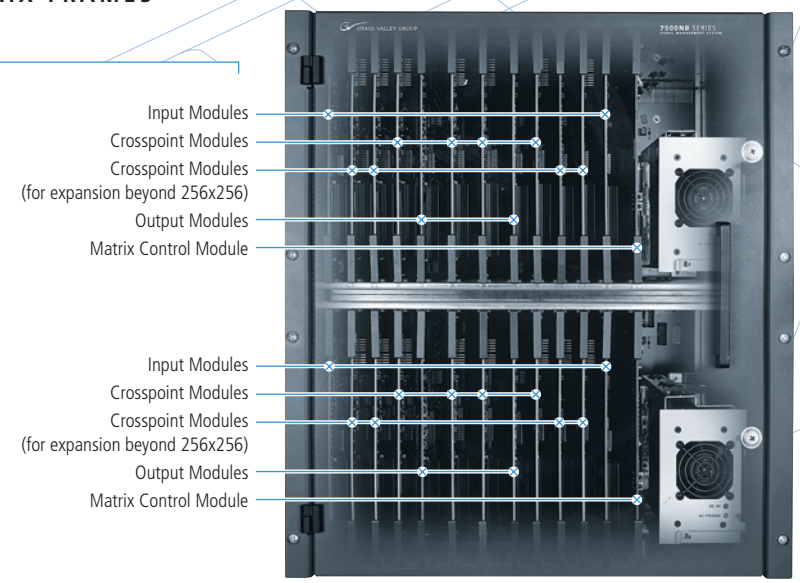
GRASS VALLEY GROUP

7500NB SERIES

NARROWBAND ROUTING MATRIX FRAMES

PRODUCT DATA SHEET



KEY FEATURES

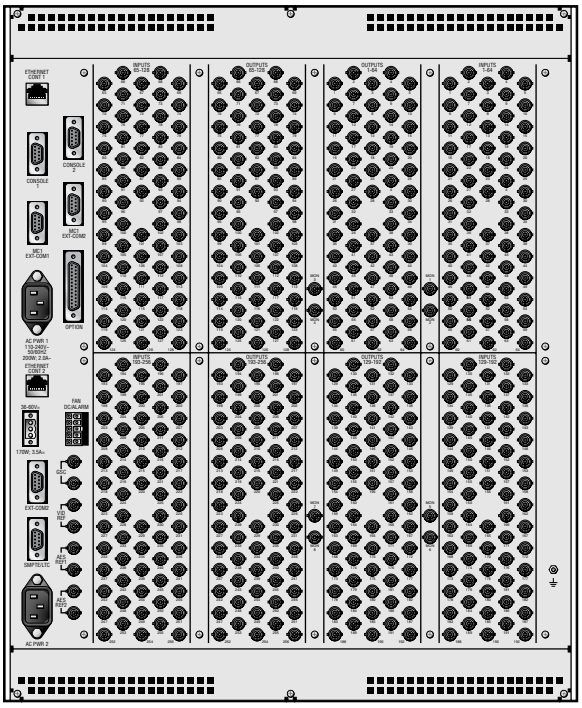
- Robust, field-proven Series 7000/7500 control system
- Compact space and power saving frames for switching digital signals up to 50Mb/s
- Multiple reference inputs include: Video analog color black and 48KHz audio
- Modules include:
  - Synchronous AES/EBU 48kHz digital audio input and output modules
  - Asynchronous data input and output modules for AES/EBU digital audio/MPEG video
  - Universal crosspoint module
  - "AOM" Audio Output Monitors standard with synchronous output modules (two per module)
- Module Granularity of 64 inputs/64 outputs
- Auto ranging internal AC mains power supplies
- 48 VDC operation
- Two frame styles available:
  - 75Ω unbalanced BNC
  - 110Ω balanced High-Density 50 pin D
- Scalable, step-by-step expansion utilizing variable frame sizes: 12RU 256x256, 24RU 512x512, 36RU 768x512, 48RU 1024x512
- Front removable/hot pluggable modules for safe "On-Air" maintenance
- Each matrix frame comes standard with a controller module and power supply
- Fully redundant internal controllers and power supplies available

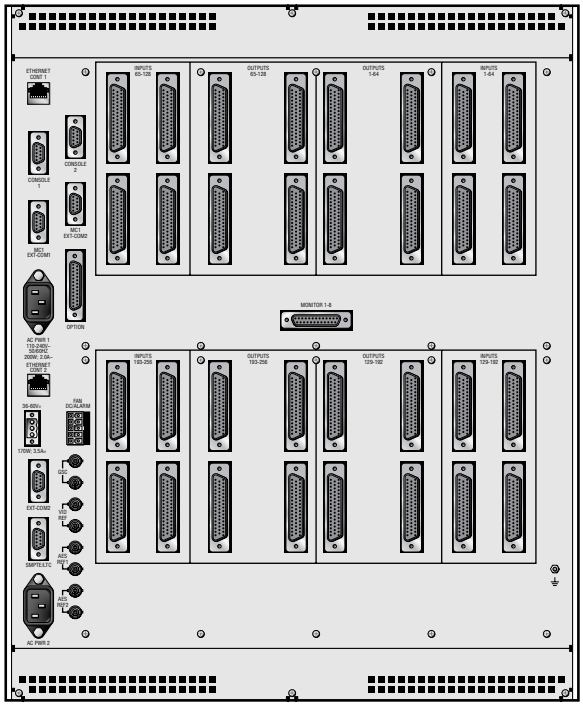
More Than Just an Audio Router

The 7500 NB series matrix frames are the perfect low-power and low-cost solution for routing low-bandwidth signals through your facility. Designed for synchronous or asynchronous digital audio routing, the 7500 NB works as a companion to all other 7000/7500 Series matrix frames. The 7500 NB can also route serial digital data up to 50Mb/s, making it ideal for LTC linear time code, SMPTE 310 (ATSC 19Mb data stream), MPEG, and other data routing. This series also works well in telecommunication and cable head-end facilities that standardize on 48VDC battery power.

BNC or D Connector Frames for Easy Integration

The 7500NB series matrix frames are available with unbalanced BNC connectors for quick and easy 75Ω coaxial cable connections or the traditional 110Ω balanced outputs from high-density 50-pin D connectors, which enable simplified cabling to patch panels.





7500NB 256X256 REAR CONNECTORS

Two versions are available for easy integration into your facility with either BNC connectors (top) or "D" connectors (bottom).

Professional Multichannel Digital Audio Routing

These matrix frames are ideal for broadcasters and audio postproduction facilities that need to route multiple audio signals. They allow for routing of synchronous 48KHz AES/EBU digital audio, Dolby Digital, Dolby E, surround sound, 5.1, AC3, and asynchronous data rate audio signals. This is extremely useful in post production facilities for music videos, in broadcast facilities that are implementing audio processing for DTV/ATSC data streams and in other high audio usage applications.

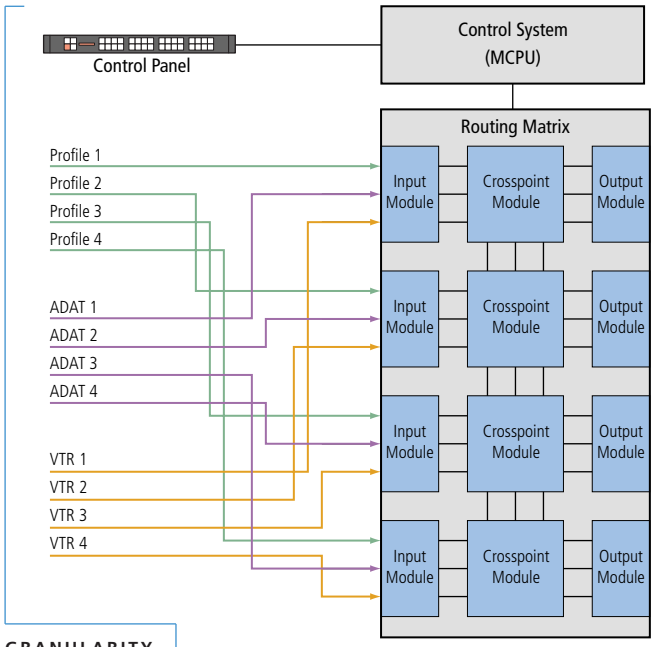
As an audio router, this frame uses both video and audio reference "switch point" signals. Video reference is analog color black either NTSC or PAL. The audio reference is a 48KHz word clock or 48KHz AES/EBU audio signal. 625 line systems synchronously switch audio at the video vertical reference, 525 line applications switch the audio (depending on field alignment) up to a few micro seconds after the vertical reference.

Synchronous Modules for Live Digital Audio Productions

In live productions, where audio timing is critical, synchronous modules eliminate the pops, and other artifacts that result from AES mid-frame switching. The synchronous input audio module frame aligns the AES/EBU data stream and strips off the block data (to be re-inserted later by the output module). The crosspoint module switches at the AES frame boundary to make a seamless, synchronous switch to another AES data stream. The output module rebuilds the AES data stream and outputs the AES signal, complete with necessary block data. Additionally, the synchronous output module offers enhanced audio processing including a soft switch capability (dunking) that aligns the audio levels at the switch point. Each synchronous audio output module provides two audio output monitors. These monitors allow independent destination monitoring without disturbing the current source/destination selection. With the maximum of four output modules per frame eight independent audio outputs can be monitored simultaneously

Data Modules for Post Production Digital Audio or Data Switching

For routing of data or digital audio in a post production environment, the asynchronous data input and output modules offer a cost effective routing solution. They can route any serial digital data signal up to 50Mb/s, making them ideal for LTC linear time code, MPEG data streams including SMPTE 310 (ATSC 19Mb data stream), multi-rate digital audio streams at 32, 44.1 and 96kHz and other data routing.



GRANULARITY.
By spreading inputs across multiple modules, redundancy and reliability is ensured while granularity is increased with reduced complexity and costs. Virtual matrix mapping can display like sources contiguously on control panels and in automation systems.

Optimized Module Granularity

For serviceability, lower power consumption, reduced size and cost; input and output modules are offered in a granularity (number of channels processed per module) of 64 channels. During system commissioning, similar media sources (Profile, VTRs, ADATs, etc.) are spread across multiple input and output modules. This minimizes the impact of taking any one module off-line for servicing or upgrading.
By virtual mapping of inputs and outputs, like sources can be displayed on control panels and automation systems in a contiguous manner, making source and destination selection more intuitive.

Robust AC/DC Power Supplies

All 7500 NB series matrix frames include an internal auto ranging industry standard "off the shelf" AC mains power supply with the option of a fully redundant load sharing supply. The power supply generates a single output voltage of 48VDC, which is regulated down on each card as needed. A standard 48VDC battery "float" connection is supplied on each frame. This connection simplifies power requirements for facilities standardizing on 48VDC power and provides a simple low cost battery backed up UPS system for facilities standardizing on AC power. Maximum power requirement for a fully populated 256x256 frame is only 120 watts.

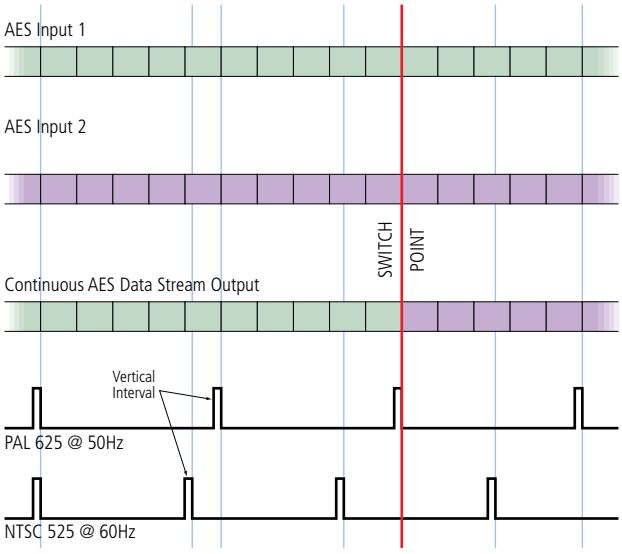
All 7500NB Series matrix frames require forced air cooling either within the equipment rack or by optional forced air SMS-FAN assemblies

Front Removable/ Hot Pluggable Modules

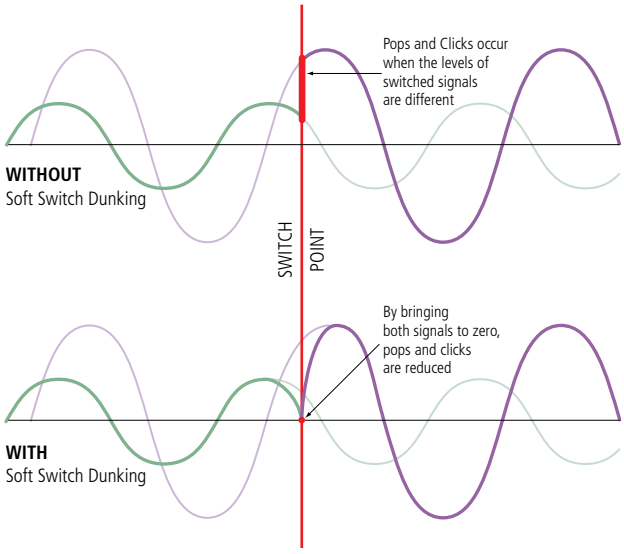
All Series 7000/7500 matrix frames offer front removable/hot pluggable modules with rear mounted motherboard construction. This design improves the integrity of the system by reducing internal cabling and by eliminating mid-plane motherboards with rear mounted active components. This greatly reduces system down time, simplifies cable connections to the frames (no need to route cables to enable access to rear mounted components), increases ease of serviceability, simplifies system expansion, and increases the reliability of the system.

Simple Frame Expansion

System expansion is easily accomplished in the field simply by mounting another 7500NB matrix frame directly below the current frame, and plugging in the expansion module set. If there is no space directly below the current frame, a 4.5 meter expansion cable set is available.



SYNCHRONOUS AES AUDIO SWITCHING
By switching at the AES frame boundary, rather than the vertical interval, the integrity of the AES data stream is preserved.



SOFT SWITCHING AUDIO SIGNALS
By bringing audio levels to zero at the switch point, clicks and pops in the audio are reduced.

7500NB SERIES SPECIFICATIONS

Inputs

- Data rates 10k-baud to 50Mb/s
- 75Ω, unbalanced/BNC connector or 110Ω, balanced 50-pin "D" connector
- 200mV to 5V p-p
- Return Loss >15dB @ 0.1 MHz to 50MHz, >25dB @ 6MHz, self terminating

Outputs (including monitors)

- Conforms to SMPTE-276M (AES/EBU)
- 75Ω, unbalanced/BNC connector or 110Ω, balanced 50-pin "D" connector
- 1V p-p for BNC version, 4V p-p for balanced 50-pin "D" version
- Risetime 15-30ns for synchronous AES modules, 5ns for data modules
- Return loss >15dB @ 0.1MHz to 1MHz, >25dB @ 50MHz
- Input to output delay: 3-4 AES/EBU frames maximum

Reference Inputs

- 48kHz AES/EBU reference, looping BNC connector
- NTSC or PAL video color black , looping BNC connector

GSC/Node Bus

- SMS7000 Node Bus Global Serial Channel
- High Z, looping BNC connector

7500NB 256x256B/D

DIMENSIONS	CM	IN
Height: 12RU	53.3	21
Width	48.5	19
Depth	48.3	19
Weight (max.)	46.7kg	103 lbs.

7500NB 512x512B/D

DIMENSIONS	CM	IN
Height: 24RU	106.7	42
Width	48.5	19
Depth	48.3	19
Weight (max.)	104.3kg	230 lbs.

Power

- 85-264 VAC
- DC input voltage 38 > 60VDC 8A max., terminal block connection
- Power consumption: 120W max. for 256x256, 300W for 512x512

Environmental

- Operating temperature: 0-40° C
- Operating humidity: 10-90%, non-condensing

Warranty

Products offered by Grass Valley Group are manufactured to provide the highest level of reliability and performance. Grass Valley Group warrants these products against defects in materials and workmanship in accordance with the warranty statement applicable with each product.

Standard product warranty is one year from the date of installation or 15 months from the date of shipment; whichever is earlier. Warranty coverage includes:

- Hardware support with advance exchange of parts shipped next business day
- Software support includes automatic shipment of software maintenance releases
- After hours emergency phone support

Complimentary Services

Technical phone support via our 1-800-547-8949 number during regular business hours and technical e-mail support. In addition to our call center, we offer on-line technical resources and parts ordering via our web site at www.grassvalleygroup.com/support.

Value Added Services[1]

- **SmoothStart℠ and On-Site Installation Support Services –** Critical startup services to get you going. These services include pre-installation planning, on-site checkout, on-site overview training as well as customized networking and system support services
- **Comprehensive Service Contracts –** Up to 5 years beyond initial warranty which includes advanced exchange of parts shipped next business day, proactive software subscription support, after hours emergency phone support and discounts on our training classes and field support operations
- **On-Site or Factory Training –** Operations, advanced operations and technical/maintenance training
- **Spares Kits –** For mission-critical applications, our parts kits ensure maximum on-air time

1) *Some value-added services are available for specific products only. Please contact your sales representative for details by product.*

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