

ADX-1841/1851

Description

The ADX-1841 is a high-quality disembedder designed to extract up to four AES 24-bit 48kHz digital audio signals from a single SMPTE 259M HD serial digital video signal. A unique feature is its ability to extract time code, a serial RS-422 data signal and two GPI status signals from the video signal. The module supports signal presence detection, remote reporting, and local or remote configuration and control, and features a built-in audio tone test signal.

The ADX-1851 has all of the features of the ADX-1841, excluding the HD-SDI loop through outputs, plus it provides an analog audio monitor output for one selectable stereo pair of signals.

The ADX-1841 and ADX-1851 are designed for use in the DENSITÉ frame, with the appropriate double-width rear panel.

Video - Features

- Serial HD-SDI input with automatic equalization for up to 110m of cable.
- Automatic detection of video input format
- Two pass-through HD-SDI video outputs (ADX-1841 only)

Audio - Features

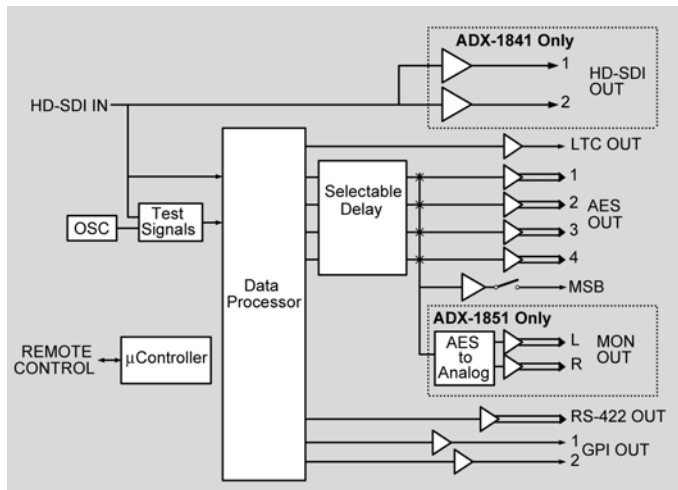
- AES outputs: either 110 Ω balanced or 75 Ω unbalanced, depending on rear panel in use

- Selectable audio delay of up to 3 frames in ½ frame steps
- 24-bit digital audio disembedding
- Audio silence output on loss of HD-SDI video input
- Left/Right channels swappable for each AES outputs
- Selectable routing of audio groups to AES outputs
- Co-phased audio outputs
- Dolby-E compatible
- Monitor selector for Densité frame monitoring switch bridge (MSB) and analog, stereo audio output (ADX-1851 only)
- Analog monitor output muting for non-linear PCM AES signals

Disembedding Other Signals - Features

- Linear Time Code (LTC) output translated from Ancillary Time Code (ATC) data
- RS-422 serial data output signal reconstructed from ANC data samples inserted by the embedder
- Two opto-isolated GPI data output signals reconstructed from ANC data samples inserted by the embedder

FUNCTIONAL BLOCK DIAGRAM



SPECIFICATIONS

VIDEO INPUT

Video Signal: HD-SDI SMPTE 292M
(see list of supported formats below)
embedded audio as per SMPTE-299M
embedded ATC as per SMPTE RP188
embedded RS-422 & GPI per SMPTE 291M (with proprietary Type-1 DID)

Cable Length: up to 110m of Belden 1694A
Return Loss: >15 dB, 5 MHz to 1.5 GHz

AUDIO AES-3id OUTPUT

Signal: AES-3id (SMPTE 276M)
Level: 1.0 Vp-p ±10%
Impedance: 75 Ω unbalanced

AUDIO AES3 OUTPUT

Signal: AES3
Level: 3.0 Vp-p ±10%

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SPECIFICATIONS(cont'd)

Impedance: 110 Ω balanced

ANALOG AUDIO OUTPUT (ADX-1851 only)

Quantizing: 24 bits
 Level, 0 dBFS: +18 dBu, ±6dB (1dB steps)
 Impedance: 50Ω
 SNR: >92 dB (A weighting)
 THD: <0,01%
 Dynamic Range: >92 dB
 Crosstalk: <90 dB (20 Hz to 20 kHz)

AUDIO AES SIGNAL

Sampling Rate: 48kHz synchronous

LTC SIGNAL OUTPUT

Signal: Reconstructed LTC from ATC
 Impedance: < 55Ω source, unbalanced 1kΩ load
 Level: 1.0 Vp-p

RS-422 SIGNAL OUTPUT

Signal: RS-422
 Rate: Reconstruction of signal input to embedder (DC to 38,400 bauds)

GPI SIGNAL OUTPUT (2)

Signal: Opto-isolated, common emitter
 Forward voltage 30V max
 Reverse voltage 5V max
 Rate: DC- to 250 Hz

VIDEO OUTPUT (Input active loop-through)

Video Signal: HD-SDI SMPTE 292M
 Return Loss: >15 dB up to 1.485 GHz
 Wideband Jitter: < 0.2 UI p-p

PROCESSING PERFORMANCE

Signal Path: 10-bit video / 24-bit audio
 Audio Processing 640 μs audio insertion delay
 Delay: (combined embedding and extraction
 ‡‡)
 Audio Delay: Up to 3 video frames (1/2 frame steps)
 ATC Delay: None, 1, 2, or 3 frames before
 translation to LTC

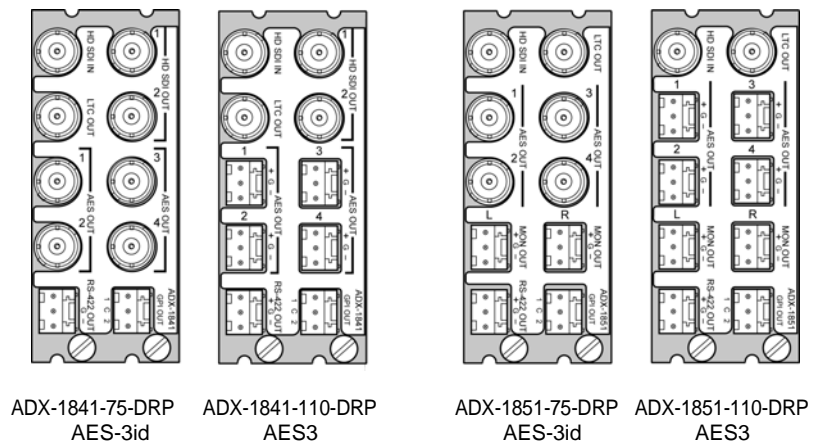
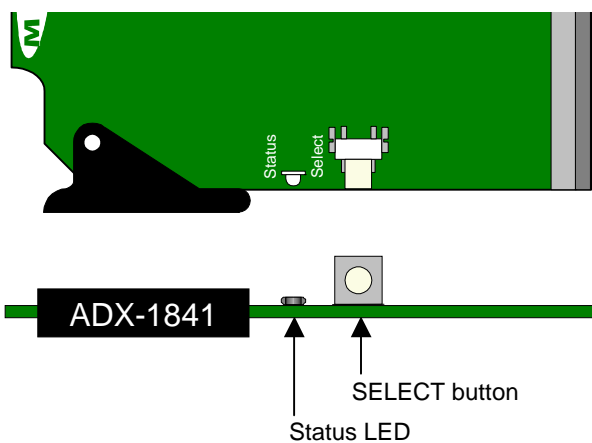
RS-422/GPI
 Processing Delay: 4 video lines
 Test Signals: Audio - 1 kHz tone (R steady, L
 pulsed) -18dBFS (EBU R49, R68)
 LTC – 10 second loop starting at
 23:59:00:00

Power: 9.5 W

*Note ‡‡: Applicable to combinations of AMX-1841 and
 ADX-1841*

List of supported formats:

1920 x 1080/59.94/I	1280 x 720/59.94/P
1920 x 1080/50/I	1280 x 720/50/P
1920 x 1080/29.97/P	
1920 x 1080/25/P	
1920 x 1080/24/P	
1920 x 1080/23.98/P	
1920 x 1080/29.97/PsF	
(detected as 1920 x 1080/59.94/i)	
1920 x 1080/25/PsF	
(detected as 1920 x 1080/50/i)	
1920 x 1080/24/PsF	
1920 x 1080/23.98/PsF	



ADX-1841/1851 Rear Connector Panels

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INSTALLATION

Make sure the following items have been shipped with your ADX-1841 or ADX-1851. If any of the following items are missing, contact your distributor or Miranda Technologies Inc.

- * ADX-1841 Digital Audio Disembedder or ADX-1851 Digital Audio Disembedder w. Analog Audio Monitor
- * ADX-1841 or ADX-1851 rear panel (see figure for options)

The ADX-1841 or ADX-1851 and its associated rear connector panel must be mounted in a DENSITÉ frame. It is not necessary to switch off the frame's power when

installing or removing the ADX-1841 or ADX-1851. See the DENSITÉ Frame manual for detailed instructions for installing cards and their associated rear panels.

The ADX-1841 or ADX-1851 has multiple audio and video outputs, and making space for all the necessary connectors at the rear of the frame requires a double-width rear panel.

When a double-width rear panel has been installed, the ADX-1841 or ADX-1851 must be installed in the right-most of the two slots covered by the panel in order to mate with the panel's connectors. If it is placed in the wrong slot, the 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.

Overview

The DENSITÉ frame incorporates a central controller card, located in the center of the frame, which is equipped with an LCD display and a control panel. The controller handles error reporting and local and remote control for all cards installed in the frame. The display and control panel are assigned to the card in the frame whose SELECT button has been pushed.

Status Monitor LED

The status monitor LED is located on the front card-edge of the ADX-1841 and the ADX-1851 modules, and is visible through the front access door of the DENSITÉ frame. This multi-color LED indicates module status by color, and by flashing/steady illumination, according to the following chart (which also indicates fault reporting for this card on the DENSITÉ frame's serial and GPI interfaces).

	REPORT		COLOR (F=flashing)			
	SERIAL	GPI	G	Y	R	FR
No errors			⊛			
No signal	⊛				⊛	
No rear						⊛
Test mode				⊛		

⊛ : Factory default. User configurable

A "Flashing Yellow" Status LED indicates that the SELECT button on the front panel has been pushed, and the controller display and control panel are now assigned to this card.

The LED color assignments for some error conditions can be reconfigured by the user (see the chart and menu for details).

User Interface

Pushing the SELECT button will cause the on-card STATUS LED to flash yellow, and the card identification and the current status will be shown on the controller card's display. The STATUS LED will revert to it's normal state upon a second push of the button, or after a short delay. The messages which may appear are shown in the top line of the menu chart on page 3

Example :

SELECT button pushed twice when there is no input signal connected to the rear panel and the LED is steady red:

A	D	X	-	1	8	4	1								
N	O	S	I	G	N	A	L								

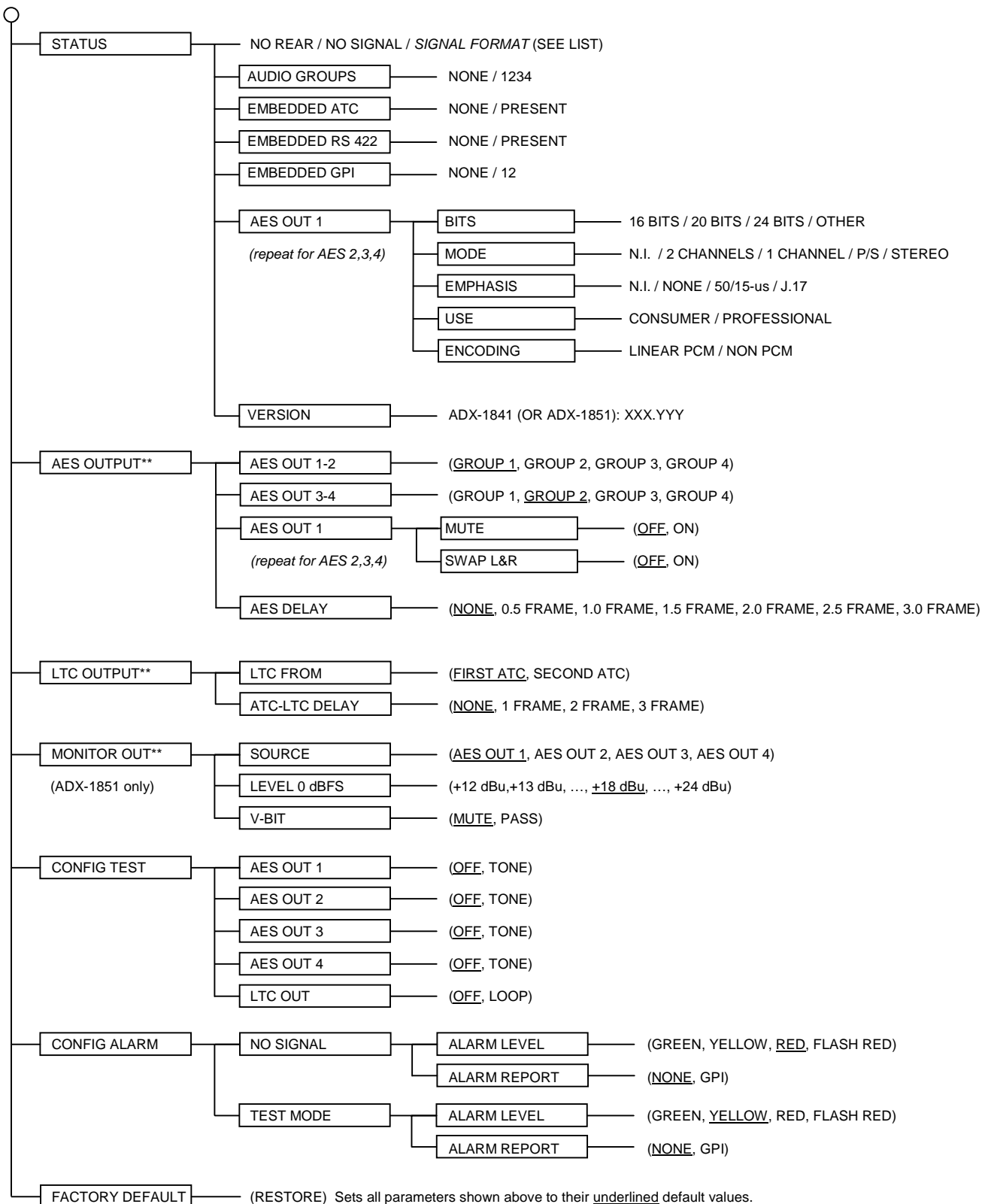
Use the local control panel to access the detailed status report shown in the STATUS menu on page 3.

Operating Parameter Adjustment

The ADX-1841 and ADX-1851 have operating parameters which may be adjusted at the controller card interface. After pressing the SELECT button on the ADX-1841 or ADX-1851 card, use the keys on the local control panel (described in the Controller card manual) to step through the displayed menu and adjust the parameters. The menus are shown below.

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ADX-1841 and ADX-1851 Menus



Press **Select pushbutton to activate selection

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AES OUTPUT menu

AES OUT 1-2 and AES OUT 3-4: Selects which embedded audio group will appear at the indicated outputs of the ADX-1841 or ADX-1851.

AES OUT 1, 2, 3, 4: MUTE; SWAP L&R: Select ON or OFF for each of the four AES outputs to mute the output or swap the left and right signals.

AES DELAY: Sets the delay of the AES audio as it passes through the disembedder. Selectable between NONE, and a number of video frames (0 to 3 frames in ½ frame steps).

CONFIG LTC menu

LTC FROM: Permits the user to select the source of the time code appearing at the LTC output as translated from either the first or second embedded ATC or sampled LTC ANC data.

ATC-LTC DELAY: Sets the time code delay when ATC is translated to LTC. Selectable between NONE and a number of video frames (1 to 3). Delay is not applicable when the source is *Sampled LTC*.

MONITOR OUT menu

SOURCE: Selects AES OUT 1, 2, 3, or 4 for stereo analog audio conversion.

LEVEL 0dBFS: Output level is adjustable in 1 dB steps for an output level of +12 dBu to +24 dBu at full scale amplitude.

VBIT: Selects the action if the AES channel status V-Bit is set. Select MUTE to mute the analog audio output or PASS to disregard the V-Bit status.

CONFIG TEST menu

AES 1, 2, 3, 4: User can enable or disable a test tone (1 KHz, R-steady, L-pulsed, at -18dBFS) on each of the four AES channels individually.

LTC OUT: User can enable a LTC test loop (10 seconds loop starting at 23:59:00:00).

CONFIG ALARM menu

The user can configure the status LED presentation (ALARM LEVEL) and fault reporting (NONE or GPI) for some of the fault conditions of the ADX-1841 or ADX-1851. Those not listed here are factory-set and cannot be user-modified.

NO SIGNAL: Errors include no HD SDI signal attached to the card input, or faulty incoming HD SDI signal.

TEST MODE: Indicates whether test signals are present on any of the ADX-1841 or ADX-1851 audio outputs or LTC outputs.

FACTORY DEFAULT menu

Select **RESTORE** to reset all of the menu-adjustable parameters to a factory-preset state (indicated in the menu by an underline in the list of available choices).

WARRANTIES

Miranda's Warranty and Warranty Policy are explained in full detail in the Warranty Information Sheet.

COMPLIANCE

Radio Frequency Interference and Immunity

This unit generates, uses, and can radiate radio frequency energy. If the unit is not properly installed and used in accordance with this guide, it may cause interference with radio communications. Operation with non-certified peripheral devices is likely to result in interference with radio and television reception. This equipment has been tested and complies with the limits in accordance with the specifications in:

FCC Part 15, Subpart B;

CE EN50081-1:1992;

CE EN50082-1:1992.

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