



The Power of Music

CD TRANSPORT

Why a dedicated CD transport?

Well, it all really boils down to the jitter problem. Jitter is inherent in the standard digital audio output signal that is transmitted from your CD transport to your D/A converter. In this signal, the master clock for the D/A converter is "buried" in the data stream. But if the master clock itself is corrupted with jitter, or has slow rise times, recovery of a high-quality master clock can be impossible for the best D/A converter.

crystal-controlled master clock to resynchronize the digital audio output. This virtually eliminates jitter in the "buried" clock. The Axiom also features an ultra-fast, fully-discrete Class-A output buffer and Sumo's exclusive SDI technology that provides a master clock output to use with the Sumo Theorem for the ultimate in low-jitter performance.

The Axiom features extensive local regulation (8 power supplies total), a heavy steel chassis with 1/4" thick aluminum front panel, magnetic clamping of the disc, a low-mass laser assembly, and remote control standard.

Sumo. We don't just talk about jitter. We eliminate it.



To talk about digital, you have to talk about analog. Because the most important part of a D/A converter is the analog section. The section that converts the fragile current output of the DAC chip to a voltage that is sent on to your preamplifier. Most converters (even multi-thousand-dollar ones) use cheap IC op-amps to perform this critical task. The Theorem, however, has a complex, fully discrete analog section that runs in true Class-A. This section was specifically designed for this job, with lower settling time and peak error than any op-amp design.

Or, to put it in understandable terms, we put a bit more effort into our analog design than most everyone else. And yes, you can hear the difference.

The Theorem's digital section is no slouch, either. With a low-jitter input receiver IC, the

Theorem D/A CONVERTER

latest digital filter from Burr-Brown, and the new PCM "hybrid" DAC chip which operates like a bitstream design at low levels, yet provides the dynamics of a multibit converter, you wouldn't expect it to be. Like the Axiom, the Theorem features Sumo's exclusive SDI technology to eliminate transmission-induced jitter.

The Theorem also sets the standard for upgradability. With its solderless plug-in modules, user upgrades are easy and quick.

The Theorem. Setting the standard for D/A converters.

Athena

SERIES II

The Athena was designed with an emphasis on musicality and flexibility. Now in its second generation, it offers optional balanced outputs and a choice of two input modules. It sounds better than ever, with an improved line stage with lower feedback and no capacitors in the signal path.

The Athena II is an excellent line preamplifier, capable of switching up to five analog sources. Its DIRECT function brings the CD input directly to the volume control for best sound.

The Athena II has separate record mode and input selectors, allowing the user to tape one source while listening to another. And the tape outputs are filtered to protect the audio signal.

The Athena II's line stage is a fully discrete design with separate high-voltage power supplies for each channel and no capacitors in the signal path. This line stage can effortlessly deliver a full 60 volts peak-to-peak!

preamplifier. The Athena II can be ordered with the following options:

The Balanced Option. The Athena II can be ordered with a true balanced line stage that is similar to the one in the Sumo Diana.

The Phono Option. The Athena II Phono Module is a true no-compromise phono preamp that features separate, fully-discrete MM and MC gain stages and is loadable with plug-in resistors.

The DAC Option. This D/A Converter Module is the same as the one used in the acclaimed Sumo Theorem. When installed in the Athena II, both optical and coaxial digital inputs are provided, and there is provision for the SDI master clock.



Diana

BALANCED

The Diana is the logical extension of the Athena II. It builds on the Athena II's strengths with a balanced line stage and an external power supply.

A lot of balanced preamps out there don't really have a true balanced line stage. They just use an inverter after the single-ended line stage to create the balanced output. Sometimes this inversion stage is a cheap IC op-amp, sometimes it is a high-feedback discrete design, but it is never what you'd call a good thing.

The Sumo Diana was designed from the start to be a balanced preamplifier. It features a true balanced line stage with fully complementary topology. The first and second gain stages are fully differential. This topology has the advantage of lowering distortion by 6 to 12 dB over other designs, which allows feedback levels to be very low.

The Diana has a separate power supply chassis that houses two 40VA transformers and four high-voltage regulated supplies. The Diana can swing 60V p-p out of its single-ended outputs, and a staggering 120V out of its balanced outputs.

The Diana, like the Athena II, is a fully modular preamplifier. It accepts both of the Athena II's plug-in modules, the DAC module and the phono module. Balanced outputs are standard.

The Sumo Diana. True balanced. Enough said.



The Sumo Class-A Tradition

Let's go back a few years to 1978. Sumo has just introduced its first Class-A amplifier, a 100 watt-per-channel, 120-lb behemoth known as The Gold. Arguably one of the most advanced audio amplifiers of its time, it set the standard for Class-A sonic performance for years to come.

Fast-forward a few years. The critically-acclaimed Sumo Nine and Nine Plus power amplifiers prove for the first time that you don't need a second mortgage to enjoy state-of-the-art Class-A power.

A few more years bring us to the present, where the flagship Sumo Ten and the new Sumo Five are once again breaking new ground in Class-A amplifier design.

We guess you could say that Class-A amplifiers are something of a tradition at Sumo.

In a day when MOSFET amplifiers are all too common, the Sumo Ten breaks the mold.

When it was introduced, it was the first MOSFET power amplifier to run in true class-A up to its rated output (unlike some "Class-A" power amplifiers out there). It was also the first MOSFET power amplifier to run entirely without overall feedback. Thanks to Sumo's proprietary Transconductance Linearization circuitry, we don't have to resort to large amounts of overall feedback to reduce distortion and increase damping factor. Even without overall feedback, the Ten boasts total THD of less than 0.1% over the full audio bandwidth at 100 watts power output and a damping factor of greater than 100.

The Ten is a true class-A powerhouse. With over 100,000 uF of filter capacitance, two

800-VA transformers, and true dual mono construction right to the power core, the Ten is fully capable of driving any load, including low-impedance or reactive loads. Output stage reliability is ensured through the use of 20 matched power MOSFETs that are capable of dissipating over 3000 watts of continuous power and can source current peaks as high as 250 amperes. Want more? The Ten can easily be configured by the user as a 350 watt balanced monoblock.

The Ten accepts both balanced and single-ended inputs. Unlike some "balanced-input" amplifiers, the Ten's balanced inputs are not converted to single-ended before being applied to the first gain stage. This eliminates one complete active stage that could degrade the sound quality.

Of course, we could go on to boast of the Ten's massive, all-aluminum chassis, its complete freedom from current limiting or electronic protection, and its sophisticated DC servo that eliminates capacitors in the signal path. But we think you get the idea.

The Sumo Ten. Setting the new standard for Class-A amplifiers.

The Ten 100 WATT CLASS A

The new Sumo Five continues the tradition of the Sumo Nine and Nine Plus—affordable, reliable, and great-sounding Class-A power.

Unlike some "Class-A" amplifiers, the Sumo Five runs Class-A all the way up to its full rated output of 60W into 8 ohms. And, like all Sumo power amplifiers, the Five uses MOSFET outputs, which are inherently more linear when run in Class-A. Sumo's proprietary Transconductance Linearization (TL) circuit allows the Five to run without overall feedback, yet at the same time have a superb damping factor and low distortion. The Five also uses a sophisticated DC servo to eliminate all capacitors in the signal path. And, of course, the Five uses stacked power supplies on all voltage gain stages for reduced distortion and freedom from compression.

The Sumo Five is superior in its ability to drive

The Five 60 WATT CLASS A

extremely low-impedance or reactive loads. Rated power output doubles into 4 ohms to 120 watts per channel, and doubles again into 2 ohms to 240 watts per channel. In fact, the Five can boast of over 150 peak amperes of available current. The Five is easily configured to run as a 200 watt per channel monoblock, for even greater load-driving capability.

The Sumo Five offers both single-ended and true balanced XLR inputs standard. Our "true balanced" XLR inputs are NOT converted to single-ended before the amplifier stage, for superior sonics. Only gold-plated input jacks and binding posts are used. And all PC boards are double-sided and plated-through, for long-term reliability.

The Sumo Five. Continuing the Sumo Class-A tradition.



SUMO

CLASS A AMPLIFIERS



Andromeda

SERIES III

You hear a lot about balanced components these days. Balanced preamps, balanced D/A converters, and amplifiers with balanced inputs.

But you don't hear a lot about amplifiers with balanced **OUTPUTS**, even though a balanced output amplifier is demonstrably superior to a conventional single-ended amplifier. Sumo has been designing and building balanced-output amplifiers for longer than anyone else on the market. Our first amplifier, introduced in 1978, featured both balanced inputs and balanced output. So we guess that we're qualified to talk about balanced-output amplifiers a little bit.

Why don't you hear more about balanced amplifiers? Well, to put it simply, designing a balanced power amplifier is much harder than designing a conventional single-ended amplifier. The complexity is much higher, the compensation may be different, and there are quirks that can only be found by designing a lot of balanced amplifiers for a long time. So a lot of companies would rather keep quiet. And the few others that have recently begun to promote balanced-output design don't like to talk about other things. Like their prices.

The Andromeda, now in its third generation, carries on the Sumo tradition of balanced amplifier design. It features an all-new, true-balanced topology and absolutely no overall feedback. True-balanced topology begins at the input, where the balanced inputs are not converted to single-ended, as they are in many amplifiers. Indeed, they are passed through the wide-bandwidth, class-A gain stage entirely in balanced form. This gain stage feeds a zero-feedback balanced output stage that is linearized with Sumo's exclusive TL circuit.

The balanced output stage is what makes the difference. In a conventional amplifier, the output stage only drives one terminal of the loudspeaker. The other terminal is tied to ground. The balanced output stage of the Andromeda drives both terminals of the loudspeaker directly, for vastly improved control over loudspeaker motion. The result is more precise imaging and a more stable soundstage.

The Andromeda is Sumo's most powerful amplifier, rated at 240 watts per channel into 8 ohms and capable of sourcing over 200 amperes of peak current. Sixteen hand-matched output MOSFETs are capable of dissipating over 2400 watts continuously, and a 1500 VA transformer with 50,000 uF of filter capacitance and a stacked power supply provide plenty of reserve.

The Andromeda. Hear the difference that a balanced output can make.

POLARIS

SERIES III

The original Polaris was one of the first reasonably-priced amplifiers that could compete with the best of the High End. The second generation brought more power and better dynamics with its stacked power supply. For the third generation, the Polaris now comes with true balanced inputs, a better power supply, and no capacitors in the signal path.

True balanced inputs? Yes. The Polaris is the first amplifier to bring true balanced inputs to this price level.

The Polaris now features a vastly improved layout that allows nearly "wireless" construction. And like all

wide-bandwidth, fully-complementary amplifier stages with our exclusive TL circuit around the output MOSFETS. The TL circuit allows us to reduce distortion without resorting to huge amounts of overall negative feedback. The result? A musical combination of sweetness and solid-state slam, without the typical "MOSFET mist".

The Polaris is also a powerhouse. With a 800VA transformer and 35,000 uF of filter capacitance, hand-matched MOSFETS capable of dissipating 120 watts of power continuously, and the ability to source up to 100 amperes of peak current, you'd expect it to be. Want more? The Polaris can easily be run as a 350-watt monoblock amplifier.

The new Polaris easily shatters all preconceived notions of price versus performance. Now, more than ever, it truly deserves to be compared with "the best of the best."



Ulysses

SERIES II

The smallest of Sumo's amplifiers is by no means a weakling. Take off the top cover and you'll see a 400VA transformer, 20,000 uF of filter capacitance, and output MOSFETS capable of dissipating 600 continuous watts of power. In fact, the Ulysses II can source up to 50 amperes of peak current, more than some 200 watt-per-channel amplifiers.

Like the Polaris, the Ulysses II features a new

layout on a double-sided PCB that allows virtually "wireless" construction. And, like the Polaris, it has absolutely no capacitors in the signal path.

Its new gain stage is the simplest and most direct ever used in a Sumo amplifier, for better sonics. And, like all Sumo amplifiers, the Ulysses features the exclusive TL circuit around the output stage to linearize the output MOSFETS.

The Ulysses II can easily drive low-impedance or demanding loads with both finesse and power. There is no invasive current-limiting or electronic protection to degrade the sound.

The Ulysses II. Its rating may be 60 watts per channel, but that's not its limit.

Delilah

SERIES II

Sometimes the task of integrating a subwoofer into your system can seem daunting at best. The Delilah II, arguably one of the best subwoofer crossover on the market, can help you integrate the most difficult subwoofers.

The Delilah II has separate, front-panel selectable crossover frequencies for both high-pass and low-pass sections. And selectable crossover slopes and variable gain are provided for the low-pass section. Crossover frequency selections are 50, 63, 80, 100, and 125 Hz, and the slope can be set to either 6 or 12 dB/octave on the low-pass section. All slopes are Bessel in filter characteristics.

The Delilah II provides both summed mono and stereo low-pass outputs. And both the summed mono and stereo low-pass outputs offer inverted-phase output for easy amplifier bridging or system integration.

To preserve the sonic quality of the main audio signal, the Delilah II features a fully discrete, fully



complementary high-pass section that runs fully class-A and has absolutely no overall feedback.

Both the high-pass and the low-pass section feature precision 2% polypropylene capacitors and 1% metal-film resistors. The PC board is military-grade glass-epoxy, double-sided with plated-through holes. And, of course, all input and output jacks are gold plated.

We could go on, but we think you get the picture. The Delilah II is truly an audiophile crossover, designed by purists for purists.

Specifications

<i>Axiom</i>	Drive Type Philips CDM-12 Outputs 1 Coax (RCA) 1 Clock (RCA) 1 AES/EBU (XLR) Clock 384X master Clock Lvl 5.0V p-p	Coax Lvl 1V p-p Coax imp. 75 ohms Size 19 x 3.5 x 12" (whd) Weight 15 lbs	<i>Theorem</i>	Response 20 Hz - 20 kHz +/- 0.2 dB THD less than 0.01% IMD less than 0.01% Nom. Out 2.0V RMS Inputs 1 coaxial, 1 TOSLINK	Digital 18 bit, 8X O/S Analog fully discrete Balanced optional Size 19 x 1.75 x 9" (whd) Weight 10 lbs
<i>Athena</i>	Response 20 Hz - 20 kHz +/- 0.1 dB THD less than 0.01% IMD less than 0.01% Gain 18 dB Input imp. 20k ohms	Output imp. 50 ohms Max. out 60V p-p Balanced optional Size 19 x 1.75 x 9" (whd) Weight 10 lbs	<i>Diana</i>	Response 20 Hz - 20 kHz +/- 0.1 dB THD less than 0.01% IMD less than 0.01% Gain 14 dB Input imp. 20k ohms	Output imp. 50 ohms Max. out 120V p-p (bal) Balanced standard Size 19 x 1.75 x 9" (whd) (2 chassis) Weight 25 lbs
<i>The Ten</i>	Power 100 W/ch (8 ohms) 200 W/ch (4 ohms) THD less than 0.1% IMD less than 0.05% Rise time less than 2 μ s Input imp. 10k ohms	Inputs balanced and single-ended Damping greater than 100 Size 19 x 7 x 22.5" (whd) Weight 70 lbs	<i>The Five</i>	Power 60 W/ch (8 ohms) 120 W/ch (4 ohms) THD less than 0.1% IMD less than 0.05% Rise time less than 2 μ s Input imp. 10k ohms	Inputs balanced and single-ended Damping greater than 100 Size 19 x 7 x 16.5" (whd) Weight 50 lbs
<i>Andromeda</i>	Power 240 W/ch (8 ohms) 400 W/ch (4 ohms) THD less than 0.1% IMD less than 0.05% Rise time less than 2 μ s Input imp. 47k ohms	Inputs balanced and single-ended Damping greater than 500 Size 19 x 7 x 16.5" (whd) Weight 50 lbs	<i>Polaris</i>	Power 120 W/ch (8 ohms) 200 W/ch (4 ohms) THD less than 0.1% IMD less than 0.05% Rise time less than 2 μ s Input imp. 10k ohms	Inputs balanced and single-ended Damping greater than 500 Size 19 x 5.2 x 12" (whd) Weight 35 lbs
<i>Ulysses</i>	Power 60 W/ch (8 ohms) 100 W/ch (4 ohms) THD less than 0.1% IMD less than 0.05% Rise time less than 2 μ s Input imp. 100k ohms	Inputs single-ended Damping greater than 250 Size 19 x 3.5 x 12" (whd) Weight 25 lbs	<i>Delilah</i>	Response 20 Hz - 20 kHz +/- 0.1 dB THD less than 0.01% IMD less than 0.01% Xover at 50, 53, 80, 100 or 125 Hz	Slopes 6 or 12 dB (low-pass) Max Gain 10 dB (low-pass) Output imp. 75 ohms Size 19 x 1.75 x 9" (whd) Weight 10 lbs