

# RELENTLESS PREAMPLIFIER



## UNRELENTING PERFECTION

The Relentless Preamplifier by Dan D'Agostino Master Audio Systems is the ultimate preamplifier design. The preamplifier plays a critical role in the reproduction stage when the music signal is particularly susceptible to compromise through noise and distortion. The use of three separate chassis in the design of the Relentless Preamplifier—a dedicated audio chassis for each channel separated by a power supply/control section—addresses these challenges and brings other benefits as well.

## A SUBSTANTIAL POWER SUPPLY

Positioned between the two channels, the power supply makes use of extensive electrical and magnetic shielding to keep radiated interference out of critical preamplifier circuits. Internal line conditioning circuitry filters RF noise on the AC power and compensates for asymmetric power waveforms and DC on the mains. Power for the preamplifier stages comes from two 150 VA toroidal transformers—one dedicated to the analog circuitry and one for the digital and control circuitry. These transformers drive an 8-amp bridge rectifier and 26,400  $\mu\text{F}$  of filter capacitance. The two regulators for the analog stages are scaled-down versions of those used in the Relentless Monoblock Amplifier. The separate digital regulator is a monolithic platform with thermal and current limiting protection in the unlikely event of a fault. The Relentless Preamplifier has nearly as much power supply capability as many power amplifiers.

DAN  
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MASTER AUDIO SYSTEMS



## ROOM TO BREATHE

The input stage in each mono preamplifier is the result of a design experiment for a circuit that hadn't been used in any previous D'Agostino preamplifier. During development, a version was tested in the existing Momentum Preamplifier, and the overwhelmingly positive results led to the launch of the Momentum HD Preamplifier. From there, the fullest expression of this idea was realized with the Relentless Preamplifier. The audio circuit topology uses a new discrete differential FET input stage featuring a voltage input signal capability of an extraordinary 30 volts. With an input impedance of over 1 MOhm, the preamplifier's front end is immune to source-related electrical issues. In normal operation, component heating can lead to performance and sonic degradation. Developed specifically for the Relentless Preamplifier, a unique circuit maintains a stable bias so that temperature-related anomalies are offset to preserve performance during extended listening.

Featuring only balanced XLR inputs, the Relentless Preamplifier topology rejects common-mode input noise over an unusually wide bandwidth. All signal gain is realized in the current domain using proprietary multiple-output current mirrors with nearly 30 times the linearity of other designs. The use of four-layer circuit boards dramatically reduces distortion and propagation levels as compared to more commonplace, two-layer boards. The analog and digital circuit elements are isolated, including ground planes, from each other. Where necessary, digital control signals are optically coupled to analog circuits. The signal switching relays are hermetically sealed and use gold-plated contacts for maximum signal integrity. Utilizing no negative feedback anywhere, core D'Agostino circuit concepts include a signal path that is fully complementary and balanced from input to output, achieving a frequency response flat to 120 kHz. The overall result is a musically dense and dynamically rich signal presented to the balanced outputs.

## SEPARATE BUT LINKED

The most striking element of the Relentless Preamplifier is the pair of volume controls fronting the two audio chassis. Volume control circuits are often overlooked, if not actively minimized, in preamplifier designs. This is not the case in the Relentless Preamplifier. Each volume control is constructed using 14 separate metal components ensuring the smoothest response and control of the military-grade, high-linearity solid-state switches and discrete precision resistors employed in the volume circuit. The bandwidth and transient response of the Relentless Preamplifier is completely unaffected by the volume setting. As a result, high frequencies sound especially smooth and extended, and music emerges from jet-black silence. The volume settings are displayed via the elegant, Swiss watch-inspired volume wands or can be displayed numerically, from 0 to 99.



## TWO PREAMPLIFIERS IN ONE

The Relentless Preamplifier is a two-source/two-zone preamplifier that can simultaneously control the switching and volume of two sources in two separate rooms or zones. Listening sources may be two analog sources, or when equipped with the optional digital streaming module, one digital source and one analog source. In a one-zone system, either volume control will adjust volume in the main room or Zone 1. If two-zone operation is desired, the upper volume control manages the Zone 1 volume and the lower volume control adjusts the Zone 2 volume.



## REMOTE CONTROL

The Relentless Preamplifier remote control uses Bluetooth® 5.0 BLE technology. The Relentless Preamplifier remote control uses bi-directional Bluetooth technology and features a display screen that mirrors the display on the unit's front panel. The screen also functions as the main navigational device and is used for adjusting options and selecting various operations. Bluetooth® 5.0 BLE offers great improvement in usable range and does not require line of sight for proper operation.



### INTEGRATION FEATURES

While the Relentless Preamplifier's primary focus is ultimate stereo playback, it fits nicely in a home theater system. Input Three can be configured for Theater Bypass, where the volume control is bypassed and the main loudspeakers are controlled by the connected surround-sound processor. RS-232 and 12-volt triggers facilitate integration into advanced home-control systems. Additional DC power outputs for future products, as well as two programming ports, allow future performance options.

### OPTIONAL DIGITAL STREAMING MODULE (DSM)

The Relentless Preamplifier is the first D'Agostino preamplifier to offer an optional DSM. This digital enhancement adds connectivity for legacy sources, USB functionality, and premier streaming capability. Field upgradeable, the DSM adds SPDIF coaxial, Optical, USB-A, and RJ-45 and Wi-Fi network inputs. For latency-free playback of high-resolution network content, 10/100/1000 GB Ethernet is supported. Customized apps for iOS devices provide easy control of music collections, streaming content, and unit control. Subscription streaming services Tidal, Qobuz, and Spotify are native within the app. With appropriately encoded music files, MQA decoding is standard. Additionally, Roon Music management is also available as an alternative music management program.

Completely isolated from the analog circuitry, the DSM is housed in the power supply/control chassis. Requiring three separate circuit boards, the core element is a pair of DACs configured in differential mode with each one configured to handle the positive and negative signals for each channel. Capable of handling today's highest resolution sources, PCM signals up to 32 bit/384 kHz and DSD signals up to DSD256 (11.2 MHz) are decoded natively. Often overlooked or downplayed, the analog section of a DAC significantly impacts the final sonic performance of digital music. Internal balanced connections carry the final analog signal to the connecting feet and onward to each audio chassis. From here, the analog music signal takes advantage of the entire power and analog circuitry within the three chassis of the Relentless Preamplifier. Coupling innovative circuitry, distinctive materials, and artisan manufacturing excellence in a sophisticated architecture, the Relentless Preamplifier is the perfect centerpiece for the ultimate music system.



## SPECIFICATIONS

Frequency Response	0.1 Hz to 120 kHz, $\pm 0.0$ dB
Signal-to-Noise Ratio	-105 dB, unweighted / -100 dB, weighted
Gain	+ 8/+14dB selectable
Total Harmonic Distortion	<.006%, 20 Hz to 20 kHz
Analog Inputs	5 pr - Balanced XLR
Digital Inputs (w/DSM installed)	1 ea USB A type, Optical, SPDIF, coaxial, Ethernet RJ45, Wi-Fi
Outputs	2 pr - Balanced XLR for Zone 1 / 1 pr - Balanced XLR
Dimensions (Complete)	17 x 13.75 x 17 in / 43.2 x 34.9 x 43.2 cm
Dimensions (Preamp)	17 x 3.9 x 17 in / 43.2 x 9.9 x 43.2 cm
Dimensions (Power Supply/Base)	17 x 3.9 x 17 in / 43.2 x 9.9 x 43.2 cm
Weight	132 lb / 60 kg
Finish	Silver / Black / Custom finishes available upon request
Remote Control	RS-232