

NIAGARA 3000EU

Low-Z Power | Noise-Dissipation System



Owner's Manual

audioquest®

Niagara 3000EU Features	3
Introduction	3
Installation	5
Unpacking	5
Safety Information/Warnings	5
Servicing/Return to AudioQuest	5
Power Source	5
Placement	5
Connection to Audio/Video Components	6
AC Cable Routing	6
High Current/Low-Z Power Banks	6
Level-X Linear Noise-Dissipation System Power Outlets	7
Suggested AC Connections	8
Operation and Continuous Use	9
Power Switch/Circuit Breaker and LED Power Indicator	9
Rear-Panel Power Correction Switch/Niagara 3000EU Current Draw	9
Extreme Voltage Indicator	10
Break-in Time/Continuous Use	10
Specifications	11
Trouble-Shooting Guide	12
Warranty	15

Niagara 3000EU Features

- **Transient Power Correction** provides power amplifiers a current reservoir of over 55 amps peak (up to 25mS), even when plugged into a 15-amp outlet
- **Patented Ground-Noise Dissipation System** yields lower distortion and greater resolution from audio, video, and digital components with grounded AC cords/circuits
- **Level-X Linear Noise-Dissipation Technology:** AC differential-mode filtering with linear response, optimized for varying line and load impedance, assures superior resolution for audio, video, and digital signals
- **7 Low-Z NRG Series AC Power outlets:** 2 High-Current Low-Z Power; 5 Level-X Linear Filtered Power (source components) Outlets feature thick direct-silver plating over beryllium copper. This assures the most efficient dissipation of induced radio frequency noise possible.

Introduction

The science of AC power is not simple; it demands focus, and the devil is in the details. In fact, the mammoth increase in airborne and AC-line-transmitted radio signals, combined with overtaxed utility lines and the ever-increasing demands from high-definition audio/video components, has rendered our utilities' AC power an antiquated technology.

Where Alternating Current (AC) is concerned, we're relying on a century-old technology created for incandescent lights and electric motors—technology that was certainly never meant to power the sophisticated analog and digital circuits used in premium audio/video systems. To properly accommodate the promise of today's ever-increasing bandwidth and dynamic range, we must achieve extraordinarily low noise across a wide range of frequencies.

Further, today's power amplifiers are being taxed for instantaneous peak-current demand, even when they're driven at modest volumes. Although we have seen a substantial increase in both dynamics and bass content from our audio software, the loudspeakers we employ to reproduce them are no more efficient than they were two to four decades ago. This places great demands on an amplifier's power supply, as well as the source AC power supplying it.

Our systems' sensitive components need better alternating current—a fact that has resulted in a host of AC power conditioning, isolation transformers, regeneration amplifiers, and battery back-up system topologies. Through differential sample tests and spectrum analysis, it can be proven that up to a third of a high-resolution (low-level) audio signal can be lost, masked, or highly distorted by the vast levels of noise riding along the AC power lines that feed our components. This noise couples into the signal circuitry as current noise and through AC ground, permanently distorting and/or masking the source signal.

All sincere attempts to solve this problem must be applauded since once the audio/video signal is gone, it's gone forever...

For AudioQuest, honoring the source is never a matter of simply using premium "audiophile-grade parts" or relying on a proprietary technology—common approaches used within the audiophile market. For years, we have all been witness to the same, seemingly endless audiophile debates: Valves versus transistors. Analog versus digital. Can cables *really* make a difference? The debates go on and on. While we, too, can brag about our many unique technologies, we realize that true audio/video optimization is never a matter of any one secret or exotic circuit. When it comes to noise dissipation for AC power, many approaches can yield meaningful results. However, they may also impart ringing, current compression, and non-linear distortions that are worse than the disease.

The Niagara 3000EU uses both our patented AC Ground-Noise Dissipation System and the widest bandwidth-linearized noise-dissipation circuit in its class. Our unique passive/active Transient Power Correction Circuit features

an instantaneous current reservoir of over 55 amps peak, specifically designed for modern current-starved power amplifiers. Most AC power products featuring “high-current outlets” merely minimize current compression; the Niagara 3000EU corrects it.

Though it’s easy to boast, it’s quite another thing to create a solution that is consistent, holistic, functional, and that honors verifiable science. It’s not enough to reduce AC line noise and its associated distortions at just one octave, thus leaving vulnerable the adjacent octaves and octave partials to noise, resonant peaking, or insufficient noise reduction. *Consistency* is key. We should never accept superior resolution in one octave, only to suffer from masking effects a half-octave away and ringing artifacts two octaves from there. This is the principal criterion for AudioQuest’s Low-Z Power Noise-Dissipation System.

The Niagara 3000EU represents over 20 years of exhaustive research and proven AC power products designed for audiophiles, broadcast engineers, and professional audio applications. Every conceivable detail has been addressed: In the Niagara 3000EU, you’ll find optimized radio-frequency lead directionality; run-in capacitor forming technologies developed by Jet Propulsion Laboratories and NASA; and AC inlet and outlet contacts with thick direct silver plating over beryllium copper, assuring superior conductivity and the tightest grip possible.

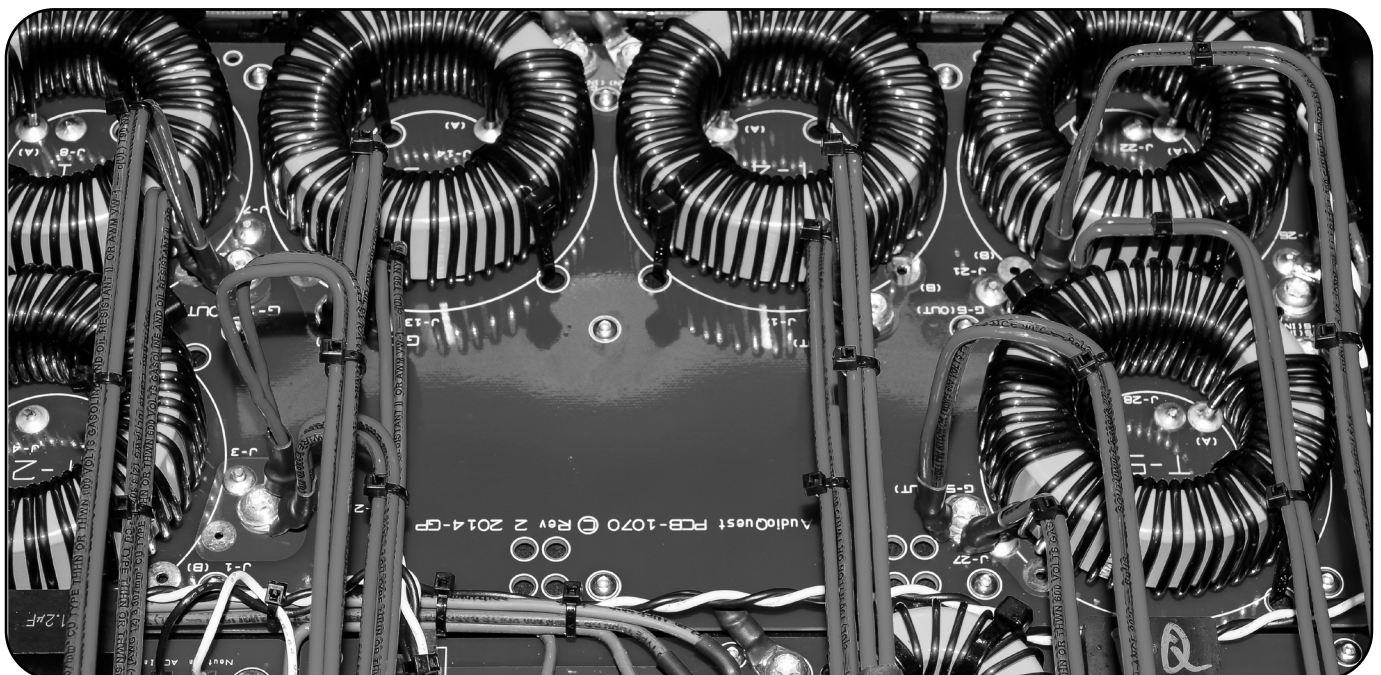
A great system is built from a solid foundation, and that foundation starts with power. With an AudioQuest Niagara 3000EU, you’ll experience for the first time the clarity, dimensionality, frequency extension, dynamic contrast, and grip your system has always been capable of delivering—if only the power had been right!

We welcome you to experience the Niagara 3000EU and hear firsthand the remarkable results of highly optimized power management: startlingly deep silences, stunning dynamic freedom, outstanding retrieval of ambience cues, and gorgeous delineation of instruments and musicians in space. Once you’ve experienced it, it may seem so elegant, so logical, and so *fundamental* that you find yourself wondering why it hadn’t been done before.

For a comprehensive discussion on AC power technology, including everything that makes AudioQuest’s Niagara a more effective AC power solution, please download our “Power Demystified” whitepaper at

<https://www.audioquest.com/content/aq/pdf/Power-Demystified-whitepaper-8-23-18.zip>

—Garth Powell, Senior Director of Engineering, AudioQuest



Installation | Unpacking

Before unpacking your Niagara 3000EU, inspect the carton for any obvious damage to the boxes and internal protective materials. If internal damage is likely, contact the carrier who delivered the unit. If shipping damage is evident on the product, then please contact your shipping carrier. Please save all shipping and packing materials. Should you move or otherwise need to transport your Niagara 3000EU, these packing materials will ensure the safest transportation.

The double box set should contain the Niagara 3000EU (220-240V Schuko EU1-16R AC Outlets), two foam inserts, owner's manual, Quick-Start Guide, front-panel polishing cloth, rack-mount kit, and warranty registration card. Registration is recommended. In the event that your original ownership documents are lost, your registration can be used to establish whether the unit is within the warranty period.

Safety Information | Warnings

Before operating the Niagara 3000EU, please read and observe all safety and operating instructions (or, at the very least, the Quick-Start Guide). Retain these instructions for future reference.

- Do not disassemble or in any way modify the Niagara 3000EU. There are no user-serviceable parts inside.
- Keep away from moisture and avoid excessive humidity.
- Do not allow liquids or foreign objects to enter the unit.

Servicing | Return to AudioQuest

Servicing of the Niagara 3000EU must be performed by AudioQuest, and is only required when:

- The Niagara 3000EU has been exposed to rain, flooding, or extreme moisture.
- The Niagara 3000EU does not appear to operate normally. (See "Trouble-Shooting Guide.")
- The Niagara 3000EU has been dropped and sustained considerable physical damage.

If sending the Niagara 3000EU to AudioQuest for servicing (or shipping it for any reason), please use the factory approved packaging materials. If you have lost any of these (double carton, two foam inserts, one poly bag), please contact AudioQuest for replacements. We will provide replacement packaging materials for a nominal charge; shipping costs will be paid by the individual or company requesting the packaging material. Please do not rely on other methods of packaging, including those provided or suggested by packaging/mailling stores. These methods and materials could seriously damage the product, as well as its finish. Even the loss of the thick polybag is enough to permanently damage the finish during transport. If you have lost the original packaging material, please request replacement materials from AudioQuest.

Power Source

Ideally, the power source to which the Niagara 3000EU is connected should be adequate for use at 220-240V single phase nominal voltage, 10 - 16 amps (current capacity RMS or greater).

For proper (best) operation, the Niagara 3000EU requires a safety ground (supplied via the power utility AC wall outlet).

Placement

The Niagara 3000EU is manufactured with four rubber textured polymer feet for safe, secure placement on any table, cabinet, shelf, or floor. When rack-mounting is required, these feet may be removed with a standard Phillips screwdriver. The Niagara 3000EU's design obviates the need for compliant or high-Q isolation feet. Although many audio/video products benefit greatly from these devices, in *most* cases, the Niagara 3000EU will not. You are welcome to experiment.

Placement or proximity to other components is not critical, and, under standard use, the Niagara 3000EU does not produce any appreciable heat. The Niagara 3000EU may be rack-mounted in a standard 19" rack by attaching the included Niagara Series 2-RU rack ears. To attach the optional rack ears to the Niagara 3000EU chassis, first remove the three Torx flathead screws from the front portion of both the left and right sides of the cover assembly. Next, mount the rack ears flush against the back of the Niagara 3000EU's front panel. Finally, secure the rack ears into place by installing the rack-mount kit's Phillips pan head SEMS screws.

When tight installations do not provide adequate room in a rack, shelf, or cabinet, the Niagara 3000EU can actually be placed on its side. Such placement will pose no safety or performance compromises, but we recommend placing a soft towel or carpet under the unit to prevent the chassis and front panel from being scratched or marred in any way.

Connection to Audio/Video Components

AC Cable Routing

Once the Niagara 3000EU is placed, a 10-amp-rated (or greater), high-current AC cord must be connected to the rear-panel AC inlet (IEC-C14) connector. The AC cord must have an IEC-C13 female end connector and a grounded male Schuko EU1-13P plug for use in the EU, Russia, or any other appropriate country that utilizes this connector. We highly recommend the use of any AudioQuest NRG-Z, Wind Series, or High-Current Storm Series AC cable. Because these cables feature conductors that have been meticulously controlled for proper low-noise directionality, they will ensure the best possible results from the Niagara 3000EU's Ground-Noise Dissipation Technology.

When facing the Niagara 3000EU's rear panel, the IEC-C14 inlet is located on the unit's lower-left side. The AC inlet cord must be connected to an appropriate AC outlet (see "Power Source," page 4).

Whenever possible, it is best to keep at least three inches (approximately 7cm) between AC cables and any signal cable. When this is not possible in a practical layout of system cabling, crossing the AC cables to signal cables at 90 degrees is best to minimize induced noise.

High-Current | Low-Z Power Outlets

There are two High-Current/Low-Z Power outlets (labeled "1" and "2"). These outlets feature our Transient Power Correction Technology (55 amps peak - up to 25 mS duration), and are designed to enhance the performance of power amplifiers via our circuit's low-impedance transient current reservoir. Power amplifiers, monoblock amplifiers, integrated amplifiers, powered receivers, or powered subwoofers should be connected to these two outlets. Please set the rear panel switch to "energized" or "1," as the default position. This affects a portion of the Transient Power Correction Circuit. (See "Rear-Panel Power Correction Switch.")

Regardless of class of operation or circuit topology (valve, solid-state, digital, or otherwise), the Transient Power Correction Circuit will not compress the current of any power amplifier. Quite to the contrary, it will improve the amplifier's performance by supplying the low-impedance current source that the amplifier's power supply so desperately needs.

However, the other five AC outlets (Level-X Linear Noise-Dissipation System), are not optimized for most power amplifiers (*with one exception; see below). They have been optimized for line-level audio preamplifiers, DACs, universal players, turntables, and video products that utilize constant-current voltage amplifier circuits. These circuits never suffer from current compression, but their lower input level and higher gain require a more robust means of noise dissipation. This is key to the Niagara 3000EU's discrete AC power banks, in that not every circuit is treated the same, but rather isolated bank by bank and optimized for best performance.

*Compared to its larger Niagara siblings, the Niagara 3000EU is unique. Even its **Source** power banks are capable of passing extraordinarily high transient current before soft-clipping (in excess of 50 amps peak). So, if you have one or two main power amplifiers *and* an additional one to two subwoofers, use the High-Current AC outlets for the power amps. The subwoofers will still yield superb results when connected to any of the five AC source outlets.

Level-X Linear Noise-Dissipation System Power Outlets

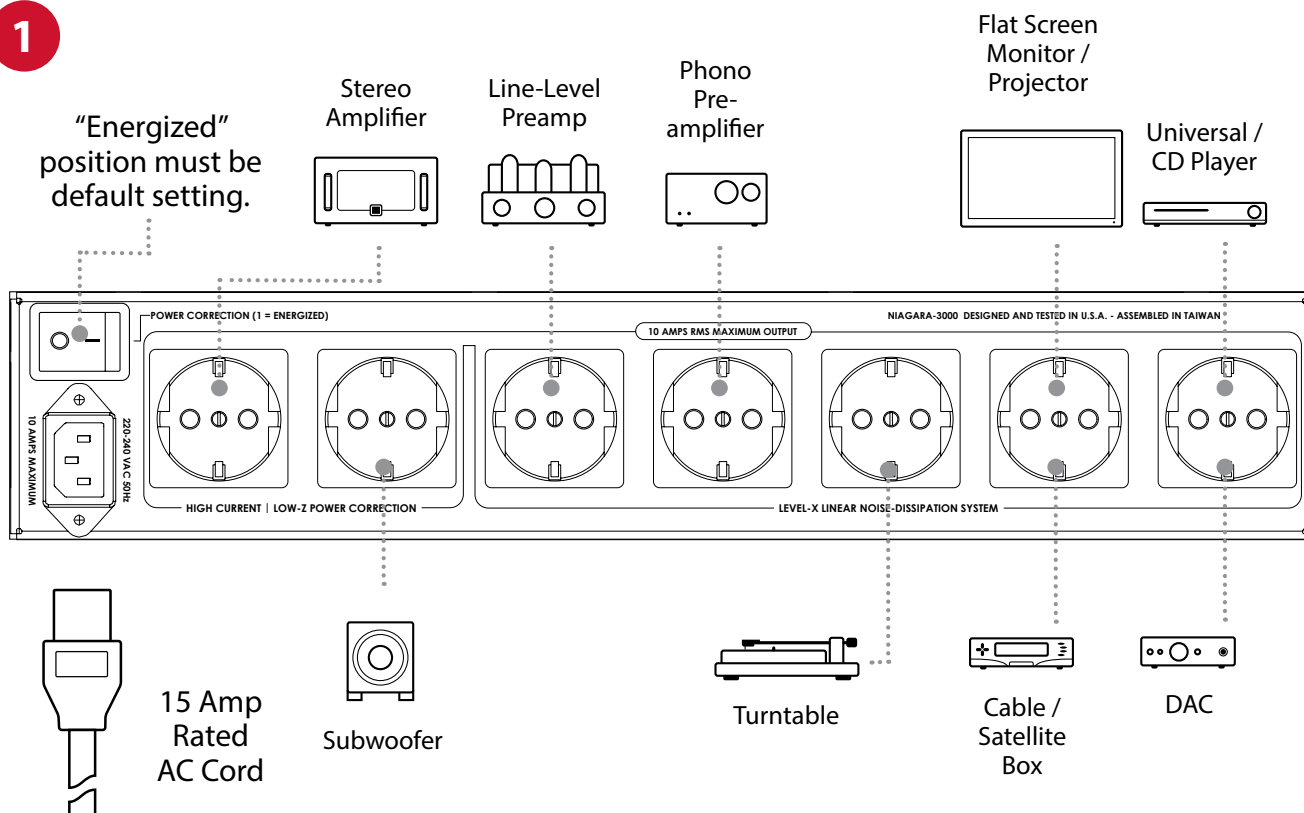
There are five outlets that utilize this technology within the Niagara 3000EU. All five of these are in turn isolated from the High-Current/Low-Z outlets 1 and 2. This offers a great advantage in controlling the complex interactions of RF (radio frequency) and other induced noises present in the AC power supplied from your utility, the noise that will be present on and in every AC cord, and the noise that is produced within your system's components and that "backwashes" into the Niagara 3000EU's output circuits.

Though it would be simple to recommend putting the digital or video components into outlets 3 and 4, and the line-level audio components and turntables into outlets 6 and 7, the quest for optimal performance is more complex. This scenario will work, and likely work well, but a certain amount of experimentation is best given the fact that no filter can eliminate 100% of all noise. The size of many of these RF-induced waveforms possess sinewaves as small as the edge of a piece of paper, and the interactions are complex. So long as the power amplifiers are in their appropriate outlets (1 and 2), and the other components are in outlets 3 through 7, you should experience exemplary performance. Still, for the audiophile with patience, the reward will be system performance with the highest possible resolution and lowest possible noise.

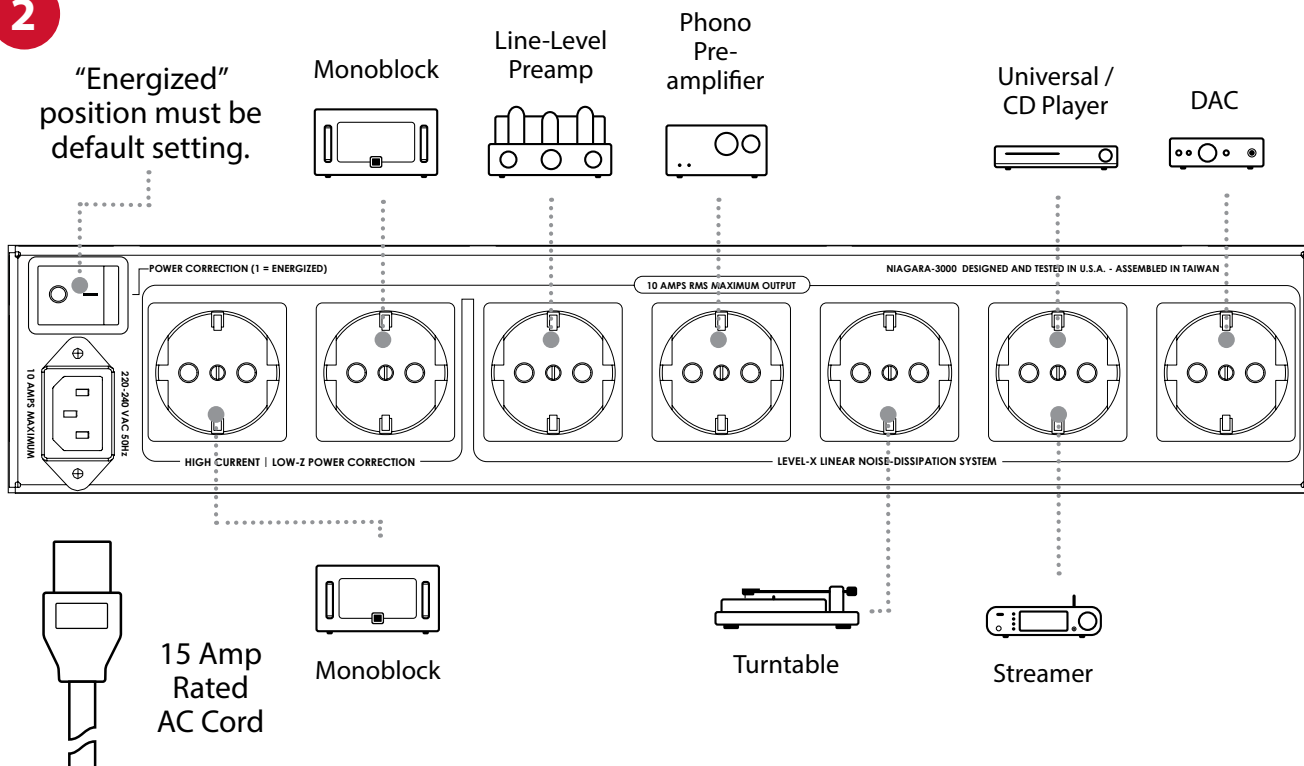
To achieve that optimal performance, we recommend the following guidelines. For systems that utilize very few components, placing a DAC and/or streamer into one isolated group (3 through 5), and a preamplifier and turntable in another (6 and 7), would be an excellent way to start. For systems that are much larger and require more outlets, try starting with the most basic setup, then adding one component at a time. The combination that sounds best (yielding the greatest resolution) is the best one for system!

Suggested AC Connections

1



2



Note: Outlets 3 through 7 are subject to many variables and circuit conditions, so experimentation for best results is encouraged. Power amplifiers **must** be connected to outlets 1 or 2.

Operation and Continuous Use

Power Switch | Circuit Breaker and LED Power Indicator

Once the AC cords are properly connected to the AC source tap, and the components are connected to the appropriate outlet banks, it is safe to energize the Niagara 3000EU. On the right-hand side of the Niagara 3000EU's front panel, there is a black rocker switch. Firmly press the rocker switch so that its upper portion is flush with the front panel. Typically, within a couple of seconds, you should hear an audible "clack" sound(s) from one or more relays within the Niagara 3000EU. At the same time, the front-panel LED power indicator will glow blue, signifying that the unit is operational. (If this does not occur, see the "Trouble-Shooting Guide" in this manual.)

Rear-Panel Power Correction Switch | Niagara 3000EU Current Draw

The default position for this switch should always be "energized" or "1"—even for applications in which there are no power amplifiers of any kind powered by the Niagara 3000EU. Defaulting to "energized"/"1" serves two functions: It activates the full Transient Power Correction Circuit for power amplifiers that would be energized by outlets 1 or 2, and also provides a portion of the Level-X Linear Noise-Dissipation Circuit for outlets 3 through 7. Although no damage to the Niagara or the connected components will occur, performance will be *somewhat* compromised when this switch is not set to the "energized"/"1" position.

The "0" setting of the rear-panel switch disengages a *portion* of the transient power correction circuit. The switch was created for instances in which there is either extraordinary amounts of harmonic distortion present on the utility AC power line (creating easily audible acoustic buzzing from the listening position—rare), or there is some concern about smart-meter power consumption. These potential issues can be immediately alleviated by placing the rear-panel switch in the "0" position. The Transient Power Correction Circuit creates a reactive current draw of as much as 4 to 5 amps RMS at idle (real-world draw is a small fraction of an amp), and electrical technicians who connect a current probe to a product such as this are frequently alarmed: They suspect that the product is either broken or that it is drawing a distressingly high amount of current from the wall outlet (akin to a power amplifier left in full operational mode).

This is actually far from the truth. If the Niagara 3000EU was consuming that much current (or even 30% of that level), it would need to dissipate the energy loss in heat. It would be quite warm (even hot) to the touch, just like most power amplifiers while in operation. In fact, the Niagara 3000EU runs cool, precisely because this current reading is false. The circuit utilizes massive capacitive reactance across the AC line, which, akin to a battery, will both absorb and immediately release the current several times per second. Further, when incorporated with power supplies such as those found in power amplifiers, the current readings actually come down. This is due to what's known as a vector load, and it's quite dynamic in an audio/video system. In this scenario, there is one thing that can run somewhat warmer than it might otherwise: the AC cord that supplies power to the Niagara 3000EU. This is because the wiring and the circuit breaker that supply power to Niagara 3000EU simply look at RMS current and do not distinguish between reactive loads, resistive loads, or inductive loads, but your utility does.

This circuit and many like it have been utilized for many years, and, when tested into buildings with absolutely no loads present aside from the transient power correction circuit, there was virtually zero power draw from the utilities' power meter. Still, in an age where so-called "smart meters" are omnipresent, and some utilities may or may not change their standards for "what type of power or current is suitable for billing," we have gone to great lengths to offer an alternative to those who may be concerned, but who nevertheless wish to achieve the best possible audio/video performance.

Extreme Voltage Indicator

One portion of the Niagara 3000EU's non-sacrificial surge protection is dedicated to a fast-acting extreme voltage shutdown circuit. If more than 270VAC is present on the incoming AC line for more than a quarter of a second, the circuit will instantly open a high-current relay that will disengage the AC power from all of the Niagara 3000EU's AC outlets, activating the red front-panel LED "Extreme Voltage" warning indicator. Once the event has passed, or the building wiring fault has been corrected, the circuit will automatically re-engage.

Break-in Time/Continuous Use

The Niagara 3000EU is made of a variety of passive and active components. Though every attempt has been made to reduce the necessity of so-called "break-in," "burn-in," or "run-in" time—including high-power run-in of every critical capacitor in the Level-X Linear Noise-Dissipation Circuits—the Niagara 3000EU will benefit from continuous use, just like any other audio/video component. This is not to say that you will be made to "suffer" through weeks or months of intolerable performance until that "magic day" when the parts are fully formed and ready. On the contrary, the Niagara 3000EU will perform very well from the first moment you use it. It will improve gradually, in small increments, over a period of approximately two weeks. While leaving the Niagara 3000EU turned on during this period will aid the process, it is also perfectly acceptable to turn the unit off; doing so will simply increase the time it takes to reach final "break-in."

The Niagara 3000EU has a 5-year warranty, but it was designed to last for over two decades. Provided that the Niagara 3000EU is used inside a home, store, studio, or office with a reasonable climate (7 degrees to 38 degrees Celcius, with less than 20% humidity), it can be left on continuously; there are no parts that will wear out.

Specifications

Surge Suppression:	Non-sacrificial (nothing to damage with repeated 6000V/3000A input surge tests, which is the maximum that can survive through a building's AC electrical panel).
Extreme Voltage Shutdown Voltage:	270VAC (+/-5V). Will activate the main high-current relay to open within less than 0.25 second; automatically resets once the incoming power is within a safe range.
Level-X Linear Transverse-Mode Noise Dissipation:	Well in excess of 24dB from 3kHz to 1GHz, linearized for dynamic (rising) line impedance with frequency (source) and 10 to 50 ohm load, <i>system current dependent</i> .
Input Current Maximum Capacity:	10 amps RMS (total).
7 AC Ground-Noise Dissipated Outlets in 3 Isolated Groups:	2 High-Current outlets for on-demand current to variable-current equipment (amplifiers). 2 Level-X Linear Filtered AC outlets (outlets 3 and 4). 3 Level-X Linear Filtered AC outlets (outlets 5 through 7).
Power Consumption:	Typically, less than 0.25 amps at 230VAC input, or with the power correction switched to "off"/"0" setting. <i>(This is dependent on a reactive vector load. For more info, see "Operation and Continuous Use: Rear-Panel Power Correction Switch – Niagara 3000EU current draw.")</i>
Dimensions:	445mm W x 88mm H x 386mm D (2-RU rack-mounting ears are provided)
Weight:	13.1kg.

Trouble-Shooting Guide

At AudioQuest, we always appreciate hearing from you. However, if you have questions, problems, or suspect that your Niagara 3000EU requires service, please start here.

There is no power to any of the AC outlets.

When the Niagara 3000EU's front-panel LED power indicator glows blue, the unit is operational. If the Power On indicator is not lit, consider the following:

- Is the upper portion of the front-panel rocker switch fully flush with the chassis?
- Is the input AC cord fully inserted into the Niagara 3000EU's AC inlet?
- Is the input AC cord properly plugged into the wall AC service outlet?
- Is the wall's AC outlet functioning properly?

Plug into the outlet another component, product, or lamp to verify that power is present and that the electrical panel's circuit breaker has not tripped. If there are only one or two AC outlets that have no output power, a component may be malfunctioning. Verify the AC output with a known simple device such as a lamp.

There is no power to any of the AC outlets and the red front-panel Extreme Voltage indicator is lit.

This indicates that either there is more than 270VAC (+/-5V) present on the wall's AC service outlet, or the Niagara 3000EU's protection circuit is mis-calibrated. The latter is quite rare. (This circuit is adjustable, but it's tested and retested before it leaves the factory, and it's glued into place, so shipping will not affect it.) Use an AC voltage meter to determine if your outlet has too much voltage to be safe for operation, or if there is a wiring fault that is causing this to occur.

Once the power is brought into a safe range for operation (180VAC to 265VAC), the Niagara 3000EU's protection circuit will automatically switch to operational mode and the blue power indicator will light.

The main power rocker switch/circuit breaker tripped to the lower (off) position while the system was playing.

You may have exceeded the maximum current capacity of the Niagara 3000EU. This should be rare, but it may be possible. Typical power amplifiers draw about one-third of their maximum current consumption at 120VAC, as listed in the product's specifications (typically found in their owner's manual). This is further complicated by the fact that the power consumption to all AC outlets (1 through 7), is a cumulative draw on the maximum current capacity of 10 amps that will trip this power switch/magnetic circuit breaker.

The Transient Power Correction Circuit may also contribute to the overall draw seen by the circuit breaker. Still, it should be rare that the total capacity is exceeded, but, given that some televisions, projectors, and power amplifiers can draw substantial current, it is certainly not impossible. If this is the case, an additional Niagara 3000EU, and a discrete 10 to 16-amp AC service on the same phase of the electrical panel, will be required for some or all of the power amplifiers.

My power amplifiers sound muddy, compressed, or weak.

The Transient Power Correction Circuit may not be operating. Be sure that all power amplifiers, powered receivers, powered loudspeakers, and/or powered subwoofers are plugged into the High-Current/Power Correction AC outlets. If any of these are plugged into the Linear Power outlets, the connected power amplifier(s) will be current compressed, as the impedance is too high for any power amplifier.

If the power amplifier(s) are plugged into the High-Current/Power Correction AC outlets, make certain that the rear-panel Power Correction switch is in the "energized"/"1" position (ideally).

My Niagara 3000EU has no power amplifiers connected to it, but it sounds odd or not quite the same as it once did.

The Transient Power Correction Circuit also affects the Level-X Linear Noise-Dissipation Circuits. Make certain that the rear-panel Power Correction switch is in the “energized”/“1” position.

A technician or electrician found that my Niagara 3000EU consumes over 4 amps of current. Is it broken?

No, it's not broken, and it's not drawing 4+ amps in any conventional sense. The Niagara 3000EU's Transient Power Correction Circuit creates a reactive current draw of as much as 4 to 5 amps RMS at idle, and, when incorporated with power supplies such as those found in power amplifiers, the current readings decrease. This is a vector load, which will vary with the connected equipment. When plugged into an AC service that has no other electrical draw, it is typical to see a real-world RMS power draw well below 30 watts at idle.

My home or grounds were hit by lightning. The Niagara 3000EU seems to be functioning properly. Should it be sent in for inspection or service?

If you see or smell smoke coming from the unit, it needs service. Otherwise, if it functions after such an event (which is very likely), there is nothing that would be compromised or damaged. If it fails after such an event, it will fail totally. However, it's unlikely that this would occur. The circuit is designed to easily handle any voltage or current surge that could possibly make it past an electrical panel. The force required to damage the Niagara 3000EU via a power surge would melt the panel and burn the building (in which case, the Niagara 3000EU is the least of your worries).

I broke off an AC plug tab while connecting or removing one of my AC cords. The tab is stuck in the outlet. What should I do?

First, turn off or place on standby/mute all of your components, then turn off the Niagara 3000EU. Next, only after you are absolutely certain that the power switch is off—you could also remove the input AC cord for even greater safety assurance—use a strong set of pliers or a small handheld vice grip tool to grasp the portion of the tab that is protruding from the NRG Edison outlet. While producing moderate outward pressure, gently wiggle the tab until it pulls free from the outlet. This should be all that is necessary, and the outlets should be fine.

This will be a rare occurrence, but, because the gripping strength of the NRG Edison outlets is far greater than that of generic or audiophile-grade AC Edison outlets, it is possible, if: 1. An AC cord plug has tabs that are slightly oversized; or 2. An AC cord plug has plating that is overly thick; or 3. an AC cord plug is installed or removed in great haste.

How do I clean the chassis and/or the electrical contacts?

The Niagara 3000EU's black-painted chassis and dark chrome front panel can be cleaned with AudioQuest CleanScreen, automotive polishing creams, or a modest misting of household window cleaners. Please use soft cotton or wool toweling to remove the liquid from the metal and painted surface. Whenever possible, use the supplied polishing rag for the front panel, only using liquid cleaner when oil or grime is beyond the polishing cloth's capacity to thoroughly clean. Never use alcohol or solvent-based cleaners. They can damage the surfaces, paint, and silk-screening material.

The AC inlet, outlet posts, and grips are all generously plated with silver. There is no need to clean these if they are not exposed to foreign substances such as grease and dirt. Silver oxide is a superior conductor to silver itself. If cleaning is required, Isopropyl alcohol (preferably 99% purity) on a cotton swab is best for the inlet tabs. Some manufacturers provide specialized cleaners for the AC output surfaces. Again, however, cleaning these surfaces will most likely be unnecessary.

Note: A pipe cleaner or cleaning swab with a wood stick and compact wool tip (available from an electronics supply house) will be superior to household swabs. When working in a small area such as an AC outlet, this is critical. Loose strands of cotton may damage the AC outlet. Damage to an AC inlet or outlet due to cleaning is not covered under your warranty. If you damage an inlet or outlet in an attempt to clean it, you will be charged for the repair and you will be responsible for all shipping costs.

I hear a slight buzzing sound coming from the Niagara 3000EU. Is it damaged?

No, it's not damaged (or, at least, damage is *very* unlikely). If you're in an extraordinarily quiet room and you hear this buzzing sound only when in relatively close proximity to the Niagara 3000EU, or only when you place your ear next to the unit, the buzzing is normal and, unfortunately, cannot be entirely eliminated.

What you are experiencing is a variation on the effect called *magnetostriction*. When an extraordinarily high quantity of harmonic distortion is present on an AC line, a portion of the Transient Power Correction circuit that is hermetically sealed and damped can mechanically buzz as its internal electrical plates resonate at 60 Hertz and many octaves above. In order to reduce or eliminate this harmonic distortion, the circuit is trying to turn this distortion into heat. This has no effect on the performance or longevity of the Niagara 3000EU or its connected components.

Well over ninety-nine percent of installations will never exhibit this problem, but that's no comfort to the 1% that do. Unfortunately, when this is very audible and present from across the listening room, it is typically due to a poorly performing electrical transformer supplied from the power utility, or, sometimes, a chopped AC waveform of an old or poorly functioning lighting dimmer system. The transformer may be saturating or in need of replacement, and older dimmer systems may need updating (if this is at all possible).

Occasionally, this may also be triggered by other large electrical appliances whose power supplies are severely asymmetrical. Try turning on the Niagara 3000EU with an AC outlet that is on a different phase from the electrical panel. This may require some experimentation and the help of an electrician. If this cannot be remedied, simply place the rear-panel switch to the "0" position. Only a portion of the Transient Power Correction will be disabled, and 90% of the unit's performance will remain intact (but the annoying buzz will be gone).

Warranty

The Quest Group, DBA: AudioQuest, warrants to the original purchaser of this AudioQuest Niagara 3000EU, will be free from defects in material and workmanship for a period of one year. The purchaser of the product is allowed 30 days from the date of purchase to complete the warranty registration by mail or online at the AudioQuest website. If the purchaser completes the aforementioned registration, the warranty period will be increased to five years from the date of purchase.

If the product does not conform to this Limited Warranty during the warranty period (as herein above specified), purchaser shall notify AudioQuest in writing (or e-mail), of the claimed defects. If the defects are of such type and nature as to be covered by this warranty, AudioQuest shall authorize the purchaser to return the product to the AudioQuest factory (2621 White Road, Irvine, California, 92614 USA). Warranty claims should be accompanied by a copy of the original purchase invoice showing the purchase date; this is not necessary if the Warranty Registration was completed either by mailing in the completed warranty card or by registering online at the AudioQuest website. Shipping charges to the AudioQuest factory (Irvine, California, USA) must be prepaid by the purchaser of the product. AudioQuest shall, at its own expense, furnish a replacement product or, at AudioQuest's option, repair the defective product. Return shipping charges back to the purchaser will be paid by AudioQuest.

All warranties contained herein are null and void if: the AudioQuest AC power product (Noise-Dissipation System) has been opened, improperly installed, altered in any way, or tampered with. AudioQuest is not responsible for any connected equipment or any claims of damage to connected equipment due to the occurrence of an AC power surge, spike, or over-voltage event, unless AudioQuest determines after thorough inspection and testing by AudioQuest (with product shipped to AudioQuest USA at the owner's expense), that the protection circuitry was in whole or in part improperly functioning. AudioQuest is not responsible for any connected equipment that is damaged due to external signal lines (non-AC power lines), that carry an electrical storm or signal wiring fault surge or spike (such as Ethernet, cable, and satellite connections). All AudioQuest AC power products (Noise-Dissipation Systems), must be plugged directly into a properly wired AC power line with a protective ground.

AudioQuest AC power products (Noise-Dissipation Systems) cannot be "daisy-chained" together in serial fashion with other AC power strips, UPS devices, other AC surge protectors, AC power conditioners, three-to-two prong adapters, or AC extension cords. Any such installation voids the warranty. The AudioQuest warranty only protects against damage to properly connected equipment or AC cables where AudioQuest has determined, at its sole discretion, that the damage resulted from an AudioQuest power product (Noise-Dissipation System) circuit or protection circuit malfunction and does not protect against acts of God (other than lightning, such as flood or earthquake), war, terrorism, vandalism, theft, normal use wear and tear, erosion, depletion, obsolescence, abuse, damage due to low-voltage disturbances (i.e., brownouts or sags), or system equipment modification or alteration. Do not use this product in any way with a generator, heater, sump pump, water-related devices, life-support devices, medical devices, automobile, motorcycle, or golf-cart battery charger. To be used indoors only and in dry areas. All warranties contained herein are null and void if used in any way with any of the aforementioned devices.

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Warranty claims should be accompanied by a copy of the original purchase invoice showing the date of purchase. (If a Warranty Registration Card was mailed in at the time of purchase or if the product was registered online, this is not necessary.) Before returning any equipment for repair, please be sure it is adequately packed and cushioned in either the original or a new AudioQuest factory-supplied polybag, foam insert pair, and dual carton set to protect against damage in shipment, and that it is insured.

