

Powerful Music

SLT

THE NEW SUMO PRODUCTS GROUP

There's a new team working at Sumo. Innovative, experienced designers in the field of Amplifier, Tuner and Speaker systems. These Sumo designers are responsible for many of the breakthroughs you now take for granted. Such as the AFC circuit found on every Tuner and Television made in the last twenty-five years. The first use of Servo Control in audio amplification. The first truly Linear Field loudspeaker magnet.

Besides decades of experience, Sumo designers share a tremendous enthusiasm for audio. Sumo components are made for enthusiasts, by enthusiasts. Their common goal is the most accurate possible recreation of the live musical experience through home audio electronics.

The Sumo staff is uniquely qualified to bring this level of performance to you. They are unafraid to try new solutions, to bring unorthodox technology

to bear on the problems facing audio designers. And they temper that attitude with knowledge and expertise second to none.

When you listen to a Sumo component, you're hearing the sound of audio evolution. Each component is the culmination of years on the bench, in the home, hands on, ears open, scientific experience. The new Sumo Products Group is dedicated to the delivery of superior music listening to the audio enthusiast.

Powerful Music



POLARIS



Even the best of the new crop of MOSFET output devices can exhibit a phenomenon known as transconductance error. When it occurs the very careful listener may notice a small degree of high-frequency distortion. With musical signals this can translate into a certain harshness or stridency especially when listening to digital discs.

The new Sumo Polaris class AB power amplifier banishes transconductance error completely with exclusive power MosFet correction circuitry. Using an independent closed-loop servo system directly at the amplifier output, Polaris dynamically corrects inherent MosFet transconductance error, reducing distortion and contributing to the amplifier's high-frequency smoothness.

Polaris, like all Sumo power amplifiers, is a fully complementary design from input to output. Sumo is one of the very few companies left who continue the expensive

process of matching NPN and PNP transistors to eliminate odd-order distortion products. Polaris will eagerly drive 4 Ohm loads and lower without current limiting, increasing current output even at a constant load of 2 Ohms. And Polaris is devoid of any distortion-producing protection circuitry.

Conservatively rated at 100 Watts* per channel into 8 Ohms, Polaris is an excellent choice as the single amplifier in a full range system. Yet its tremendous current capability and common-ground output configuration make it ideal for driving everything from subwoofers to electrostatic headphones. Many audiophiles are also discovering that the smoothness and detail of Polaris brings new vividness to midrange and tweeter elements in a multi-amped system.

The amazing new Polaris is an impressive addition to the Sumo lineup. Discover how good your system can become — audition the Sumo Polaris.

*100 Watts RMS per channel, both channels driven into 8 Ohms from 20 Hz to 20 kHz, at no more than 0.05% THD.

ANDROMEDA



The performance of any amplifier is ultimately determined by its performance into a loudspeaker. The low impedance, highly reactive loads common to today's best speaker designs require high current capability, wide bandwidth and total control from the system power amplifier.

Sumo's Class AB Andromeda delivers all this and more. Its full-wave, four-quadrant balanced bridge topology exercises total control over any loudspeaker connected to it, regardless of load type. Andromeda's four independent push-pull feedback loops maintain your speakers in absolute phase with the musical signal, resulting in perfect imaging and wide soundstage.

Andromeda achieves its astonishing accuracy through a combination of high power output — 200 Watts* per channel into 8 Ohms, and up to 350 Watts into 4 Ohms —

and a complete lack of current limiting. Rather than introduce invasive circuitry to protect the amplifier, which leads to restricted dynamic range and increased distortion, Sumo engineers put extremely wideband, extra high dissipation power transistors at the output of Andromeda. The dynamic range and awesome deep bass response of Andromeda is unapproached by any other amplifier.

Andromeda typifies the "no holds barred" philosophy of Sumo. A 1.4 kilowatt shielded toroidal transformer and 42,000MF worth of computer-grade filter capacitors keep supply voltage regulation within 3%. Military grade glass epoxy printed circuit boards insure maximum performance for years to come.

Andromeda will improve the sound of any stereo system connected to it. Audition Sumo's phenomenal Andromeda against any other power amplifier. The difference will be immediately apparent.

*200 Watts RMS per channel into 8 Ohms both channels driven from 20 Hz to 20 kHz at no more than .05% THD.

NINE PLUS



Traditionally, power amplifiers claiming Class A performance fall into one of two categories: 1) the outrageously expensive; 2) the quasi-class A, in which the amplifier produces class A into an 8 Ohm resistor, but not into a loudspeaker.

Sumo gives you the real thing. The Nine Plus is a pure class A power amplifier that remains class A even when driving 4 Ohm loudspeakers. The Nine's approach to Class A is so unique it earned a U.S. patent (No. 4229706) — an amazing achievement for an audio component. Sumo's exclusive class A engineering provides all the advantages and none of the disadvantages of typical class A designs.

To discover what the Nine Plus has going for it, consider what it doesn't have: thermal tracking circuitry, invasive protection circuitry,

or red-hot heat sinks. The actual design of the Nine Plus is remarkably simple, resulting in superb musical accuracy without the excessively high costs of traditional class A designs.

The Nine Plus achieves its high power and stability from balanced-bridge topology. Sumo is at the forefront of balanced bridge technology.

Sumo's creative use of this design cuts thermal requirements in half, for cooler, safer operation regardless of load.

The Nine Plus employs high gain-bandwidth output devices, driven by an ultra-high bandwidth driver stage. Their incredible speed provides gain linearity which is 20 times greater than typical outputs. The high-frequency detail and musical accuracy of the Nine Plus must be heard to be appreciated.

ELECTRA



The sonic excellence of Sumo amplifiers require an extraordinary associated preamplifier to realize their full potential. Sumo engineers developed the Electra preamp to do just that.

Everything about Electra's design underlines Sumo engineering's fanatic attention to detail. While other preamps give you "volume controls", Electra provides laser-trimmed stepped electronic attenuators for volume, bass, treble and balance. These controls will pass high-frequency square waves with no apparent distortion, and offer near-perfect channel-to-channel tracking. Only expensive 1% metal film resistors are used throughout the signal path, keeping design parameters firmly in check.

Electra's pre-preamp for moving coil cartridges is both fully

complementary and DC coupled, as is the FET magnetic phono stage. The entire preamplifier remains in phase from input to output. Even the circuit topology has been configured to reject stray magnetic fields, which can introduce hum and noise to the system.

When Electra is used with other Sumo equipment, such as Andromeda or Polaris, the interaction is synergistic — another way of saying, "The whole is greater than the sum of the parts". You will hear a wide, accurate soundstage, incredible dynamic range, astounding definition throughout the audio band. In short, the natural, effortless purity of live music.

Let Electra reintroduce you to authentic musical reproduction.

CHARLIE



Try this test with your present tuner. Tune in the best-sounding FM stereo station you can find, one with a strong signal in wideband mode. Then, while wearing a pair of electrostatic headphones (or listening to the most analytical loudspeakers possible) switch back and forth between wide and narrow bands. If you hear no difference at all in sound quality, you own a Sumo Charlie.

Charlie may be the only tuner in the industry to pass this test. That's because Charlie was engineered to provide the kind of sound quality from FM sources that you're used to hearing from LPs.

Charlie delivers true deep bass and detailed highs from FM broadcasts, thanks to painstaking attention to audio section

design. Its wide and narrow band IF strips are totally independent — in effect, each operates as a separate, highly specialized tuner.

But this is only the beginning of the list of Charlie's innovations. The 38 kHz subcarrier filter is user defeatable on the front panel, for maximum phase integrity and extended high frequency response. Double-tuned dual passive varactor stages, located at the antenna input, reproduce maximum dynamic range and provide high overload margins.

The Sumo design team is confident that Charlie's sonic purity outperforms any other FM tuner. Put Charlie in your present system. You may find yourself listening to FM stereo again just for the sound of it.

OPUS ONE

Sumo has waited a long time to introduce its first loudspeaker system. Judging by the sound of Opus One, the wait was worth it.

Opus One is the first generation of loudspeakers to incorporate an entirely

new set of proprietary Sumo technology. Following an exhaustive study of electromagnetics, Sumo developed a sophisticated magnetic structure that focuses magnetic flux in a carefully defined area. This focused-field design in the Opus One woofer keeps distortion

to an absolute minimum, because the flux pattern remains totally linear at any point up to amplifier clipping. The deep bass of Opus One retains its definition without strain, even at very high volume levels.

Sumo designed a dome tweeter for Opus One which represents a radical departure in speaker elements. Made out of hard polycarbonate —this amazing material completely resists ringing. In fact, it has no character of its own whatsoever. Opus One opens up high frequency response without stridency or compression.

True to Sumo's philosophy, which leaves nothing unexamined, the crossover of Opus One was designed as a true conjugate network. This sophisticated crossover presents a constant, resistive load to the amplifier, actually helping the amp to control both the woofer and tweeter by feeding them from a resistive source.

The perfect mating of speaker elements and conjugate crossover network in Opus One results in a phenomenally phase-coherent loudspeaker. The imaging and soundstage produced by Opus One is wide, deep and totally accurate. This startling resemblance to live music is apparent on first listen to Opus One.

Only the imagination and expertise of Sumo could have produced the sonic work of art that is Opus One. Let it improve the sound of your system.



PERFORMANCE SPECIFICATIONS

Polaris

Power Output	100 Watts RMS per channel into 8 Ohms Both channels driven from 20Hz to 20KHz at no more than .05% THD
Power at Clipping with Less Than .1% THD @ 1KHz Both Channels Driven:	@ 8 Ohms: 120 Watts RMS per channel @ 4 Ohms: 200 Watts RMS per channel @ 2 Ohms: 300 Watts RMS per channel
Intermodulation Distortion (SMPTE) and TIM:	.05% max. (0.25 W to 100 W @ 8 Ohms) Open loop bandwidth exceeds audio bandwidth
Hum & Noise Below Rated Power:	103 dB (20Hz to 20KHz)
Hum & Noise below 1 Watt ref. 0 dBW	83 dB (20Hz to 20KHz)
Frequency Response	± 0.1 dB from 20Hz to 20KHz + 0, -3 dB from 0.12Hz to 169KHz
Input Sensitivity for Rated Output	1.27 Volts RMS
Input Sensitivity for 1 Watt Ref. 0 dBW	127 mV RMS
Input Impedance	47K Ohms
Damping Factor	525 minimum from 20Hz to 1KHz
Rise Time	2.5 microseconds @ 8 Ohms
Separation	Greater than 80 dB (20Hz to 20KHz)
Dimensions (W x H x D)	19" x 5 1/4" x 8 3/4" (48cm x 13cm x 22cm)
Shipping Weight	27 lbs. (12 Kg)

Andromeda

Power Output in Watts RMS Per Channel 20Hz-20KHz	@ 8 Ohms: 200 @ less than 0.05% H. Dist. @ 4 Ohms: 350 @ less than 0.1% H. Dist.
THD @1KHz, IM, TIM	Harmonic: 0.05%
Distortions from 0.25 Watts to Rated Output at 8 Ohms	IM: 0.05% TIM: None
Hum & Noise Below Rated Power	100dB
Frequency Response	± 0.1dB from 20Hz to 20KHz
Input Sensitivity for Rated Output	1.8V RMS
Input Impedance	100K Ohms
Damping Factor	300 from 20Hz to 1KHz
Rise Time	2 1/2 seconds
Dimensions	19" x 8 3/4" x 7" (48cm x 22cm x 18cm)
Shipping Weight	35 lbs. (16kg)

The Nine Plus

Power Output in Watts RMS Per Channel 20Hz-20KHz	@ 8 Ohms: 65 @ less than .1% H. Dist. @ 4 Ohms: 120 @ less than .2% H. Dist.
THD @1KHz, IM, TIM	Harmonic: 0.05%
Distortions from 0.25 Watts to Rated Output at 8 Ohms	IM: 0.05% TIM: None
Hum & Noise Below Rated Power	100dB
Frequency Response	± 0.1dB from 20Hz to 20KHz
Input Sensitivity for Rated Output	1.0V RMS
Input Impedance	1M Ohms
Damping Factor	150 from 20Hz to 1KHz
Rise Time	3 1/2 seconds
Dimensions	19" x 8 3/4" x 7" (48cm x 22cm x 18cm)
Shipping Weight	35 lbs. (16kg)

Specifications subject to change without notice.

Electra

Input Functions	Gain 1000Hz	Sensitivity 3V RMS-1KHz	Noise* 20-20Kz	S/N Ratio 65dB	THD and IM Below 3V
MC (Phono 1) To Tape Out	68dB	115 μ V	65 μ V	65dB	0.01%
MM (Phono 2)	42dB	2.3mV	0.65 μ V	70dB	0.01%
Turner, Aux, Tape	20dB	315mV	2.7 μ V	100dB	0.01%
Frequency Response	20Hz-20KHz			\pm 0.1dB	
	2Hz-100KHz			\pm 3dB	
Low Filter (Quasi 2nd Order)	20Hz			-3dB	
RIAA Deviation MC (Phono 1)	20Hz-20KHz			\pm 0.5dB	
MM (Phono 2)	20Hz-20KHz			\pm 0.4dB	
Crosstalk	20KHz			-60dB or better	
	1KHz and below			-80dB or better	
Dimensions (W x H x D)	19" x 3.5" x 9" (48.5cm x 9cm x 23cm)				
Shipping Weight	12 lbs. (5.5 kG)				

*Referred to input.

All derived at 3 Volts output into 5K Ohm load except tape which is driven into a 10K Ohm load.

Charlie

	Mono	Stereo
Usable Sensitivity (I.H.F.)	2.5 µV	4 µV
Quieting Sensitivity (S/N 50dB)	3.7 µV	40 µV
Ultimate S/N Ratio (65dBf, 98MHz)	80dB	74dB
Distortion (65dBf, 98MHz)	Wide 1KHz-.04% Narrow 1KHz-.10%	1KHz-.05% 1KHz-.15%
Capture Ratio (65dBf)	1dB	
Alternate Channel Selectivity	Wide 65dB Narrow 100dB	
AM Suppression (65dB)	60dB	
Frequency Response (30Hz-15KHz)	+ .1dB-.25dB	
AM Suppression (65dB)	60dB	
Frequency Response (30Hz-15KHz)	+ .1dB-.25dB	
Subcarrier (38KHz) Rejection	80dB	
Separation (65dBf-98MHz)	100Hz-45dB, 1KHz-50dB, 10KHz-40dB, 15KHz-35dB	
Dimensions (W x H x D)	19" x 3.5" x 9" (48.5cm x 9 cm x 23cm)	
Shipping Weight	12 lbs. (5.5kg)	

Opus One

Frequency Response	42Hz to 24KHz (± 0dB, -3dB)
Impedance	4 Ohms
Power Handling Capacity	250 Watts
Group Delay	± 0.2 milliseconds 100Hz to 20KHz
Sensitivity	82 dB (1W, 1 meter)
Woofer	Voice coil 1 1/2" High temperature bobbin Magnet structure 3 lbs.
Tweeter	1" dome damped Magnet structure 1 1/4 lbs.
Crossover Network	2500Hz conjugate-compensated Second order transitional Thompson transfer function
Enclosure	3/4" fiber-pine core with natural oak veneer
Dimensions (W x H x D)	12" x 36" x 14" (30.5cm x 91.5 cm x 35.5 cm)

