

ADI-642

8-Channel 192 kHz MADI ↔ AES/EBU converter with 72 x 74 Routing Matrix



Connectivity

- 1 x MADI I/O (optical and coaxial)
- 4 x AES/EBU I/O (XLR)
- 1 x Stereo Analog Out (Phones)
- MIDI I/O (5-pin DIN)
- Word Clock I/O (BNC)
- Com Port I/O (RS-232 via 9-pin D-sub)

The ADI-642 perfectly integrates AES/EBU in any MADI system. This hi-end format converter from MADI to AES/EBU and vice versa features flexible routing options via an easy-to-use 72x74 routing matrix, allowing free configuration of all MADI and AES/EBU channels. The ADI-642 not only offers superior I/O flexibility but also seamless integration of high-class digital effect units in any MADI system.

The ADI-642's MADI interface handles 64 channels of 24 bit audio at sampling frequencies of up to 48 kHz, 32 channels up to 96 kHz, and 16 channels up to 192 kHz. The AES/EBU channels use 4 XLR inputs and outputs respectively.

The MADI input is compatible to 56- or 64-channel formats as well as 48 kHz and 96 kHz frame formats, it's MADI output user-configurable. Therefore the unit can also operate as translator between otherwise incompatible MADI devices. Status displays provide information about synchronization, audio activity and physical quality of the input signal.

The SyncAlign® and SyncCheck® technology ensures perfect synchronization and clear detection of errors. Up to 8 devices can be cascaded and synchronized with sample accuracy via Word Clock. Automatic Delay Compensation eliminates technically inherent delays, when signals are transferred from one unit to another. Each device automatically recognizes its position within the chain, and corrects the AES input and output data so that all AES I/Os operate sample-aligned.

The ADI-642 features an easy-to-use 72 x 74 Matrix Router. Any input signal can be assigned to every output channel, both for AES and MADI. This not only allows free signal routing during format conversion, but also forwarding and routing of signals within the same format. An input signal can also be distributed to any number of outputs. With more than one ADI-642, several MADI signals can be mixed into one MADI stream.

The ADI-642 is fully MIDI remote controllable; via the built in MIDI connectors and/or MIDI over MADI. MIDI over MADI allows for 16 MIDI channels to be carried invisible along with the MADI data packages, together with the full 64 audio channels. RS232 over MADI allows for the ADI-6432 to be used as an extender for serial cables, supporting 9600, 19200, 38400 and 115200 Baud, with no effect on the audio functionality.

RME's SteadyClock enables the ADI-642 to be operated without additional Word Clock connection, providing excellent clock quality in every situation. In case of errors, the MADI input automatically changes, ensuring redundancy between optical and coaxial inputs.

Due to the efficient jitter reduction, any clock signal (even AES and Word Clock) can be improved, refreshed, and subsequently used as a reference clock at the Word Clock output. Intelligent Clock Control™ (ICC) retains the last valid sample frequency, even in cases where loss of input signal occurs.

The perfect AES/EBU front-end for RME's MADI devices. An ideal digital multicore, allowing AES/EBU signal transfer across long distances with a single MADI cable. MADI redistributor, patchbay and router. MADI coaxial/optical converter in both directions.

Technologies

- MADI Multinorm
- MADI Quad Wire
- MADI Redundancy
- MIDI Remote
- MIDI over MADI
- RS-232 over MADI
- Intelligent Clock Control
- SteadyClock™
- SyncCheck™
- SyncAlign®
- Cascadable

The analog stereo monitor output can be used as both line and headphone output. The routing matrix can assign any of the 36 stereo input pairs to this monitor output.

Auto Delay Compensation . A typical application example is the use of a HDSP MADI PCI-card in a computer with the ADI-642 as external AES interface. As MADI transmits 64 channels, up to eight ADI-642 can be used to provide all 64 channels via 32 AES I/Os. The integrated Matrix Router makes such a setup easy to be configured. The MADI signal is passed through from device to device. When passing through the MADI signal, a delay of a few samples per ADI-642 occurs, causing the AES inputs and outputs to show an offset. This problem is fixed by the Automatic Delay Compensation. Each ADI-642 automatically detects which unit it is within the chain, and corrects the AES input and output data so that all AES I/Os operate sample aligned. The additional Auto Configuration mode sets up all ADI-642 to use consecutive AES I/Os. A manual configuration via each unit's Matrix is not required.

Specifications

- Input/Output MADI: 1 x BNC, 1 x optical
- Input AES/EBU: 4 x XLR, electrically isolated, highly sensitive input stage (< 0.3 Vpp), SPDIF compatible
- Output AES/EBU: 4 x XLR, transformer balanced, 5 Vpp
- Input Word Clock: BNC, Signal Adaptation Circuit (functional from 1.2 Vpp)
- Output Word Clock: BNC, low impedance driver stage, 4 Vpp into 75 Ohms, short-circuit-proof
- MIDI input and output: via two 5-pin DIN jacks
- Sync sources: MADI, AES, Word Clock, internal
- Varipitch: by input signal or Word Clock
- Sample frequencies: 44.1, 48, 88.2, 96, 176.4, 192 kHz, variable (sync/Word Clock)
- Sample rate range: MADI: 32 - 192 kHz, Word Clock: 27 - 200 kHz, AES: 28 - 200 kHz
- Jitter: Internal clock < 1 ns, external clocks < 1 ns
- Jitter suppression with external clock: > 30 dB (2.4 kHz)
- Jitter sensitivity: all PLLs operate error-free even at 100 ns
- Power supply: Internal switching mode PS, 100V - 240V AC, 20 Watt
- Dimensions: (WxHxD) 483 x 44 x 200 mm