

NVISION 7512

Audio router (AES3, Analog, Time Code, MADI)



The NVISION 7512 digital audio router offers 512 x 512 AES3 routing in one 14 RU frame, with linear expansion up to 2048 x 2048 signals using 4 frames. The router allows users to mix and match AES3, analog, Time Code and MADI signals in one frame. For audio signals, routing and signal processing is available on a mono channel basis including input gain and phase. Sample Rate Conversion (SRC) is available as an option.

KEY FEATURES AND BENEFITS

Digital/analog audio routing

- > AES3
- > Analog
- > Time Code
- > MADI
- > Users can 'mix and match' AES, analog, Time Code, SRC and MADI cards in one frame

Scaleable architecture

- > 512 x 512 AES in 14RU (plus 5RU power supply frames)
- > 1024 x 1024 AES in 28RU (plus two 5RU power supply frames)
- > Linear expansion to 4096 x 4096 mono channels

Optional DSP modules

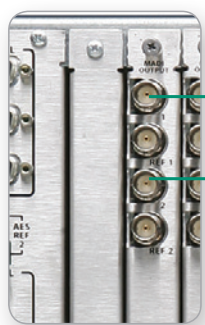
- > Input gain
- > Input phase inversion
- > Mono sum
- > Cross-fade
- > V-fade
- > Output 2:1 mix down
- > Dolby E certified

Ultra-resilient design

- > Front loading, hot-swappable power supplies, input, output, controller and crosspoint modules
- > Speed controlled fans
- > SNMP support

Highly flexible automated/manual control

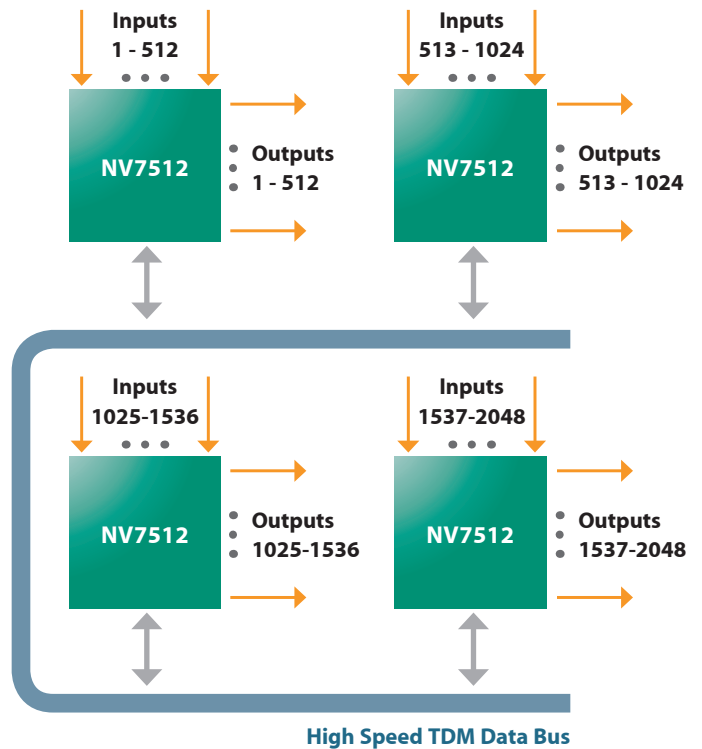
- > Wide range of remote control panels: traditional and PC GUI-based
- > Enhanced control when router used with NVISION 9000 control system - supports many third-party control system protocols
- > Simultaneous router control by external automation, facility control systems, and NVISION control systems
- > Operational consistency across NVISION product line



Configurations

	1	2	2	4
Connector 1	64	56	48	32
Connector 2	0	8	16	32

MADI connectors channel allocation



Four 14RU frames can be connected to provide 2048 x 2048 AES routing

NVISION 7512: highly expandable design



The power supplies, control module, and all the active modules are hot-swappable and plug into the front of the frame

Multi-format flexibility

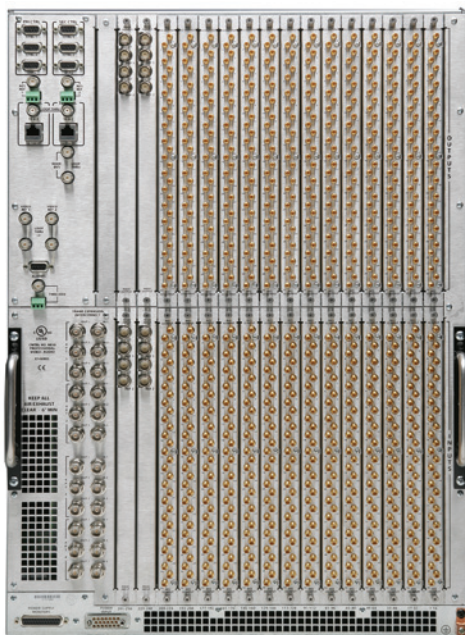
The modular architecture of the NVISION 7512 makes it easy to tailor the system to fit your needs. AES3, AES3id, Time Code, analog audio, and MADI (AES-10) signals can be 'mixed and matched' in the same frame, without the need for any external converters.

The frame provides all the essential signal processing features, including input sample rate conversion, input gain and phase inversion. Stereo analog inputs are converted to digital using high performance 24-bit converters. Inputs may be switched as stereo pairs or as two independent mono channels. Analog output conversion is also performed with 24-bit resolution.

Optional DSP modules can be added to the Time Division Multiplex (TDM) crosspoint to allow input phase inversion, input gain control, and also control the output transition time and output 2:1 mixdown.

When using AES, the input and output block size is 32. Time Code and stereo analog audio use an input and output block size of 16. MADI input and outputs can support up to 2 MADI streams each.

MADI ports may be configured in one of four modes to support different MADI channel counts. Since all signals are switched digitally, all inputs (AES, analog or MADI) are available on all outputs. Using the system's mono channel switching capability, it is even possible to route a two-channel pair comprised of one analog and one digital signal to any router output.



The flexible backplane of the NVISION 7512 allows you to customize input and output connector types. DIN 1.0/2.3 coax connectors for unbalanced AES, 25 pin D connectors for balanced AES and stereo analog audio and Phoenix screw terminals for Time Code.

Highly scalable design

Fully scalable, the NVISION 7512 digital/analog audio router offers expansion up to 512 x 512 AES in one 14RU frame, up to 1024 x 1024 AES using two frames, and up to a 2048 x 2048 AES (4096 x 4096 mono) in four frames matrix.

This expansion is accomplished by linking frames together with high speed TDM busses. No input DAs or secondary switching hardware is required. This linear expandability eliminates costly, space consuming external input distribution fan-outs and output secondary switching altogether. It also removes the inherent termination problems of external passive splitters and combiners. The end result is greater system signal integrity, with fewer signal errors and bigger loss budgets. High density packaging also maximizes available rack space, and simplifies systems engineering.

Powerful router control

Field proven in hundreds of installations worldwide with millions of hours of continuous operation, the NVISION router control systems are ideal for mission critical applications. Designed to grow with your needs, the router control system offers a full complement of user interface options, along with full redundancy, and an easy-to-use Java based configuration editor.

The remote control panels include highly configurable hardware and virtual control panels. They provide all the features, functions and redundancy essential to address a broad range of applications, from the smallest television station to the largest uplink and origination centers (see page 338).

NVISION 7512 TECHNICAL SPECIFICATIONS

ELECTRICAL

AC input:	90-130/180-250 VAC, 50/60 Hz, auto-ranging
AC fuses:	Power supplies: 8A (HB0145-00), slow blow; 90-130 V, 6.3A (HB0031-00), slow blow, 180-250 V
AC connectors	8, IEC 320 (one for each PS6000 module installed)
AC power:	PS6000, 660 W, one IEC 320
AC power usage:	Power based on PS6000 modules; 4 primary (4 optional redundant): 475 W nominal (512 x 512 sync AES), power factor corrected 900 W typical (256 x 256 stereo analog audio), power factor corrected
Power supply modules and module slots:	Required minimum number of PS6000 modules: 2 primary (2 optional redundant). One NV6257 power supply frame can power two routers.
Power supply dimensions:	5RU high (8.75 in. , 222.2 mm) 19.0 in. (483 mm) wide 21.0 in. (533 mm) deep
Weight:	55 lbs (25 kg); 105 lbs (47.5 kg) fully loaded
DC power:	NVISION connector and DC cable: WC0085
Power supply alarm connection:	DB-25; reads each PS6000 status
Power supply monitor connection:	DB-25
Regulatory compliance:	UL Listed and CE Compliant

MECHANICAL

Dimensions:	14RU (24.5 in., 622 mm) high 19.0 in. (483 mm) wide 18.0 in. (457 mm) deep
Weight:	102 lbs (46.2 kg); 167 lbs (75.9 kg) fully loaded
Mounting:	EIA 310-C, 19.0 in. (483 mm)
Grounding terminal:	Copper, accepts 14-6 AWG
Modules and module slots:	16 input cards, up to 32 signals each, 16 output cards, up to 32 signals each, 4 crosspoint cards, 2 control cards (1 primary, 1 optional secondary), 1 monitor card, 3 fan modules

DIAGNOSTIC

Type:	Serial port
Standard:	SMPTE 207M, EIA-422/EIA-232, configurable
Connector:	2, DE-9

SERIAL CONTROL

Type:	Serial port (2 per control card)
Standard:	SMPTE 207M, EIA-422, configurable
Connector:	4, DE-9

ETHERNET

Type:	10/100 Base T
Standard:	IEEE 802.3
Protocol:	NVISION Ethernet protocol
Connector:	2, RJ-45

GSC NODE BUS

Type:	Serial
Standard:	Proprietary
Connector:	2, BNC, loop-thru, non-terminating pair
Impedance:	75 ohm

OUTPUT SIGNAL MONITOR

Type:	Digital audio and AESid
Standard:	See related section of this specification for standard for each monitored signal type
Connector:	BNC or Phoenix
Impedance:	75 ohm or 110 ohm
Signal details:	See related section of this specification for details for each monitored signal type, I/O levels and return loss

EXPANSION CONTROL

Type:	10B2 port
Standard:	See related section of this specification for standard for each signal type sent between routers
Connector:	2, BNC, loop thru
Impedance:	75 ohm
Signal details:	See related section of this specification for details for each signal type, I/O levels and return loss

POWER SUPPLY MONITOR

Connector:	DB-25
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ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	0 to 40 °C.
Relative humidity:	0 to 90 %, non-condensing

AUDIO REFERENCE INPUT

Type:	Serial digital audio
Standard:	AES3 or AES3id
Sample rate:	48 kHz
Connector:	2, BNC or Phoenix
Impedance:	75 ohm or 110 ohm
Input level:	0.5 Vp-p to 2.0 Vp-p

AES3 INPUTS/OUTPUTS

Type:	Balanced digital audio
Standard:	AES3
Sample rate/single frame:	synchronous 48, 96 or 192 kHz
Sample rate/multiple frames:	synchronous 48, 96 or 192 kHz
Connector:	DB-25
Impedance:	110 ohm
Input level:	200 mV to 10 Vp-p
Output level:	2 Vp-p

AES3id INPUTS/OUTPUTS

Type:	Unbalanced digital audio
Standard:	AES3id
Sample rate, single frame:	synchronous 48, 96 or 192 kHz
Sample rate, multiple frames:	synchronous 48, 96 or 192 kHz

Connector:	DIN 1.0/2.3
Impedance:	75 ohm
Input level:	100 mV to 1.2 Vp-p
Output level:	1 V +10 %

AES10 (MADI) INPUTS/OUTPUTS

Type:	Unbalanced digital audio
Standard:	AES10 - sample rate, single frame: synchronous 48 or 96 kHz Sample rate, multiple frames: synchronous 48 or 96 kHz
Connector:	BNC
Impedance:	75 ohm
Input level:	150 mV to 600 mV
Output level:	600 mV

ANALOG AUDIO INPUTS/OUTPUTS

Type:	Analog audio
Standard:	24-bit at 48 kHz
Sample rate:	48 kHz
Connector:	DB-25
Impedance:	Input >20 kohm, output 50 ohm
Input level:	FSD, +15, +18 and +24 dBu
Output level:	FSD, +15, +18 and +24 dBu, selectable +6 dB gain via switch
Freq. response:	20 Hz to 20 kHz ±0.2 dB
THD:	<0.02 % at +4 dBu at 1 kHz
IMD:	<0.5 % (per SMPTE method using a 60 Hz +12 dBu wave and a 7 kHz 0 dBu sine wave) sine
Noise:	95 dB below +24 dBu
Inter-route delay:	<1 µs
Input to output delay:	<1.2 ms
Crosstalk:	-80 dB worst case
Insertion gain:	±0.1 dB
CMRR:	>75 dB from 60 Hz to 20 kHz

VIDEO REFERENCE INPUT

Type:	Analog video reference
Standard:	PAL, NTSC, or tri-level sync
Connector:	Loop-thru, BNC
Impedance:	75 ohm or Hi-Z
Input level:	0.5 Vp-p to 2.0 Vp-p
Input return loss:	±30 dB to 5 MHz

Time Code REFERENCE INPUT

Type:	1 BNC, 1 Phoenix
Standard:	SMPTE 12M
Connector:	BNC terminating, Phoenix
Impedance:	75 ohm or 110 ohm

Time Code INPUTS/OUTPUTS

Type:	Longitudinal Time Code
Standard:	SMPTE 12M
Connector:	Phoenix
Impedance:	600 ohm or Hi-Z, selectable
Input level:	100 mV to 10 Vp-p
Output level:	2.0 Vp-p

NVISION 7512 ORDERING INFORMATION

Frame		Crosspoint module	
FR7512	512x512 in 14RU expandable to 1024x1024 in 2 frames	7512-TDM-XPT	NV7512 TDM 512X128 crosspoint module
Control module		Other options	
7512-NV	NV7512 control card with NVISION protocol	PS6000	Redundant power supply (2 required per system)
Audio input		NV9660	2RU mixer/router control panel for use with 7512-MIX-OUT
7512-AA-IN	NV7512 analog audio 16 input module	7512-XPT-SM	DSP sub-module for NV7512 XPT-2 required per module
7512-SA-IN	NV7512 synchronous 32 input module	7256-AES-MNTR	NV7256/NV7512 AES monitor module
7512-TC-IN	NV7512 Time Code 16 input module	7512-MADI-SM	NV7512 MADI sample rate conversion module
7512-MADI-IN	NV7512 MADI input module	NV5000-CABLE1	15 foot AA breakout cable. D connector to pigtail. Four stereo pairs
Audio output		7000-FAN 1	NV7512 upper fan tray with speed control
7512-AA-OUT	NV7512 analog audio 16 output module	7000-FAN 2	NV7512 lower fan tray with speed control
7512-SA-OUT	NV7512 synchronous 32 output module	7000-FAN 3	NV7512 middle fan tray with speed control
7512-MIX-OUT	NV7512 quad mixer output module		
7512-TC-OUT	NV7512 Time Code 16 output module		
7512-MADI-OUT	NV7512 MADI output module		