

# **NuPrime**

# **ST-10**

**Reference LE Class Amplifier**



## 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.

**Notice for customers: The following information is only applicable to equipment sold in countries applying EU Directives.**

## EU Declaration of Conformity

 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., 1712 Pioneer Ave. Ste 1817, Cheyenne, Wyoming 82001, USA

The Authorized Representative for EMC and product safety is NuPrime Audio, Inc., 1712 Pioneer Ave. Ste 1817, Cheyenne, Wyoming 82001, USA.

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.

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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.

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## Background

In 2005, NuForce invented an amplifier that utilizes self-oscillating switching principles in an analog-based topology (US patent #7,221,216 ) as a significant departure from bulky Class A/AB designs using tubes or transistors, and Class-D digital designs that convert signals into digital data. Thanks in full measure to unique innovations, the NuForce Reference 9 amp received the Power Amp of The Year 2005 award from The Absolute Sound, a prestigious American audiophile magazine. Subsequent versions of the Reference 9 received similar awards in Japan and France.

In 2014, NuForce, having decided to focus on mobility products, sold the high-end line along with its technology to investors who then created NuPrime Audio. Under the leadership of NuForce co-founder and original CEO, NuPrime has assembled a design team comprised of talented engineers who earlier worked on NuForce's high-end line along with newly recruited experts in switching-power circuit design. Recent developments have made it possible to redesign NuPrime's switching- amp topology from the ground up in order to create a new generation of amps classified as Reference LE.

## NuPrime is *not* a Switching Digital Amplifier

Switching Digital Amps, commonly known as Class-D, first appeared some decades ago. From the start, Class-D showed enormous potential along with significant shortcomings: limited usable bandwidth, and a fixed saw-tooth waveform for audio- signal modulation, the latter producing jitter that effectively masks low-level signals.

Instead of the conventional saw-tooth configuration, NuPrime's patented circuit design uses a naturally occurring analog-modulating signal that adds neither noise nor jitter. Rather than reverting to off-the-shelf solutions, NuPrime's in-house advances have further unlocked the switching amp's potential without the difficulties pure digital-switching amplifiers simply cannot avoid – in other words, the best of both worlds.

Goodbye, heat. Goodbye, hernias.

Once upon a time heat and bulk were badges of status. Today, they're the bane of obsolescent technology. NuPrime amps switch at 700,000Hz – more than twice the highest CD sampling rate. At these frequencies, transformers and capacitors work far more efficiently, making it possible to reduce their size. Typically, Class-A amps rarely utilize more than 30% of the power they draw; the rest is wasted as heat. High operating temperatures also shorten the useful life of the electrolytic capacitors used in abundance in these designs.

A comparison with traditional designs is mind-boggling. A NuPrime amp, small enough to sit on the palm of one's hand, is, typically, 85% efficient – in practical terms, cool-running and easy on the utility bill.

### Advantages of NuPrime Amplifier Technology

1. High bandwidth. Truly faithful reproduction of music demands bandwidth, and plenty of it. Inadequate bandwidth withholds important spatial information and tonal complexities. NuPrime amps deliver high bandwidth with a ruler-flat response from 20 to 50,000Hz. Only a very few, very expensive linear amplifiers are capable of achieving that. This bandwidth allows NuPrime to amplify complex music with faithfulness far beyond the capability of conventional amps, with particular regard to a vast soundstage – accurate spatial information delivered in full.
2. An extremely high damping factor. Damping factor is simply a measure of an amplifier's ability to drive and control a speaker. The higher the number, the better. An excellent tube amplifier might have a damping factor between 10 and 100. A high-quality Class-A amplifier might reach 200. A NuPrime amplifier has a damping factor about 400. And unlike conventional amps, NuPrime's damping factor is totally unaffected by changes in audio frequencies. Simply stated, NuPrime delivers lightning-fast dynamics to any speaker.
3. Ultra-low distortion and noise. In conventional amplifiers, there is no such thing as a fixed specification for distortion or noise. Manufacturers invariably choose to quote the most flattering number, typically measured at 1 watt. In reality, when power demands increase, so does distortion and noise. NuPrime employs patent-pending technologies that cancel distortion at every cycle of operation. NuPrime amps maintain the same low distortion characteristics at every output level and audio frequency.
4. No phase shift. Many amps use output filters that create phase shift. When phase shifts, spatial information becomes inaccurate. Most amps present phase shifts of better than 45 degrees at 20 kHz, heading toward 90 degrees as frequency increases. NuPrime amps cancel these distortions owing to a unique closed-loop design producing zero phase shift across all frequencies. Repeat, zero.

NuPrime provides unequalled, fully regulated output without ripple voltage or noise. Absent this electronic smog, music emerges from a pristine background, delicate details and nuances intact. Purity has a sound, and it's beautiful.

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### NuPrime ST-10 Reference LE Class Amplifier

The “LE” of Reference LE designates near-reference-class performance. The fourth generation (V4 amplifier module) of this patented amplifier design outperforms its predecessor in several aspects:

- It lowers the noise floor by an astounding 20dB and elevates the output stage to 85% efficiency.
- Shortened circuit pathways result in a 20% improvement in through-put.
- Improved reliability in no-load condition and short circuit protection.
- Increased output current drive capability for low impedance speakers.
- Increased switching frequency to 700 KHz and an improved musical sampling rate.
- Improved S/N ratio and dynamic range.
- New linear power supply with a high-efficiency toroidal transformer. Reduced high-frequency noise and strengthened low-frequency performance.
- Signal path avoids cross-linking capacitors, thus achieving a frequency response at DC level for pure musical enjoyment.
- Enhanced even-order harmonic (H2) circuitry resembling the most attractive features of tubed-amp sound without its drawbacks and limitations.

### The NuPrime Sound

- Vast soundstage
- Wide, lightning-fast dynamics
- Ultra-low distortion and noise
- Music emerges from a pristine background, with delicate details and nuances intact

In summary, NuPrime’s sonic character stands well apart from – and indeed above – the soft, cushy sound we often associate with most tubed amplification and the dry, clinically edgy sound we often associate with solid-state and switching technology. Rarely does an amp achieve an ideal balance of richly textured timbres and harmonics, bottom-end authority, startling dynamics, exquisite low-level detail, and a fully revealed, fully dimensional soundstage against a backdrop of mile-deep silence.



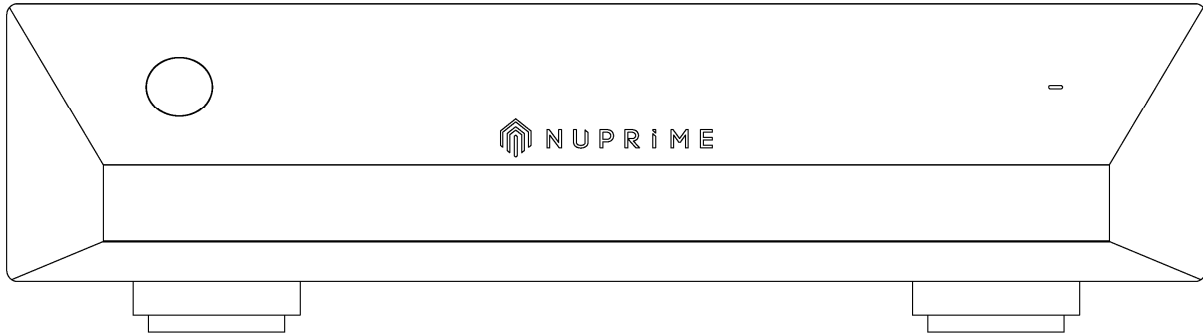
### Specifications:

- Power: 2 X 150W at 8 Ohms
- Input Impedance: 23.5k Ohms
- Gain: 28 dB
- Signal to Noise Ratio: 110dB at 1W, 10W, 100W
- Frequency Response: 0Hz to 60kHz
- Worldwide AC voltage: (115 VAC / 230 VAC) with Voltage Select Switch
- AC Fuse: Slow-blow, 5A, 250VAC
- Dimension: 59 mm H x 215.4 mm W x 394 mm D
- Weight: 6 kg
- Color: Black or Silver

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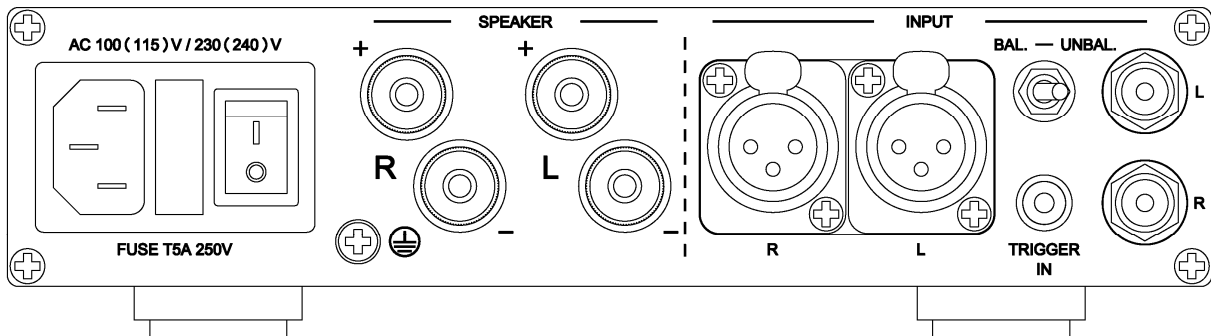
## Quick Start Guide

### Front Panel View:



- ⏻ Power ON/OFF: Press 3 sec to turn ON. Power light on.  
Press 3 sec to turn OFF. Power light off.

### Back Panel View:



### Inputs:

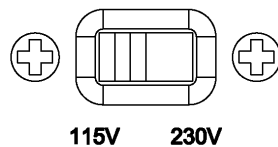
- RCA: Un-Balanced input x 1
- XLR: Balanced input x 1

### Outputs:

- Stereo Speaker Out x 1

Trigger In: Connecting to Preamp (DAC-10) enables power on by Preamp

### AC Inlet Voltage Selector



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Make sure that the AC Voltage selector switch at the bottom of the unit is switched to the appropriate voltage for your country. All ST-10 are shipped with the switch set to 230V AC in order to prevent accidental damage.

Turn ON the AC power switch at the rear of the unit. The ST-10 will now be in standby mode.

# NuPrime

## **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 TWO (2) YEARS from the date of retail purchase by the original end-user purchaser ("Warranty Period"), NuPrime warrants (in) 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' 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. main service center for obtaining warranty service, however, you may have to pay for return 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.

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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.