Imagine COMMUNICATIONS™

Installation and Operation Manual

Selenio 6800™ XHD6800+A

Aspect Ratio Converter

Edition A

175-000408-00

Delivering the Moment

imaginecommunications.com

Publication Information

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XHD6800+A

Aspect Ratio Converter

Installation and Operation Manual

Edition A
December 2007

Contents

Chapter 2: Installation

Chapter 3: Configuration and Operation

Chapter 4: Parameters, LEDs, and Alarms

Chapter 5: Specifications

Appendix A: Communication and Control Troubleshooting Tips

Index

Preface

Manual Information

Purpose

This manual details the features, installation, operation, maintenance, and specifications for the XHD6800+A Aspect Ratio Converter.

Audience

This manual is written for engineers, technicians, and operators responsible for installation, setup, maintenance, and/or operation of the XHD6800+A Aspect Ratio Converter.

Revision History

Table P-1. Revision History of Manual

Edition	Date	Comments
A	December 2007	Initial release

Writing Conventions

To enhance your understanding, the authors of this manual have adhered to the following text conventions:

Table P-2. Writing Conventions

Term or Convention	Description
Bold	Indicates dialog boxes, property sheets, fields, buttons, check boxes, list boxes, combo boxes, menus, submenus, windows, lists, and selection names
Italics	Indicates E-mail addresses, the names of books or publications, and the first instances of new terms and specialized words that need emphasis
CAPS	Indicates a specific key on the keyboard, such as ENTER, TAB, CTRL, ALT, or DELETE
Code	Indicates variables or command-line entries, such as a DOS entry or something you type into a field
>	Indicates the direction of navigation through a hierarchy of menus and windows
hyperlink	Indicates a jump to another location within the electronic document or elsewhere
Internet address	Indicates a jump to a Web site or URL
 Note	Indicates important information that helps to avoid and troubleshoot problems

Obtaining Documents

Product support documents can be viewed or downloaded from our Web site. Alternatively, contact your Customer Service representative to request a document.

Unpacking/Shipping Information

Unpacking a Product

This product was carefully inspected, tested, and calibrated before shipment to ensure years of stable and trouble-free service.

1. Check equipment for any visible damage that may have occurred during transit.
2. Confirm that you have received all items listed on the packing list.
3. Contact your dealer if any item on the packing list is missing.
4. Contact the carrier if any item is damaged.
5. Remove all packaging material from the product and its associated components before you install the unit.

Keep at least one set of original packaging, in the event that you need to return a product for servicing.

Product Servicing

Except for firmware upgrades, XHD6800**+** modules are not designed for field servicing. All hardware upgrades, modifications, or repairs require you to return the modules to the Customer Service center.

Returning a Product

In the unlikely event that your product fails to operate properly, please contact Customer Service to obtain a Return Authorization (RA) number, then send the unit back for servicing.

Keep at least one set of original packaging in the event that a product needs to be returned for service. If the original package is not available, you can supply your own packaging as long as it meets the following criteria:

- The packaging must be able to withstand the product's weight.
- The product must be held rigid within the packaging.
- There must be at least 2 in. (5 cm) of space between the product and the container.
- The corners of the product must be protected.

Ship products back to us for servicing prepaid and, if possible, in the original packaging material. If the product is still within the warranty period, we will return the product prepaid after servicing.

Restriction on Hazardous Substances (RoHS) Compliance

Directive 2002/95/EC—commonly known as the European Union (EU) Restriction on Hazardous Substances (RoHS)—sets limits on the use of certain substances found in electrical and electronic equipment. The intent of this legislation is to reduce the amount of hazardous chemicals that may leach out of landfill sites or otherwise contaminate the environment during end-of-life recycling. The Directive, which took effect on July 1, 2006, refers to the following hazardous substances:

- Lead (Pb)
- Mercury (Hg)
- Cadmium (Cd)
- Hexavalent Chromium (Cr-V1)
- Polybrominated Biphenyls (PBB)
- Polybrominated Diphenyl Ethers (PBDE)

According to this EU Directive, all products sold in the European Union will be fully RoHS-compliant and “lead-free.” (See our website for more information on dates and deadlines for compliance.) Spare parts supplied for the repair and upgrade of equipment sold before July 1, 2006 are exempt from the legislation. Equipment that complies with the EU directive will be marked with a RoHS-compliant emblem, as shown in Figure P-1.

Figure P-1. RoHS Compliance Emblem

Waste from Electrical and Electronic Equipment (WEEE) Compliance

The European Union (EU) Directive 2002/96/EC on Waste from Electrical and Electronic Equipment (WEEE) deals with the collection, treatment, recovery, and recycling of electrical and electronic waste products. The objective of the WEEE Directive is to assign the responsibility for the disposal of associated hazardous waste to either the producers or users of these products. As of August 13, 2005, producers or users will be required to recycle electrical and electronic equipment at end of its useful life, and may not dispose of the equipment in landfills or by using other unapproved methods. (Some EU member states may have different deadlines.)

In accordance with this EU Directive, companies selling electric or electronic devices in the EU will affix labels indicating that such products must be properly recycled. (See our website for more information on dates and deadlines for compliance.) Contact your local sales representative for information on returning these products for recycling. Equipment that complies with the EU directive will be marked with a WEEE-compliant emblem, as shown in Figure P-2.

Figure P-2. WEEE Compliance Emblem

Safety

Carefully review all safety precautions to avoid injury and prevent damage to this product or any products connected to it. If this product is rack-mountable, it should be mounted in an appropriate rack using the rack-mounting positions and rear support guides provided. It is recommended that each frame be connected to a separate electrical circuit for protection against circuit overloading. If this product relies on forced air cooling, it is recommended that all obstructions to the air flow be removed prior to mounting the frame in the rack.

If this product has a provision for external earth grounding, it is recommended that the frame be grounded to earth via the protective earth ground on the rear panel.

IMPORTANT! Only qualified personnel should perform service procedures.

Safety Terms and Symbols in this Manual

WARNING

Statements identifying conditions or practices that may result in personal injury or loss of life. High voltage is present.

CAUTION

Statements identifying conditions or practices that can result in damage to the equipment or other property.

Chapter 1

Introduction

Overview

The XHD6800+A module is an SD aspect ratio converter (ARC) with support for closed captioning processing.

This chapter introduces the XHD6800+A, and includes the following topics:

Note

Due to high levels of heat dissipation, the XHD6800+A modules should not be installed in frames without fans.The modules cannot be installed in FR6802+DM and 6800/7000 series frames.

Product Description

The XHD6800+A is a reclocking standard definition serial digital video distribution amplifier and high quality aspect ratio converter (ARC) that converts and processes SD signals in both video and audio domains. The XHD6800+A can accept SD-SDI component video inputs with embedded audio and ancillary (ANC) data, with auto-detectable or user-selectable input standards. The main output path provides ARC processing to an output standard identical to the input standard (SD-SDI 525 or 625 component video). In the conversion process, the audio and ANC data are delayed to ensure synchronicity with the output video. Additionally, the XHD6800+A provides a secondary path for reclocked SD-SDI signals.

The XHD6800+A has two back module options:

- The standard back module has two SDI reclocked outputs, two SDI Program outputs, and two SDI program/monitor outputs.
- The optional GPIO back module replaces one of the reclocked outputs with a GPIO connector.

It is possible upgrade an XHD6800+Ato a XHD6800+U1 or XHD6800+U2 module by entering a purchased license key and uploading the appropriate firmware. However, the module cannot perform both upconverter and ARC functions at the same time.

XHD6800+A can be controlled locally (via card edge) or controlled and monitored remotely with control software applications such as CCS + Pilot Lite,™ Pilot™, and Navigator™, or other CCS-compliant remote control products such as NUCLEUS™ Network Control Panel.

Main Features

Important XHD6800+A features include the following:

- Input
  - One auto-sensing, user selectable SD-SDI input with embedded audio data, closed captioning, and error monitoring
  - One analog composite genlock input with support for tri- and bi-level sync and user-selectable internal 75 ohm load termination (jumper); external genlock source
  - Four GPI lines (with the optional GPIO-capable back module only)

- Output
  - Two equalized and reclocked SD-SDI outputs of the SDI input (one output if using the optional GPIO-capable back module)
  - Two SD-SDI outputs carrying the same program signal with embedded audio
  - Two configurable SD-SDI outputs carrying either program or key signals, and including configurable OSD (on-screen display of parameter values)
  - Downstream audio delay output
  - Selectable output standard and format
  - Two GPO lines (with the optional GPIO-capable back module only)
- Video Processing
  - Aspect Ratio Conversion (ARC) using high quality 10-bit video processing
  - Motion adaptive deinterlacing for exceptional vertical resolution; also includes diagonal processing
  - Film 3:2 pulldown detection
  - Configurable picture-resizing ARC (H/V size, H/V position)
  - Smooth ARC transition
  - Advanced cropping with separate controls for top, bottom, left and right
  - Ten factory ARC presets (4:3, 14:9, 16:9, and 21:9 with letterbox and pillar-box modes)
  - Variable ARC with five user presets
  - Internally-generated background—select one of eight colors
  - Propagation delay of one frame through the scalar, and support for up to seven frames of delay through the video path
- ANC Processing
  - Transfer of closed captioning information across the frame synchronizer and scalar
  - WSS, VI and AFD processing: signaling, handling and insertion
  - VBI transparency

- Audio Processing
  - Embedded audio processing (de-multiplex, delay/sync, sample rate conversion, re-multiplex)
  - Support for two groups (eight channels) of embedded audio
  - Handling of any embedded compressed audio with fixed delay (transparent)
  - Processing for 24 bit audio
  - Support for compressed and linear PCM in the same audio group
  - Audio sync/delay
  - Incremental audio delay (with a maxiumum of 1.2 seconds)
- Other
  - Selectable LOV mode with the following options: Pass, Freeze, Black, and Test Pattern
  - Built-in SD test generator containing a cross hatch pattern, a color bars signal, and a SAG (Safe Area Generator) key
  - SD-SDI luma (soft edge rectangle) key output of non-picture area
  - Support for Copy Protection and thumbnail streaming
  - Software key and firmware field upgrade from SD ARC to HDTV Upconverter

Applications

The XHD6800+A modules are suitable for the following applications:

- Aspect ratio conversion of content for on-air playout.
- Mobile production. Modular form factor ideal for Mobile Sports production.
- Aspect ratio conversion for production facilities.

Module Descriptions

Front Module

Figure 1-1 shows the position of the LEDs and module controls on the front of the XHD6800+A modules.

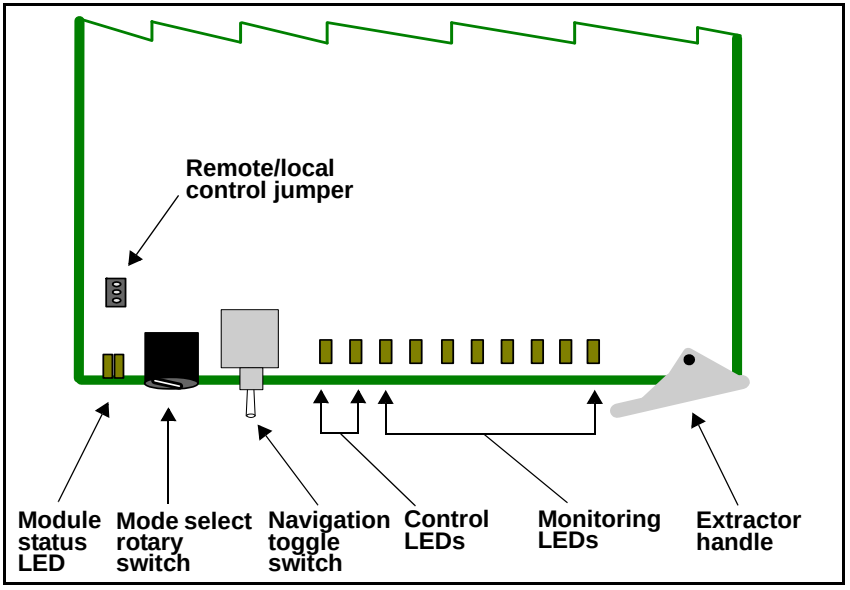


Figure 1-1. Typical 6800+ Module

Table 1-1 on page 6 briefly describes generic 6800+ LEDs, switches, and jumpers.

Table 1-1. Generic 6800+ Module Features

Feature	Description
Module status LEDs	Various color and lighting combinations of these LEDs indicate the module state. See “LEDs and Alarms” on page 85 for more information.
Mode select rotary switch	This switch selects between various control and feedback parameters.
Navigation toggle switch	This switch navigates up and down through the available control parameters: • **Down**: Moves down through the parameters • **Up**: Moves up through the parameters
Control LEDs	Various lighting combinations of these Control LEDs (sometimes referred to as “Bank Select LEDs”) indicate the currently selected bank. See “Bank Select LEDs” on page 30 for more information.
Monitoring LEDs	Each 6800**+** module has a number of LEDs assigned to indicate varying states/functions. See “Monitoring LEDs” on page 85 for a description of these LEDs.
Local/remote control jumper	• **Local**: Locks out external control panels and allows card-edge control only; limits the functionality of remote software applications to monitoring • **Remote**: Allows remote or local (card-edge) configuration, operation, and monitoring of the XHD6800**+**A See page 15 for more information on jumpers.

Back Connectors

Figure 1-2 shows the standard double-slot back module used by the XHD6800+A. Figure 1-3 shows the optional double-slot back module with GPIO. Table 1-2 describes each back module connector.

The front and back modules cannot be installed in frames without fans, or in FR6802+DM and 6800/7000 series frames.

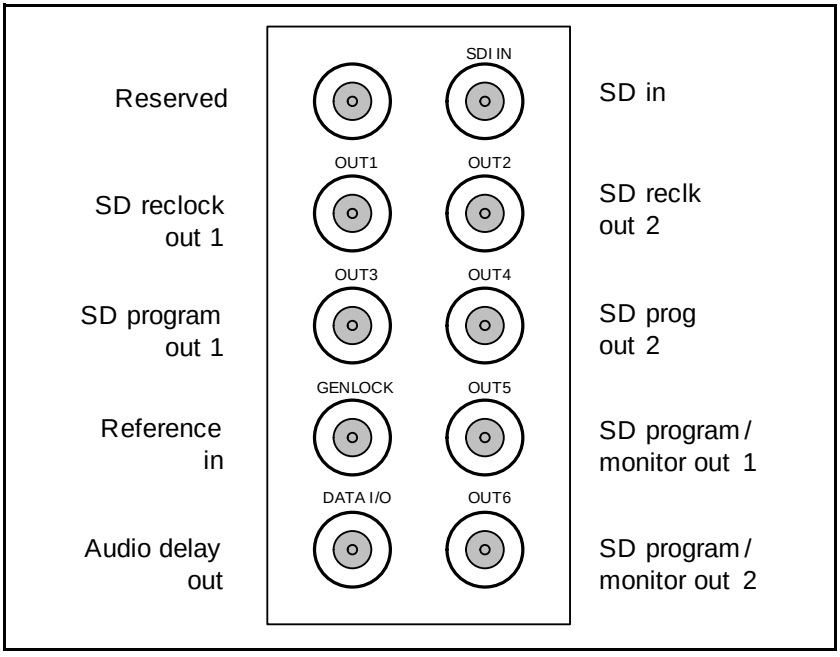


Figure 1-2. Standard XHD6800+A Back Module

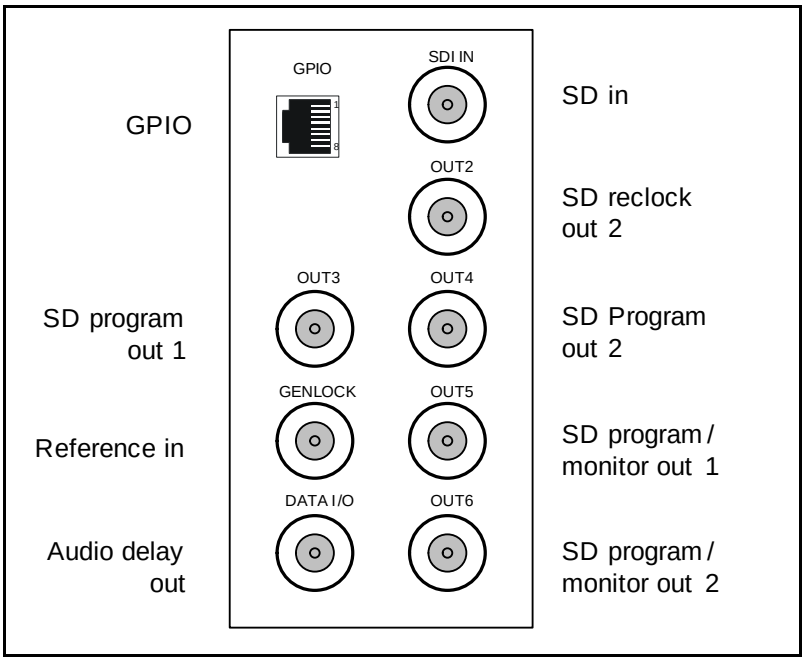


Figure 1-3. Optional XHD6800**+**A Back Module with GPIO

Table 1-2. XHD6800**+** Back Module Connector Descriptions

Back Module Label	Description
GPIO	Inputs four GPI lines and outputs two GPO lines; available on the optional GPIO back module only
SD in	Inputs SDI-SD video for aspect ratio conversion and reclocking
SD reclock out 1 SD reclock out 2	Outputs SD reclocked video output signals.Video from these outputs by-passes the module's aspect ratio converter
SD program out 1 SD program out 2	Outputs SD video that has processed by the module's aspect ratio converter
Reference in	Inputs NTSC, PAL-M, or PAL-B reference signal
SD program/monitor out 1 SD program/monitor out 2	Outputs the program SD signal for monitoring purposes. An on-screen display of XHD6800**+** control parameters can be enabled on this output.

GPIO Connector

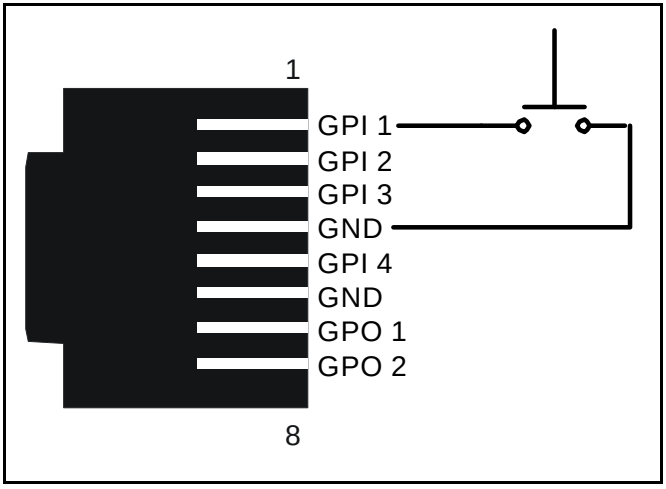


Figure 1-4. GPIO Connector Pinouts

Signal Flow

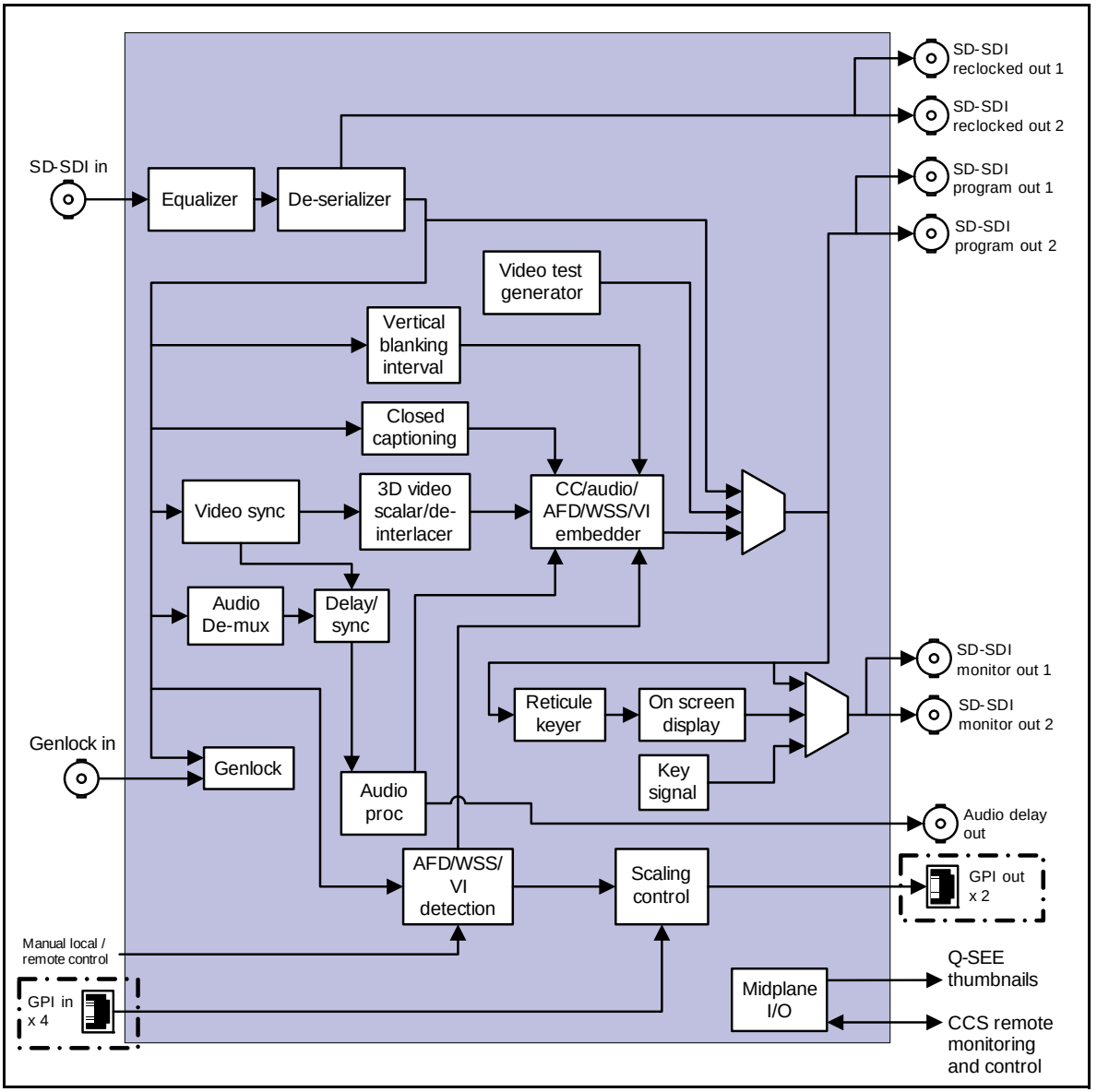


Figure 1-5. XHD6800+A Block Diagram

Chapter 2

Installation

Overview

This chapter describes the XHD6800+A installation process, including the following topics:

Caution

Before installing this product, read the *6800+ Series Safety Instructions and Standards Manual* shipped with every frame installation and operation manual. This information is also available on our Web site. The safety manual contains important information about the safe installation and operation of 6800+ series products.

See your frame installation and operation manual for information about installing and operating an FR6802+ frame and its components.

Maximum 6800+ Frame Power Ratings

The power consumption for the XHD6800+A modules is less than 11 W. Table 2-1 shows the maximum allowable power ratings for 6800+ frames. Note the given maximums before installing any 6800+ modules in your frame.

Due to high levels of heat dissipation, the XHD6800+A modules should not be installed in frames without fans. The modules cannot be installed in FR6802+DM and 6800/7000 series frames.

Table 2-1. Maximum Power Ratings for 6800+ Frames

6800+ Frame Type	Max. Frame Power Dissipation	Max. Number of XHD6800+A Modules	Max Power Dissipation for Two Slots
FR6802+QXF (frame with AC or DC power supply)	120 W	10	12 W
FR6802+XF (frame with AC power supply)	120 W	10	12 W
FR6802+XF (frame with DC power supply)	105 W	10	10.5 W

Unpacking the Module

Preparing the Product for Installation

Before you install the XHD6800+A, perform the following:

- Check the equipment for any visible damage that may have occurred during transit.
- Confirm receipt of all items on the packing list. See "Checking the Packing List" below for more information.

Note

Contact your Customer Service representative if parts are missing or damaged.

- Remove the anti-static shipping pouch, if present, and all other packaging material.
- Retain the original packaging materials for possible re-use.

See "Unpacking/Shipping Information" on page ix for information about returning a product for servicing.

Checking the Packing List

Table 2-2. Available Product Packages

Ordered Product	Content Description
XHD6800+A module	• One front module • One back connector • One *XHD6800+A Aspect Ratio Converters Installation and Operation Manual*
XHD6800+ADR	One XHD6800+A standard back connector
XHD6800+AGDR	One XHD6800+A optional back connector with GPIO

Optional License Keys

The XHD6800+A can be upgraded to an XHD6800+U1 or XHD6800+U2 upconverter. The following firmware upgrades are available.

Table 2-3. Optional Soft-key Upgrades

License Key	Content Description
XHD6800+A-UG-U1	Upgrade to get utility-quality upconversion
XHD6800+A-UG-U2	Upgrade to get broadcast-quality upconversion

With either of these upgrades, you can also purchase XHD6800+OPT-CC if you require closed captioning support. To purchase additional license keys, contact your Sales representative. To activate a license key, see “Adding a License Key” on page 26.

When upgrading your module from XHD6800+A to any of these other types, you will need to upgrade your module firmware as well. Instructions for updating module firmware appear in “Upgrading the Firmware” on page 18.

You can update the firmware first, or you can add license keys first. However, whichever order you choose, the module will reset itself halfway through the procedure. During this first reset, the module status LED will blink red indicating a card failure. **This is normal.** When you complete both the upgrade procedure and the addition of license keys, the module will display outputs correctly.

Setting Jumpers

The XHD6800+A module has one standard jumper (REM/LOC) for remote or local control, and one jumper (J1) for genlock termination. Figure 2-1 shows the location of the jumpers.

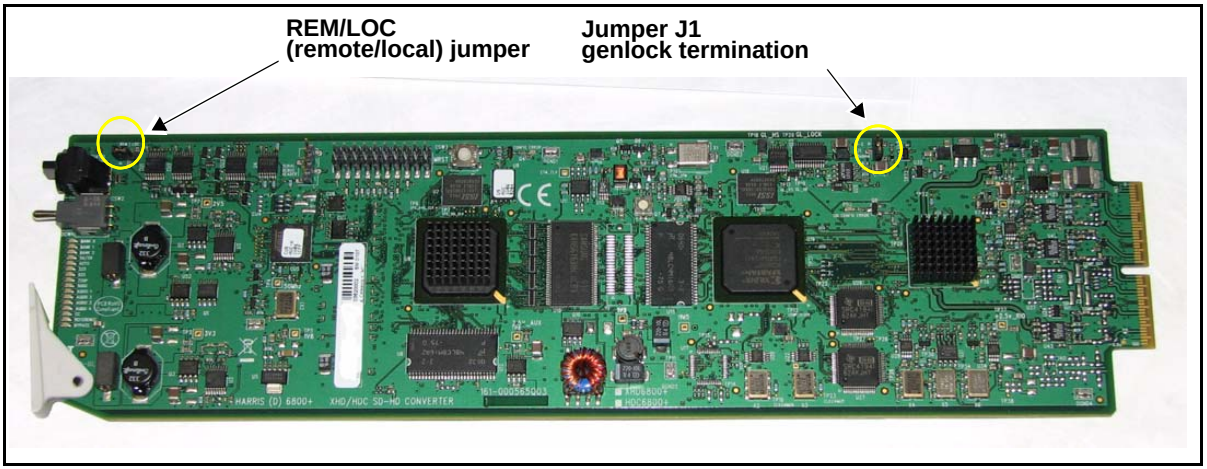


Figure 2-1. XHD6800+A Jumpers

Local and Remote Jumper Settings

Follow this procedure to set the **REM/LOC** jumper for either remote or local control:

1. Locate the **REM/LOC** control jumper on the module (beside the mode select rotary switch). Figure 2-1 shows the standard location of the **REM/LOC** jumper.

2. Place a jumper on pins 1 and 2 to set the module for Remote control, or pins 2 and 3 to set the module for Local control. See Figure 2-2.

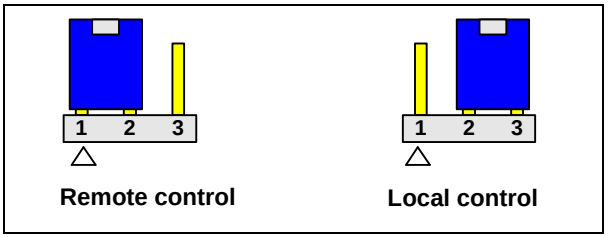


Figure 2-2. Jumper Settings for Remote and Local Control

Note

You must configure modules for local or remote operation *prior* to power-up. To change the configuration, first remove power from the module, reset the jumper, and then reapply power. The white triangle near the jumper pins on the module indicates pin 1.

See "Changing Parameter Settings" on page 28 for more information on local/remote control jumper functionality.

Genlock Termination Jumper Settings

Follow this procedure to set the Genlock Termination jumper J1:

1. Locate jumper **J1** on the module, near the back of the module. (Figure 2-1 on page 15 shows the location of the jumper.)
2. Place a jumper on pins 1 and 2 to set the module for No Termination, or pins 2 and 3 to set 75Ω Onboard Termination (see Figure 2-3).

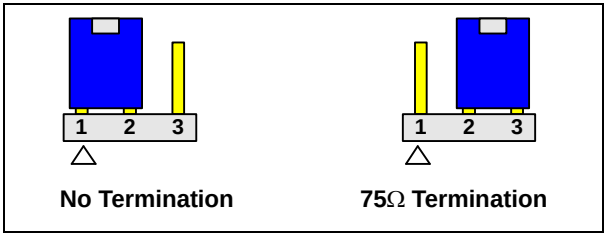


Figure 2-3. Genlock Termination Settings

Installing XHD6800+A Modules

The XHD6800**+**A modules have double-width back connectors. Due to high levels of heat dissipation, the XHD6800**+**A modules should not be installed in frames without fans. The modules cannot be installed in FR6802**+**DM and 6800/7000 series frames.

Caution

Before inserting, removing, or replacing a back module, you must power down the frame. Failure to do so could result in damage to the frame, modules, or power supply.

These modules require no specialized installation or removal procedures. However, if you are installing both front and rear modules, ensure that the back module is installed first before plugging in the front module. Likewise, ensure that the front module is unplugged from the frame before removing the rear module. See the *FR6802+ Frames Installation and Operation Manual* for information about installing and operating an FR6802**+** frame and its components.

Upgrading Module Firmware

Firmware upgrading is a routine procedure that you must perform to install newer versions of software on 6800**+** modules. CCS Pilot, Co-Pilot, or Navigator software version 4.0 or later is required for this procedure. The frame must contain or be connected to another frame that contains an ICE6800**+** or a 6800**+**ETH module. During the upgrade procedure, the affected modules are automatically rebooted twice.

In the unlikely event that the upgrade fails (because of such situations as network interruptions, power failures, etc.), the module may not respond to controls and will appear to be non-functional. In that event, follow the procedures described in "Correcting a Failed Upgrading Procedure" on page 22.

Note

You can replace the XHD6800**+**A firmware with xhd6800+ud.zip (up-converter) for the 'U1' and 'U2' options, or xhd6800+ad.zip (ARC) for the 'A' option. Both sets of firmware, and therefore both feature sets, cannot exist on the module at the same time.

The XHD6800**+**U1 and U2 firmware requires a license key to operate on XHD6800**+**A hardware. It also requires optional license keys to unlock some features. See your *XHD6800+U1 and XHD6800+U2 Broadcast Upconverters Installation and Operation Manual* for more information.

License keys allowing you to use XHD6800**+**A firmware on a XHD6800**+**U1 or U2 module are not available.

Upgrading the Firmware

You can upgrade your 6800**+** module's firmware using the Software Upgrade tool. This tool is included with CCS Pilot, Co-Pilot, or Navigator software version 4.0 or later.

Caution

The **File Transfer** tab of the **Configuration** window is not meant to be used for firmware upgrades. Use the Software Upgrade tool to upgrade module firmware.

To upgrade your module's firmware, follow these steps:

1. Download the most recent appropriate upgrade package from our Web site or from your CD-ROM.
2. If the affected module has not been discovered, perform the Discovery operation, as described in "Discovering an XHD6800+A Module" on page 29.

Note

Information about discovering modules can also be found in your CCS software application manual or online help. (If you cannot discover the device, see "Manually Adding a Device to the Discovery or Network Folder" on page 23.)

3. From the **Tools** menu, select **Software Upgrade**.

   The **Software Upgrade** window opens or is brought to the foreground.

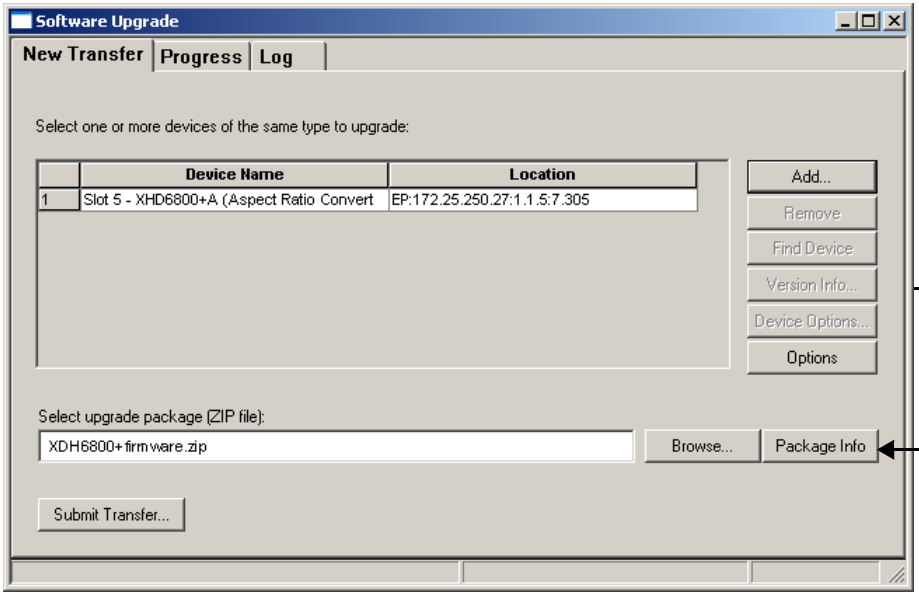


Figure 2-4. Software Upgrade Tool's New Transfer Tab

4. On the **New Transfer** tab, click **Add**.

   The **Device Selection** dialog box opens.

5. Select one or more devices, and then click **OK** to close the **Add Device** dialog box.

   Note

   You can only add one device from each IP address. All items in a frame have the same IP address.

   The selected devices appear in the table under **Device Name**. These devices will receive the same upgrade package.

6. Before proceeding with the firmware upgrade, you can—
   - Highlight the module's position in the Navigation window by clicking **Find Device**.
   - View the firmware version currently installed on the module by clicking **Version Info**.
7. Press **Browse...** to select the firmware upgrade package (ZIP file).

   A standard **Windows File Selection** dialog opens.
8. Choose the upgrade ZIP file on a local or network drive.

   The selected file's path name is displayed in the edit box to the left of the **Browse…** button.

   Note

   The extraction process of the ZIP file is handled as part of the upgrade process. You do not need to extract the files yourself. You can view the contents of the ZIP file by clicking **Package Info.**

9. Press **Submit Transfer...**

   A dialog box opens, requesting confirmation that you want to proceed with the request. If you have multiple devices selected, multiple transfer tasks are submitted—one per device.

   The transfer now progresses. You may minimize the **Software Upgrade** window, continue with other tasks, or switch to the **Progress** tab to view the status of the transfers.

   Note

   Closing the **Software Upgrade** window does not effect any of the transfer processes that may be running in the background. If you try to log off or exit the CCS software while a transfer is underway, a notification window will alert you that processes are still active and will ask if you want to terminate these processes.

10. To monitor the progress of the firmware upgrade procedure, click the **Progress** tab. When the firmware upgrade is complete, **Completed** is displayed in the **Transfer Status** column.

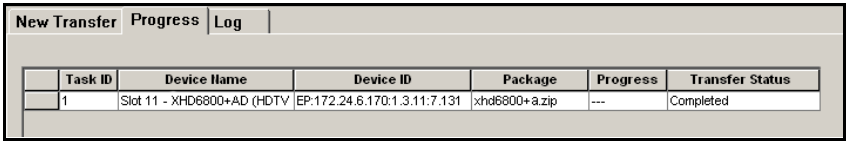


Figure 2-5. Firmware Upgrade Complete

Note

If you are in the process of upgrading your module from an XHD6800**+**A to another variant of XHD6800**+**, and the firmware does not match the license key, the module will display a test pattern after the firmware upgrade procedure has completed. This is normal. When you complete both the upgrade procedure and the update of the license key, the module will display a correct output. See “Adding a License Key” on page 26.

Correcting a Failed Upgrading Procedure

Firmware upgrades may fail in the event of network interruptions, power failures, or if the wrong upgrade package was transferred to the module. These problems can be corrected by upgrading the firmware while the module is in Boot Loader mode. The upgrade won't work unless you put the module in Boot Loader mode.

Note

If you have not already downloaded the most recent appropriate upgrade package from our Web site or from your CD-ROM, do so now.

Putting the Module in Boot Loader Mode

Follow these steps to put your the module in Boot Loader mode:

1. Remove the affected module from the 6800**+** frame.

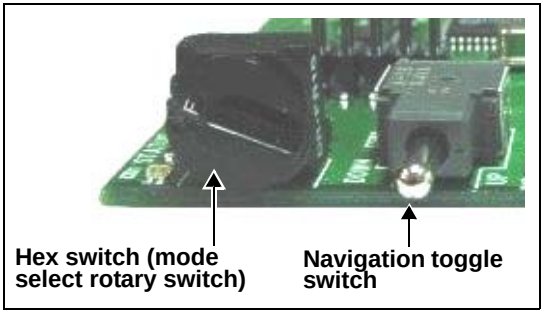


Figure 2-6. Buttons on a Typical Card Edge

2. Set the hex switch to **F**.
3. While pressing the Navigation toggle switch down, reinsert the module into the frame.

If your device is listed in the **Discovery** or **Network** folder, you can continue the firmware upgrade as described in "Upgrading the Firmware" begining with step **3** page 18. If not, you must manually add the device to the **Discovery** or **Network** folder. To do this, see the next section.

Manually Adding a Device to the Discovery or Network Folder

If your device is not listed in the **Discovery** or **Network** folder, you must manually add it to these folders. After you add the device, you can use the **Software Upgrade** dialog box to continue with the module firmware upgrade.

To manually add a device to the **Discovery** or **Network** folder, follow these steps:

1. Enter Build mode, and then drag or copy and paste the module's device icon from the **Catalog** folder into the **Network** or **Discovery** folder.
2. Right-click the device icon, and then select **Properties**.
3. On the **Device** tab of the **Navigation Properties** box, enter the IP address of the frame that holds the module. (See Figure 2-7.)

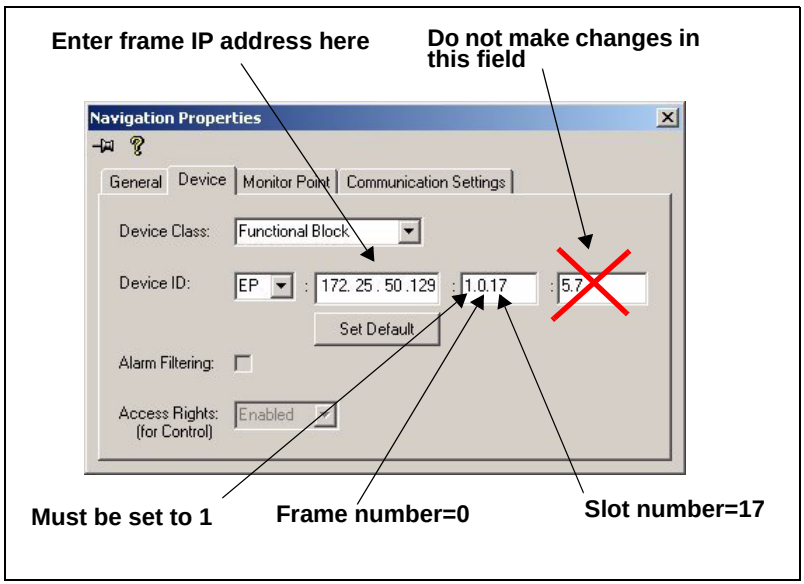


Figure 2-7. Navigation Properties Box

Caution

Do not make changes in the last field (located above and to the right of the **Set Default** button). If you do, you will need to begin the process of adding devices to the **Discovery** or **Network** folder again.

4. In the third field, enter

   `1.0.[slotnumber]`

   (where, for example, 1.0.5 would refer to the module in slot 5 of the frame number 0).

5. Close the window.

6. You can now continue your firmware upgrade as described in "Upgrading the Firmware" begining with step **3** on page 18.

Chapter 3

Configuration and Operation

Overview

This chapter describes how to operate the XHD6800+A using card-edge controls or by using a CCS software application such as + Pilot Lite, Pilot, or Navigator.

See the following documents for detailed information on how to operate this product remotely:

- + *Pilot Lite User Manual* for serial interface
- CCS Pilot, CoPilot, Navigator, or NUCLEUS Network Control Panel, LCP-3901-1U/RCP-CCS-1U manuals for Ethernet interface

The following topics are discussed in this chapter:

Operating Notes

When setting the control parameters on the XHD6800+A, observe the following:

- If you make changes to certain parameters, other related parameters may also be affected.
- When you change a parameter, the effect is immediate. However, the module requires up to 20 seconds to save the latest change. After 20 seconds, the new settings are saved and will be restored if the module loses power and must be restarted.
- The manufacturer recommends that you terminate any unused coaxial output connectors with a 75Ω connector.

Q-SEE Compliant Thumbnails

The XHD6800+A supports Q-SEE compliant thumbnails. To use Q-SEE compliant features, you must install the XHD6800+A in an FR6802+QXF frame that also contains a 6800+ETH module.

When you open a **Control** window in Pilot or Navigator for the 6800+ETH module, all Q-SEE compliant modules provide thumbnails on a **Video Streaming** tab. In addition, the XHD6800+A module's **Control** windows have a new **Streaming** tab where a thumbnail, updated at up to three frames per second, is displayed.

For more information on Q-SEE compliant thumbnails, see your *FR6802+QXF Frames Installation and Operation Manual.*

Adding a License Key

Note

For assistance with a license key, or to purchase a license key, please contact your Sales representative. See "Optional License Keys" on page 14.

To enter a license key to convert your XHD6800+A to an XHD6800+U1 or XHD6800+U2 functionality, your CCS software must be in Control mode.

Follow these steps:

1. Select the XHD6800**+**A module in the **Navigation** pane, right click, and then select **Control** to open the module's **Control** window.
2. If it is not already selected, click on the **Parameters** tab.
3. Select **General** in the tree view, and then type your license key in the **License Key** field.

If your license key is valid, the **Installed Options** field will display the features that are enabled on the module.

Note

During the process of upgrading your module from an XHD6800**+**A to another variant of XHD6800**+**, the module status LED will blink red if the firmware does not match the license key. This is normal. You must complete both the upgrade procedure and the update of the license key for the module to display a correct output. See "Upgrading the Firmware" on page 18.

Changing Parameter Settings

There are two ways to change the parameters that control your module's operation: CCS software applications and card-edge controls.

Using CCS software applications, such as **+** Pilot Lite, Pilot, or Navigator, you can view, set, and confirm your module's parameter settings from your computer's monitor. Using the card-edge controls, you can set parameter using the module's rotary hex and navigation switches.

You can use the information in this chapter to configure and operate your XHD6800**+**A using a CCS software application or the module's card-edge controls. For more information about setting parameters using CCS software application or by using the module's card-edge control, see "Changing Parameters Using CCS Software" on page 28 and "Changing Parameter Settings Using Card-Edge Controls" on page 29 respectively.

A complete list of XHD6800**+**A control parameters can be found in Chapter 4: "Parameters, LEDs, and Alarms" on page 59.

Changing Parameters Using CCS Software

Before using CCS software applications to change your module's parameter settings, you must refresh (**+** Pilot Lite) or discover (Pilot and Navigator) the module. Refresh and Discovery are the processes by which your CCS software finds, and then connects to your module.

Refreshing Your Module Using + Pilot Lite

When using **+** Pilot Lite to change your XHD6800**+**A control parameters, you must "refresh" the control connection between your 6800**+** frame and PC. To refresh the connection, from the **+** Pilot Lite menu bar, select **File** > **Refresh**. For information about controlling a device using **+** Pilot Lite, see your **+** Pilot Lite *User Manual*.

Discovering an XHD6800+A Module

To discover your module, your Pilot or Navigator software must be in Build mode. Follow these steps:

1. If the Discovery window is not open, click **Tools** > **Discovery** in the main menu.

   A **Discovery** window opens, most likely in the bottom left corner of the screen.

2. Click **Options**, and then click **Add**.
3. Enter the IP address of the frame that contains your module, the frame that contains your ICE6800**+** module, or the frame that contains a 6800**+**ETH module that provides access to your module.
4. Click **OK** to close the **Add IP address** window, and then **OK** again to close the **Discovery Options** window.
5. Click **Start**.

   This triggers Pilot or Navigator to run a discovery.

6. When your discovery is complete, **Discovery Completed** is displayed in the **Discovery** window. To continue, click **Save**, to save the contents of your discovery to the **Discovery** folder of the **Navigation** pane.

You can now switch to Control mode by selecting **Operational Mode** > **Control** from the main menu. Double-click XHD6800**+**A in the Navigation pane. The **Control** window opens displaying the module's controls.

Changing Parameter Settings Using Card-Edge Controls

Using the module's rotary and navigation switches, you can change XHD6800**+**A parameter settings at the card edge. You can view and confirm your changes using the On-screen display feature (see "Enabling On-Screen Display" on page 31).

Follow these steps to change the XHD6800**+**A parameter settings at the card edge:

1. Rotate the mode select rotary switch (hex switch) to "0."

2. Once the hex switch is set to “0,” toggle the navigation switch up or down to select a bank.

   View the three control LEDs next to the navigation toggle switch to see which bank is currently selected.

Table 3-1. Bank Select LEDs

Bank Number	**Bank 0 LED (first top LED)**	**Bank 1 LED (second top LED)**	**Bank 2 LED (third top LED)**
0	Off	Off	Off
1	On	Off	Off
2	Off	On	Off
3	On	On	Off
4	Off	Off	On
5	On	Off	On
6	Off	On	On
7	On	On	On
8	On (blinking)	On (blinking)	On (blinking)

3. Rotate the hex switch to the parameter number (1 to 9) or letter (A to F) of the option you want to set.
4. Toggle the navigation switch to select and set the value of the chosen parameter.
5. Rotate the hex s witch to another parameter number/letter in the current bank, and then repeat step 4.

   or

   Rotate the hex switch to “0” again to select a different bank, and then repeat steps 3 and 4.

Throughout this chapter, in the Parameter Navigation sections, the bank and hex switch positions for each configuration setting are listed in square brackets (for example, [**0**, **2**]) beside or below the parameter name.

Note

The manufacturer recommends that you use the available 6800**+** software control options (serial/local or Ethernet/remote) to aid in viewing, setting, and confirming parameter values.

Enabling On-Screen Display

You can use the On-screen Display (OSD) Monitoring feature to view the current parameter selections on your output display. When the **On-Screen Display** parameter is turned on, the current parameter selections are displayed on the module's SD program/monitor out 1 and SD program/monitor out 2 outputs. This feature makes configuring the XHD6800**+**A using the card-edge controls much easier.

To enable On-screen Display (OSD) Monitoring make the following selections:

Setting Description	Parameter Navigation			
Enable OSD monitoring.	Video Setup	Output	On-Screen Display [**0**, **2**]	On
Set OSD transparency value.			OSD Transparency Level [**0**, **3**]	0–15

Recalling Default Parameter Settings

You can use the module's **Factory Recall** parameter to return all of the module's parameters to factory default settings. In the XHD6800**+**A control parameter list (see "Overview" on page 59), each factory default setting appears in bold.

To return this module to its default settings, make the following selections:

Setting Description	Parameter Navigation			
Recall factory default settings.	Other Setup	Other	Factory Recall [**0**, **F**]	Yes

Reading Software and Hardware Versions

You can see the current software and hardware versions of the XHD6800**+**A by checking the Hardware Version and Firmware Version read-only parameters located at the end of the parameter list (see “Overview” on page 59). These parameters appear in the OSD and on CCS-enabled control panels or CCS software applications such as Pilot or Navigator.

Configuring Video Settings

The following section provides information about configuring the XHD6800+A video settings including the following:

Selecting Output Video Standards

There are three options that you can use to select your module's output video standard: **Auto**, **525**, or **625**. The video input to the module must match the **Output Video Standard** setting. All other types of input video are handled according to the **Loss of Video Output** parameter option.

Each **Output Video Standard** parameter option is described below:

- **Auto** With this option selected, the XHD6800+ automatically detects the video standard of incoming video and sets the output standard to match.
- **525** With this option selected, the XHD6800+ only accepts 525 video input for aspect ratio conversion; any other signal will be treated according to the **Loss of Video Output** parameter option setting.
- **625** With this option selected, the XHD6800+ only accepts 625 video input for aspect ratio conversion; any other signal will be treated according to the **Loss of Video Output** parameter option setting.

The **Loss of Video Output** parameter option can be set as follows:

- **Pass** Displays the unknown input in the currently selected video standard (valid video standard with correct timing)
- **Black** Displays black video
- **Freeze** Displays a single field/frame of input video
- **Test Pattern** Displays a selected test pattern
- **Sync Pass** Displays input video without processing (with most likely invalid video timing, which would be detected by downstream equipment as invalid video)

Selecting Video Output Standards

To select video input and output standards and configure your loss of video settings, make the following selections:

Setting Description	Parameter Navigation			
Display detected video standard.	Video Setup	Input	Input Video Standard Detect [**4**, **2**]	(detected standard)
Select an output standard.		Output	Output Video Standard [**0**, **2**]	• **Auto** • 525 • 625
Select a loss of video option.			Loss of Video Output [**0**, **5**]	• Pass • Black • Freeze • Test Pattern • Sync Pass
If you selected **Test Pattern** as the **Loss of Video** parameter option, select the test pattern you want to display.			Test Pattern Select [**0**, **6**]	(select a pattern)

Synchronization and Delay

Before aspect ratio conversion, the SD-SDI input signal is processed by the module's frame synchronizer. The frame synchronizer automatically detects and locks to the genlock reference signal for video timing alignment. The frame synchronizer either drops or repeats video frames to achieve synchronization.

During aspect ratio conversion, delay is added to the SDI input signal in the main video processing path. The amount of delay to the primary signal through the scalar is one frame.

To compensate for delays from external, upstream processes, you can use the **Input Frame Delay** parameter to add processing delay. The **Input Frame Delay** parameter provides a delay range between 0 to 6 frames in one-frame increments.

Audio Synchronization and Delay

Audio is synchronized to video by applying the same frame sync delay and converter delay to the audio associated with that video path. By changing the **Input Frame Delay** control, you can adjust the frame sync delay and trigger the audio to re-synchronize with the video. The audio synchronization will not occur immediately and will take roughly 10 seconds per frame of delay in order to prevent any audio "glitch."

You can add additional delay using the **Audio Pair 1 Delay** to **Audio Pair 4 Delay** parameters. For information about setting additional audio delay, see "Setting Audio Pair Delay" on page 54.

The user delay is always applied in addition to the audio synchronization and will cause an audio glitch to occur when the user delay changes.

Configuring Input Reference Source and Input Frame Delay

To configure your input reference source and input frame delay, make the following selections:

Setting Description	Parameter Navigation			
Select the genlock source.	Video Setup	Reference	Genlock Source [**0**, **D**]	• External Ref • Frame Ref • Free Run • Delay
Select the video standard of the genlock source. (The applicable 525 or 625 options are displayed in the OSD. If the standard is mismatched with the genlock source, the Reference LED will light.)			Reference Standard [**0**, **E**]	• Auto • NTSC/PAL-M • TLS 720p59.94 • TLS 1080i59.94 • TLS 1080p29.97 • PAL-B • TLS 720p50 • TLS 1080i50 • TLS 1080p25
Set the video input frame delay, if required.		Input	Input Frame Delay [**1**, **3**]	0–6 (frames)

Setting Motion Threshold Mode

You can use Motion Threshold mode to set how the XHD6800**+**A determines the difference between motion in the input video image and signal noise. When Motion Threshold is set to **Auto**, the module sets the threshold value to an optimal level. When set to **Manual**, you can use the **Motion Threshold** control to set the threshold value between 1 and 16, where 16 is used for images with high noise levels.

To set Threshold Motion mode, make the following selections:

Setting Description	Parameter Navigation			
Set the Motion Threshold mode.	Video Setup	Processing	Motion Threshold mode [**3**, **A**]	• Auto • Manual
If you set the **Motion Threshold** parameter to **Manual**, enter the threshold value.			Motion Manual Threshold [**3**, **B**]	1–16

Configuring Aspect Ratio Conversion

The XHD6800+A can perform either standard or custom aspect ratio conversions (ARCs). Using the **ARC Preset Select** parameter, you can select from one of the following standard aspect ratios:

- 4:3->4:3 Pillar
- 4:3->14:9 Pillar
- 4:3->16:9 Cut
- 4:3->16:9 Anamorphic
- 4:3->21:9 Letter
- 16:9->16:9 Letter
- 16:9->14:9 Letter
- 16:9->4:3 Cut
- 16:9->4:3 Anamorphic
- 16:9->21:9 Letter

You can use the module's custom ARC control parameters to create a custom output aspect ratio that can be saved as an ARC Preset. Saved custom ARC Presets are listed as an **ARC Preset Select** parameter option with the module's list of standard ARC settings. For information about creating a custom ARC preset, see "Creating a Custom Aspect Ratio" on page 40.

See Figure 3-1 on page 38 for a graphic illustration of the standard aspect ratios.

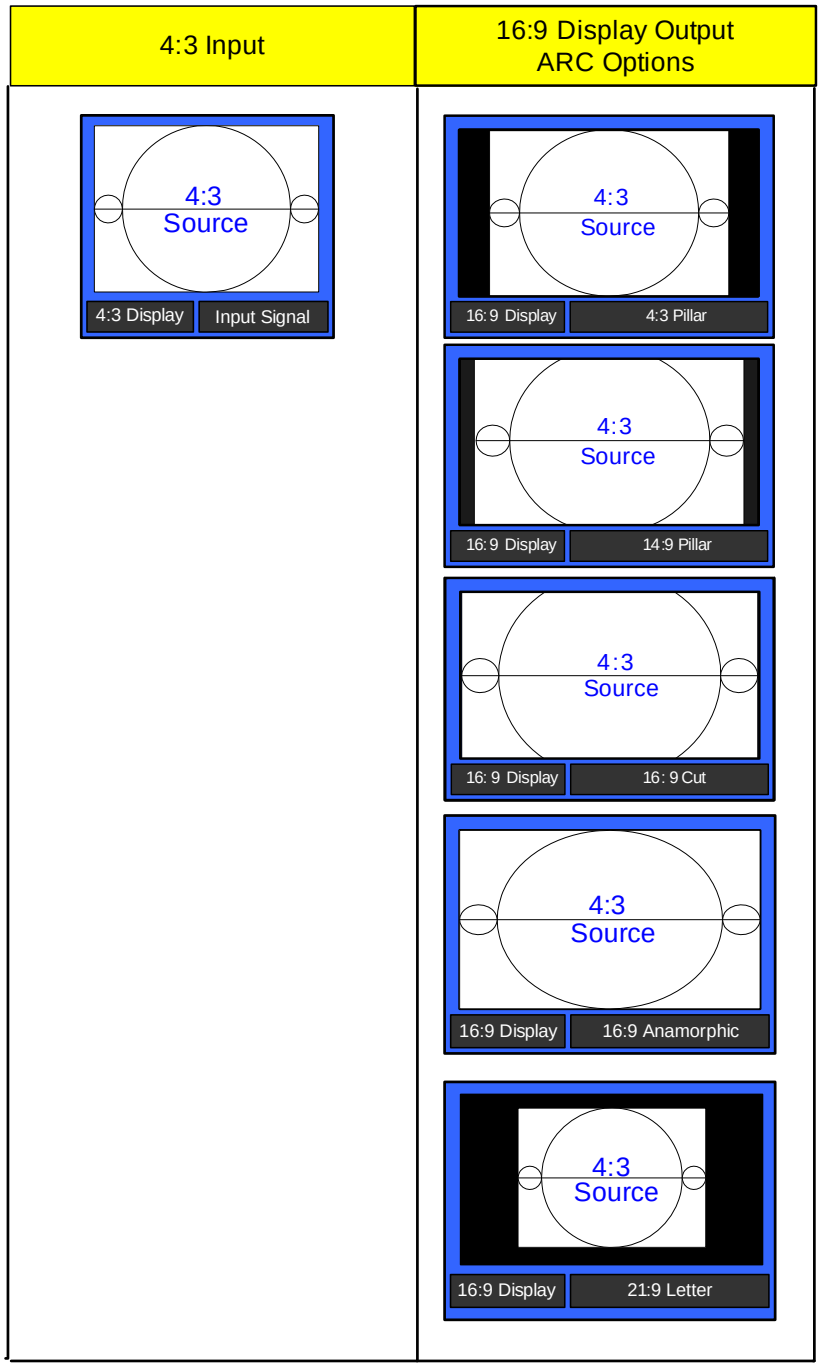


Figure 3-1. 4:3 to 16:9 Standard ARC Settings

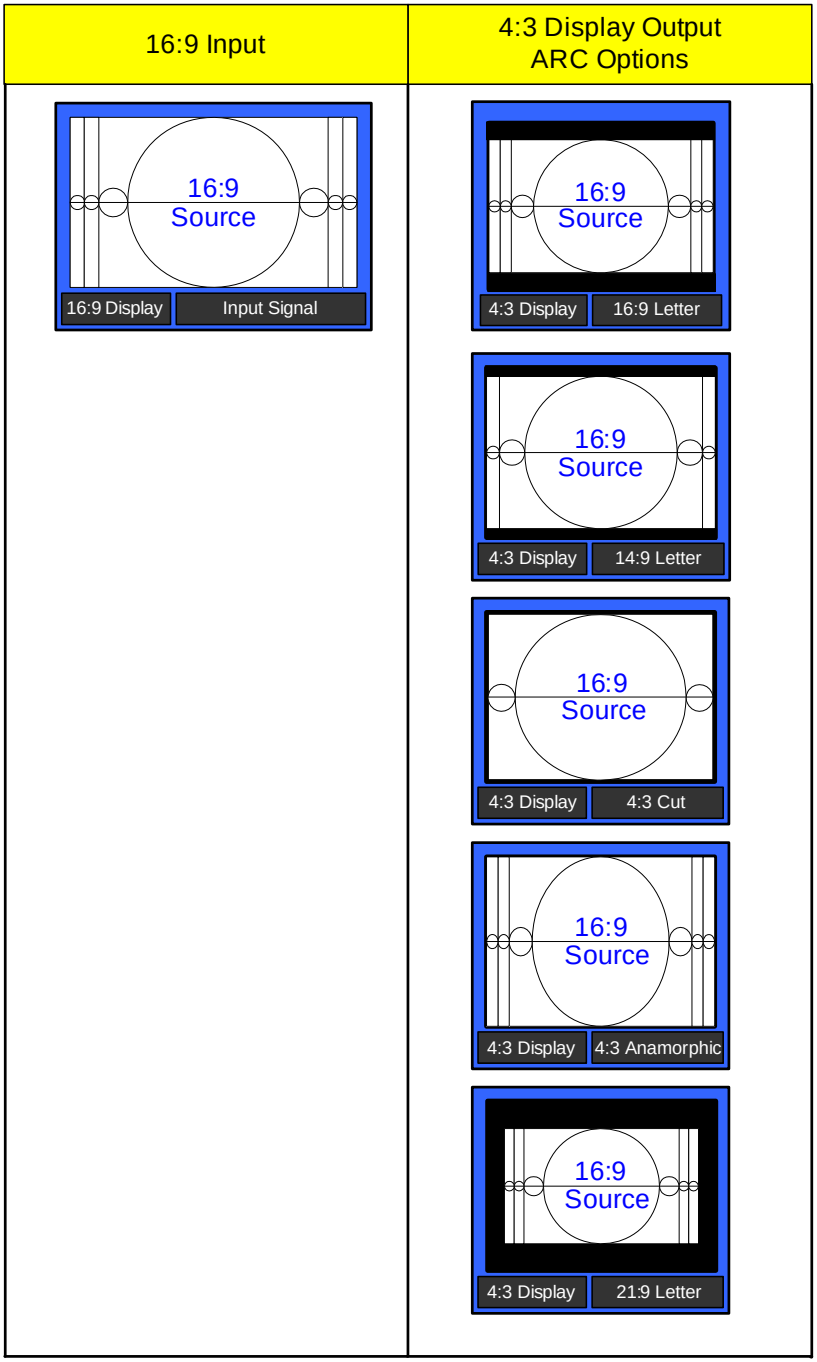


Figure 3-2. 16:9 to 4:3 Standard ARC Settings

Selecting a Standard ARC Preset

To select a standard aspect ratio for the output image, make the following selection:

Setting Description	Parameter Navigation			
Select an standard or custom ARC preset. Before selecting **Preset 1**–**Preset 5**, you must create, and then save a custom ARC preset. See "Creating a Custom Aspect Ratio" on page 40.	Video Setup	Processing	ARC Preset Select [**1**, **4**]	(select an ARC Preset)

Creating a Custom Aspect Ratio

You can scale and pan the output image to any size and location by using the module's custom aspect ratio feature. You can use the ARC Scaling and ARC Offset controls to adjust the size and position of your custom ARC settings. Custom ARCs can then be saved as ARC Presets. You can save up to five ARC Presets.

Descriptions of the controls are listed below.

- **ARC H Scale**–sets the horizontal size of the output image anywhere between 50% and 150% of the output screen size.
- **ARC V Scale**–sets the vertical size of the output image anywhere between 60% and 150% of the output screen size.
- **ARC H Offset**–places the horizontal center of the output image anywhere between -50% and 50% of the output screen size.
- **ARC V Offset**–places the vertical center of the output image anywhere between -50% to 50% of the output screen size.

To create and save a custom ARC preset, follow these steps

1. To set the horizontal and vertical scaling and offset values for your custom ARC, make the following selections:

Setting Description	Parameter Navigation			
Select the Custom ARC option.	Video Setup	Processing	ARC Preset Select [**1**, **4**]	Custom
Set the ARC horizontal scaling value.			ARC H Scale [**1**, **7**]	50% – 150%

Setting Description	Parameter Navigation			
Set the ARC horizontal offset.			ARC H Offset [**1**, **9**]	-50.00% to 50.00%
Set the ARC vertical scaling value.			ARC V Scale [**1**, **8**]	60% – 150%
Set the ARC vertical offset.			ARC V Offset [**1**, **A**]	-50.00% to 50.00%

2. To save the current custom ARC settings as an ARC preset, make the following selection:

Setting Description	Parameter Navigation			
Save the current ARC as a preset.	Video Setup	Processing	ARC Preset Save [**1**, **C**]	(Select Preset 1–5)

3. Wait approximately two seconds for the module to process the command.

   When the save operation is complete, the **ARC Preset Save** parameter option returns to **None**.

You can at any time select your new ARC Preset for output. For more information see “Selecting a Standard ARC Preset” on page 40.

Recalling Standard and Custom ARC Presets

You can use the **ARC Preset Recall** parameter to recall and view standard and custom ARC preset settings without changing the output image.

The **ARC Preset Recall** parameter will overwrite the following custom aspect ratio parameters: **ARC H Scale**, **ARC V Scale**, **ARC H Offset**, and **ARC V Offset**. If you perform an aspect ratio recall when **ARC Preset Select** is set to **Custom**, the output image aspect ratio will revert to the recalled aspect ratio.

To recall a standard or custom ARC preset, make the following selections:

Setting Description	Parameter Navigation			
Save the current ARC as a preset.	Video Setup	Processing	ARC Preset Recall [**1**, **D**]	(select a preset)

Active Format Description

Active Format Description (AFD) transmits data in the VANC portion of the SDI signal, enabling both 4:3 and 16:9 television monitors to optimally present video with preset ARC and safe area information. Without AFD, converted video may appear distorted or “cut off” when it appears on different monitors. The XHD6800+A can encode or decode AFD; it can also encode or decode earlier Video Index (VI) and Wide Screen Signalling (WSS) formats.

The AFD feature of the XHD6800+A complies with SMPTE 2016 and includes nine possible 4:3 configurations and eight possible configurations in 16:9. Figure 3-4 on page 45 describes the 4:3 AFD configurations; Figure 3-5 on page 46 describes the 16:9 AFD configurations.

AFD, VI, and WSS Detection

AFD, VI, and WSS data that is embedded in the incoming video can be detected by the XHD6800+A, and read from the following input parameters that are found in the **Video Setup** > **Input** path:

- AFD Detected
- VI Scan Detected (Use the **VI Detect Line Field 1** and **VI Detect Line Field 2** parameters to determine where in the video signal to look for VI information)
- VI AFD Detected
- WSS Detected (Use the **WSS Detect Line** parameter to determine where in the video signal to look for WSS information)

AFD, VI, and WSS Processing

Incoming AFD, VI, and WSS data can be used for automatic aspect ratio control when the **ARC Preset** parameter is set to one of these values in the **Video Setup** > **Output** path:

- AFD
- AFD (ALTR)
- VI
- WSS
- WSS (ALTR)

See Figure 3-6 on page 47, Figure 3-7 on page 48, Figure 3-8 on page 49, and Figure 3-9 on page 50 for descriptions of how the automatic ARC control will act when given an AFD, VI, or WSS code input.

AFD, VI, and WSS Output

AFD, VI, and WSS data can be inserted into an output video stream either manually or automatically. This function is controlled by the **AFD Insert**, **VI Insert**, and **WSS Insert** parameters located in the **Video Setup** > **Output** path (in Table 4-1).

The **Auto** option of the **AAFD Insert**, **VI Insert**, and **WSS Insert** parameters will embed the data that is automatically selected by the module, based on one of the following:

- The current ARC settings (via **Video Setup** > **Output**, in Table 4-1).
- The current AFD/VI/WSS code input that is detected in the incoming video signal
- A selected option in the **ARC Preset** parameter (via **Video Setup** > **Output**, in Table 4-1)

If you select **User** instead of **Auto** in the **AFD Insert**, **VI Insert**, and **WSS Insert** parameters, you can change the output code by selecting a different option in **AFD Select**, **VI Select**, or **WSS Select**. These parameters are also located in the **Video Setup** > **Output** path(in Table 4-1).

Additionally, if you are using VI according to the SMPTE Proposed RP-186+ standard as of January 11, 2007, you must ensure you have enabled the standard by following this path: **Output > Embedding > VI Embed with AFD** on Table 4-1 (default setting is **No**).

In the event that the current ARC is controlled by AFD, VI, or WSS, and this data disappears from the input signal, the XHD6800**+** provides you with two options:

- Keep the current aspect ratio as set by the last AFD, VI, or WSS data.
- Reset to the aspect ratio settings that were in use before the AFD, VI, or WSS data took control.

The **Auto Arc Reset** parameter (Table 4-1) controls this feature. Select **Yes** to have the module reset to older values in the event of a loss of data; select **No** (the default) to retain the current ARC settings in the event of a loss of data.

At this time, **Bar Data** and **Pan-Scan** for VI and AFD are not supported.

AFD Descriptions

In the following pages, Figures 3-4 to 3-9 show the different AFD code descriptions. Comparable WSS and VI templates are included in the SD-SDI descriptions.

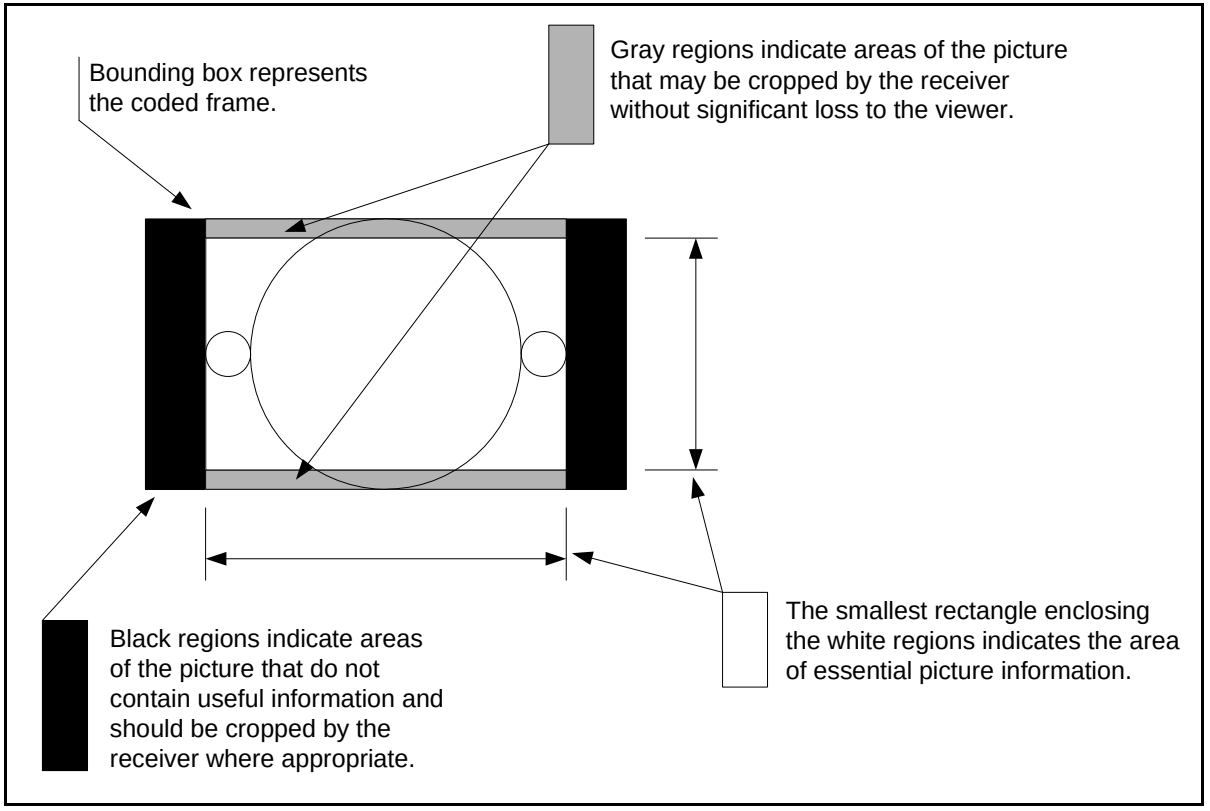


Figure 3-3. Explanation of AFD Diagrams

AFD 4:3 code and description

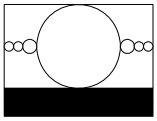
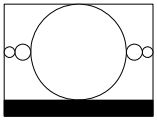
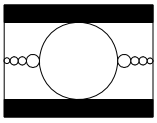
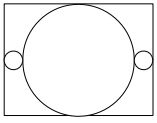
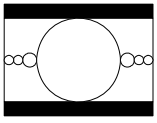
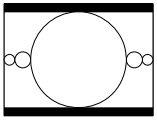
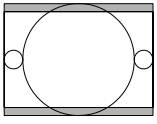
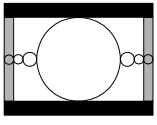
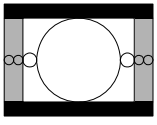
WSS name	AFD and VI Select parameter options	Illustration in a 4:3 coded frame	Description
16:9 Top	16:9 Top		Image with a 16:9 aspect ratio as letterbox at the top of a 4:3 coded frame
14:9 Top	14:9 Top		Image with a 14:9 aspect ratio as letterbox at the top of a 4:3 coded frame
>16:9	>16:9 in 4:3		Image with aspect ratio greater than 16:9 as a vertically centered letterbox in a 4:3 coded frame
Full Frame	4:3 Full		Image is full frame, with an aspect ratio that is the same as the 4:3 coded frame
16:9 Center	16:9 L		Image with a 16:9 aspect ratio as a vertically centered letterbox in a 4:3 coded frame
14:9 Center	14:9 L		Image with 14:9 aspect ratio as a vertically centered letterbox in a 4:3 coded frame
Full A 14:9	4:3 A 14:9		Image with a 4:3 aspect ratio and with an alternative 14:9 center in a 4:3 coded frame
None	16:9 L A 14:9		Image with a 16:9 aspect ratio and with an alternative 14:9 center as a vertically centered letterbox in a 4:3 coded frame
None	16:9 L A 4:3		Image with a 16:9 aspect ratio and with an alternative 4:3 center as a vertically centered letterbox in a 4:3 coded frame

Figure 3-4. Available AFD Select Options when OutAspectRatio is Set to 4:3

AFD 16:9 code and description

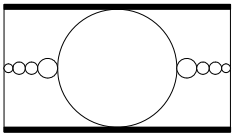
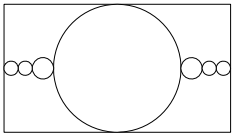
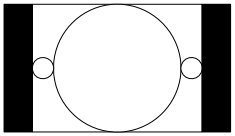
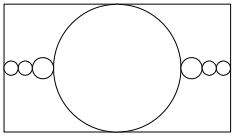
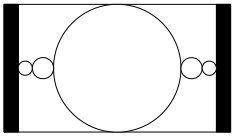
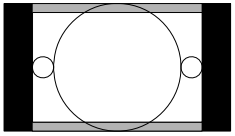
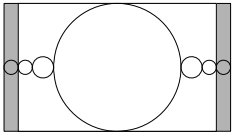
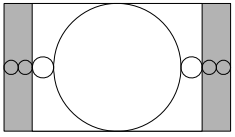
WSS name	AFD and VI Select parameter options	Illustration in a 16:9 coded frame	Description
None	>16:9 in 16:9 AFD Code: 0100		Image with aspect ratio greater than 16:9 as a vertically centered letterbox in a 16:9 coded frame
Anamorphic	16:9 Full AFD Code: 1000		Image is full frame, with an aspect ratio that is the same as the 16:9 coded frame
None	4:3 P AFD Code: 1001		Image with a 4:3 aspect ratio as a horizontally centered pillarbox image in a 16:9 coded frame
None	16:9 Prtctd AFD Code: 1010		Image is full frame, with a 16:9 aspect ratio and with all image areas protected
None	14:9 P AFD Code: 1011		Image with a 14:9 aspect ratio as a horizontally centered pillarbox image in a 16:9 coded frame
None	4:3 P A 14:9 AFD Code: 1101		Image with a 4:3 aspect ratio and with an alternative 14:9 center as a horizontally centered pillarbox image in a 16:9 coded frame
None	16:9 A 14:9 AFD Code: 1110		Image with a 16:9 aspect ratio and with an alternative 14:9 center in a 16:9 coded frame
None	16:9 A 4:3 AFD Code: 1111		Image with a 16:9 aspect ratio and with an alternative 4:3 center in a 16:9 coded frame

Figure 3-5. Available AFD Select Options when OutAspectRatio is Set to 16:9

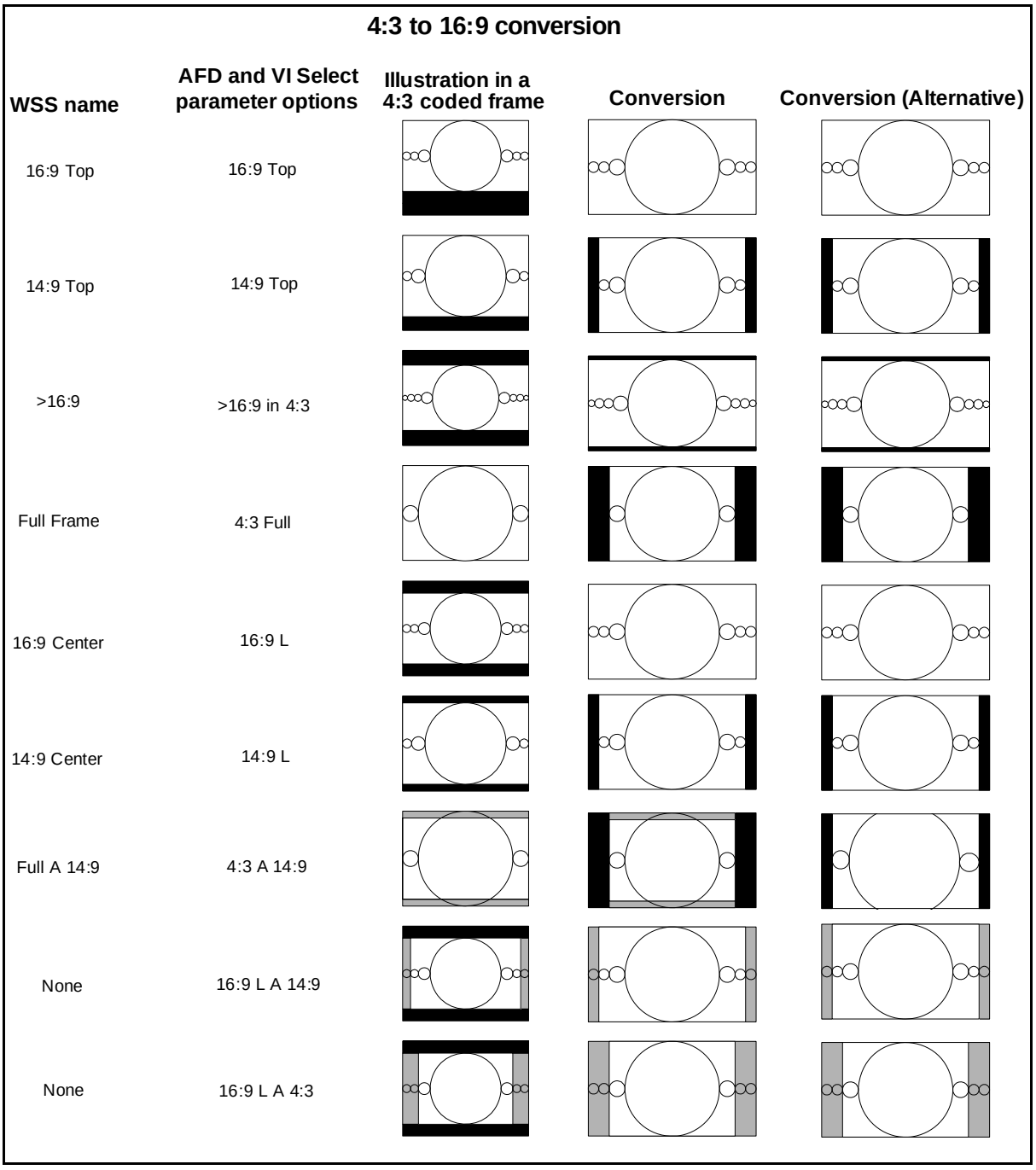


Figure 3-6. Available AFD Select, VI Select, and WSS Select Options When Converting from 4:3 to 16:9

4:3 to 4:3 conversion

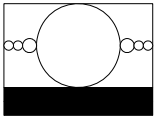
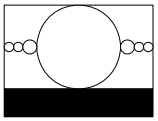
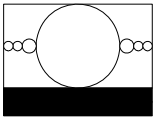
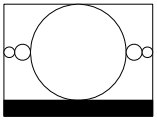
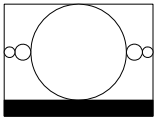
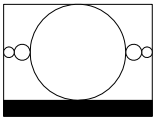
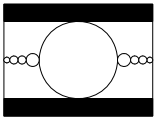
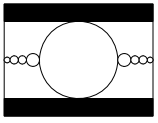
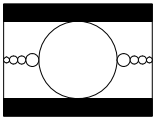
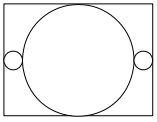
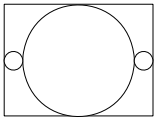
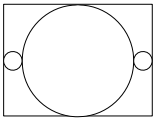
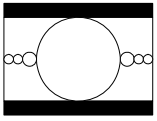
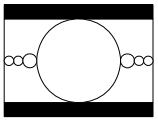
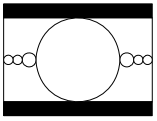
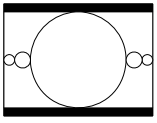
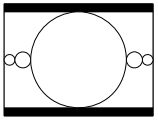
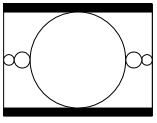
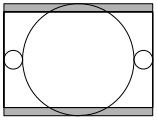
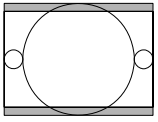
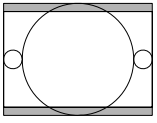
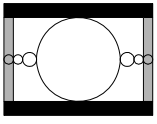
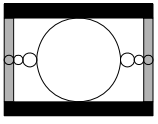
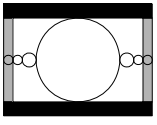
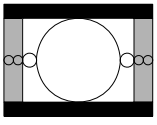
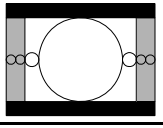
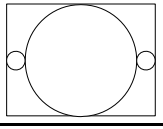
WSS name	AFD and VI Select parameter options	Illustration in a 4:3 coded frame	Conversion	Conversion (Alternative)
16:9 Top	16:9 Top			
14:9 Top	14:9 Top			
>16:9	>16:9 in 4:3			
Full Frame	4:3 Full			
16:9 Center	16:9 L			
14:9 Center	14:9 L			
Full A 14:9	4:3 A 14:9			
None	16:9 L A 14:9			
None	16:9 L A 4:3			

Figure 3-7. Available AFD Select, VI Select, and WSS Select Options When Converting from 4:3 to 4:3

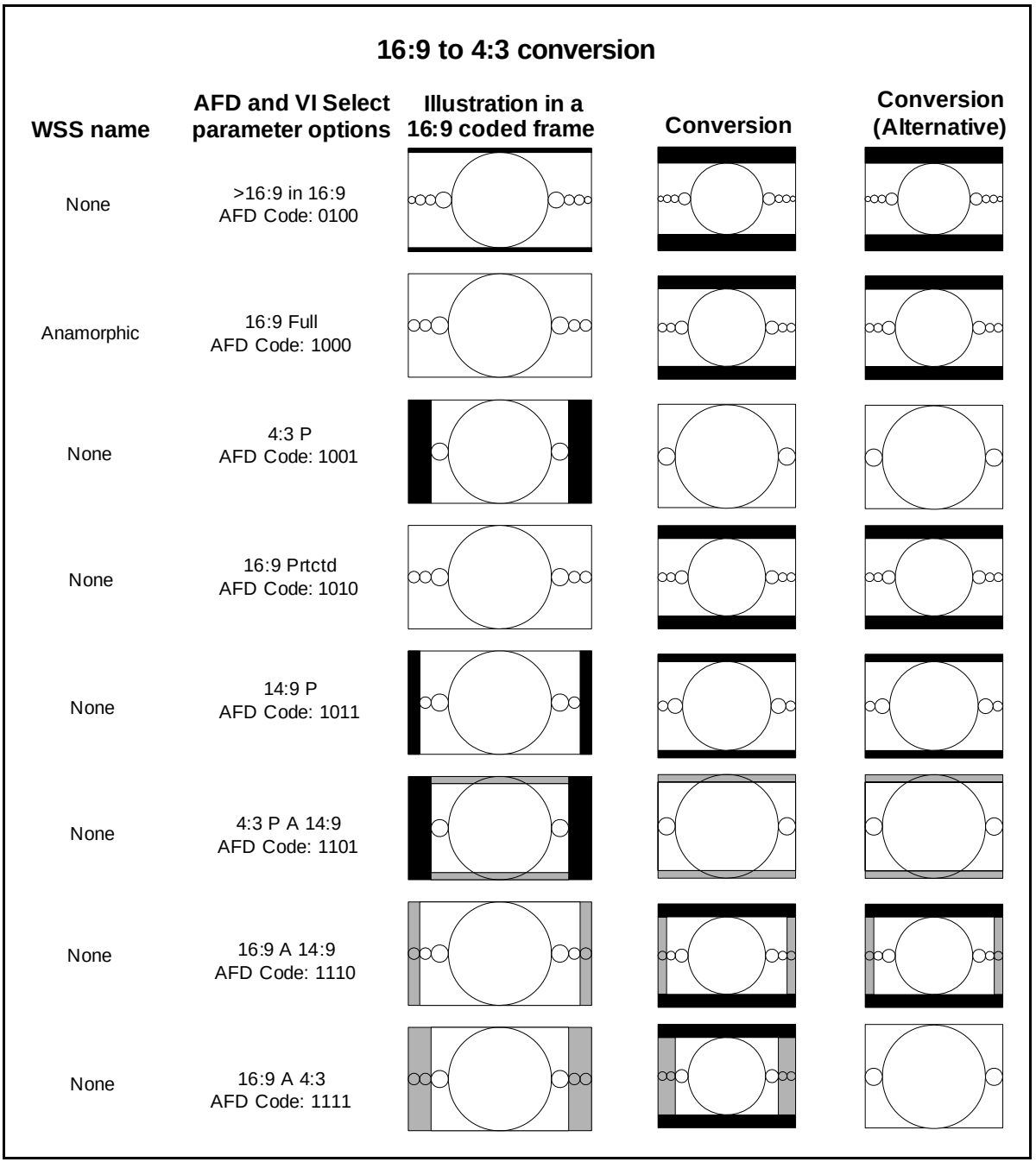


Figure 3-8. Available AFD Select, VI Select, and WSS Select Options When Converting from 16:9 to 4:3

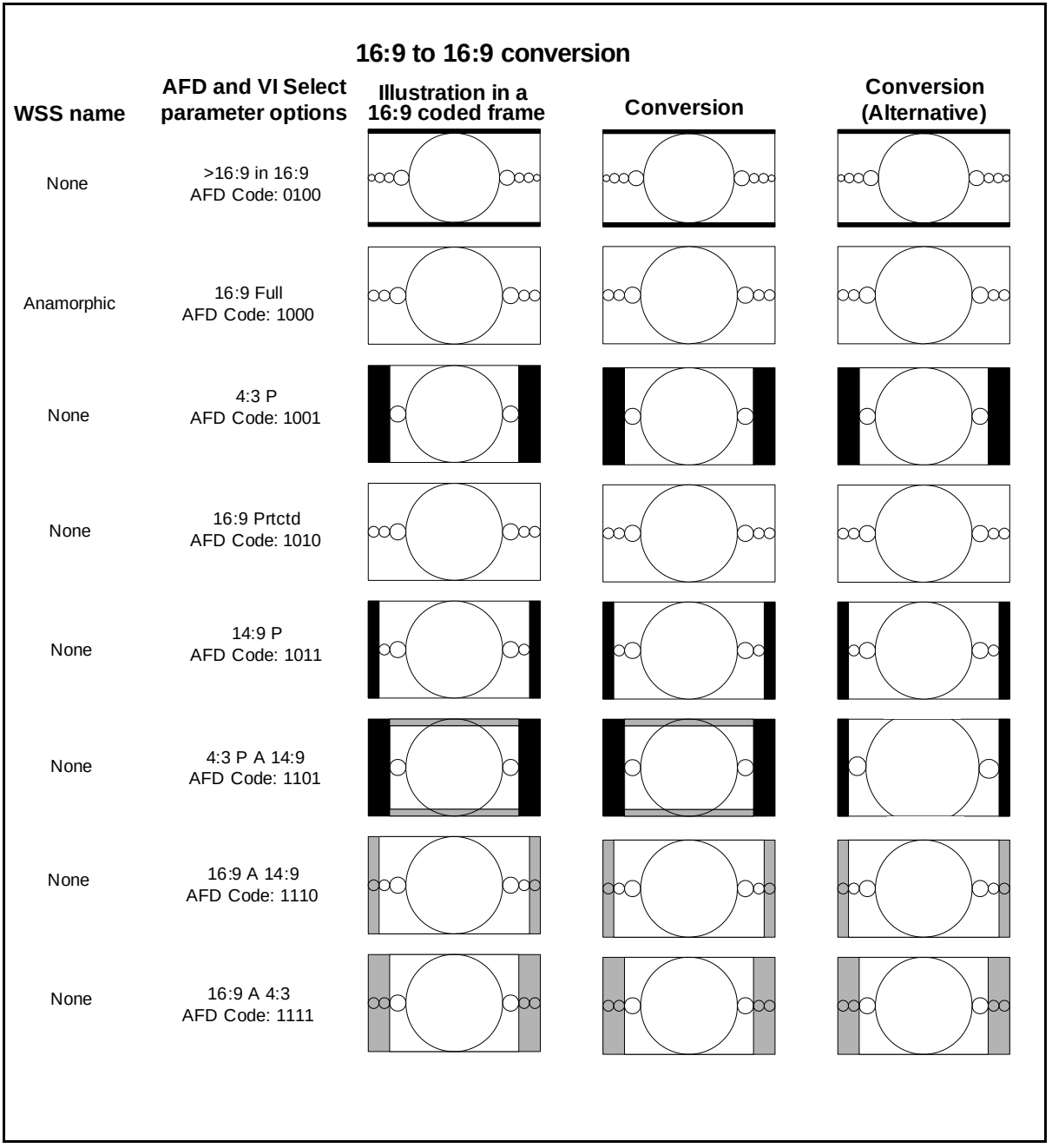


Figure 3-9. Available AFD Select, VI Select, and WSS Select Options from 16:9 to 16:9

Configuring Audio

The XHD6800+A can detect up to four embedded audio groups (eight uncompressed or compressed audio channel pairs) that are present in the input SDI video stream. You can then select up four input audio channel pairs and embed them as two audio groups in the SDI output video stream. Using the XHD6800+A audio control parameters you can perform the following audio input and output operations:

- Select detected input audio groups/pairs to demux
- Select audio groups/pairs to re-embed in the SDI output
- Set audio delay on each output audio channel pair (uncompressed sources only)
- Set audio gain on each output audio channel pair (uncompressed sources only)
- Set audio bypass on each output audio channel pair for compressed audio source
- Mute all output audio

Demuxing Input Audio Groups/Pairs

When the XHD6800+A detects embedded audio in the SDI input video stream, it displays the number of audio groups present (up to four) and whether or not the audio present in each audio channel pair is compressed or uncompressed.

The **Audio Group Present** feedback parameter indicates whether an audio group is present by assigning it a number. For example, **1** indicates the presence of audio group 1, and **2** indicates the presence of audio group 2. If an audio group is not present in the input, double dashed lines (=) represent the missing audio group. Table 3-2 provides examples of **Audio Group Present** parameter feedback.

Table 3-2. Audio Group Present Feedback Examples

Parameter Feedback	Meaning
1 2 3 4	All four audio groups are present.
= = = =	No audio groups are present.
1 2= 4	Audio groups 1, 2, and 4 are present. Audio group 3 is not present.

The **Audio Channel Pair Feedback** parameter indicates whether or not audio or audio data is present within each audio group. Figure 3-10 illustrates the meaning of each feedback symbol.

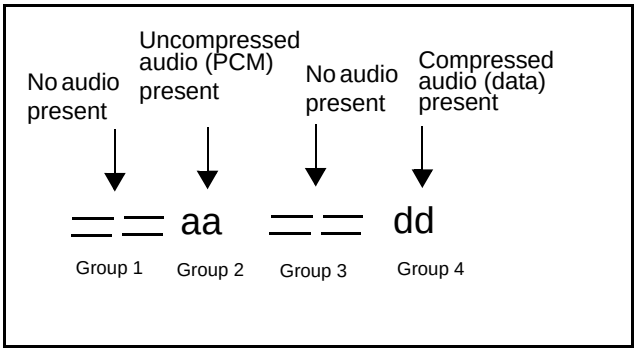


Figure 3-10. Audio Channel Pair Feedback

To demux input embedded audio groups and pairs, follow these steps:

1. To determine which audio groups and pairs are present in the SDI input video stream, make the following selections:

Setting Description	Parameter Navigation			
Determine which audio groups are present.	Audio Setup	Input	Audio Group Present [**4**, **9**]	(displays feedback, see Table 3-2)
Determine the status of audio group channel pairs.			Audio Channel Pair Feedback [**4**, **A**]	(displays feedback, see Figure 3-10)

2. Select which audio groups and pairs you want to demux.

Setting Description	Parameter Navigation			
Select the audio groups/pairs you want to demux.	Audio Setup	Input	Audio Demux Source [**2**, **2**]	• Demux Grp 1 & 2 • Demux Grp 3 & 4 • Custom
Select an action for when demuxing errors occur.			Demux Error Control [**2**, 1**]**	• Mute • Repeat

3. If you selected **Custom** for the **Audio Demux Source** parameter, you can select up to four channel pairs from the combination of detected audio groups. To select channel pairs, make the following selections:

Setting Description	Parameter Navigation			
Select your Custom Audio Pair 1 to Audio Pair 4 to demux.	Audio Setup	Input	Audio Pair 1 Select to Audio Pair Select 4 [**2**, **3** to **2**, **6**]	(select a Grp/Pr)

Selecting and Configuring Output Audio

The following sections describe how to select and configure settings for the audio groups/pairs you want to embed in the SDI output.

Selecting Output Audio Groups/Pairs

To select the audio groups/pairs that you want to embed, make the following selections:

Setting Description	Parameter Navigation			
Select the audio group in which you want to embed audio channel Pair 1 and Pair 2.	Audio Setup	Output	Audio Pair 1 & Pair 2 Output Group [**3**, **1**]	(select a Group)
Select the audio group in which you want to embed audio channel Pair 3 and Pair 4.			Audio Pair 3 & Pair 4 Output Group [**3**, **2**]	(select a Group)

Bypassing Source Audio

If you are embedding compressed audio channel pairs, you can set the **Audio Master Bypass** parameter so that these audio sources bypass the module's audio processors and audio synchronizer. The XHD6800**+**A can detect automatically, by means of the channel status bit (C-bit), the presence of non-PCM audio signals such as Dolby® E. Upon detection of non-PCM data in "Auto" mode, the audio synchronizer and processor blocks are bypassed in order to maintain the integrity of the audio stream. To set the audio bypass parameters, make the following selections:

Setting Description	Parameter Navigation			
Enable Audio Bypass.	Audio Setup	Processing	Audio Master Bypass [**3**, **3**]	• Auto • On • Off
If you selected **On** for the **Audio Bypass** parameter, you can select the audio pairs you want bypassed.			Audio Pair Bypass 1 to Audio Pair Bypass 4 [**3**, **4** to **3**, **7**]	• On • Off
Display the bypass status of the audio channel pairs. Bypassed channels are indicated by a "**b**".			Audio Bypass Feedback [**4**, **C**]	(displayed feedback)

Setting Audio Pair Delay

You can configure audio delay (in msec) for each audio channel pair to compensate for any upstream video processing. Audio pair delay is added before audio embedding and is additive to the delay set by the **Input Frame Delay** parameter (see "Synchronization and Delay" on page 35).

To set audio pair delay make the following selection:

Setting Description	Parameter Navigation			
Set the audio delay for Audio Pair 1 to Audio Pair 4.	Audio Setup	Processing	Audio Pair 1 Delay to Audio Pair 4 Delay [**2**, **C** to **2**, **F**]	(select a delay value)

Setting Audio Pair Gain

You can set audio gain for PCM (uncompressed) output audio channel pairs before they are embedded in the output SDI stream. To set audio gain, make the following selections:

Setting Description	Parameter Navigation			
Set the audio gain for Audio Pair 1 to Audio Pair 4.	Audio Setup	Processing	Audio Pair 1 Gain to Audio Pair 4 Gain [**2**, **8** to **2**, **B**]	(select a gain value)

Miscellaneous Configuration

Setting Output Video Phasing

Using the output video phasing parameters, you can adjust the horizontal and vertical phasing values of your output SD video. The range of the values that you can use for phase adjustment depends on your output video standard. Table 3-3 lists the horizontal and vertical phasing for each output video standard.

Table 3-3. Vertical and Horizontal Phasing Values

	SD-SDI Output Video Standard/ Frame Rate	
Parameter Name	**525**	**625**
Horizontal Phase	0 to 1715 pixels	0 to 1727 pixels
Vertical Phase	0 to 524 lines	0 to 624 lines

To adjust the horizontal and vertical phasing of your output video, make the following selections:

Setting Description	**Parameter Navigation**			
Select a value for horizontal phase adjustment.	Video Setup	Output	Output H Phase [**0**, **B**]	(select a value) (see Table 3-3.for option ranges)
Select a value for vertical phase adjustment.			Output V Phase [**0**, **C**]	(select a value) (see Table 3-3.for option ranges).

Configuring Closed Captioning

You can use the closed captioning parameters to enable or disable embedding of closed captioning data.

To remove residual evidence of closed captioning at the top of the screen, use the cropping controls.

Setting and Configuring GPIO

If you have the optional XHD6800+A back module with GPIO connectors, the XHD6800+A will provide the following GPIO:

- Four general purpose (GP) inputs for recall of preset ARC/picture format memories or turning on the Test Generator.
- Two GP outputs for signaling a preset ARC/picture format or a signal loss.

The front module will auto-detect the type of the back module (GPIO versus non-GPIO). In case the non-GPIO back module is detected, the following controls for GPIO will be disabled.

Table 3-4. Parameters that Will be Unavailable without GPIO

GPI	GPO
GPI #1 Trigger Select	GPO #1 State Select
GPI #1 Event Set	GPO #1 Event Set
GPI #2 Trigger Select	GPO #2 State Select
GPI #2 Event Set	GPO #2 Event Set
GPI #3 Trigger Select	GPO Status [RO]
GPI #3 Event Set	
GPI #4 Trigger Select	
GPI #4 Event Set	
GPI Status [RO]	

Chapter 4

Parameters, LEDs, and Alarms

Overview

This chapter describes the parameters, options, alarms, and LEDs for the XHD6800+A module.

The following topics are discussed in this chapter:

Parameter Tables

The parameters are listed in the order that they appear in CCS Pilot and Navigator. If you are using + Pilot Lite, some parameters in the list may not appear in the order as they appear in the software.

Note

If you are using card-edge controls to configure your XHD6800+ module, you can use the OSD Monitoring feature to view the current parameter selections. When the **On-Screen Display** parameter is turned on, the current parameter selections are displayed on module's monitoring outputs. For information on enabling OSD Monitoring, see "Enabling On-Screen Display" on page 31.

When viewing the control parameter tables, observe the following:

- Shaded table rows indicate read-only (feedback) parameters.
- Bolded parameter options indicate the default settings for the parameter.
- The bank selection and rotary switch combinations for each parameter and parameter option are listed in the tables under the **Bank, Switch** heading. For information about navigating through the parameter list using the card-edge controls, see "Changing Parameter Settings Using Card-Edge Controls" on page 29.
- Table 4-1 on page 60 lists XHD6800+A video setup parameters.
- Table 4-2 on page 74 lists XHD6800+A audio setup parameters.
- Table 4-3 on page 78 lists other XHD6800+A parameters.

Video Setup Parameters

Table 4-1. Video Setup Parameters

Navigation	Parameter Name	Bank, Switch	Function	Options
Input	Input Video Standard Detect	4, 2	Displays the detected input video standard	• Unknown • 525 • 625
	Input Frame Delay	1, 3	Sets the amount of input frame delay	**0** to 6 frames
	Force Freeze	8, F	Selects the freeze type for the frame synchronizer	• **Off** • Frame • Field 1 • Field 2
	Frame Sync Freeze Status	4, 3	Confirms whether the output video is frozen	• Yes • No
	EDH Error Count Poll Interval(s)	1, 1	Defines the polling interval for EDH (Error Detection Handling)	**1** to 14400 sec

Table 4-1. Video Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	EDH Error Count Clear	1, 2	Clears the EDH error count	• **No** • Yes
	EDH Present	5, 1	Indicates the presence of EDH	• Yes • No
	EDH Error Count	5, 2	Displays the EDH error count	0 to 4,294,967,295
	Input CC Present	4, 4	Indicates the presence of closed captioning	• No • Yes
	AFD Detected	6, 1	Indicates presence of AFD packet	• No • Yes
	AFD Remove	6, 2	Controls the removing of AFD data	• **No** • Yes
	VI Detect Line Field 1	6, 3	Controls the video line number to detect VI packet embedded in field 1	• 11 to 19(525) (**14**) • 8 to 23 (625) (**11**)
	VI Detect Line Field 2	6, 4	Controls the video line number to detect VI packet embedded in field 2	• 274 to 282 (525) (**277**) • 321 to 336 (625) (**324**)
	VI Scan Detected	6, 5	Indicates the presence of VI packet Scan Part	• No • Yes
	VI AFD Detected	6, 6	Indicates the presence of VI packet AFD Part	• No • Yes
	VI Remove	6, 7	Controls the removing of VI data	• **No** • Yes
	WSS Detect Line	6, 8	Controls the video line number to detect WSS packet embedded in field 1	**N/A** (525); 8 to **23** (625)
	WSS Detected	6, 9	Indicates the presence of WSS packet	• No • Yes
	WSS Remove	6, A	Controls the removing of WSS data	• **No** • Yes

Table 4-1. Video Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
Reference	Genlock Source	0, D	Selects the genlock source	• **External Ref** • Frame Ref • Free Run • Delay
	Reference Standard	0, E	Selects the reference standard	• **Auto** • NTSC/PAL-M • TLS 720p59.94 • TLS 1080i59.94 • TLS 1080p29.97 • PAL-B • TLS 720p50 • TLS 1080i50 • TLS 1080p25
	Reference Video Standard Detect	4, D	Displays the detected reference video standard	• Unknown • NTSC/PAL-M • TLS 720p59.94 • TLS 1080i59.94 • TLS 1080p29.97 • PAL-B • TLS 720p50 • TLS 1080i50 • TLS 1080p25
	Reference Locked	4, F	Indicates if system timing is locked to the reference input	• No • Yes • Not applicable
	Valid Reference Standard	4, E	Indicates whether the detected reference video standard matches the selected output video standard	• No • Yes • Not applicable

Table 4-1. Video Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
Output	Output Video Standard	0, 4	Selects an output video standard	• **Auto** • 525 • 625
	On Screen Display	0, 2	Turns on/off the on-screen display	• Off • **On**
	OSD Transparency Level	0, 3	Sets the on-screen display transparency level	**0** to 15
	Loss of Video Output	0, 5	Selects an output option when loss of input occurs	• **Pass** • Black • Freeze • Test Pattern • Sync Pass
	Test Pattern Select	0, 6	Selects a test pattern (Test Pattern Display parameter must first be set to On)	• **Color Bar 75%** • Cross Hatch • Freq Sweep • White • Black
	Test Pattern Display	0, 7	Turn on/off the test pattern display	• **Off** • On
	Safe Area	0, 8	Turns on/off various safe area overlays	• **Off** • Action On • Title On • Action & Title On
	Video Keying	0, 9	Turns on/off video keying for the SDI output	• **Off** • Key Image • Key Background

Table 4-1. Video Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	Background Color	0, A	Sets the background color	• **Black** • Super Black • Red 50% • Green 50% • Blue 50% • Orange 50% • Grey 50% • Grey 40% • Grey 25%
	H Phase	0, B	Sets the horizontal phase for the output signal	• **0** to 1715 pixels (525 • **0** to 1727 pixels (625)
	V Phase	0, C	Sets the vertical phase for the output signal	• **0** to 524 lines (525) • 0 to 624 lines (625)
	CC Embed	3, 8	Turns on/off the closed caption embedding To remove residual evidence of closed captioning on line 21 at the top of the video picture, use the cropping controls.	• **On** • Off
	AFD Insert	7, 1	Controls the embedding of the AFD packet	• **Off** • Auto • Custom

Table 4-1. Video Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	AFD Select	7, 2	Controls the AFD code that gets embedded; options depend on the **Output Aspect Ratio** parameter setting	When **Output Aspect Ratio** parameter is set to 43 • 16:9 top • 14:9 top • >16:9 in 4:3 • **4:3 full** • 16:9 l • 14:9 l • 4:3 a 14:9 • 16:9 l a 14:9 • 16:9 l a 4:3 When **Output Aspect Ratio** parameter is set to 169 • 16:9 full • 14:9 p • >16:9 in 16:9 • 4:3 p • 16:9 prtctd • 4:3 p a 14:9 • 16:9 a 14:9 • 16:9 a 4:3
	AFD Line Field 1	7, 3	Controls the video line number where the AFD packet gets embedded to in field 1	11 to 19 (525) (**12**) **8** to 23 (625)
	AFD Line Field 2	7, 4	Controls the video line number where the AFD packet gets embedded to in field 2	274 to 282 (525) (**275**) 320 to 336 (625) (**327**)

Table 4-1. Video Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	VI Insert	7, 5	Controls the embedding of the VI packet	• **Off** • Auto • Custom
	VI Select	7, 6	Controls the VI code that gets embedded; options depend on the **Output Aspect Ratio** parameter setting	When **Output Aspect Ratio** parameter is set to 4:3 • 16:9 top • 14:9 top • >16:9 in 4:3 • **4:3 full** • 16:9 l • 14:9 l • 4:3 a 14:9 • 16:9 l a 14:9 • 16:9 l a 4:3 When **Output Aspect Ratio** parameter is set to 16:9 • 16:9 full • 14:9 p • >16:9 in 16:9 • 4:3 p • 16:9 prtctd • 4:3 p a 14:9 • 16:9 a 14:9 • 16:9 a 4:3
	VI Line Field 1	7, 7	Controls the video line number where the VI packet gets embedded to in field 1	12 to 19 (525) (**14**) 8 to 23 (625) (**11**)

Table 4-1. Video Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	VI Line Field 2	7, 8	Controls the video line number where the VI packet gets embedded to in field 2	274 to 282 (525) (**277**) 320 to 336 (625) (**324**)
	VI Emb with AFD	7, C	Controls whether the VI output supports the AFD upper bits part	• **No** • Yes
	WSS Insert	7, 9	Controls the embedding of the WSS packet	• **Off** • Auto • Custom
	WSS Select	7, A	Controls the WSS code that gets embedded	• **Full frame** • 14:9 center • 14:9 top • 16:9 center • 16:9 top • >16:9 center • Full a 14:9 • 16:9 Anamorphic
	WSS Line	7, B	Controls the video line number where the WSS packet gets embedded to in field 1	**N/A** (525) 7 to **23** (625)
	VBI Pass #1	8, 1	Selects one VBI line to pass transparently through the video processor	• **0**, 12 to 22, 275 to 285 (525) • **0**, 8 to 23, 321 to 335 (625)
	VBI Pass #2	8, 2	Selects one VBI line to pass transparently through the video processor	• **0**, 12 to 22, 275 to 285 (525) • **0**, 8 to 23, 321 to 335 (625)
	VBI Pass #3	8, 3	Selects one VBI line to pass transparently through the video processor	• **0**, 12 to 22, 275 to 285 (525) • **0**, 8 to 23, 321 to 335 (625)

Table 4-1. Video Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	VBI Pass #4	8, 4	Selects one VBI line to pass transparently through the video processor	• **0**, 12 to 22, 275 to 285 (525) • **0**, 8 to 23, 321 to 335 (625)
	VBI Pass #5	8, 5	Selects one VBI line to pass transparently through the video processor	• **0**, 12 to 22, 275 to 285 (525) • **0**, 8 to 23, 321 to 335 (625)
	VBI Pass #6	8, 6	Selects one VBI line to pass transparently through the video processor	• **0**, 12 to 22, 275 to 285 (525) • **0**, 8 to 23, 321 to 335 (625)
	VBI Pass #7	8, 7	Selects one VBI line to pass transparently through the video processor	• **0**, 12 to 22, 275 to 285 (525) • **0**, 8 to 23, 321 to 335 (625)
	VBI Pass #8	8, 8	Selects one VBI line to pass transparently through the video processor	• **0**, 12 to 22, 275 to 285 (525) • **0**, 8 to 23, 321 to 335 (625)
	VBI Pass #9	8, 9	Selects one VBI line to pass transparently through the video processor	• **0**, 12 to 22, 275 to 285 (525) • **0**, 8 to 23, 321 to 335 (625)
	VBI Pass #10	8, A	Selects one VBI line to pass transparently through the video processor	• **0**, 12 to 22, 275 to 285 (525) • **0**, 8 to 23, 321 to 335 (625)
	VBI Pass #11	8, B	Selects one VBI line to pass transparently through the video processor	• **0**, 12 to 22, 275 to 285 (525) • **0**, 8 to 23, 321 to 335 (625)

Table 4-1. Video Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	VBI Pass #12	8, C	Selects one VBI line to pass transparently through the video processor	• **0**, 12 to 22, 275 to 285 (525) • **0**, 8 to 23, 321 to 335 (625)
	VBI Pass #13	8, D	Selects one VBI line to pass transparently through the video processor	• **0**, 12 to 22, 275 to 285 (525) • **0**, 8 to 23, 321 to 335 (625)
	VBI Pass #14	8, E	Selects one VBI line to pass transparently through the video processor	• **0**, 12 to 22, 275 to 285 (525) • **0**, 8 to 23, 321 to 335 (625)
Processing	Processing Bypass	0, 1	Disables video processing: ARC controls, crop controls, underscan mode	• **Off** • On
	ARC	1, E	Enables or disables the module's aspect ratio converter	• Off • **On**

Table 4-1. Video Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	ARC Preset	1, 4	Selects a preset ARC configuration	• 4:3->4:3 Pillar • 4:3->14:9 Pillar • 4:3->16:9 Cut • **4:3->16:9 Anamorphic** • 4:3->21:9 Letter • 16:9->16:9 Letter • 16:9->14:9 Letter • 16:9->4:3 Cut • 16:9->4:3 Anamorphic • 16:9->21:9 Letter • Preset 1 • Preset 2 • Preset 3 • Preset 4 • Preset 5 • Custom • AFD • AFD(ALTR) • VI • VI(ALTR) • WSS • WSS(ALTR)
	ARC H Scale Feedback	4, 5	Displays the current ARC horizontal phase	50% to 150% (see Table 3-3 on page 56)
	ARC V Scale Feedback	4, 6	Displays the current ARC vertical phase	60% - 150% (see Table 3-3 on page 56)
	ARC H Offset Feedback	4, 7	Displays the current ARC horizontal offset	-50.00% to 50.00%
	ARC V Offset Feedback	4, 8	Displays the current ARC vertical offset	-50.00% to 50.00%

Table 4-1. Video Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	ARC Transition Mode	1, 5	Sets the ARC transition mode	• **Cut** • Linear • S-curve
	ARC Transition Duration	1, 6	Sets the ARC transition duration	**0** to 5.0 s, in 0.1 s increments
	ARC H Scale	1, 7	Sets the ARC horizontal scale	50% to 150% **(100)** (see Table 3-3 on page 56)
	ARC V Scale	1, 8	Sets the ARC vertical scale	60% - 150% **(100)** (see Table 3-3 on page 56)
	ARC H Offset	1, 9	Sets the ARC horizontal offset	-50.00% to 50.00% **(0)**
	ARC V Offset	1, A	Sets the ARC vertical offset	-50.00% to 50.00% **(0)**
	ARC Preset Save	1, C	Saves the current ARC configuration to a specific preset	• **None** • Preset 1 • Preset 2 • Preset 3 • Preset 4 • Preset 5

Table 4-1. Video Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	ARC Preset Recall	1, D	Recalls an ARC configuration	• **None** • 4:3->4:3 Pillar • 4:3->14:9 Pillar • 4:3->16:9 Cut • 4:3->16:9 Anamorphic • 4:3->21:9 Letter • 16:9->16:9 Letter • 16:9->14:9 Letter • 16:9->4:3 Cut • 16:9->4:3 Anamorphic • 16:9->21:9 Letter • Preset 1 • Preset 2 • Preset 3 • Preset 4 • Preset 5
	Arc Crop Top	6, C	Top line of cropped picture position	0 - 5 (**1**)
	Arc Crop Bottom	6, D	Bottom line of cropped picture position	**0** - 5
	Arc Crop Right	6, E	Set number of pixels to crop on the right	**0** - 20
	Arc Crop Left	6, F	Set number of pixels to crop on the left	**0** - 20
	Crop Mode	6, B	Off disables crop controls. Resize scales the cropped input to the size of the uncropped image	• Off • On • **Resize**
	Output Active Picture Start	3, 9	Controls the line number for the start of the active picture	• **Auto** • line number

Table 4-1. Video Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	Output Underscan	1, B	Emulates "Underscan" mode of monitor; used for setting up input cropping	• **Off** • On
	Motion Threshold Mode	3, A	Sets the mode used to determine the motion threshold value	• **Auto** • Manual
	Motion Manual Threshold	3, B	Sets the threshold value for what is considered motion rather than noise when the Motion Threshold Mode is set to Manual	1–16 (**8**)
	Auto ARC Reset	7, D	Controls whether to reset back to the original ARC setting when auto ARC packets disappear from the video	• Yes • **No**
	OutAspectRatio	4, 1	Sets the aspect ratio of the ARCing output	• **43** • 169
	Film Mode	1, F	Controls the Film Mode detection	• **Auto** • Mixed • Film • Video

Audio Setup Parameters

Table 4-2. Audio Setup Parameters

<table>
<tr><th>Navigation</th><th>Parameter Name</th><th>Bank, Switch</th><th>Function</th><th>Options</th></tr>
<tr><td rowspan="5">Input</td><td>Audio Group Present</td><td>4, 9</td><td>Indicates the present audio group
<table><tr><td>Group 1 present</td><td>Group 2 present</td><td>Groups 2 and 3 present</td><td>All audio groups present</td></tr><tr><td>1 = = =</td><td>= 2 = =</td><td>= 2 3 =</td><td>1 2 3 4</td></tr></table></td><td>• ====
• 1===
• .....(all possible combinations)
• =234
• 1234</td></tr>
<tr><td>Audio Channel Pair Feedback</td><td>4, A</td><td>Displays the input audio channel pair (See the example below.)
<table><tr><td>No audio present</td><td>Audio present</td><td>No audio present</td><td>Data present</td></tr><tr><td>= =</td><td>a a</td><td>= =</td><td>d d</td></tr><tr><td>Group 1</td><td>Group 2</td><td>Group 3</td><td>Group 4</td></tr></table></td><td>• ==aa==dd
• aadd==dd
• .....(all possible combinations)</td></tr>
<tr><td>Demux Error Control</td><td>2, 1</td><td>Selects an action when an error sample is selected</td><td>• Mute
• Repeat</td></tr>
<tr><td>Audio Demux Source</td><td>2, 2</td><td>Selects an audio source for demuxing</td><td>• Demux Grp 1 & 2
• Demux Grp 3 & 4
• Custom</td></tr>
<tr><td>Audio Pair 1 Select</td><td>2, 3</td><td>Selects a source for audio channel pair 1
(valid only when the Audio Demux Source parameter is set to Custom)</td><td>• Demux Grp 1 Pr 1
• Demux Grp 1 Pr 2
• Demux Grp 2 Pr 1
• Demux Grp 2 Pr 2
• Demux Grp 3 Pr 1
• Demux Grp 3 Pr 2
• Demux Grp 4 Pr 1
• Demux Grp 4 Pr 2</td></tr>
</table>

Table 4-2. Audio Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	Audio Pair 2 Select	2, 4	Selects a source for audio channel pair 2 (valid only when the **Audio Demux Source** parameter is set to **Custom**)	• Demux Grp 1 Pr 1 • **Demux Grp 1 Pr 2** • Demux Grp 2 Pr 1 • Demux Grp 2 Pr 2 • Demux Grp 3 Pr 1 • Demux Grp 3 Pr 2 • Demux Grp 4 Pr 1 • Demux Grp 4 Pr 2
	Audio Pair 3 Select	2, 5	Selects a source for audio channel pair 3 (valid only when the **Audio Demux Source** parameter is set to **Custom**)	• Demux Grp 1 Pr 1 • Demux Grp 1 Pr 2 • **Demux Grp 2 Pr 1** • Demux Grp 2 Pr 2 • Demux Grp 3 Pr 1 • Demux Grp 3 Pr 2 • Demux Grp 4 Pr 1 • Demux Grp 4 Pr 2
	Audio Pair 4 Select	2, 6	Selects a source for audio channel pair 4 (valid only when the **Audio Demux Source** parameter is set to **Custom**)	• Demux Grp 1 Pr 1 • Demux Grp 1 Pr 2 • Demux Grp 2 Pr 1 • **Demux Grp 2 Pr 2** • Demux Grp 3 Pr 1 • Demux Grp 3 Pr 2 • Demux Grp 4 Pr 1 • Demux Grp 4 Pr 2
Output	Audio Pair 1 & 2 Output Group	3, 1	Selects the output group number to embed channel pair 1 and 2	• **Group 1** • Group 2 • Group 3 • Group 4

Table 4-2. Audio Setup Parameters *(Continued)*

<table>
<tr><th>Navigation</th><th>Parameter Name</th><th>Bank, Switch</th><th>Function</th><th>Options</th></tr>
<tr><td></td><td>Audio Pair 3 & 4 Output Group</td><td>3, 2</td><td>Selects the output group number to embed channel pair 3 and 4</td><td>• Group 1
• Group 2
• Group 3
• Group 4</td></tr>
<tr><td>Processing</td><td>Audio Master Bypass</td><td>3, 3</td><td>Turns the master bypass on/off (Auto mode uses the C-bit in the audio header to determine whether non-PCM audio is present or not)</td><td>• Auto
• Off
• On</td></tr>
<tr><td></td><td>Audio Bypass Feedback</td><td>4, C</td><td>Displays the bypass status of audio channels
<table><tr><td>Channel 1 bypassed</td><td>Channels 2 and 3 bypassed</td><td>All channels bypassed</td></tr><tr><td>b = = =</td><td>= b b =</td><td>b b b b</td></tr></table></td><td>• ====
• b===
• .....(all possible combinations)
• =bbb
• bbbb</td></tr>
<tr><td></td><td>Audio Pair 1 Bypass</td><td>3, 4</td><td>Sets the bypass for audio channel pair 1</td><td>• On
• Off</td></tr>
<tr><td></td><td>Audio Pair 2 Bypass</td><td>3, 5</td><td>Sets the bypass for audio channel pair 2</td><td>• On
• Off</td></tr>
<tr><td></td><td>Audio Pair 3 Bypass</td><td>3, 6</td><td>Sets the bypass for audio channel pair 3</td><td>• On
• Off</td></tr>
<tr><td></td><td>Audio Pair 4 Bypass</td><td>3, 7</td><td>Sets the bypass for audio channel pair 4</td><td>• On
• Off</td></tr>
<tr><td></td><td>Audio Master Mute</td><td>2, 7</td><td>Turns the master mute on/off</td><td>• Off
• On</td></tr>
</table>

Table 4-2. Audio Setup Parameters *(Continued)*

<table>
<tr><th>Navigation</th><th>Parameter Name</th><th>Bank, Switch</th><th>Function</th><th>Options</th></tr>
<tr><td></td><td>Audio Mute Feedback</td><td>4, B</td><td>Displays the mute status of embedded audio
(see the following example)

All audio is embedded<table><tr><td>=</td><td>=</td><td>=</td><td>=</td></tr><tr><td>Embed pair 1</td><td>Embed pair 2</td><td>Embed pair 3</td><td>Embed pair 4</td></tr></table>
All audio is muted<table><tr><td>m</td><td>m</td><td>m</td><td>m</td></tr><tr><td>Mute pair 1</td><td>Mute pair 2</td><td>Mute pair 3</td><td>Mute pair 4</td></tr></table></td><td>• ====
• m===
• .....(all possible combinations)
• =mmm
• mmmm</td></tr>
<tr><td></td><td>Audio Pair 1 Gain</td><td>2, 8</td><td>Sets the gain level for audio channel pair 1</td><td>-6.0 to 6.0 dB (0)</td></tr>
<tr><td></td><td>Audio Pair 2 Gain</td><td>2, 9</td><td>Sets the gain level for audio channel pair 2</td><td>-6.0 to 6.0 dB (0)</td></tr>
<tr><td></td><td>Audio Pair 3 Gain</td><td>2, A</td><td>Sets the gain level for audio channel pair 3</td><td>-6.0 to 6.0 dB (0)</td></tr>
<tr><td></td><td>Audio Pair 4 Gain</td><td>2, B</td><td>Sets the gain level for audio channel pair 4</td><td>-6.0 to 6.0 dB (0)</td></tr>
<tr><td></td><td>Audio Pair 1 Delay</td><td>2, C</td><td>Sets the delay for audio channel pair 1</td><td>0 to 1200 msec</td></tr>
<tr><td></td><td>Audio Pair 2 Delay</td><td>2, D</td><td>Sets the delay for audio channel pair 2</td><td>0 to 1200 msec</td></tr>
<tr><td></td><td>Audio Pair 3 Delay</td><td>2, E</td><td>Sets the delay for audio channel pair 3</td><td>0 to 1200 msec</td></tr>
<tr><td></td><td>Audio Pair 4 Delay</td><td>2, F</td><td>Sets the delay for audio channel pair 4</td><td>0 to 1200 msec</td></tr>
</table>

Other Setup Parameters

Table 4-3. Other Setup Parameters

Navigation	Parameter Name	Bank, Switch	Function	Options
GPIO	GPI #1 Trigger Select	5, 8	Controls definition for the active state of the GPI line	• **Off** • High • Low
	GPI #1 Event Set	5, 9	Selects which function should be triggered when the GPI line becomes active	• **4:3->4:3 Pillar** • 4:3->14:9 Pillar • 4:3->16:9 Cut • 4:3->16:9 Anamorphic • 4:3->21:9 Letter • 16:9->16:9 Letter • 16:9->14:9 Letter • 16:9->4:3 Cut • 16:9->4:3 Anamorphic • 16:9->21:9 Letter • Preset 1 • Preset 2 • Preset 3 • Preset 4 • Preset 5 • TestGen
	GPI #2 Trigger Select	5, A	Controls definition for the active state of the GPI line	• **Off** • High • Low

Table 4-3. Other Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	GPI #2 Event Set	5, B	Selects which function should be triggered when the GPI line becomes active	• **4:3->4:3 Pillar** • 4:3->14:9 Pillar • 4:3->16:9 Cut • 4:3->16:9 Anamorphic • 4:3->21:9 Letter • 16:9->16:9 Letter • 16:9->14:9 Letter • 16:9->4:3 Cut • 16:9->4:3 Anamorphic • 16:9->21:9 Letter • Preset 1 • Preset 2 • Preset 3 • Preset 4 • Preset 5 • TestGen
	GPI #3 Trigger Select	5, C	Controls definition for the active state of the GPI line	• **Off** • High • Low

Table 4-3. Other Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	GPI #3 Event Set	5, D	Selects which function should be triggered when the GPI line becomes active	• **4:3->4:3 Pillar** • 4:3->14:9 Pillar • 4:3->16:9 Cut • 4:3->16:9 Anamorphic • 4:3->21:9 Letter • 16:9->16:9 Letter • 16:9->14:9 Letter • 16:9->4:3 Cut • 16:9->4:3 Anamorphic • 16:9->21:9 Letter • Preset 1 • Preset 2 • Preset 3 • Preset 4 • Preset 5 • TestGen
	GPI #4 Trigger Select	5, E	Controls definition for the active state of the GPI line	• **Off** • High • Low

Table 4-3. Other Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	GPI #4 Event Set	5, F	Selects which function should be triggered when the GPI line becomes active	• **4:3->4:3 Pillar** • 4:3->14:9 Pillar • 4:3->16:9 Cut • 4:3->16:9 Anamorphic • 4:3->21:9 Letter • 16:9->16:9 Letter • 16:9->14:9 Letter • 16:9->4:3 Cut • 16:9->4:3 Anamorphic • 16:9->21:9 Letter • Preset 1 • Preset 2 • Preset 3 • Preset 4 • Preset 5 • TestGen
	GPI Status	7, E	Displays the status of all GPI lines	• ==== • ===a • ==a= • ==aa • … (leftmost digit = GPI 1)
	GPO #1 State Select	3, C	Controls definition for the active state of the GPO line	• **Off** • Active High • Active Low

Table 4-3. Other Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	GPO #1 Event Set	3, D	Selects the functionality of the GPO line upon becoming active	• **4:3->4:3 Pillar** • 4:3->14:9 Pillar • 4:3->16:9 Cut • 4:3->16:9 Anamorphic • 4:3->21:9 Letter • 16:9->16:9 Letter • 16:9->14:9 Letter • 16:9->4:3 Cut • 16:9->4:3 Anamorphic • 16:9->21:9 Letter • Preset 1 • Preset 2 • Preset 3 • Preset 4 • Preset 5 • LOV
	GPO #2 State Select	3, E	Controls definition for the active state of the GPO line	• **Off** • Active High • Active Low

Table 4-3. Other Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	GPO #2 Event Set	3, F	Selects the functionality of the GPO line upon becoming active	• **4:3->4:3 Pillar** • 4:3->14:9 Pillar • 4:3->16:9 Cut • 4:3->16:9 Anamorphic • 4:3->21:9 Letter • 16:9->16:9 Letter • 16:9->14:9 Letter • 16:9->4:3 Cut • 16:9->4:3 Anamorphic • 16:9->21:9 Letter • Preset 1 • Preset 2 • Preset 3 • Preset 4 • Preset 5 • LOV
	GPO Status	7, F	Displays the status of all GPO lines	• == • =a • a= • aa (leftmost digit = GPO 1)
Other	Factory Recall	0, F	Recalls the factory default settings	• **No** • Yes
	Module Type	5, 5	Displays the current card type, which is based on the module's feature set.	• XHD6800+U1 • XHD6800+U1+CC • XHD6800+U2 • XHD6800+U2+CC • XHD6800+A

Table 4-3. Other Setup Parameters *(Continued)*

Navigation	Parameter Name	Bank, Switch	Function	Options
	Serial Number	5, 6	Displays the module's serial number	(serial number)
	License Key	5, 7	Displays the software license key used to unlock the last feature upgrade	(license key)
	Module Type Match	n/a	Provides the matching status of Module type and firmware	

LEDs and Alarms

The XHD6800+A has a single module status LED and 13 monitoring LEDs to provide card-edge reference. XHD6800+A alarm information is available in CCS software only. Figure 4-1 shows the location of the module status and monitoring LEDs on a typical 6800+ module.

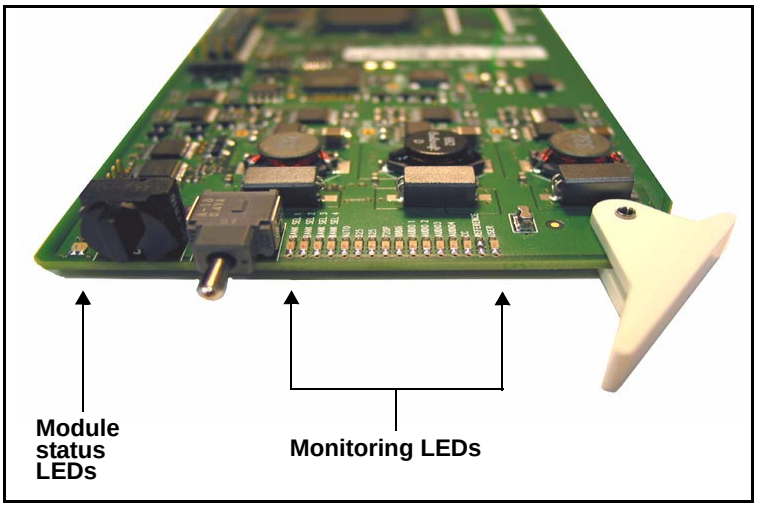


Figure 4-1. Location of XHD6800+A LEDs

Monitoring LEDs

The XHD6800+A has 13 monitoring LEDs that serve as a quick monitoring reference. Table 4-4 on page 85 describes the meaning of the card-edge LEDs, from left to right.

Table 4-4. LED Status Indicators

LED	Description	Color Indication
50-59	Not used	N/A
Auto	Not used	N/A
525	Indicates the input standard is 525	Green: 525 input standard is detected
625	Indicates the input standard is 625	Green: 625 input standard is detected
720p	Not used	N/A
1080i	Not used	N/A

Table 4-4. LED Status Indicators *(Continued)*

LED	Description	Color Indication
Audio1	Reports the presence of audio group 1 in the input video stream	Green: Group 1 audio is present
Audio2	Reports the presence of audio group 2 in the input video stream	Green: Group 2 audio is present
Audio3	Reports the presence of audio group 3 in the input video stream	Green: Group 3 audio is present
Audio4	Reports the presence of audio group 4 in the input video stream	Green: Group 4 audio is present
CC	Indicates the presence of closed captioning	Green: Closed captioning data is present
Reference	Indicates the presence of a valid reference signal	Green: Valid signal is present
Bypass	Not used	N/A

Module Status LED

The XHD6800+A modules do not have any card-edge alarms. Instead, the module status LED on the corner of the module lights up if an error is detected. See Figure 4-1 on page 85 for the location of the LED, and Table 4-5 for a definition of the LED colors.

Table 4-5. LED Color and Meaning

LED Color Sequence	Meaning
Off	There is no power to the module; the module is not operational.
Green	There is power to the module; the module is operating properly.
Red	There is an alarm condition.
Flashing Red	The module has detected a hardware/firmware fault.
Amber	The module is undergoing configuration.

Note

If the LED is flashing red, please contact your Customer Service representative.

Alarms

Alarms are usually logged and monitored within software control applications such as **+** PilotLite or CCS Pilot. See the appropriate software control user manual or online help for more information.

Table 4-6 describes the specific alarms for XHD6800**+** modules.

Table 4-6. XHD6800**+** Alarms

Alarm Name	Alarm Description	Alarm Level
SDI IP Video Present	Loss of SDI input video	Major
RefLockedAlarm	Loss of locked reference	Major
RefStdMismatch	Mismatch between reference video and video standard	Major

Chapter 5

Specifications

Overview

The following specification tables appear in this chapter:

Specifications and designs are subject to change without notice.

Inputs

SDI Video Input

Table 5-1. SD-SDI Video Input Specifications

Item	Specification
Number of inputs	1
Standards	SMPTE 259M-C (270 Mbps, 525/625 component video)
Connector	BNC per IEC 169-8
Impedance	75Ω
Return loss	>15 dB to 270 MHz
Equalization	>23 dB (typical) Belden 8281 cable

Genlock Input

Table 5-2. Genlock Input Specifications

Item	Specification
Connector	BNC per IEC 169-8
Impedance	75Ω
Return loss	>40 dB (typical) to 6 MHz >35 dB (typical) to 30 MHz
Common mode range	5.5 V pk-to-pk
CMRR	60 dB @ 60 Hz, 5 V pk-to-pk
Input level	• NTSC/PAL-B (1 V pk-to-pk, -5.0 dB to 6.0 dB) • Tri-Level Sync (1080i/720p) ± 300 mV, -3.5 dB to 6.0 dB
Signal type	• NTSC/PAL-B analog composite • ± 300 mV Tri-Level Sync (1080i/720p)

Outputs

SD-SDI Reclocked Video Output

Table 5-3. SD-SDI Reclocked Output Specifications

Item	Specification
Number of outputs	2
Standard	SMPTE 259M-C (270 Mbps, 525/625 component video)
Connector	BNC per IEC 169-8
Impedance	75Ω
Return loss	>15 dB to 270 MHz
DC offset	0.0 V ± 0.5 V
Signal level	800 mV ± 10%
Rise and fall time	400 to 1500 ps (20% to 80%) at 270 MHz
Overshoot	<10% of amplitude (all outputs terminated)
Jitter	<0.2 UI pk-to-pk

SD-SDI Program Video Output

Table 5-4. SD-SDI Program Video Output Specifications

Item	Specification
Number of outputs	2 program, 2 monitor/program
Standard	SMPTE 259M-C (270 Mbps, 525/625 component video)
Connector	BNC per IEC 169-8
Impedance	75Ω
Return loss	>15 dB to 270 MHz
DC offset	0.0 V ± 0.5 V
Signal level	800 mV ± 10%
Rise and fall time	< 0.75 to 1.5 nss (20% to 80%) at 270 MHz
Overshoot	<10% of amplitude (all outputs terminated)
Jitter	<0.2 UI pk-to-pk)

Miscellaneous

Audio Delay (Data Out)

Table 5-5. Audio Delay Specifications

Item	Specification
Number of outputs	1
Connector	BNC per IEC 169-8
Impedance	75Ω
Return loss	>20 dB (typical) to 6 MHz

Propagation Delay

Table 5-6. Propagation Delay

Mode	Specification
Delay	1 frame
Sync	Between 1 and 2 frames: • Between 0 and 1 frame through the frame synchronizer • 1 frame through the scalar

GPIO

Table 5-7. GPI Specifications

Item	Specification
Inputs	4 Internally pulled HIGH External contact closure to ground to trigger
Outputs	2 Buffered TTL levels
Connector	RJ-45

Performance

Table 5-8. Performance Specifications

Item	Specification
Power consumption	<11 W
Operating temperature	41° to 113°F (5° to 45°C)

Appendix A

Communication and Control Troubleshooting Tips

Overview

Find the following troubleshooting information in this appendix:

General Troubleshooting Steps

Follow these steps in troubleshooting 6800**+** product problems:

1. Review the “Software Communication and Control Issues” on page 98 outlined in this chapter.
2. Search this product manual and other associated documentation for answers to your question.

   Note

   Associated documentation for 6800**+** series products can generally be found in the product-specific manual that accompanies every module, in the *FR6802**+** Frame Installation and Operation Manual*, and in the *6800**+** Safety Instructions and Standards Manual*.

   Product documentation (including manuals, online help, application notes, erratas, product release notes, and more) can be found on our website, along with technical support information, training information, product downloads, and a product knowledge base.
3. Contact your Customer Service representative if, after following these initial steps, you cannot resolve the issue.

   To contact Customer Service, see “Contacting Customer Service” on page 102.

Control and Monitoring Using CCS Software

Before using CCS software applications to control and monitor your module, you must refresh (**+** Pilot Lite) or discover (Pilot and Navigator) the module. Refresh and Discovery are the processes by which your CCS software finds, and then connects to your module.

Refreshing Your Module Using + Pilot Lite

When using **+** Pilot Lite to change your XHD6800**+**A control parameters, you must "refresh" the control connection between your 6800**+** frame and PC. To refresh the connection, from the **+** Pilot Lite menu bar, select **File** > **Refresh**. For information about controlling a device using **+** Pilot Lite, see your **+** Pilot Lite *User Manual*.

Discovering a XHD6800+A Module

To discover your module, your Pilot or Navigator software must be in Build mode. Follow these steps:

1. If the Discovery window is not open, click **Tools** > **Discovery** in the main menu.

   A **Discovery** window opens, most likely in the bottom left corner of the screen.

2. Click **Options**, and then click **Add**.
3. Enter the IP address of the frame that contains your module, the frame that contains your ICE6800**+** module, or the frame that contains a 6800**+**ETH module that provides access to your module.
4. Click **OK** to close the **Add IP address** window, and then **OK** again to close the **Discovery Options** window.
5. Click **Start**.

   This triggers Pilot or Navigator to run a discovery.

6. When your discovery is complete, **Discovery Completed** is displayed in the **Discovery** window. To continue, click **Save**, to save the contents of your discovery to the **Discovery** folder of the **Navigation** pane.

You can now switch to Control mode by selecting **Operational Mode** > **Control** from the main menu. Double-click XHD6800**+**A in the Navigation pane. The **Control** window opens, displaying the module's controls.

:

Software Communication and Control Issues

+ Pilot Lite Fails to Communicate with Installed Modules

Confirm that the following items are not the reason for the communication failure:

- The proper module slot has not been specified (**+** Pilot Lite is not communicating with the appropriate slot). See your *FR6802+ Frame Installation and Operation Manual* for more information on slot identification.
- The COM port is used elsewhere (Check that the correct COM port is configured in **+** Pilot Lite and that another application is not using that COM port).
- The actual frame ID does not match with the two DIP switch settings in the back of the frame (**+** Pilot Lite is not communicating with the proper frame). See your *FR6802+ Frame Installation and Operation Manual* for more information on frame ID switch settings.
- A null modem cable is not being used. Between the PC running **+** Pilot Lite and the FR6802**+** frame, there should be a null RS-232 modem cable. At minimum, this requires that pins 2 and 3 are crossed and 5 to 5 for ground.
- An ICE6800**+** or 6800**+**ETH module is installed in the frame (**+** Pilot Lite control is disabled if an ICE6800**+** or 6800**+**ETH control module is installed in the frame; ICE6800**+** and 6800**+**ETH modules are used for CCS control).

- A legacy 6800 series product is in the frame. + Pilot Lite cannot communicate with legacy 6800 series products. They will not be discovered or controlled by + Pilot Lite, although they can be installed in the FR6802+ frame and work using card-edge controls. The module must be from the 6800+ product family.
- Check that the back module does not have any bent pins, following this procedure:
  a. Unplug the front module.
  b. Unscrew and remove the back module.
  c. View the 20-pin spring connector at the bottom of the back module.(See Figure A-1.)

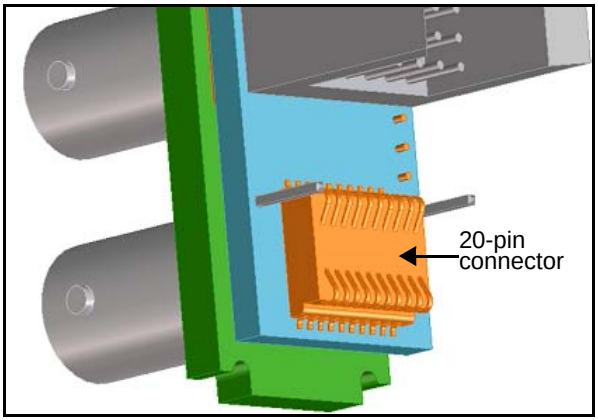


Figure A-1. Back Module to Front Module Connector

This connector should not have any bent or pressed pins. Even a slightly depressed or bent pin may cause genlock issues.

  d. If there are bent pins, carefully reposition them to their correct positions.

  If this is not possible, you can exchange the back module for a new one (order part number XHD6800+ADR).

+ Pilot Lite Does Not Find All Modules in Frame

If a discovery is started too soon after frame power-up, + Pilot Lite will not find all the installed modules. Refresh + Pilot Lite (**File** > **Refresh**), and ensure that installed modules are fully powered-up first before discovery.

If a module is plugged into the frame after a discovery, + Pilot Lite does not automatically detect the module. Refresh + Pilot Lite (**File** > **Refresh**) to discover the newly installed module.

If a Legacy 6800 series product is in the frame, + Pilot Lite will not detect it. + Pilot Lite cannot communicate with legacy 6800 series products. They will not be discovered or controlled by + Pilot Lite although they can be installed in the FR6802+ frame and work using card edge controls. For + Pilot Lite to find a module, it must be from the 6800+ product family.

+ Pilot Lite or CCS Software Application Not Responding

+ Pilot Lite and CCS applications such as Navigator or Pilot cannot run on the same PC at the same time. Both applications can be installed, but only one can be opened at a time.

+ Pilot Lite Cannot Control a Module Showing in the Control Window

Consider these questions:

- Did you physically set the jumper for local control? If so, set this jumper to the REM position for remote control.
- Does the card name in the control window physically match the card type in the frame?
- Is the module properly seated in the frame? Check the positioning of the module in its slot in the frame.
- Does the Control window indicate the device is “ready”? The device may be powered off or disconnected from the network.

+ Pilot Lite Status Bar Reports ‘Not Ready’

+ Pilot Lite reports each device’s connection status in the status bar. If the connection status message reads “Not Ready,” check the following:

- Is the module properly seated in the frame? Check the position of the module in the frame.
- Is the frame connected to the network? Check the device’s network connection.

If the status bar still reports no status or “Not Ready” for the frame or device, try restarting + Pilot Lite.

CCS Software Application or Remote Control Panel Does Not Communicate with Module

CCS software applications (such as Pilot, CoPilot, and Navigator) and remote control panels require the purchase and installation of an ICE6800**+** module in an FR6802**+** frame (or an ICE6800**+** or 6800**+**ETH module in a FR6802**+**QXF frame) in order to communicate remotely via Ethernet.

Alarm Query Fails When a Device Reboots

When you reboot a device connected to your PC, the alarm traffic hitting the network may cause an alarm query request to time out and fail. While the query does not automatically retry, it will post an "Alarm query failed" message to the **Diagnostics** window.

To clear an "Alarm query failed" message, right-click inside the **Diagnostics** window, and then select **Refresh** from the resulting context menu.

Hardware Communication and Control Issues

Frames Fail to Communicate with the PC after a Power Failure

You must exit the software and restart after the frame recovers from its power failure. To restore communications between the PC and the frames, ensure that the frames have three or more minutes to recover from the power failure before you exit the application and restart the PC.

Module Does Not Seem to Work

Although the following troubleshooting tips may seem obvious, please take the time to ensure the following:

- All appropriate rear connections are securely made
- The board is securely installed (with no bent pins)
- The frame is turned on

Contacting Customer Service

We are committed to providing round-the-clock, 24-hour service to our customers around the world. Visit our website for information on how to contact the Customer Service team in your geographical region.

Index

D

E

F

G

H

I

J-K

L

M

N

O

P

T

U

V

W-Z

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