

# cocktailAudio HA500H

High Performance Hybrid Headphone Amplifier, DAC,  
Pre-Amplifier and Asynchronous USB DAC for audiophiles



MQA

DSD  
Direct Stream Digital

HD MUSIC  
32Bit/384Khz  
High Resolution Audio

Hi-Res audio



Feel not only beautiful and warm sound delivered by Vacuum Tubes, but also transparent and dynamic sound created by Solid State electronics. Natural and magnificent sound reproduction of the HA500H will fascinate music lovers and audiophiles

powered by NOVATRON

VACCU TUBES & SOLID STATE ELECTRONICS

# What is the HA500H



The HA500H is a premium Hybrid Headphone Amplifier, DAC, Pre-Amplifier and Asynchronous USB DAC for audiophiles. It is equipped with two(2) ECC82 vacuum tubes and solid state OP Amp, which will work as preamp stage for the headphone section, and will work as out stage for the pre-out section, while solid state transistors are built in at power amp stage for headphone section. So, you can select one out of Tube and OP Amp according to character of music, your feelings and mood.

All music has its own character. Some music need to be reproduced clearly and dynamically, others will be better when they are played warmly and smoothly. The HA500H will be the best device that will let you choose different sonic signature in reproducing music according to your feelings and music character.

The HA500H offers impedance selector(High/Low) with which you can choose one of High or Low impedance, which suits better your headphones.

Equipped with two(2) Sabre<sup>32</sup> ES9018K2M DAC(one DAC per channel), additional multicore microcontroller for high performance USB Audio DAC, completely isolated circuit design for analogue and digital section with customized SMPS and Toroidal Transformer and high quality aluminum enclosure crafted precisely by CNC machine with beautiful glass-sanding finish, the HA500H will be Reference Level Hybrid Headphone Amplifier, DAC, Pre-Amplifier and Asynchronous USB DAC for audiophiles



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## Dual ESS Sabre<sup>32</sup> ES9018K2M DACs built in for right channel and left channel separately



Two(2) Sabre<sup>32</sup> ES9018K2M DAC chips are built in for right and left channels separately. The world's best performing 32Bit audio DAC solution, the ES9018K2M offers unexampled DNR(Dynamic Range) of up to 127dB and THD+N(Total Harmonic Distortion plus Noise) of -120dB. As the HA500H is circuit-designed with two DAC chips allocated for each channel separately, its Dynamic Range will be far increased and much better sound quality can be guaranteed

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## Two(2) ECC82 Vacuum Tubes

Based on our exclusive technologies to match up solid state electronics with vacuum tube, the HA500H was developed to let audiophiles and music lovers experience mellow and enthralling sound adding warmth and depth to the music. A pair of ECC82 Vacuum Tubes are installed for preamp stage of headphone section and for out stage of pre-out section. It delivers a breathtaking sound enough to attract audiophiles' attention



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## Balanced Circuit Design

The HA500H is circuit-designed by fully balanced technologies for internal analogue audio signal path. The unbalanced(single-ended) analog input will be converted to the balanced at input buffer, and it will go into ADC. The balanced analog input will go into ADC as it is. For all digital audio input, the signal flows in balanced mode all the way from the DAC to the output connectors. All single-ended(unbalanced) outputs are originated from the balanced signal as well. The balanced circuit design surely helps to reduce common-mode noise and improves signal quality. The balanced headphone output provides twice the voltage and four times the power of the single-ended(unbalanced) output, enabling the HA500H to drive headphones which request lots of power. It also provides better channel separation by eliminating the common ground return path.



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## Isolated Power Source Circuit Design and Toroidal Power Transformer

To minimize idle noises and electrical interference, power source for digital and analogue section is isolatedly designed. Instead of cost-effective laminated steel core transformers, the HA500H applied the customized high quality toroidal power transformer which ensures unexcelled power efficiency and minimizes exterior magnetic fields.

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## Perfect Asynchronous USB DAC and Hi-Res Audio

For audiophiles and music lovers who use PC, X50D or X50Pro as source device, the HA500H will be a perfect Hybrid Asynchronous USB DAC, which will surely deliver a wonderful sound by using the high precision clock inside to drive the audio signal precisely and dual ESS Sabre<sup>32</sup> Reference DAC chips inside to convert digital signal to analogue. The HA500H USB DAC Input supports MQA(Master Quality Authenticated), Native DSD64/128/256 and PCM signal up to 32Bit/384Khz

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## Wireless Playback via aptX Bluetooth

As HA500H offers Bluetooth receiver which allows you to play music files in your mobile devices wirelessly via the HA500H. It supports A2DP and AVRCP profiles and SBC(Subband codec), aptX, AAC and MP3

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## 12V Trigger Input and Output

Ideally, it is best way to power on in order of a source device, DAC, Pre-amplifier and Power Amplifier when power on hifi audio systems, Of course, the reverse order is recommended when turn off the power.

The HA500H offers 12V trigger output and input. When it is used as a pre-amplifier, its trigger output can power on the connected power amplifier automatically when the HA500H is powered on. If you connect its trigger input to the trigger output of the connected source device, the HA500H can be turned on automatically when the source device is powered on.



## Selectable Headphone Out Impedance / Highly Adjustable Gain Setting

The HA500H offers the feature to select Headphone Output Impedance(High/Low), so that you could set to proper impedance for optimal sound quality and the best matching with your headphones' sensitivity. You may select one of High and Low.

The HA500H's volume can be precisely and seamlessly controllable via the bundled cute remote control. The headphone amplifier also provides separate adjustments for the impedance and sensitivity of the connected headphones, as well as different levels of the audio sources. This features allow headphones between 16 ohms and 600 ohms to be worked perfectly with the HA500H with wonderful sound quality.



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## High Connectivity

The HA500H offers very high connectivity. As it provides Analog Inputs(Balanced and Unbalanced), Digital Inputs(Coaxial, Toslink, AES/EBU), I<sup>2</sup>S Input(HDMI) and USB Audio Input, you can connect various source devices to the HA500H almost without limitation. Especially, the HA500H can be connected to the I<sup>2</sup>S HDMI Output of the X50Pro and X50D perfectly to play Native DSD, MQA and up to 384Khz PCM with great sound quality. For outputs, it offers Balanced/Unbalanced Line Outputs and Balanced/Unbalanced Headphone Outputs.

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## Remote Control

A cute remote control is provided to control the HA500H remotely. It will allow you to do volume control, mute, setting, input change, source device selection, etc

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## Convenient Operation with 5 inch screen/ Sophisticated and intuitive operation

5inch TFT LCD screen on the front will help to operate the HA500H easily and to get information how it is working. VU meters provide precise metering with a classic feel that matches with the warm, analog tone from the tubes



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## Outlooking Design & Build Quality

The HA500H is very rigidly and clearly structured, and it has simple and noble exterior design with top quality beautiful glass-sanding aluminum, which is crafted minutely by CNC machine. The five(5) inch screen is located on the center of front with smart two ventilations sections for the vacuum tubes located on the top surface. This is another eye-catcher for the HA500H. For the rear and bottom side, 2mm high quality steel is used to give stability and rigidity along with additional resistance from external vibrations. The HA500H is immensely solid desktop headphone amplifier and DAC with total weight of 6.9Kg(15.2 lbs)





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## Breathtaking Sound Quality and Hi-RES Audio

Experience dramatic, unbelievably natural and brilliant sound created by a combination of vacuum tubes and solid state electronics technologies.

The HA500H will deliver the warm and mellow sound created by two(2) ECC82 vacuum tubes, and also transparent and dynamic sound by a pair of high quality OP Amp. Feel rich, simply magnificent and delightful sound with an extraordinary amount of details regardless of headphones of any impedance.

The HA500H can support DSD64/128/256, MQA and up to 384KHz PCM Hi-Res Audio to deliver magnificent sound quality that is as close as possible to the master recording level at studio.





## Easy Operation with Various Information

You can operate HA500H easily with 5 inch screen and five(5) functions keys on the front



Five(5) keys like Tube ON/OFF, Headphone Impedance High/Low, Setup, Line Out or Headphone Out, Balanced or Unbalanced for headphone out



Setup to set various options like volume fixed/variable for Line Out. Analog In Volume, Kind of Input Level Display, LCD Brightness, LCD off time, etc



To select Input Source

## Three(3) kinds of Input Level display

HA500H offers three(3) kinds of Input Level display like below. You can select one you prefer to



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## Summary of the HA500H functions

- Hybrid(Vacuum Tubes & Solid State Electronics) Headphone Amplifier
- Hybrid Premium Digital to Analog Converter
- Pre-Amplifier
- Asynchronous USB DAC

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## Perfect Combination with X50Pro or X50D

Experience a perfect audio system via a combination of HA500H and Premium Pure Digital Music Server, cocktailAudio X50Pro or X50D



# Specification

Model name	HA500H				
Display	5.0" TFT LCD(800 x 480 pixels)				
Interface	Key & Jog(Volume/Scroll), IR Remote Control				
Input					
Analog	Unbalanced(RCA)	Input impedance: 47K ohm, Default 2Vrms(controllable 1 ~ 4Vrms)			
	Balanced(XLR)	Input impedance: 47K ohm, Default 4Vrms(controllable 2 ~ 8Vrms)			
Digital	COAXIAL x 1	Sample Rate: up to 192Khz			
	Toslink x 1	Sample Rate: up to 192Khz			
	AES/EBU x 1	Sample Rate: up to 192Khz			
I <sup>2</sup> S	HDMI x 1	Native DSD256, DoP(Max DSD128), PCM up to 384Khz, MQA			
Bluetooth Input	Bluetooth 4.2	Profile: AVRCP/A2DP, Format: SBC, aptX, AAC, MP3			
USB DAC Audio	USB B Type x 1	USB Audio Class 2.0, Support up to PCM 32Bit/384Khz, Native DSD256, MQA384Khz			
DAC Performance; Sabre <sup>32</sup> ES9018K2M Dual DAC(One per each channel)					
Sabre <sup>32</sup> ES9018K2M Dual DAC	Balanced Line Out(XLR x 2)	Dynamic Range: 130dB(Max 4Vrms/8Vrms, Stereo) THD+N:0.0004%			
	Unbalanced Line Out(RCA x 2)	Dynamic Range: 130dB(Max 2Vrms/4Vrms, Stereo) THD+N:0.0004%			
<b>Analog Out Spec (※ Not applicable to Tube)</b>					
		Balanced Line Out(XLR)	Unbalanced Line Out(RCA)		
Rated Output Level(High/Low)		High - 8Vrms / Low - 4Vrms	High - 4Vrms / Low - 2Vrms		
Frequency Response		10Hz ~ 80KHz: +/- 0.1dB	10Hz ~ 80KHz: +/- 0.1dB		
		20Hz ~ 20KHz: +/- 0.01dB	20Hz ~ 20KHz: +/- 0.01dB		
THD+N @ 1KHz(20Hz ~ 20KHz)		< -105dB (< 0.00056%)	< -105dB (< 0.00056%)		
Channel Separation		-110dB	-110dB		
Signal-to-Noise Ratio		< -113dB	< -112dB		
<b>Headphone Out Spec (※ Not applicable to Tube)</b>					
		Balanced Output		Unbalanced Output	
Impedance to be selected		High	Low	High	Low
Rated Output Power	600 ohm	485mW per CH	120mW per CH	125mW per CH	31mW per CH
	16 ohm	n/a	n/a	1100mW per CH	450mW per CH
Frequency Response		10Hz ~ 80KHz ±0.5dB	10Hz ~ 80KHz ±0.15dB	10Hz ~ 80KHz ±0.5dB	10Hz ~ 80KHz ±0.5dB
THD+N@1KHz(20Hz ~ 20KHz)		0.001% (-100dB)	0.0012% (-99dB)	0.009% (-81dB)	0.0041%(-88dB)
Signal-to-Noise Ratio		< -111dB	< -113dB	< -106dB	< -110dB
<b>General Information</b>					
Trigger	Input	Max. 12V			
	Output	Max 200mA, 12V			
Headphone Out Pin Order	Balanced(XLR-4pin)	1: L+, 2: L-, 3: R+, 4: R-, Shell: Ground			
	Unbalanced(6.35mm)	Tip: L, Ring: R, Sleeve: Ground			
Recommended Headphone Impedance	16 ohm ~ 600 ohm				
Power Supply	AC 110-120V~ / 220-240V~, 50/60Hz Auto-sensing				
Power Consumption	50W(Operation), 0.5W(Standby)				
Mechanical	Material	Front, Body, Top, Knob	High quality and beautiful glass-sanding aluminum crafted by CNC		
		Rear, bottom	High quality steel		
	Dimensions	Without foot	270mm(W) x 333mm(D) x 85mm(H)		
With foot		270mm(W) x 333mm(D) x 90mm(H)			
Weight	6.9 Kg(15.2 lbs)				
Certificate	CE, FCC, EMI, etc				

※ Specification may be changed without notification