

**AVENUE**

Avenue™ signal integration system

# Model 5600 Embedder/ Disembedder Data Pack

**ENSEMBLE**

D E S I G N S

Revision 6.1 SW v2.2.0

This data pack provides detailed installation, configuration and operation information for the **5600 Embedder/Disembedder** module as part of the Avenue Signal Integration System.

The module information in this data pack is organized into the following sections:

- Module Overview
- Applications
- Installation
- Cabling
- Module Configuration and Control
  - Front Panel Controls and Indicators
  - Avenue PC Remote Control
  - Avenue Touch Screen Remote Control
- Troubleshooting
- Software Updating
- Warranty and Factory Service
- Specifications

## MODULE OVERVIEW

The 5600 Embedder/Disembedder module can multiplex or demultiplex AES audio streams to and from a 601 serial video signal. It is four channel with AES inputs and outputs. The module mode can be configured locally or remotely by the user. Channel mixing capability makes this module great for channel shuffling or combining.

Analog audio I/O support is available with optional daughter cards. There are three optional daughter cards available: the 5610 providing 4 Channel Analog Inputs; the 5611 providing 4 Channel Analog Outputs; and the 5612 for 2 Channel Analog Inputs and 2 Channel Analog Outputs. Only one option can be installed on a module.

In general terms, a standard 601 serial digital signal can accommodate up to eight AES audio streams. An AES stream contains two audio channels, left and right, allowing each 601 signal to carry up to 16 channels of audio. This capacity is divided into four groups, with each group capable of carrying two AES streams (four channels). These four groups are arranged one after another during the horizontal intervals of the television picture when there is no active picture content. Audio modes can be selected as audio (embedded stream is standard audio), data (embedded stream is a non-audio signal), or auto (the module will detect the type of signal embedded in the stream, audio or data).

When configured as a multiplexer, the 5600 has one 601 serial digital video input and two AES audio inputs. These two AES streams are embedded into the 601 video stream. The output of the module is a 601 digital stream that contains the original video signal and the two AES audio pairs.

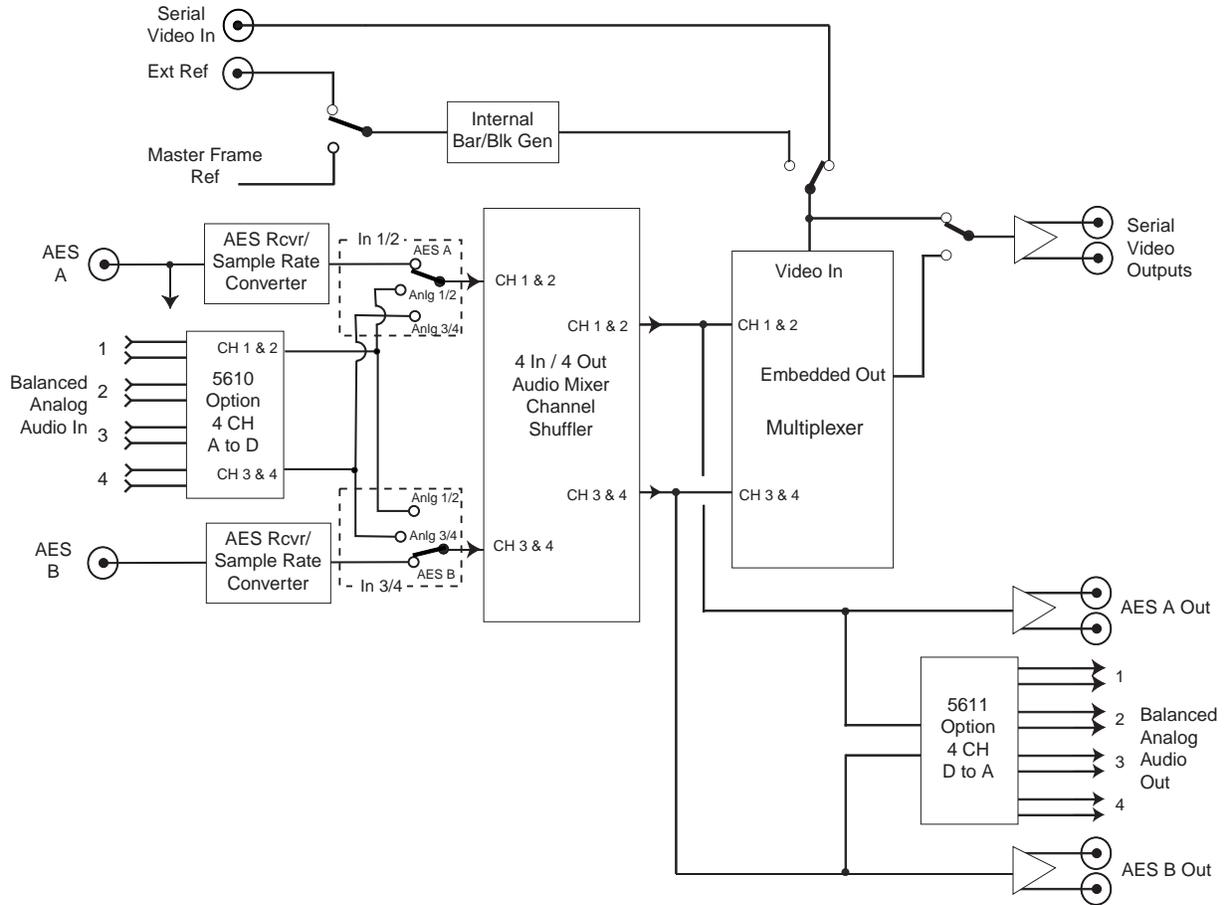
If no audio was present in the incoming signal, the two AES signals will be placed in the Group 1 position. If audio signals were already present in Group 1, the two AES signals will be embedded in the Group 2 position. This allows more complex embedding requirements to be met by chaining multiple 5600 modules in series. Comprehensive swapping/shuffling of incoming audio channels prior to embedding is provided.

When configured as a demultiplexer, audio signals present in the incoming 601 signal are extracted and delivered as standard AES digital audio streams. As with the multiplexing mode, full channel swaps/shuffles can be made as the four embedded audio channels are delivered to output as two AES streams.

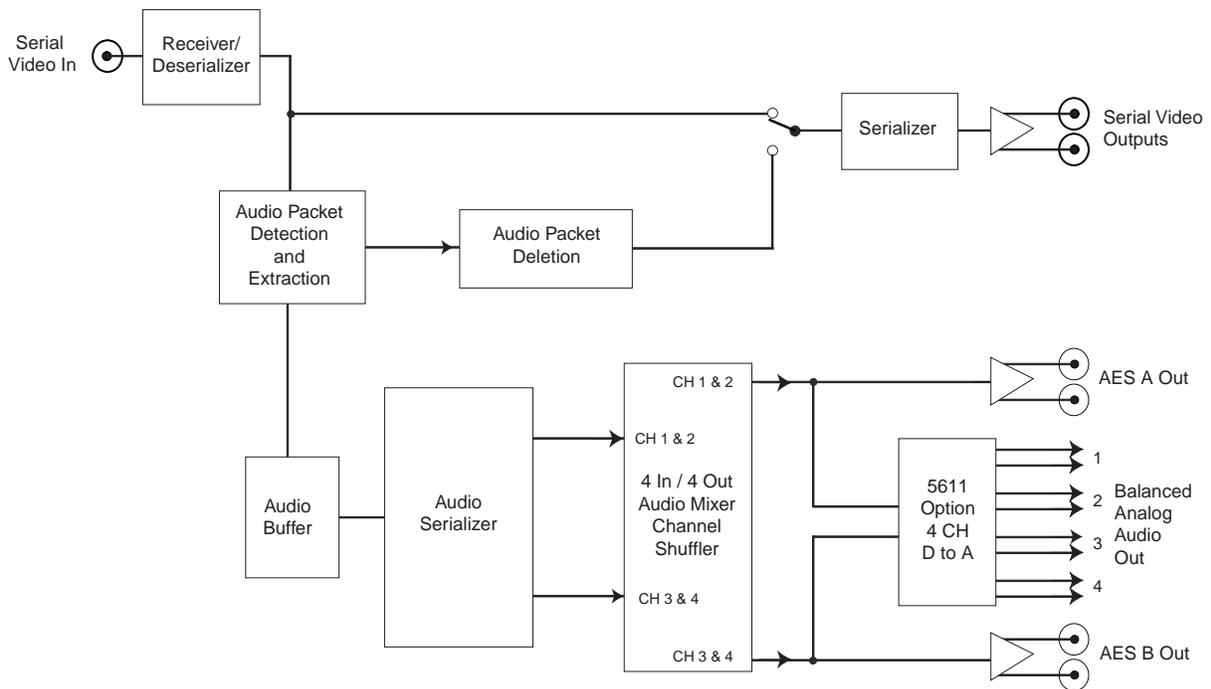
For applications that require audio delay in addition to embedding or disembedding, the 5600 can be used in conjunction with the 6040 Tracking Audio Delay Module.

As shown in the multiplexer and demultiplexer block diagrams on the following page, a 601 serial digital signal is fed to the module for embedding of audio or audio extraction, depending on the mode chosen by the user.

In multiplexer mode, the receiver output is deserialized and fed to circuitry which routes the video data, or substitutes an internally generated black/color bar signal, to the multiplexer circuit. **Video In** is used as a reference for all multiplexing modes except when it is desired to embed audio in a signal generated internally in the 5600 module. **External** or **Master Frame** reference is used for this configuration.



**5600 AMD Functional Block Diagram (Multiplexer Mode)**



**5600 AMD Functional Block Diagram (Demultiplexer Mode)**

The incoming AES audio streams are sample-rate converted to bring them into synchronization with the video streams they will join in the multiplexer circuit. Before entering the multiplexer, the right and left audio channels pass through channel shifting/shuffling circuitry where they can be configured as specified by the user. If an optional 5610 (4 Analog Input) or 5612 (2 Analog Input/2 Analog Output) daughter card is installed, analog audio inputs can be fed to the module.

The resulting embedded stream with both audio and video content is serialized then fed to two serial output BNC connectors on the module backplane. The AES A and AES B audio channel outputs are also available from rear connector BNCs as shown in the top block diagram. If an optional 5611 (4 Analog Output) or 5612 (2 Analog Input/2 Analog Output) daughter card is installed, analog audio outputs are also available.

When the module is configured as a demultiplexer, the serial video stream enters the module and the audio is detected and extracted. If desired, the video stream can be sent in its original form to the serial video output BNCs or the extracted audio content can be stripped from it before the serial video output.

The extracted audio is buffered and serialized before entering the audio channel shuffling circuitry where it can be configured by the user for the desired output configuration. The audio output of the module is fed to the AES A and AES B BNCs on the module backplane. Analog audio outputs are also available when the 5611 option (4 Analog Output) daughter card is installed.

Power is derived from the  $\pm 12$  volt frame power. It is regulated to the required +5 volts for the digital circuitry by on-board regulators. The required +3 volts for the multiplexer circuitry is developed in a linear regulator running off the +5 volt supply. The module is fused with a resettable fuse device. If the fuse opens due to an overcurrent condition, the module will lose power. After pulling the module, the fuse will reset automatically requiring no replacement fuse.

The on-board CPU can monitor and report module ID information (slot location, software version and board revision), and power status (+5 volts or +3 volts) to the optional frame System Control module. This information can be accessed by the user or set to register an alarm if desired using the remote control options available.

Module parameters can be adjusted through the control system with an Avenue Touch Screen Panel or Avenue PC Application. Individual level controls are available over 4 inputs: 4 analog or 2 AES. Level controls are available on the outputs as well. Each of the 4 output channels has a source selector. Phase control, or invert, is also provided. Memory registers can be used to save the complete configuration of the module, making it easy to change instantly between different configurations.

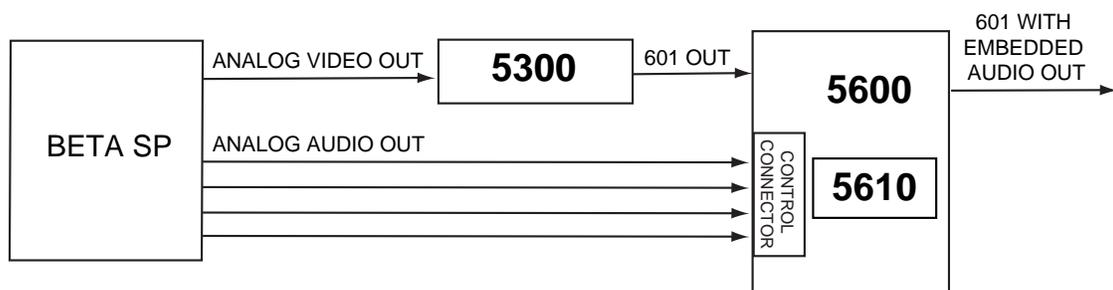
Modules at software version 2.2.0 or later support SNMP (Simple Network Management Protocol) monitoring. For each applicable signal processing module, module, signal, and reference status are reported. For complete details on using SNMP monitoring, refer to the Avenue System Overview that accompanies each frame.

## APPLICATIONS

### Multiplexer Operation

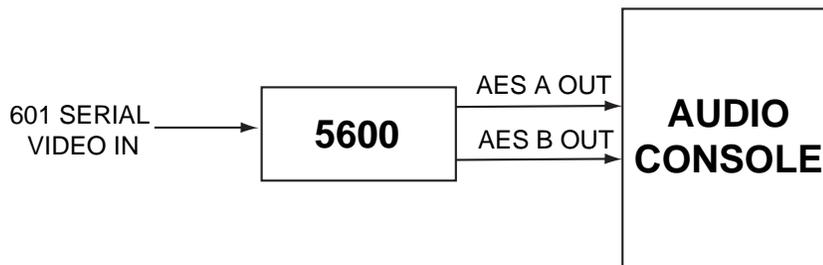
The application below illustrates the 5600 module with the 5610 option installed embedding the analog audio and video from a Beta SP machine into one serial data stream for use in a digital facility. The analog video output from a Beta SP machine is first fed to an Avenue 5300 Analog to Digital Converter module for conversion to serial digital video.

The resulting SD stream is fed to a 5600 serial input. The analog audio outputs from the Beta SP machine are routed to the Control connector to the optional 5610 where they are converted and embedded into the serial digital video stream. The resulting output from the 5600 is an SDI video signal with embedded audio.



### Demultiplexer Operation

The demultiplexer mode can be used to disembed audio from a serial video stream to feed an audio console as shown in the example below.



## **INSTALLATION**

To install either the 5610, 5611 or 5612 daughter card option, line up the connector on the solder side of the daughter card with the the connector on the component side of the 5600 circuit board. When the connectors are aligned, press down firmly to seat the daughter board.

Plug the 5600 module into any slot in the 1 RU or 3 RU frame and install the plastic overlay provided onto the corresponding group of rear BNC connectors associated with the module location. Note that the plastic overlay has an optional adhesive backing for securing it to the frame. Use of the adhesive backing is only necessary if you would like the location to be permanent and is not recommended if you need to change module locations.

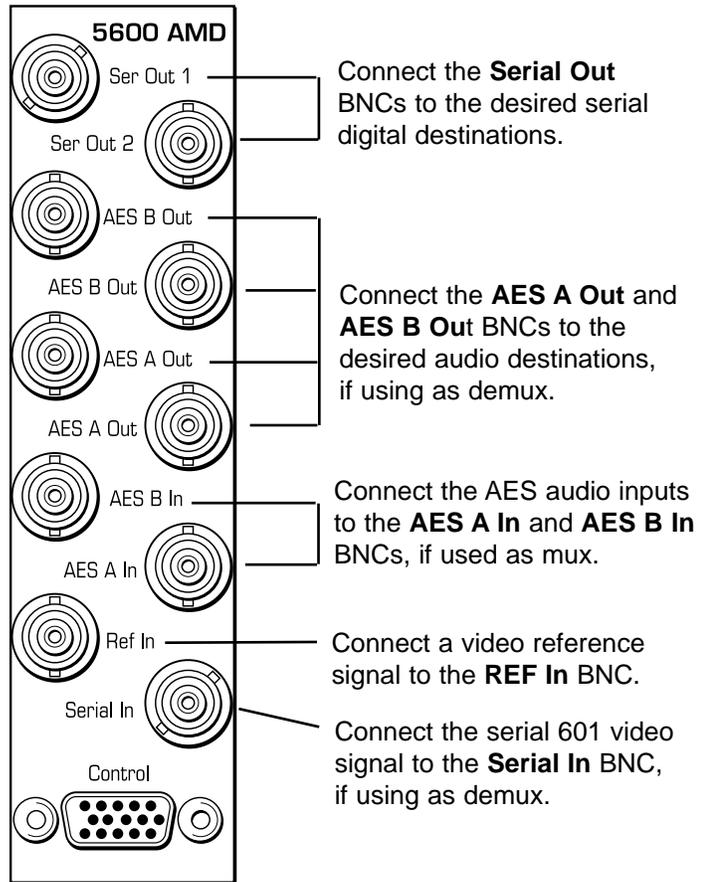
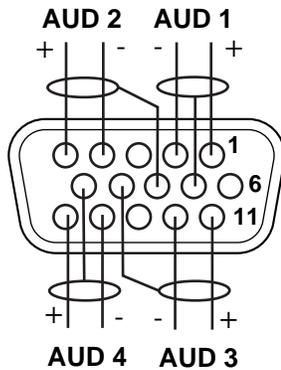
This module may be hot-swapped (inserted or removed) without powering down or disturbing performance of the other modules in the system.

## **CABLING**

Refer to the 3 RU and 1 RU backplane diagrams of the module on the following page for cabling instructions. Note that unless stated otherwise, the 1 RU cabling explanations are identical to those given in the 3 RU diagram.

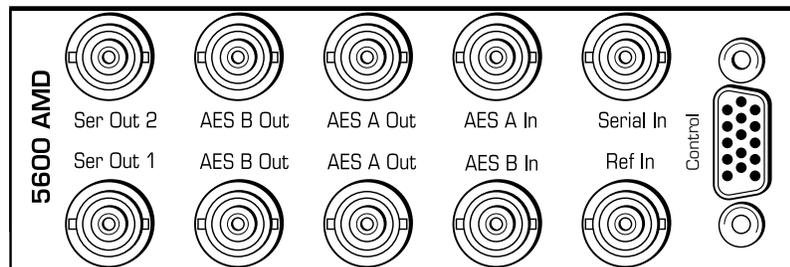
### 3 RU Backplane

Connect analog audio to the **Analog Audio (Control)** connector when either the 5610, 5611 or 5612 option is installed. Refer to the pinout diagram and the table below.



Signal	Pins	ANALOG AUDIO OPTION		
		5610	5611	5612
Aud 1 +, —, G	1, 2, 7	Input 1	Output 1	Input 1
Aud 2 +, —, G	5, 4, 8	Input 2	Output 2	Input 2
Aud 3 +, —, G	11, 12, 9	Input 3	Output 3	Output 3
Aud 4 +, —, G	15, 14, 10	Input 4	Output 4	Output 4

### 1 RU Backplane



## MODULE CONFIGURATION AND CONTROL

The configuration parameters for each Avenue module must be selected after installation. This can be done remotely using one of the Avenue remote control options or locally using the module front panel controls. Each module has a **REMOTE/LOCAL** switch on the front edge of the circuit board which must first be set to the control mode you will be using.

The configuration parameter choices for the module will differ between **Remote** and **Local** modes. In **Remote** mode, the choices are made through software and allow more selections. The **5600 Parameter Table** on the following page summarizes and compares the various configuration parameters that can be set remotely or locally and the default/factory settings. It also provides the default User Levels for each control. These levels can be changed using the Avenue PC application.

If you are not using an remote control option, the module parameters must be configured from the front panel switches. Parameters that have no front panel control will be set to a default value. The **Local** switches are illustrated in the **Front Panel Controls and Indicators** section following the **5600 Parameter Table**.

Avenue module parameters can be configured and controlled remotely from one or both of the remote control options, the Avenue Touch Screen or the Avenue PC Application. Once the module parameters have been set remotely, the information is stored on the module CPU. This allows the module be moved to a different cell in the frame at your discretion without losing the stored information. Remote configuration will override whatever the switch settings are on the front edge of the module.

For setting the parameters remotely using the Avenue PC option, refer to the **Avenue PC Remote Configuration** section of this document.

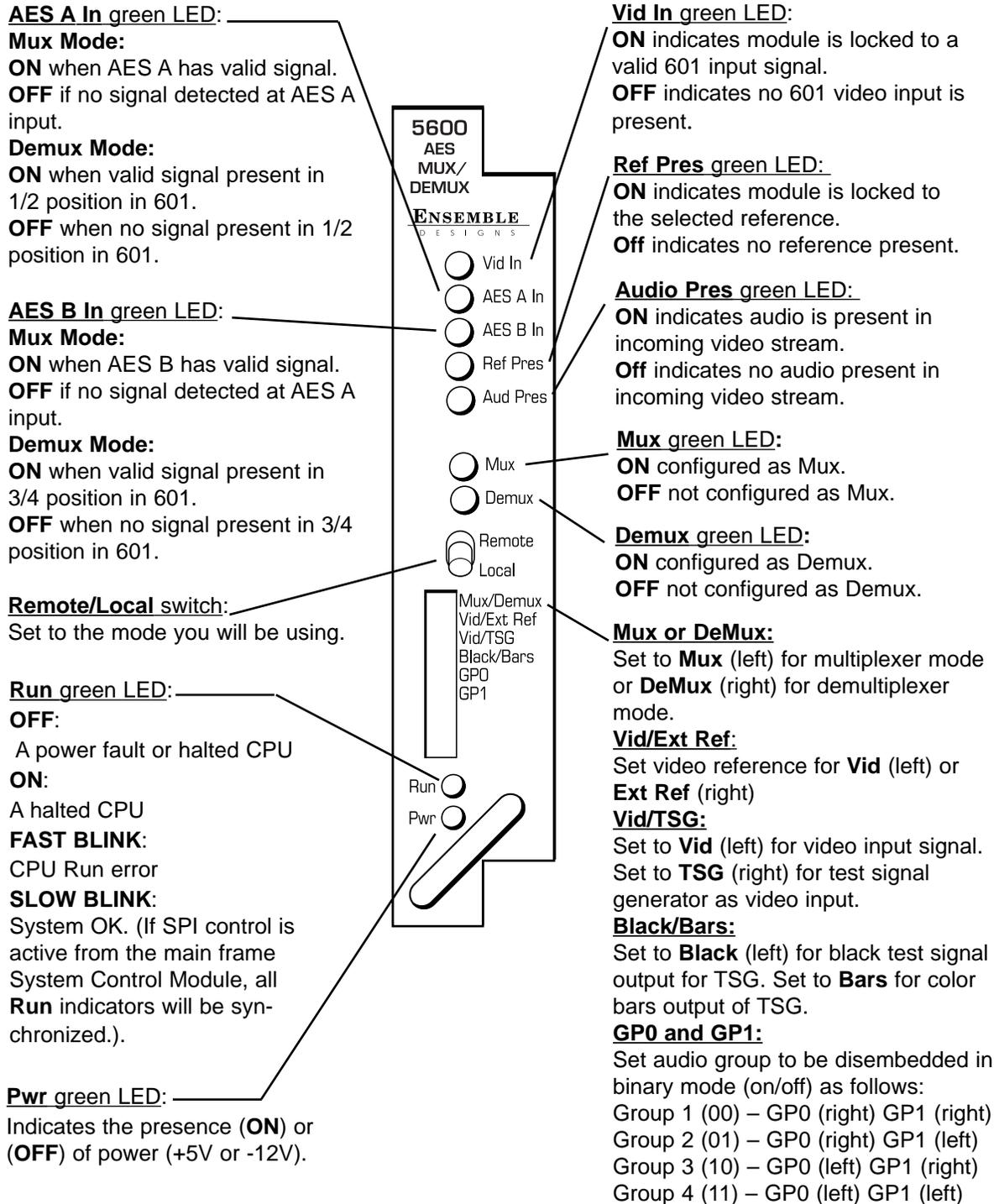
For setting the parameters remotely using the Avenue Touch Screen option, refer to the **Avenue Touch Screen Remote Configuration** section of this data pack following Avenue PC.

5600 Parameter Table

CONTROL	LOCAL	REMOTE	DEFAULT	DEFAULT USER LEVEL
<b>Video Input</b>	Switch 3: Vid TSG	Video In Int Test Gen	Video In	Admin
<b>Test Signal</b>	Switch 4: Black Bars	Black Color Bars	Black	Admin
<b>Reference Select</b>	Switch 2: Vid Ext Ref	Video In External Master	Video In	Admin
<b>In 1/2 Select</b>	AES A	AES A Anlg 1/2 Anlg 3/4	AES A	Level 1
<b>In 3/4 Select</b>	AES B	AES A Anlg 1/2 Anlg 3/4	AES B	Level 1
<b>Analog Level 1-4</b>	0 dB	-10 dB -6 db -4 dB 0 dB +4 dB +8 dB	0 dB	Level 1
<b>Video Out</b>	Bypass	Mux Out Bypass Loop Thru Aud Delete	Bypass	Admin
<b>A/B Channel Mode</b>	Automatic	Auto Audio Data	Automatic	Admin
<b>Mode</b>	Switch 1: Mux Demux	Mux Demux	Mux	Admin
<b>Mux Position (Mux Mode only)</b>	Cascade	Cascade Replace Wrong Mode (in Demux mode)	Cascade	Admin
<b>Group Select</b>	Switch 5 and 6: GP0 GP1	Group 1 Group 2 Group 3 Group 4	Group 1	Admin
<b>Audio Width (Mux Mode only)</b>	24 bits	20 bits 24 Bits Wrong Mode (in Demux mode)	24 Bits	Admin
<b>Input Channel 1-4</b>	0 dB	-70 to +6 dB	0 dB	Level 1
<b>Memory Registers</b>	N/A	1 – 5	Last Saved	Admin

## Front Panel Controls and Indicators

Each front edge indicator and switch setting is shown in the diagram below:



## Avenue PC Remote Configuration

The Avenue PC remote control menus for this module are illustrated and explained below. Refer to the 5600 Parameter Table shown earlier for a summary of available parameters that can be set remotely through the menus illustrated. For more information on using Avenue PC, refer to the Avenue PC Control Application Software data pack that came with the option.

Parameter fields that are grayed out can indicate one of the following conditions:

- An option is not installed.
- The function is not active.
- The module is locked.
- The User Level set with Avenue PC is not accessible from the current User Level.

### 5600 Avenue PC Menus

The **Vid Input** menu below allows you to set the following parameters:

- **Input Select** – set the video input to the module as either the serial video input or the internal test signal generator (TSG).
- **Test Signal** – select the test signal generator to **Color Bars** or **Black**.
- **Ref Select** – select the desired video reference to the module from **Video In**, **External**, or **Master**. **Video In** is used as a reference for all multiplexing modes except when it is desired to embed audio on a signal generated internally in the 5600 module.

The **Input Status** indicators show video and audio input status. The **Video** status box will be green to indicate presence of input video. The **Audio Group 1–4** boxes indicate the audio groups present in the serial input stream and also indicate by the color of the box whether the signal width is 20-bit audio (blue) or 24-bit audio (green).

**Ref Detect** indicates the reference (**525**, **625** or **None**) detected by the module.

The screenshot shows the 'Vid Input' menu with the following settings:

- Input Select:** Video In
- Test Signal:** Color Bars
- Ref Select:** Video In
- Ref Detect:** 525
- Input Status:** Video (green), Group 1 (green), Group 2 (gray), Group 3 (gray), Group 4 (gray)

The **Audio I/O** menu shown below shows the status of the **AES A** and **AES B** audio inputs and allows you to set the source of the audio to be embedded and the levels of the input and output analog audio from the 5610, 5611 or 5612 options.

- **In 1/2 Sel** – selects the input audio source for embedding into the video stream from either the **AES A** (input BNC), **Anlg 1/2** or **Anlg 3/4** (5610 or 5612 Analog Audio option inputs).
- **In 3/4 Sel** – selects the input audio source for embedding into the video stream from either the **AES B** (input BNC), **Anlg 1/2** or **Anlg 3/4** (5610 or 5612 Analog Audio option inputs).
- **Anlg 1 Lvl** – set the audio level (-10 dB, -6dB, -4 dB, 0 dB, +4 dB or +8 dB) for analog audio input 1 (5610 or 5612 option) or analog output 1 (5611 option).
- **Anlg 2 Lvl** – set the audio level for analog audio input 2 (5610 or 5612 option) or analog output 2 (5611 option).
- **Anlg 3 Lvl** – set the audio level for the analog audio input 3 (5610 option) or analog output 3 (5611 option) or analog output 1 (5612 option).
- **Anlg 4 Lvl** – set the audio level for the analog audio input 4 (5610 option) or analog output 4 (5611 option) or analog output 2 (5612 option).

Setting audio levels: For example, if the nominal level of your incoming analog audio to Channel 1 is +4 dB, set the Anlg 1 Lvl to +4 dB.

AES A and AES B input status is reported as **Input Locked** or **No Input**.

The screenshot shows the 'Audio I/O' menu with the following settings:

Control	Value
AES A Input	Input Locked
AES B Input	No Input
In 1/2 Sel	AES A
Anlg 1 Lvl	+4 dB
Anlg 2 Lvl	+4 dB
In 3/4 Sel	AES B
Anlg 3 Lvl	+4 dB
Anlg 4 Lvl	+4 dB

The **Mode** menu allows you to set the following parameters:

- **Mode** – set the operating mode of the module to **Mux** or **Demux**.
- **Video Out** – set the video output for either **Mux Out** (passes video with embedded audio) or **Bypass** (passes video input stream) in Multiplexer mode or **Loop Thru** or **Aud Delete** (delete selected audio group) in Demultiplexer mode.
- **A Chan Mode** – select the A channel status for the embedded audio from either **Audio**, **Auto**, or **Data** mode.
- **B Chan Mode** – select the B channel status for the embedded audio from either **Audio**, **Auto**, or **Data** mode..
- **A Status** – status of the A Channel is reported as **Audio**, **Data**, or **None**.
- **B Status** – status of the A Channel is reported as **Audio**, **Data**, or **None**.

The screenshot shows a software interface with a tabbed menu at the top: Vid Input | Audio I/O | **Mode** | Config | Aud Mix | Memory. The 'Mode' tab is active, displaying six configuration fields in a 3x2 grid:

Mode Mux	Video Out Mux Out
A Chan Mode Auto	B Chan Mode Data
A Status Audio	B Status None

Use the **Config** menu below to set the following module parameters:

- **Mux Position** – in **Mux** mode, select the position (from **Group Select 1-4**) to embed the new audio group.  
Selecting **Cascade** will embed new audio in the selected audio group even if audio already exists in this position. First check the incoming embedded audio status on the **Vid Input** menu to see if embedded audio already exists in the selected group. Two audio groups can be identified as the same group by the control system causing errors when the signal is demultiplexed.  
Use the **Cascade** position only when you know the embedded audio status of the incoming stream or you are connecting 5600 modules in series.  
Selecting **Replace** will delete existing incoming audio completely and replace it with new audio as the group selected.  
In **Demux** mode, the display will indicate **Wrong Mode**.
- **Group Select** – select the audio group (1-4) in which you want to embed new audio or the group to be disembedded in **Demux** mode.
- **Audio Width** – set the audio sample rate to 20 or 24 bits in **Mux** mode. In **Demux** mode, the display will indicate **Wrong Mode**.

If the 5610, 5611 or 5612 option is installed on the module, it will be reported in the **Option** status window.

The image shows a software interface with a menu bar at the top containing 'Vid Input', 'Audio I/O', 'Mode', 'Config', 'Aud Mix', and 'Memory'. The 'Config' menu is active, displaying three dropdown menus: 'Mux Position' set to 'Replace', 'Group Select' set to 'Group 1', and 'Audio Width' set to '24 Bits'. Below these is an 'Option' field containing the text '5610 4 In'.

Use the **Aud Mix** menu below to control the audio mixing and shuffling of the module. Each output bus assignment will be indicated by a green box.

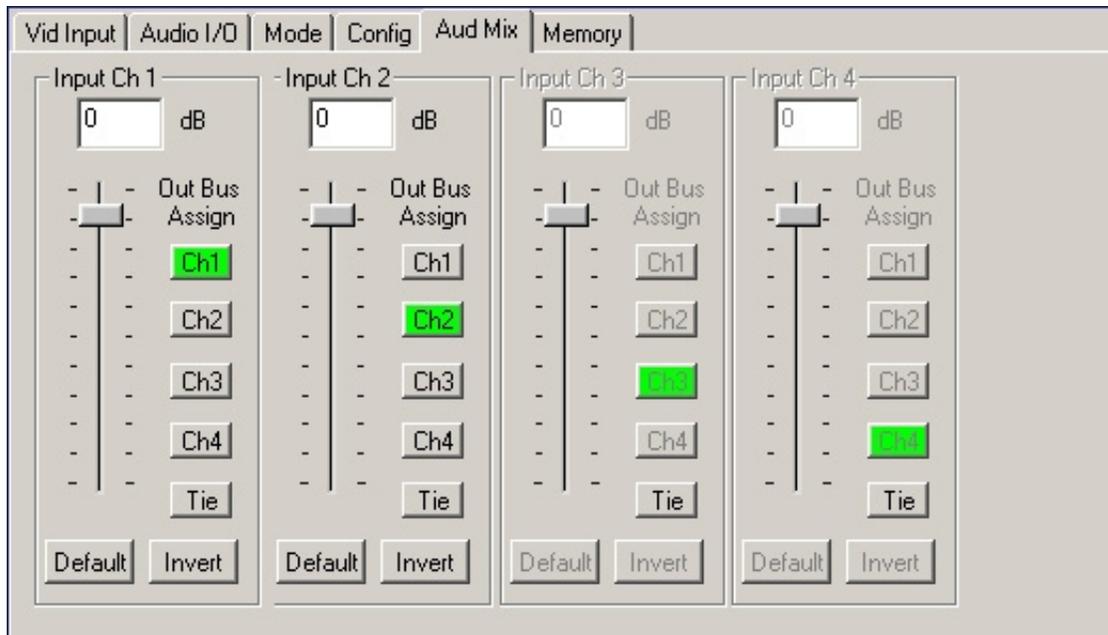
- **Input Ch 1** – assign Input Channel 1 to the desired output bus or tie to Channel 2 and set the input level using the slider control or by entering a number (-70 to +6 dB) in the window and pressing the **Enter** key on your PC.
- **Input Ch 2** – assign Input Channel 2 to the desired output bus or tie to Channel 1 and set the input level using the slider control or by entering a number (-70 to +6 dB) in the window and pressing the **Enter** key on your PC.
- **Input Ch 3** – assign Input Channel 3 to the desired output bus or tie to Channel 4 and set the input level using the slider control or by entering a number (-70 to +6 dB) in the window and pressing the **Enter** key on your PC.
- **Input Ch 4** – assign Input Channel 4 to the desired output bus or tie to Channel 3 and set the input level using the slider control or by entering a number (-70 to +6 dB) in the window and pressing the **Enter** key on your PC.

Selecting the **Tie** button in Input Ch 1 or Input Ch 2 will tie the two controls together. Selecting the **Tie** button in Input Ch 3 or Input Ch 4 will tie the controls for these channels together.

Select the **Default** button to return to the default value.

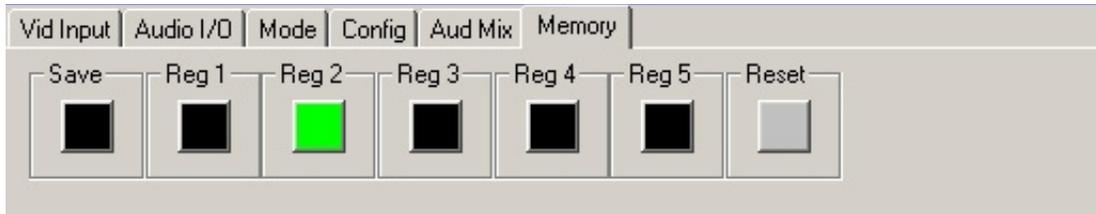
Select the **Invert** button to invert the audio phase of the input channel.

**Note:** When fader controls are grayed out, the corresponding audio channel status has been set to Data Mode in the **Mode** menu. The parameters are forced to 0 dB.



The **Memory** menu allows you to save overall module setups to five memory registers as follows:

- Select **Save** (it will light red), then select one of the five memory registers **Reg 1 – 5**. The selected box will turn green. The entire module setup is now saved in the selected register.
- To recall a register, select the register box. If there is information saved, the box will turn green. The saved setup will now be loaded to the module. Up to five different module setups can be saved and recalled using the individual registers.



## Avenue Touch Screen Remote Configuration

Avenue Touch Screen remote control menus for this module are illustrated and explained below. Refer to the 5600 Parameter Table earlier in this section for a summary of available parameters that can be set remotely through the menus illustrated. For more information on using Avenue Touch Screen, refer to the Avenue Touch Screen data pack that came with the option.

Parameter fields that are grayed out can indicate one of the following conditions:

- An option is not installed.
- The function is not active.
- The module is locked.
- The User Level set with Avenue PC is not accessible from the current User Level.

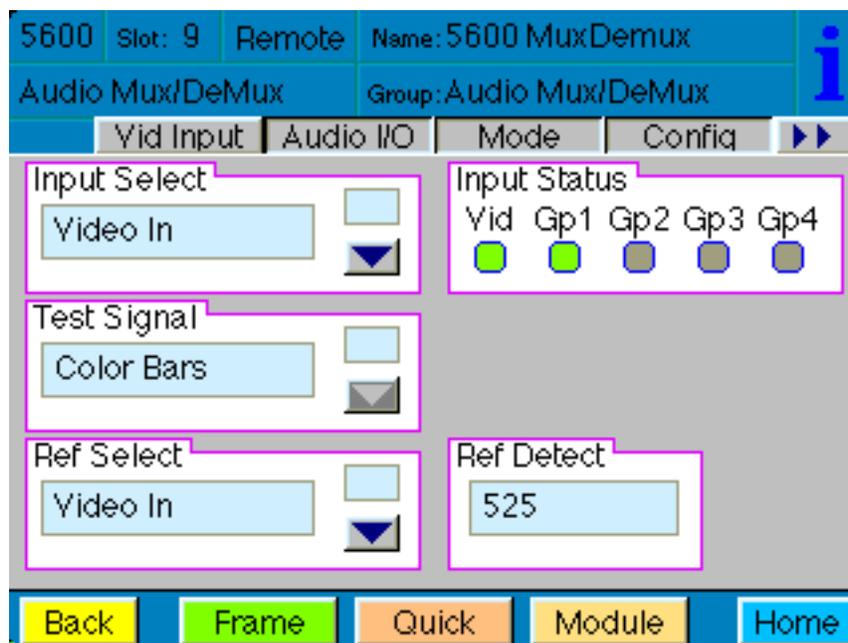
### 5600 Avenue Touch Screen Menus

The **Vid Input** menu below allows you to set the following parameters:

- **Input Select** – set the video input to the module as either the serial video input or the internal test signal generator (TSG)
- **Test Signal** – select the test signal generator to **Color Bars** or **Black**.
- **Ref Select** – select the desired video reference to the module from **Video In**, **External**, or **Master**. **Video In** is used as a reference for all multiplexing modes except when it is desired to embed audio on a signal generated internally in the 5600 module.

The **Input Status** indicators show video and audio input status. The **Video** status box will be green to indicate presence of input video. The **Audio Group 1–4** boxes indicate the audio groups present in the serial input stream and also indicate by the color of the box, whether the signal width is 20-bit audio (blue) or 24-bit audio (green).

**Ref Detect** indicates the reference (**525**, **625** or **None**) detected by the module.

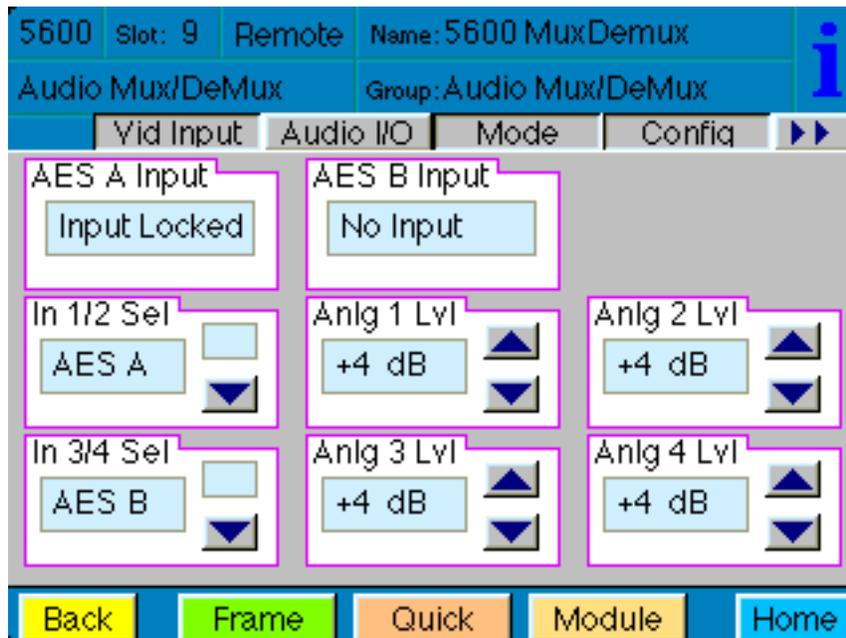


The **Audio I/O** menu shown below shows the status of the **AES A** and **AES B** audio inputs and allows you to set the source of the audio to be embedded and the levels of the input and output analog audio from the 5610, 5611 or 5612 options.

- **In 1/2 Sel** – selects the input audio source for embedding into the video stream from either the **AES A** (input BNC), **Anlg 1/2** or **Anlg 3/4** (5610 or 5612 Analog Audio option inputs).
- **In 3/4 Sel** – selects the input audio source for embedding into the video stream from either the **AES B** (input BNC), **Anlg 1/2** or **Anlg 3/4** (5610 or 5612 Analog Audio option inputs).
- **Anlg 1 Lvl** – set the audio level (-10 dB, -6dB, -4 dB, 0 dB, +4 dB or +8 dB) for analog audio input 1 (5610 or 5612 option) or analog output 1 (5611 option).
- **Anlg 2 Lvl** – set the audio level for analog audio input 2 (5610 or 5612 option) or analog output 2 (5611 option).
- **Anlg 3 Lvl** – set the audio level for the analog audio input 3 (5610 option) or analog output 3 (5611 option) or analog output 1 (5612 option).
- **Anlg 4 Lvl** – set the audio level for the analog audio input 4 (5610 option) or analog output 4 (5611 option) or analog output 2 (5612 option).

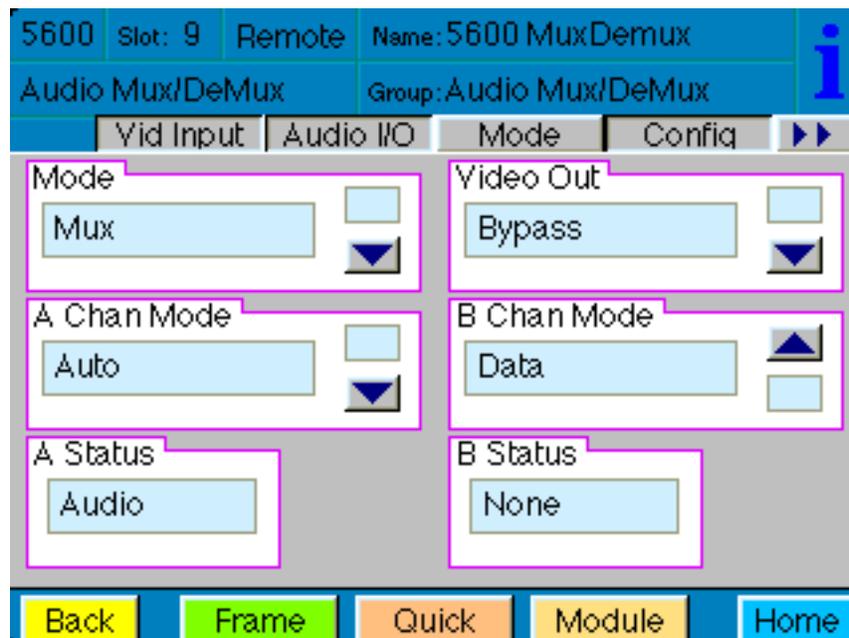
Setting analog levels: For example, if the nominal level of your incoming analog audio to this channel is +4 dB, set the Anlg 1 Lvl to +4 dB.

AES A and AES B input status is reported as **Input Locked** or **No Input**.



The **Mode** menu allows you to set the following parameters:

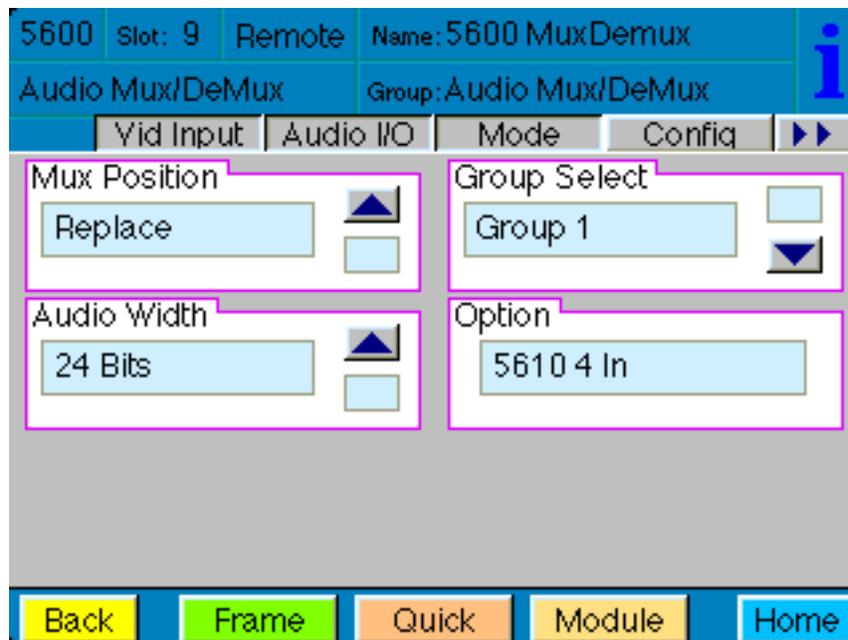
- **Mode** – set the operating mode of the module to **Mux** or **Demux**.
- **Video Out** – set the video output for either **Mux Out** (passes video with embedded audio) or **Bypass** (passes video input stream) in Multiplexer mode or **Loop Thru** or **Aud Delete** (delete selected audio group) in Demultiplexer mode.
- **A Chan Mode** – select the A channel status for the embedded audio from either **Audio**, **Auto**, or **Data** mode.
- **B Chan Mode** – select the B channel status for the embedded audio from either **Audio**, **Auto**, or **Data** mode..
- **A Status** – status of the A Channel is reported as **Audio**, **Data**, or **None**.
- **B Status** – status of the A Channel is reported as **Audio**, **Data**, or **None**.



Use the **Config** menu below to set the following module parameters:

- **Mux Position** – in **Mux** mode, select the position (from **Group Select 1-4**) to embed the new audio group.  
Selecting **Cascade** will embed new audio in the selected audio group even if audio already exists in this position. First check the incoming embedded audio status on the **Vid Input** menu to see if embedded audio already exists in the selected group. Two audio groups can be identified as the same group by the control system causing errors when the signal is demultiplexed.  
Use the **Cascade** position only when you know the embedded audio status of the incoming stream or you are connecting 5600 modules in series.  
Selecting **Replace** will delete existing incoming audio completely and replace it with new audio as the group selected.  
In **Demux** mode, the display will indicate **Wrong Mode**.
- **Group Select** – select the audio group (1-4) in which you want to embed new audio or the group to be disembedded in **Demux** mode.
- **Audio Width** – set the audio sample rate to 20 or 24 bits in **Mux** mode. In **Demux** mode, the display will indicate **Wrong Mode**.

If the 5610, 5611 or 5612 option is installed on the module, it will be reported in the **Option** status window.



Use the **Aud Mix** menu below to control the audio mixing and shuffling of the module. Each output bus assignment will be indicated by a green box. For numerical choices, use the slider control or touch the number field to bring up the pop-up keypad. Enter a number and press the **Enter** key.

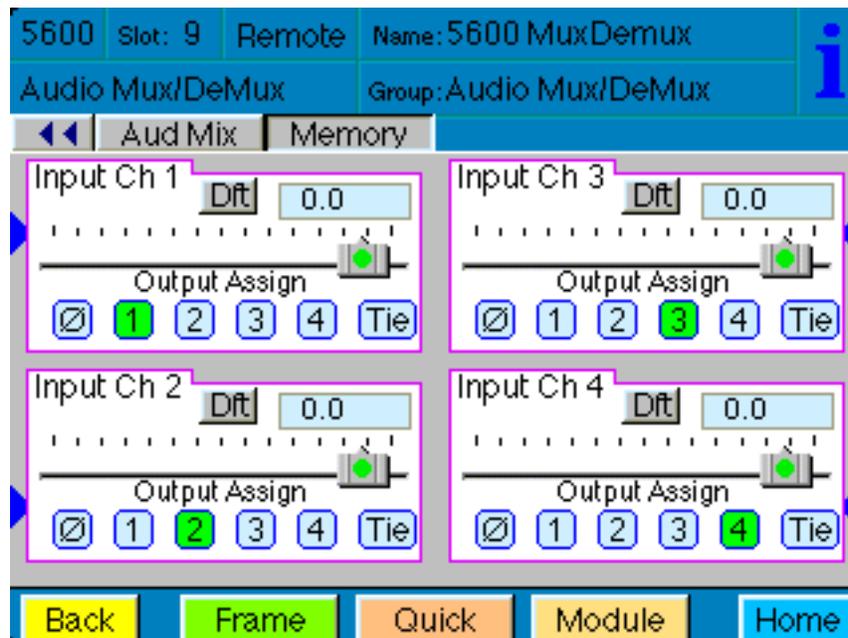
- **Input Ch 1** – assign Input Channel 1 to the desired output bus or tie to Channel 2 and set the input level using the slider control or by entering a number (-70 to +6 dB) in the pop-up keypad.
- **Input Ch 2** – assign Input Channel 2 to the desired output bus or tie to Channel 1 and set the input level using the slider control or by entering a number (-70 to +6 dB) in the pop-up keypad.
- **Input Ch 3** – assign Input Channel 3 to the desired output bus or tie to Channel 4 and set the input level using the slider control or by entering a number (-70 to +6 dB) in the pop-up keypad.
- **Input Ch 4** – assign Input Channel 4 to the desired output bus or tie to Channel 3 and set the input level using the slider control or by entering a number (-70 to +6 dB) in the pop-up keypad.

Selecting the **Tie** button in Input Ch 1 or Input Ch 2 will tie the two controls together. Selecting the **Tie** button in Input Ch 3 or Input Ch 4 will tie the controls for these channels together.

Select the **Default** button to return to the default value.

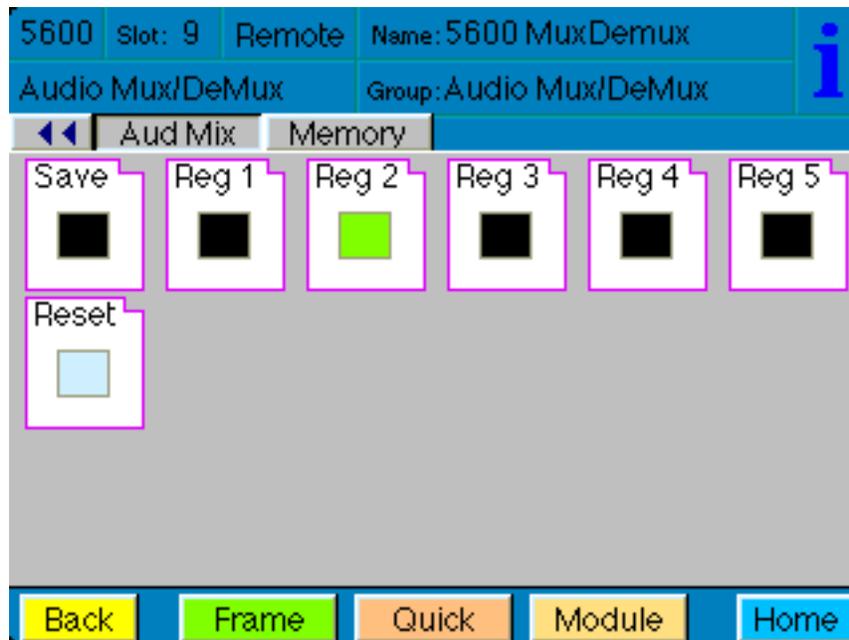
Select the **Invert** button to invert the audio phase of the input channel.

**Note:** When fader controls are grayed out, the corresponding audio channel status has been set to Data Mode in the **Mode** menu. The parameters are forced to 0 dB.



The **Memory** menu allows you to save overall module setups to five memory registers as follows:

- Select **Save** (it will light red), then select one of the five memory registers **Reg 1 – 5**. The selected box will turn green. The entire module setup is now saved in the selected register.
- To recall a register, select the register box. If there is information saved, the box will turn green. The saved setup will now be loaded to the module. Up to five different module setups can be saved and recalled using the individual registers.



## TROUBLESHOOTING

To aid in troubleshooting, the LED indicators can be easily monitored from the front panel of this module to show module status.

If using the **Remote** mode, status items can also be monitored using the Avenue Touch Screen Control Panel or PC Application:

Refer to the overall troubleshooting tips given below for the module:

### **No status lights are lit on front panel:**

- Check that frame power is present (green LED{s} on frame power supplies).
- Check that module is firmly seated in frame. Try removing it and plugging it in again.

### **Can't control module:**

- Check status of CPU **Run** green LED. Should be blinking slowly and in unison with other modules if System module is present. If not, try removing it and plugging it in again.
- System module may not be working properly if installed.

### **Module controls are grayed out:**

- Module is locked or access to module controls is restricted by User Level.
- Local/Remote switch on module is in the **Local** position.

### **No signal out of module:**

- Check status of **Vid In** and **AES A** and **AES B** green LED. Should be lit. If not, check the input signal for presence and quality.
- Check correct mode (Mux or Demux) assignment has been made.
- Check cabling to input of module.

You may also refer to the technical support section of the Ensemble web site for the latest information on your equipment at the URL below:

<http://www.ensembledesigns.com/support>

## SOFTWARE UPDATING

Software upgrades for each module can be downloaded remotely if the optional System Control module is installed. These can be downloaded onto your PC and then Avenue PC will distribute the update to the individual module. (Refer to the Avenue PC documentation for more information) Periodically updates will be posted on our web site. If you do not have the required System Control Module and Avenue PC, modules can be sent back to the factory for software upgrades.

## **WARRANTY AND FACTORY SERVICE**

### **Warranty**

This Module is covered by a five year limited warranty, as stated in the main Preface of this manual. If you require service (under warranty or not), please contact Ensemble Designs and ask for customer service before you return the unit. This will allow the service technician to provide any other suggestions for identifying the problem and recommend possible solutions.

### **Factory Service**

If you return equipment for repair, please get a Return Material Authorization Number (RMA) from the factory first.

Ship the product and a written description of the problem to:

Ensemble Designs, Inc.

Attention: Customer Service RMA #####

870 Gold Flat Rd.

Nevada City, CA. 95959 USA

(530) 478-1830

Fax: (530) 478-1832

[service@ensembledesigns.com](mailto:service@ensembledesigns.com)

<http://www.ensembledesigns.com>

Be sure to put your RMA number on the outside of the box.

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## SPECIFICATIONS

### 5600 AMD

#### Video Input Signal

Number	One
Signal Type:	Serial Digital (SMPTE 259M)
Impedance:	75 $\Omega$ BNC
Return Loss:	>15 dB
Maximum Cable Length:	300 meters

#### Audio Input Signal

Number:	2, AES
Channels:	4 total
Signal Type:	AES Coaxial, 20 or 24 bit
Impedance:	75 $\Omega$

#### Video Output Signal

Number:	2
Signal Type:	Serial Digital (SMPTE 259M)
Impedance:	75 $\Omega$ BNC
Return Loss:	>15 dB
Output DC:	None (ac coupled)

#### Audio Output Signal

Number	2, AES A and AES B
Channels:	4 total
Signal Type:	AES 24 bit
Impedance:	75 $\Omega$

#### General Specifications

Power Consumption:	< 5.0 watts
Fusing:	1.5 PTC resettable fuse
Temperature Range:	0 to 40 degrees C ambient (all specs met)
Relative Humidity:	0 to 95% noncondensing
Altitude:	0 to 10,000 ft

**Model 5610 Analog Input Option**

Analog Inputs: 4, Balanced Pair  
Processing: 24 bits  
Analog Input Z: >15k  $\Omega$  balanced, transformerless  
Max Output Level: +24 dBu (bridging load), +22 dBu (600  $\Omega$  load)

**Model 5611 Analog Output Option**

Analog Outputs: 4, Balanced Pair  
Processing: 24 bits  
Analog Input Z: 30k  $\Omega$  balanced, transformerless  
Max Output Level: +24 dBu (bridging load), +22 dBu (600  $\Omega$  load)

**Model 5612 Analog Input and Output Option**

Analog Inputs: 2, Balanced Pair  
Processing: 24 bits  
Analog Input Z: >15k  $\Omega$  balanced, transformerless  
CMRR: >60 dB, 20Hz – 10kHz

Analog Outputs: 2, Balanced Pair  
Processing: 24 bits  
Analog Input Z: 30k  $\Omega$  balanced, transformerless  
Max Output Level: +24 dBu (bridging load), +22 dBu (600  $\Omega$  load)

**General Specification Common to All Analog Options**

Analog Reference  
Level: -10 dBu to +8 dBu for -20 dBFS output  
Frequency Response: +0/-0.1 dB, 20 Hz – 20k Hz  
Crosstalk: <84 dB, 20 Hz – 20k Hz  
Dynamic Range: >=95 dB

Due to ongoing product development, all specifications subject to change.