DENSITÉ series

AMX-1101
Analog Audio Embedder
Guide to Installation and Operation

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AMX-1101

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1 AMX-1101 Analog Audio Embedder

1.1 Introduction

The AMX-1101 is a high-quality, high-performance analog audio embedder designed to insert two analog audio stereo signals into a single SDI signal. The AMX-1101 comprises an ADC-1722 card (analog audio to AES converter) and an AMX-1121 card (2 AES embedder). The two cards are bundled via a special rear connector panel that includes the necessary card interconnections, eliminating the need for external AES connections and reducing the number of rear panel connectors.

The embedding process of the AMX-1101 includes an advanced signal loss detection function that provides a near-seamless transfer to an internally-generated black on loss of the SDI input, thus sustaining audio embedding. Moreover, it provides automatic equalization for up to 350 meters of Belden 1694A cable at 270 Mbps, and supports LTC embedding as ANC data.

The audio processing includes 24 bit digital-to-analog conversion, audio input presence and overload detection, and individual mute and level adjustment for every channel.

1.2 Features

- SDI input with up to 350m of automatic cable equalization
- Auto-detects 525/625 line format
- Maintains SDI output with embedded audio, even with loss of SDI input
- Inserts two analog audio stereo signals
- Audio group insertion/pass-through/delete
- Selectable routing of audio pairs to groups
- Left/right channels swappable
- Selectable audio delay (up to 6 fields)
- 24 bit analog-to-digital conversion
- 0 dBFS selectable (0 to +28 dBu, in 1 dB steps)
- -96 to +12 dB audio level adjustment (0.5 dB steps)
- Audio and video signal presence detection and remote reporting
- Audio overload detection and reporting
- Remote configuration and control
- Built-in audio and video test signals

1.3 Functional Diagram
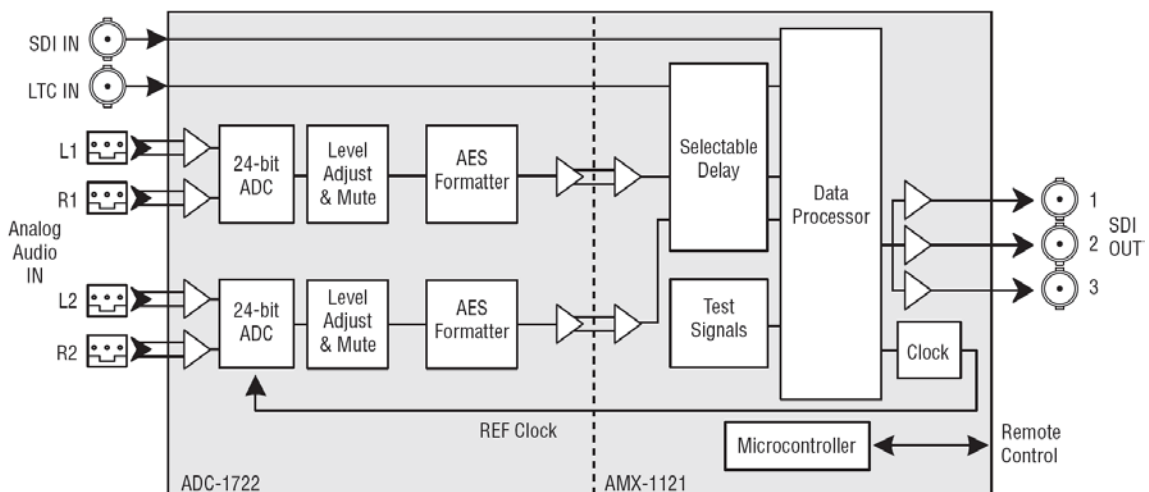
2   Installation

2.1   Preparation

The following items are required for the installation of your AMX-1101 in a Densité-series frame:

- AMX-1101-DRP Rear Panel (for Densité 2 frames) or AMX-1101-DRP-3RU (for Densité 3 frames)
- AMX-1121 AES Embedder (2RU or 3RU, per frame type)
- ADC-1722 Dual Analog Audio-to-AES Converter (2RU or 3RU, per frame type)

Note that the AMX-1101-DRP rear panel may be ordered separately, if the user already has the two associated cards.

2.2   Installation in the Densité frame

The rear connector panel (AMX-1101-DRP or AMX-1101-DRP-3RU) must be mounted in the Densité frame before installing the cards. It is not necessary to switch off the frame's power when installing or removing the rear panel or cards. See the Densité frame manual for detailed instructions for installing cards and their associated rear panels.

1. Install the rear panel so that it covers two adjacent free slots in the Densité frame. *Install the rear panel with the cards out of the frame.*
2. Install the AMX-1121 in the leftmost of the two slots occupied by the AMX-1101-DRP (as seen from the front of the frame)
3. Install the ADC-1722 in the rightmost of the two slots occupied by the AMX-1101-DRP (as seen from the front of the frame.

(view from front of frame)
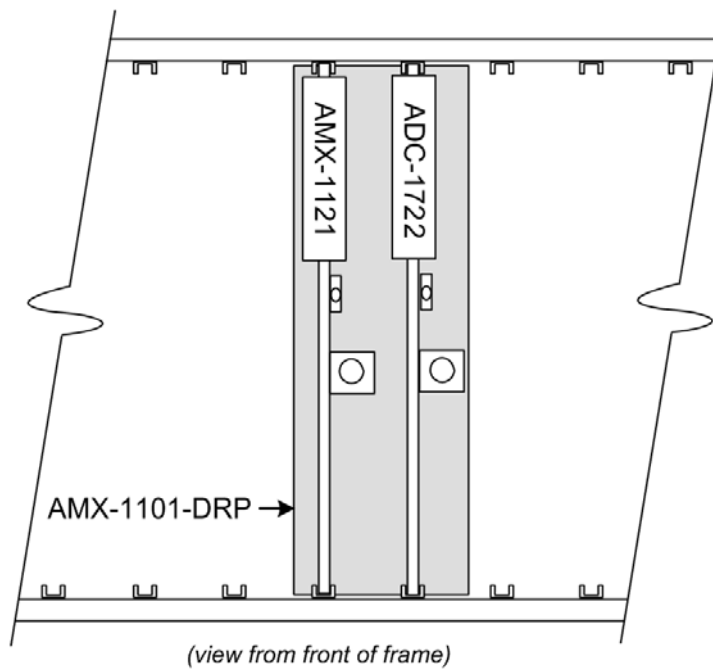
If a card is placed in the wrong slot, its front panel LED will flash red. Move the card to other slot for correct operation. No damage will result to the card should this occur.

2.3   AMX-1101-DRP / AMX-1101-DRP-3RU Rear Panel

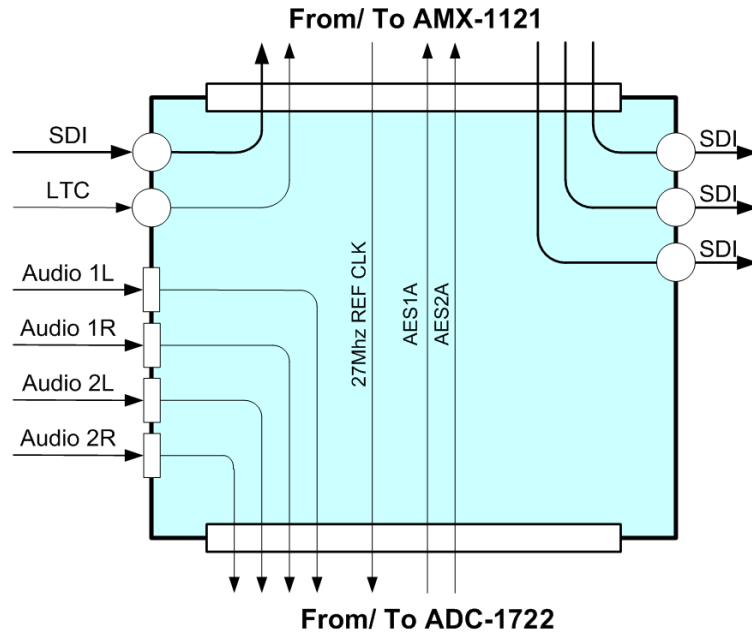The following diagram shows the signal flow through the AMX-1101-DRP / AMX-1101-DRP-3RU rear panel.

Figure 1.1 *Signal flow in the AMX-1101-DRP rear panel*

The rear panel connections are as follows:

SDI IN – serial digital video input

Connect a serial digital video signal, conforming to the SMPTE 259M standard, to the BNC labeled **SDI IN**.

LTC IN

Connect a time code signal (LTC, conforming to SMPTE 12M), for embedding into the output SDI signal.

ANALOG AUDIO IN (2 stereo pairs)

Connect an analog audio signal, which will be digitized in the ADC-1722 and then embedded into the SDI video in the AMX-1121.

SDI OUT – serial digital video outputs (3)

These three connectors carry the output SDI signal, consisting of the input SDI signal into which audio and LTC have been embedded
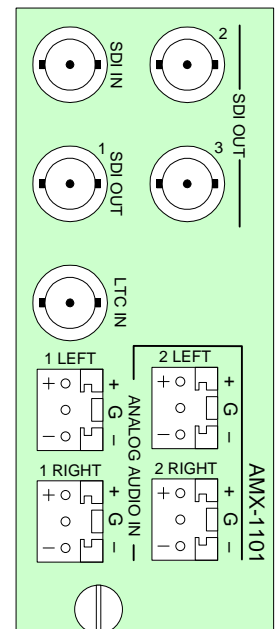
3   Operation

The two cards associated with the AMX-1101 are operated just as if they were individually installed and connected.

- If you are using iControl, they will appear as individual cards, located in adjacent slots in their frame:
  - ➢ ADC-1722
  - ➢ AMX-1121.
- There will be no item identified as AMX-1101 in the iControl system.

The User Manuals for each card are separate documents, and should be consulted for detailed descriptions and operating procedures as required.

- ADC-1722 User Manual (Miranda document M696-9900-xxx)
- AMX-1121 User Manual (Miranda document M680-9900-xxx)

4   Technical Specifications

INPUT

Video signal:	SMPTE 259M-C (270 Mbps)
	SMPTE 272M-C
	(embedded audio)
Cable length:	Up to 350 m of Belden 1694A
Return loss:	>15 dB 5 MHz to 270 MHz
Audio signal:	Balanced analog stereo audio
Impedance:	>12 kohm

LTC SIGNAL

Signal:	LTC per SMPTE 12M
	(or other similar signal)
Rate:	1/10 to 5x nominal play speed
Impedance:	>10 kohm (bridging 600 ohm)
Level:	0.5 to 5 Vp-p

OUTPUT

Video signal:	SMPTE 259M-C
	Audio embedding per SMPTE 272M-C
	LTC embedding per SMPTE 291M
Return loss:	>15 dB up to 270 MHz
Jitter:	<0.2 UI p-p (wideband)

PROCESSING PERFORMANCE

Signal path:	10-bit video/20/24-bit audio
Video delay:	10.5 µs

AUDIO PROCESSING

Delay:	Audio delay between 1.2 ms and 2.13 ms depending on card version; see ADC-1722 and DAC-1721 manuals *
Audio delay:	Up to 6 video fields (one field steps)

LTC PROCESSING

Latency:	8 video lines *
LTC delay:	None or tracking of audio delay
Test signals:	Video - 75 % color bars with 100 % white
	Audio - 1 kHz tone (R steady, L pulsed)

ELECTRICAL

Power:	10 W

* Combined embedding and extraction, applicable to combination of AMX-1101 and ADX-1101