

# READ THIS FIRST!

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1. Copyright: You acknowledge that no title to the intellectual property in the NSEQ-2 is transferred to you.
2. Inspection: Inspect packing boxes, NSEQ-2, and cables for damage, unusual marks, or shortages. It is your responsibility to report damage, shortage, or misshipments in a timely manner. Millennia Media and/or its dealers will not be responsible for claims arising from damage in shipping, nor will claims for shortage or misshipments be honored, more than 10 days after ship date.
3. Read this manual carefully and completely before attempting to use the NSEQ-2. Improper operation could result in damage to product. It is the user's responsibility to understand the safe use and operation of this device.
4. The shipping box of the NSEQ-2 system will include (1) Owner's Manual, (2) NSEQ-2, (3) a UL approved power cord, (4) Owner's Registration Card. Fill out the Owner's Registration Card and return to Millennia Media at your earliest ability.

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*NSEQ-2* and *Twin Topology* are trademarks of Millennia Media, Inc. All other trademarks are property of their respective holders. Serial numbers are located on the rear left side of each unit. We suggest that you record the serial numbers in the space provided below. Refer to it whenever you call an authorized Millennia Media repair facility or the manufacturer. Make sure that you return your completed warranty card immediately.

Features and specifications subject to change without notice.  
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Serial Nos. \_\_\_\_\_

Purchase Date \_\_\_\_\_

Where Purchased \_\_\_\_\_

**NSEQ-2**



# SAFETY PRECAUTIONS

For your safety and the safety of others, be sure to read and understand all safety and operational instructions before attempting to use the NSEQ-2. **WARNING: The NSEQ-2 internal circuitry carries lethal voltages.** Carefully observe all warnings, precautions, and instructions on the NSEQ-2 and as described in the instructions supplied with the unit.

## 1. WATER, MOISTURE, AND SPILLAGE

Do not attempt to use the NSEQ-2 in, near, or around water or in unusually moist environments, such as near a sink or swimming pool. Prevent liquids or any other materials or objects from spilling or falling into the NSEQ-2 unit.

## 2. HEAT AND VENTILATION

Be sure to allow adequate ventilation to NSEQ-2 and avoid using or installing unit in close proximity to heat sources, such as heaters, stoves, radiators, power amplifiers, spotlights, or other heat-producing appliances or equipment.

## 3. POWER SOURCES AND POWER CORD PROTECTION

The NSEQ-2 Power Supply should be connected to a power source only of the type described in the operating instructions or as marked on the Power Supply. Route the power cord so that it is not likely to be walked on or pinched by having objects placed on it. Pay particular attention to plugs, receptacles, and the point where the AC power cord exits the NSEQ-2.

## 4. GROUNDING

For your safety, it is extremely important that the grounding pin of the 3-wire power cable (included with unit) be inserted into a grounding type 3-pin power outlet. If you are unable to insert the plug into an existing outlet, contact an electrician to install a properly grounded 3-pin power outlet, preferably with OFI protection.

## 5. DAMAGE REQUIRING SERVICE

This unit should be repaired or serviced by qualified personnel whenever:

- The AC power cord has been damaged, or
- Objects have fallen or liquid has spilled into any NSEQ-2 unit, or
- The unit does not function properly or exhibits a marked change in performance, or
- The unit has been abused, dropped, or damaged, or
- The unit has been exposed to rain or moisture

## 6. SERVICING

**Lethal voltages are found inside the NSEQ-2 chassis.** The user should not attempt to repair or service this unit. All servicing and/or repairs should be referred to Millennium Media.

If, after reading all instructions, precautions, and warnings, you have remaining questions, please contact Millennium Media directly before attempting to use your NSEQ-2. Retain this owner's manual as a record of your purchase to aid positive identification in the event of loss.

## QUICK START!

*READ THIS!! The NSEQ-2 operates with lethal operating voltages -- the voltage inside the NSEQ-2 can kill you. Never, under any circumstances, remove the top cover. Refer to a qualified electronics technician any and all servicing, tube replacement, and other operations which require the top cover to be removed.*

Congratulations on your purchase of the Millennium Media NSEQ-2 with Twin Topology. The NSEQ-2 is the result of meticulous listening tests on numerous circuit, topology, and packaging designs. Your NSEQ-2 is a finely tuned instrument intended for critical professional applications — we feel it is the world's most sonically neutral analog EQ. With the emergence of 24+ bit digital audio, recording engineers are faced with a new requirement for undistorted dynamic range. The NSEQ-2 meets this challenge exceptionally well.

Before connecting power to the NSEQ-2, assure that the rear panel voltage selection fuse block switch is set correctly. In the USA, the NSEQ-2 is shipped with the voltage selection block set to 100-120 VAC. At this voltage setting, a pair of 1 amp 5 x 20 mm slow blow fuses have been factory installed. If you change the voltage selection block to 200-240 VAC usage, be sure to change both fuses to 500 milliamp (0.4 amp) slow blow types.

The NSEQ-2 enclosure measures 19" wide x 3.5" high x 12.5" deep and is designed for mounting into a standard 2U, 19" equipment rack. If the NSEQ-2 is mounted in a road case or other rack which is prone to strong vibration or shock, it is recommended that the rear of the NSEQ-2 be supported or otherwise reinforced to withstand such conditions. The NSEQ-2 requires adequate ventilation. To assure proper air circulation and operation, leave at least one rack space open above and below the NSEQ-2.

The NSEQ-2 is designed on a common ground topology. For high quality operation, and for your own safety and the safety of others, do not defeat the purpose of the earth grounding pin on the A/C power cord!

## NSEQ-2 REAR PANEL

### (1) INPUTS "In 1 (Left), In 2 (Right)"

Conventional 3-pin female XLR input jacks for all balanced or unbalanced line level signals. Input impedance is greater than 10k ohms when "10 dB" gain range switch is engaged (+/- 10dB), greater than 40k ohms when gain range switch is disengaged (+/- 20dB), and greater than 100k ohms when optional balanced inputs are installed. Standard NSEQ-2 line input is unbalanced using pin 1 as chassis ground, pin two as signal, and pin 3 tied to audio ground.

### (2) OUTPUTS "Out 1 (Left), Out 2 (Right)"

Conventional 3-pin male XLR output jacks. Output is unbalanced. Pin 1 is chassis ground, pin 2 is signal, and pin 3 is tied to audio ground. J-FET topology output impedance is 55 ohms. Vacuum tube output impedance is 150 ohms.

### (3) EARTH/AUDIO GROUND JUMPER

A barrier terminal which ties earth ground to audio ground. If ground "hum" loops are experienced when using the NSEQ-2, removing this jumper may help. Using this jumper, the integrity of the chassis/earth ground connection is never compromised.

### (4) AC VOLTAGE MAINS SELECTION "100-120" or "200-240"

A power entry module with a removable fuse holder block. This fuse holder block is selectable for 100 to 120 Volt or 200 to 240 Volt worldwide mains powering. The fuse block contains two fuses — one fuse is in series with the hot power line while the other fuse is in series with the neutral power line. Both fuses *must* be installed. To change the mains voltage selection, remove IEC power connector and assure that the NSEQ-2 is not connected to mains power. With a non-conductive tool, gently pry the fuse block away from the power entry module. Remove the two fuses and replace both with type as shown below. Slide out the internal PC Board, turn it over, and reinsert the PCB so that the desired AC mains voltage appears in the viewing window. Double check that the fuses installed correspond to the AC mains voltage range which appears in the viewing window. Gently push the fuse block back until flush and snug.

#### FUSES:

For 100-120 VAC mains, use 5x20mm, 1A, slow blow, 250V, Littelfuse 239 or equivalent.

For 200-240 VAC mains, use 5x20mm, 500 mA, slow blow, 250V, Littelfuse 239 or equivalent.

### (5) POWER ENTRY "IEC Power Receptacle"

An IEC-type AC line-power receptacle for use with removable cords. Use only the power cord provided with the NSEQ-2 unit or equivalent U/L approved type SV, SVT, SJ, or SJT AC power supply cord. *Do not defeat the third pin earth ground!* If ground lifting is desired, remove the Earth/Audio Ground Jumper strap (item number 3, above).

**DANGER!** Lethal voltages inside!

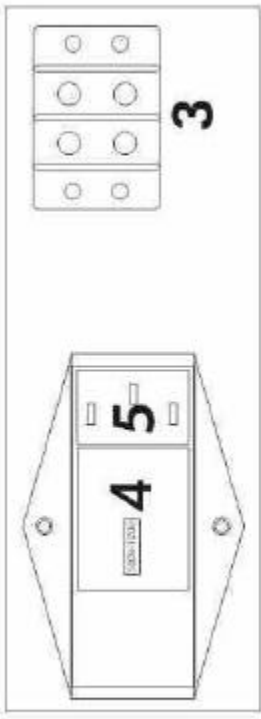
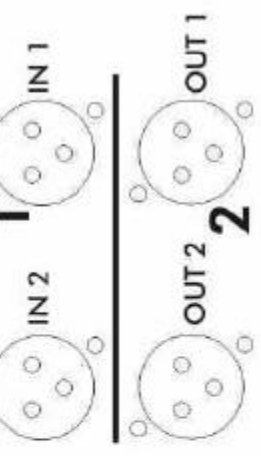
**Do not remove top cover**

**CAUTION:** To reduce the risk of fire, replace only with the same type, fuse. To reduce the risk of electric shock, do not remove top cover. Refer to qualified technician at maintenance, tube replacement, servicing, and any other work requiring removal of top cover.

**ATTENTION/AVIS:** Risque de choc électrique ne pas ouvrir.



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Millennia Media, Inc.  
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Handcrafted in the USA



## NSEQ-2 REAR PANEL

# NSEQ-2 FRONT PANEL

## (1) BAND IN/OUT SWITCH "IN"

Pushbutton switch which places its EQ band in circuit or out of circuit. EQ band is in circuit when switch is depressed and LED is illuminated. Because of the NSEQ-2's unique shunt design, EQ bands should have no detectable sonic signature when they are in circuit as long as the boost/cut control (4) is set at zero. Band In/Out switches are provided for comparing a band's EQ setting versus flat response.

## (2) FREQUENCY SELECT SWITCH

Rotary switch (gold contacts, mil spec) which selects fixed high and low band frequencies.

## (3) PEAK/SHELF SWITCH

Pushbutton switch which selects high and low band curve shape. When switch is depressed and LED is illuminated, EQ is shelving at 6 dB per octave. When switch is not depressed, EQ is peaking with a fixed "Q" of 1.0.

## (4) BOOST/CUT CONTROL

Conductive plastic rotary potentiometer offering up to +20 dB of boost and -20 dB of cut. Can also be configured for +/-10 dB via master gain range switch (10). Boost/Cut Potentiometer has 21 detented positions for accurate repeatability and logging.

## (5) PARAMETRIC FREQUENCY CONTROL

Conductive plastic rotary potentiometer which sweeps all center frequencies from 20 Hz to 25 kHz. The low-mid band sweeps 20 Hz to 220 Hz -or- 220 Hz to 2.5 kHz, depending on the status of frequency range switch (6). The high-mid band sweeps 250 Hz to 2.5 kHz -or- 2.5 kHz to 25 kHz, depending on the status of Frequency Range Switch (6). This control is optionally available with 21-step detents for accurate repeatability and logging.

## (6) PARAMETRIC FREQUENCY RANGE SWITCH "10X"

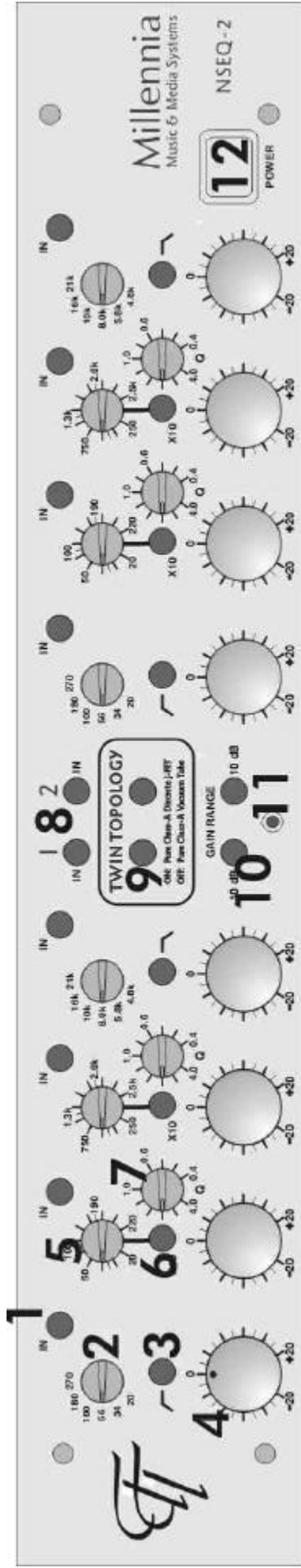
Pushbutton switch which selects 1X or 10X parametric frequency range. When switch is depressed and corresponding LED is illuminated, frequencies as shown on front panel legend are multiplied by 10X. When switch is not depressed and LED is not illuminated, frequencies are as shown on front panel legend.

## (7) PARAMETRIC QUALITY CONTROL "Q"

Conductive plastic rotary potentiometer which sweeps "Q" (Quality factor) from 0.4 to 4.0. "Q" is defined as the ratio of the center frequency to the bandwidth. For example, a filter setting with 3 dB down points near 100 Hz and 1000 Hz exhibits a "Q" of approximately 0.4. This control is optionally available with 21-step detents for accurate repeatability and logging.

## (8) MASTER CHANNEL IN/OUT SWITCH "IN"

Pushbutton switch which places the corresponding four band EQ channel in circuit or out of circuit. EQ channel is in circuit when switch is depressed and LED is illuminated. When switch is not depressed, or when NSEQ-2 power is off, the EQ channel is completely bypassed via a relay and inputs become hard-wired directly to outputs.



# NSEQ-2 FRONT PANEL

### (9) TT SELECTION SWITCH "TWIN TOPOLOGY"

Pushbutton switch which selects the corresponding channel as a complete vacuum tube EQ or a complete solid state EQ. Not a gimmick, Twin Topology is designed around two world class, musically optimized, all Class-A amplifiers — one amplifier is based on twin triode vacuum tubes, while the other is based upon all discrete J-FET servo amplifiers. Like having two distinctly different equalizers in one chassis. When switch is depressed and LED is illuminated, the channel is operating as a discrete solid state EQ. When the switch is not depressed, the channel is operating as a high voltage vacuum tube EQ. Because of the NSEQ-2's unique shunt design, individual EQ bands will have no detectable sonic signature when they are in circuit as long as the boost/cut controls are set to zero.

### (10) GAIN RANGE "10 dB"

Pushbutton switch which determines the range of channel boost/cut. When switch is depressed and LED is illuminated, the corresponding channel offers +/-10 dB of boost and cut. When switch is not depressed, the channel offers +/- 20 dB of boost and cut. Use the +/- 20 dB setting for rough adjustments or deep repairs. Use the +/- 10 dB setting for most artistic EQ requirements.

### (11) PILOT INDICATOR LIGHT

LED which, when illuminated, shows that the NSEQ-2 unit is powered up and active.

### (12) POWER SWITCH "POWER"

Rocker switch for switching AC line power on and off.

### (13) TEMPLATE

(not shown) A logging template for use with the NSEQ-2 is available for download on the Millennia Media web site. <http://www.mil-media.com/nseq2.html>



## NSEQ-2 GENERAL SPECIFICATIONS

THD + Noise, 20 Hz - 30 kHz	< .009%, typ .002 % (all EQ bands switched in)
Frequency Response -3 dB (SS)	Sub 1 Hz to beyond 300 kHz
Frequency Response -3 dB (VT)	Sub 2 Hz to beyond 200 kHz
Frequency Response, Stereo Deviation	< .15 dB
Maximum Input Level, EQ Flat	+ 28 dBu (VT), + 24 dBu (SS)
Maximum Output Level	+ 28 dBu (VT), + 24 dBu (SS)
Input Impedance (SS)	see user manual, page four
Input Impedance (VT)	see user manual, page four
Output Impedance (SS)	55 ohms (transformerless)
Output Impedance (VT)	150 ohms (transformerless)
Recommended Load	> 150 ohms (SS), > 3 k ohms (VT)
Noise (Boost/Cut switch @ 10 dB)	-104 dBu (SS), -94 dBu (VT) (all EQ bands in)
Common Mode Rejection Ratio (bal opt.)	> 50 dB, > 75 dB typical, 100mV, to 20 kHz
Slew Rate, + 26 dBu out	> 25 volts per microsecond
XLR Polarity	Pin 2 positive polarity, Pin 1 = ground

## EQUALIZER PARAMETERS

"Q" Range	Q = 0.4 to 4.0, sweepable
Maximum Boost & Cut	+/- 20 dB (21 step detent)
Minimum Boost & Cut	+/- 10 dB (21 step detent)
Low Range Fixed Frequencies	20, 34, 56, 100, 180, 270 Hz
High Range Fixed Frequencies	4.8, 5.8, 8.0, 10, 16, 21 kHz
Low/High Range Fixed "Q"	Q = 1.0
Low-Mid Parametric Sweep Frequencies	20 Hz to 220 Hz -or- 220 Hz to 2.5 kHz
High-Mid Parametric Sweep Frequencies	250 Hz to 2.5 kHz -or- 2.5 kHz to 25 kHz
Hardwire Bypass for Each Channel?	Yes
Peak/Shelf Selection on Hi & Lo bands?	Yes
Bypass Selection on Each Band?	Yes
Twin Topology Selection	Switch In = FET Amplifiers Switch Out = Vacuum Tube Amplifiers

## ELECTRO-MECHANICAL SPECIFICATIONS

Power Consumption	40 Watts, nominal
Power Requirements	100VAC to 240VAC, 50/60Hz, selectable
Fuses (2 required)	2 ea 1A with 100-120VAC mains (5x20mm, slow-blow, 250V) 2 ea 500mA with 200-240V mains (5x20mm, slow-blow, 250V)
Internal DC Power	+ 350V, + 25V, -25V, + 12V
Dimensions	19" W x 12.5" D x 3.5" H
Net Weight	aproximately 24 pounds

Millennia Media reserves the right to change specifications, delivery, and pricing without notice.

**NSEQ-2**



# WARRANTY

Millennia Media will repair this product, free of charge, in the USA, in the event of defect of materials or workmanship for one (1) year following date of purchase. This warranty is extended only to the original purchaser. This limited warranty covers failures due only to defects in materials and workmanship which occur during normal, intended use and does not cover damage which occurs in shipment or failures which are caused by products not supplied by Millennia Media. This limited warranty does not cover failures which arise from accident, misuse, abuse, neglect, mishandling, misapplication, faulty installation, improper adjustment, alteration or modification of product, incompatibilities, line-power surges, acts of God, or service performed by anyone other than Millennia Media or its authorized agent. Vacuum tube failures are not covered under warranty.

## LIMITS AND EXCLUSIONS

There are no express warranties except as listed above. Millennia Media shall not be liable for special, subsequent, incidental, consequential, or punitive damages, including, but not limited to: damage to recordings, microphones, mixing consoles, or any associated equipment, downtime costs, loss of goodwill, or claims of any party dealing with purchaser for such damages resulting from the use of this product. All warranties, express and implied, including the warranties of merchantability and fitness for a particular purpose are limited to the applicable warranty period set forth above.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or length of time an implied warranty remains in effect. As such, the above exclusions may not apply. This warranty gives you specific legal rights and you may also have other rights which can vary from state to state.

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