect of this gain linearity when compared to a quality bipolar transistor found in a high-performance audio amplifier, refer to figure 1 below which shows the difference in DC current gain as a function of the transistor's output current:

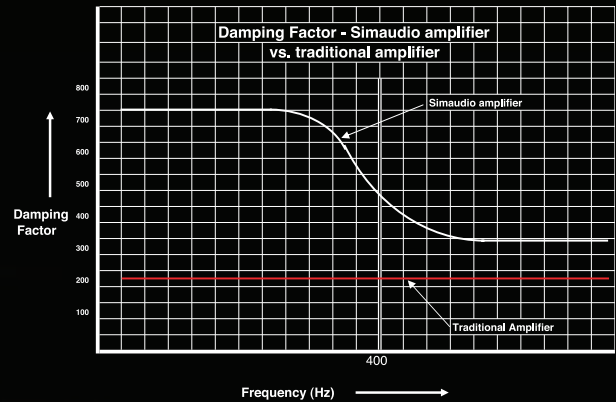


Optimal sonic performance is always achieved regardless of the amplifier's output level.

Technical information

The output section of the MOON 400M possess a high damping factor that ensures an excellent "grip" on woofer cone motion. This reduces overshoot and unwanted oscillations. A high damping factor also greatly improves the immunity to variations in both the quality and the length of speaker cables used.

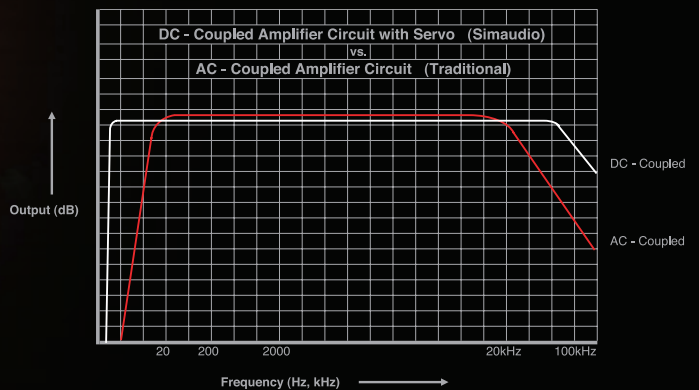
A great deal more energy from a power amplifier is required to reproduce musical information below 400Hz. Amplifiers with a low damping factor (and higher output impedance) have to work harder produce this energy.



The majority of power amplifiers possess a damping factor in the range of 200 (red), Our amplifiers operate with very low output impedances (typically 0.01 Ω), therefore yielding a damping factor that exceeds 800 in the all-important sub-400Hz range.

Significantly better dynamics result in a much more powerful and authoritative bottom-end ... The immense energy of a full symphony orchestra comes to life in your own home

Without the blocking capacitors at an amplifier's input, sound quality is improved as the phase-shift caused by these capacitors is eliminated. Frequency response in the bass region approaches 0Hz. As well, by removing all capacitors from the direct audio signal path, ultimate soundstage focus is attained with less "smear" or "blur".



The black frequency response curve in the above figure is virtually flat throughout and beyond the entire audible range as a result of the DC-Coupled circuit employed in the MOON 400A. Conversely, the red frequency response curve of a traditional AC-Coupled amplifier design is far from perfect, both low and high frequencies in the audible range are noticeably diminished:

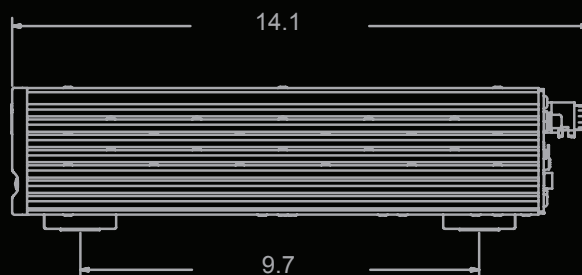
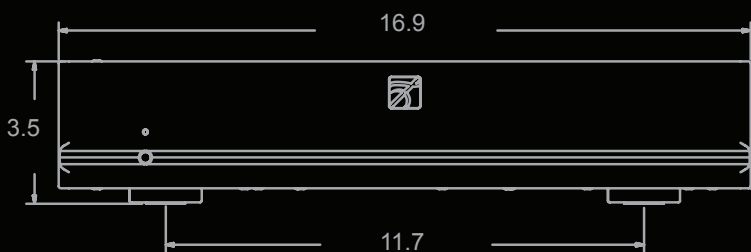
Deeper, more accurate and articulate bass ... You will clearly distinguish between a double-bass and an electric bass in a heartbeat.

MOON 400M Specifications

Configuration	Mono
Power Supply Transformer	400VA
Power Supply Capacitance	85,000µF
Class Of Operation	A/AB
Design	Fully Balanced Differential
Input Impedance	47,500Ω
Input Sensitivity	800mV RMS
Output Device Type	Proprietary MOON Bipolars - 8
Output Power at 8Ω	400 Watts
Output Power at 4Ω	650 Watts
Frequency Response	10Hz - 125kHz +0/-3dB
Output Impedance	0.01Ω
Damping Factor (static)	800

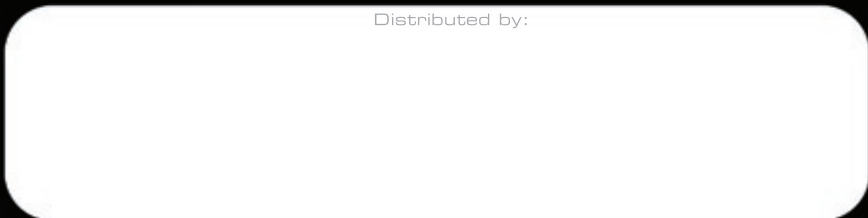
Gain	36dB
Signal-to-noise Ratio	> 106dB @ full power
Maximum Output Voltage	70 Volts
Slew Rate	60V/µs
Maximum Current – Peak	56 amperes
Maximum Current – Continuous	26 amperes
Intermodulation Distortion	Unmeasurable
THD (20Hz - 20kHz @ 1 watt)	< 0.02 %
THD (20Hz - 20kHz @ 400 watts)	< 0.05 %
Power Consumption @ idle	36 Watts
AC Power Requirements	120V / 60Hz or 240V / 50Hz
Shipping Weight	33 lbs / 15 Kgs
Dimensions (W x H x D, inches)	16.9 x 3.5 x 14.1

Specifications subject to change without notice



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Distributed by:



Simaudio Ltd.: 95 Chemin du Tremblay, Unit 3, Boucherville, Quebec CANADA J4B 7K4
Simaudio Ltd.: 2002 Ridge Road, Champlain, NY 12919 NY USA

(877) 980-2400

(450) 449-9947

info@simaudio.com

www.simaudio.com