

# A&ultima SP2000T

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Product Overview

Astell&Kern Business Team

**Find Your Optimal Sound**



# A&ultima **SP2000T**



Triple AMP  
System



ESS ES9068AS  
Quad-DAC

**TERATON  $\alpha$**

TERATON ALPHA

**LDAC**

LDAC  
aptX-HD



Full HD  
Display



MQA



BT Sink



Dual band Wi-Fi  
2.4/5GHz

## **SP2000T: Find Your Optimal Sound**

Staying true to our philosophy of delivering original audio experiences without compromise, Astell&Kern strives to design portable music players that reach beyond the capabilities of a standard playback device to enhance the listener's music enjoyment.

The SP2000T combines the OP AMP configuration of our SP2000—the culmination of Astell&Kern's finest audio technology—with a nostalgic vacuum TUBE AMP, adding a vintage feel to the portable player.

**The Triple Amp System Takes Acoustics to a New Level.**

**Vacuum Tube Amplifier Compatible with 2.5 mm, 3.5 mm and 4.4 mm Output Jacks.**

**Equipped with ESS ES9068AS QUAD-DAC, for Balanced, Ultra Detailed Sound.**

**TERATON ALPHA, Astell&Kern's Ultimate Sound Solution.**

**Replay Gain Function to Maintain Consistent Playback Levels between Tracks.**

**Dual-Band Wi-fi Support for Uninterrupted Wireless Connection and Improved Compatibility.**

**Internal Mechanical Design to Minimize Noise**

Introducing the A&ultima SP2000T. The Ingenious New Solution.

# SP2000**T**

The "T" in SP2000T does not stand for a specific word, but rather encompasses design approaches and directions made during the product development process.

## **True**

The SP2000T inherits the SP2000's true-sound philosophy

## **Triple**

Triple AMP System

## **Timeless**

Timeless Value

## **Tube**

Vintage Vacuum Tube Amplifier

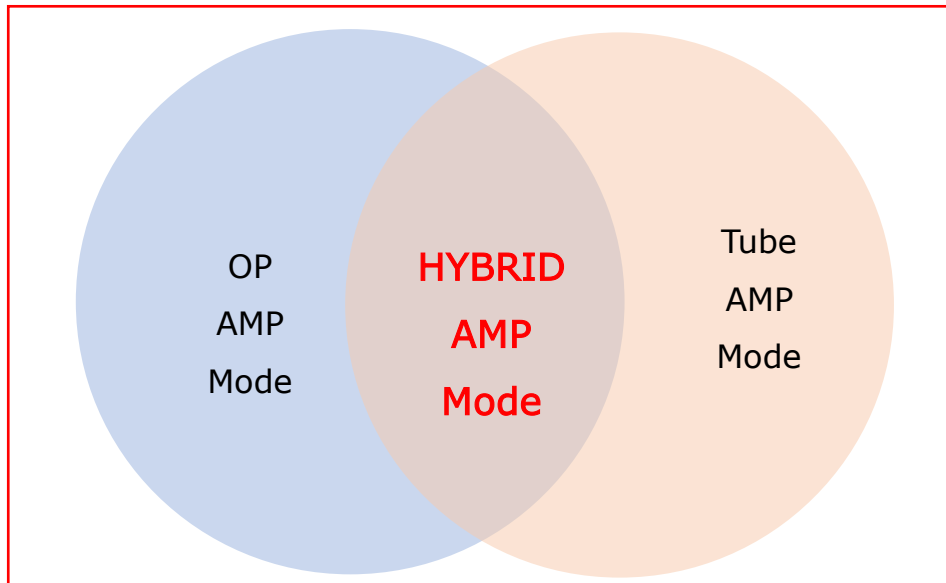
## TRIPLE AMP SYSTEM is the Next Generation of AMP Technology

The SP2000T exceeds the standard approach to AMP Mode selection, based on the type of music you are listening to. Select between TUBE AMP mode, OP AMP mode, or the brand-new HYBRID AMP mode.

OP AMP mode puts Astell&Kern's AMP technology expertise to use, delivering extreme clarity and dynamic sound, while TUBE AMP mode provides a uniquely warm and musical sound.

HYBRID AMP mode - a first for digital audio players - enhances the resolution and clarity of the existing TUBE AMP mode to express more musical detail. HYBRID AMP mode, combines the advantages of retro analog performance and high-resolution output, giving you the pleasure of a brand new tonal characteristic.

Experience the unique sound enhancements that AMP technology has to offer.



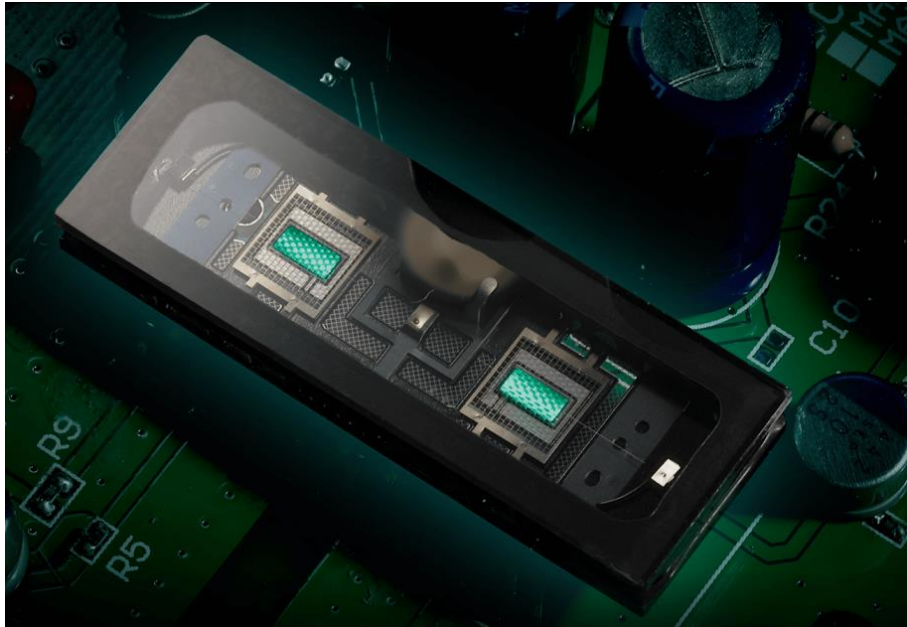
**OP AMP Mode** : Extreme clarity and dynamic sound

**TUBE AMP Mode** : Uniquely warm and musical sound

**HYBRID AMP Mode** : A fresh combination of retro vibes and high-resolution output.

## Vacuum Tube Amplifier Compatible with 2.5 mm, 3.5 mm and 4.4 mm Output Jacks

The SP2000T supports all output types, with no restriction on the type of receiver used, so you can enjoy the unique characteristics of the vacuum tube.



### Real Vacuum Tube

Equipped with the portable-friendly dual-triode KORG Nutube, for a unique TUBE AMP sound.

Nutube offers a reliable continuous playback time of approximately 30,000 hours.

It features an anode grid filament structure which operates the same as a triode vacuum tube.

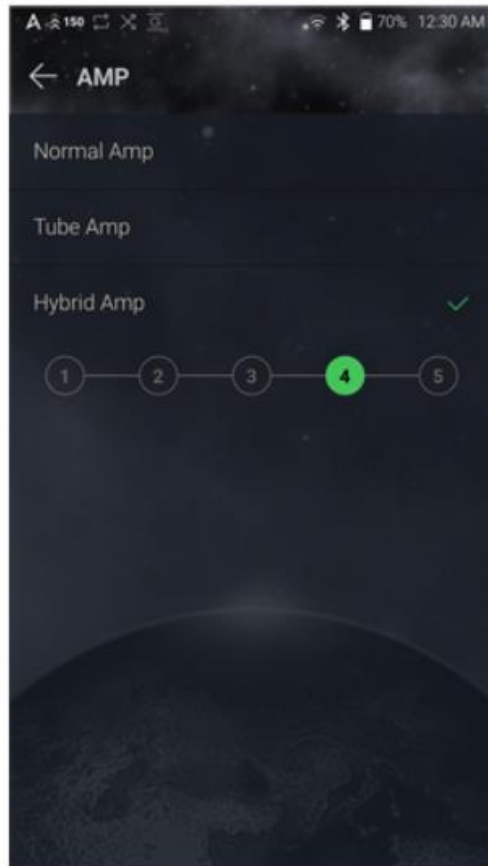
It's much smaller, consumes far less power and yet delivers the same audio with rich overtones.

The SP2000T supports all output types, with no restriction on the type of receiver used, so listeners can enjoy the unique characteristics of the vacuum tube.

# HYBRID AMP MODE

HYBRID AMP mode supported for the first time by DAP is the essence of Astell&Kern's advanced AMP design technology.

New combinations of sounds can be enjoyed in HYBRID AMP mode, which is based on the OP AMP sound and addition of tasteful warm tones unique to TUBE AMP technology.



The five options mixed and matched with optimal ratios of the OP AMP and TUBE AMP present users with a new perspective and choice for the perfect sound characteristic to suite their tastes.



# Internal Mechanical Design to Minimize Noise

## Special Design to Minimize Microphonics Noise

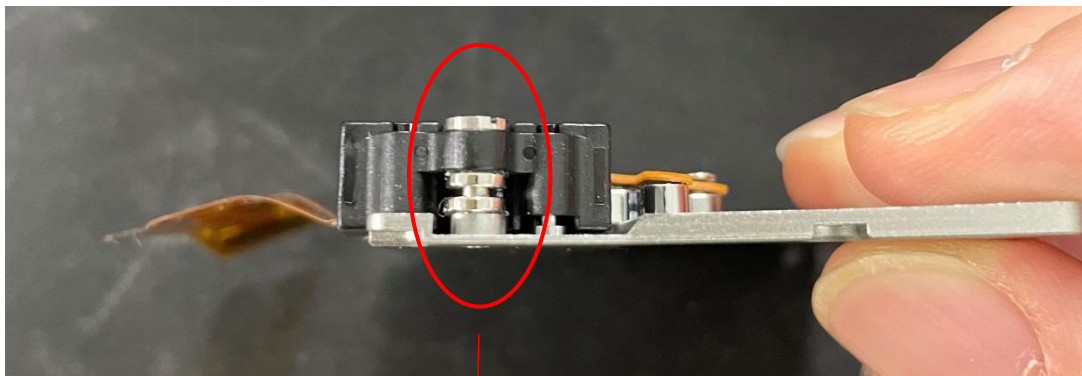
SP200T features a special design tailored to minimize microphonics (the phenomenon wherein the vacuum tubes generate noise even from a small external impact).

Multiple design iterations and verifications have been performed over a long period of time to fix the structural issues of vacuum tubes that generate microphonics noise even from a small impact or vibration.

For minimization of mechanical impact and vibration, both sides of the vacuum tube are fixed with flexible silicone covers, and the vacuum tube has been modularized so it is physically separate from the PCB.

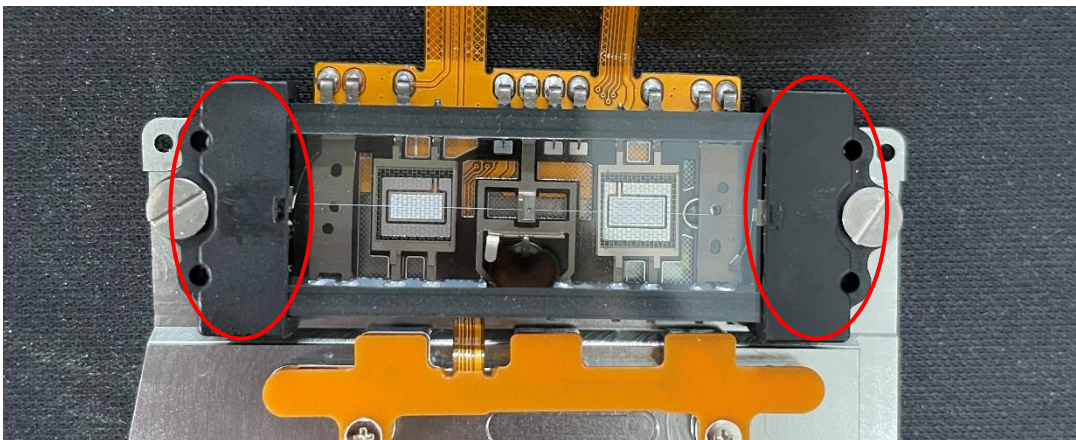
Astell&Kern goes to great lengths to innovate and design these small components that make a big difference in the quality and sound of our products that no other manufacturer can match.

### Separation Using Magnetic Polarity



A structure that uses magnetic forces to float the amp in the air, thus minimizing noise from the vacuum tube itself, which is generated when it is exposed to mechanical impact or vibration

### Flexible Silicone Covers



## Silver Plating Shield Can

Astell&Kern products apply shield cans so that noise and electromagnetic interference, which occur when the countless parts are in operation, do not affect the audio block.

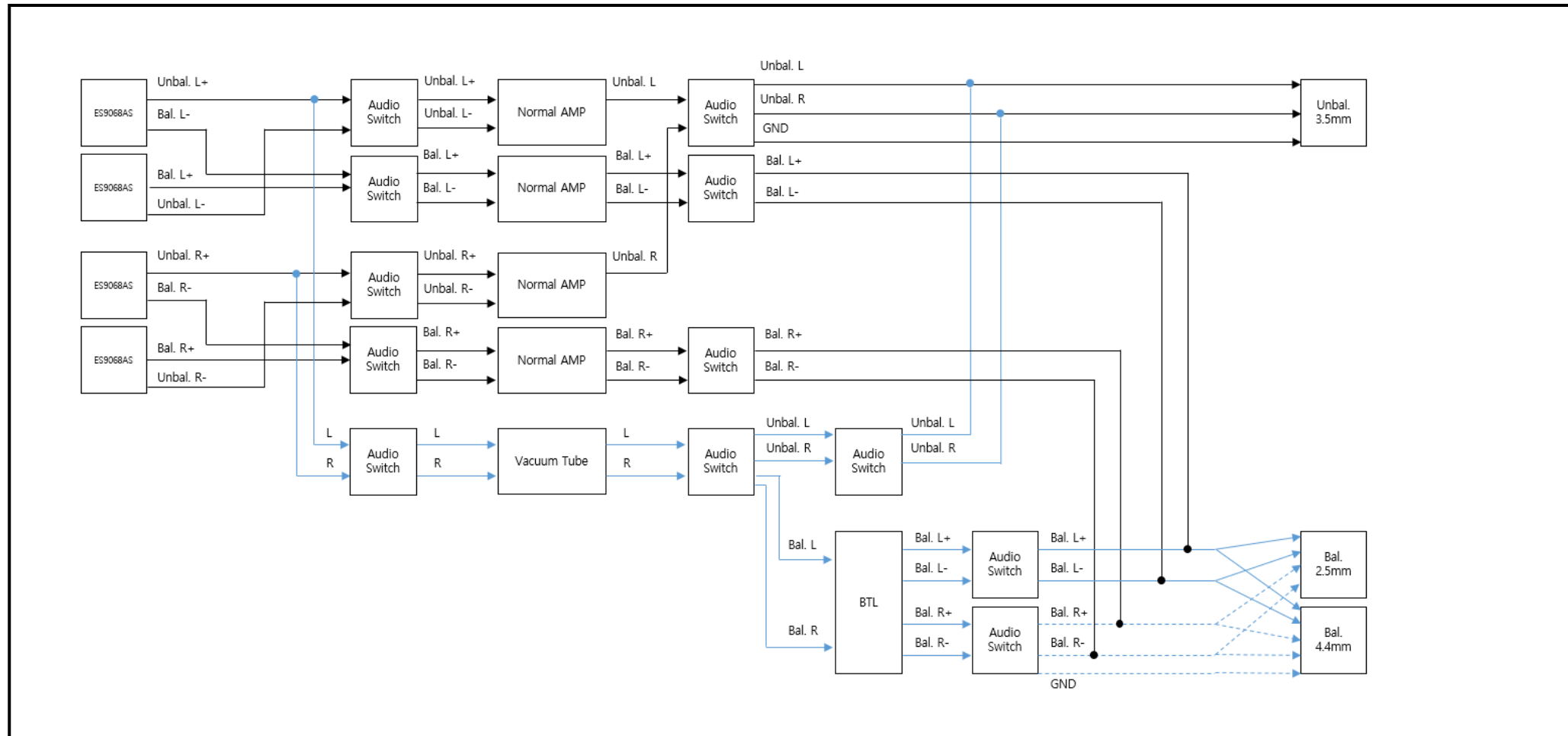
The SP2000T has taken it a step further by applying highly conductive, hyper-pure silver plating on the existing shield cans for perfect shielding that provides excellent audio performance.



## Quad-DAC for Perfection of Superior Sound

The SP2000T is equipped with four ES9068AS DACs, this allows two DACs per channel for dedicated decoding.

The SP2000T achieves a more detailed and balanced sound with great depth and spatial realism.



# Astell&Kern Audio Technology Forms the TERATON ALPHA Sound Solution



AK ULTIMATE SOUND SOLUTION, TERATON ALPHA

TERATON ALPHA is AK's ultimate Sound Solution to produce audio playback that is close to the original sound through the audio output interface by use of effective power noise removal, efficient power management and amplification with minimal distortion.

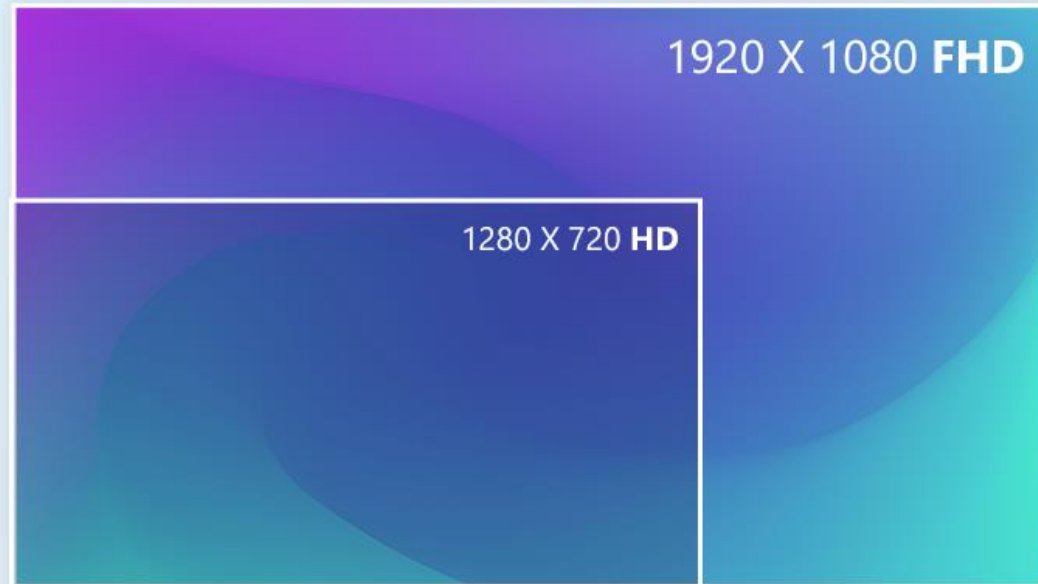
TERATON ALPHA features Astell&Kern's patented technologies, which are the result of tens of thousands of hours of continuous research and development to produce sound close to the original sound the artist and producer intended.

[Go to TERATON ALPHA >>](#)



## Adoption of Full HD Display for Improved Image Quality

The SP2000T features a full HD screen to provide a higher quality display.



**441 PPI**

High pixel density

**5.0 inch**

Large display

**16.7M colors**

Large color gamut

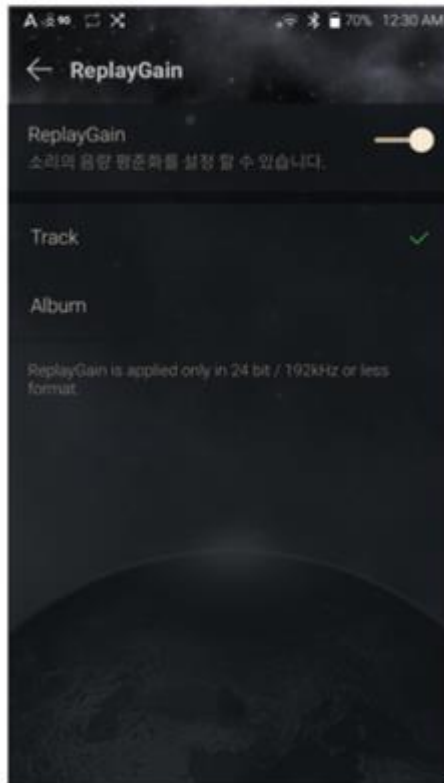
**1920\*1080**

High resolution

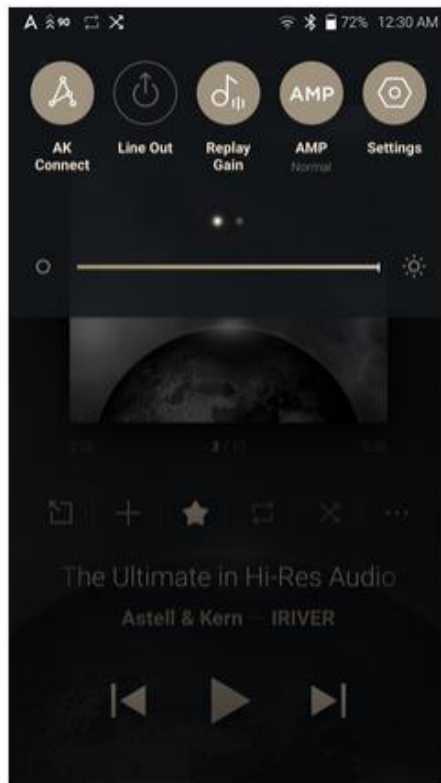
## Replay Gain Automatically and Uniformly Adjusts Playback Volume

Replay Gain, which adjusts sound sources with different volumes to an identical level, has been applied. Now, enjoy your own playlists seamlessly through the Replay Gain feature on SP2000T.

\*Replay Gain supports up to 24-bit/192 kHz sound sources.



[SP2000T]G. Seettings\_replay... 63d



[SP2000T]C. Notification Pan... 57d

## Dual-Band Wi-Fi (2.4/5 GHz)

Dual-Band Wi-Fi is supported for users who enjoy streaming services, providing enhanced network performance. With streaming music services becoming more popular, stronger and more reliable network reception becomes even more important for your audio experience.

The SP2000T supports Dual Band Wi-Fi (2.4/5GHz, a/b/g/n/ac).

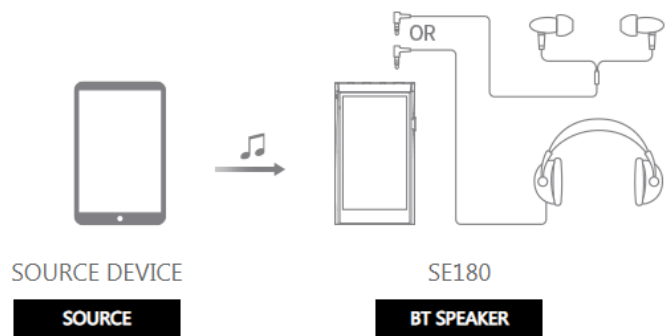
## Wireless Hi-Fi Sound Through BT Sink

SP2000T

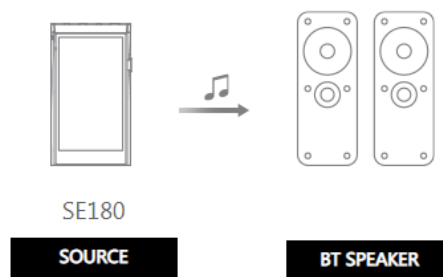
The newly introduced BT Sink function connects the SE180 to an external device via Bluetooth, similar to connecting a smartphone with a BT speaker.

Music from an external device, such as a smartphone can now be played back in high-quality on the SE180 using the BT Sink function.

### BT Connect (RX Mode/BT Sink)



### BT Connect (TX Mode)



FTP CONNECT (DOWN / UPLOAD)



## AK File Drop to enjoy wireless transfers

The new AK File Drop function in the SP2000T makes files transfers easier and more convenient.

Using AK File Drop, you can freely transfer files wirelessly through a PC, smartphone, or FTP program located on the same network.

Music file management is now possible with a cableless, wireless solution.

# Real-Time Playback and AMP Mode Information Reflected by Light

Through the softly dispersing LED light,  
Users are notified of the bit depth information of the song being played or the current AMP mode.



\*LED light may be turned on or off in the user settings, and one can choose between the sound source information or AMP mode information displays.



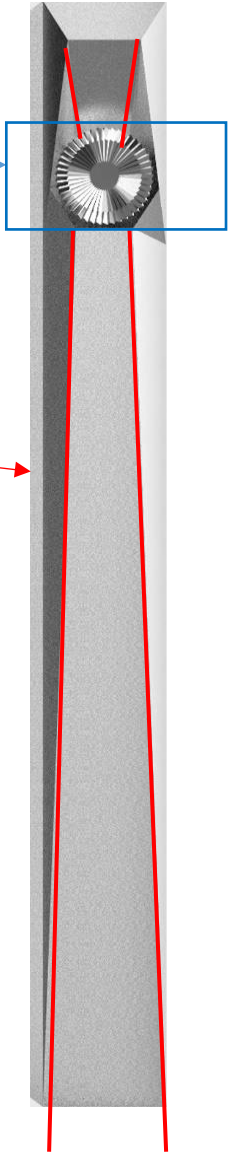
# DESIGN CONCEPT

## Designed as a Successor to the SP2000

The radial pattern of the volume wheel reflects bursts of light, and the protective surface has been modified to distinguish it from other models. The side lines fan outward as they extend downwards from the wheel.

Similarly to the SP2000, the edge extends to the rear panel, emphasizing the connection between the two models.

The proportions of the face have been adjusted to accommodate the larger form, and the CMF (Color, Materials, and Finish) have all been selected to make the SP2000T stand out from its predecessor, the SP2000.



## SP2000T: Illuminating Space

To reinforce the idea of light illuminating space, we combined the image of the amp's light filling the empty space of the vacuum tube with Astell&Kern's light and shadow concept.

The protector around the volume wheel is encircled, providing an image of a space that has been created from light.

Although the glass on the rear is one piece, it looks like two separate pieces, and the boundary of the two is designed to look consistent with the wheel protector.

Rather than evoking the coldness of glass, the underside has been designed to express warmth, and the top features a subtle, shimmering design that flares to life when the amp is switched on.



General Specifications

Model	SP2000T
Body Color	Onyx Black
Body Material	Aluminum
Display	5.0 inch FHD 1280 x 1080 touch screen
Supported Audio Formats	WAV, FLAC, WMA, MP3, OGG, APE, AAC, ALAC, AIFF, DFF, DSF
Sample rate	PCM : 8kHz ~ 384kHz (8/16/24/32bits per Sample) DSD Native: DSD64(1bit 2.8MHz), Stereo / DSD128(1bit 5.6MHz), Stereo / DSD256(1bit 11.2MHz), DSD512(1bit, 22.4MHz) Stereo
Output Level	Unbalanced 3Vrms   Balanced 6Vrms (Condition No Load)
CPU	Quad-core
DAC	ESS ES9068AS x4 (Quad-DAC)
Vacuum Tube	KORG Nutube 6P1
Decoding	Support up to 32bit / 384kHz Bit to Bit playback
Input	USB Type-C input (for charging & PC & MAC)
Outputs	Unbalanced Out (3.5mm), Optical Out(3.5mm) Balanced Out (2.5mm, only 4-pole supported   4.4m, only 5-pole supported)
Wi-Fi	802.11 a/b/g/n/ac (2.4/5GHz)
Bluetooth	V5.0 (A2DP, AVRCP, Qualcomm® aptX™ HD, LDAC)
Dimensions	3.07" (78.1mm)[W] x 5.55" (141.1mm)[H] x 0.68" (17.5mm)[D]
Weight	about 10.89oz (309g)
Feature Enhancements	Firmware upgrade supported (OTA)
Operating Temperature	0°C ~ + 40°C (32°F~ 104°F)

Audio Specifications

Frequency Response	±0.024dB (Condition : 20Hz~20kHz) Unbalanced   ±0.038dB (Condition : 20Hz~20kHz) Balanced ±0.027dB (Condition : 20Hz~70kHz) Unbalanced   ±0.052dB (Condition : 20Hz~70kHz) Balanced
S/N	121dB @ 1kHz, Unbalanced   123dB @ 1kHz, Balanced
Crosstalk	-137dB @ 1kHz, Unbalanced   -142dB @ 1kHz, Balanced
THD+N	0.0003% @ 1kHz, Unbalanced   0.0003% @ 1kHz, Balanced
IMD SMPTE	0.0004% 800Hz 10kHz (4:1) Unbalanced   0.0003% 800Hz 10kHz (4:1) Balanced
Output Impedance	Unbalanced Out 3.5mm (1ohm)   Balanced Out 2.5mm (1.5ohm), 4.4mm(1.5ohm)

Clock Source

Clock Jitter	25ps (Typ)
Reference Clock Jitter	70ps

\* Audio specifications will be based on OP AMP.

Storage Capacity

Built-in Memory	256GB [NAND]
External Memory	microSD x1 (Max. 1TB)

Battery

Capacity	4,200mAh 3.8V Li-Polymer
Charge Time	about 3.5hours (9V / 1.67A Fast Charging)   5hours (5V 2A General Charging)
Playback Time	about 9hours (Standard : FLAC, 16bit, 44.1kHz, Unbalanced, Vol.50, LCD Off, LED On, OP AMP Mode)

Supported OS

Supported OS	Windows 7,8,10(32/64bit) MAC OS X 10.7
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**THANK YOU**