Apogee I/O 896
8 Channel Analog, TDIF, AES/EBU, ADAT

Quick facts…

:: Connects to a Soundscape 32, Soundscape 16, Mixtreme 192 or iBox (Mixpander Power Pak) via TDIF

:: 8 channel balanced analogue I/O at up to 96kHz with Apogee conversion, Soft Limiting option and front panel metering

:: 8 channel AES/EBU I/O at up to 96kHz

:: 8 channel ADAT I/O at up to 48kHz

:: WordClock input/output

Overview

Today's studio has to maintain compatibility with a multiplicity of standards, ready for quick transfers between the analogue and digital domains and easy interfacing between numerous digital audio formats.

The I/O 896 provides a neat, simple answer to many of these interconnection dilemmas, and guarantees top-class AD and DA conversion.

Designed for Soundscape by Apogee, one of the world's most prestigious AD/DA conversion specialists, the I/O 896 packs a wealth of useful options in a stylish, 2-U high

rackmountable unit that perfectly integrates with the design of the latest generation Soundcape products: Soundscape 32, Soundscape 16, iBox 64-MADI-TA, iBox 64MADI and iBox 48-TA.

It connects to a Soundscape Digital Audio Workstation (Soundscape 32, Soundscape 16) or PCI card (Mixtreme 192, Mixpander Power Pak) via TDIF, providing eight analogue inputs and outputs via Apogee converters, eight ADAT inputs and outputs and eight AES/EBU inputs and outputs. 24bit audio is handled at up to 96kHz and front panel metering is provided for the analogue inputs, along with signal indicators for the analogue outputs. The signal routing between the inputs and outputs can be configured easily from the front panel.

An exclusive Apogee Soft Limit analogue circuit allows you to maximize the analogue input levels without overloading.

The I/O 896 can generate WordClock at up to 96kHz or operate as WordClock slave.

Product details

The back panel of the I/O 896 features:
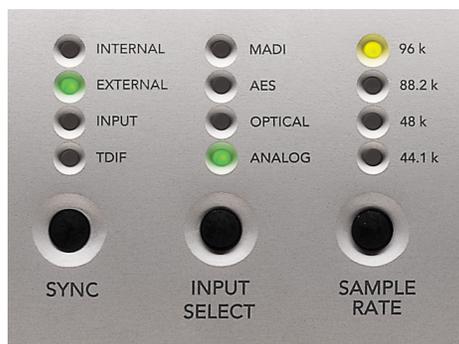
The front panel features:

:: The power switch.
  A TDIF Thru mode button with LED indicator:
  - **If TDIF Thru mode is off**, signals received via the analogue, AES/EBU or ADAT inputs (according to the "Input Select" setting) reach only the corresponding TDIF outputs. Signals received via the TDIF inputs reach all the outputs except TDIF. This is the normal setting for recording and monitoring.
  - **If TDIF Thru mode is on**, signals received via the analogue, AES/EBU or ADAT inputs (according to the "Input Select" setting) reach all the outputs (including TDIF). This setting can be used for format conversion.
:: The Soft Limit button and indicator LED. The Apogee Soft Limit function controls the transient peaks at the analogue inputs so that a higher signal level can be recorded without overloading.
:: Wide/Narrow Lock mode indicator LEDs (active when the I/O 896 operates as Master Clock slave).
:: A Master Clock source selection button with four indicator LEDs. The clock source can be set to:
  - **Internal:** The I/O 896 operates as WordClock master.
  - **External:** The I/O 896 locks to a WordClock/SuperClock signal received via its WordClock/Superclock connector.
  - **Input:** The Master Clock source is the currently selected digital input. This option is not available when using the analogue input.
  - **TDIF:** The I/O 896 locks to the Master Clock signal provided by the Soundscape Digital Audio Workstation

or PCI card.
:: An Input Select button with four indicator LEDs. The input selection determines which eight input signals are received and transmitted to the outputs. The available settings are AES/EBU, Optical (ADAT), and Analog. The chosen input signals are transmitted to the TDIF outputs only (typically for recording), or to all the outputs, depending on the "TDIF Thru" setting.
:: A Sample Rate selection button with four indicator LEDs. Four internal sample rates are available: 44.1kHz, 48kHz, 88.2kHz and 96kHz. If the I/O 896 operates as Master Clock slave, the button is inactive and the LEDs reflect the Sample Rate provided by the master device.
:: The metering section: eight "Signal" LEDs for the analogue outputs, eight "Signal" LEDs and eight "Overload" LEDs for the analogue inputs. The brightness of the "Signal" LEDs varies according to the level of the audio signal. The "Overload" LEDs have infinite peak hold with a "Clear Overs" button to the left of the metering LEDs.

Technical specifications

Inputs
:: 8-channels balanced analogue
:: 8-channels AES/EBU
:: 8-channels TDIF
:: 8-channels ADAT optical

Outputs
:: 8-channels balanced analogue
:: 8-channels AES/EBU
:: 8-channels TDIF
:: 8-channels ADAT optical

8-channel A/D converter
:: Frequency response: 10Hz to 20kHz, +/-0.025dB
:: Word length: 24bit

:: Sample Rate range: 44.1kHz to 96kHz +/-10%
:: THD + noise: -105dB
:: Dynamic range: 117dB (A-weighted)
:: Passband ripple: 0.001dB
:: Stopband attenuation: 110dB
:: Interchannel crosstalk: -120dB
:: Input levels (maximum): +24dBu/+20dBu/+5dBV (jumper selectable)
:: Clock jitter: <22ps

8-channel D/A converter
:: Word length: 24bit
:: Sample Rate range: 44.1kHz to 96kHz +/-10%
:: THD + noise: -103dB
:: Dynamic range: 116dB (A-weighted)
:: Passband ripple: 0.0002dB
:: Stopband attenuation: 115dB
:: Interchannel crosstalk: -120dB
:: Frequency response: 10Hz to 20kHz, +/-0.025dB
:: Output levels (maximum): -10dBV and +4dBu to -16dBFS, +24dBu/+20dBu/+5dBV (jumper selectable)
:: Clock jitter: <22ps

WordClock
:: Sample Rate range: 44.1 to 96kHz +/-10%
:: WordClock input includes auto termination and loop-thru mode.

AES/EBU I/O
:: 8 channels, single-wire protocol at all sample rates

ADAT I/O
:: 8 channels, 44.1 or 48kHz, Alesis ADAT protocol

TDIF I/O
:: Tascam compatible at up to 48kHz
:: Sydec TDIF protocol ("single-wire") at up to 96kHz

Functionality
:: TDIF Thru button
:: Soft Limit button
:: Lock indicators (Wide, Narrow)
:: Sync button and indicators (Internal, External, Input, TDIF)
:: Input Select button and indicators (MADI (not supported), AES, Optical, Analogue)

- Sample Rate button and indicators (96k, 88.2k, 48k, 44.1k)
- Clear Overs button
- Signal present (input/output) and overload (OL) (input) indicators for analogue channels
- Power switch

Connectors
- Analogue I/O: 1 x DB25F analogue input, 1 x DB25F analogue output
- ADAT optical I/O: 1 x ADAT optical input, 1 x ADAT optical output
- AES/EBU I/O: 1 x DB25F
- TDIF I/O: 1 x DB25F
- RS-485: 2x DB9F
- WordClock I/O: 1 x BNC WC input, 1 x BNC WC output

Power requirements
- US: 120V AC, 60Hz
- Europe: 240V AC, 50Hz
- AC connector: 3-pin IEC 250 V AC, 16A male

Physical
- Enclosure: 2RU
- Height: 89 mm (3.5")
- Width: 483 mm (19.0")
- Depth: 419 mm (16.5")
- Weight: 7.3 kg (16.0 lbs)