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REVISION HISTORY

| <u>REVISION</u> | <u>DESCRIPTION</u> | <u>DATE</u> |
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| 0.1 | Preliminary Version | July 2010 |

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1. OVERVIEW

The 400DA2Q-AESB provides an economical method of distribution for your AES digital audio signals. The DA's feature two auto-equalized inputs with four re-clocked outputs each. The module can also be configured for one input with eight re-clocked outputs for applications where a larger numbers of outputs are required.

The 400DA2Q-AESB is housed in the 400FR **exponent** Frame that will hold up to 16 modules.

Features:

- Supports AES3-1992 standard for AES audio on 110 Ω coax
- Two independent distribution amplifiers with four re-clocked outputs provides jitter reduction
- Can be configured as one eight output distribution amplifier
- Automatic equalization provides extended cable length capabilities
- High impedance or 110 ohm termination on inputs (jumper selectable)
- Card edge indicators for AES present, reclocker rate, and AES validity bit
- Tally output of input error conditions

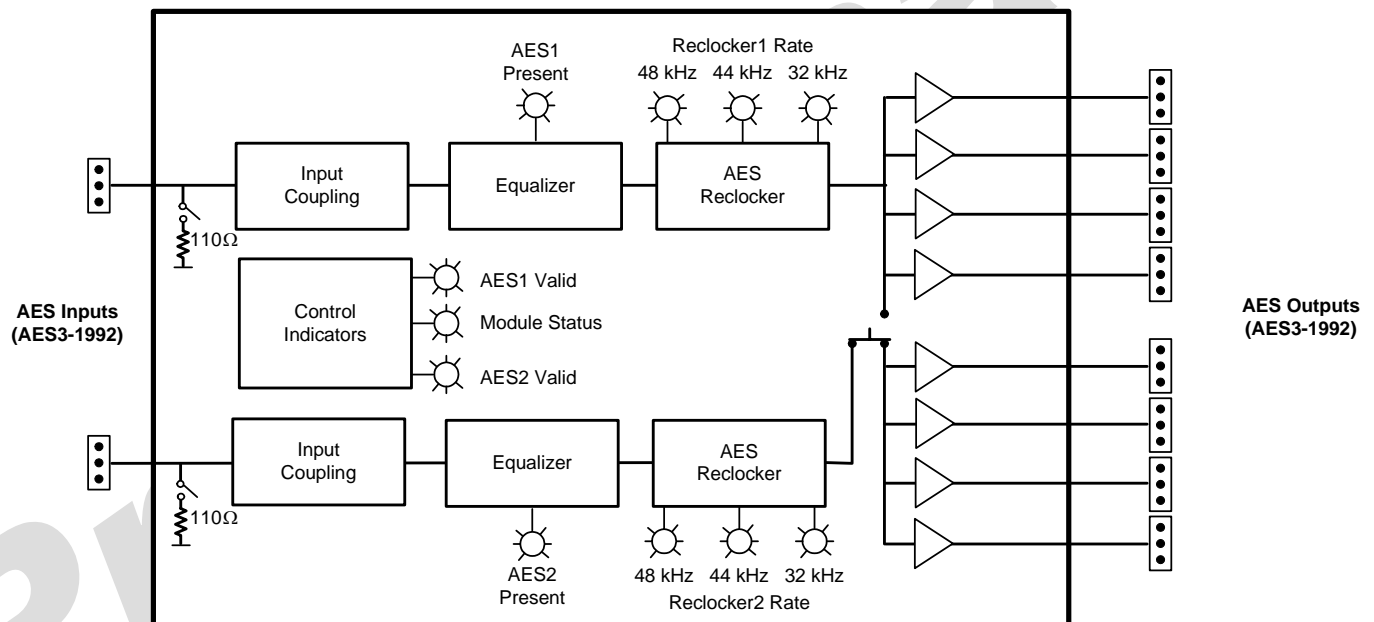


Figure 1-1: 400DA2Q-AESB Block Diagram

2. INSTALLATION

The 400DA2Q-AESB utilizes the built-in three pin terminal connector on the 400FR. For information on inserting the module into the frame, please see section 3 of the 400FR chapter.

IN 1, 2: Input three-pin terminal strip connectors for balanced AES audio signals compatible with the AES-1992 standard.

OUT 1 to 4: These four three-pin terminal strip connectors are reclocked balanced AES outputs, compatible with the AES-1992 and are associated with input one.

OUT 5 to 8: These four three-pin terminal strip connectors are reclocked balanced AES outputs, compatible with the AES-1992 and are normally associated with input two. They can be configured as additional outputs associated with input one.

3. SPECIFICATIONS

3.1. AES AUDIO INPUTS

| | |
|--------------------------|--|
| Number of Inputs: | 2 |
| Standard: | AES3-1992 |
| Connectors: | 3 pin removable terminal strip |
| Coupling: | Transformer |
| Signal Level: | 2 to 7V p-p |
| Equalization: | Automatic to 300m with Belden 1800B (or equivalent) @ 48kHz AES signal |
| Impedance: | 110 ohms |
| Return Loss: | >25 dB 100 kHz to 6 MHz |
| Sampling Rate: | 32 KHz, 44.1 kHz, 48 kHz and 96 kHz |

3.2. AES AUDIO OUTPUTS

| | |
|---------------------------|--|
| Number of Outputs: | 4 reclocked outputs per input (normal) 8 outputs from input one (jumper selectable) |
| Standard: | AES3-1992 |
| Connectors: | 3 pin removable terminal strip |
| Signal Level: | 5V p-p |
| Impedance: | 110 ohms |
| Return Loss: | >25 dB 100 kHz to 6 MHz |

3.3. ELECTRICAL

| | |
|-----------------|-----------|
| Voltage: | + 12VDC |
| Power: | 1.2 Watts |

3.4. PHYSICAL

| | |
|-------------------------|---|
| Number of Slots: | 1 |
|-------------------------|---|

4. STATUS LEDES

The 400DA2Q-AESB has twelve LED Status indicators on the front card edge to show operational status of the card at a glance. Figure 5-1 shows the location of the LEDs.

Two large LEDs on the front of the board indicate the general health of the module:

LOCAL FAULT: This Red LED indicates poor module health and will be On during the absence of a valid input signal, or if a local input power fault exists (i.e.: a blown fuse). The LOCAL FAULT indication can also be reported to the frame through the FRAME STATUS jumper.

MODULE OK: This Green LED indicates good module health. It will be On when a valid input signal is present, and the board power is good.

There are five small LEDs for each input that indicate the status of the input AES audio.

AES PRESENT: This LED will be On when there is an AES carrier present at the input to the module.

48 kHz: The reclocker is currently locked to 48 kHz

44 kHz: The reclocker is currently locked to 44.1 kHz

32 kHz: The reclocker is currently locked to 32 kHz

AES VBIT: This LED indicates the status of the AES validity bit. When the LED is Off, it indicates that the AES sample data is suitable for conversion to an analog audio signal. When the LED is On, it indicates that the AES sample data is carrying data such as Dolby E and is not suitable for conversion to an analog audio signal.

5. JUMPERS AND USER ADJUSTMENTS

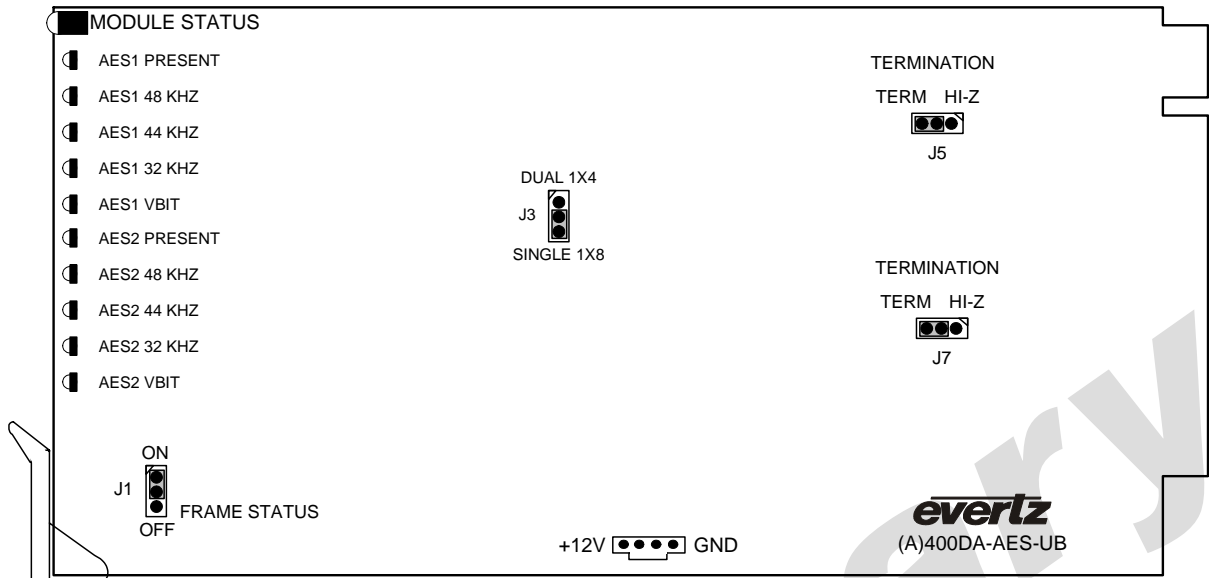


Figure 5-1: LED and Jumper Locations

5.1. SELECTING THE DA CONFIGURATION

DA CONFIG: To configure the 400DA2Q-AESB for four outputs from Input 1 and four outputs from Input 2, move the jumper J3 to the DUAL 1x4 position.

To configure the 400DA2Q-AESB for eight outputs from Input 1, move the jumper J3 to the SINGLE 1x8 position.

5.2. INPUT TERMINATION JUMPERS

The TERMINATION jumpers J5 and J7, located at the rear of the module, determine whether the input signals will be terminated or not. J5 is for input 1 and J7 is for input 2.

TERMINATION: When set in the "TERM" position, (default) the input impedance is set to 110 Ohms. Use this position when the cable stops at this card. It will provide the proper impedance to eliminate electrical reflections.

If set to "UNTERM", the input will be high impedance. Use this position when the signal does NOT stop at this card.



WARNING: Make sure that the final destination of the signal is terminated. Otherwise, reflections will occur affecting the signal throughout the cable.

5.3. SELECTING WHETHER LOCAL FAULTS WILL BE MONITORED BY THE GLOBAL FRAME STATUS

The FRAME STATUS jumper J1, located at the front of the module, determines whether local faults (as shown by the Local Fault indicator) will be connected to the 400FR frame's global status bus.

FRAME STATUS: To monitor faults on this module with the frame status indicators (on the power supply's FRAME STATUS LED's and on the Frame's Fault Tally output) install this jumper in the On position.

When this jumper is installed in the Off position local faults on this module will not be monitored.

Preliminary