



The Nuprime-X H16-AIP is a high-performance HDMI audio decoder that supports immersive audio formats such as Dolby Atmos® and DTS:X®, with full eARC HDMI and 4K HDR video pass-through. It enables networked audio distribution via AES67, allowing decoded HDMI audio to be streamed across compatible AoIP systems. The unit also includes automatic room calibration for optimized playback in diverse acoustic environments.

H16 AIP

USER'S MANUAL

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FCC Notice - Declaration of Conformity Information

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 uses and can radiate radio frequency energy and, 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:

- Reorient 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.

WARNING: Only peripherals complying with the FCC class B limits may be attached to this equipment.

Changes or modifications made to this equipment, not expressly approved by us or parties authorized by us could void the user's authority to operate the equipment. 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.

EU Declaration of Conformity

CE Hereby, NuPrime Audio, Inc. declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 2004/108/EC.

The manufacturer of this product is NuPrime Audio, Inc., 30 N Gould St. Ste N, Sheridan, WY 82801, USA.

The Authorized Representative for EMC and product safety is NuPrime Audio, Inc., 30 N Gould St. Ste N, Sheridan, WY 82801,

For any service or guarantee matters please refer to the addresses given in separate service or guarantee documents.

For Customers in Europe



Disposal of Old Electrical & Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems)

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The

recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local Civic Office, your household waste disposal service or the shop where you purchased the product.

Safety Instructions

There are two categories of Safety Instructions included in this manual:

- Product Warnings, (i.e., what must never be done to assure avoiding those hazards that could cause bodily injury or property damage); and
- User Directions (i.e., what must always be done to assure the safe use of your device).

The Safety Instructions contained in this manual have been categorized in accordance with the seriousness of the potential hazards through the use of Signal Words. Those Signal Words, and their intended meanings, are as follows:

DANGER: Indicates that a failure to observe the Safety Instructions could result in death or catastrophic bodily injury.

WARNING: Indicates that a failure to observe the Safety Instructions could result in serious bodily injury.

CAUTION: Indicates that a failure to observe the Safety Instructions could result in minor bodily injury or property damage.

NOTE: Designates important information that relates to activities and/or conditions that might result in loss of data and/or damage to your device.

Safe Use and Operation of Your Device

This equipment emits stray RF energy and will interfere with the reception of signals by airborne electronic navigational devices or medical devices. Do not operate this equipment near any sensitive medical devices.

WARNING: Use only grounded AC power cords.

Always immediately disconnect the power to the equipment in the event the device emits an unusual odor or sound or generates smoke.

WARNING: Never attempt to disassemble, repair or make any modification to your device. Disassembly, modification or any attempt at repair could cause bodily injury or property damage, as well as damage to the device itself.

WARNING: Your device is not a toy. Never allow children to play with your device. Misuse, rough or improper handling of your device by children could result in serious bodily injury for any of the enumerated safety warnings in this manual. In addition, always keep all accessories and components out of the reach of small children as small parts might present a choking hazard. Seek immediate medical attention if choking occurs or if any small part has been swallowed.

CAUTION: Never raise the sound volume level too high when using your device with earphones. An excessive sound volume level could cause damage to your hearing.

WARNING: To reduce the risk of fire or electric shock, do not expose the unit to moisture or water.

Do not allow foreign objects to get into the enclosure. If the unit is exposed to moisture, or a foreign object gets into the enclosure, immediately disconnect the power cord from the wall. Take the unit to a qualified service person for inspection and necessary repairs.

Read all the instructions before connecting or operating the component.

Keep this manual so you can refer to these safety instructions.

Heed all warnings and safety information in these instructions and on the product itself. Follow all operating instructions.

Do not use this unit near water.

You must allow a minimum 10 cm or 4 inches of unobstructed clearance around the unit.

Do not place the unit on a bed, sofa, rug, or similar surface that could block the ventilation openings. If the unit is placed in a bookcase or cabinet, there must be ventilation of the cabinet to allow proper cooling.

Keep the component away from radiators, heat registers, stoves, or any other appliance that produces heat.

The unit must be connected to a power supply only of the type and voltage specified on the rear panel. Connect the component to the power outlet only with the supplied power supply cable or an exact equivalent. Do not modify the supplied cable.

Do not route the power cord where it will be crushed, pinched, bent, exposed to heat, or damaged in any way. Pay particular attention to the power cord at the plug and where the cord exits the back of the unit.

The power cord should be unplugged from the wall outlet during a lightning storm or if the unit is to be left unused for a long period of time.

Immediately stop using the component and have it inspected and/or serviced by a qualified service agency if:

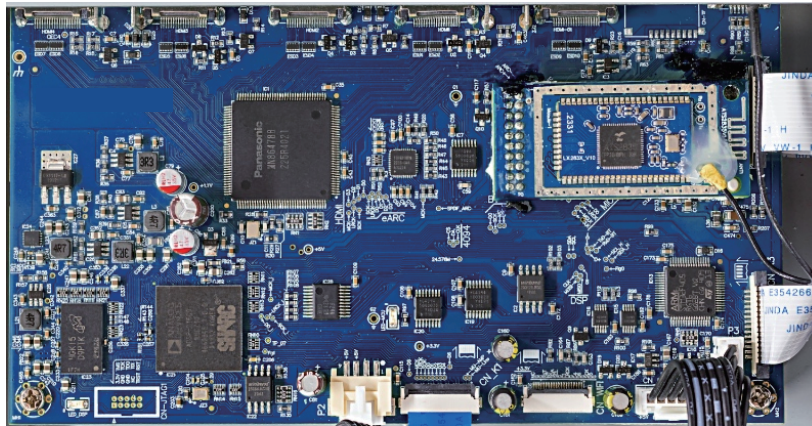
- The power supply cord or plug has been damaged.
- Objects have fallen or liquid has been spilled into the unit.
- The unit has been exposed to rain.
- The unit shows signs of improper operation.
- The unit has been dropped or damaged in any way

Included in the Box
Your H16 AIP package includes

- H16 AIP Unit
- H16 AIP User Manual
- Power Cord
- 12V Power Adapter
- Remote Control
- Automatic Acoustic Calibration Microphone
- Bluetooth Antenna
- Trigger Out Terminal

Description

The Nuprime-X H16-AIP is a high-performance HDMI audio decoder designed for professional and consumer audio applications requiring seamless networked distribution. Its versatile design ensures effortless integration with audio-over-IP (AoIP) systems, making it an essential component for studios, theaters, and immersive sound setups.



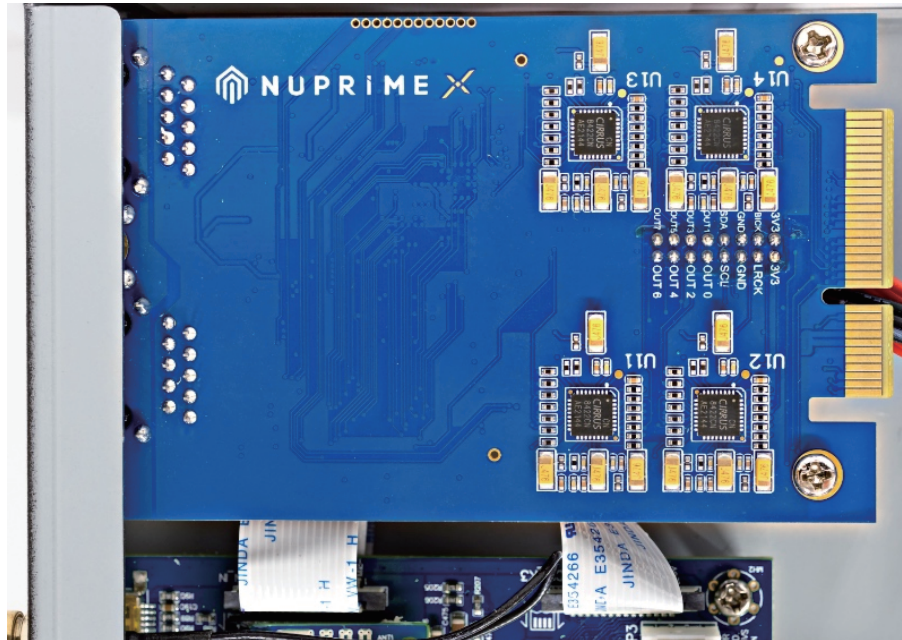
HDMI Decoding

As part of the Nuprime Fusion-X platform, the H16-AIP connects seamlessly with other Nuprime AoIP-compatible products, creating a cohesive, scalable audio network. By distributing multi-channel audio over IP, it eliminates the need for traditional analog cabling while maintaining low-latency, high-resolution sound quality.



I2S to AoIP Interface Board

Paired with AoIP-enabled speakers, the H16-AIP transforms any space into an immersive audio environment, from home theaters and gaming setups to large-scale cinemas and esports arenas. Its modular, expandable architecture supports everything from multi-room configurations to full theater-grade systems, offering a future-proof solution for high-performance, networked sound reproduction.



AoIP board

Key Features

Audio

- The module used in the H16-AIP shares the same characteristics as a Dante module. If you enable AES67 mode, the sampling rate will be fixed at 48kHz. Disabling AES67 mode allows operation at 96kHz. The H16-AIP can decode DTS-HD Master Audio® 96kHz content and transmit it via AoIP to a computer or Nuprime-X multi-channel DAC at 96kHz sampling rate. See note below.
- Converts HDMI audio to AES67, Dante®, and other digital formats.
- Supports Dolby Atmos® (up to 9.1.4) and Dolby True HD® and all downward Dolby® audio formats.
- Supports DTS:X®, DTS-HD Master Audio®, and all compatible HD audio formats.
- Supports HDMI eARC.
- Integrated automatic room acoustic calibration with built-in testing and compensation for room EQ, channel loudness, and speaker distances. Features one-touch operation for full auto correction while also allowing manual adjustments.
- Ensures low-latency and high-fidelity audio transmission.

Video

- HDMI 2.0 with 4 inputs and 1 output, supporting HDCP 2.2.
- Supports 3D and 4K HD video transmission.
- HDR formats: Dolby Vision®, HDR10, and HLG for enhanced color and contrast.
- HDMI CEC support for seamless device control.
- HDMI video output mode management for optimized display performance.

Device Control

- iOS and Android App
- Handheld Remote

Specifications

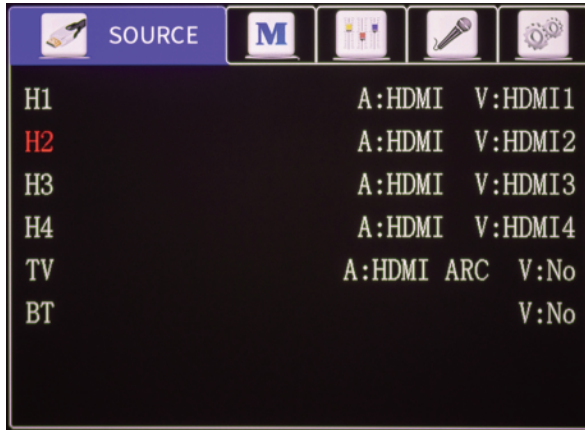
- Audio Format: PCM, up to 24-bit/96kHz
 - Dolby TrueHD supports up to 24-bit/96kHz
 - DTS-HD Master Audio supports up to 24-bit/96kHz
 - Dolby Digital Plus and Dolby Atmos support 24-bit/48kHz
- Network Protocols: AES67, Dante® and Ravenna® compatible
- Inputs: 4 x HDMI, HDMI eARC, Bluetooth
- Outputs:
 - AES67 Primary and Secondary RJ45 ports
 - HDMI eARC
- DC 12V power supply using external AC adapter

H16-AIP Onscreen Guide

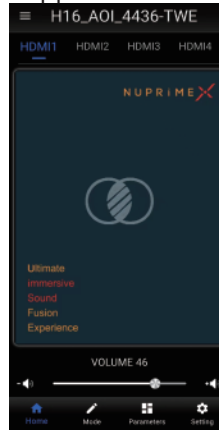
Connect the H16-AIP HDMI output (labeled eARC) to your display.

1 Input selection:

H16 OSD

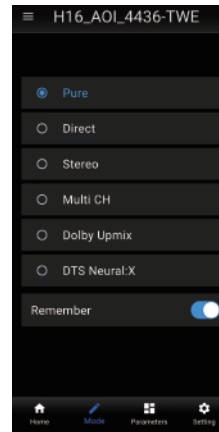
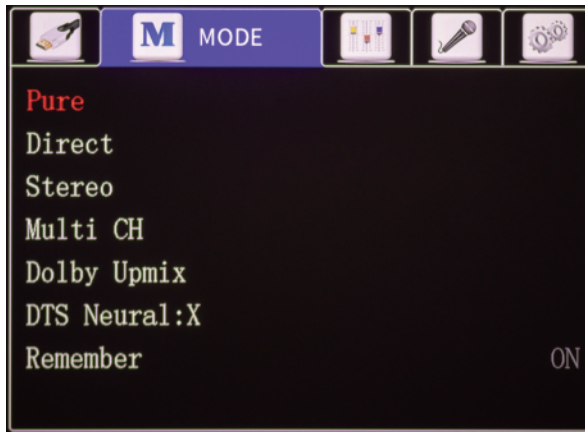


app screenshot



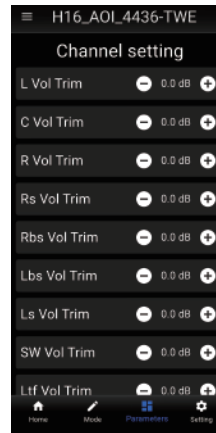
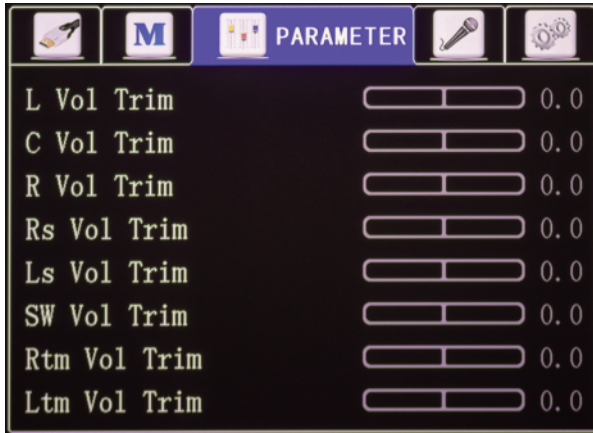
Provides full signal input selection and displays the current audio/video source.

2 Mode selection



The DSP sound effects are applied only to the current input source, rather than all signal inputs. It offers six selectable modes: Pure Audio, Direct, Stereo, Multi-Channel, Dolby Sound, and DTS Sound. The selected mode will revert to the default setting after a reboot. By default, the H16 is set to Pure mode. Switching to other modes applies sound processing effects.

3 Parameters adjustment

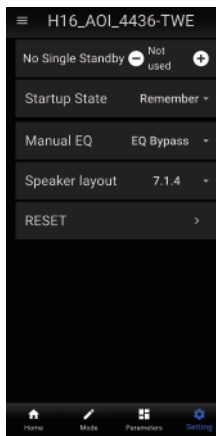
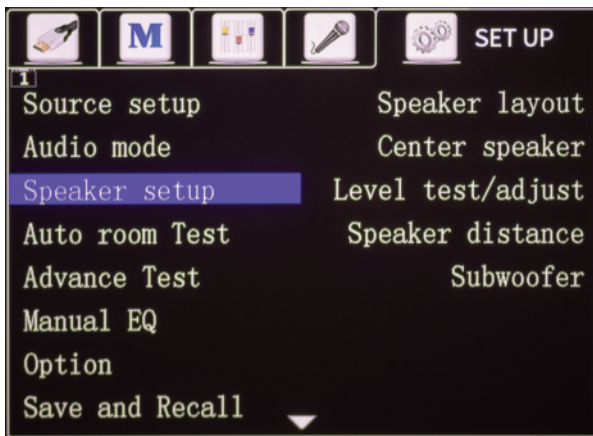


Each channel features independent output level gain adjustment, allowing users to balance loudness differences among speakers for an even sound field. The available adjustment parameters vary for different speakers. Channels that are not part of the current speaker layout will appear grayed out and cannot be adjusted.

Additional settings include:

- Channel volume memory (Power-Off Memory): ON/OFF
- DRC (Dynamic Range Compression for bass): Auto/ON/OFF
- Lip Sync Delay: Auto

4 System set:



The H16 provides nine main settings: input source selection, audio mode, speaker configuration, automatic acoustic testing, advanced acoustic testing, EQ settings and functions, parameter saving and restoration, and device information.

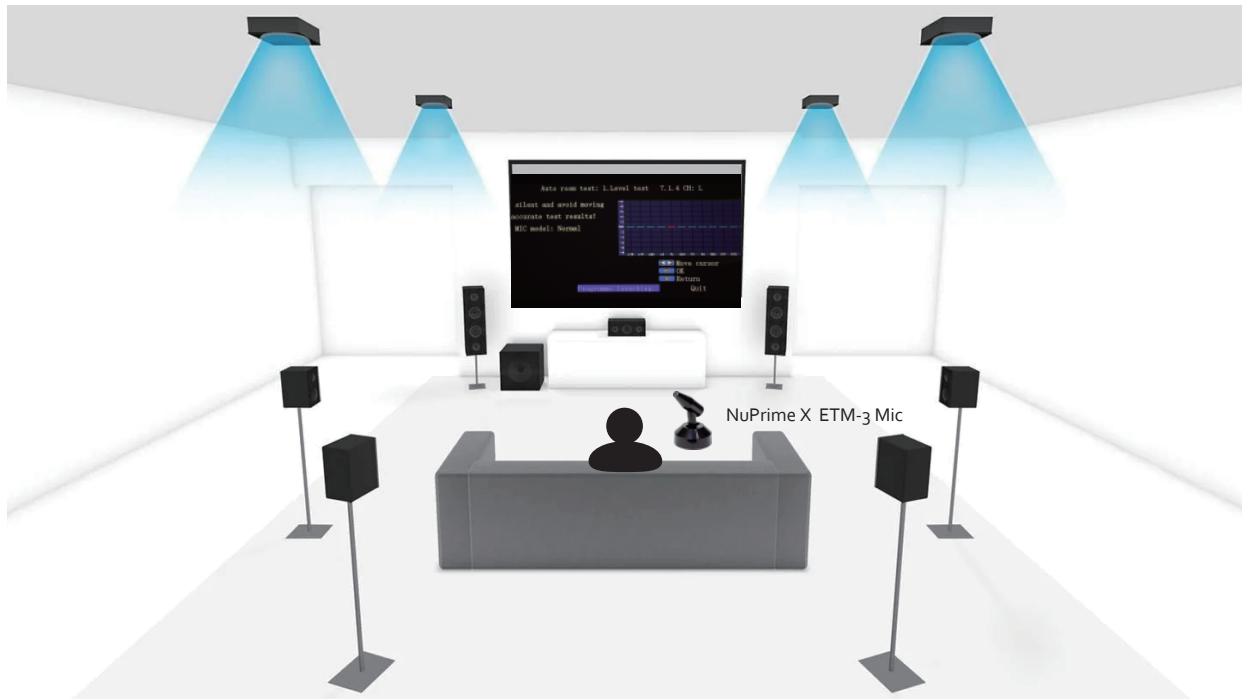
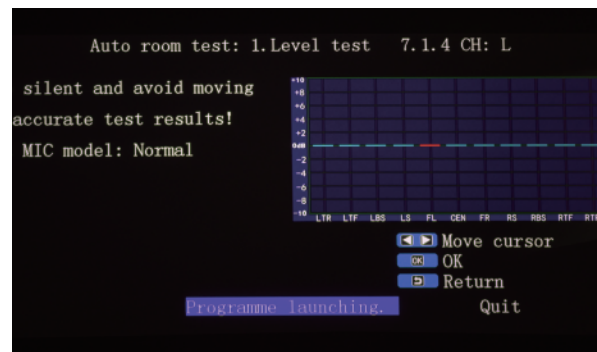


Illustration of a Standard Dolby Atmos 7.1.4 System

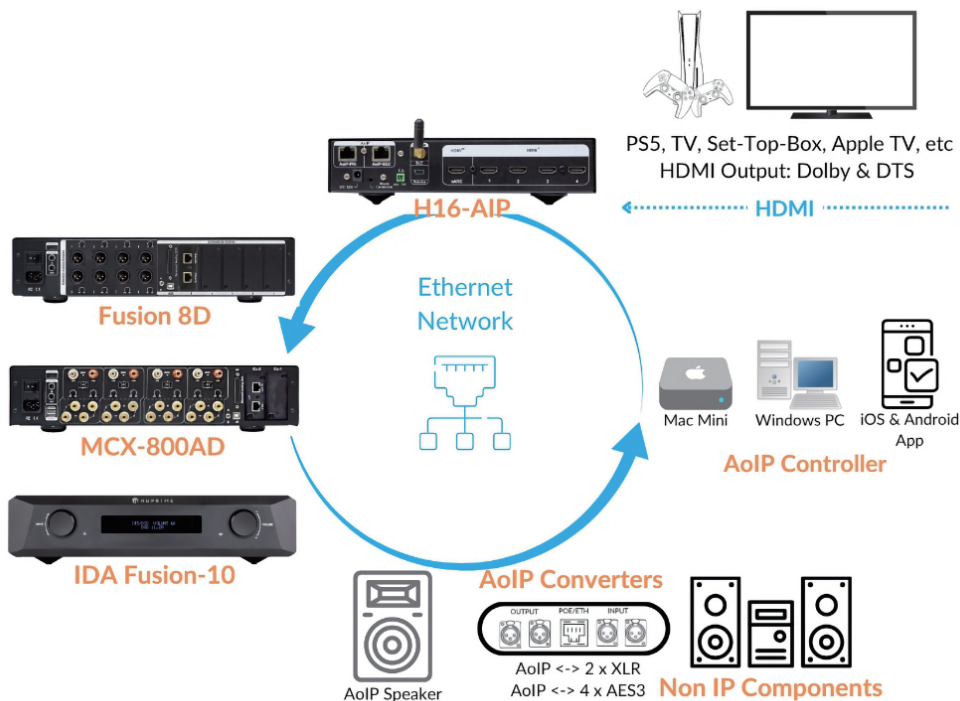


AoIP Ecosystem

Audio over Internet Protocol (AoIP) is a technology used for transmitting digital audio across standard IP networks, revolutionizing the way audio is distributed in various professional and consumer environments.

Key Benefits

- High-Resolution, Uncompressed Audio.
- Flexible, Scalable & Centralized — Expand your system without rewiring and manage everything from one simple interface.
- Long-Distance, Low-Latency Audio — Transmit audio reliably over standard Ethernet with sub-microsecond sync, using AES67 for smooth interoperability across devices.



Reference table for H16 output channel sequence vs speaker layout

NuPrime Control

Output Channel	Speaker Layout						
	5.1	7.1	5.1.2	5.1.4	7.1.2	7.1.4	9.1.4
1	L	L	L	L	L	L	L
2	R	R	R	R	R	R	R
3	C	C	C	C	C	C	C
4	LFE	LFE	LFE	LFE	LFE	LFE	LFE
5	Ls	Ls	Ls	Ls	Ls	Ls	Ls
6	Rs	Rs	Rs	Rs	Rs	Rs	Rs
7		Lrs			Lrs	Lrs	Lrs
8		Rrs			Rrs	Rrs	Rrs
9							Lw
10							Rw
11				Ltf		Ltf	Ltf
12				Rtf		Rtf	Rtf
13			Ltm		Ltm		
14			Rtm		Rtm		
15				Ltr		Ltr	Ltr
16				Rtr		Rtr	Rtr

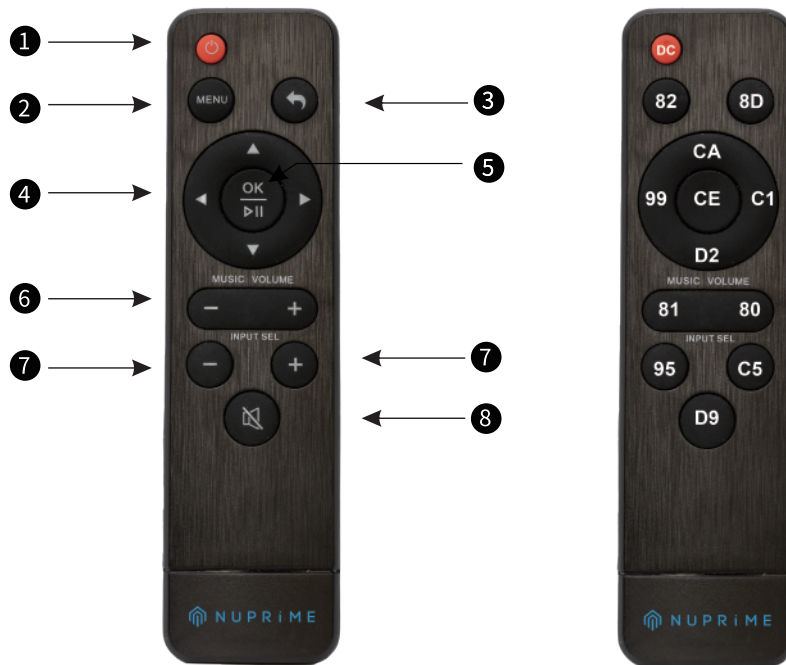
AoIP Controller

Refer to <https://nuprime-x.com/product/h16aip/> for up to date information and download links.

- Nuprime Controller (for Windows only). macOS®, iOS® and Android® under development.
 - Download: AudiocomController 4.4.5
- Supports Dante® Controller 4.6.0.9 for Windows and Dante Controller 4.4.0.8 MacOS
 - Download Dante Controller 4.6.0.9 for Windows
 - Download Dante Controller 4.4.0.8 for MacOS

Connecting source and receiver channels in an AoIP system is as simple as a point-and-click operation. Refer to <https://nuprime-x.com> for User Guides and Use Cases.

Remote



Customer Code : 0080

1 Power Key

- When the unit is OFF: Press this key to power ON.
- When the unit is ON: Hold this key to power OFF. When pressed, the OSD will display "Power off" and prompt "OFF, Y." Press the OK button to confirm shutdown.

2 MENU

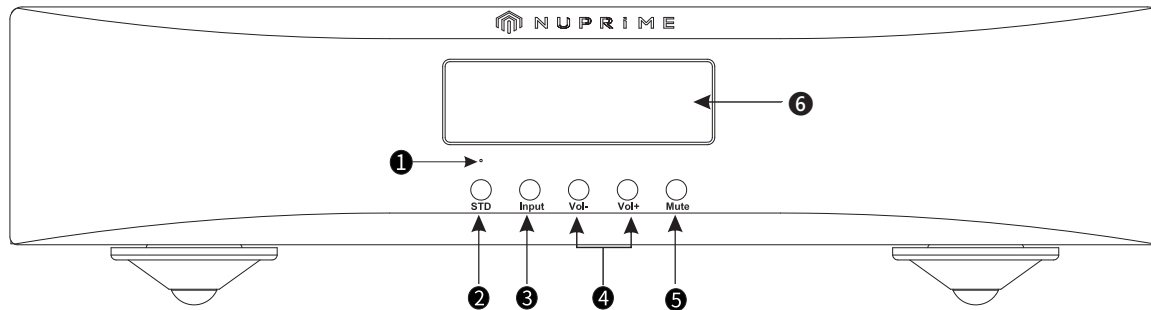
Press this button to display the OSD menu. The unit's screen will show "MENU." Use the direction buttons to select different functions and adjust settings. Press the MENU button again to exit the OSD menu.

- ③ Return key
Return to previous menu.
- ④ ▲, ▼, ◀, ▶ Direction buttons
 - a. Use these direction buttons to operate OSD menu & trimming.
 - b. While playing normally (with all menus closed), use the ▲▼ buttons to switch input signals
 - c. Under local playing, ◀▶ Short press for switching Next/Last track, long press for fast-forward & rewind.
- ⑤ OK/ ►|| key
For confirm/playback or pause.
- ⑥ Music volume button
- ⑦ Mic volume button
- ⑧ Mute button
During normal playback, press this key to mute the audio. The large OSD will display the mute symbol, and the volume number on the unit's screen will flash. Press the key again to unmute.

Battery & Remote Care Instructions

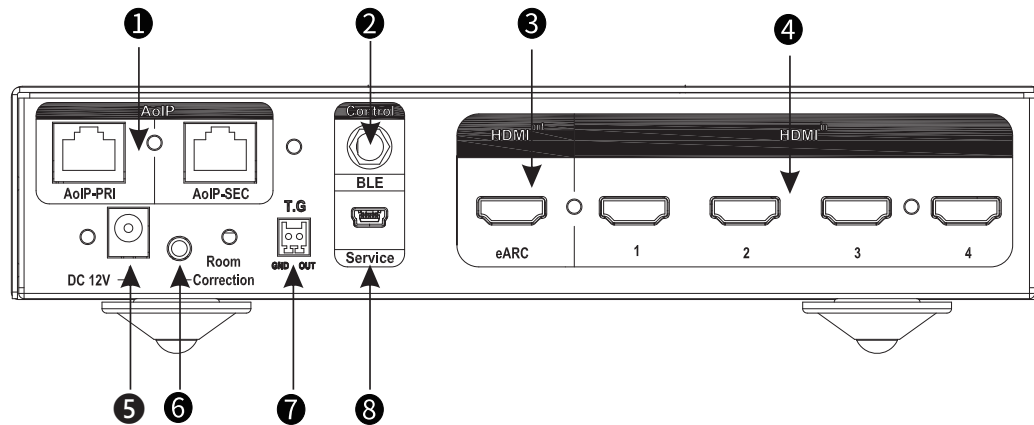
- Insert batteries with the correct (+/-) orientation and always use AAA batteries.
- Do not mix old and new batteries; remove them if the remote won't be used for an extended time to prevent leakage.
- Replace batteries if the remote's range weakens or signals become unstable.
- Keep the IR diode and front panel sensor clean with a soft cloth.
- Avoid moisture, heat, dropping, or shaking the remote.

Front Panel



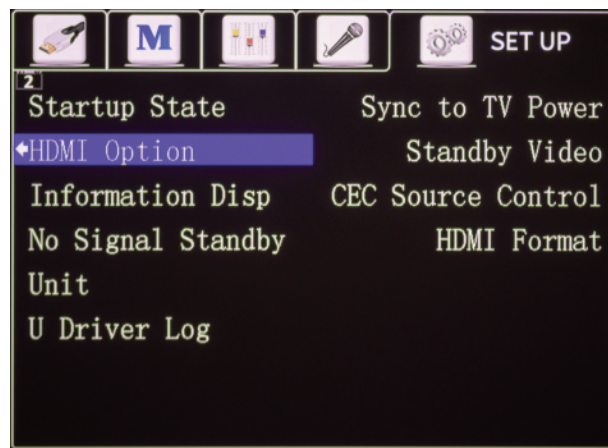
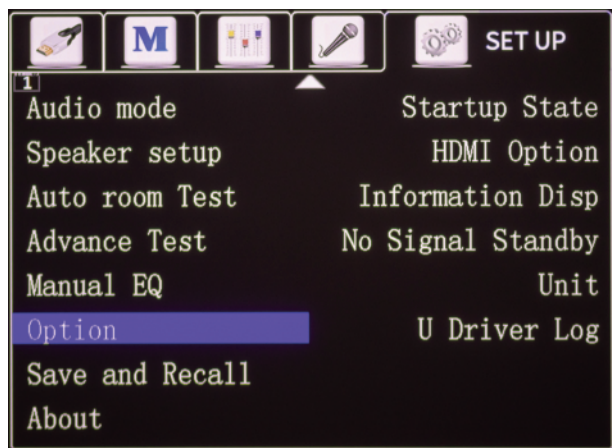
- 1 Standby Indicator**
 The indicator is red when the device is on standby.
 The blue light will illuminate when the H16 decodes the ATMOS file format.
- 2 Power Key**
 During normal playback (with all menus closed), hold this key to power off the unit. When the unit is in standby mode, press this key to power it on.
- 3 INPUT**
 Press the signal source input button and use the "+" and "-" buttons to navigate through available input sources. Press the signal source input button again to confirm your selection.
- 4 VOL+ / VOL-**
 - a. During normal playback (when no menus are active), use these keys to increase and decrease the main volume.
 - b. When the unit is in mute, press this key to unmute.
 - c. Under input select, press these keys to select input source.
- 5** Press this button to mute or unmute external Bluetooth audio during playback.
- 6 Display Screen**
 Display input source, volume and operating information.

Rear Panel



- 1** 16-channel AES67 AoIP with dual Ethernet design, enabling seamless transmission of H16's 9.1.4 channel audio to AoIP systems.
- 2** Bluetooth Antenna
- 3** HDMI OUT eARC
* If your HDMI cable length exceeds 5 meters, please enable the Image Enhancement Mode.(P-22)
- 4** HDMI IN
There are 4 HDMI input ports, for connecting devices with HDMI output.
- 5** DC 12V Input
- 6** AUTO SET MIC
Automatic acoustic test microphone input — connect the supplied microphone here to perform automatic room measurement and calibration.
- 7** DC 12V Triggrt OUT
- 8** USB
For firmware update service use.

Refer to the diagram below for step-by-step instructions on activating HDMI Enhanced Mode. This illustration clearly shows how to enable HDMI Enhanced Mode to ensure optimal performance for your connected devices.



NuPrime's Limited Warranty and Limitation of Liabilities

ADDITIONAL RIGHTS

For consumers, who are covered by consumer protection laws or regulations in their country of purchase or, if different, their country of residence, the benefits conferred by this warranty are in addition to all rights and remedies conveyed by such consumer protection laws and regulations. This warranty does not exclude, limit or suspend any rights of consumers arising out of nonconformity with a sales contract. Some countries, states and provinces do not allow the exclusion or limitation of incidental or consequential damages or allow limitations on how long an implied warranty or condition may last, so the limitations or exclusions described below may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary by country, state or province. This limited warranty is governed by and construed under the laws of the country in which the product purchase took place.

LIMITED WARRANTY

For a period of ONE YEAR from the date of retail purchase by the original end-user purchaser ("Warranty Period"), NuPrime warrants (i) this product against defects in materials and workmanship, and (ii) that each Product, unmodified and under normal use and conditions, will substantially comply with NuPrime's applicable written technical documentation for the Product. NuPrime reserves the right to make substitutions and modifications from time to time in the specifications of Products sold by NuPrime, provided that such substitutions or modifications do not materially affect overall Product performance.

If a hardware defect exists and a valid claim is received within the Warranty Period, at its option and to the extent permitted by law, NuPrime will (1) repair the hardware defect at no charge, using new or refurbished replacement parts, (2) exchange the product with a product that is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original product, or (3) refund the purchase price of the product. NuPrime may request that you replace defective parts with user-installable new or refurbished parts that NuPrime provides in fulfillment of its warranty obligation. A replacement product/part assumes

the remaining warranty of the original product or ninety (90) days from the date of replacement or repair, whichever provides longer coverage for you. When a product or part is exchanged, any replacement item becomes your property and the replaced item becomes NuPrime's property. When a refund is given, your product becomes NuPrime's property.

OBTAINING WARRANTY SERVICE

If you purchased the product in the U.S., deliver the product, at your expense, to any NuPrime Service Center located in the U.S. If you purchased the product outside of the U.S., deliver the product to any NuPrime Authorized Importer in the country where you purchased the product. Be aware, however, that not all countries have NuPrime Authorized Service Providers ('NASP') and not all Authorized Service Providers outside the country of purchase have all parts or replacement units for the product. If the product cannot be repaired or replaced in the country it is in, it may need to be sent to a different country or returned to the country of purchase at your expense for repair or replacement. If you seek service in a country that is not the country of original purchase, you will comply with all applicable import and export laws and regulations and be responsible for all custom duties, V.A.T. and other associated taxes and charges. Where international service is available, NuPrime may repair or exchange defective products and parts with comparable products and parts that comply with local standards.

You can always deliver the product to NuPrime's U.S.A or Taiwan service center for obtaining warranty service, however, you may have to pay for shipping cost.

NuPrime may send you user-installable new or refurbished replacement product or parts to enable you to service or exchange your own product ("DIY Service"). Upon receipt of the replacement product or part, the original product or part becomes the property of NuPrime and you agree to follow instructions, including, if required, arranging the return of original product or part to NuPrime in a timely manner.

When providing DIY Service requiring the return of the original product or part, NuPrime may require a credit card authorization as security for the retail price of the replacement product or part and applicable shipping costs. If you follow instructions, NuPrime will cancel the credit card

authorization, so you will not be charged for the product or part and shipping costs. If you fail to return the replaced product or part as instructed or the replaced product or part is not eligible for warranty service, NuPrime will charge the credit card for the authorized amount.

EXCLUSIONS AND LIMITATIONS

This Limited Warranty applies only to hardware products manufactured by or for NuPrime that can be identified by the "NuPrime" trademark, trade name, or logo affixed to them. The Limited Warranty does not apply to any non-NuPrime hardware products or any accessories, even if packaged or sold with NuPrime hardware. Non-NuPrime manufacturers, suppliers, may provide their own warranties. Other accessories distributed by NuPrime under the NuPrime brand name are not covered under this Limited Warranty. This warranty does not apply: (a) to damage caused by accident, abuse, misuse, misapplication, liquid contact, fire, earthquake, non-NuPrime products, or other external causes; (b) to damage caused by service performed by anyone who is not a NASP; (c) to a product or a part that has been modified without the written permission of NuPrime; (d) to consumable parts, such as batteries, or protective coatings designed to diminish over time unless failure has occurred due to a defect in materials or workmanship; (e) to cosmetic damage, including but not limited to scratches, dents, and broken plastic on ports; (f) to defects caused by normal wear and tear or otherwise due to the normal aging of the product; or (g) if any NuPrime serial number has been removed or defaced.

Important: Do not open the hardware product. Opening the hardware product may cause damage that is not covered by this warranty. Only NuPrime or a NASP should perform service on this hardware product.

This warranty and remedies set forth above are exclusive and in lieu of all other warranties, remedies and conditions, whether oral or written, express or implied. NuPrime specifically disclaims any and all implied warranties, including, without limitation, warranties of merchantability and fitness for a particular purpose. If NuPrime cannot lawfully disclaim implied warranties under this limited warranty, all such warranties, including warranties of

merchantability and fitness for a particular purpose are limited in duration to the duration of this warranty. No NuPrime reseller, agent, or employee is authorized to make any modification, extension, or addition to this warranty.

NuPrime is not responsible for direct, special, incidental or consequential damages resulting from any breach of warranty or condition, or under any other legal theory, including but not limited to lost profits, downtime, goodwill, damage to or replacement of equipment and property, any costs of recovering, reprogramming, or reproducing any program or data stored in or used with NuPrime products, and any failure to maintain the confidentiality of data stored on the product. NuPrime specifically does not represent that it will be able to repair any product under this warranty or make a product exchange without risk to or loss of programs or data.

Some states and provinces do not allow the exclusion or limitation of incidental or consequential damages or exclusions or limitations on the duration of implied warranties or conditions, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary by state or province.

Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the Warranty period must be presented to obtain warranty service.

Replacement as provided under this warranty is the exclusive remedy of the consumer. NuPrime shall not be liable for any incidental or consequential damages for breach of any express or implied warranty on this product. Except to the extent prohibited by applicable law, any implied warranty of merchantability or fitness for a particular purpose on this product is limited in duration to the duration of this warranty.



Beyond Ordinary