

Alignment

Fader Alignment

Use the following procedure to align the Control Panel faders such that *electrical* fader position matches *physical* fader position:

1. Ensure that monitor levels for *all* channels are turned down.
2. Take *all* faders and physically move them to their uppermost limit (+6 dB position). Leave each fader there.
3. To align faders, press **LOCK/UNLK**, hold it down and press **FADER SPLIT**. Electrical position now matches the physical scale printed on the panel. This completes the fader alignment process.

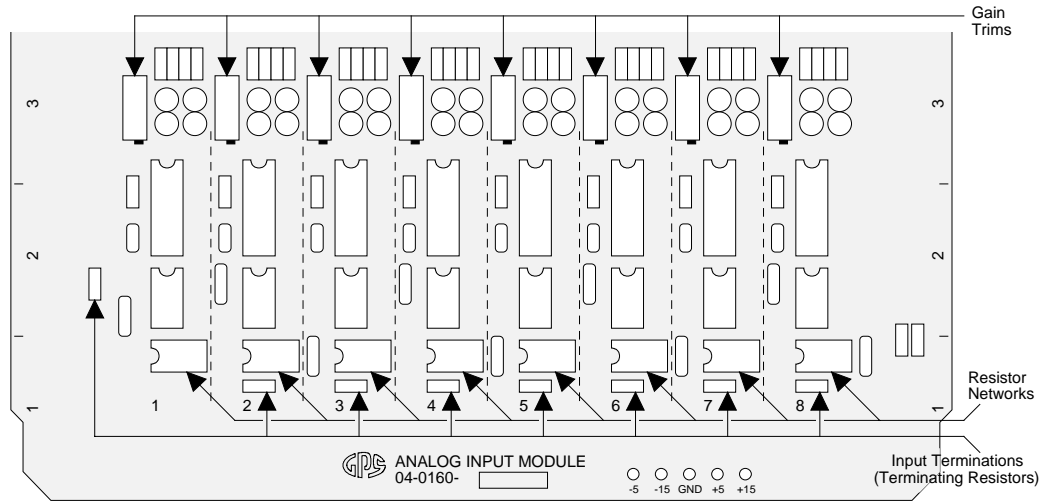
Changing Input/Output Levels

The following topics are discussed in this section:

- Analog Input Alignment, Assy. #04-0160-01
- AES Input Module — installation and jumper settings
- Audio Output Module
- Meter Output Adjustments
- Program Output Adjustments
- Monitor Output Adjustments

Analog Input Alignment, Assy. #04-0160-01

D/ESAM's Analog Input Module (Assy. #04-0160-01) accepts eight balanced or unbalanced audio signals. The figure below shows the adjustment locations:



Analog Input Module (Assy. #04-0160-01)

Each pair of inputs on the module can be set for an operating level of -10dBu to +14dBu. Operating levels are changed by replacing resistor networks (socketed), which are available from GPS. Use the table below to select the appropriate resistor network:

Analog Input Range (Assy. #04-0160-01)

Resistor Network	Adjustment Range
10K	-10dBu – 0dBu *
20K	-4dBu – +6dBu
50K	+4dBu – +14dBu

Notes:

* 0 dBu equals 0.775V RMS.

Each input can be terminated by installing a terminating resistor (¼ Watt, 1%, 150Ω or 600Ω standard values) on the module at locations 2R1 - 5R2.

The **Analog Input Module** has been factory aligned. Adjustments should not be required unless reference level or the digital pad has been changed for particular inputs or components have been replaced.

Use the following procedure to align the module. All other alignments are done at the system level:

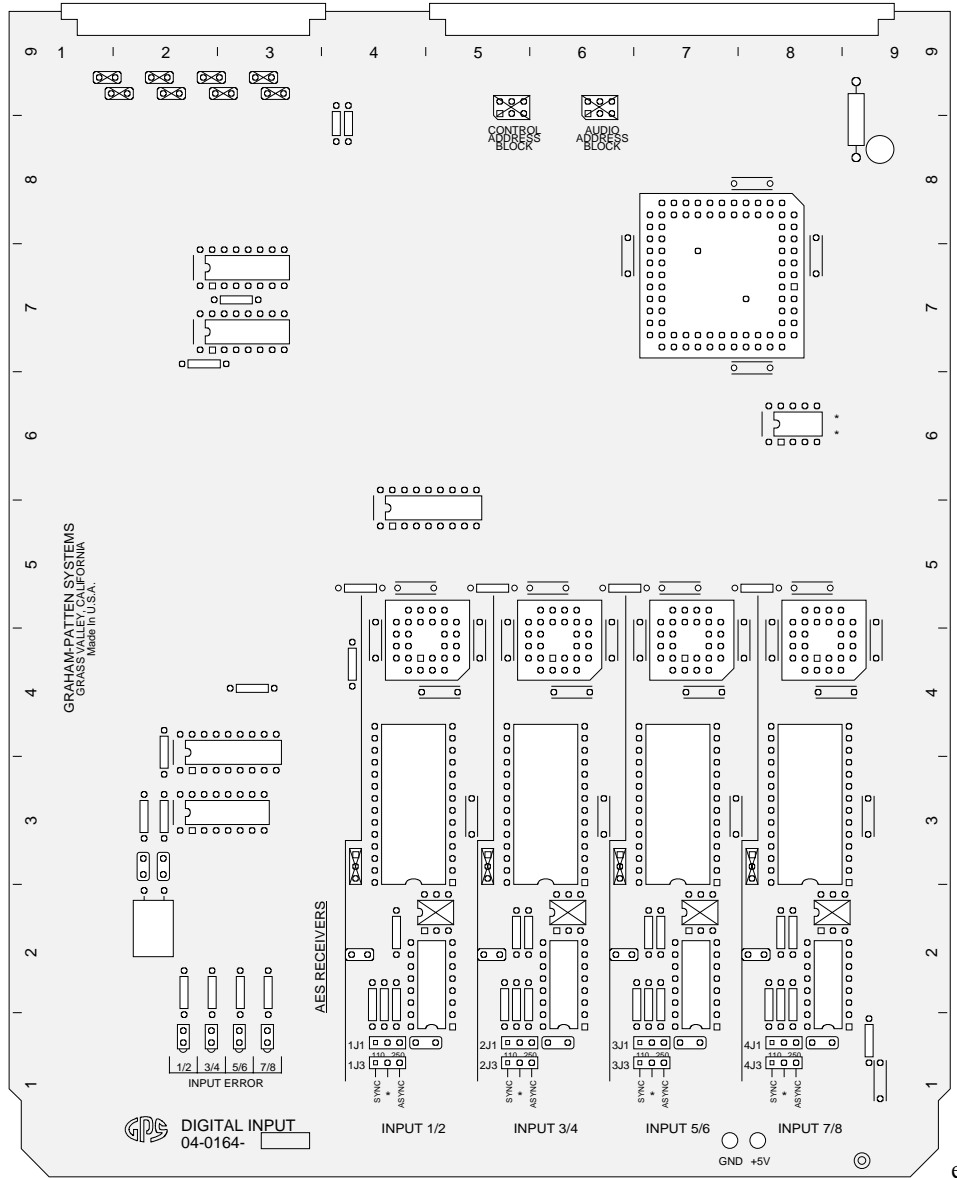
1. Ensure that the meter and Program outputs are calibrated. See the “**Meter Output Adjustments**” and “**Program Output Adjustments**” sections for details.
2. Apply a reference tone to the inputs to be tested.
3. Select **R** in the **Preview Section** on the Control Panel and assign virtual machine which contains the inputs to be aligned to **R**. Refer to the “**Machine Assignment**” section in Chapter 3 for machine assignment procedures. The meters should now display the inputs to be aligned.
4. Locate the appropriate **GAIN TRIM** on the board. Adjust each input’s gain as required for 0VU (-8PPM) on the Meter Panel.

NOTE

The internal tone generator can be used for alignment. In Chapter 5, refer to the “**Alignment - Menu 6.1**” section for setting tone generator options.

AES Input Module

D/ESAM's AES Input Module (Assy. #04-0164-00) is shown below:



AES Input Module (Assy. #04-0164-00)

The Digital AES Input Module with sample rate converters accepts any input with a sample rate from 24kHz to 50 kHz, asynchronous. This allows AES sources which are not 48kHz synchronized (like CD's or DAT machines) to be connected to the D/ESAM in the digital domain.

NOTE

“Synchronized” means that the device generating the AES signals should be referenced to the same video reference as D/ESAM.

The module has four LED's (one for each input pair) that flash when errors occur. Occasional errors are concealed by the AES input module. Excessive errors are indicated by the LED *ON* continuously. Under this condition, the associated input pair will mute.

The Digital AES Input Module is available in three styles:

- 04-0164-01 — Standard eight channels (4 AES inputs) with no sample rate converters.
- 04-0164-02 — Four of the eight channels (1 - 4) are sample rate converted.
- 04-0164-00 — All eight channels are sample rate converted.

Installation

When setting the D/ESAM 820 Series module definition, 04-0167-XX is compatible with any of the previous versions of the digital input modules (04-0148-00 or 04-0141-00).

Jumper Settings

The module has two sets of jumpers for each input.

- The termination jumper allows for either 250Ω or 110Ω. The standard setting is 110Ω.
- Synchronization jumpers are for the sample rate converted inputs. When the jumper is set to **ASYNC**, the AES input will be sample rate converted. When the jumper is set to **SYNC**, the AES input will bypass the sample rate converter.

The default setting for the sample rate converted input is **ASYNC** and all 48kHz synchronized inputs are set to **SYNC**.

The following table shows the jumpers for each AES input.

AES Input Jumpers (Assy. #04-0164-00)

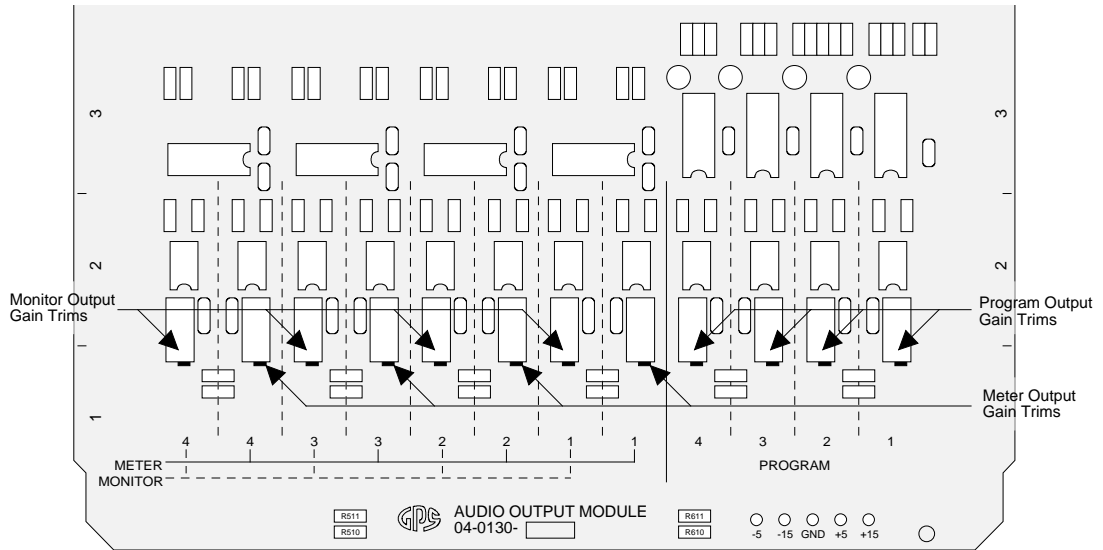
Inputs	Termination	Synchronization
1 & 2	1J1	1J3
3 & 4	2J1	2J3
5 & 6	3J1	3J3
7 & 8	4J1	4J3

Audio Output Module

The Audio Output Module drives a total of 14 balanced signals:

- 4 analog Program outputs
- 4 analog Monitor outputs
- 4 analog Meter outputs
- 2 AES digital Program outputs (each output has two discrete channels)

Each analog output reference level can be adjusted from -8dBu to +10dBu using a gain trimmer. Use the illustration below for the following adjustment procedures.



Analog Output Card, Gain Trim Locations

NOTE

The -03 version of the module can also be used for the D/ESAM 800. Jumper **J480** is used for configuration:

- Data mode 1 configures the module for the D/ESAM 820.
- Data mode 0 configures the module for the D/ESAM 800.

Refer to the silk screen on the module itself for jumper **J480** positions and data mode indications.

Meter Output Adjustments

WARNING

The D/ESAM system has been completely aligned to the meters. Any adjustment to the meter outputs without first precisely following the system alignment procedure can cause system level problems.

Meter outputs are factory set for 20dB below digital clipping or +8dBu (analog meters only) when reading 0VU (-8PPM). This level should not be changed unless internal system reference level is changed. Analog Program and Monitor output levels can be set independent of Meter reference level.

The location of the Meter output gain trims are indicated in the figure above. Note that the gain trims are covered to prevent accidental adjustments.

NOTE

The internal tone generator can be used for alignment. In Chapter 5, see the “**Alignment - Menu 6.1**” section for setting tone generator options.

Program Output Adjustments

The following procedure is specific to the analog Program output only and assumes that meters are aligned correctly.

1. Assign a source with reference tone to all four D/ESAM Program buses. In Chapter 3, refer to the “**Channel Assignment**” section for instructions on Channel Assignment and the “**Manual Program / Preset Configuration**” section for details on Program / Preset Configuration.
2. Bring up the fader(s) so that meters read 0VU (-8PPM).
3. Adjust each of the Program output gain trims to the reference level. The location of the Program trims are indicated in the figure above.

NOTE

The internal tone generator can be used for alignment. In Chapter 5, see the “**Alignment - Menu 6.1**” section for setting tone generator options.

Monitor Output Adjustments

The following procedure is specific to the analog Monitor output only and assumes that meters are aligned correctly.

1. Assign a source with reference tone to all four D/ESAM Program buses. In Chapter 3, refer to the “**Channel Assignment**” section for instructions on Channel Assignment and the “**Manual Program / Preset Configuration**” section for details on Program / Preset Configuration.
2. In the **Monitoring Section**, enable **MON 1, 2, 3, 4** and **MIX OUT**. Ensure that **PGM** is selected in the **Program / Preset** section.
3. Bring up the fader(s) so that meters read 0VU (-8PPM).
4. Ensure that **MONO, 2-CH** and **LEVEL/BAL** indicators are OFF. In addition, ensure that **Monitor Sub-mix** mode is OFF. In Chapter 3, refer to the “**Monitoring**” and “**Monitor Sub-mix Mode**” sections for more details.
5. Turn both rotary knobs clockwise until the Monitor outputs are at their maximum output level.
6. Adjust each Monitor output gain trim to match the monitor amplifier’s input sensitivity. The location of the Monitor trims are indicated in the figure above.

NOTE

The internal tone generator can be used for alignment. In Chapter 5, see the “**Alignment - Menu 6.1**” section for setting tone generator options.