



XDEE

Dolby-E-Encoder

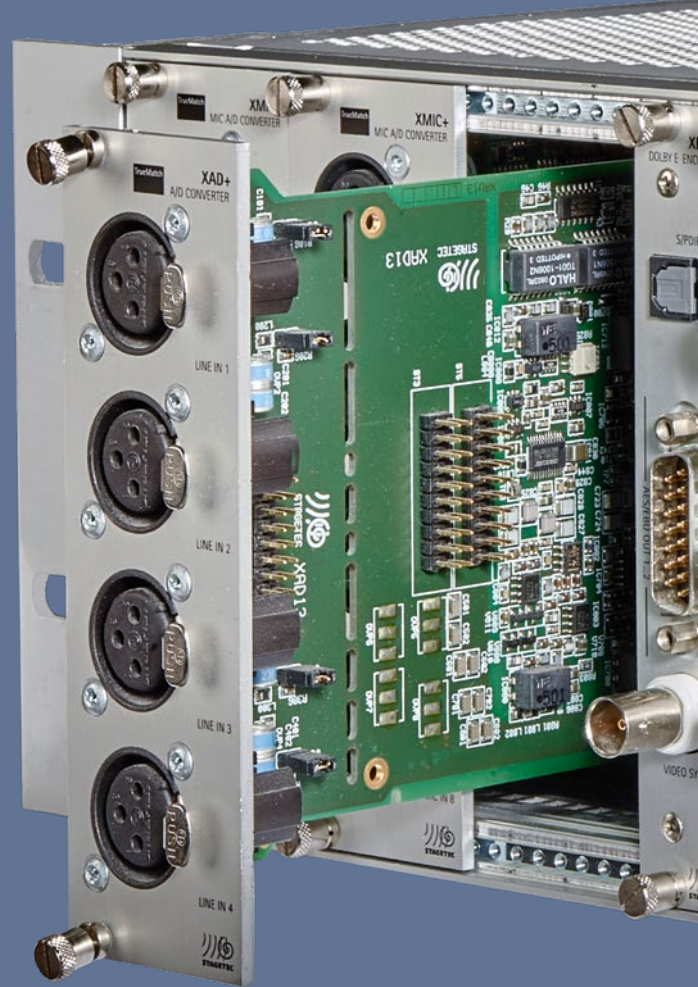


A U D I O E X C E L L E N C E

XDEE

The encoder card for Dolby-E

The XDEE board series is designed as Dolby-E output board for the NEXUS system. It supports all features provided in the Dolby specifications and supplements them with useful options such as auxiliary sync generation to allow limited operation even if video sync is missing. The connections are both optical as Toslink and electrical with 110 Ohm balanced and 75 Ohm unbalanced. The handling of metadata is flexible and, thanks to the functions of the NEXUS network, far beyond the usual.



The XDEE card is an encoder for Dolby E signals. Discrete signals from the entire NEXUS network can be routed to the board and encoded into a Dolby E data stream; up to 8 Dolby E-compliant audio channels in total. In parallel, the card can output two independent channels as another AES stereo signal, which is usually transmitted unencrypted as a comment or control signal. Of course, it is possible to output a Dolby-E stream that has already been encoded elsewhere in the network or to play the freshly encoded stream back into the NEXUS matrix. This can then be routed transparently and independently of the individual signals in the NEXUS network to be used elsewhere.

Via a dedicated port on the board itself, the encoded signal can be forwarded directly to an adjacent XHDI video

embedder board. This direct connection guarantees the lowest possible latency as well as direct synchronization of Dolby E and HDSDI data streams to each other.

Sample rate converters are connected upstream of the Dolby encoder module and also the parallel signals that cannot be encoded, so that the signals applied internally with the NEXUS system clock can be converted to an external, possibly deviating clock before output. There is an adjustable delay for all audio signals. The metadata to be embedded into the generated signal can be transmitted over the NEXUS network from any XTI or XDEM board. They can also come from an adjacent XHDI video interface via a direct cable connection. In the simplest case, metadata can also be entered in the NEXUS control software; it can also





be delayed to match the audio via an adjustable delay.

The front panel of the board offers various connections: A Toslink socket provides optical signals in S/PDIF format. The encoded Dolby E signal and the non-coded, parallel stereo signal are present on a 15-pin D-sub connector. Of course, these outputs are balanced and galvanically isolated. 110 Ohm and 75 Ohm lines are supported. There is a separate video input for synchronous signals in formats such as composite, component and HDTV. Bi- and tri-level sync are supported. In order to guarantee video frame-accurate synchronization of Dolby-E, this input should be correctly connected due to the system, but the XDED card can generate an auxiliary signal, with which limited operation is possible even in the absence of video

sync. The external video sync can be fine-tuned via a line delay to compensate for the encoder's runtime, for example. In addition, the board is capable of generating an audio sync from the video clock to which the entire NEXUS network can be synchronized.

Encoding of a 5.1 audio signal including metadata

Up to eight freely selectable signals from the NEXUS network can be processed into one Dolby E data stream.

Use of metadata from any XTI interface boards in the NEXUS system

Metadata can be embedded into the data stream that has been provided system-wide by an XTI board or supplied to the XDEE card by the XDEM extension via ribbon cable.

Direct connection to XHDI cards for audio transfer for embedding in HD-SDI video signals

The encoded data can be embedded directly into an HD-SDI signal via an internal line to an SDI board XHDI.

Combined BNC connector for Bi-/Tri-Level-Sync and SDI/HD-SDI-Sync

The BNC connector can be used for both analog and digital sync signals.

The XDEM module can be used in conjunction with NEXUS XDED, XDEE or XHDI boards to read and output metadata streams. The XDEM module is not an independent plug-in board but an extension for the NEXUS boards XDED, XDEE and XHDI. It provides two additional RS232- or RS422-compliant 9pin D-Sub interfaces, via which the metadata ports of these cards can be addressed. It is a simple, direct solution to transfer metadata to or from these boards when none of the other higher-level solutions that are possible with the respective NEXUS board are used

, and the module has two ports that can be used in different constellations: One port together with one Dolby module of each XDED dual card or with the Dolby module of two XDED single cards. Or one port each with the Dolby module of up to two XDEE cards. Or in connection with an XHDI card one port with the de-embedder of the card and the other port with its embedder.

Connections			
XDEE_1	1 x 4TE		
Toslink	1x	S/PDIF	Output
D-Sub 15 Socked female	1x	AES/EBU	Output
BNC	1x	Wordclock	input

Technical specifications	
Data formats	
Inputs	linear audio sources routed from the NEXUS network
Dolby E	as specified for Dolby modules (CAT No. 559E)
Container format data stream	SMPTE 337M-compliant
Audio data inputs	NEXUS, 24 Bit
Audio data outputs	compressed Dolby E audio, 16-bit or 20-bit; 24-bit linear audio
Interface extension XDEM	Expansion card XDEM with serial metadata port optionally available
Outputs AES/EBU	
Outputs	balanced, galvanically isolated
Impedance	110, 75 Ohm
Diff. output voltage	2...5 VPP (110-ohm output) or 1 VPP (75-ohm output)
Cable length	100 m (for lines with appropriate impedance and termination)
Outputs TOSLINK	
Wavelength	650 nm
Optical power	-21...-15 dBm (APF 970/1000 µm)
Cable length	0,2...5 m (APF 970/1000 µm)
Sample rate converter	
Resolution	24-bit
up/down sampling ratio	1:8 (up) bis 7:1 (down)
Latency	typ. 1 ms, max. 2 ms (@48 kHz)
Dynamic range	140 dB (A), min. 132 dB (A) @ -60 dBu input level (typ.)
THD+N	typ. -120 dB, min. 117 dB (between 20 Hz and FSOUT at 0 dBFS)
Passband ripple	±0.016 dB (max.) @ 0.4535 FSOUT
stopband attenuation	-120 dB (0,5465 FSOUT min.)
Sync input	
Frame rates	23.975...60 fps
Impedance	110 kohm/75 ohm (adjustable using a jumper)
Input voltage	0,5...2 VPP an RL = 75 ohm
Operation conditions	
Temperature range	0 °C bis +50 °C
max humidity	max. 90 %, non-condensing
Storage conditions	
Temperature range	-35 °C bis +70 °C
max humidity	max. 90 %, non-condensing
Power supply	
Voltage	+4,75...5,25 V
Current	typ. 750 mA, Dolby module equipped
Mechanical data	
Weight	0,32 kg (mit zwei Modulen bestückt)

Stage Tec NEXUS: A global reference!*



*The map shows selected reference locations. To date more than 1,000 Stage Tec NEXUS systems have been delivered and installed worldwide.

Stage Tec
Entwicklungsgesellschaft für
professionelle Audiotechnik mbH

Tabbertstraße 10-11
12459 Berlin, Germany

P: +49 30 63 99 02-0

F: +49 30 63 99 02-32

E-mail: office@stagetec.com

www.stagetec.com



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