

ADC-1721

DESCRIPTION

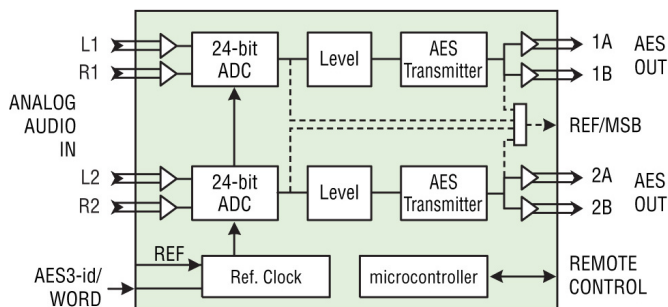
The ADC-1721 is a high-quality, 24-bit, analog to digital audio converter which allows conversion of a stereo analog audio signal to an AES type digital signal. Sampling rates can be set to 32, 48 or 96 kHz by an internal clock or an external reference signal. An internal digital EBU tone generator facilitates alignment of audio levels. User-defined channel identification data may be encoded in the AES status bits. An input audio signal status is also available indicating the input signal presence or overload. The ADC-1721 is compatible with both AES3 and AES-3id digital audio standards and is housed in a Densité frame. A single or double-width rear panel is required

FEATURES

- (1 or 2) balanced analog audio inputs
- external reference loop input (Word Clock or AES3-id DARS)

- (2 or 2x2) AES digital audio outputs
- Balanced AES3 or unbalanced AES3-id outputs
- 24-bit A to D conversion (16, 20 or 24 bits output word length)
- 32, 48 and 96 kHz sampling rates (Optional: change VCXO for 44.1/88.2 kHz)
- -96 to +12 dB of level adjustment (in 0.5 dB steps)
- 0 dBFS selectable (0 to +28 dB, 1 dB steps)
- Internal EBU tone generator
- No signal delay threshold adjustable
- Overload detection and reporting
- Settings and adjustments through frame control panel
- Status LED and remote reporting
- Provides output to Monitoring Switching Bridge option (MSB-1121)

FUNCTIONAL BLOCK DIAGRAM



ADC-1721 Functional Block Diagram

SPECIFICATIONS

Analog Inputs (4)

Signal:balanced analog audio
Input impedance:.....> 12 kO
Max. Level:.....+24 dBu

Reference Input (1)

Signal:AES3-id or Word Clock
Frequency:32, 48 or 96 kHz
(Opt.44.1 kHz only)
Input impedance:.....75 O

Outputs (4)

AES3

Level:4 Vpp
Impedance:110 O balanced
Jitter:0.008 UI peak (50 Hz to 100 kHz)

AES-3id

Level:1.0 Vpp
Impedance:75 O unbalanced
Jitter:0.008 UI peak (50 Hz to 100 kHz)

Processing Performance

Quantization:.....24 bits
Sampling:.....32, 48 or 96 kHz
SNR:>113 dB A weighted
0 dBFS:.....0 to +24 dBu (1 dB steps)
Distortion:.....< -100 dB (0.001%)
Crosstalk:.....< -100 dB (20 Hz to 20 kHz)
Freq. response:.....± 0.1 dB (20 Hz to 20 kHz)
Processing delay:810 µsec @ 48 kHz
Tone generator:-18 dBFS 1 kHz sine wave interrupted on left channel (250 ms / 3 s) per EBU R49

Miscellaneous

Signal presence threshold: from -72 to -54 dBFS (6 dB steps)
No signal delay:from 0 to 255 s (1 s steps)

Power

ADC-1721-DRP-754.9 W
ADC-1721-DRP-1105.1 W

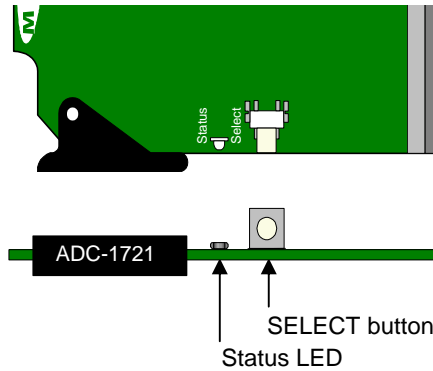
ADC-1721 Dual Analog Audio to AES Converter Guide to Installation and Operation

INSTALLATION

Make sure the following items have been shipped with your ADC-1721. If any of the following items are missing, contact your distributor or Miranda Technologies Inc.

- * ADC-1721 Dual analog audio to AES converter
- * ADC-1721-DRP-75 or ADC-1721-DRP-110 Dual Rear Panel, or ADC-1721-SRP-75 or ADC-1721-SRP-110 Single Rear Panel (see figure)

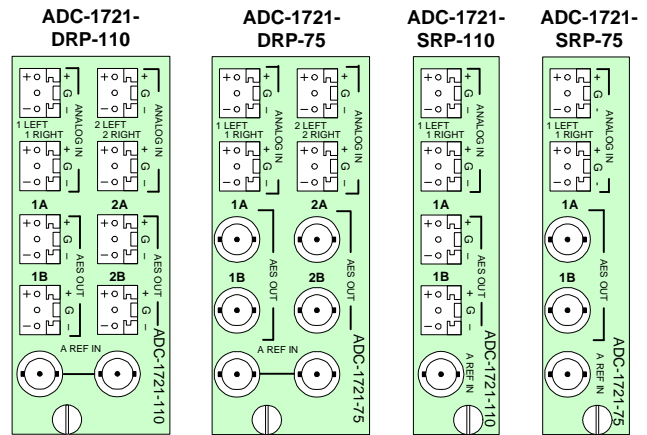
The ADC and its associated rear connector rear panel must be mounted in a DENSITÉ frame. It is not necessary to switch off the frame's power when installing or removing the ADC-1721. See the DENSITÉ Frame manual for detailed instructions for installing cards and their associated rear panels.



Rear panel installation

Note that the ADC-1721 has ten input & output connectors for its dual converters, and making these available at the rear of the frame requires a double-width rear panel. If only a single converter is required, a single-width rear panel may be used, freeing up a slot in the frame.

When a double-width rear panel is used, the module must be installed in the right-most of the two slots associated with the rear panel in order to mate with the rear-panel 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.



Front card edge and available Rear Connector Panels

OPERATION

Overview

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

Local User Interface – status reporting

The status monitor LED is located on the front card-edge of the ADC-1721 module, and is visible through the front access door of the DENSITÉ frame.

The ADC-1721 STATUS LED is green under normal operation. When the ADC-1721 detects an error, the STATUS LED turns red. Pushing the SELECT button will cause the STATUS LED to flash yellow, and the card identification and the current status message will be shown on the controller card's display. The STATUS LED will revert to its normal state upon a second push of the button, or after a short delay.

After pressing the SELECT button on the ADC-1721 card, use the keys on the local control panel (described in the Controller card manual) to step through the displayed status messages. The message structure is shown as part of the Menu on page 3.

Here is an example of the controller display when an error is detected:

A	D	C	-	1	7	2	1								
N	O	S	I	G	N	A	L	(R)					

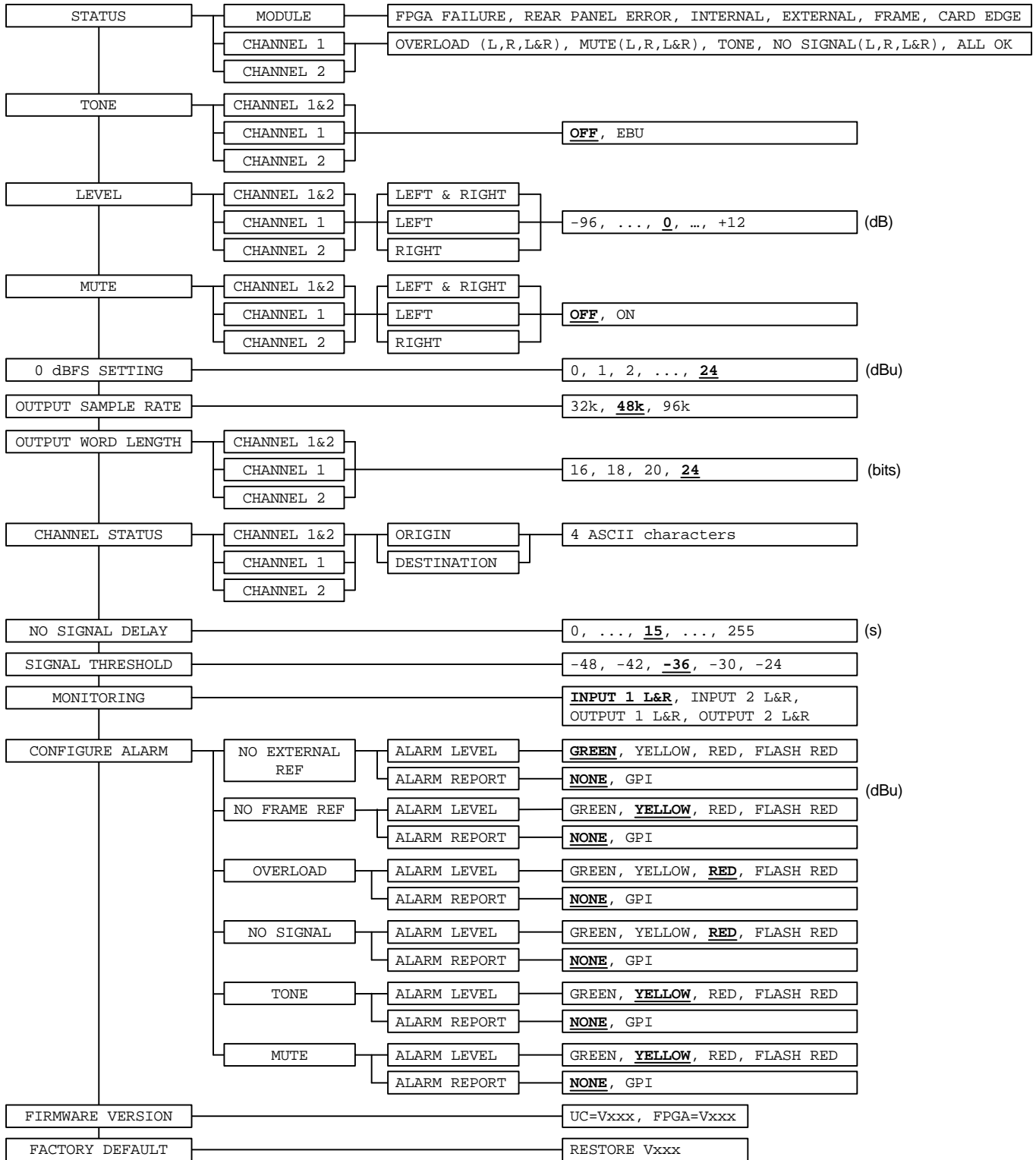
Local User Interface – configuration

Press the SELECT button on the ADC-1721 card, and use the keys on the local control panel (described in the Controller card manual) to step through the card setup menu shown on page 3.

All of the ADC-1721 operating parameters can be set using this menu. The parameters are described in the section *Menu Description* on page 4.

Exit the menu by pressing the SELECT button again.

ADC-1721 MENU STRUCTURE



ADC-1721 Dual Analog Audio to AES Converter Guide to Installation and Operation

MENU DESCRIPTION

by channel Parameters so marked can be set for either Channel 1, Channel 2 or both channels together.

{STATUS}

MODULE: displays the status of the different board alarms.

FPGA FAILURE	Faulty programmable component.
REAR PANEL ERROR	Indicates an absence of the rear panel or an incompatibility between the module and the rear panel. The <i>STATUS</i> led turns on flashing red.
INTERNAL	No valid reference signal connected.
EXTERNAL	The signal connected at the rear BNC is selected as reference for the card.
FRAME	The internal frame signal is selected as reference for the card.
CARD EDGE	The signal coming from an adjacent module via the front panel flat cable is selected as reference for the card.
CHANNEL (1/2):	displays the status of the corresponding analog input channel.
OVERLOAD (L/R)	Indicates an internal signal level higher than -0.5 dBFS.
MUTE (L/R)	Indicates a muted channel.
TONE	indicates the tone generator is active.
NO SIGNAL (L/R)	Indicates an internal signal level lower than the selected threshold during a user-defined period.
ALL OK	indicates an absence of alarms.

{TONE} *by channel*

Activates the tone generator. The internal tone generator provides a 1 kHz (-18 dBFS) sine wave. The EBU mode provides channel identification: left channel is cut off for 250 ms every three seconds.

{LEVEL} *by channel*

Adjust the input level. This adjustment is made within a range of -96 dB to +12 dB in 0.5 dB steps. The default value is 0 dB.

{MUTE} *by channel*

A mute command starts with a soft mute, followed by an AES silence. Automatic mute is performed on non-audio or non-valid samples.

{0dBFS SETTING}

Enables the selection of the RMS value of the input sine wave voltage associated with the digital full scale 0 dBFS.

{OUTPUT SAMPLE RATE}

Selection of the output sample rate.

{OUTPUT WORLD LENGTH} *by channel*

Selection of the quantization value.

{CHANNEL STATUS} *by channel*

ORIGIN	“origin” signal message (4 ASCII characters).
DESTINATION	“destination” signal message (4 ASCII characters).

{NO SIGNAL DELAY}

Signal absence is declared when the signal level is lower than the signal threshold during the selected period, adjustable from 0 to 255 s. The default value is 15 s.

{SIGNAL THRESHOLD}

The signal presence threshold can be adjusted from -72 to -48 dBFS in 6 dB steps. The default value is -60 dBFS.

{CONFIGURE ALARM} *for each error type*

Set the Level (*STATUS* Led color) and/or Report (GPI relay activation) that will occur when the ADC-1721 detects this error.

Note: Alarm relay activation can only occur if the parameter GPI REPORT is enabled in the menu of the Densité frame's controller card

ALARM LEVEL	Associates a <i>STATUS</i> led color (GREEN, YELLOW, RED or FLASH RED) with each error. This selection has no influence on the {STATUS} menu display.
ALARM REPORT	Select <i>GPI</i> to activate an alarm relay when an error is detected (but see note above) The default value is NONE.

{FIRMWARE VERSION}

UC = Vxxx	Microcontroller firmware version
FPGA = Vxxx	Programmable logic element firmware version.

{FACTORY DEFAULT}

RESTORE Vxxx	Loads the module with the factory default parameters; indicates the current version of the microcontroller.
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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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