

# ADI-8 DS

High-Precision 8-channel 96 kHz

ADAT . TDIF AD/DA converter



## Overview

ADI-8 DS is an 8-channel AD/DA converter with reference approach. The compact 19" 1U rackmount enclosure includes several outstanding features, like Intelligent Clock Control (ICC), SyncCheck®, SyncAlign®, TDIF/ADAT converter and Bit Splitter. AD- and DA-circuit automatically operate either independently or linked. The latest 24-Bit converters with 128 times oversampling achieve 117 dBA true dynamic range. All digital inputs and outputs operate at full 24-bit resolution. If you have been waiting for a flexible, fully professional yet affordable multi-channel converter – the wait is over!

The ADI-8 DS is nearly identical to the ADI-8 PRO. Additional features include 88.2 and 96 kHz sample rate and Dither. DS stands for Double Speed, meaning double sample rate. As ADAT optical does not support sample rates higher than 48 kHz the DS mode requires two channels to transmit the data of one channel. The used method called Sample Split is compatible to S/MUX, and also found in the Hammerfall and Hammerfall Light. The combination Hammerfall/ADI-8 DS allows DVD-compatible Hi-End recordings (up to 8 channel @ 96 kHz), at an astonishing low price.

Use the following feature list to compare our ADI-8 DS with all other multitrack converters, and you will agree: The ADI-8 DS has the best price/performance ratio!

- 8 channel AD-converter, completely symmetrical and DC-coupled audio path, 117 dBA SNR AD
- 8 channel DA-converter, balanced output, 112 dBA DA
- ADAT optical inputs, 24-Bit, based on RME's unsurpassed Bitclock PLL for sample accurate lock
- ADAT optical outputs, 24-Bit, fully compatible to all ADAT optical inputs
- TDIF-1 interface, 24-Bit, Low Jitter PLL, Emphasis support, DA-88 compatible
- Bit Split/Combine, Copy Mode, ADAT and TDIF usable in all combinations
- Copy Mode adds a unique 24-Bit ADAT to/from TDIF converter
- Digital Patchbay operation, allows to copy, duplicate and distribute the digital input signals
- Dither available, for full compatibility to 16-Bit even at 96 kHz
- SyncCheck, unique technology to check clock synchronisation
- Virtual Sample Buffer, allows to use the internal Low Jitter Clock (quarz crystal) even for DA-conversion
- Automatic storage of all settings

## Connectivity

- 8 x Analog I/O
- 2 x ADAT I/O
- 1 x TDIF-I/O
- Wordclock I/O

## Features

- Intelligent Clock Control
- ADAT S/MUX
- SyncCheck™
- SyncAlign™
- ascadable



## Features

The ADI-8 DS' astonishing capabilities are easy to explore thanks to a simple and easy to understand user interface. Let's have a short walk over the front panel from left to right. Setting up the ADI-8 DS starts with an input sensitivity that perfectly suits your needs and maintains the excellent dynamic range of the AD-Converters. INPUT LEVEL lets you choose between Lo Gain, +4 dBu, -10 dBV.

Each analog input has its own 'Signal Present' and 'Clip' LED, so levels and Overload are easy to check. The key PROCESS activates Bit Split (spread the 24-Bit signal on two outputs), Double Speed mode (DS) and Dither (Dith.) Bit Split allows two 8-channel 16-Bit tape recorders to record 8 channels in 24-Bit resolution. Bit Split works with both TDIF and ADAT.

RMEs intelligent clock control (ICC) provides professional features you won't find anywhere else. First set the clock of the AD-Converter, choose between INTERNAL, EXTERNAL (BNC word clock) or INPUT (the digital input signal ADAT or TDIF.) The internal clock can be 44.1/48 or - when DS is active - 88.2 or 96 kHz. The DA-Converter has the same settings available. The current state of locking and clock synchronization is shown by blinking or constantly lit LEDs. The next key DIGITAL INPUT determines the used digital input, and the clock source in case INPUT was activated.

DIGITAL INPUT is already part of the DA-Converter section. Next is COMBINE which activates both the re-combination of split signals back to a full 24-Bit signal and Double Speed mode. The key COPY MODE routes the digital input to the digital outputs ADAT and TDIF. As these operate simultaneously sending identical data the ADI-8 DS not only turns into a superior ADAT/TDIF converter, but also allows copying between devices of the same format and a distribution to different devices. For example an ADAT signal can be distributed to 2 ADAT plus 2 TDIF outputs simultaneously. In Copy Mode also both Bit Split and COMBINE are available, so it's possible to recombine a split signal while copying, or split a not split signal, or recombine and split again into another format. With this the ADI-8 DS turns into an extremely powerful TDIF/ADAT interface.

Each analog output has its own 'Signal Present' LED which works in an analog fashion (brighter at higher levels.) A push on OUTPUT LEVEL sets Hi Gain, +4 dBu or -10 dBV as analog output level.

ADI-8 DS's back shows an impressive number of connectors of all kinds which result in an unbeaten flexibility and compatibility. Whatever it is - simply get connected and enjoy the sonic clarity you've been missing when doing multitrack recording for so long.

## ADI-8 Inside

The ADI-8 DS internal structure can be divided into four distinct functional blocks:

- Analog In: analogue input stage with gain compensation, A/D-converter
- Analog Out: D/A converter and analogue output stage with gain compensation
- Digital I/O: ADAT optical and TDIF interfaces
- Clock Control: Controls all timing for all functions, Word Clock I/O, PLL

The ADI-8 can be routed internally in many ways which, in addition to its function as A/D-D/A converter, allows it to be used as a format converter, distributor or splitter.

- Format converter: 24-bit digital conversion from ADAT optical to TDIF and vice versa
- Distributor: Sends digital input to all outputs simultaneously, e.g. TDIF in to TDIF out and 2 x ADAT
- Splitter: Sends analogue input to all digital outputs simultaneously, i.e. for A/D conversion to 2 x TDIF and 2 x ADAT (optical)

## Analog to Digital

Physical access to the analogue inputs is either via 1/4" stereo jack socket or 25-pin D-type connector conforming to the Tascam DAxx analogue I/O pinout. These recorders are very common, so a suitable multicore cable (e.g. for connecting directly to mixing consoles or to XLR) should be relatively easy to find. The entire input stage - from the sockets to the converter chip's internal input - is fully symmetrical. This is a special servo-balanced input circuit: if the signal at the input is unbalanced, input gain is automatically adjusted by +6 dB. Otherwise input sensitivity for an unbalanced signal would have been lower than for a balanced one.

Any A/D converter is only as good as the gain compensation at the input. The ADI-8 has 3 gain levels, making it compatible with a wide range of studio equipment - loss is avoided before the signal gets to the A/D converter. Input gain is switchable between Lo Gain, +4 dBu and -10 dBV, and employs a special damping technique: using latest hi-grade electronic switches (ADG 451), the gain switch could be placed in the best possible position within the signal path. This approach makes additional amplifier circuitry or long cables to mechanical components unnecessary (and obsolete.) The D/A converters get the best quality signal possible, so they can reach maximum SNR (signal-to-noise ratio) with minimum distortion.

## Tech Specs

**Input AD:** 1/4" TRS jack and 25 pin D-type connector, servo balanced, completely symmetrical DC-coupled audio path

**Output AD:** ADAT optical, TDIF-1 (both 24-Bit), word clock

**Input DA:** ADAT optical, TDIF-1 (both 24-Bit), word clock

**Output DA:** 1/4" TRS jack and 25 pin D-type connector, servo balanced, DC-coupled audio path

**SNR AD:** 117 dB(A)

**THD AD:** < -110 dB (< 0,00032 %)

**THD+N AD:** < -104 dB (< 0,00063 %)

**Crosstalk AD:** > 130 dB

**SNR DA:** 112 dB(A) un-muted

**THD DA:** < -104 dB (< 0,00063 %)

**THD+N DA:** < -102 dB (< 0,0008 %)

**Crosstalk DA:** > 110 dB

**Input/Output level at 0 dBFS @ Hi Gain:** +19 dBu

**Input/Output level at 0 dBFS @ +4 dBu:** +13 dBu

**Input/Output level at 0 dBFS @ -10 dBV:** +2 dBV

**Frequency response AD/DA -0,1 dB:** 5 Hz - 21,5 kHz (sf 48 kHz)

**Frequency response AD/DA -0,5 dB:** < 5 Hz - 44,8 kHz (sf 96 kHz)

**Power supply:** internal, 100 V-240 V AC, 100 V-240 V AC

**Dimensions** 483 x 44 x 200 mm

**Warranty:** 2 years



Worldwide Distribution

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