

# NuForce UDH-100



## 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.

## 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.

## **Introduction**

The NuForce UDH-100 is a USB-only digital-to-analog converter and headphone amplifier that offers unsurpassed performance and value. The UDH-100 has been designed to meet and exceed the expectations of audiophiles looking for the kind of performance found in DACs commanding several times its price.

With its single USB input, the UDH-100 stands as the ideal device for those who have no need of other sources. Features include a precision digital volume control, a high-power headphone amplifier section with extremely low distortion, a high-resolution analog RCA output stage, and a convenient wireless remote.

The UDH-100 incorporates several NuForce innovations and number of technological advancements seldom seen at its price point:

### **No Up-sampling**

The UDH-100 employs a true, 24-bit, 192kHz DAC that accurately converts digital audio data to an analog signal at its native sampling rate. No up-sampling or other questionable data-manipulation is employed.

### **Low Jitter**

Jitter accompanies all digital processes to some degree. A typical computer's USB bus is especially prone to jitter owing to its alternate use in communicating with external computer peripherals (printers, etc.). The UDH-100 employs NuForce's proprietary asynchronous data transfer technology, which reduces jitter to the vanishing point.

The UDH-100's digital input stage operates in an asynchronous mode independent of timing errors associated with incoming digital audio streams. Compared to traditional USB isochronous data transfer, jitter is greatly reduced.

### **Powerful Headphone Amp**

Quality headphones generally require muscular amplification in order to drive them to their full potential. The UDH-100 fulfills this need by including a single-ended Class-A headphone stage operating in constant-current mode in order to deliver pristine sound to headphones widely regarded, on the one hand, as difficult to drive, and on the other, as the best available. As a further attraction, the UDH-100's noise-rejecting circuitry excels at driving high-sensitivity/low-impedance headphones as well.

In short, the UDH-100's headphone amp delivers enough power - a full 500-milliwatts of single-ended Class A power, held by many audiophiles to be a headphone amp's purest form of circuit topology - to drive most headphones with absolute authority.

### **Precision Volume Control**

Volume controls are often a source of distortion and channel imbalance. In order to achieve supreme accuracy, an analog volume control's design requires a high degree of sophistication and commensurate production costs. Modern digital controls are superior in many respects. However, they will degrade dynamic resolution if operated at the same bit depth (resolution) as that of the audio data - a difficulty easily overcome if the control operates at a higher degree of bit resolution than that of the audio data.

The UDH-100 employs a digital 32-bit volume control that provides extreme accuracy and precise channel tracking. Unlike common digital volume controls operating at 24 or 16-bits, the UDH-100's 32-bit volume control avoids any loss of low-level resolution.

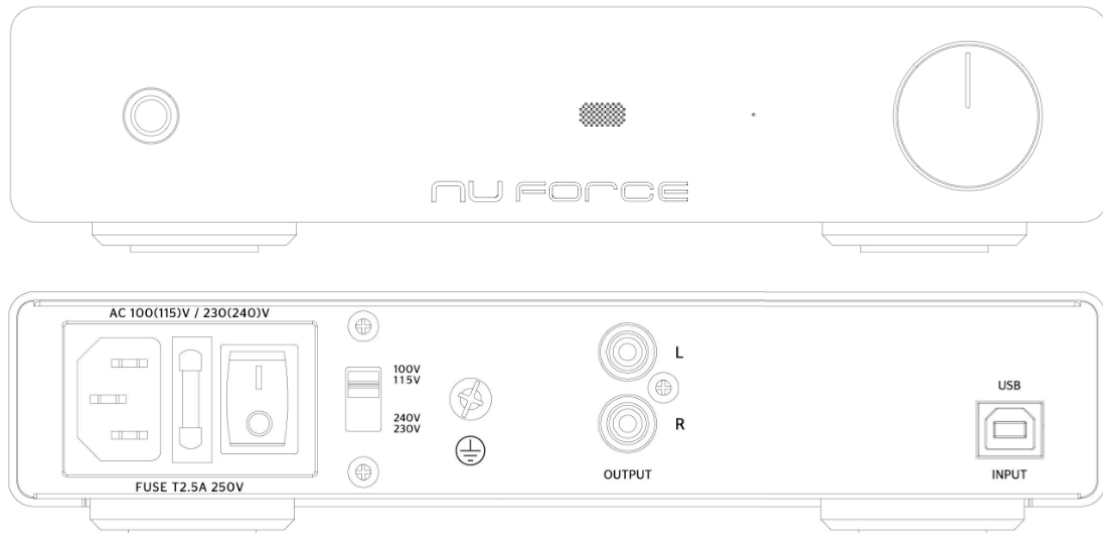
## **Transparent Preamp**

Finally and of great importance is the line-level analog stage that follows the DAC. Irrespective of the DAC's accuracy, the sound the finished product produces can be no better than the amplification at the line-level stage. Indeed, this stage shares much in common with typical preamplifiers - without the extra gain.

The UDH-100 has been designed to deliver the analog signal to its RCA terminals with the same level of audiophile fidelity found in the very best preamps. The UDH-100's analog preamp stage is a minimalist design that approaches a straight-wire-with-gain level of performance. Top-quality parts and a full 2.0Vrms signal level ensures the purest of analog signals.

### Quick Start Guide:

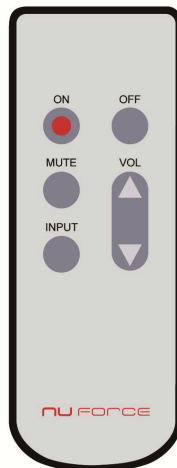
- Turn on the AC switch on the back of the unit
  - Power On: Push the knob once and release
  - Volume: Rotating the knob clockwise raises the volume
  - Power Off: Push and hold down the knob for 3 seconds
- Note: there is no memory. Once the power cable is removed and turned back on, it reverts to the factory default volume.



### Connections:

- 1 x USB input
- 1 x RCA preamp output
- 1 x 6.3 mm headphone output

### Using the Remote Control:



The UDH-100 comes with a simple remote control with the following buttons:

- Power On - turns on the UDH-100
- Power Off - turns off the UDH-100
- Vol + raises the volume
- Vol - lowers the volume
- Mute
- Input - no function

When using the Remote Control to change the volume, please note: the knob on the front panel is not motorized and therefore will not turn. However, moving the front panel knob will immediately change the volume to that knob position.

**UDH-100 Hardware Specifications:**

- ❑ Input:
  - Digital: 1 x USB 2.0 adaptive mode
- ❑ Output:
  - Line out: 1 x RCA
  - Headphone amp: 1 x 6.3 mm
- ❑ Headphone amp load impedance: 16 ohm to 600 ohm
- ❑ THD+N:
  - Line out: Typical 0.0014% @ 100k ohm
  - Headphone amp: Typical 0.0026% @ 300 ohm
- ❑ Frequency Response:
  - 20 - 20 kHz, +/- 0.15 dB
- ❑ S/N Ratio:
  - Line out: Typical -108 dB, 1 kHz, A-weighted
  - Headphone amp: Typical -108 dB, 1kHz, A-weighted
- ❑ Output Voltage:
  - Line out: 1.97 Vrms
- ❑ Dimensions
  - 9" x 8.5" x 2"
- ❑ Weight
  - 3.97 lbs.



## **NuForce'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 TWO (2) YEARS from the date of retail purchase by the original end-user purchaser ("Warranty Period"), NuForce 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 NuForce' applicable written technical documentation for the Product. NuForce reserves the right to make substitutions and modifications from time to time in the specifications of Products sold by NuForce, 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, NuForce 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. NuForce may request that you replace defective parts with user-installable new or refurbished parts that NuForce 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 NuForce's property. When a refund is given, your product becomes NuForce's property.

### **OBTAINING WARRANTY SERVICE**

If you purchased the product in the U.S., deliver the product, at your expense, to any NuForce Service Center located in the U.S. If you purchased the product outside of the U.S., deliver the product to any NuForce Authorized Importer in the country where you purchased the product. Be aware, however, that not all countries have NuForce 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, NuForce 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 NuForce's U.S. main service center for obtaining warranty service, however, you may have to pay for return shipping cost.

NuForce 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 NuForce and you agree to follow instructions, including, if required, arranging the return of original product or part to NuForce in a timely manner.

When providing DIY Service requiring the return of the original product or part, NuForce 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, NuForce 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, NuForce will charge the credit card for the authorized amount.

### **EXCLUSIONS AND LIMITATIONS**

This Limited Warranty applies only to hardware products manufactured by or for NuForce that can be identified by the "NuForce" trademark, trade name, or logo affixed to them. The Limited Warranty does not apply to any non-NuForce hardware products or any accessories, even if packaged or sold with NuForce hardware. Non-NuForce manufacturers, suppliers, may provide their own warranties. Other accessories distributed by NuForce under the NuForce 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-NuForce 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 NuForce; (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 NuForce 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 NuForce or a NASP should perform service on this hardware product.

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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.

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