AVENUE

Avenue™ signal integration system

Model 5250 Five Channel Digital to Analog Video Converter Data Pack

ENSEMBLE DESIGNS

Revision 3.1 SW v2.0.1

This data pack provides detailed installation, configuration and operation information for the **5250 Five Channel Digital to Analog Video Converter** 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

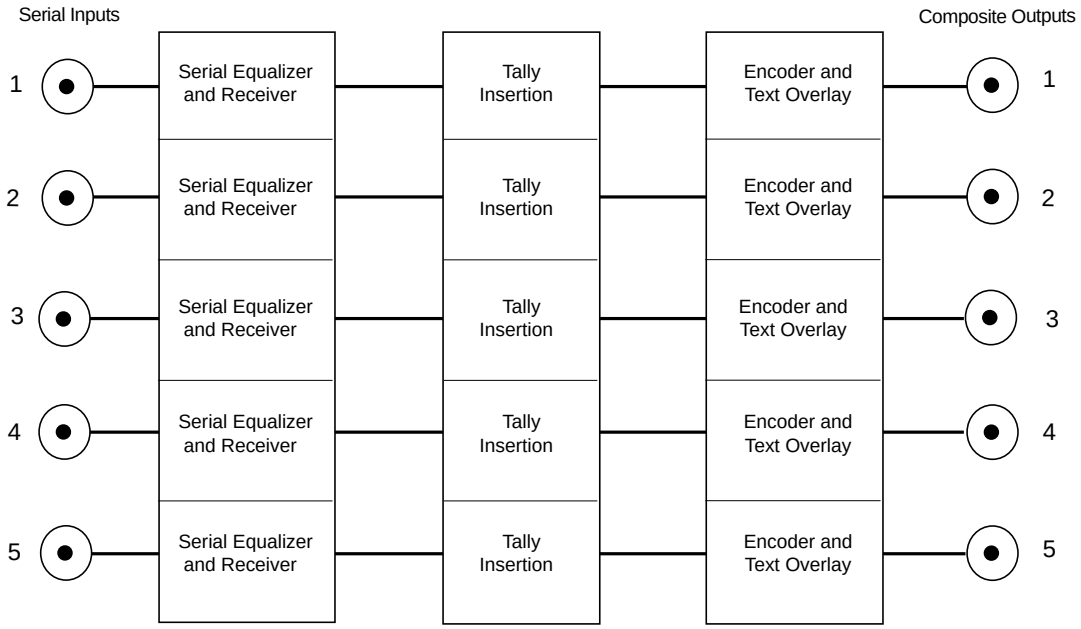
MODULE OVERVIEW

The 5250 provides five simultaneous and independent channels of conversion from serial digital video to analog composite video for monitoring functions in any application where several channels of conversion are required. Each channel has a programmable text overlay of On Screen Display (OSD) for source identification. In addition, each channel has two GPI tally inputs with control color-coded squares positioned over the video. Both On-air and Preset tally status can be indicated. Both color and position of tally indicators are programmable via the Avenue remote options, the Avenue PC Application and the Avenue Touch Screen Front Panel.

Each input signal channel passes through a serial equalizer and receiver circuit where signal presence is detected as shown in the block diagram below. The parallel output passes through the tally insertion circuitry where the tally square is drawn. This signal is then encoded automatically to NTSC or PAL composite based on the line rate detected and the video overlay chosen for the output is processed. The composite video is then buffered and fed to the output BNCs.

Power is derived from the ± 12 volt frame power. It is regulated to the required +5 volts for the digital circuitry. 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.

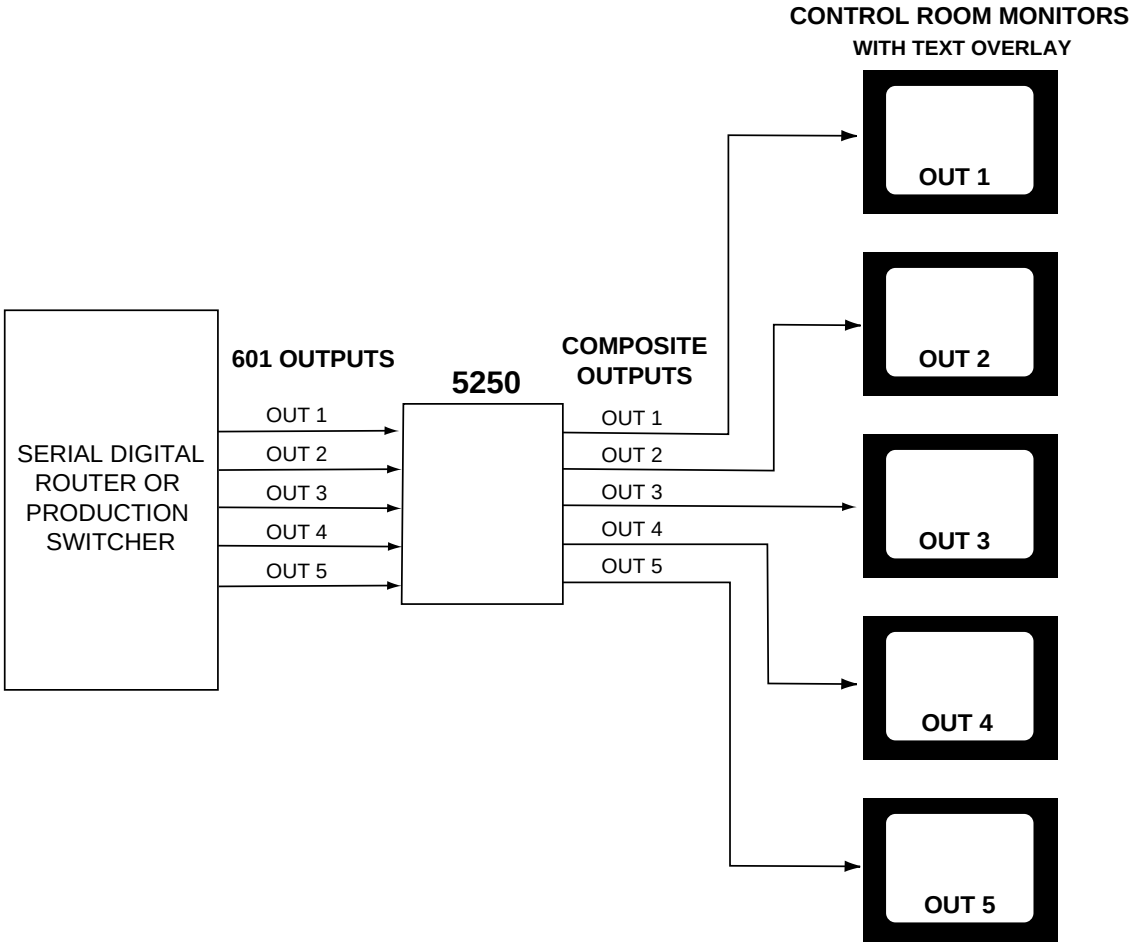
The on-board CPU can monitor and report module ID information (slot location, software version and board revision), and power status (+5 volts) to the optional frame 5030 Control module. This information can be accessed by the user or set to register an alarm if desired using the remote control options available.



5250 Five Channel Video DAC Functional Block Diagram

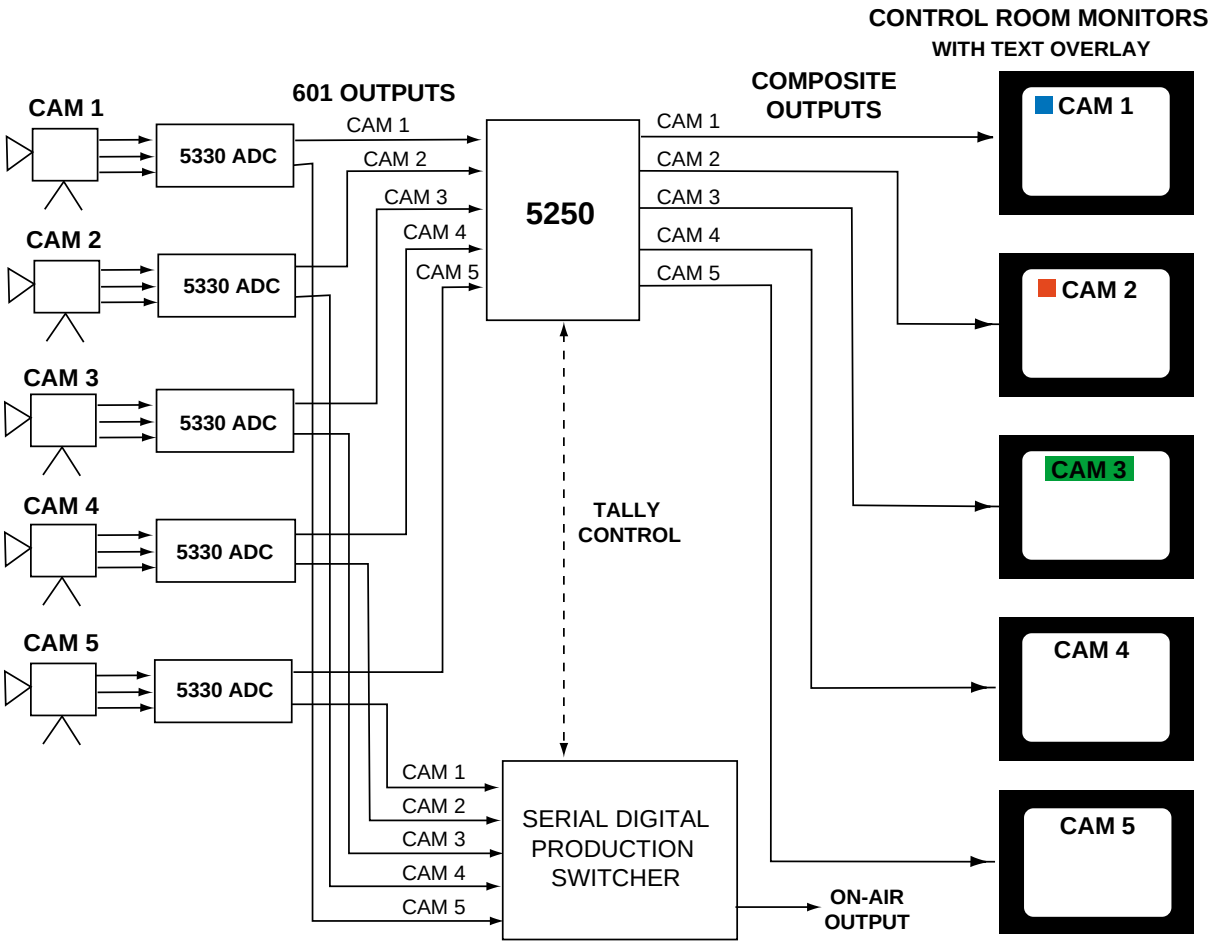
APPLICATIONS

The application below illustrates the 5250 Video DAC used to convert five serial digital outputs from a digital production switcher, router or other device, to analog composite for feeding five analog control room monitors. Each individual output can be labeled with a source ID as text overlaid on top of the output video.



5250 Converting Five Channels of Digital Video to Feed Control Room Monitors

An example of an application using the 5250 for both monitoring and tally indication is shown below. In this case, the analog component outputs of five cameras are fed to an Avenue 5330 ADC where they are converted to serial digital video then fed to the inputs of a digital production switcher. The serial digital output from the 5330 is also fed to the 5250 where it is converted to analog composite for feeding the monitors. Each camera output is identified on the corresponding monitor with the on-screen display programmed on the 5250. Tally sensing outputs from the production switcher are then connected to the 5250 via the 15-pin control connector and can be programmed to shown tally status of each camera as desired.



Camera Input to Production Switcher Monitor and Tally Status With 5250

INSTALLATION

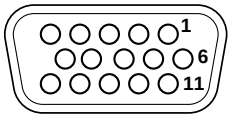
Plug the 5250 module into any one of the slots in the frame and install the plastic overlay provided onto the corresponding group of rear BNC connectors associated with the module location. Note that the plastic overlay has an optional adhesive backing for securing it to the frame. Use of the adhesive 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 below 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

5250 Tally Wiring to Frame
15-pin D Male Connector

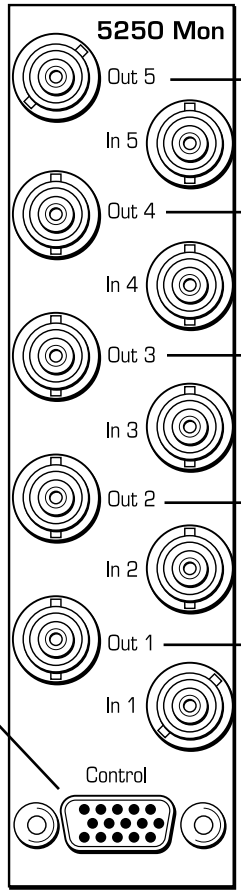


Wiring Side-Male Plug

Pin #	Tally #
DB-1	Tally 1A
DB-2	Tally 1B
DB-3	Ground
DB-4	Tally 2A
DB-5	Tally 2B
DB-6	Ground
DB-7	Tally 3A
DB-8	Tally 3B
DB-9	Tally 4A
DB-10	Tally 4B
DB-11	Tally 5A
DB-12	Tally 5B
DB-13	Ground
DB-14	Not Used
DB-15	Not Used

The **CONTROL** 15-pin D connector pinout for tally connections is shown above.

Tally can be set to activate according to sense of control device input to connector. If control device provides contact to ground, select **GPI Low** in Tally A/B menus. For devices using high condition, select **GPI High**.



Connect a serial digital input to the **In 5** BNC. Connect the **Out 5** BNC to an analog monitor.

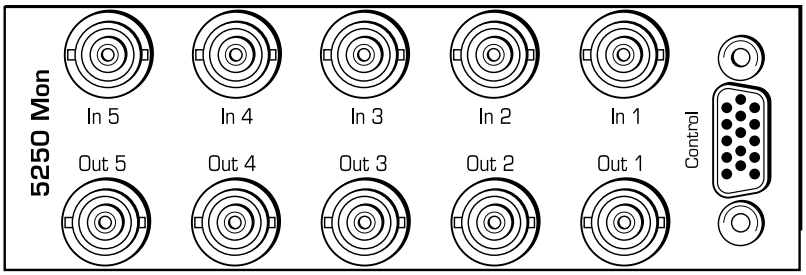
Connect a serial digital input to the **In 4** BNC. Connect the **Out 4** BNC to an analog monitor.

Connect a serial digital input to the **In 3** BNC. Connect the **Out 3** BNC to an analog monitor.

Connect a serial digital input to the **In 2** BNC. Connect the **Out 2** BNC to an analog monitor.

Connect a serial digital input to the **In 1** BNC. Connect the **Out 1** BNC to an analog monitor.

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 **5250 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 **5250 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.

5250 Parameter Table (Con't)

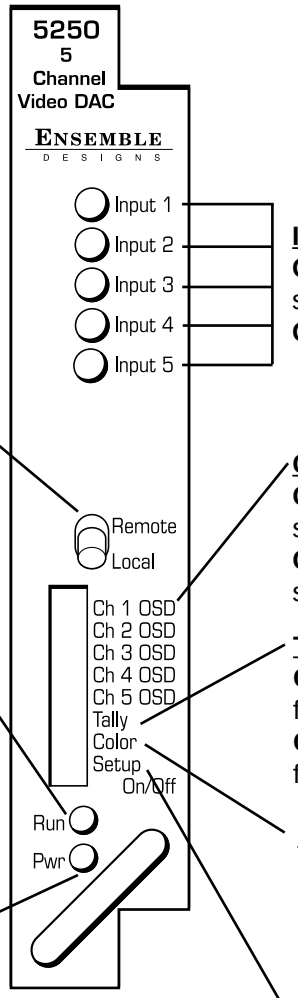
CONTROL	LOCAL	REMOTE	DEFAULT/ FACTORY	USER LEVEL
Tally A Ch 1-5	All channels	Ch 1 Ch 2 Ch 3 Ch 4 Ch 5	Ch 1	Admin
A Tally Position	L Upper	L Upper R Upper L Lower R Lower Center Shadow Text	L Upper	Admin
A Tally Color	Red	White Yellow Cyan Green Magenta Red Blue Black	Red	Admin
A Tally Control	Switch 6: Tally (for all channels: Tally A and B On (GPI low condition) Tally A and B Off	Always Off GPI High GPI Low Always On	GPI Low	Admin
Tally B Ch 1-5	All channels	Ch 1 Ch 2 Ch 3 Ch 4 Ch 5	Ch 1	Admin
B Tally Position	L Upper	L Upper R Upper L Lower R Lower Center Shadow Text	L Upper	Admin
B Tally Color	Red	White Yellow Cyan Green Magenta Red Blue Black	Red	Admin
B Tally Control	For all channels: Switch 6: Tally Tally A and B On (GPI low condition) Tally A and B Off	Always Off GPI High GPI Low Always On	GPI Low	Admin

5250 Parameter Table (Con't)

CONTROL	LOCAL	REMOTE	DEFAULT/ FACTORY	USER LEVEL
Video Mode	For all channels: Switch 7: Color On (full color) Off (monochrome)	For each channel: Color Monochrome	Color	Admin
Setup	For all channels: Switch 8: Setup On (Setup) Off (No Setup)	For each channel: On Off	On	Admin
Text Overlay	Switch 1: Ch1 OSD On/Off Switch 2: Ch 2 OSD On/Off Switch 3: Ch 3 OSD On/Off Switch 4: Ch 4 OSD On/Off Switch 5: Ch 5 OSD On/Off	For each channel: On Off	On	Admin
Text Position	For all channels: L Lower	For each channel: L Upper R Upper L Lower R Lower Center	L Lower	Admin
Text Color	For all channels: White	For each channel: White Cyan Green Magenta	White	Admin
Language	For all channels: English	For each channel: English Katakana (Japanese)	English	Admin
Text	For all channels: Input 1 – 5	For each channel: Type characters	Input 1 – 5	Admin

Front Panel Controls and Indicators

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



Input 1-5 green LEDs:
ON indicates serial digital video signal is present on input.
OFF indicates no signal on input.

Remote/Local switch:
Set to the mode you will be using.

Ch 1-Ch 5 OSD switches:
On (Left) enables the on-screen display for the channel.
Off (right) disables the on-screen display for the channel.

Run green LED:
OFF:
A power fault or halted CPU
ON:
A halted CPU
FAST BLINK:
CPU Run error
SLOW BLINK:
System OK. (If SPI control is active from the main frame System Control Module, all **Run** indicators will be synchronized.).

Tally switch**:**
On (left) enables tally function on all channels.
Off (right) disables tally function on all channels.

Color switch:
On (left) enables full color output for all channels.
Off (right) sets output to monochrome for all channels.

Pwr green LED:
Indicates the presence (**ON**) or absence (**OFF**) of power (+5V).

Setup switch:
On (left) enables output setup level for all channels.
Off (right) disables output setup level for all channels.

Avenue PC Remote Configuration

The Avenue PC remote control menus for this module are illustrated and explained below. Refer to the **5250 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:

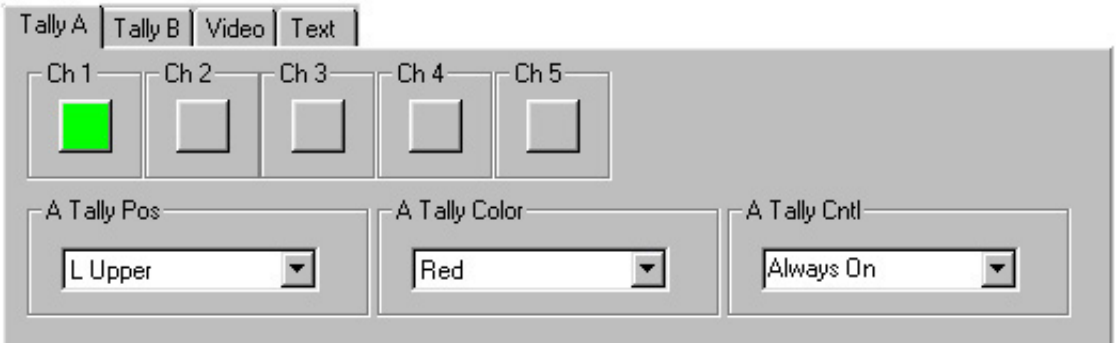
- An option is not installed.
- The function is not active.
- The module is locked.
- The User Level set with Avenue PC is not accessible from the current User Level.

5250 Avenue PC Menus

The 5250 Video DAC has five separate channels of video whose **Tally A/B**, **Video** and **Text** parameters can be set independently for each channel. You will need to select the parameters for all five channels in each menu shown in this section. Select the channel box (Ch 1 through Ch 5) in each of the menus and set the parameters for each channel as desired.

The **Tally A** menu below allows you to set the following parameters for Tally A in each of the individual five channels. Click on the box below each channel to select it.

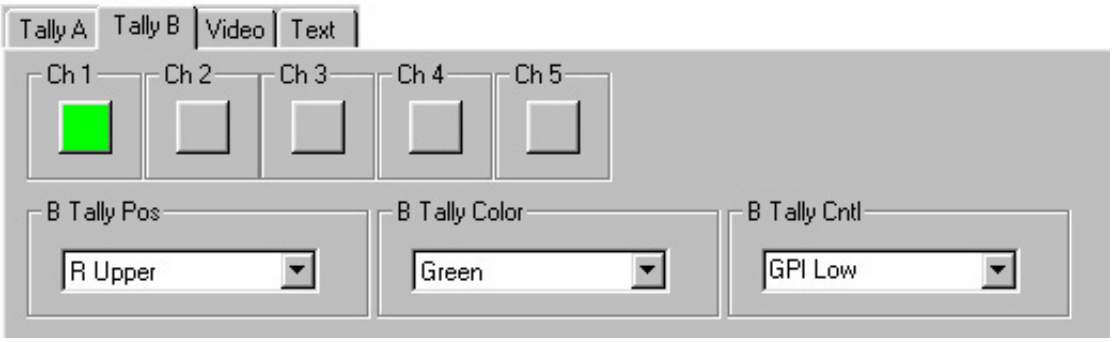
- **A Tally Pos** - set the position of **Tally A** square. The tally may be positioned in any corner of the screen or centered in the lower third. In **Shadow Text** mode, the tally rectangle will exactly track the size and position of the Source ID text overlay.
- **A Tally Color** - select the color of the tally box.
- **A Tally Ctrl** - select when the tally will be enabled. The appearance of the tally can be set to **Always On** or **Always Off** or it may set to follow the sense of the control device input to the 15-pin Control connector. For devices providing contact closure to ground, select **GPI Low** to activate the tally. For devices providing a high condition, select **GPI High** to activate the tally.



The **Tally B** menu below allows you to set the following parameters for Tally B in each of the individual five channels. Click on the box below each channel to select it.

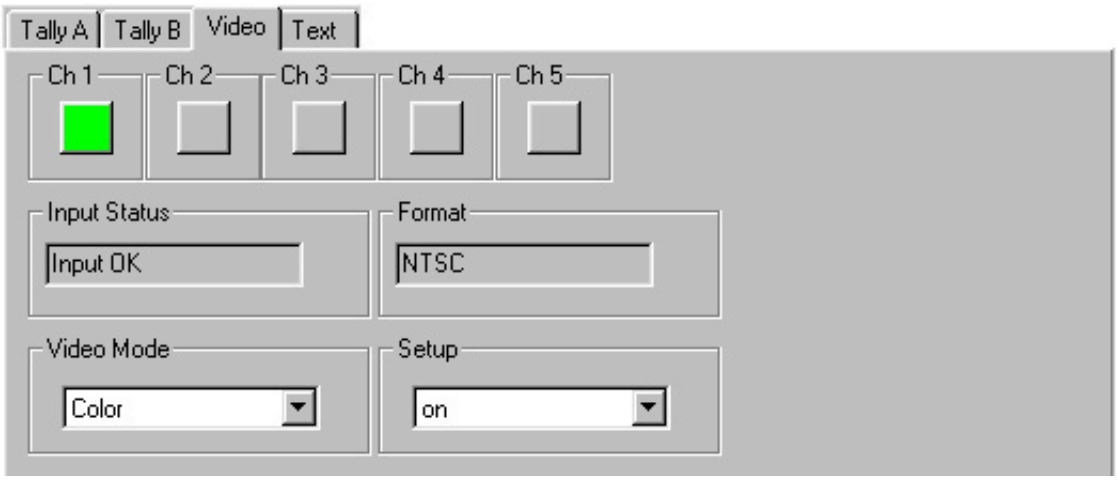
- **B Tally Pos** - set the position of **Tally B** square. The tally may be positioned in any corner of the screen or centered in the lower third. In **Shadow Text** mode, the tally rectangle will exactly track the size and position of the Source ID text overlay.
- **B Tally Color** - select the color of the tally box.
- **B Tally Ctrl** - select when the tally will be enabled. The appearance of the tally can be set to **Always On** or **Always Off** or it may set to follow the sense of the control device input to the 15-pin Control connector. For devices providing contact closure to ground, select **GPI Low** to activate the tally. For devices providing a high condition, select **GPI High** to activate the tally.

  Note: A convenient way to show tally status is to set both Tally A and Tally B to **Shadow Text** mode in the same tally position with different tally colors. Set Tally A to follow the sense of your input GPI device and Tally B to **Always On**. Now, when Tally A is activated, the tally indicator will change colors to indicate Tally A turning on and off.



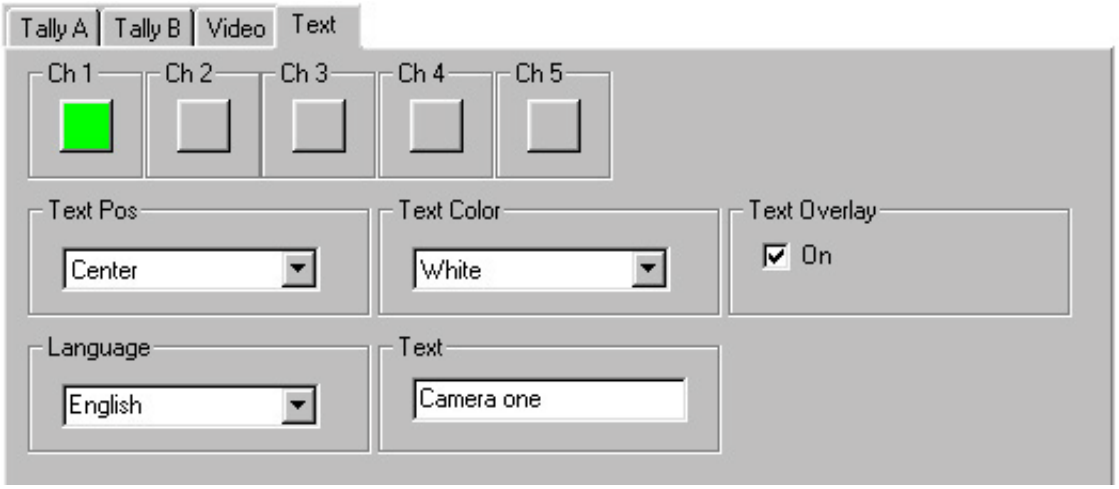
The **Video** menu below allows you to set the following parameters for the video output on each of the individual five channels. Click on the box below each channel to select it.

- **Video Mode** - set the output mode to full color or monochrome (black and white) depending on the type of video monitor connected to the output.
- **Setup** - set the setup level of the output on or off.



The **Text** menu below allows you to set the following parameters for the text in the on-screen display for each of the individual five channels. Click on the box below each channel to select it.

- **Text Pos** - set the position of the text on the output monitor.
- **Text Color** - select the color of the text characters.
- **Language** - select whether the text appears in English or Katakana (Japanese).
- **Text** - Type the text you wish to appear in the text overlay on-screen display. Note for Kana, type the text in English and the translation will be done internally by the module.
- **Text Overlay** - Check the box to enable the text overlay on the output monitor.



Avenue Touch Screen Remote Configuration

Avenue Touch Screen remote control menus for this module are illustrated and explained below. Refer to the **5250 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:

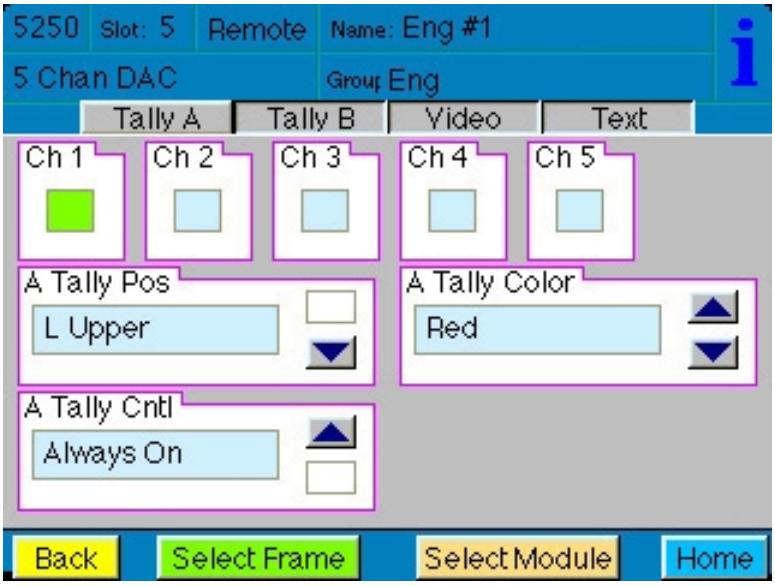
- An option is not installed.
- The function is not active.
- The module is locked.
- The User Level set with Avenue PC is not accessible from the current User Level.

5250 Avenue Touch Screen Menus

The 5250 Video DAC has five separate channels of video whose **Tally A/B**, **Video** and **Text** parameters can be set independently for each channel. You will need to select the parameters for all five channels in each menu shown in this section. Select the channel box (Ch 1 through Ch 5) in each of the menus and set the parameters for each channel as desired.

The **Tally A** menu below allows you to set the following parameters for Tally A in each of the individual five channels. Touch the box below each channel to select it.

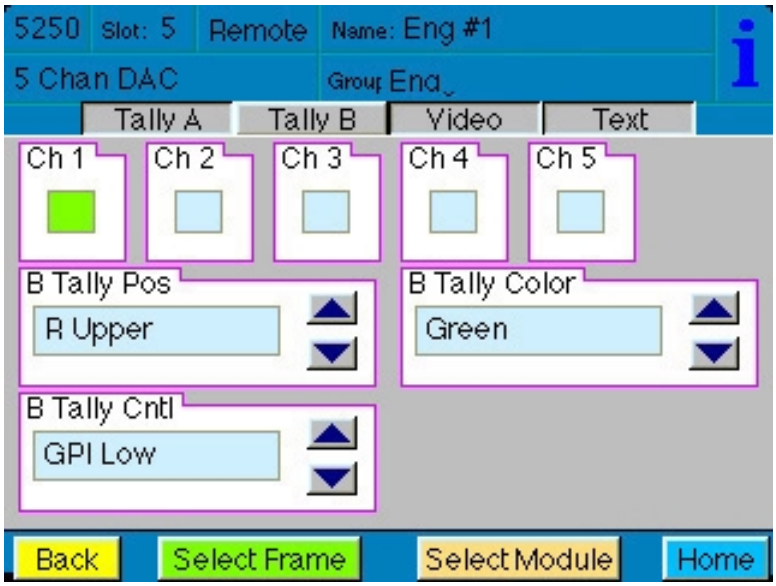
- **A Tally Pos** - set the position of **Tally A** square. The tally may be positioned in any corner of the screen or centered in the lower third. In **Shadow Text** mode, the tally rectangle will exactly track the size and position of the Source ID text overlay.
- **A Tally Color** - select the color of the tally box.
- **A Tally Ctrl** - select when the tally will be enabled. The appearance of the tally can be set to **Always On** or **Always Off** or it may set to follow the sense of the control device input to the 15-pin Control connector. For devices providing contact closure to ground, select **GPI Low** to activate the tally. For devices providing a high condition, select **GPI High** to activate the tally.



The **Tally B** menu below allows you to set the following parameters for Tally B in each of the individual five channels. Touch the box below each channel to select it.

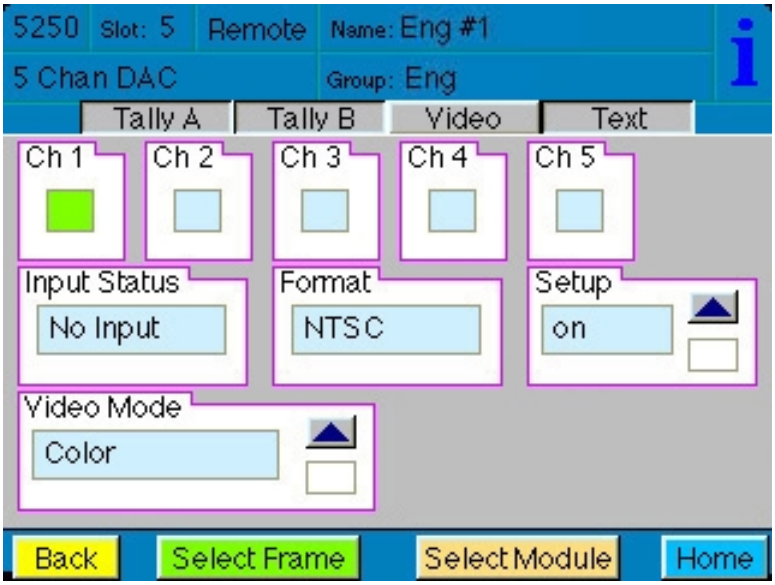
- **B Tally Pos** - set the position of **Tally B** square. The tally may be positioned in any corner of the screen or centered in the lower third. In **Shadow Text** mode, the tally rectangle will exactly track the size and position of the Source ID text overlay.
- **B Tally Color** - select the color of the tally box.
- **B Tally Ctrl** - select when the tally will be enabled. The appearance of the tally can be set to **Always On** or **Always Off** or it may set to follow the sense of the control device input to the 15-pin Control connector. For devices providing contact closure to ground, select **GPI Low** to activate the tally. For devices providing a high condition, select **GPI High** to activate the tally.

  Note: A convenient way to show tally status is to set both Tally A and Tally B to **Shadow Text** mode in the same tally position with different tally colors. Set Tally A to follow the sense of your input GPI device and Tally B to **Always On**. Now, when Tally A is activated, the tally indicator will change colors to indicate Tally A turning on and off.



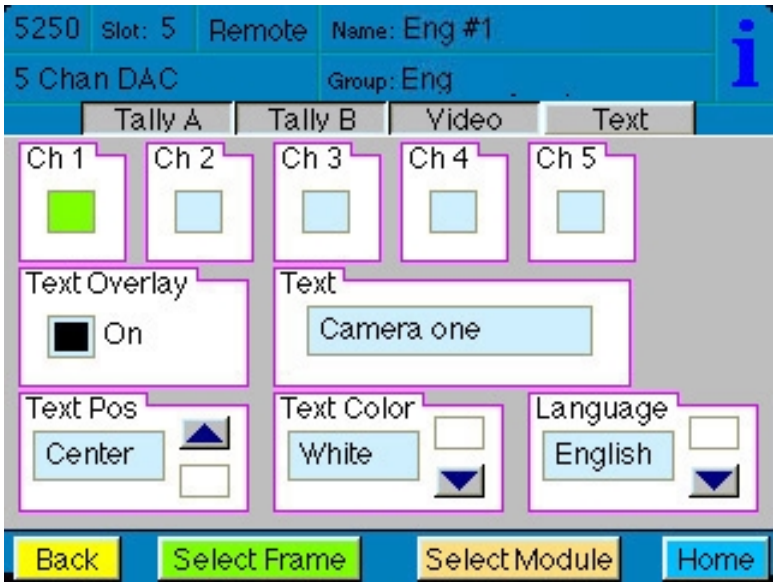
The **Video** menu below allows you to set the following parameters for the video output on each of the individual five channels. Click on the box below each channel to select it.

- **Video Mode** - set the output mode to full color or monochrome (black and white) depending on the type of video monitor connected to the output.
- **Setup** - set the setup level of the output on or off.



The **Text** menu below allows you to set the following parameters for the text in the on-screen display for each of the individual five channels. Click on the box below each channel to select it.

- **Text Pos** - set the position of the text on the output monitor.
- **Text Color** - select the color of the text characters.
- **Language** - select whether the text appears in English or Katakana (Japanese).
- **Text** - touch the Text field in the menu to bring up the on-screen keyboard then type the source identification you wish to appear in the on-screen display. Note for Kana, type the text in English and the translation will be done by the module.
- **Text Overlay** - Touch the box to enable the text overlay on the output monitor.



TROUBLESHOOTING

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

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

- Input 1-5 OK
- Power status
- Slot ID, Software Version and Board Revision

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.

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.

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.

No signal out of module:

- Check status of Input 1-5 green LEDs. Should be lit. If not, check the input signal for presence and quality.
- Check cabling to inputs 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.html

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@endes.com

http://www.ensembledesigns.com

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

SPECIFICATIONS

5250 Five Channel Video DAC

Serial Input

Number	5
Signal Type	Serial Digital (SMPTE 259M)
Impedance:	75 ohm BNC
Return Loss:	> 15 dB
Max Cable Length	100 meters

Composite Output Signal

Number:	5
Signal Type:	NTSC, PAL
Impedance:	75 ohm
Return Loss:	>40 dB
Output DC:	None (AC coupled)
KFactors	< 1.5%
D to A Resolution	8 bit source, 10 bit processing, 2X oversampled

General Specifications

Power Consumption:	< 7.0 Watts
Temperature Range:	0 to 40 degrees C ambient (all specs met)
Relative Humidity:	0 to 95% noncondensing
Altitude:	0 to 10,000 ft

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