

GENERAL INFORMATION

The 4X-A2D converts four stereo balanced (+4dBu) or unbalanced (-10 dBV) analog inputs into four AES/EBU digital outputs. All connections use AMP MOD IV crimp terminals.

The four outputs are compatible with any AES/EBU input, including those used on Harris/PR&E consoles and cardframe Digital I/O cards. Connecting to digital inputs without sample rate conversion (as used on most non-Harris products) may require that the AES Sync Input be connected to a House or Word Clock signal to synchronize the output sample rate clocks. This requires that internal switch DS9 be changed to AES. Sample rates of 32 to 192 kHz are supported.

The 4X-A2D is designed to mount under a countertop or to an internal wall of the studio furniture. A mounting template is on page 2. Alternately, a PRE90-1431 Rack Mount can hold one, two or three 4X-A2D converters in 1 RU of rack space.

The 4X-A2D is available in three configurations: **PRE99-1430** is the 4X-A2D converter along with its power supply, wood screws and this document; **PRE99-1430-1** then adds four 3-foot digital output cables to jumper the outputs to any Harris/PR&E studio console, along with housings and crimp terminals to make custom analog input cables; **PRE99-1430-2** includes nine 20-foot pigtail cables (four terminate in 6-pin MOD IV connectors and five in 3-pin MOD IV connectors) to make custom input and output cables.

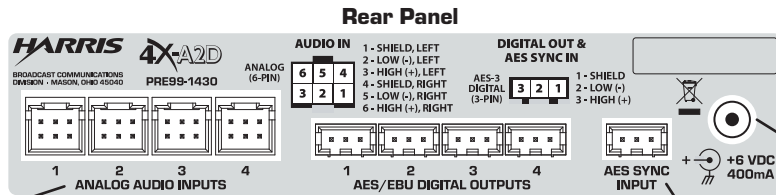
INSTALLATION PROCEDURE

NOTE: The top cover must be removed (one screw each end) to access internal switches **DS1-DS9**. Switches **DS1** to **DS8** change the input level to -10 dBV when On (the default setting is Off, for +4 dBu inputs). Switch **DS9** changes the output sample rate from the internal 44.1 kHz clock (**OSC**, the default setting) to AES (output sample rate locks to the AES Sync Input signal).

1. Identify where the 4X-A2D can mount to the cabinet or rack turret. The **PRE99-1430-1** is typically connected to the console using its 3-foot output cables and then mounted to the bottom of the countertop behind the console.
2. Use the template on page 2 to mark the mounting surface.
3. Use a 3/32" drill bit to drill three 1/2" depth pilot holes.
4. Screw the three 1/2" #8 screws (supplied with the 4X-A2D) into the wood. Leave the screw heads about 1/16" above the wood to allow the 4X-A2D cover to be slipped over the screws and held in place by friction with the screw heads.
5. Plug the 50-29 power supply into the 4X-A2D connector and then into AC power. Verify that the green front panel LED lights.

NOTE: Up to three 4X-A2D units can alternately be mounted in a **PRE90-1431** Rack Mount.

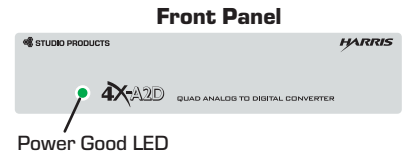
4X-A2D CONTROL & FEATURE SUMMARY



These four 6-pin AMP MOD IV inputs are for balanced or unbalanced stereo or two channel analog signals. Internal switches **DS1 - DS8** individually set the left and right channel levels for a nominal +4 dBu (the default setting for balanced signals) or to -10 dBV to connect prosumer equipment.

These four 3-pin AMP MOD IV outputs carry 24-bit AES/EBU signals using a nominal sample rate of 44.1 kHz. The nominal output level is -20 dBFS with a maximum level (0 dBFS) or +24 dBu.

Although designed to connect directly to Harris/PR&E consoles and cardframes, these signals can connect to any AES/EBU digital input.



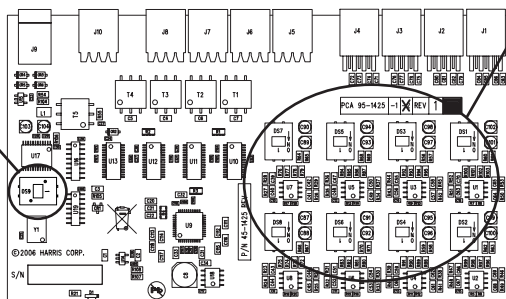
+6 VDC is normally supplied by the 50-29 power supply (supplied with the 4X-A2D). Power can alternately be supplied by any well-regulated +6 VDC source.

This 3-pin AMP MOD IV connector is for a Word Clock or House Master signal. Internal switch **DS9** must be set to AES in order to use this input.

The AES Sync Input is typically not used with Harris consoles and cardframes since their digital inputs have built-in sample rate conversion.

4X-A2D Circuit Board Features

DS9: OSC (default setting) uses the board's oscillator to generate a 44.1 kHz sample clock. AES uses the AES Sync Input to generate the digital output sample rate.



DS1 - DS8: Off (default setting) sets the nominal Analog input level to +4 dBu. On sets the nominal level to -10 dBV for unbalanced prosumer devices.

The odd number switches set the left channel nominal input level for the four inputs. The even number switches set the right channel nominal level for the four inputs.



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99-1430 ANALOG SIGNAL CONVERTER

SPECIFICATIONS

0 dBu=0.775 volts RMS, regardless of circuit impedance (equal to 0 dBm into 600 ohms). Noise measurements use a 20 kHz bandwidth (add 1.7 dB for a 30 kHz bandwidth). Total Harmonic Distortion (THD+N) is measured with a +18 dBu output using a swept signal and a 20 kHz low pass filter.

FSD (Full Scale Digital) = +24 dBu

Analog Inputs (x4)

Nominal Input Level: switchable, +4 dBu or -10 dBV, any channel
Input Impedance: >38k for +4 dBu, >15k for -10 dBV setting
Input Headroom: 20 dB above nominal (+4 dBu)

Digital Outputs (x4)

Reference Level: 20 dB below FSD
Signal Format: AES-3
Output Sample Rate: 44.1 kHz (using internal oscillator)
Processing Resolution: 24-bit fixed word using extended precision accumulators
A/D Conversion: 24-bit, Delta-Sigma
Latency: <600µs, any input to output

AES Sync Input

Reference Level: 20 dB below FSD
Signal Format: AES-3 or S/PDIF
Word Clock Range: 32 to 192 kHz

Analog Inputs to Digital Outputs

Frequency Response: +0.3 dB/-0.1 dB, between 20 Hz and 20 kHz
Dynamic Range: 108 dB referenced to FSD, 110 dB "A" weighted to FSD
Total Harmonic Distortion + Noise: <0.0009%, 20 Hz to 20 kHz, +18 dBu input, -6 dB FSD output
Crosstalk Isolation: -85 dB, 20 Hz to 20 kHz
Output Stereo Separation: >90 dB, 20 Hz to 20 kHz

Power Supply

+6 VDC, 400 mA

ESD Technical Ground Point

Chassis cover screw

Dimensions

1.5" x 5.75" x 3.25" (Height, Width, Depth)

4X-A2D MOUNTING TEMPLATE

