

XHDI

BASE DEVICE // DIGITAL-AUDIO

NEXUS HD-SDI and SDI embedder and de-embedder

THE EMBEDDER/DE-EMBEDDER CARD FOR AUDIO IN HD-SDI VIDEO SIGNALS

WITH THE XHDI-CARD FOR NEXUS MODULAR, AUDIO SIGNALS CAN BE EXTRACTED FROM AN HDSDI DIGITAL VIDEO STREAM, REPLACED AND SIMULTANEOUSLY EMBEDDED AGAIN.



The XHDI card is a combined de-embedder and embedder for audio signals in HDSDI and SDI video signals to SMPTE 259M, 292M and 424M/425M. The card supports automatic format detection of the video data streams and is able to read, exchange and embed all 16 embedded audio signals simultaneously. Various modes are available for this: De-Embed, Embed, Replace, Bypass and Delete allow flexible handling of the embedded audio data. The unpacked channels can be used freely in the NEXUS routing matrix. To be able to adjust the levels as soon as you enter the system, a DSP is provided on the module. The video-audio offset that occurs during separate audio-video processing can be compensated by means of delay. A video delay before re-embedding is also possible. Requantisation can be activated for audio formats with a different word width, such as 20 or 16 Bit. Dithering and noise shaping are of course available. When setting up new systems or troubleshooting, an integrated video test pattern generator that supports the various resolutions and frame rates can be used to connect the XHDI with the XDED or XDEE card using a short cable within the NEXUS base unit for practical integration of Dolby E signals.

Adjustable delay for delay compensation compared to the video

To compensate for an image-sound offset that can occur when editing or compressing video, there is an adjustable delay.

Adjustable delay for delay compensation compared to the audio

During extensive processing or routing over long distances, the audio signal may be slightly delayed, so that an adjustable delay restores lip sync.

Integrated test pattern generator

In 425M, 296M, 274M, and 125M SMPTE formats, a color bar or black image can be output for setup and troubleshooting.

Noise-shaping

An integrated DSP adds dithering to reduce audible effects from re-quantisation.

Optional sample rate converter

An optional sample rate converter module enables the embedding of audio signals that do not comply with the SD standard of 48 kHz. On the other hand, audio signals from SD/HD data streams can also be fed into NEXUS systems that operate at other sampling rates such as 96 kHz.



The metadata contained in the SD/HD data stream can be read and written. Data can be received from or output to external devices via the optional XDEM interface card. Even more convenient when using a NEXUS Dolby E card is the connection via the NEXUS network, e.g. to an XTI serial data transfer card. The XHDI card is available in two versions: With four BNC connectors for Video In, Thru and 2 x Video Out and alternatively with a bidirectional SFP port, which connects to an LC-duplex fiber with different modules. Optionally, the board can be equipped with sample rate converters to operate the NEXUS system in a different clock to the audio signals from the video source.

Automatic format recognition

The XHDI card supports a variety of SD, HD and 3G formats and recognizes independently the correct type.

Adjustable digital input gain

The inputs are immediately followed by a digital gain stage in the range of +/-20 dB, which can be adjusted in 1 dB steps. In addition, it is possible to reverse the phase for each channel separately.



TECHNICAL DATA

Features

Video data formats compliant w/	SMPTE 259M (270 Mbps) SMPTE 292M (1485/1483,5 Mbps) SMPTE 424M/425M (2970/2967 Mbps) Automatic format detection
Embedding and de-embedding	SMPTE 272M-AC (SD) SMPTE 299M (HD/3G)
Amplitude resolution	16 Bit 20 Bit 24 Bit Transmission of compressed audio, Dolby E-certified
Sample rates	48 kHz according to SDI44 44,1 kHz, 48 kHz, 88,1 kHz, 96 kHz (NEXUS system clock) with optional sampling rate converter
Input data rate	270 MBit 1483,51 MBit 1485 MBit
Note	Due to the high data rate, only high-quality cables with sufficient bandwidth and defined impedance (75 Ω) should be used
Interface extension XDEM	Optional expansion card for feeding or outputting metadata

Electrical input BNC

Impedance	75 Ω
Return loss	Min. 15 dB according to SMPTE 292M
Cable length	Max. 300 m at 270 MBit with cable Belden 1694A) Max. 140 m at 1485 MBit with cable Belden 1694A

Electrical outputs BNC

Impedance	75 Ω
Output voltage	Typ. 800 mVpp
Return loss	Min. 15 dB according to SMPTE 292M

Input optical LC

Bloke	Singlemode SM
Cable length	Max. 10 km
Optical sensitivity	-18 dBm (at 9/125 μm)
Max. damping	0...8 dB (total attenuation via cables, connectors, switches, connections)

Output optical LC

Bloke	Singlemode SM
Cable length	Max. 10 km
Wavelength	1270...1360 μm
Optical output	-10...-3 dBm (at 9/125 μm)

Operation conditions

Temperature range	0 °C to +50 °C
Humidity	Max. 90 %, non-condensing

Storage conditions

Temperature range	-35 °C to +70 °C
Humidity	Max. 90 %, non-condensing

Power supply

Voltage	+4,75...5,25 V
Current	1000 mA (BNC only) 1200 mA (optical and BNC)

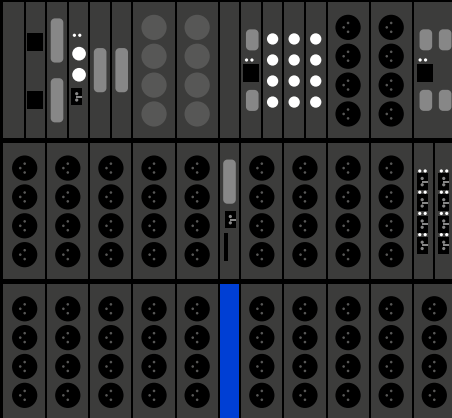
Mechanical data

Weight	0,26 kg
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NEXUS // NETWORKED AUDIO MATRIX

NOW, IT'S TIME FOR YOU TO DEFINE YOUR SYSTEM'S FUTURE.

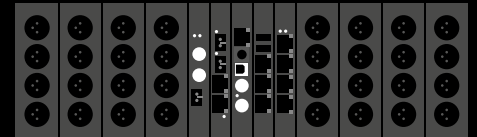
Every installation is unique, requiring a system that aligns perfectly with its specific requirements. Our commitment to customised solutions ensures that each scenario receives the ideal system configuration. Are you looking for a modular design that offers flexibility and seamless expansion? Or do you prefer the stability and simplicity of a fixed system? Perhaps a combination of both, blending flexibility with permanence, will best meet your needs. Would you like to continue using your proprietary system or network via IP? NEXUS supports both options, keeping you always up-to-date with maximum freedom and performance. With STAGETEC, our NEXUS networked audio matrix systems will serve as the reliable heartbeat of your installation.



NEXUS modular



NEXUS compact



NEXUS 4split

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