Integrity

DAS-441

Audio Synchronizer with Embedding

User Manual

July 2005

OVERVIEW

Delay. Transcode. Embed. Lip-Sync. The DAS-441A is a multi-channel audio synchronizer and processor with reference quality 24-bit A/D and D/A conversion sampled at 96 kHz. When paired with any Integrity 400 Series or 500 Series video synchronizer, it eliminates lip sync errors by automatically tracking the video synchronizer delay. A fixed delay offset can be added to compensate for upstream A/V timing errors. Convert analog audio to AES, AES to analog, embed or de-embed. Each input channel can be routed to any output channel. The phase of the individual audio channels can be inverted. Independent tones from the internal 24-bit test tone generator can be routed to the outputs for channel identification. Maximum analog input and output levels are +28 dBu.

The DAS-441A is a modular card for Integrity system frames. Choose either a 1RU standalone frame or a 4RU higher-density frame with optional redundant power supply.

• 4 channels of balanced analog plus 2 AES pairs of unbalanced digital audio input and output

• 24-bit A/D and D/A conversion at 96 kHz for analog inputs and outputs with maximum levels of +28 dBu

• Synchronizer delay tracking plus Programmable offset delay range of 0–5000 milliseconds (5 sec)

• Eight independent 24-bit digital test tone generators

• Individual channel swapping and phase reversal

• Wide range sample rate conversion for digital inputs (32,44.1,48,or 96 KHz)

• Power down relay bypass from analog inputs to analog outputs

INSTALLATION

Install the card in any FRM-301, FRM-304, FRM-501 or FRM-504 system frame. The card may be hot-plugged.

DAS-441 JUMPER SETTINGS

System Type Jumper

There are two types of control systems used for Fortel equipment. The older system uses the RCP-301 and RCP-302 control panels. The newer system uses the RCP-303, RCP-503, and RCP-502 control panels. The DAS-441 card has a jumper that needs to be set to select which type of control system is in use. Jumpers JP5 are a block of 5 pairs of pins. The center pair should have a shunt installed for the older type of control system. For use in the newer system, this shunt should be removed. If desired, it can be installed off to the side so it is only contacting a single pin. This is the factory default setting for new cards.

Audio Level/Headroom Jumpers

For optimum signal quality, the input section of the DAS-441 can be configured to match the analog input level to the A/D levels. If the input is too low, the Signal to Noise level (SNR) will be degraded. If the input is too high, the signal will clip on peak signals, causing massive distortion. Typically the audio levels will be run at +4 dBu nominal, but in some installations the signals may be at 0 dBu or +8 dBu. Typically there needs to be an additional 20 dB of “headroom” reserved above that nominal level before the signal clips.

There are jumpers in the DAS-441 that can be used to set the maximum input level to match the expected audio levels. To determine how to set this max input level, add the nominal input level to the desired headroom. For example, with a nominal audio level of +4 dBu, and a desired headroom of 20 dB before clipping, set the DAS-441 max input level (clipping level) to +24 dBu.

This max (clipping) level is set for each channel by a jumper array, and the possible settings are printed on the card silkscreen near the jumper arrays. They are:

+28 dBu
+24 dBu
+22 dBu
+21 dBu
+20 dBu
+18 dBu
+16 dBu
+15 dBu
+12 dBu
N/A

The Analog-Outputs also have jumpers to configure the analog levels in a similar way. These should be set the the same levels as the Analog-Inputs. The jumpers for each channel are listed below:

Channel	Jumper Array
Analog In 1	JP2
Analog In 2	JP4
Analog In 3	JP7
Analog In 4	JP11
Analog Out 1	JP13
Analog Out 2	JP14
Analog Out 3	JP16
Analog Out 4	JP17

Audio Termination Jumpers

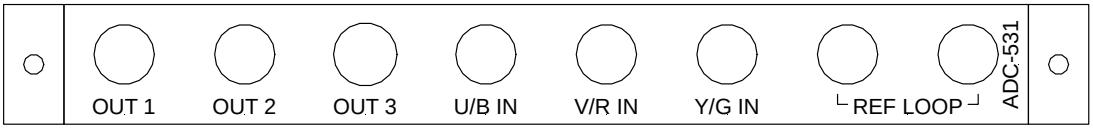
The termination on the four analog inputs can be selected for either a low-impedance (600 ohms) or a high-impedance (30 K ohms). These four jumpers are located near the Analog-In connectors. The following table shows the settings:

Channel	Jumper	Removed	Installed
Analog Input-1	JP1	30K ohm	600 ohm
Analog Input-2	JP3	30K ohm	600 ohm
Analog Input-3	JP6	30K ohm	600 ohm
Analog Input-4	JP12	30K ohm	600 ohm

Other Jumpers

There are a few additional jumpers on the card. These are for factory use only, and should not be changed.

CONNECTIONS



Rear Connector View

DAS-441 CONTROL SETTINGS

The DAS-441 controls described below are presented in different ways depending on the particular control panel used in the system. The functional descriptions below apply to all control panels.

Input Levels

A/V Button

This setting configures the VIDEO button on the control panels to navigate to the paired video board. This is used to create a "logical pair" when video is associated with this audio card.

A/V BUTTON
Video Slot 1-18

Name Card

Select NAME CARD to set an "alias name" for this card, such as "VTR 5". Names may be up to eight characters in length, and characters may include A-Z, a-z, 0-9, space, and hyphen.

NAME CARD

Card Info

Select CARD INFO to view the model name and software version installed in the card. Please review this information when calling the factory for support or adding updates to control panels.

CARD INFO
VERSION

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