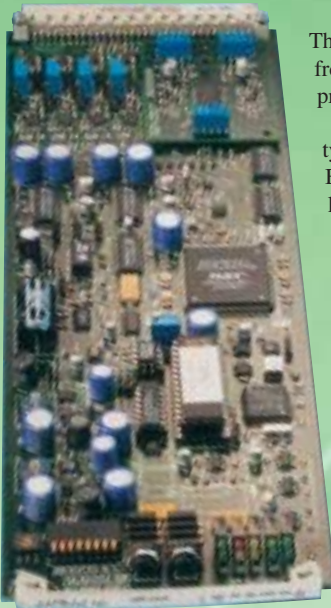


Crystal Vision

ADCA412 Dual Analogue to Digital Audio Converter



The ADCA412 provides exceptional 24 bit conversion from analogue audio to AES/EBU, giving out clear, noise-free audio. With two independent channels this space-saving 100mm x 266mm module fits 24 converters in 2U, at a price comparable to other single channel products.

The ADCA412 can be used with any sampling data rates between 30kHz and 50kHz, with most applications typically involving 48kHz sampling. It offers the flexibility to take the reference from three different sources: Black & Burst video (48kHz sampling only), another AES feed or word clock. The crystal controlled phase locked loop ensures an extremely stable clock is generated at 48kHz even when referenced to video, resulting in the best possible performance. Having the AES locked to video is especially useful for audio which may later be embedded into a video feed.

The ADCA412 is available in two versions, with the AES outputs configured as either 110Ohm balanced or 75Ohm unbalanced depending on which OPAES output module is fitted.

Analogue audio input levels are preset to give either +18dBu or +24dBu for 0dBFS digital (the most common audio levels within television stations), or can be continuously adjusted from +12dBu to +28dBu.

Powerful features include a channel swap function allowing channels 1 and 2 to be transposed, while the phase of the right hand channel can be inverted to correct phasing errors. Should additional outputs from a single stereo input be required, there is an option to convert to single channel operation. Listening to each incoming analogue stereo pair is quick and easy: just insert headphones into the jack at the front of the board.

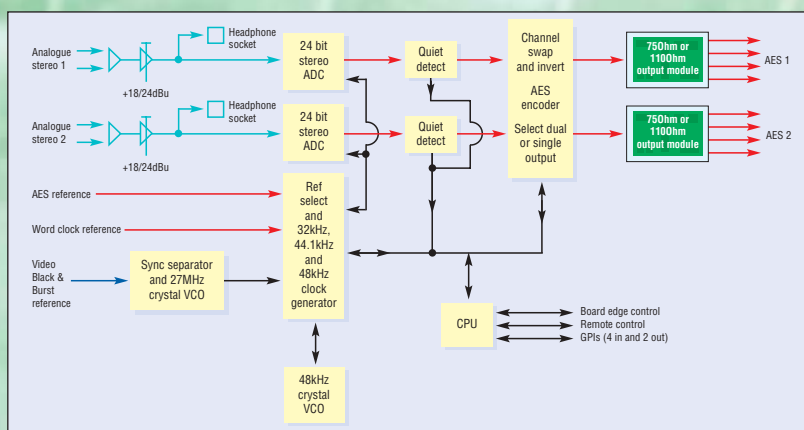
The choice of five frame rear modules (RM03, RM11, RM13, RM14 and RM21) means you can choose the outputs you need for your application, with a maximum of four AES outputs available for each channel.

Control and status monitoring on the ADCA412 is flexible and sophisticated. Options include board edge, an active front panel on the frame, a remote control panel or the Statesman PC Control System. GPI functionality is especially useful, with available warnings including sustained silence - ideal for continuous

feeds. The duration of silence before a warning is given can be programmed from 1.5 to 120 seconds in eight second steps.

The ADCA412 is ideal for any environment where you need to convert from analogue to digital audio, especially multi-channel applications.

- 🔊 Dual analogue to digital audio converter
- 🔊 24 bit AES/EBU outputs (up to four per channel)
- 🔊 110Ohm balanced or 75Ohm unbalanced output versions available (by changeable module)
- 🔊 Excellent noise and distortion figures
- 🔊 Works with 30kHz to 50kHz sampling rates
- 🔊 Very stable 48kHz clock generator that can be referenced to video, AES or word clock
- 🔊 +12dBu to 28dBu input level for 0dBFS digital output
- 🔊 Space saving: 100mm x 266mm dual channel module allows 24 channels in 2U (48 in 4U, 12 in 1U, four in desk top box)
- 🔊 Flexible control and status monitoring



SPECIFICATION

MECHANICAL

Standard Crystal Vision module 266mm x 100mm
 Weight: 200g
 Power consumption: 7.5 Watts

AUDIO INPUTS

Two analogue stereo inputs
 High impedance input (>2kOhm)
 Level range: 0dBFS = +28dBu Max
 0dBFS = +12dBu Min
 Factory set default: 0dBFS = +18dBu or +24dBu
 by on-board link

Reference input: Analogue video Black & Burst or mixed syncs for 48kHz sampling. AES reference or word clock for 32kHz, 44.1kHz or 48kHz sampling
 48kHz clock will be regenerated, 32kHz and 44.1kHz taken directly from reference

AUDIO OUTPUTS

Maximum of four 24 bit stereo outputs per channel (two outputs with frame rear modules RM14 and RM21, three with RM13 and four with RM03 and RM11)
 AES3 110Ohm (balanced) D-Type or AES3-id 75Ohm (unbalanced) BNC. Order version required by selecting OPAES-110 or OPAES-75 output module
 Reference rear module loop-through available on RM13 and RM14 - loop does not need ADCA412 to be fitted as rear module has passive circuitry required
 Can convert to single channel operation if extra outputs from single input required
 Works with any sampling rates between 30kHz and 50kHz, usually 32, 44.1 and 48kHz
 Signal to noise: Weighted better than -98dB
 Total Harmonic Distortion (THD): <.005% at +18dBu/+24dBu with 48kHz sampling
 Interchannel crosstalk: <-110dB
 Frequency response: +/- 0.1dB 20Hz to 20kHz

DELAY THROUGH BOARD

100ns

GPI INPUT LEVELS

Connect to ground active
 Inactive high impedance or 3 to 48 volts
 Input current 50uA

GPI OUTPUT LEVELS

CMOS levels
 Max current 20mA

GPI INPUTS

Mono input repeat on stereo outputs
 Swap channels 1 and 2
 Reference select (two GPIs select video, AES or word clock)

GPI OUTPUTS

Loss of reference or sustained silence (one output for each analogue stereo input)
 Set period of silence before indication from 1.5 to 120 seconds in eight second increments

LED INDICATION OF:

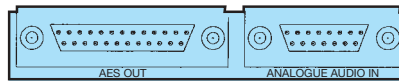
Power supplies
 Clock reference
 Audio silent

LOCAL CONTROL

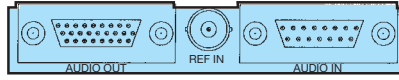
Options and silence indication delay set by switches at board edge

REMOTE CONTROL

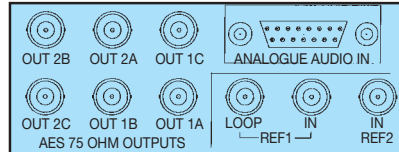
RS422/485
 19200 baud, 8 bits, 1 stop no parity
 Control from frame active panel and remote panel
 Statesman allows control from any PC on a network



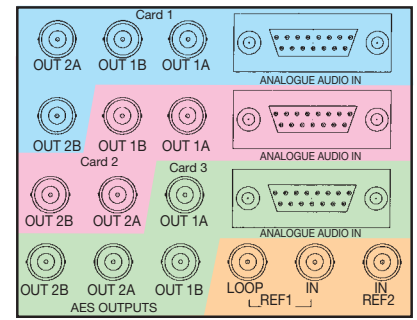
RM03



RM11



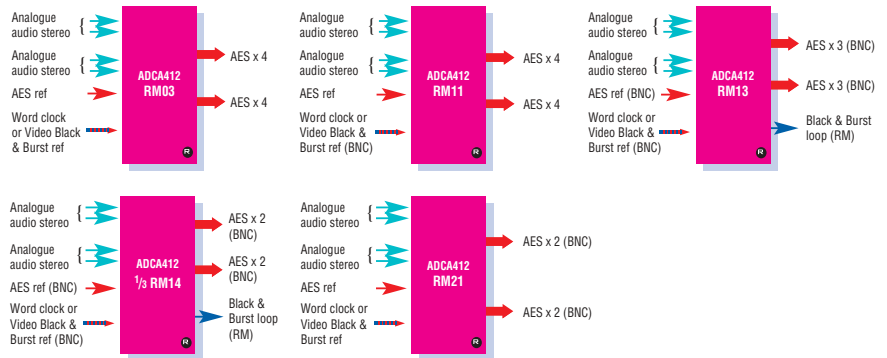
RM13



RM14



RM21



NB. References shared between 3 ADCA412s

ORDERING INFORMATION

ADCA412	24 bit dual analogue to AES/EBU audio converter. Requires OPAES output module
OPAES-75	75Ohm AES output module
OPAES-110	110Ohm AES output module
Indigo 4	4U frame with passive front panel for up to 24 Crystal Vision modules
Indigo 4S	4U frame with passive front panel fitted with Statesman CPU for up to 24 Crystal Vision modules
Indigo 2	2U frame with passive front panel for up to 12 Crystal Vision modules
Indigo 2A	2U frame with active front panel for up to 12 Crystal Vision modules
Indigo 2S	2U frame with passive front panel fitted with Statesman CPU for up to 12 Crystal Vision modules
Indigo 1	1U frame with passive front panel for up to six Crystal Vision modules
Indigo 1A	1U frame with active front panel for up to six Crystal Vision modules
Indigo 1S	1U frame with passive front panel fitted with Statesman CPU for up to six Crystal Vision modules
Indigo DT	Desk top box with passive front panel for up to two Crystal Vision modules
Indigo DTA	Desk top box with active front panel for up to two Crystal Vision modules
Indigo DTS	Desk top box with passive front panel fitted with Statesman CPU for up to two Crystal Vision modules
RM03	Single slot frame rear module. Allows maximum number of ADCA412s in frame (24 in 4U, 12 in 2U, six in 1U, two in desk top box). Gives access to four 110Ohm AES outputs per channel
RM11	Single slot frame rear module. Allows maximum number of ADCA412s in frame (24 in 4U, 12 in 2U, six in 1U, two in desk top box). Gives access to four 110Ohm AES outputs per channel
RM13	Two slot frame rear module. Allows 12 ADCA412s in 4U, six in 2U, three in 1U and one in desk top box. Gives access to three 75Ohm AES outputs per channel and a rear module Black and Burst loop-through
RM14	Four slot frame rear module. One rear module used for three ADCA412s, allowing 18 ADCA412s in 4U and nine in 2U. Gives access to two 75Ohm AES outputs of each channel and a rear module Black and Burst loop-through
RM21	Single slot frame rear module. Allows maximum number of ADCA412s in frame (24 in 4U, 12 in 2U, six in 1U, two in desk top box). Gives access to two 75Ohm AES outputs per channel
REMIND	19" remote control panel
Statesman	PC Control System

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