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

cocktailAudio HA500H

MQA

DSD
Direct Stream Digital

DXD
Digital eXtream Definition

Hi-Res audio [H·Res AUDIO]

HD MUSIC
32Bit/384Khz
High Resolution Audio

Rev1.0   English

Contents

Important safety instructions

For your own safety, please read the following important safety instructions carefully before attempting to connect this unit to the main power supply. They will enable you to get the best performance from the unit.

1.Read the instructions.

2.Keep the instructions.

3.Heed all warnings.

4.Follow all instructions.

5.Do not use this product near water.

6.Clean only with dry cloth.

7.Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8.Do not remove the casing of this product.

9.Only use this product indoors. Do not expose the product to water, rain or high humidity.

10.Keep this product away from direct sunlight, naked flames or heat.

11.Do not install near any heat sources such as radiators, heat registers, stoves, or other electrical equipment(including amplifiers) that produce much heat.

12.Do not place any other electrical equipment on the product.

13.Do not place any sources of danger on the product(e.g. objects containing liquid, burning candles)

14.This product includes batteries. Please refer to safety and disposal instructions for batteries in this user manual.

15.Unplug this product during lightning storms or when unused for long time.

16.Refer all servicing to qualified service personnel. Servicing is required when the product has been damaged, such as the power supply cord, damaged plug, liquid spillage, objects dropped on the unit, exposure to rain or moisture, does not operate properly, or has been dropped.

17.The apparatus shall be connected to a MAINS socket outlet with a protective earthling connection

18.The an all-pole MAINS SWITCH is used as the disconnect device, the location on the apparatus and the function of the switch shall be described, and the switch shall remain readily operable

     WARNING

- Using headphones at a high volume can impair your hearing. This product can produce sounds in decibel ranges that may cause hearing loss for a normal person, even for exposure less than a minute. The higher decibel ranges are offered for those that may be experiencing some hearing loss. Over time your hearing 'comfort level' adapts to higher volumes of sound, so after prolonged listening, what sounds 'normal' can actually be loud and harmful to your hearing. To guard against this, set your volume to a safe level.
- Loudspeakers : Before making any connections to loudspeakers, make sure all power is turned off and only use suitable interconnects.

- Only use attachments/accessories specified and supplied by the manufacturer.
- RF Exposure

    To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons. This device must not be co-located or operation in conjunction with any other antenna or transmitter.

    This equipment complies with FCC

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance(servicing) instructions in the literature accompanying the appliance

FCC regulations

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER AUTHORITY TO OPERATE THE EQUIPMENT.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference. and

(2) This device must accept any interference received, including interference that may cause undesired operation.
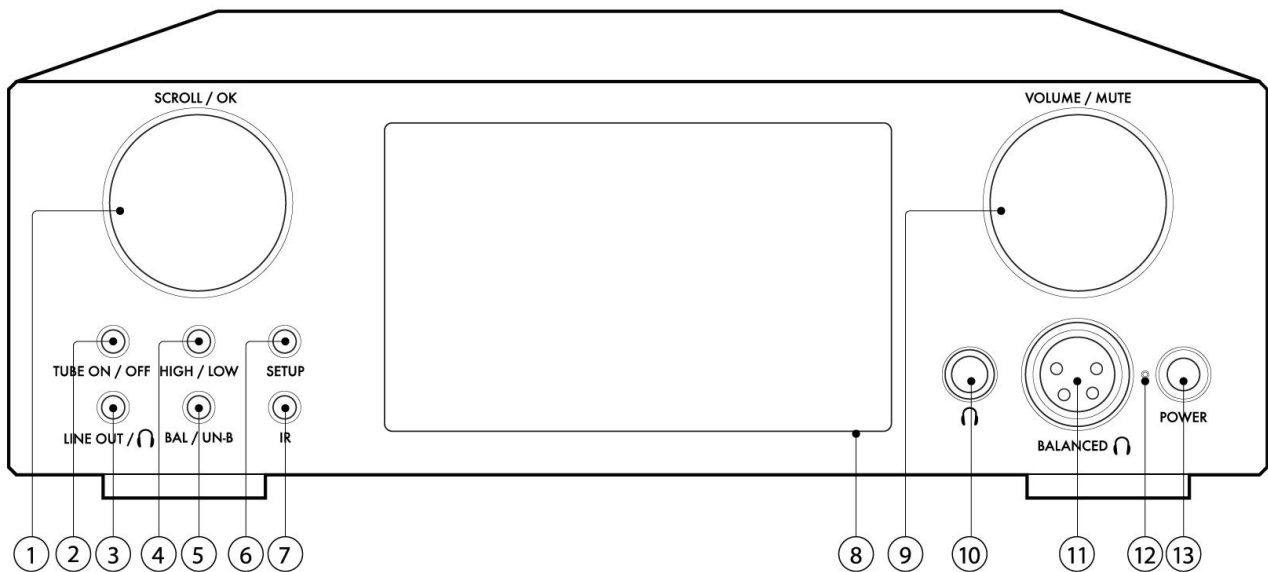
1. What's the HA500H

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^{32} ES9018K2M DAC(one DAC per channel), additional multi-core 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
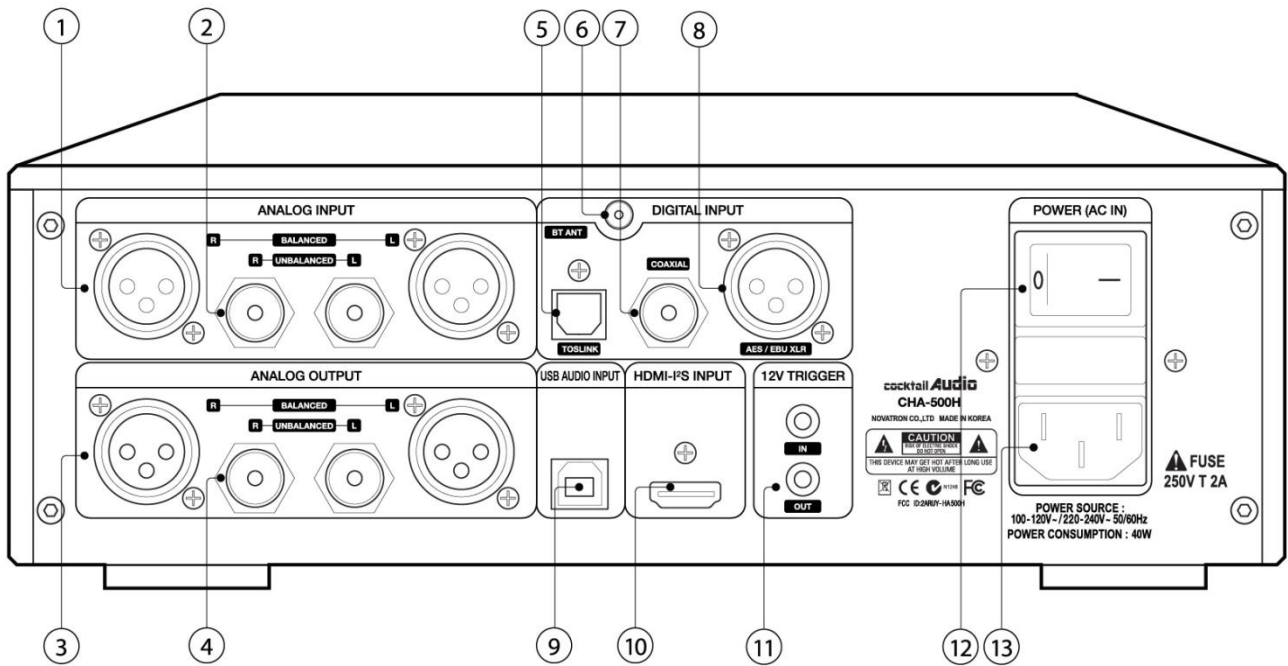
2. Product Overview

2-1. Front View

⑧ SCROLL / OK Knob

⑨ Tube ON / OFF Button

⑩ LINE Out / Headphone Out Button

⑪ Headphone Impedance High / Low

⑫ Balanced / Unbalanced Button

⑬ Setup Button

① Remote Control IR Receiver

② LCD Screen

③ Volume / Mute Knob

④ 6.35mm Unbalanced Headphone Out

⑤ XLR Balanced Headphone Out

⑥ Power LED

⑦ Power Button

2-2. Rear View

① Balanced Analog Input(XLR)

② Unbalanced Analog Input(RCA)

③ Balanced Analog Output(XLR)

④ Unbalanced Analog Output(RCA)

⑤ Toslink Input

⑥ Bluetooth Antenna

⑦ Coaxial Input

⑧ AES/EBU Digital Input

⑨ USB Audio Input

⑩ I²S HDMI Input

⑪ 12V Trigger In/Out

⑫ Power Switch

⑬ AC Inlet

2-3. View of Remote Control and each key's function
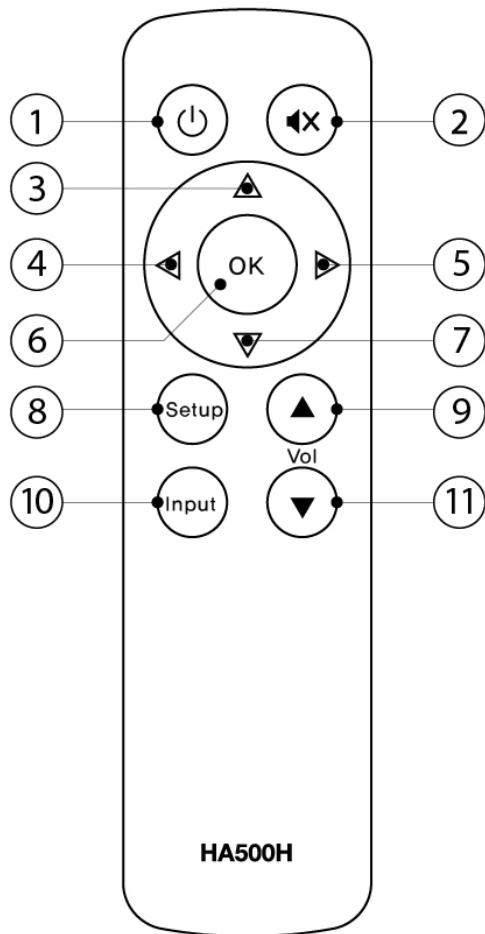
1. POWER: Power ON/OFF
2. MUTE: Mute audio output
3. ARROW: Move cursor to upper
4. ARROW: Move cursor to left
5. ARROW: Move cursor to right
6. OK: To Confirm
7. ARROW: Move cursor to down
8. SETUP: Open setup menu
9. VOLUME: Increase volume
10. INPUT: Open Input source list
11. VOLUME: Decrease volume

※ NOTICE

You need to replace battery periodically
to keep remote control work properly

2-4. Contents in the HA500H package

① HA500H unit   ④ Bluetooth Antenna

② Remote Control   ⑤ Manual

③ Power Cord

2-5. Balanced Headphone Jack Pin-out

The 4-pin XLR connector of the Balanced Headphone Jack has the pin-out assignment like below
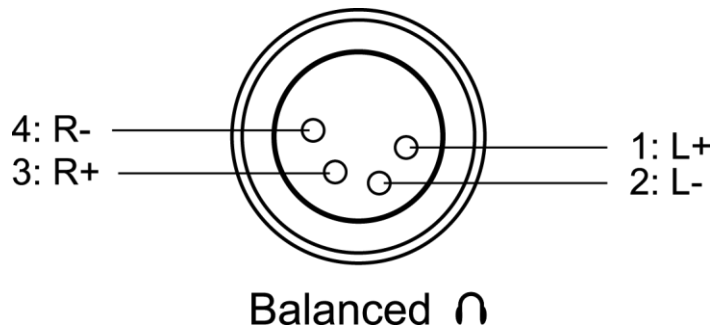

2-6. Trigger Out

When HA500H is used as Pre-amplifier, its Trigger Out can be connected to the trigger input of a power amplifier with a 3.5mm mono-to mono cable. When HA500H is turned on, its trigger output will supply a +12V signal to the connected power amplifier for automatic power-on

3. Turn ON and Start

3-1. Power ON

Connect AC power to the AC Inlet of HA500H, and switch on with the Switch at rear. Power LED will be green color. Press Power Button on the front to power it on(You can power on by remote control also). Then, Power LED will be blue and LCD will show **Home Screen** like below

[Body Section]
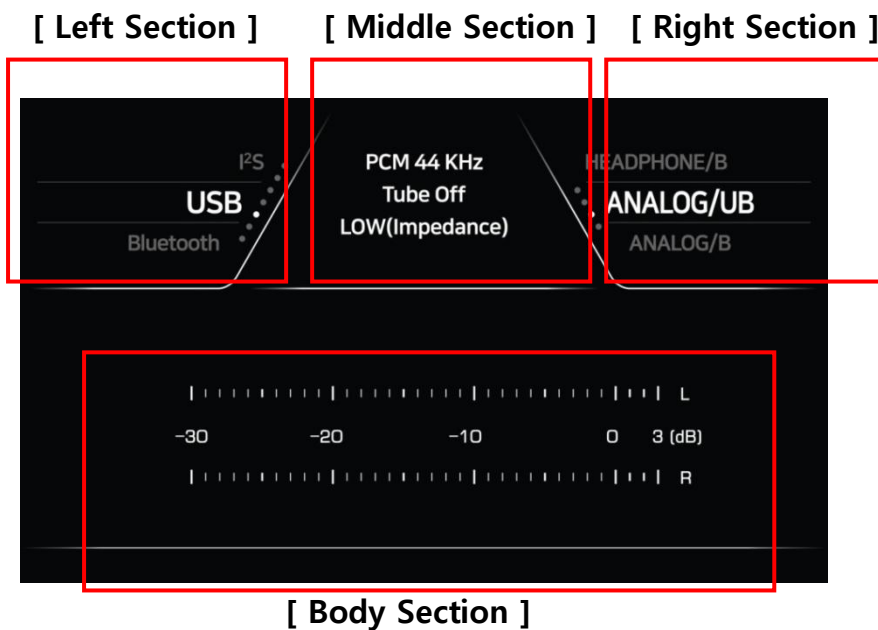
3-1-1 Left Section of Home Screen

The Left Section will show 'selected Input source' such as Analog Balanced, Analog Unbalanced, Toslink, Coaxial, AES/EBU, USB Audio, I²S HDMI, Bluetooth

3-1-2 Middle Section of Home Screen

The Middle Section will show 'kind of Input Signal', 'Tube Status' and 'Selected Headphone Impedance'

3-1-3 Right Section of Home Screen

The Right Section will indicate 'kind of selected output' like Analog Unbalanced, Analog Balanced, Headphone Balanced and Headphone Unbalanced.

3-1-4 Body Section of Home Screen

The Body Section will display 'Input Signal Level'. You can choose one out of three(3) types at SETUP.

3-2. How to select Input Source

To open 'Input Source' selection mode, just spin SCROLL/OK knob. Spinning SCROLL/OK knob on the selection mode will move the cursor. Pressing SCROLL/OK knob is to select one.
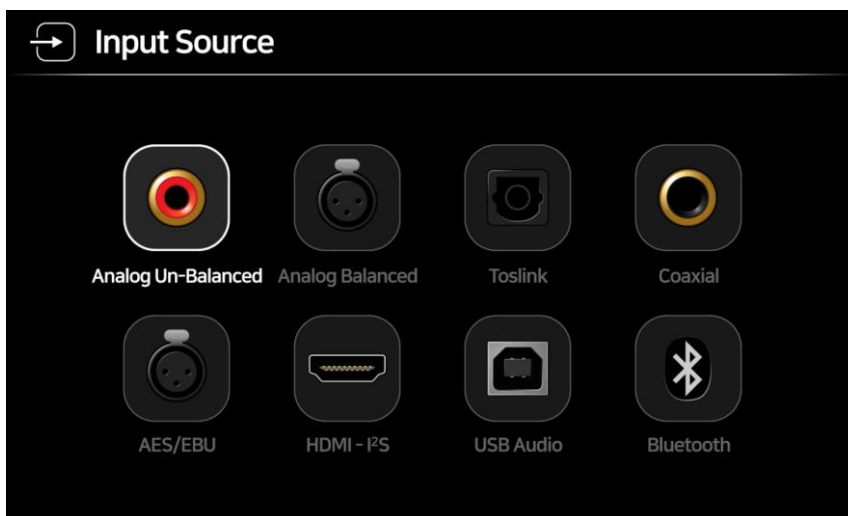
3-3. How to select Output

3-3-1 Line Out/Headphone key

To select Analog Out, press 'LINE OUT/HEADPHONE key.

3-3-2 BAL / UN-B key (Balanced / Unbalanced Key)

To select Balanced Out / Unbalanced Out, press 'BAL/UB-B' key

3-4. Headphone Impedance Selection

For optimal sound quality, you can select Headphone Impedance setting between High and Low to match the sensitivity and impedance of the headphone you are using. Press 'HIGH/LOW' key to select low impedance or high impedance of headphone out

3-5. Analog(Line) Out Rated Output Selection

To select 'Rated Output'(High / Low), press 'HIGH/LOW' key

3-6. Tube ON/OFF

To activate or deactivate Tube, press 'TUBE ON/OFF' key

3-7. SETUP

To do settings, press SETUP button on the front or on the remote control to go to SETUP mode on the screen like below

[Left Section]　　[Middle Section]　　[Right Section]
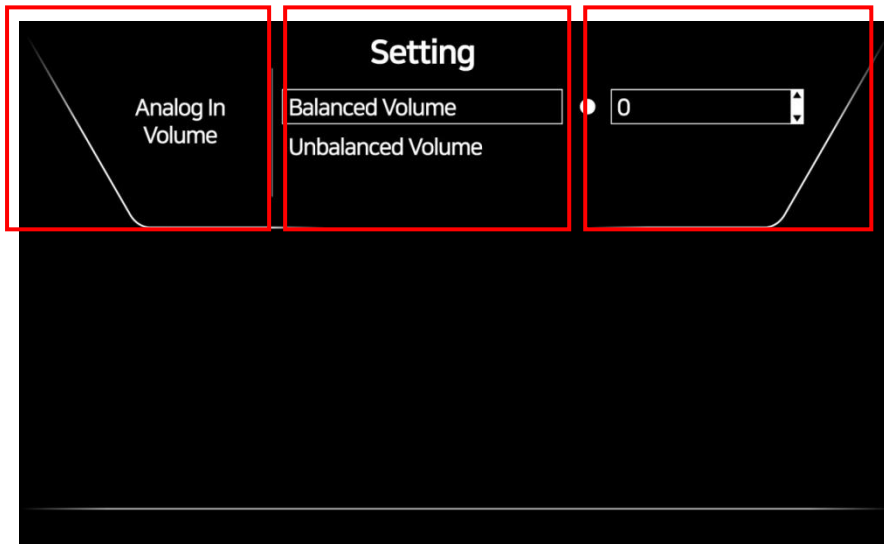
※ **Pressing SCROLL/OK knob makes next section activated**

3-7-1 Left Section of SETUP Screen

You can spin the SCROLL/OK knob to look for item. There are nine(9) items such as Analog In Volume, Line Out, DAC Digital Filter, Tube Color, Headphone Max Volume, LCD, VU Meter, Bluetooth Connect, Firmware

3-7-1-1 Analog In Volume

You can control and set proper volume level for Analog Input

3-7-1-2 Line Out

You can set Line Out volume to 'Variable' or 'Fixed'

3-7-1-3 DAC Digital Filter

You can select filtering characteristic like 'Fast Roll Off', 'Slow Roll Off' or 'Minimum Phase' for PCM or DSD

3-7-1-4 Tube Color

You can set various color for Tube light

3-7-1-5 Headphone Max Volume

To prevent a sudden loud sound from damaging your hearing, you can set maximum volume level

3-7-1-6 LCD Screen Brightness and OFF

You can adjust LCD brightness or set time for automatic off screen

3-7-1-7 Input Signal Level Display

You can select one out of three(3) kinds of Input level displays

3-7-1-8 Bluetooth Connect

1) BT Name

Default BT name is 'HA500H'. You can select another name out of HA500H1 ~ 9

2) BT Pairing

After select BT Name, you have to run 'BT Pairing' by choosing 'RUN' at 'BT Pairing'

3) BT Preset EQ

You can select one out of 17 kinds of Preset EQ like Normal, Classical, Club, Concert Hall, Dance, Live, Party, Pop, Reggae, Rock, Soft, Soft Rock, Techno, Bass, Bass Treble, Treble, Vocal

4) BT Custom EQ

HA500H offers 'Custom EQ' function also. You can adjust dB separately for 10 kinds of Frequency like below;
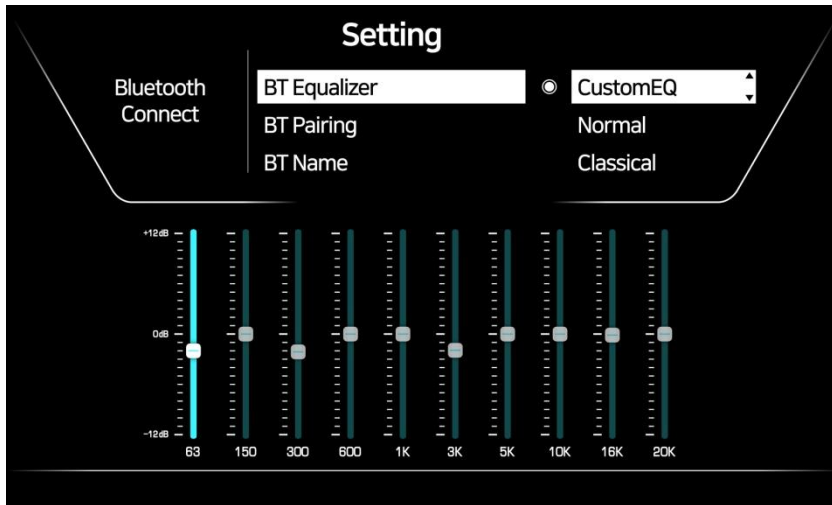
3-7-1-9 Firmware

You can do 'Firmware Update' if needed, and you can see current firmware version

> ※ **NOTICE 1 : Please contact manufacturer or local distributor to get 'How to do HA500H firmware update'**
>
> ※ **NOTICE 2 : If you run 'Firmware Update' procedure without update knowledge, the device may not work properly.**

3-7-1-10 Factory Reset

If you want to return to default setting, go to SETUP > Firmware, and run 'Factory Reset'

4. 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
I²S	HDMI x 1	Native DSD256, DoP(Max DSD128), PCM up to 384Khz, MQA
Bluetooth Input	Bluetooth 5.0	Profile: AVRCP/A2DP, Format: SBC, aptX, aptX HD, 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; Sabre³² ES9018K2M Dual DAC(One per each channel)		
Sabre³² 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%

Analog Out Spec (※ Not applicable to Tube)		
	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 20Hz ~ 20KHz: +/- 0.01dB	10Hz ~ 80KHz: +/- 0.1dB 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

Headphone Out Spec (※ Not applicable to Tube)				
		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

※Specification may be changed without notification

5. MQA (Master Quality Authenticated)

MQA is an award-winning British technology that delivers the sound of the original master recording. The master MQA file is fully authenticated and is small enough to stream or download. Visit mqa.co.uk for more information.

HA500H includes MQA technology, which enables you to play back MQA audio files and streams, delivering the sound of the original master recording.

The LED light next to MQA logo on the HA500H screen glows green or blue to indicate that the unit is decoding and playing an MQA stream or file, and denotes provenance to ensure that the sound is identical to that of the source material. It glows blue to indicate it is playing an MQA Studio file, which has either been approved in the studio by the artist/producer or has been verified by the copyright owner.

The MQA logo is a trade mark of MQA Limited.

6. Troubleshooting

1) There is no power.
    1-1) Make sure the power cord is connected.
    1-2) Check the HA500H is switched ON at the rear panel.
    1-3) Make sure the plug is fully inserted into the wall socket.

2) The HA500H does not respond to the remote control.
    2-1) Replace remote batteries
    2-2) Check for interference from other IR sources
    2-3) Reduce the distance between the remote control and the HA500H

3) No sound from the speaker during music file play back
    3-1) Check if the MUTE function in ON

3-2) Check all cables connected to each device.

3-3) Check the volume level

3-4) Check if input source is selected properly

4) There is a hum coming from the speaker.

Make sure that all cable connections are secure.