English

XMF

MADI-Format I/O-Interface

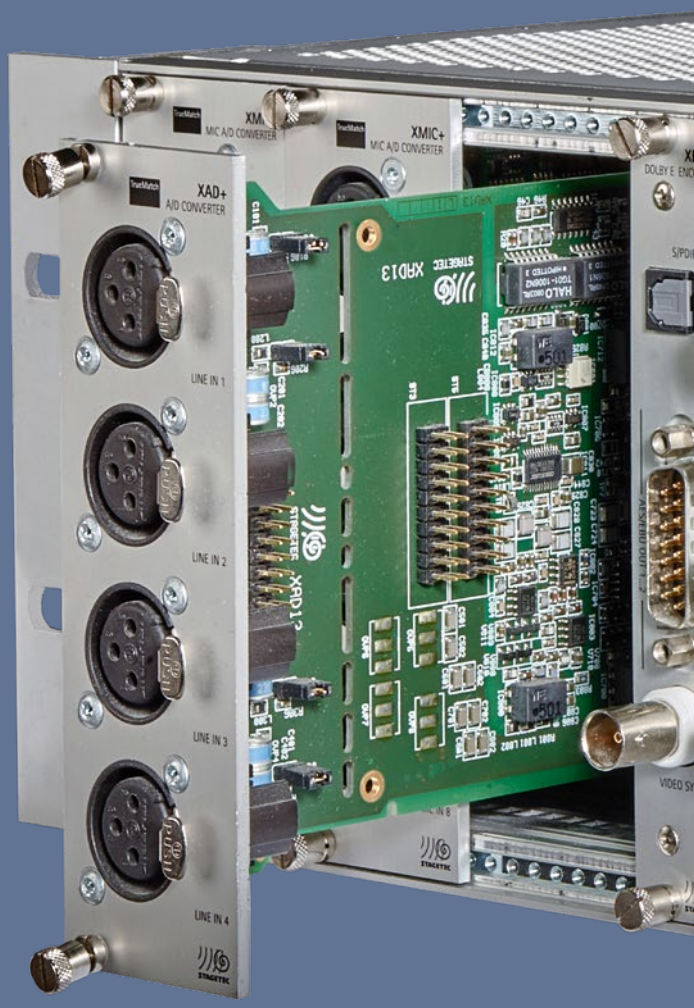
STAGETEC

AUDIO EXCELLENCE

XMF

The MADI Interface Card for NEXUS Base Devices

The XMF MADI card provides a simple, powerful solution for connecting a NEXUS system to MADI equipment anywhere.



The XMF plug-in card is ideal for exchanging many channels with external MADI-capable devices. Up to 64 channels can be received and transmitted. The board supports 56 and 64 channel MADI formats and automatically detects incoming audio streams. The XMF card also supports legacy mode, where the MADI connection works at twice the sampling rate, i.e. up to 96 kHz, but half the number of channels. In transparent mode, AES additional data can be transferred and read out and are available for further use by the user. For example, they can be output to an XTI board anywhere else in the network or displayed in the NEXUS operating program.

The XMF card can also receive compressed or encoded audio signals on MADI channels and transmit them transparently over the NEXUS network. It is certified by Dolby Laboratories for the transmission of Dolby-E. Optionally, sample rate converters for 64 channels are available, which can be assigned either completely to the inputs or outputs or 32 channels each of both inputs and outputs.

Each XMF board has a BNC input, a BNC output and an SFP port that can be equipped with the SFP module required for each application so that a wide range of scenarios with both single-mode and multi-mode fiber optic cables is supported.

Combined version with BNC input, BNC output and LC optical connection

The board has both BNC and optical LC connectors via which the Madi signal can be fed into the base unit. The preferred input can be selected in the operating software; in automatic mode, the module automatically recognizes which connection is used.

Adjustable digital gain in the inputs

The input signals can be amplified or reduced with a digital gain adjustable in 1dB steps.

Transmission of Dolby E signals

The XMF board is certified by Dolby Laboratories, Inc. to transmit Dolby E signals.

Optional sample rate converter

Optional sample rate converters can be supplied for the XMF card, which can be optionally assigned to the inputs or outputs.

Support of MADI legacy audio at 96 kHz

MADI data streams in legacy format can also be received and sent without any problems. By halving the number of channels, the sampling rate can be doubled.

Evaluation of additional data in the MADI data stream

The following additional data contained in the MADI data stream are evaluated by the XMF card the first four bytes of the channel status such as format, emphasis, lock, etc. and the channel parameters (on/off, A/B, validity).

Automatic detection of the number of channels in the MADI data stream

When evaluating the MADI additional data, the number of received channels is automatically recognized.

In the studio application feeding of multi-channel audio, e.g. from effect racks

It is becoming increasingly common for external digital devices to support mixing consoles with effects. The MADI standard has proven itself in both studio and live operation. Well-known companies offer hardware solutions that use this format and have found an easy way to integrate their systems into the NEXUS network in the XMF card. Examples include the Waves Soundgrid system and the Universal Audio Live Rack with its electrical and optical MADI interfaces for real-time audio effects.

Connection of DAWs or other multi-channel feed systems

Oft werden Shows und Veranstaltungen Shows and events are often supported with feeds from DAWs or other playback systems. Integrating such multi-channel audio sources into NEXUS-based production is easy with the XMF-MADI interface. Multiple MADI connections can be seamlessly integrated and the channels, including status information, can be routed on the NEXUS network. With the same interface, e.g. DirectOut or other audio signals for recording can be sent on the return channel.

Multi-channel recording from the NEXUS network

Recordings are common at events and productions, whether as quality assurance or for follow-up in any form. For example: A concert is mixed with a Stage Tec console, microphones and line sources are connected to NEXUS base units on stage. In addition to the Star Router, which contains the audio processors of the mixing console, there is also a NEXUS base unit with audio outputs, which is intended for transferring the mix to the system technician, inputs for feeders and talkback microphones. There is also an XMF board that supports a DAW or mobile recording device that can be powered by any audio channel on the NEXUS network: unprocessed input signals, mixer signals from a freely selectable direct-out point, summing, etc. MADI is an excellent multi-channel interface with 64 audio channels per line for such purposes, because any audio signals from the NEXUS network can be converted into a MADI data stream and additionally provided with status information.

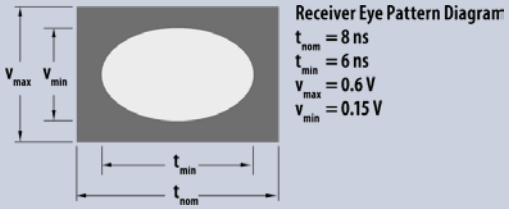
Connections between different NEXUS networks

It is possible for two separate NEXUS networks to exchange audio channels, but it is not possible to merge them, such as temporary scenarios such as support for studio production by an OB truck or collaboration between several OB vans during an event. Even permanent installations, such as 96kHz for recording and 48kHz for sound reinforcement and broadcasting, require separate NEXUS systems
; in these situations where separate NEXUS networks are required to exchange audio channels, this can easily be done via MADI lines. The integrated sampling rate converters ensure optimum connectivity even in asynchronous operation.

Connections

XMF_4	1 x 4TE		
BNC	1x	MADI	Input
BNC	1x	MADI	Output
SPF	1x	MADI	bidirektional

Technical specifications

trait	
	All relevant specifications comply with the following standards:
	AES 10-1991 (ANSI S4.43-1991), AES 10id-1995; AES 10-2008
Data formats	MADI transparent routing of compressed audio, Dolby E certified
Data rate	125 Mbits
Sample rates	44,1 kHz, 48 kHz, 88,2 kHz, 96 kHz
Audio data	24-bit
Latency	RX < 3 samples TX = 2 samples
Outputs	
Configuration	Format conversion, transparent forwarding of all MADI-format user bits
Number of channels	1…64 (1…32 @ 96 kHz)
Optical	(e.g. SPM-3102WG module) LC, 1310 nm, 62.5/125 µm, -19...-12 dBm
Elektrisch	BNC-Steckverbinder differenzieller, galvanisch getrennter Ausgang Ausgangsimpedanz: typ. 75 Ohm
Eingänge	
Kanäle	1…64, automatische Erkennung (1…32 bei 96 kHz)
optisch	(z. B. Modul SPM-3102WG) LC, 1310 nm, 62,5/125 µm, –31…–8 dBm
Electrical	BNC-Steckverbinder differenzieller, galvanisch getrennter Ausgang Ausgangsimpedanz: typ. 75 Ohm
	
cable lengths	
Optical LC	Multi mode: 2 km (max., depends on module and fiber); Single mode: 100 km (max., depends on module and fiber)
Electric BNC	50 m (max., recommended)
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	
Spannung	+4,75…5,25 V
Strom	400 mA (without SRCs); 1250 mA (with SRCs)
Mechanical data	
Weight	0.25 kg, 0.27 kg (with SRCs)

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.

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