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World Leader of In-Rack, Audio, Video, Data Monitoring, and Closed Captioning Solutions

AMP2-16V Series

- AMP2-16V-3G
- AMP2-E16V-3G

Modular Audio/Video Management and Monitoring Platform

User Guide

Part Number 821029, Revision B

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Table of Contents

Preface

Introduction

Overview

The preface lists the new features and functionality for this release.

Topics

What's New?

In the software release, we have added several new enhancements to the AMP2-16V Series monitors.

Genlock Ref Input

The **Ref** connectors are now active and, and allow the unit to synchronize to an external system reference.

SPDIF TOSLINK Connector

We now provide a new optional I/O module: the Analog I/O & SPDIF TOSLINK Card which, like the previous Analog I/O Card, also has eight inputs and eight outputs in addition to the TOSLINK connector.

Content Reorganization

To provide a smoother experience during system upgrades and preset copying, we have eliminated the appendices. Now all the instructions you need are in one convenient place.

CHAPTER 1
Quick Start

Introduction

Overview

The AMP2-16V Series monitors come with two 4.3" OLED screens and an easy-to-use configuration interface that provides flexible audio metering, video monitoring, and other data display.

Topics

Safety

Important Safety Instructions

1. Read, keep, and follow all of these instructions; heed all warnings.
2. Do not use this equipment near water, rain or moisture.
3. Use only a dry cloth to clean the equipment.
4. Do not block any ventilation openings. Install only in accordance with the instructions in the section entitled, "Installation Recommendations" on page 20.
5. Do not install near any heat source such as a radiator, heat register, amplifier, or stove.
6. Do not attempt to plug the unit into a two-blade outlet (with only two prongs of equal width).

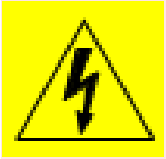
IMPORTANT: By design, these monitors will only plug into a three-prong outlet for your safety. If the plug does not fit into your outlet, contact an electrician to replace the obsolete outlet.

7. Protect the power cord from being walked on or pinched, particularly at plug's source on the equipment and at the socket.
8. Use only the attachments/accessories specified by the manufacturer.
9. Unplug the equipment during lightning storms or when unused for long periods of time.
10. Use of a cart is neither recommended nor approved by Wohler.
11. Refer all servicing to qualified service personnel. Servicing will be required under all of the following conditions:
    - The equipment has been damaged in any way, such as when the power-supply cord or plug is damaged.
    - Objects have fallen onto the equipment; or the equipment has been exposed to rain or moisture, or liquid has been spilled onto the equipment.

- The equipment does not operate normally.
- The equipment has been dropped.

Safety Symbols

WARNING:



The symbol to the left warns of electric shock hazard inside the unit. Disconnect the power cord before removing access panels when installing upgrades. Only qualified service personnel are to operate the equipment with covers removed, and are to exercise caution to avoid personal injury.

Installation Recommendations

Mounting

The unit is designed to install into a standard 19" rack mounted at ear level for best high frequency response and visual observation of the monitor screen. Please adhere to the following clearances:

Clearance	Surface
24″	Front
3″	Rear
2″	Sides
1.75″	Top and Bottom (if either radiates heat)
0″	Top and Bottom (if no heat)

Heat Dissipation

The ambient temperature inside the mounting enclosure should not exceed 40° Celsius (104° Fahrenheit). Adjacent devices can be rack mounted (or stacked) in proximity to the unit if this temperature is not exceeded. Otherwise, allow a 1RU (1.75″/44.45mm) space above and below the unit for air circulation.

Important: To reduce noise, the monitor does not have any fans. As a result, the heat generated by the class D power amplifiers, power supplies, and other components is vented by slots in the side of the unit. In extreme environments, you can connect the fan inside the unit to improve air circulation. Therefore, as a safety precaution, you must allow proper ventilation on both sides of the unit.

Sympathetic Vibration

Sympathetic vibration from other equipment (cables, etc.,) in the rack may be serious enough to interfere with the unit's sound quality. The use of thin card stock and/or felt or foam weather-stripping type materials between adjacent vibrating surfaces, or tying up loose cables, etc., may be required to stop vibrations external to the unit.

Mechanical Bracing

Even though the 2U models are fairly heavy, the chassis is securely attached to the front panel. In addition, the chassis has mounting tabs through which you attach it to the rack rail. This feature will reduce or eliminate rear bracing requirements in many mobile/portable applications. The weight of internal components is distributed fairly evenly around the unit.

Connections and Cable Recommendations

We recommend that you limit the length of the cables that you use for feeding HD-SDI signals sources to the HD-SDI inputs of the AMPx-E8 Series units and that you use a Belden 1694A cable (or equivalent). The HD-SDI input2 (**In 1** and **In 2**) can be up to 150 meters (492 feet) in length

Note: The connections of all DB-25 connectors are compatible with Tascam DB-25 to XLR cable assemblies. Consult the factory for availability. All rear panel connectors are female except for the XLR connectors.

Electrical Interference

Be careful to apply proper input termination settings and avoid mismatched cable types and other similar causes of undesired

reflections in digital signal systems. If severe enough, such reflections can result in corruption of the digital data stream. As with any audio equipment, maximum immunity from electrical interference requires the use of shielded cable; however, satisfactory results can sometimes be obtained without it. The internal circuitry ground is connected to the chassis.

Power

The unit comes with a standard 24VDC/3.0 A internal power supply and connects an A/C mains power source (65W, 100 to 240 VAC, 50/60Hz) through the IEC connector provided on the rear panel of the unit.

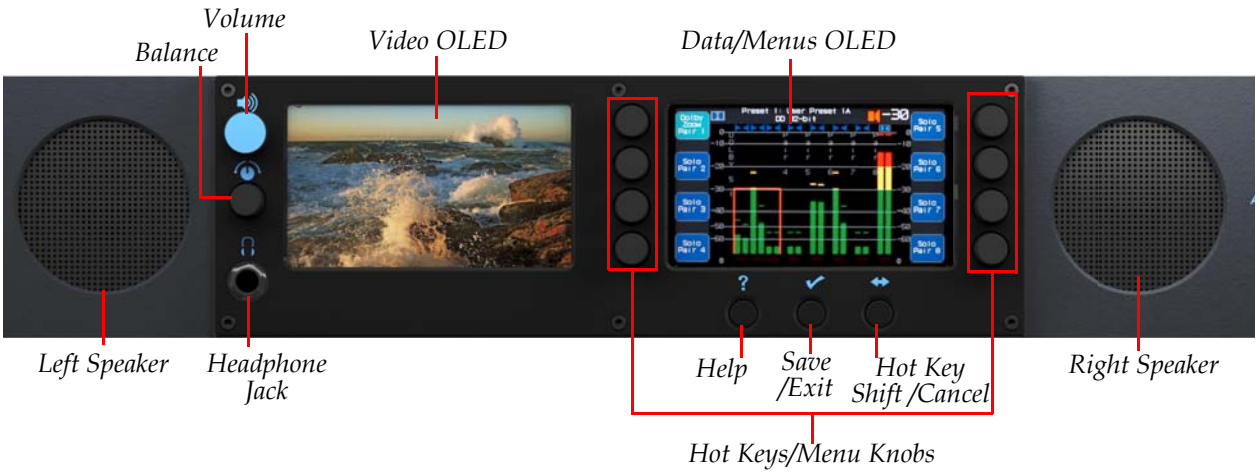
When the mains plug or appliance coupler is used as the disconnect device, the disconnect device should remain operable.

Front Panel Features

This section provides a brief overview of the controls on the front panel, and the connectors on the back panel of the monitor.

Controls

Figure 1–1 Front Panel Layout



- **Speakers:** Audio monitoring is achieved through the use of class D amplifiers driving two (left/right) full range speakers.

- **Headphone Jack:** A class AB amplifier drives the front panel 1/4" stereo jack for an optional headphone.

- **Balance and Volume Rotary Knobs:** Control knobs are above the headphone jack. The top knob controls the **Volume**. Pressing this control toggles a 20 dB speaker dip on and off. The bottom knob adjusts the **Balance** between the speakers. Pressing the knob returns the audio balance to center. Rotating either knob displays the change graphically when the **Main Screen** is displayed.

- **Navigation Buttons**: The three buttons below the LCD screen typically provide **Help** (left), **Save/Exit** (center), and **Cancel** (right) functions for the configuration menus. On some menus/screens, however, the functions of the center and right buttons may vary or they may be disabled altogether. Refer to Navigation on page 7 for more information.

- **Left OLED Screen**: This screen displays video or Dolby metadata. Alternately, it can display Dolby metadata.

- **Right OLED Screen:** This screen displays the audio meter bar graphs, help, and the configuration menus.

- **Hot Keys/Menu Rotary Knobs:** Eight knobs are used for menu navigation and hot key access to solo/mute, and preset functions.

    - For solo/mute hot keys, rotating the knob to the right sets the function to mute; rotating the knob to the left sets the function to solo. Pressing the knob activates the selected function.

    - For selectable preset hot keys, rotate the knob to display the preset number you want to recall and then press the knob to recall it.

Hot Keys

The AMP2-16V Series monitors provide single push button functionality right from the **Main Screen** through *hot keys*. Hot keys are customizable buttons that allow you to modify the audio (solos, mutes, and channel trims), analyze Dolby bitstreams, and recall presets. See Presets on page 48 for details. The AMP2-16V Series monitors provide 16 hot keys. For hot keys 1 through 8, simply press the button. For hot keys 9 through 16, press and release the **Hot Key Shift** (as shown at the bottom of Figure 1–6 on page 11) and then press the hot key of your choice.

For modifying audio, the solos and mutes reside on the same buttons. Simply turn the knob counterclockwise to solo a channel pair, or turn the knob clockwise to mute a channel pair.

If you have a Dolby D/E Card in your AMP2-16V Series monitor, hot keys 9 through 16 will come factory set as **Dolby Zooms,** but all 16 are programmable. For more information about hot keys, refer to Hot Keys on page 51. For more information about using the **Dolby Zoom** screen, refer to the Using the Dolby Zoom on page 44.

Note: The **Dolby Zoom** feature only works on channel pairs that are either Dolby D, Dolby Digital Plus, or Dolby E bitstreams.

Navigation

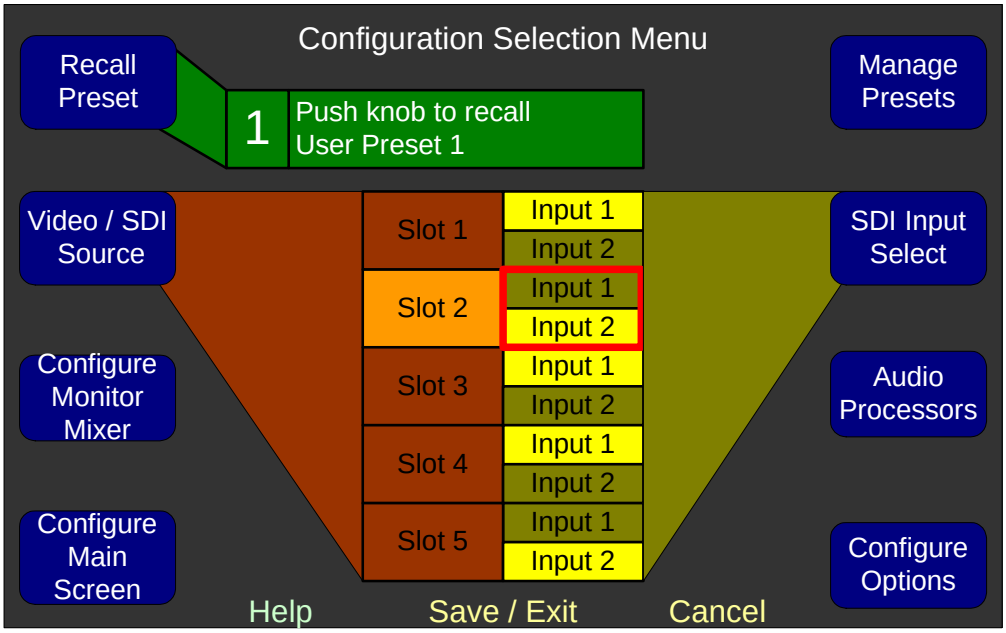
On the **Main Screen**, the navigation buttons are (from left to right) **Help**, **Menu**, and **Hot Key Shift** as shown in Figure 1–2 below.

Figure 1–2 Navigation Buttons

The functions of the navigation buttons can change depending upon the menu that is currently displayed. While the left button always generates context-sensitive **Help**, the function of the center and right buttons will vary. Usually the function of the center button is **Save / Exit;** the function of the right button is usually **Cancel**.

To begin navigating through the menu system, press the **Menu** button (from the **Main Screen**) to display the **Configuration Selection Menu** (Figure 1–3 below). The eight knobs surrounding the screen allow you to access other options or functions on the screen, or to proceed to other menus. (Refer to Figure 6–1 on page 74 for a diagram of the entire menu tree.)

Figure 1–3 Configuration Selection Menu



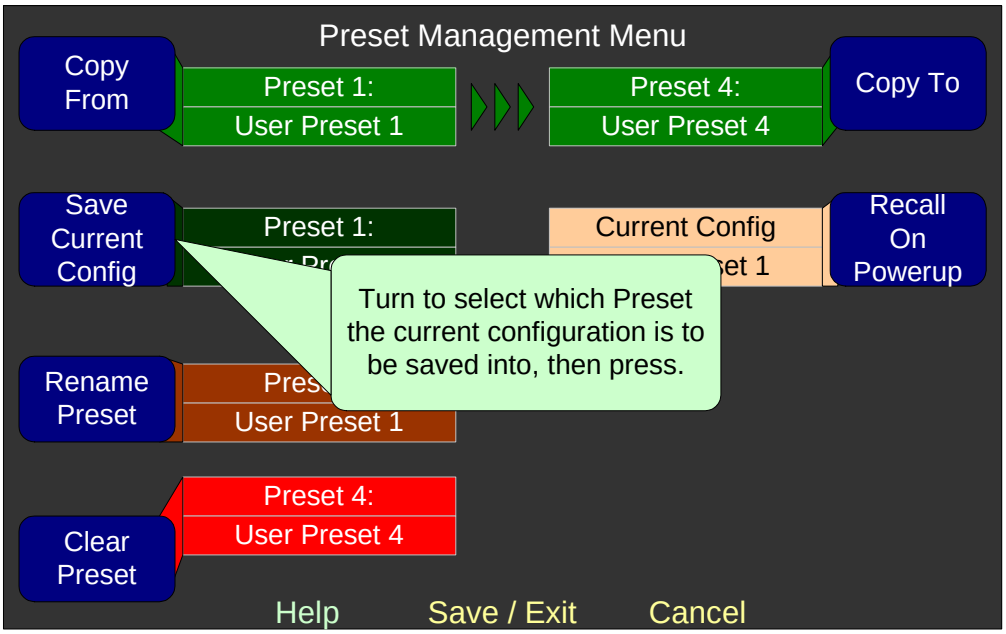
Note: Both the center **Exit** and the right **Exit** buttons provide the same function in the **Configuration Selection Menu**. Typically, however, the center button provides **Save / Exit** functionality.

Generally, to make changes to a function within a menu, rotate the knob to highlight the option you want. Pressing the **Save / Exit** saves the changes and returns you to the previous menu. To move back up in the menu tree press either the **Save / Exit** or the **Cancel** repeatedly until you reach the **Main Screen**.

Help

If at any time you would like assistance with the navigation or functionality of the sy tem, pressing the left navigation button provides context-sensitive help.For example, press the **Help** button on any screen and then press one of the menu/screen controls to display help specific to that control. See Figure 1–4 below.

Figure 1–4 Control Help



If you do not press/rotate any other controls, the help will disappear from the screen in approximately 15 seconds.

Rear Panel Connectors

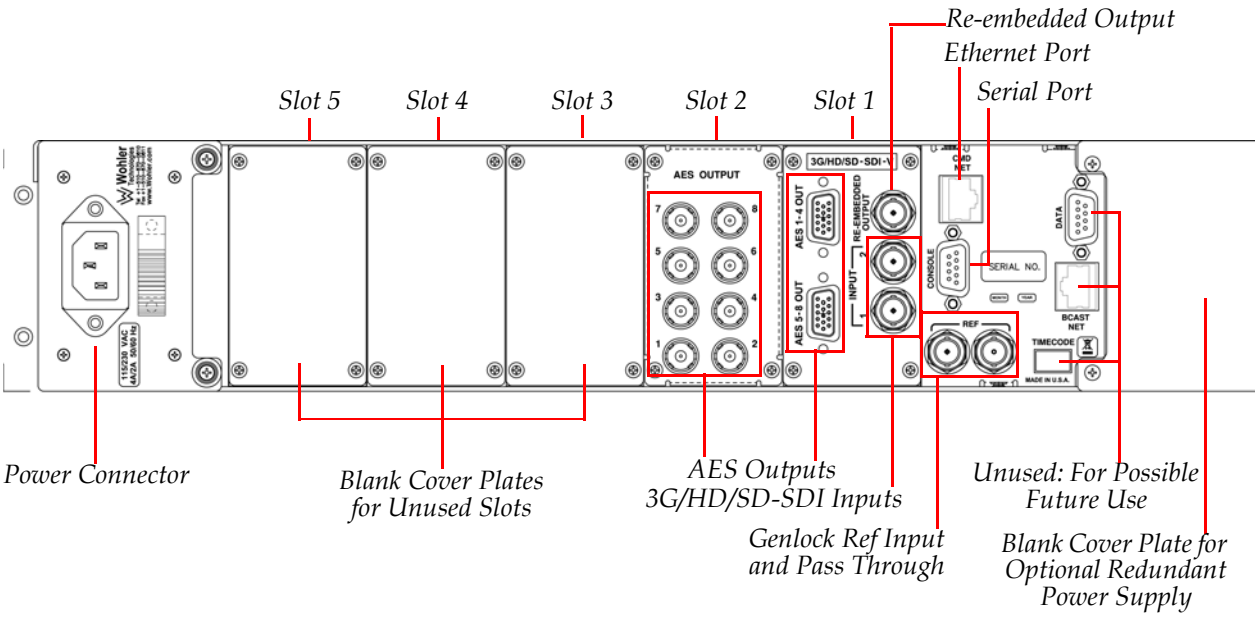
Standard Connectors

The AMP2-16V Series monitor back panel contains all of the connectors except for the headphone jack as shown in Figure 1–5 on page 10. Note that, as you are facing the rear panel, the slots are numbered from right to left.

- **Power:** The AMP2-16V Series monitors use a standard IEC power cord for the 100 to 240 VAC power connection. A redundant power supply is optional. (Refer to Option Kits on page 154 for a complete list).
- **Ethernet:** The Ethernet port is used for system software upgrades.
- **Serial:** This DB-9F connector is used for system software upgrades.

- **Genlock Ref Input and Pass-Through (Ref)**: These BNC connectors are designed to be used in a daisy-chained series arrangement from unit to unit. A 75Ω BNC terminator (not supplied) must be installed in the open **Ref** connector of the last unit in the chain. These inputs accept composite video sync sources.

Figure 1–5 Typical Back Panel Layout



Optional I/O Modules and Rear Panel Connectors

The AMP2-16V Series monitors can include any combination of the optional I/O modules listed in Table 1–1 below.

Table 1–1 Available Add-On I/O Modules

I/O Module Name	I/O Module Description
3G/HD/SD-SDI Card	Two 3G/HD/SD-SDI inputs 8 de-embedded AES pairs outputs (Includes automatic frame rate detection)
AES Input Card	16 channel (eight AES pairs)
AES Output Card	16 channel (eight AES pairs)
Analog I/O Card	8 channels in and 8 channels out
Analog I/O SPDIF TOSLINK Card	8 channels in and 8 channels out
Dolby Card D/E Card[a]	Provides Dolby bitstream decoding for an AES pair or de-embedded SDI of your choice

a The Dolby D/E Card is a daughter card and does not occupy one of the vacant slots and does not require its own external connectors.

Refer to Chapter 8: Input/Output Modules and Options on page 129 for more details.

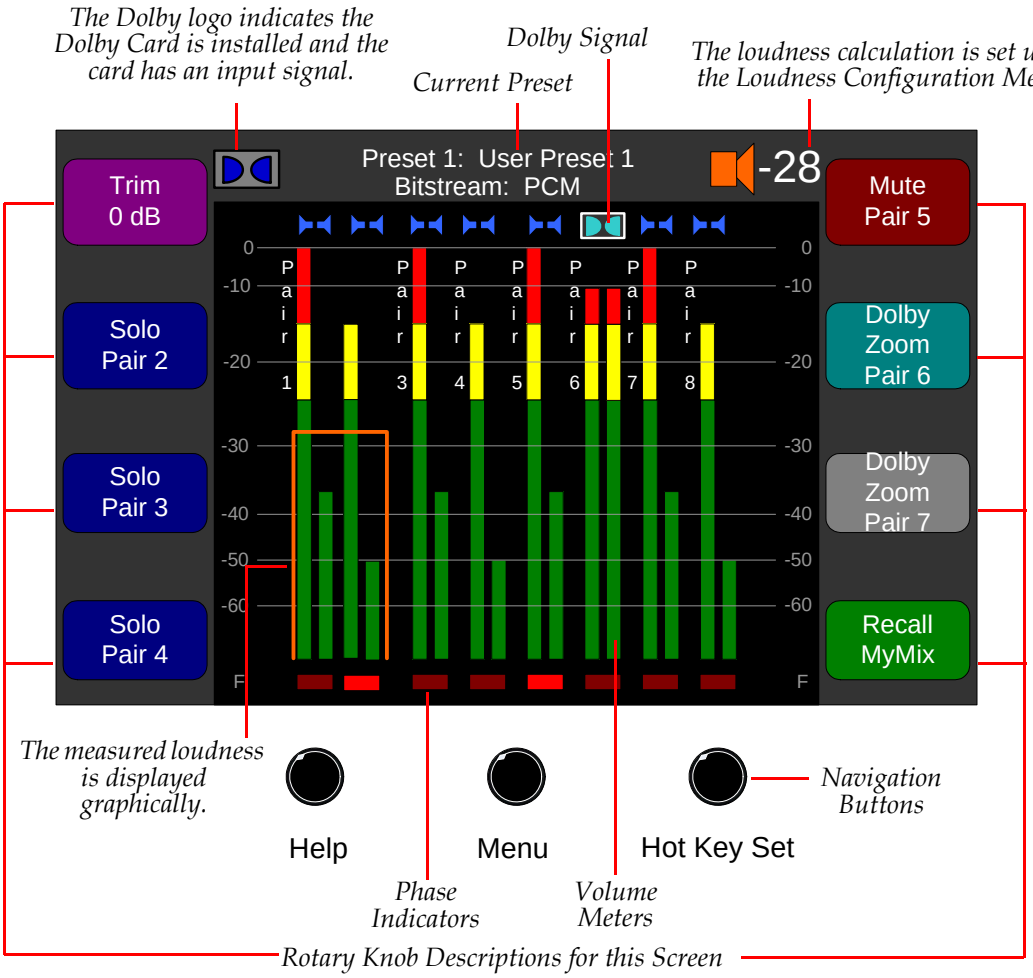
Getting Started

Setting Up the Monitor

The **Main Screen** (shown on Figure 1–6 below) is typically the starting and ending point for any system setup procedures.

Note: As a factory default, the AMP2-16V Series monitor will always be configured to produce audio in the monitor speakers from the card in the lowest numbered occupied slot (typically Slot 1).

Figure 1–6 Main Screen



The following steps provide a simple example.

Simple Example

1. Connect the power cord (or cords) to the unit, and then plug the other end of the cord(s) into a standard outlet. (Refer to Table 9–1 on page 160 for details about power consumption and requirements.)

2. Connect the audio input source(s) to the Input 1 connector (or connectors for an AES Input Card) on the rear panel adaptor of Slot 1. (Refer to Figure 1–5 on page 10 for slot numbering.)

3. Adjust the **Volume** and **Balance** as needed.

For more detailed audio configuration instructions, refer to Configuring Audio on page 16.

Getting Support

Should you need to contact Wohler's customer support line, you will save time on the phone by writing down the software and hardware versions installed in your machine, available from the **Unit Information Menu**. Follow the steps below.

1. When the **Main Screen** appears, press the **Menu** button to display the **Configuration Selection Menu**.

2. When the **Configuration Selection Menu** appears, press the **Options** knob to display the **Option Configuration Menu**.

3. When the **Option Configuration Menu** appears, press the **Config HW** knob to display the **Hardware Configuration Menu**.

4. When the **Hardware Configuration Menu** appears, press the **Unit Info** knob to display the **Unit Information Menu.** The default display of the **Unit Information Menu** lists the versions of all software and hardware components.

CHAPTER 2
Audio, Metering, and Mixing

Introduction

Overview

This chapter discusses the various menus and their configuration options for customizing the audio inputs/outputs, and the audio level meters.

Topics

Configuration Options

The AMP2-16V Series monitors are very flexible and can be configured to adapt to almost any audio configuration. The available adjustments are:

- Selecting the inputs channels to mix and monitor
- Adjusting individual channel levels for any monitored channels or output channels
- Displaying audio levels and phase indications with meters that can be clustered for quick visibility
- Switching channels dynamically
- De-embedding and rearranging channels for display and output
- Mixing any combination of inputs to any output.

  Note: This does not include the de-embedded AES outputs on the SDI or 3G cards.

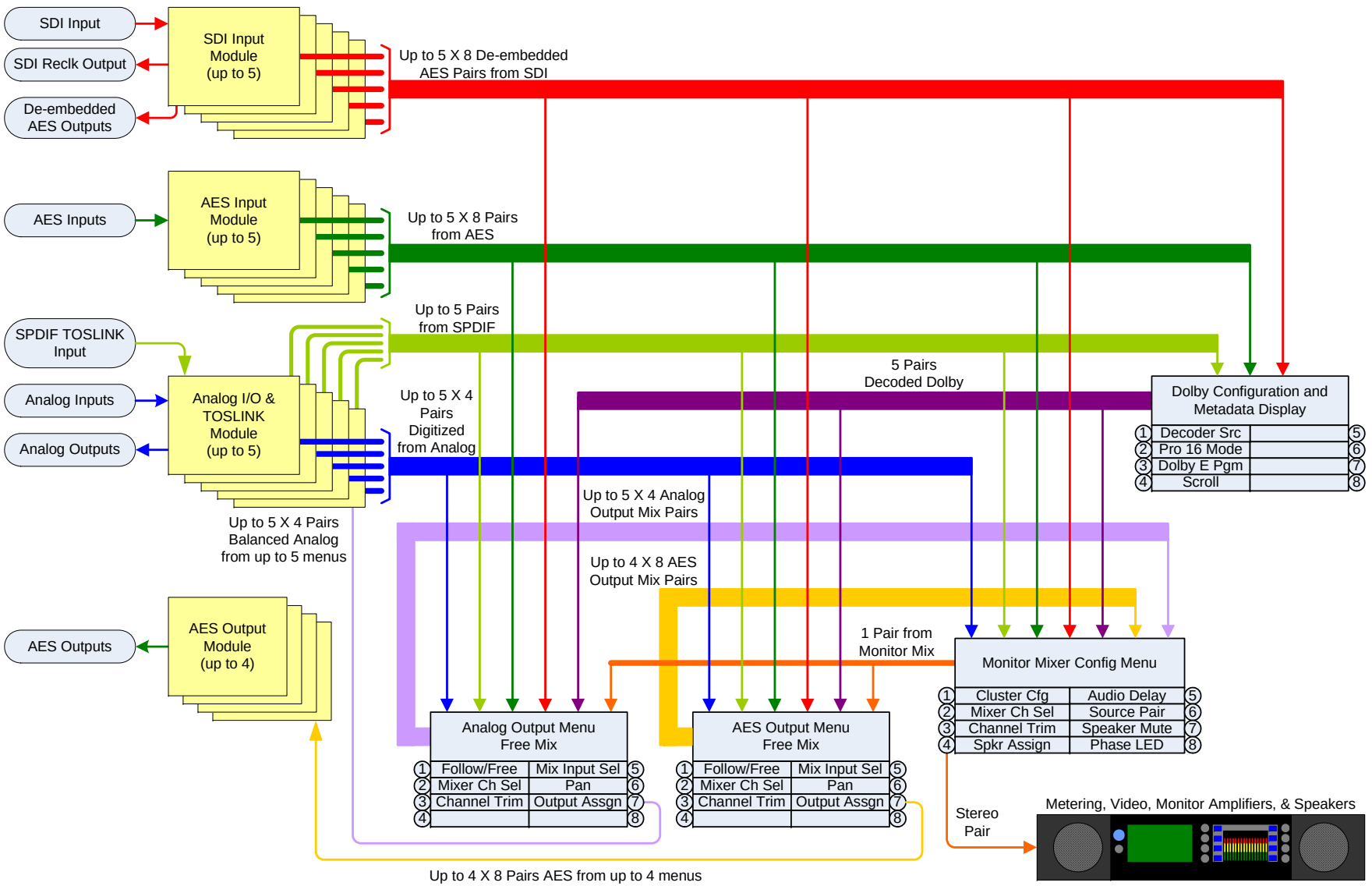
- Adjusting monitored audio delay from 0 to 170 ms to allow synchronization with a video monitor.

Configuring Audio

As a factory default, the AMP2-16V Series monitor will always be configured to produce audio in the front speakers from the card in monitor's lowest numbered occupied slot (typically Slot 1). However, you can configure the monitor to produce audio in the front speakers from any available input source.

You can route the digital audio signals at the monitor's inputs to the monitor's speakers, and/or to the outputs, depending on your needs. The internal routing paths are controlled by the settings in the setup menus. Figure 2–1 on page 17 shows the relationship between the internal routing paths and the various menus that control the signal flow.

Figure 2–1 Audio Routing Diagram



The different colors in the diagram represent various audio formats or levels of processing. Each menu will select, route, or adjust the audio paths. Further detail on each of these menus is available in Chapter 6: Menu List on page 73.

Note that you can set up multiple audio paths. For example, while monitoring de-embedded SDI audio channels through the speakers, you may independently decode Dolby channels from an AES stream, convert them to analog, and output them. Setups like this can be stored as presets and called up at will. See Presets on page 48.

Any monitored input can be routed to any AES or analog output pair. These powerful features will allow de-embedded, Dolby decoded, or other digital or analog audio to be used by other products. The audio that is output doesn't necessarily need to be monitored by the meters or speakers. Likewise you can mix any inputs to any combination of outputs. See Table 2–1 below for the number of available channel pairs for each signal type. You can easily configure this in the **AES Output Configuration Menu** and/or the **Analog Output Configuration Menu**.

Table 2–1 Available Signal Types/Channels

Signal Sources	Available Channel Pairs
SDI	1 through 8
AES	1 through 8
Analog	1 through 4
Analog SPDIF TOSLINK	1
Dolby	1 through 5
Follow Monitor	1 through 8
Off	

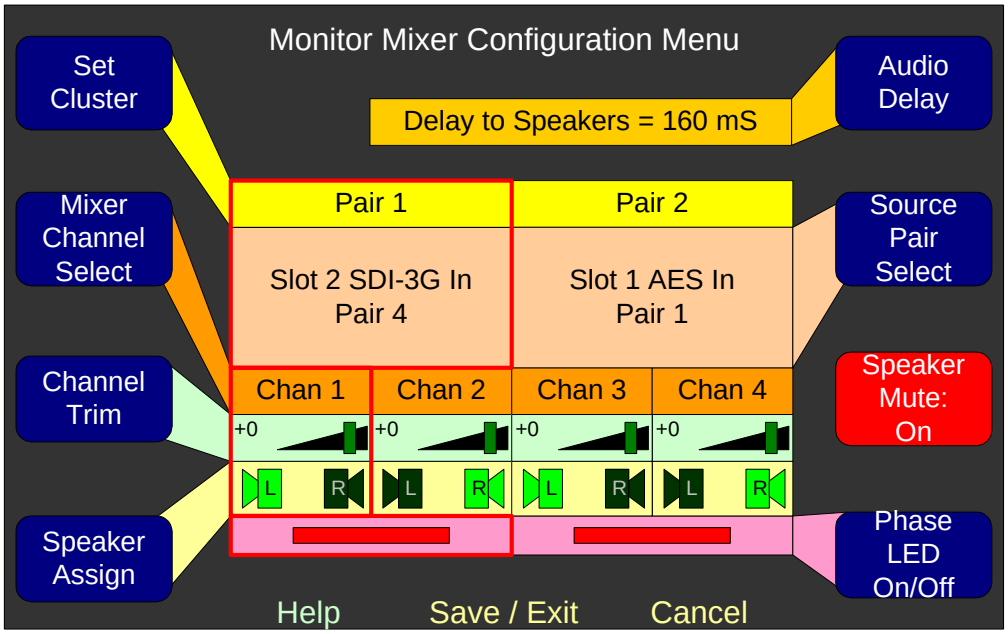
The AMP2-16V Series monitors may contain SDI, AES, and analog outputs (depending on the optional I/O modules installed. See Chapter 8: Input/Output Modules and Options on page 129 for more information.) The sources of these outputs are set using the **AES Output Configuration Menu** and **Analog Output Configuration Menu**.

You can configure the monitor to output sound from any card or output from the **Monitor Mixer Configuration Menu** shown in Figure 2–2 on page 19.

1. From the **Main Screen**, press the **Menu** (center navigation) button to display the **Configuration Selection Menu**.

2. Press the **Configure Monitor Mixer** button to display the **Monitor Mixer Configuration Menu**.

Figure 2–2 Monitor Mixer Configuration Menu



3. Rotate the **Source Pair Select** knob until the system displays the source input pairs you want to select.

4. Rotate the **Mixer Channel Select** knob to select the individual channels the other knobs will affect.

5. Rotate the **Channel Trim** to modify the relative loudness of each channel.

6. Rotate the **Speaker Assign** to assign the channels that will be heard in each front panel speaker. Pressing the knob toggles the speaker on and off.

7. Verify that **Speaker Mute** is **Off**.

8. Press the **Save / Exit** button until the **Main Screen** reappears.

Selecting the Clock Source

Since all inputs must be synchronized to the same clock, you can select the clock source on the **Hardware Configuration Menu**.

1. From the **Main Screen**, press the **Menu** button to display the **Configuration Selection Menu**.
2. Press the **Configure Main Screen** knob.
3. Press the **Configure Options** knob.
4. Press the **Configure Hardware** knob.
5. When the **Hardware Configuration Menu** appears, rotate the **Clock Source** knob until the clock source you want to select displays.
6. Press the **Save and Exit** button repeatedly to return to the **Main Screen**.

Terminating/Unterminating AES Inputs

To prevent signal reflections on the AMP2-16V Series monitor input signals that are not connected to equipment down stream, you must terminate the input connectors.

Note: This section only applies to units with AES input cards, and applies only to AES inputs. All other inputs (especially SDI inputs) are already terminated appropriately.

By default, all the AES inputs are terminated. They only need to be unterminated if you attach a special "T" adapter on the rear panel connectors, and the output of the T is terminated downstream.

Follow the instructions below.

1. From the **Main Screen**, press the **Menu** button to display the **Configuration Selection Menu**.
2. Press the **Audio Processors** button to display the unit's inputs and available configurable outputs.
3. Press the slot number knob that corresponds to the **AES Input** card.
4. Press the **Configure Hardware** button to display the **Hardware Configuration Menu**.

Decision Point:

To terminate all AES inputs, press the **AES Terminate All** knob and then press the **Save and Exit** button repeatedly until you return to the **Main Screen**.

Otherwise, to terminate individual channels, continue on to Step 5 below.

5. Rotate the **AES 75 ohm Termination** knob to highlight the input(s) you want to terminate or unterminate.

6. Press the **AES 75 ohm Termination** knob to toggle between terminating (lighted) and unterminating (dimmed) each input.

7. When all the inputs are terminated as desired, press the **Save and Exit** button repeatedly until you return to the **Main Screen**.

Reducing/Increasing the Volume of Individual Channels

You can use channel trims within the menus to adjust the individual channel levels for any output, including the speakers. You can also set up hot keys to control channel trims from the **Main Screen**. Refer to Hot Keys on page 51 for details.

Note: When an output is controlled by both a menu channel trim control and a hot key channel trim control, the sum of the two controls defines the gain applied to the channel.

Defining the Channels that Contribute to the Loudness Measurement

To define which channels contribute to the loudness measurement, you'll need to create a cluster. A cluster is an arrangement of consecutive metered channels that are related to each other. For example, you may want to arrange Dolby 5.1 channels in a cluster so that they will visually stand out from the other channels. You may also want to label the cluster to give it a more logical name. Then at a glance you will be able to recognize these channel meters.

The **Main Screen** will also display the loudness measurement of the cluster you select.

To create a cluster, follow the instructions below. Note that you can only create clusters from consecutive channels.

1. From the **Main Screen**, press the **Menu** button to display the **Configuration Selection Menu**.

2. Press the **Configure Main Screen** knob.

3. Press the **Configure Clusters** knob.

4. From the **Cluster Configuration Screen**, rotate the **Cluster Start** knob to move the left side of the cluster marker (above the meters) until it is just to the left of the left-most channel for the cluster you want to create.

5. Now rotate the **Cluster End** knob until the right side of the cluster marker is just to the right of the right-most channel for the cluster you want to create.

6. Press either the **Cluster Start** of the **Cluster End** knob to create the new cluster.

7. To label your new cluster, press the **Edit Label Cluster** knob and continue on to Naming or Renaming a Preset on page 49 since the procedure for renaming a cluster is identical to that of renaming a preset.

8. Press the **Save/Exit** button to return to **Configure Main Screen**.

9. Press the **Configure Loudness** knob to display the **Loudness Configuration Menu**.

10. Rotate the **Loudness Mode** knob to select **Program**.

11. Rotate the **Cluster Select** knob to select the cluster you just created.

12. Rotate the **Loudness Contrib** knob until the desired contribution for the first channel in the cluster is selected.

13. Rotate the **Channel Select** knob clockwise one click to select the next channel in the cluster.

14. Rotate the **Loudness Contrib** knob until the desired contribution for the second channel in the cluster is selected.

15. Repeat Steps 13 and 14 for all remaining channels in the cluster, if any.

16. Rotate the **Loudness Window** knob until the desired integration time is shown.

17. Press the **Save / Exit** button to save your changes.

18. Finally, press the **Save / Exit** or **Cancel** button repeatedly until the **Main Screen** reappears.

Synchronizing Audio with an External Video Source

The audio delay is useful when you need to synchronize the audio monitored by the AMP2-16V Series monitor with an external video source. The delay is adjusted dynamically as you turn the adjustment knob. This allows you to quickly and easily synchronize audio to a video signal without knowing what the actual delay is. Then, after you have synchronized the signals, you can read the actual delay from the screen.

1. From the **Main Screen**, press the **Menu** button to display the **Configuration Selection Menu**.

2. Press the **Configure Monitor Mixer** button.

3. Press the **Audio Delay** knob and then turn it to the left to dynamically decrease the audio delay or to the right to increase it. (The measurement in milliseconds displays in the knob label.)

4. Finally, press the **Save and Exit** button repeatedly until you return to the **Main Screen**.

Muting Channels

You can mute the audio in a variety of ways:

- Insert a pair of headphones (affects all monitored channels),
- Press the **Volume** knob for a 20 dB dip (affects all monitored channels), or
- Mute channels with a hot key (affects the channels defined by the hot key).

To customize your **Solo / Mute** hot keys, refer to Hot Keys on page 51.

Dolby

Important: All Dolby functionality requires the Dolby D/E Card. If your system did not come with the Dolby D/E Card already installed, refer to Option Kits on page 154 for details.

The advantage of the Dolby option is that it decodes the Dolby signal into its composite channels and allows you to analyze the content of the Dolby signal, while also providing the ability to monitor the audio.

The **Dolby Zoom** hot keys are an excellent troubleshooting tool. You can instantly "zoom" into any one of the Dolby bitstreams displayed on the **Main Screen** to display meters and phase indicators for all of the 5.1, 7.1, and downmixes. The system then decodes the audio and sends it to the speakers and displays the metadata. You can solo or mute any channel or channels. A single press of a button returns you to the **Main Screen**.

Hot keys 9 through 16 are set up by default as **Dolby Zooms** although you can change or reconfigure this any way you like. For setting up a **Dolby Zoom** hot key, refer to Hot Keys on page 51. For information about displaying and using the **Dolby Zoom** screen, see Dolby Zoom Screen on page 88.

Level Metering

Overview

The AMP2-16V Series monitors are capable of displaying 16 bar graph level meters with a variety of selectable scales and eight phase indicators simultaneously with a loudness indication. You can set the signals to be monitored by the level meters in the **Monitor Mixer Configuration Menu**, which also controls the internal speakers. These signals can be de-embedded SDI audio, AES audio, decoded Dolby, a

mix of any inputs or outputs, or a combination depending on the optional I/O modules installed in the unit.

You can modify the level meters' display and related visual indications in the following menus.

- Set the source for each of the 16 level meters and phase indicators in the **Monitor Mixer Configuration Menu** (see page 19).
- Set the meter scale, ballistics, limits, reference level, as well as segment colors and transition points in the **Meter Configuration Menu**.
- Set the clustering of the meters into logical arrangements in the **Cluster Configuration Menu**.
- Set the loudness indication for any chosen meter cluster in the **Loudness Configuration Menu**.

Configuring the Meter Scales

You can customize the meter **Scale** configuration to match your country's and/or your organization's standards. The **Custom** meter scale is useful for situations where you need to see a particular range of levels that is not covered by any of the other scales. You can include a wider range of levels, or narrow down to a particular range of levels, such as those immediately around a particular reference (such as -20 dBFS).

1. From the **Main Screen**, press the **Menu** button to display the **Configuration Selection Menu**.
2. From the **Configuration Selection Menu**, press the **Configure Main Screen** knob.
3. On the **Main Screen Configuration Menu**, press the **Configure Meters** knob.
4. Rotate the **Scale** knob until you see the **Scale** of your choice. The available options include **AES**, **VU**, **Ext VU**, **BBC (EBU)**, **Nordic**, **DIN**, and **Custom**.

   Note: Refer to Table 6–1 on page 101 for details.

Configuring the Meter Ballistics

The AMP2-16V Series monitors provide two peak ballistics and one average ballistic. Each different **Scale** has its own defaults, but you may change them if your facility's standards are different. In addition, you may turn the floating peak segment on or off depending upon your particular needs.

5. Press the **Ballistics** knob to toggle the highlight from **Float** (floating peak value) and **Bar** (the volume meter). Highlight **Float**.

6. Rotate the **Ballistics** knob to select the specification of your choice. Available options include **IEC**, **Type I**, and **Type II**.

7. Press the **Ballistics** knob again, and then rotate it to display the **Bar** specification of your choice. Available options include **VU**, **IEC Type I**, and **IEC Type II**.

   Note: Refer to Table 6–1 on page 101 for details.

Setting the Limits

Note: You can only set the **Limits** when using a **Custom Scale**.

8. Press the **Limits** knob to toggle between the **Top** scale value and the **Bottom** scale value. Highlight **Top**.

9. Rotate the **Limits** knob to select the upper bound of your meter scale. Available options range from -72dB to -5 dB in 1 dB increments.

10. Press the **Limits** knob again to highlight **Bottom**, and then rotate it to select the lower bound scale value. Available options range from -67 dB to +20 dB in 1 dB increments.

    Note: Note that the **Top** and **Bottom** limit values must be a minimum of 5 dB apart.

Setting the Reference Levels

Setting the **Reference** level allows you to define the relationship of the meter to the actual signal. Many of the “analog scales” such as the VU scale and the BBC scale allow you to set a 0 dB reference point. This is

the level at which the "analog meter" reads 0 for a given digital level, expressed in dBFS. For example, 0 dBr = -20 dBFS means the analog meter will read 0 when the internal digital level of the unit reaches -20 dBFS.When setting the **Scale** type, the system will automatically also fill in the default **Reference** level for that **Scale**. However, for all non-**AES Scales**, you can still modify the value as needed.

Note: When the **Scale** is set to **AES**, the **Reference** value is always 0 dBFS = 0 dBr and therefore cannot be changed.

11. For any non-**AES Scale**, rotate the **Reference** knob to select the **Reference** value.

    Note: Refer to Table 6–1 on page 101 for details.

Configuring Level Meter Colors and Set Points

Modifying the meter segment colors and segment set points allows you to completely customize the appearance of your meters, depending upon your facility's standards. You may also want to use different colors to represent the various levels.

12. On the **Meter Configuration Menu**, rotate the **Upper Segments** knob to change the color for the upper segment of the meter.

13. Press the **Upper Segments** knob again, and then rotate it to select the upper bound set point.

14. Repeat Steps 12 and 13 using the **Middle Segments** knob.

15. Rotate the **Lower Segments** knob to select the color.

Resetting the Default Values

16. If at any time you would like to return all the meter characteristics to their factory defaults, press the **Set Default** knob.

17. Press the **Save/Exit** button until the **Main Screen** appears.

Turning Off Individual Meters

Should you ever want to turn off any of the meters—for an eight-channel signal, for example—you can enable and/or disable as many meters as you like. The remaining meters will automatically redistribute themselves to make use of the available space within the meter window.

Decision Point

To turn off a pair of meters, continue on to Turning Off a Metered Pair immediately below.

To turn off an individual meter, continue to on to Turning Off an Individual Meter on page 28.

Turning Off a Metered Pair

1. From the **Main Screen**, press the **Menu** button to display the **Configuration Selection Menu**.
2. Press the **Configure Monitor Mixer** knob to display the **Monitor Mixer Configuration Menu**.
3. Rotate the **Mixer Channel Select** knob to select the individual channels the other knobs will affect.
4. Rotate the **Source Pair Select** knob until the system displays **Pair Off**.
5. Press the **Save/Exit** button until the **Main Screen** appears.

Turning Off an Individual Meter

1. From the **Main Screen**, press the **Menu** button to display the **Configuration Selection Menu**.
2. Press the **Configure Monitor Mixer** knob to display the **Monitor Mixer Configuration Menu**.

Audio Mixing

Overview

The AMP2-16V Series monitors can perform live mixing functions when they have an Analog I/O Card, and/or an AES Output Card installed. You can create these mixes independently of the audio monitoring function. Also, you can use the audio monitoring and level metering functions to monitor the result of the mix.

Note: When mixing live audio in the broadcast chain, Wohler highly recommends that you purchase the redundant power supply option. (See Option Kits on page 154 for details.) Each power supply should then be connected to power circuits on different circuit breakers. This will assure that the audio mix is never interrupted by a fault on any single power circuit.

Configuring the Audio Outputs

3. Each AES or analog output channel has its own individual volume trim control with a range from -60 to +12 dB in 1 dB steps.

4. You can turn each channel on or off independently.

Note: Refer to Chapter 8: Input/Output Modules and Options on page 129 for rear panel connector pin-outs.

Mixing

The **Analog** and **AES Output Configuration Menus** have two modes:

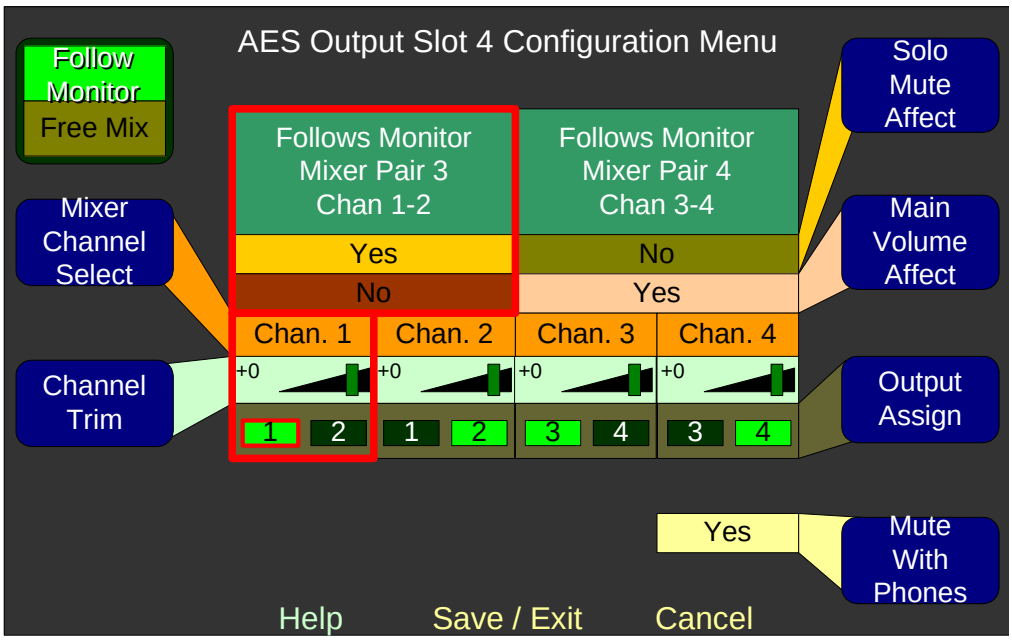
- **Follow Monitor** mode, and
- **Free Mix** mode.

Successive presses of the **Follow Monitor/Free Mix** knob toggles between these two modes.

Follow Monitor Mode

The first mode is the **Follow Monitor** mode (shown in Figure 2–3 on page 30) in which the selected channels in the **Monitor Mixer Configuration Menu** are output through the Analog I/O or AES Output card. This menu allows you to set level control, output assignment, and front panel control options. While there are many uses, this mode is primarily intended to be used when an output card is connected to an external surround-sound monitoring system. (Refer to Surround Sound on page 33 for step by step instructions.)

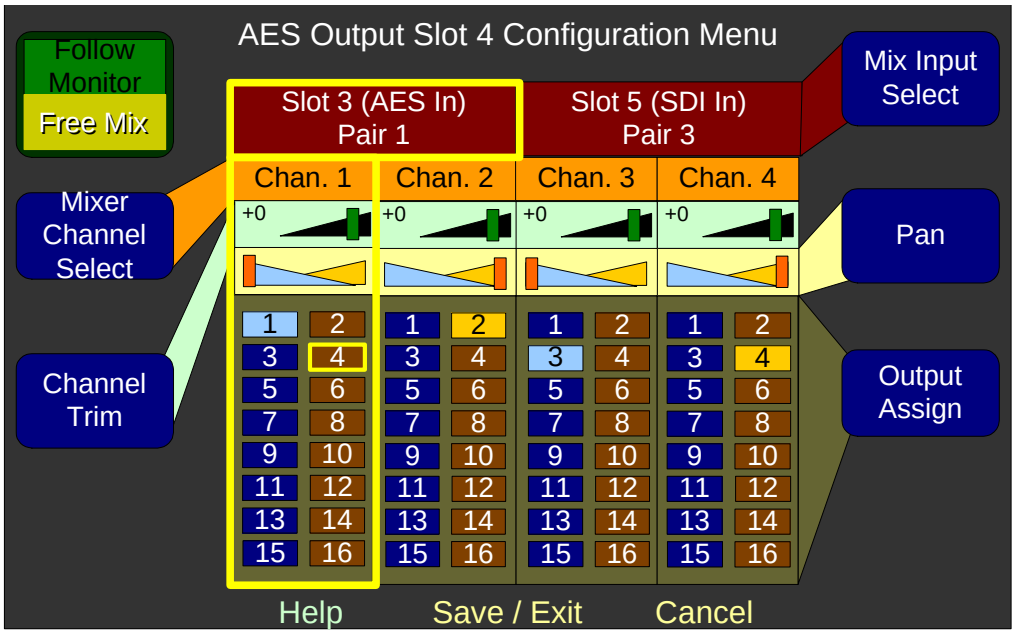
Figure 2–3 AES Output Configuration Menu Follow Monitor



Free Mix Mode

The second mode is the **Free Mix** mode. This very flexible mode allows you to mix and output any combination of channel pairs into any combination of output channels as shown in Figure 2–4 on page 31.

Figure 2–4 Select AES Output



In the **Free Mix** mode, you can direct each channel of each chosen channel pair to any or all of the 16 channel outputs of the AES Output Card (or eight channel outputs of an Analog Output Card.) Direct each channel with the **Output Assign** control to turn on or off the channel indicators in the odd-numbered left and even-numbered right columns shown on each output channel. If outputs are assigned to channels in both the left and right columns, you can use the **Pan** control to pan the source channel between the two columns. You can use the **Channel Trim** control to adjust the output level of each source into the output channel(s). Using these controls, you can create any 16 x 16 audio mix you choose.

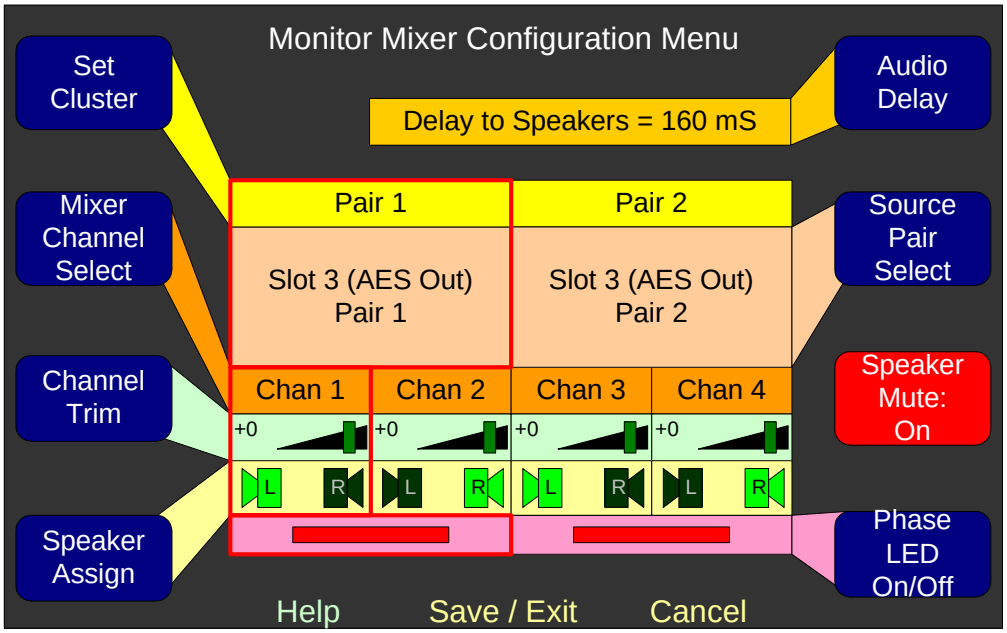
Note: The system assumes that all odd-numbered channels are output to the left channel; likewise all even-numbered channels are output to the right channel. As a result, the pan control will affect the level of the signal, even if only odd or even channels are selected. For example, if the pan control is turned all the way to the left, but only Channel 2 is selected, no sound will come from the channel, regardless of the other controls.

You can also set the trims to be adjustable as hot keys from the **Main Screen**. These adjustments are separate from, and in addition to the **Channel Trims** located on this menu. Refer to Presets on page 48 and Hot Keys on page 51 for more information.

Mixed Channel Metering

In some applications it can also be advantageous not only to have the **Channel Trim** controls accessible from the **Main Screen**, but to monitor their output on the level meters or monitor speakers. This allows a visual and audible reference to the output mix as you adjust it. To set up this function, use the **Monitor Mixer Configuration Menu** (Figure 2–5 below) to select the source(s) for the meters and monitor speakers from the output channels being mixed into. Note that output channels only appear if they are products of a **Free Mix**.

Figure 2–5 Monitor Mixer Configuration Menu



The same **Source Pair Select** control that is used to select the sources being monitored is rotated to select the analog or AES output pair that is to be monitored. If only level meters and no audible monitoring is desired, use the **Trim** control (on the **Monitor Mixer Configuration Menu**) to disable the monitor speakers on that channel pair or mute it from the **Main Screen**.

Note: If an Analog I/O card has a TOSLINK child card installed, the analog outputs can NOT be routed back to the monitor mixer, since those internal signal paths are used by the TOSLINK child card.

Surround Sound

If a studio or other monitoring environment contains a surround sound system, it may be advantageous to connect the monitored sound from the AMP2-16V Series monitor to this system. Up to eight pairs (16 channels) of AES outputs or four pairs (eight channels) of analog outputs are available for this use. The front panel **Volume**, **Balance**, and **Solo**, and **Mute** controls will then optionally affect the surround sound. You can easily configure this in the **AES Output** and the **Analog Output Configuration Menus** as described below.

1. From the **Main Screen**, press the **Menu** button to display the **Configuration Selection Menu**.

2. Press the **Audio Processors** knob to display the **Audio Processor Card Menu**.

3. Press the knob that corresponds to either **AES Output** or the **Analog I/O** depending on the output type you want to use. In our example, we're using the **AES Output** knob to display the **AES Output Configuration Menu**.

4. Press the **Follow Monitor/Free Mix** knob (if needed) to display **Follow Monitor**.

5. You can also specify whether the outputs should be affected by:

   A. The **Solo** and **Mute** hot keys (available per channel pair), by pressing the **Solos/Mute Affect** button.

   B. The front panel **Volume** control (available per channel pair), by pressing the **The Main Volume Affect** button.

   C. Inserting a pair of headphones to mute the output audio channels (available system-wide), by pressing the **Mute with Phones** button.

Stereo Downmix

If a studio or other monitoring environment contains a stereo sound system, it may be advantageous to connect the monitored sound from the AMP2-16V Series monitor to this system. One or more of the AES or analog output pairs are available for this purpose.

To configure the AMP2-16V Series monitor to output a stereo downmix, configure either the **AES** or **Analog Output Configuration Menu**s as follows:

1. From the **Main Screen**, press the **Menu** button to display the **Configuration Selection Menu**.

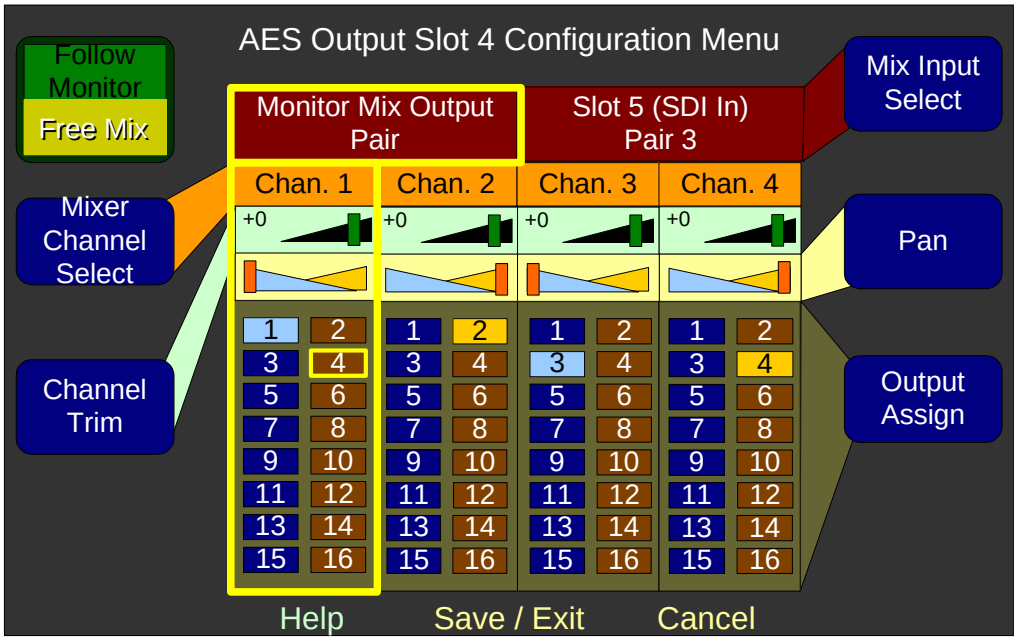
2. Press **Audio Processors** to display the **Audio Processor Card Menu**.

3. Press the knob that corresponds to **AES Output**.

4. When the **AES Output Configuration Menu** displays, press the **Follow Monitor/Free Mix** knob (if needed) to select **Free Mix**.

5. Rotate the **Mixer Channel Select** knob until **Monitor Mix Output Pair** appears as shown below in Figure 2–6..

Figure 2–6 Select AES Output - Monitor Mix Output Pair in Free Mix Mode



6. Press the **Save/Exit** button repeatedly until the **Main Screen** appears.

In the example above, anything routed to the internal speakers will now also be routed to the first pair of the AES Output Card in Slot 4. The **Solo**, **Mute**, and **Volume** controls available on the **Main Screen** will also affect this output pair.

CHAPTER 3
Video and Data

Introduction

Overview

While the AMP2-16V Series monitors are configured to display video by default. This chapter describes how to select from the available video inputs and select whether the left screen displays either video or Dolby metadata supplied by the internal Dolby decoder card (Cat. 552).

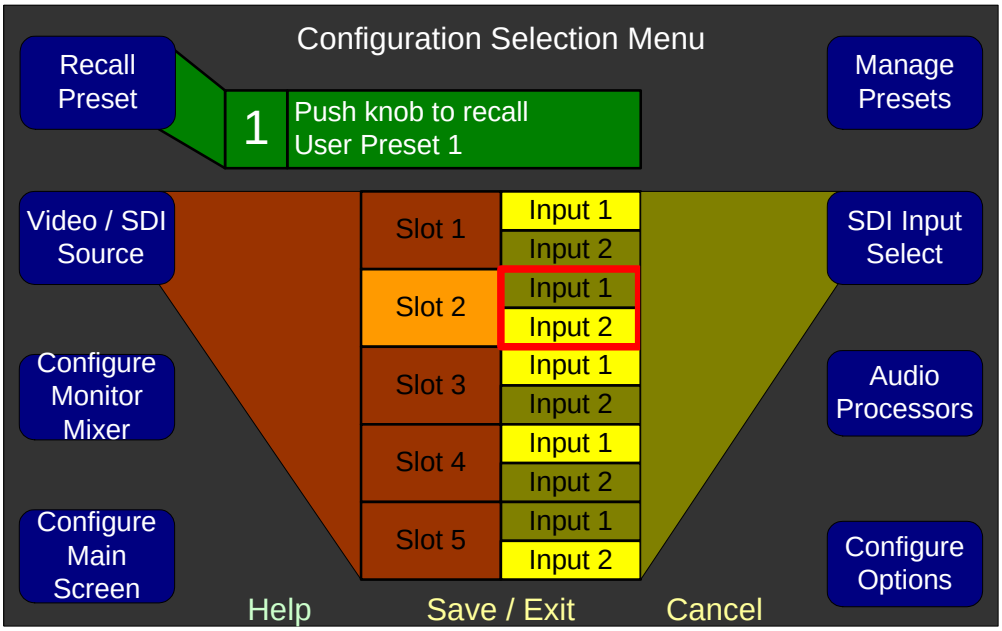
Topics

Selecting the Input Signal

To select the SDI video input to display on the left screen, follow the instructions below.

1. From the **Main Screen**, press the **Menu** button to display the **Configuration Selection Menu** as shown below in Figure 3–1.

Figure 3–1 Configuration Selection Menu



2. If you only have one 3G/HD/SD-SDI-V card, skip this step and continue on to Step 3. Otherwise, rotate the **Video/SDI Source** knob to highlight the 3G/HD/SD-SDI-V card whose input you want to select for viewing, then press the **Video/SDI Source** knob to select the card.

3. Press the **SDI Input Select** knob to toggle between the two inputs.

4. Press **Save/Exit** to return to the **Main Screen**.

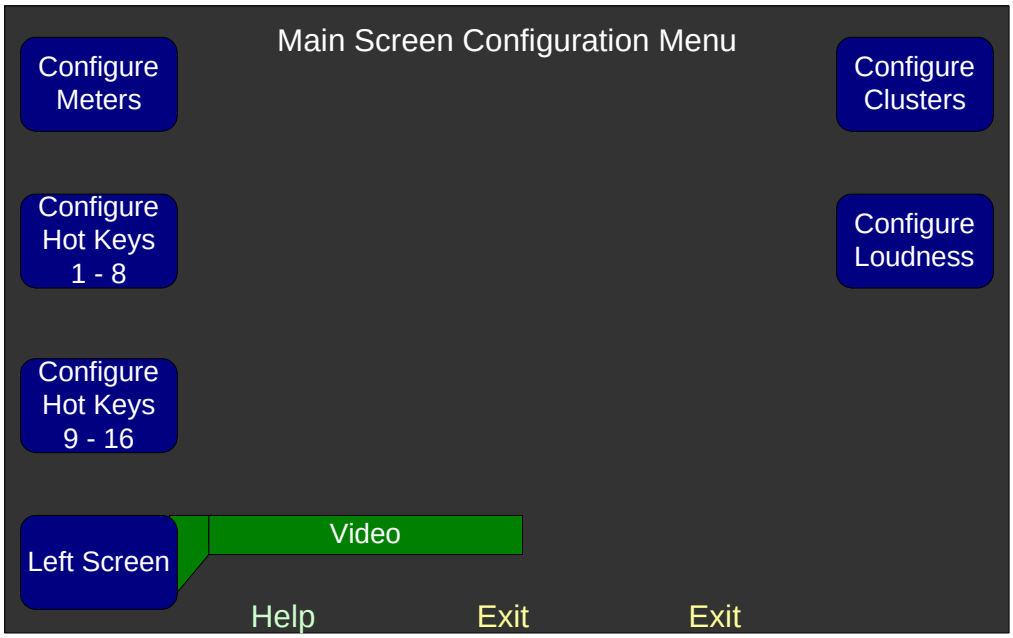
Selecting Video or Metadata

To select whether the AMP2-16V Series monitor displays video or metadata on the left screen, follow the instructions below.

1. From the **Main Screen**, press the **Menu** button to display the **Configuration Selection Menu**.

2. Press the **Configure Main Screen** knob to display the **Main Screen Configuration Menu**.

Figure 3–2 Main Screen Configuration Menu



3. Rotate the **Left Screen** knob to select either **Video** or **Dolby Metadata**.

4. Press **Save / Exit** twice to return to the **Main Screen**.

CHAPTER 4
Dolby

Introduction

Overview

The advantage of the Dolby option is that it decodes the Dolby signal into its composite channels and allows you to analyze the content of the Dolby signal. The AMP2-16V Series monitors provides a variety of functions specific to Dolby signals, including **Dolby Zoom** and displaying Dolby metadata.

Topics

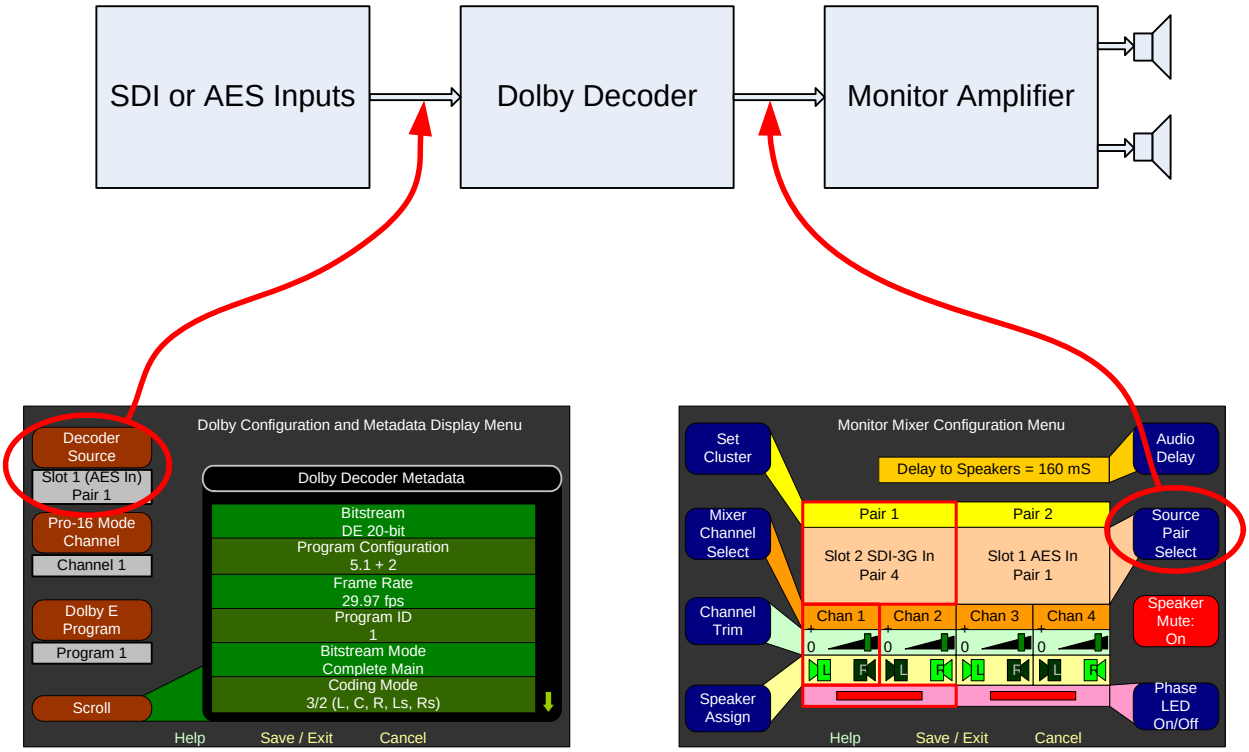
Dolby Configuration

Overview

The Dolby stream can be any AES input pair, or any SDI de-muxed audio pair. The following instructions demonstrate how to configure the Dolby decoder.

Refer to the diagram in Figure 4–3 for the relationship between the functionality and the configuration menus.

Figure 4–3 Dolby Bitstream Configuration



Setting Up the Dolby Decoder

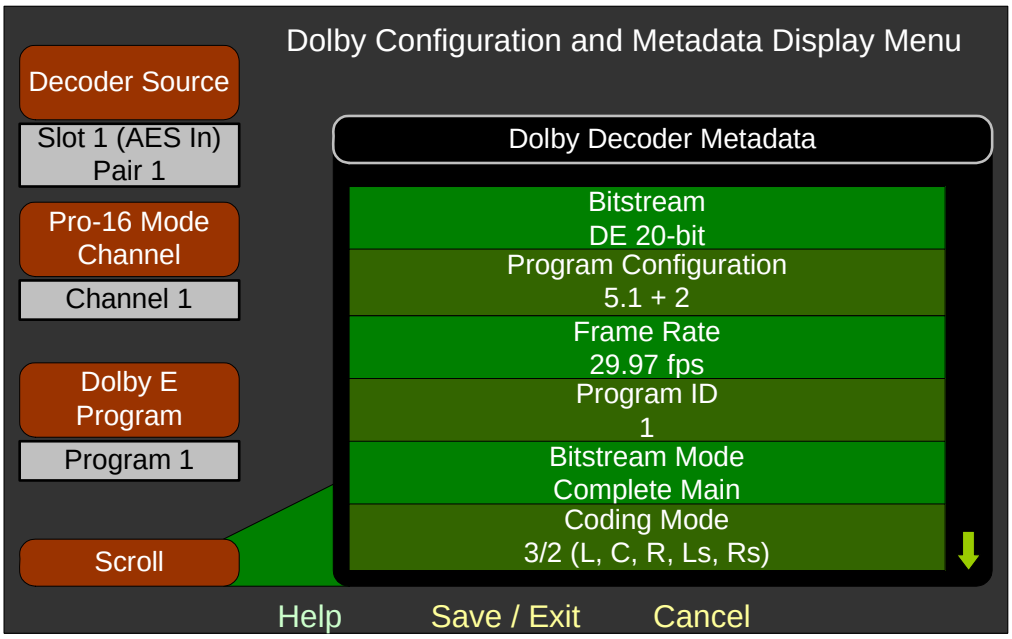
Follow the instructions below to set up the Dolby decoder.

1. From the **Main Screen**, press the **Menu** button to display the **Configuration Selection Menu**.

2. When the **Configuration Selection Menu** appears, press the **Audio Processors** knob to display the **Audio Processor Card Menu**.

3. When the **Audio Processor Card Menu** appears, press the **Dolby** knob to display the **Dolby Configuration and Metadata Display Menu**.

Figure 4–4 Dolby Configuration and Metadata Display Menu



4. When the the **Dolby Configuration and Metadata Display Menu** appears, rotate the **Decoder Source** knob to select the input source of the Dolby D/E Card. The source choices include all available AES input pairs and all available SDI de-embedded pairs.

5. Rotate the **Pro-16 Mode Channel** knob to select which stream to decode when two are present in the decoder source pair.

6. Rotate the **Dolby E Program** knob to select the Dolby E program. If the selected program is not available, the metadata from Program 1 will display.

7. Rotate the **Scroll** knob to move through the list of available Dolby metadata items up or down. The arrows at the right of the list indicate whether there is more data above or below.

8. When all the settings are correct, press the **Save / Exit** button until the **Main Screen** appears.

The **Monitor Configuration Menu** will allow you to display undecoded bitstreams on the **Main Screen**. In this case, the level meters will show the level of the undecoded signal and a special icon will be displayed above the meters, but the undecoded signal (which sounds like noise) will not be passed on to the speakers.

Note: The decoder source pair selected in Step 4 above will ALWAYS be flagged as a Dolby Encoded input in the main screen, even if it is currently in a PCM format. The PCM formatted signal will be muted in the monitor mixer, but will be passed to the Dolby Decoder's outputs (Output Pairs 1 and 5).

Assigning the Dolby Decoded Outputs

The following instructions allow you to assign the Dolby decoded outputs to the audio/metering channels.

1. Press **Monitor Config** button in the **Configuration Selection Menu** to display the **Monitor Mixer Configuration Menu**.
2. Rotate the **Source Channel Select** knob to select **Pair 1**.
3. Rotate the **Source Pair Select** knob to display **Dolby Decoder Pair 1**.
4. Rotate the **Source Channel Select** knob to select **Pair 2**.
5. Rotate the **Source Pair Select** knob to display **Dolby Decoder Pair 2**.

   Note: the Dolby decoded outputs can also be assigned to AES and Analog outputs.

6. Rotate the **Source Channel Select** knob to select **Channel 3**.
7. Rotate the **Channel Input Select** knob to display **Dolby Decoder Pair 3**.
8. Rotate the **Source Channel Select** knob to select **Channel 4**.
9. Rotate the **Source Pair Select** knob to display **Dolby Decoder Pair 4**.

10. Optional: You can connect Dolby Decoder Pair 5 to the next pair of channels.

    Note: The Dolby Decoder Pair 5 is also known as the *Aux Pair* and contains a **LtRt** downmix of the first four pairs.

11. If you like, press the **Set Cluster** knob to display the **Cluster Configuration Menu** where you can cluster the meters into the 5.1 Dolby arrangements as described in Cluster Configuration Screen section of Chapter 6. Or you can simply leave the display in pairs.

12. Press the **Save / Exit** button to return to the **Configuration Selection Menu**.

Saving the Configuration

Now save your work to a preset so you don't lose the new configuration after you power down. In our example we'll be using Preset 1; but you can use any available preset.

1. Press the **Manage Presets** knob in the **Configuration Selection Menu** to display the **Preset Management Menu**.

2. Rotate the **Save Current Config** knob to **Preset 1** (or another preset of your choice) and then press the **Save Current Config** knob.

3. When the **Label Menu** appears, enter a name for the new preset.

4. When you have named the preset, press the **Save / Exit** button to return to the **Preset Management Menu**.

5. Press the **Save / Exit** button again to return to the **Configuration Selection Menu**.

6. Press the **Exit** button to return to the **Main Screen**.

Now, each time power is applied to the system, this Dolby configuration will now be recalled anytime Preset 1 is recalled.

Dolby Zoom Hot Keys

Creating a Dolby Zoom

Refer to Dolby Zoom on page 53 for step by step instructions.

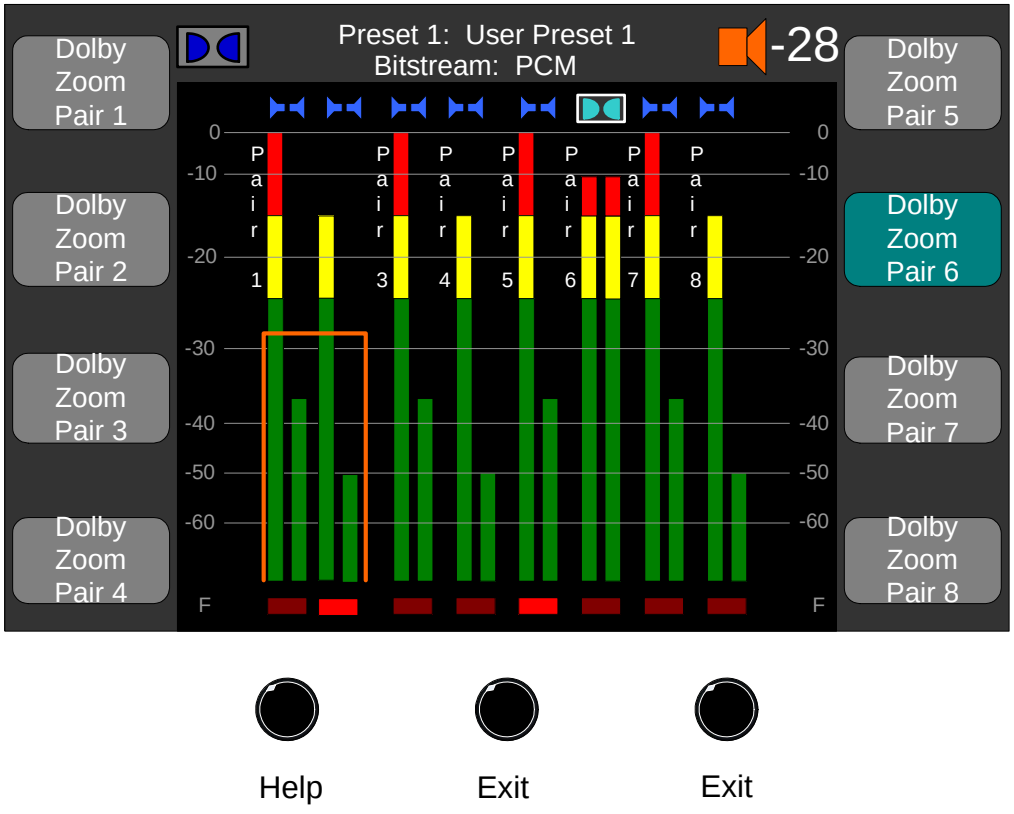
Using the Dolby Zoom

If you have a Dolby signal connected to the AMP2-16V Series monitor, you can instantly display the level meters and the Dolby metadata simultaneously.

Note: If you ordered your AMP2-16V Series monitor with a Dolby D/E Card, hot keys 9 through 16 are factory set as **Dolby Zooms**.

1. Press the **Hot Key Shift** button (right navigation button) to display hot keys 9 through 16 shown below.

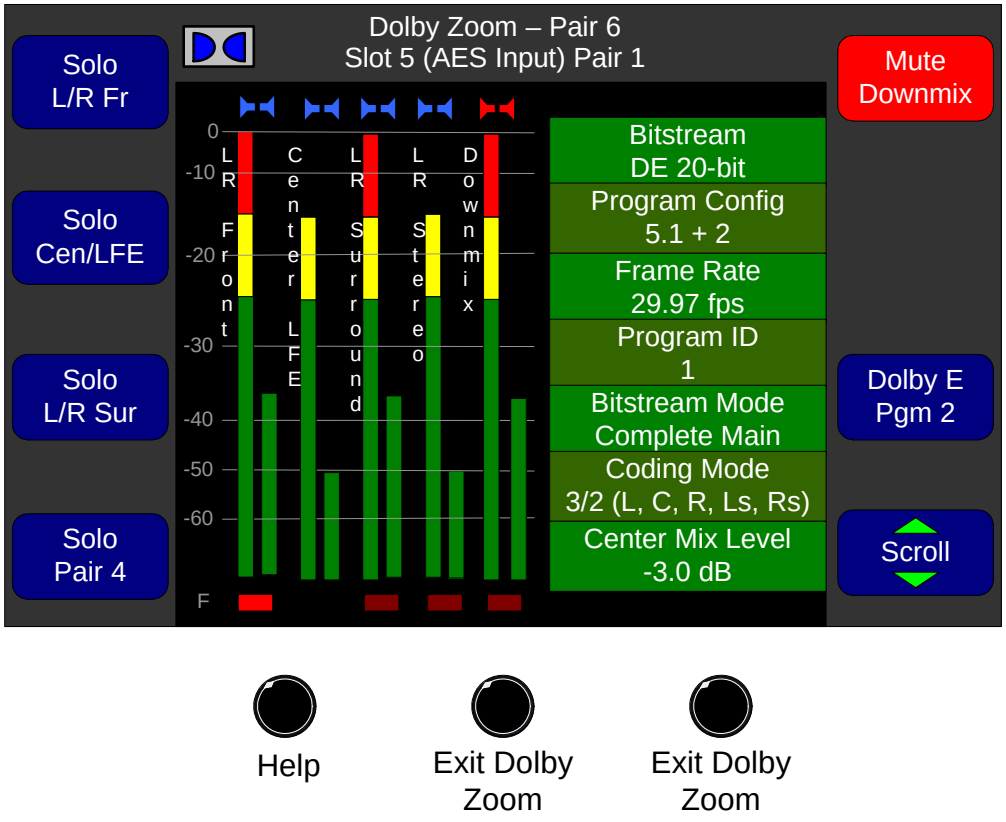
Figure 4–5 Hot Keys 9 through 16



Note: The buttons on this screen change color if a Dolby signal is available to be decoded (or zoomed into). Also, note that on the **Main Screen**, a special icon appears above the meters if the pair contains a Dolby-encoded signal.

2. Press the hot key that corresponds to the Dolby signal to display the **Dolby Zoom Screen** (shown in Figure 4–6 below).

Figure 4–6 Dolby Zoom Screen



Note: The solo and mute keys on the **Dolby Zoom Screen** are configured according to the Dolby metadata. They are not user-defined.

Note: If a Dolby-encoded pair is selected as a source in the **Monitor Mixer Configuration Menu**, the Dolby signal will be shown on the **Main Screen** meters, but no undecoded signal will be passed through to the speakers.

3. Once in the **Dolby Zoom Screen**, rotating any of the **Solo** knobs clockwise will change the label to **Mute**. Rotating the knob counterclockwise will display **Solo**. Pressing the know activates

either the solo or mute function. This also applies to the **Downmix** pair. Once activated, rotating the control allows you to solo or mute individual channels. This operation is the same as that of the solo/mute controls on the **Main Screen**.

4. Arrows appear in the **Scroll** knob label when additional metadata items are available, but not shown. Rotate the **Scroll** to display the rest of the Dolby metadata.

5. To return to the **Main Screen**, press either of the **Exit** buttons.

Note: If the Dolby Decoder input is assigned to any pair except "OFF" (see Page 41, Step 4), the Dolby zoom feature will only be available for that pair.

Similarly, if the Dolby Decoder Outputs are assigned to any monitor mix input, any AES Output Card source, or any Analog Output card Source, only the source selected above will be available for Dolby Zoom.

If the Dolby Decoder source is set to "OFF", but one or more of its outputs are assigned to any mixer input, no Dolby Zoom function will be available, and all Dolby Zoom keys will turn gray.

CHAPTER 5
Efficiency Enhancements

Introduction

Overview

This chapter describes the processes of creating presets and hot keys. These features allow you to configure the AMP2-16V Series monitor and then save those settings for immediate recall.

Topics

Presets

Overview

Modifying the menu settings allows you to configure the entire AMP2-16 Series monitor to function exactly the way you want it to for your specific application. This complete system configuration is called a *preset*. After saving the preset, you can then quickly recall it by pressing a single knob. Moreover, the AMP2-16V Series monitor has the capacity to hold eight presets; that is, eight complete system configurations.

Saving Presets

You can save new configuration changes to the same preset or to a different one. If you would like to have two presets that are largely the same except for certain settings, set up one of them first and save it to the first preset. Then make the changes that differentiate the two presets and save this to a second preset. You can then recall either preset as you need it.

1. Once you have the monitor configured the way you want it, press the **Manage Presets** knob (from the **Configuration Selection Menu**) to display the **Preset Management Menu**.

2. Rotate the **Save Current Config** knob to display the preset number you want to save the configuration to.

3. Finally, press the **Save Current Config** knob to save the current configuration.

   At this point the **Label Menu** appears so you can change the name of the preset.

4. To return to the **Main Screen**, press the **Save/Exit** button twice.

Recalling Presets

You can recall the preset of your choice at any time in several different ways:

1. From the **Configuration Selection Menu**, rotate the **Recall Preset** knob to scroll through the available presets, and then *press*

the knob after displaying the preset you want. Now the complete system configuration saved in that preset becomes the current configuration of the monitor.

2. Using the **Main Screen Hot Key Configuration Menu**, you can assign any of the eight hot keys surrounding the **Main screen** to function as a preset changer. This is the quickest way to change the presets because it only involves pressing a single hot key.

3. Again using the **Main Screen Hot Key Configuration Menu**, you can assign one of the eight hot keys surrounding the **Main screen** to become a selectable preset. To use this hot key, rotate it to select the desired preset, then press it. This selected preset will then take effect.

Naming or Renaming a Preset

This section describes how to name or rename a preset, hot key, or cluster.

Note: The label allows for a maximum of 17 characters.

1. From the **Configuration Selection Menu**, press the **Manage Presets** knob to display the **Preset Management Menu**.

2. In the **Preset Management Menu**, press the **Rename Preset** knob.

3. If needed, press the **Backspace** knob until the unwanted text of the current label disappears.

4. Use the **Shift** button to toggle between upper and lower case letters. Note that the symbols (on the bottom row) remain constant.

Label Example

In this example, we will create a label: *Studio*.

1. Press the **Shift** knob (or rotate it to the left) to display the upper case character set.

2. *Rotate* the **Select Horiz** and/or the **Select Vert** knob until the *S* is highlighted.

3. *Press* the either the **Select Horiz** or the **Select Vert** knob to select the character.

4. Press the **Shift** knob (or rotate it to the right) to display the lower case character set.

Label Example (Continued)

5. *Rotate* the **Select Horiz** and/or the **Select Vert** knob until the *t* is highlighted.

   Repeat this process for each character of the label. To correct mistakes, press the **Backspace** knob.

6. To save the new label, press the **Save / Exit** button.

7. To verify your changes, look at the text next to the knob you changed. You should now see the new name.

8. Press the **Save / Exit** button repeatedly to save your changes and return to the **Main Screen**.

Clearing a Preset

1. From the **Configuration Selection Menu**, press the **Manage Presets** knob to display the **Preset Management Menu**.

2. Press the **Clear Preset** knob.

3. Rotate the **Clear Preset** knob to highlight the preset you want to clear.

4. Press the **Clear Preset** knob to select the preset.

Important: The monitor will display a warning message to let you know that once you have cleared a preset, it cannot be undone. Also, you must respond by pressing the **Clear Preset** button again before the warning disappears (approximately five seconds) or your request to clear the preset will be cancelled and you will have to start over by pressing the **Clear Preset** button again.

Or, to cancel the **Clear Preset** function before the warning disappears, press the **Cancel** button.

Recalling a Preset On Power Up

You can define how the AMP2-16V Series monitor configures itself the next time it comes back up after a power failure or deliberate power shut down.

1. From the **Configuration Selection Menu**, press the **Manage Presets** knob to display the **Preset Management Menu**.

2. After the **Preset Management Menu** appears, rotate the **Recall on Power Up** knob to highlight the preset to be recalled at power up.

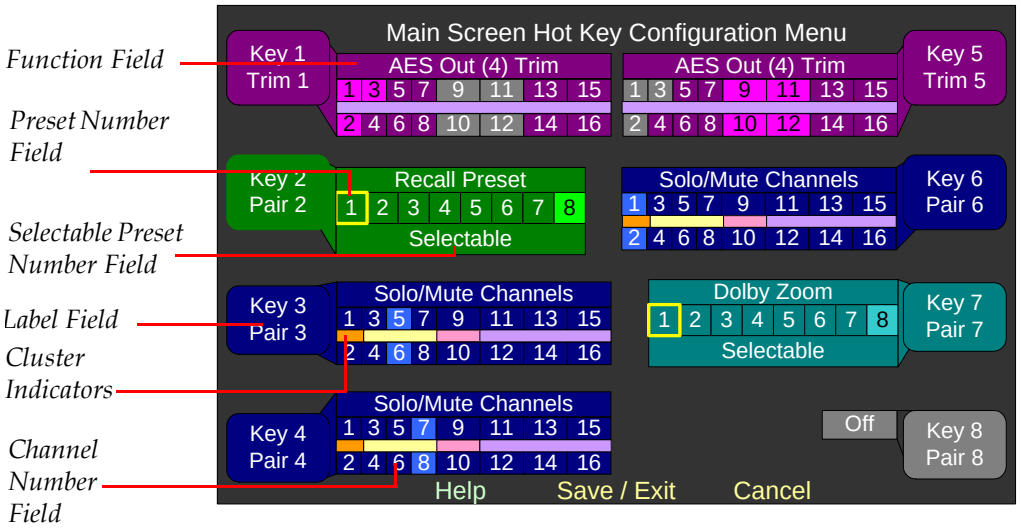
3. Press the **Save / Exit** button twice to return to the **Main Screen**.

Hot Keys

Overview

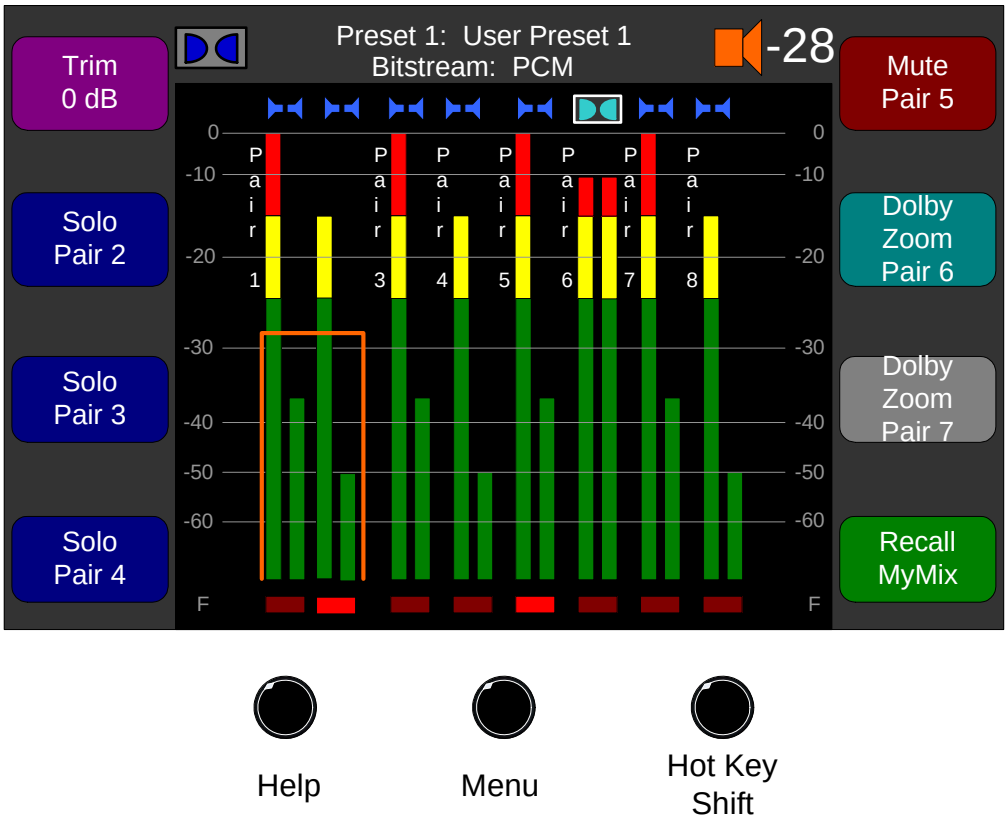
Hot keys allow you to make immediate configuration changes "at the touch of a button" without using the menu system. You set up hot keys on the **Main Screen Hot Key Configuration Menu** shown in Figure 5–1 below.

Figure 5–1 Main Screen Hot Key Configuration Menu



The AMP2-16V Series monitors provides a total of 16 hot keys. To access hot keys 9 through 16, press the **Hot Key Shift** button (right navigation button) beneath the **Main Screen** as shown in Figure 5–2 below.

Figure 5–2 Main Screen



Hot Key Types

Hot keys can be:

- Presets, fixed or selectable,
- Trims,
- Solos and mutes,
- Dolby Zoom (for AMP2-E16 Series models only; requires Dolby D/E card), or
- Off.

Presets

Presets can be fixed or selectable. For more information on creating a preset, refer to Presets on page 48.

Channel Trims

In some applications it can be advantageous to have some **Channel Trim** controls accessible on the **Main Screen**. This would allow you to adjust the mix levels quickly without getting into the menu structure. To set up this function, navigate to the **Hot Key Configuration Menu** to reassign some hot keys as **Channel Trim**s.

Note that in the Figure 5–1 on page 51, the upper left hot key is set to control source Channels 1, 2, and 3 of the AES Output Card in Slot 4. The upper right hot key is set to control source Channels 9, 10, 11, and 12 of the same card. Note that each source channel may be controlled by only one hot key. For example, the upper left hot key cannot select any of the source channels that are already selected by the upper right hot key. Consequently these channel selections are disabled.

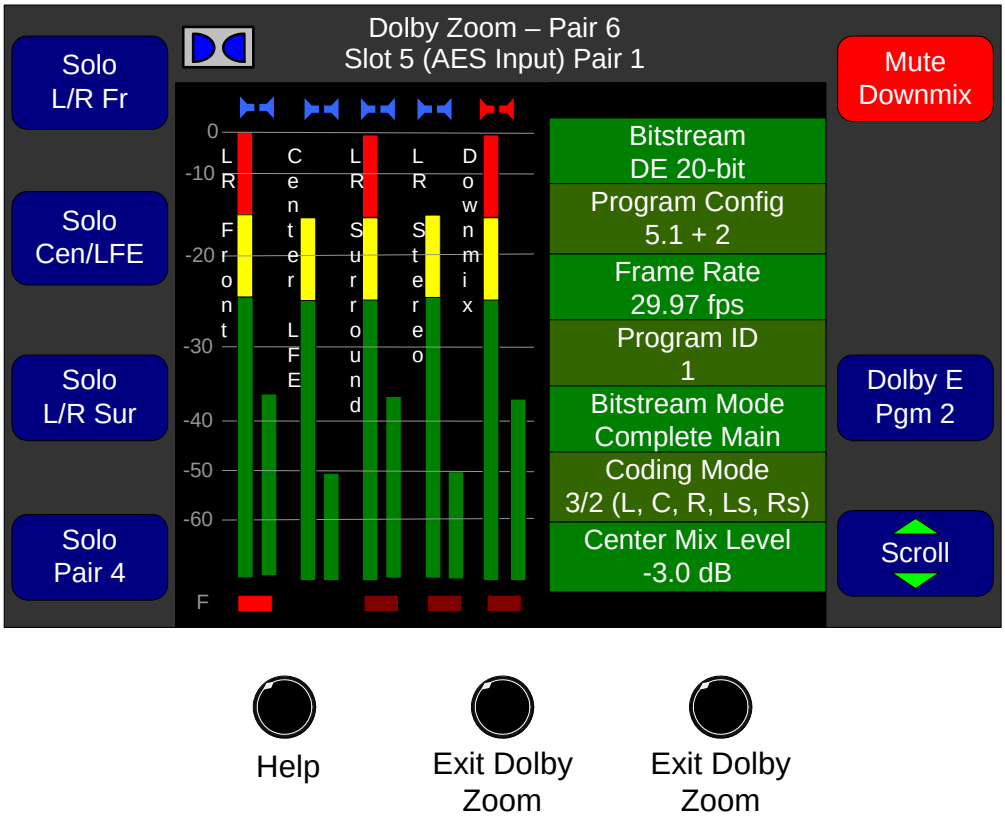
Mutes and Solos

A **Muted** hot key identifies the channels that are silenced when the knob is pressed and leaves all other channels audible. A **Solo** hot key identifies the channels that are audible while all other channels are silenced. As you can see, these two functions are inverses of each other. Using hot keys to **Solo** and/or **Mute** becomes extremely useful when trying to identify specific sounds that may exist in one channel but not in another. Note that both the mute and the solo functions allow you to select more than one channel. Moreover, you can assign a knob to be a **Solo** *and* a **Mute** since you can **Solo** by turning the knob to the left, or **Mute** by turning it to the right.

Dolby Zoom

Dolby Zoom hot keys can be either fixed or selectable. The **Dolby Zoom** feature allows you to display **Dolby Zoom Screen** (Figure 5–3 below) that shows the level meters for the Dolby pairs and the Dolby metadata for the selected Dolby pair simultaneously with the touch of a single button.

Figure 5–3 Dolby Zoom Screen



Refer to Dolby Zoom Screen on page 88 for more information.

Note: If the Dolby Decoder input is assigned to any pair except "OFF" (see Page 41, Step 4), the Dolby zoom feature will only be available for that pair.

Similarly, if the Dolby Decoder Outputs are assigned to any monitor mix input, any AES Output Card source, or any Analog Output card Source, only the source selected above will be available for Dolby Zoom.

If the Dolby Decoder source is set to "OFF", but one or more of its outputs are assigned to any mixer input, no Dolby Zoom function will be available, and all Dolby Zoom keys will turn gray.

Off Hot Key

When you set a hot key to **Off**, it is completely disabled and has no functionality.

Defining/Modifying a Hot Key

1. From the **Main Screen**, press the center navigation button.
2. On the **Configuration Selection Menu**, press the **Configure Main Screen** knob to display the **Main Screen Configuration Menu**.
3. Press the **Configure Hot Keys** knob to display the **Main Screen Hot Key Configuration Menu**.
4. Press one of the knobs to select its associated hot key. Notice that the knob label is now highlighted.
5. Rotate the knob until the function field is highlighted.
6. Press the knob repeatedly to step through the options until the one you want is highlighted.

Decision Point:

If you want to set a **preset** hot key, continue on with Preset Hot Keys on page 55.

If you want to set a **channel trim** hot key, continue on to Naming/Renaming a Hot Key on page 57.

If you want to set a **solo or mute** hot key, continue on to Solo/Mute Hot Keys on page 56.

Otherwise, if you want to set a **Dolby Zoom** hot key, continue on to on page 57.

Preset Hot Keys

Preset Hot Key Example

In this example we will modify the bottom, left-hand knob so that it becomes a selectable preset.

1. Press the knob repeatedly until **Recall Preset** displays.
2. Now, rotate the knob again to highlight **Selectable**.
3. Press the knob again to select **Selectable**.

Channel Trim Hot Keys

Channel Trim Hot Key Example

In this example we will modify the bottom, right-hand knob to trim the monitor mixer Channels 1 and 2.

1. On the **Main Screen Hot Key Configuration Menu**, press the bottom, right-hand knob to highlight the knob's label.
2. Rotate the knob until the function field is highlighted.
3. Press the knob repeatedly until **Mon Mix Trims** displays.
4. Now, rotate the knob again to highlight Channel 1.
5. When Channel 1 is highlighted, press the knob to select it.
6. Now rotate the knob again until you highlight Channel 2.
7. When Channel 2 is highlighted, press the knob to select it.
8. Use this same procedure to unselect any channels that are selected that you do not want to solo or mute.
9. Verify that only Channel 1 and Channel 2 are highlighted.

Solo/Mute Hot Keys

Solo/Mute Hot Key Example

In this example we will modify the top, right-hand knob to solo/mute Channel 4 and Channel 8.

1. On the **Main Screen Hot Key Configuration Menu**, press the bottom, right-hand knob to highlight the knob's label.
2. Rotate the knob until the function field is highlighted**.**
3. Press the knob repeatedly until **Solo/Mute Channels** displays.
4. Now, rotate the knob again to highlight Channel 4.
5. When Channel 4 is highlighted, press the knob to select it.
6. Now rotate the knob again until you highlight Channel 8.
7. When Channel 8 is highlighted, press the knob to select it.

8. Use this same procedure to unselect any channels that are selected that you do not want to solo or mute.

9. Verify that only Channel 4 and Channel 8 are highlighted.

Dolby Zoom Hot Keys

Note: When the AMP2-16V contains the Dolby D/E Card, hot keys 9 through 16 are factory set as **Dolby Zoom** hot keys. In the absence of a Dolby D/E Card, hot keys 9 through 16 are factory set to **Off**. But in either case, you can change their functionality, for example making hot keys 1 through 8 **Dolby Zoom** hot keys.

Dolby Zoom Hot Key Example

In this example we will modify the top, left-hand knob so that it becomes a **Selectable Dolby Zoom** hot key.

1. On the **Main Screen Hot Key Configuration Menu**, press the top, left-hand knob to highlight the knob's label.

2. Rotate the knob until the function field is highlighted.

3. Press the knob repeatedly until **Dolby Zoom** displays.

4. Now, rotate the knob again to highlight **Selectable**.

5. Press the knob again to select **Selectable**.

Naming/Renaming a Hot Key

Once you have successfully defined a hot key's functionality, you can change the hot key label (name) that displays on the **Main Screen**.

1. On the **Main Screen Hot Key Configuration Menu**, press one of the knobs to highlight its name.

2. Press the knob again to display the **Label Menu**.

Hot Key Naming Example

In this example we will rename the same knob to match the functionality we defined in the **Solo/Mute** example: *Ch 4&8*.

1. From the **Label Menu**, press the **Backspace** knob repeatedly until you have erased all the unwanted characters.

2. Press the **Shift** knob until the upper case character set is displayed.
3. Rotate the **Select Horiz** and/or **Select Vert** knobs until the *C* is highlighted.
4. Press either the **Select Horiz** or the **Select Vert** knob to select the *C*.
5. Rotate the **Select Horiz** and/or **Select Vert** knobs until the *h* is highlighted.
6. Press either the **Select Horiz** or the **Select Vert** knob to select the *h*.
7. Repeat this process until all the characters appear in the label.
8. Press the **Save/Exit** button.
9. When the **Main Screen Hot Key Configuration Menu** appears, verify the label for the knob reads: *Key 5 Ch 4&8*.
10. Press the **Save/Exit** button repeatedly until the **Main Screen** reappears. Notice that the label now displays *Solo Ch4&8*.
11. Rotate the knob to the right and note that the label now says *Mute Ch4&8*.

Note: Don't waste characters on the hot key's function. The system will automatically use the top line of the label to identify the function of the hot key.

Copying Presets to Another Monitor

If you have purchased more than one AMP2-16V Series monitor, you may want to copy your presets from one monitor to another one. If so, follow the instructions below.

Important: Verify that you have, in fact, saved your configurations to presets. See Saving Presets on page 48 for details.

Preset Files

A *preset file* contains all eight presets, and all other saved settings of the current system configuration (whether saved as a preset or not) of an AMP2-16V Series monitor.

Verifying Compatibility

Important: If the two AMP2-16V Series monitors are not compatible, you should not attempt to copy the preset file. Doing so will reset the duplicated AMP2-16V Series monitor to the factory defaults.

You can determine whether two AMP2-16V Series monitors are compatible based on three characteristics:

- The contents and arrangement of I/O modules
- The presence/absence of a Dolby D/E Card
- The **NvRam Table Version**

To verify that the two AMP2-16V Series monitors are compatible, follow the steps below.

1. Power up the first AMP2-16V Series monitor and navigate to the **Unit Information Menu** using the steps below.

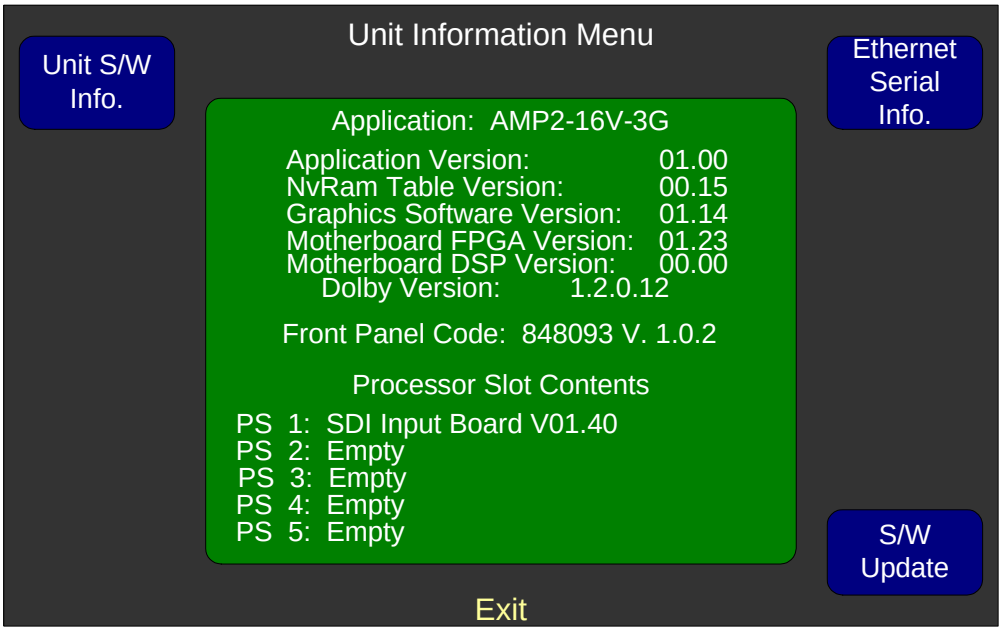
   A. From the **Main Screen**, press the **Menu** button to display the **Configuration Selection Menu**.

   B. Press the **Options** knob to display the **Option Configuration Menu**.

   C. Press the **Config HW** knob to display the **Hardware Configuration Menu**.

   D. Press the **Unit Info** knob to display the **Unit Information Menu** as shown in Figure 5–4 below.

Figure 5–4 Unit Information Menu



2. When the **Unit Information Menu** appears, make a note of the following:

   NvRam Table Version: _____

   Dolby Version: _____

   PS 1: _____

   PS 2: _____

   PS 3: _____

   PS 4: _____

   PS 5: _____

3. Power up the second AMP2-16V Series monitor and repeat the previous Steps (1 through 2) above.

Decision Point:

If all seven lines are the same for both units (line for line), then they are compatible. Continue on to Backing Up the Saved Presets immediately below.

Otherwise, if *not* all of the lines in Step 2 are the same, then this procedure will not work. You can do one of two things:

- Manually configure the second AMP2-16V Series monitor, or
- If the units have the same hardware in the same slots, then you can upgrade the software on one, or both units so that the **NvRam Table Version**s match. Then after reconfiguring the first one manually, you can use this procedure to copy its preset file to the second one.

Establishing Connectivity

The fastest and simplest way to establish connectivity to your AMP2-16V-3G Series monitor is through a LAN (local area network).

Decision Point:

If your PC/laptop is *not* connected to a LAN (local area network) then continue on to Connecting Peer-to-Peer on page 64.

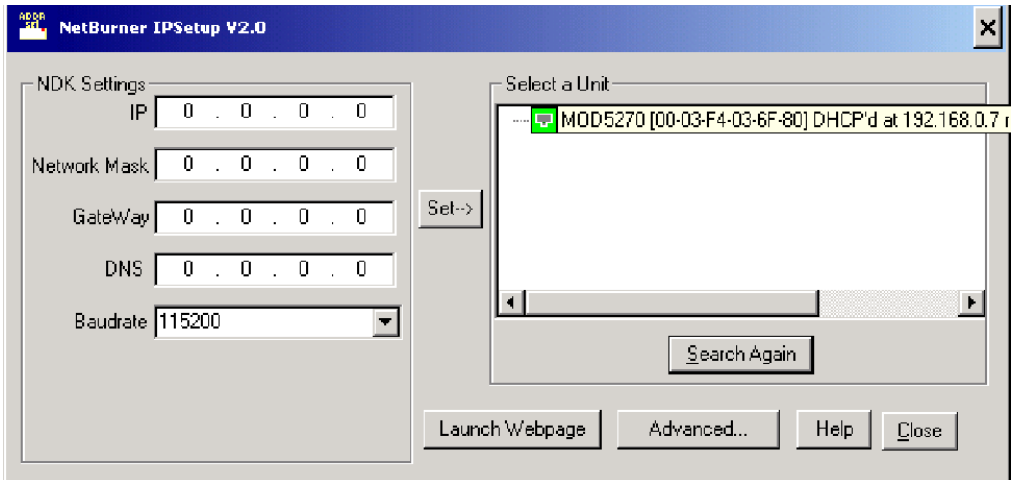
Otherwise, if it's connected to a LAN, then continue on to Connecting to a LAN immediately below.

Connecting to a LAN

Launching the Setup Tool

1. Connect the unit and your host PC to a LAN (local-area network) if you have not already done so.
2. Run the **NetBurner IP Setup Tool**.
3. You should see something similar to the dialog shown in Figure 5–5 below. This dialog shows a NetBurner module fresh from the Wohler factory.

Figure 5–5 NetBurner IPSetup Dialog - Unconfigured

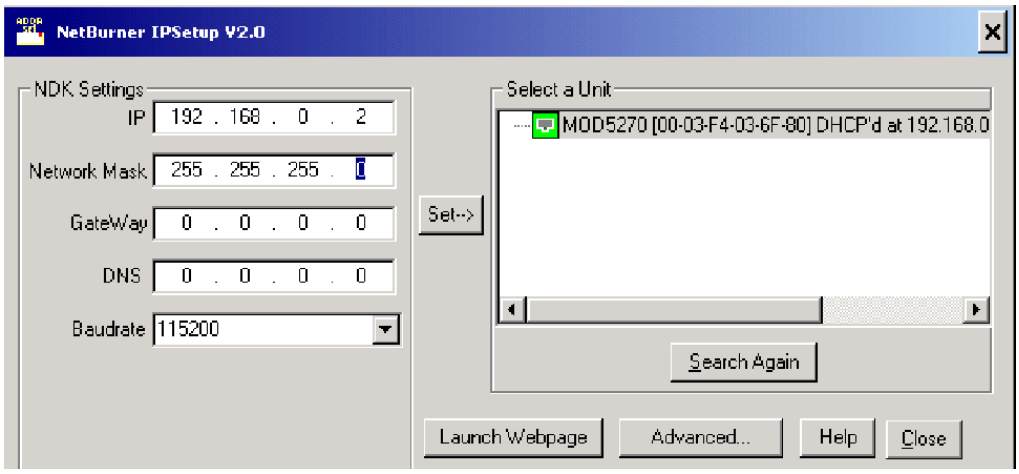


4. If multiple NetBurner modules appear in the **Select a Unit** box, be sure to highlight the unit you are working with.

Setting the IP Address and Network Mask

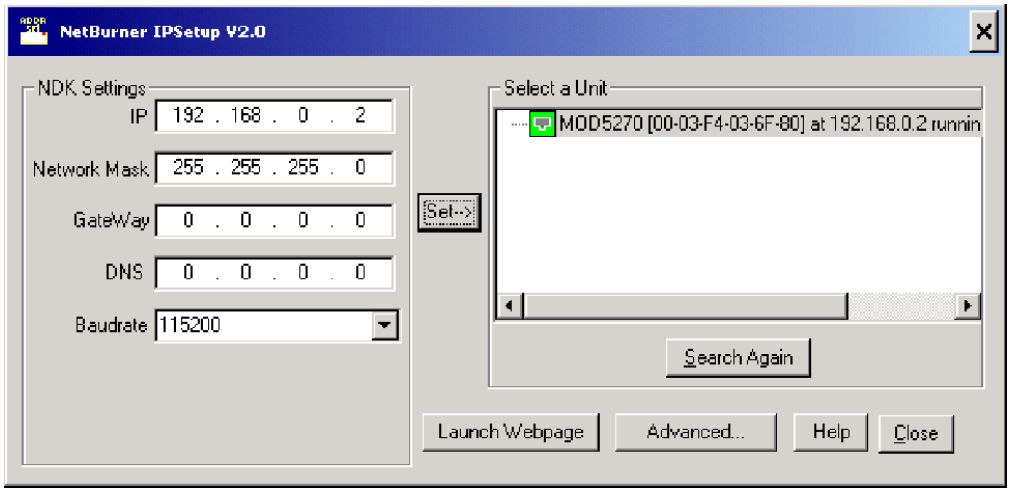
1. An IP address of `0.0.0.0` means the Netburner is using DHCP addressing, and the network will give the module its address (as it has in the example in Figure 5–5 above: `192.168.0.7`. With these procedures, you can also enter a fixed network address and mask if desired. You can use any network address and mask approved by your network administrator. For our example, we'll be using the address `192.168.0.2` with the network mask of `255.255.255.0`. Simply type the IP address into the **IP** field and the network mask into the **Network Mask** field.

Figure 5–6 NetBurner IPSetup Dialog - With IP Address and Net Mask



2. Press the **Set** button and wait approximately 30 seconds. If the NetBurner module does not appear with the new address, press the **Search Again** button. The window should now look like the one shown in Figure 5–7 below.

Figure 5–7 NetBurner IPSetup Dialog - New Address Accepted



3. Close the **NetBurner IPSetup** utility by pressing the **Close** button.

Important: This concludes the procedure for establishing network connectivity to the LAN. Return to your previous location in this document.

Connecting Peer-to-Peer

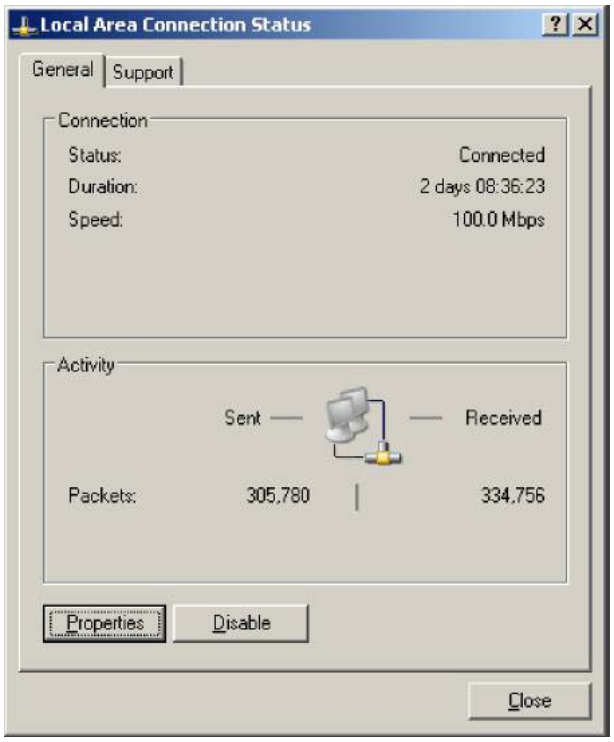
These instructions describe the procedure using a Windows XP machine. Host computers running other operating systems may have these controls in slightly different locations.

1. Connect the crossover cable directly between the unit's Ethernet port and your host computer's Ethernet port.

2. On the host computer, go to the **Control Panel** and double-click on **Network Connections**.

3. Open **Local Area Connection**. If you have more than one Network Interface Card (NIC) in the host machine, select the **Local Area Connection** that corresponds to the NIC connected to the unit. You should see a dialogue like the one in Figure 5–8 below.

Figure 5–8 Local Area Connection Status Dialog



4. Click the **Properties** button. You should see another dialogue box open like the one in Figure 5–9 below.

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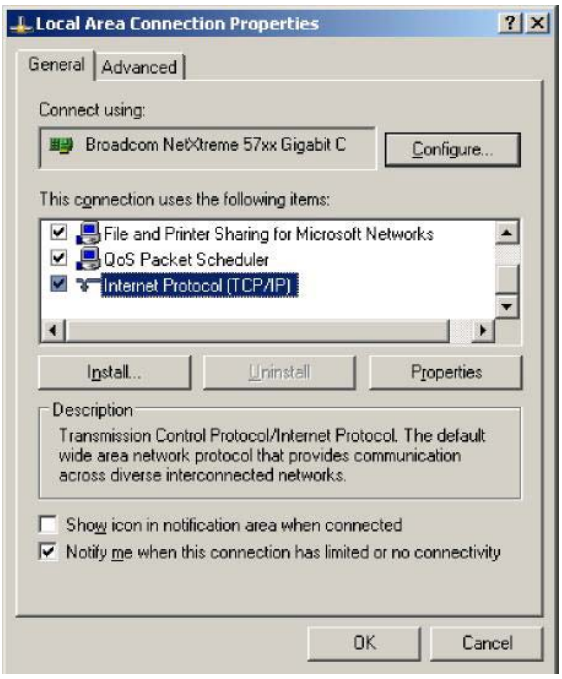
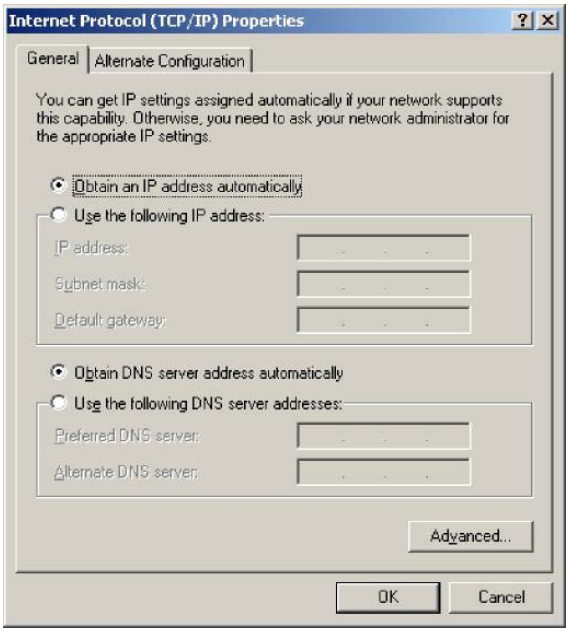
Figure 5–9 Local Area Connection Properties Dialog



5. Highlight the **Internet Protocol (TCP/IP)** check box.

6. Click the **Properties** button. You should see another dialogue box like the one shown in Figure 5–10 below.

Figure 5–10 Internet Protocol (TCP/IP) Properties Dialog - Unconfigured



7. Record any current settings in this dialogue box, because they may need to be changed.

   IP Address: _____

   Subnet Mask: _____

   Default Gateway: _____

   Preferred DNS: _____

   Alternate DNS: _____

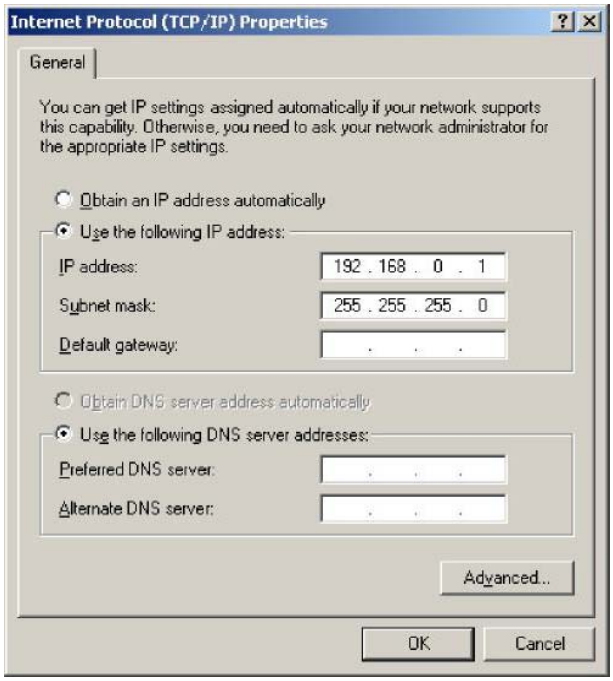
8. Click the **Use the following IP address** radio button.

9. Type in the address `192.168.0.1`.

10. Type in the subnet mask `255.255.255.0`.

11. You can leave the DNS server address fields blank. The dialogue box should now look like the one in Figure 5–11 below.

Figure 5–11 Internet Protocol (TCP/IP) Properties Dialog - With IP and Subnet Mask



12. Click **OK** and close any LAN or IP setup dialogs you have open.

13. You **must** set a static IP address for the unit as described in Setting the IP Address and Network Mask, Step 1 (page 62). We suggest you enter `192.168.0.2`. You must also set the mask to the same value set in Connecting Peer-to-Peer in Step 7 (page 66). We suggest you enter `255.255.255.0`.

14. When you are finished with the file transfer(s), you should return all the IP address and network mask fields to their original values.

Collecting Current Version Information from the Monitor

Navigating to the Unit Information Menu

1. Turn the unit on and navigate to the **Unit Information Menu** as shown in Figure 5–4 on page 60.

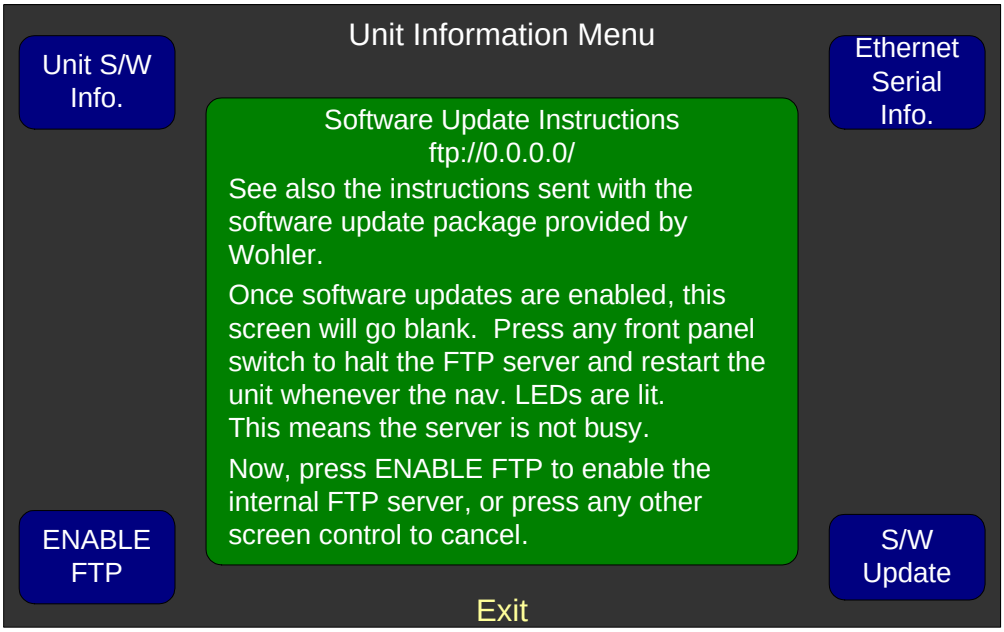
   A. When the **Main Screen** appears, press the **Save/Exit** button to display the **Configuration Selection Menu**.

   B. When the **Configuration Selection Menu** appears, press the **Options** knob to display the **Option Configuration Menu**.

   C. When the **Option Configuration Menu** appears, press the **Config HW** knob to display the **Hardware Configuration Menu**.

   D. When the **Hardware Configuration Menu** appears, press the **Unit Info** knob to display the **Unit Information Menu**.

Figure 5–12 Unit Information Menu



2. Note the line of text at the top of the window with the FTP address. It should read something like `ftp://192.168.0.2/`.

Important: If the address comes up as ftp://0.0.0.0/, the unit is using DHCP in a peer-to-peer connection, or no Ethernet connection exists. Refer to Step 1 in Setting the IP Address and Network Mask on page 155.

Write it here: _____

Enabling FTP Access

1. On the monitor, press the **ENABLE FTP** button.

   Note: Pressing the **ENABLE FTP** knob will cause the monitor's display to go dark.

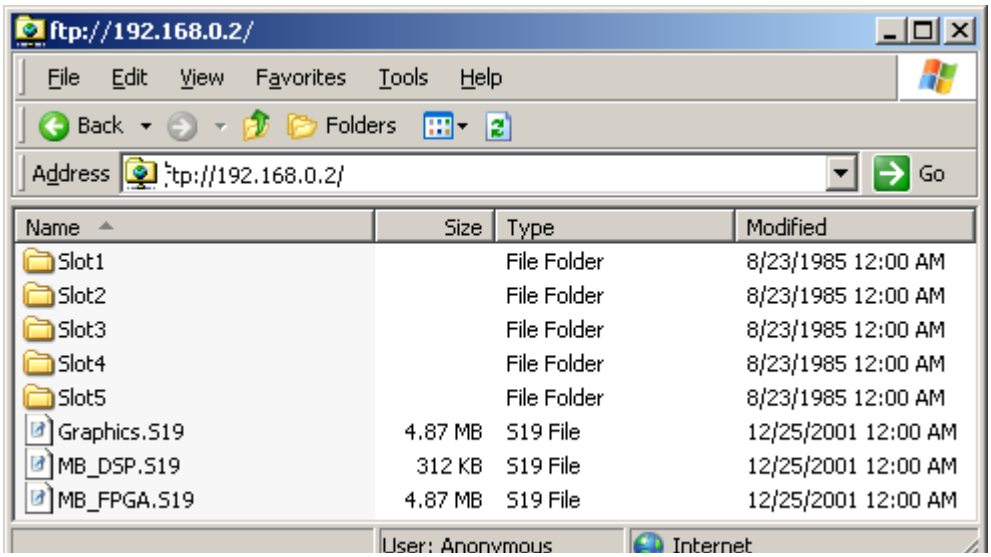
2. On the PC, open **My Computer** from the Windows desktop.

3. In the **Address** line, enter the address you wrote down in Step 2 (on the previous page), exactly as noted. For example, enter `ftp://192.168.0.2`.

4. You will see something similar to the following screen shot in Figure 5–13, if the folders are set to detail view. The filename, folder name,

and file sizes below are accurate. All other attribute information, especially the dates, are bogus and should be ignored.

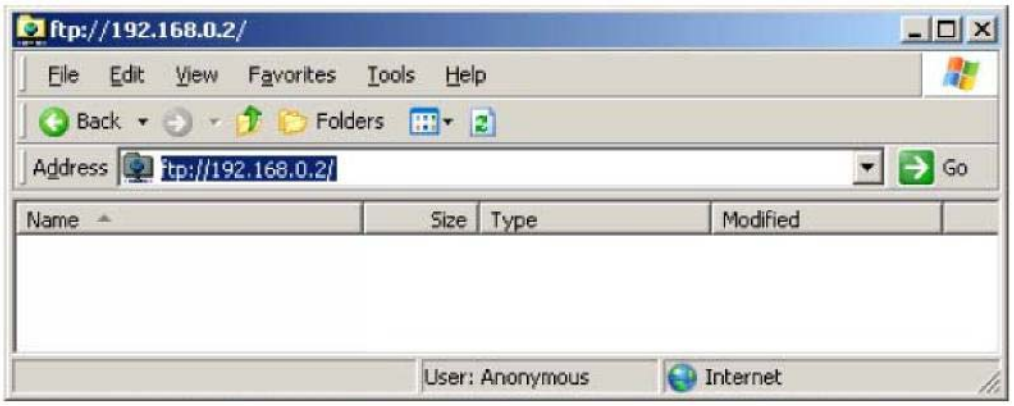
Figure 5–13 FTP Location



5. If you see the following dialog similar to the one in Figure 5–14 after a minute or so, it means the FTP connection failed. Try power cycling the unit, and repeating the steps (1 through 4) above. When you get back to this point, press the F5 key to refresh the window.

Figure 5–14 Failed FTP Connection

Figure 5–15 FTP Window



6. Press the F5 key to refresh the window.

Important: You must refresh the file window (by pressing the F5 key) after each file transfer since Windows caches the file and folder information. If any of the files change, Windows will report the previous information from its cache rather than the current information. Refreshing the folder after each file change resolves this issue.

7. Drag and drop the **Presets.S19** file from the AMP2-16V Series monitor to the **Presets** folder on the desktop.

8. We recommend that you rename the file so you can distinguish multiple presets files. You must, however, maintain two parts of the filename (both of which are case-sensitive):
   - The word **Presets** (case-sensitive and plural) must appear in the filename.
   - The file's extension must be **.S19** (case-sensitive).

Important: If the new filename does not meet the requirements listed in Step 8 above, the AMP2-16V Series monitor will not accept the file.

Examples:

Acceptable filenames:

- My Presets.S19
- 090909 Presets.S19

Unacceptable filenames:

- My Preset Set.S19
  (reason: *Preset* is not plural.)
- My presets.s19
  (reason: *s19* is lower case.)

9. Once the file is copied, disconnect the AMP2-16V Series monitor from the PC.

Important: This concludes this half of the preset copying procedure. Continue on to Copying the Presets to Another Monitor immediately below.

Copying the Presets to Another Monitor

1. Connect the destination AMP2-16V Series monitor to your PC.

2. Follow the instructions in Establishing Connectivity on page 61 to establish connectivity to the AMP2-16V Series monitor.

3. Follow the instructions in Navigating to the Unit Information Menu on page 67 through Step 6 on page 70 to set up the AMP2-16V Series monitor for an FTP file transfer.

4. Drag and drop the **Presets.S19** file (or the file you renamed in Step 8 on page 70) from your **Presets** folder to the AMP2-16V Series monitor.

   Note: Transferring the preset file to the AMP2-16V Series monitor will reset it and then it will return to the ftp-enabled state.

5. Press the **Help** (left) navigation button on the AMP2-16V Series monitor to restart it and load the new presets into memory.

Important: This concludes the entire preset copying procedure.

CHAPTER 6
Menu List

Introduction

Overview

This chapter provides an in-depth description of all the menus and all their respective options and functions.

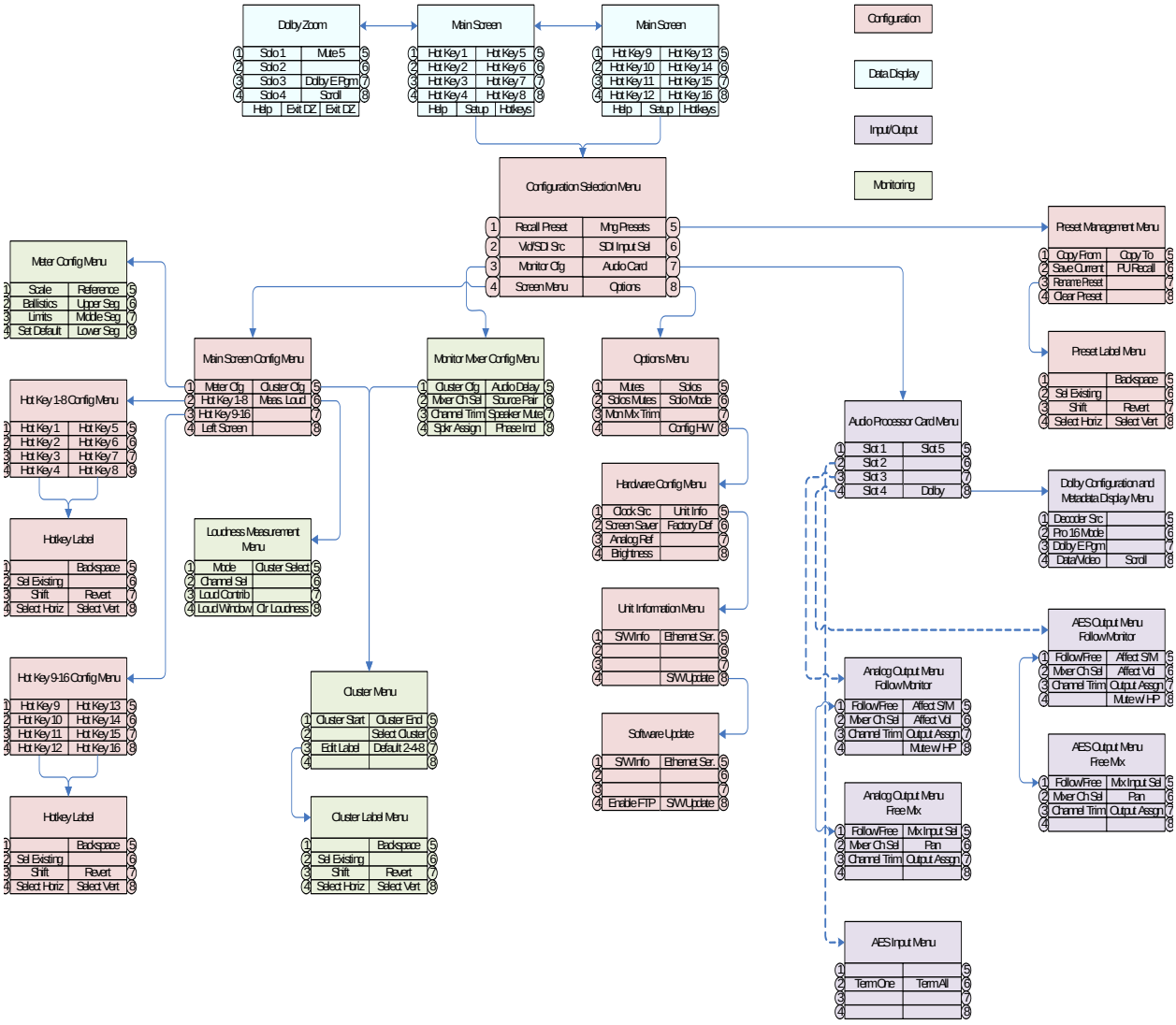
Note: The menus are listed alphabetically for easy reference.

Topics

Menu Navigation Overview

The configuration menus (shown in Figure 6–1 on page 74) appear on the AMP2-16V Series monitor to display information and to allow you to configure the operation of the monitor.

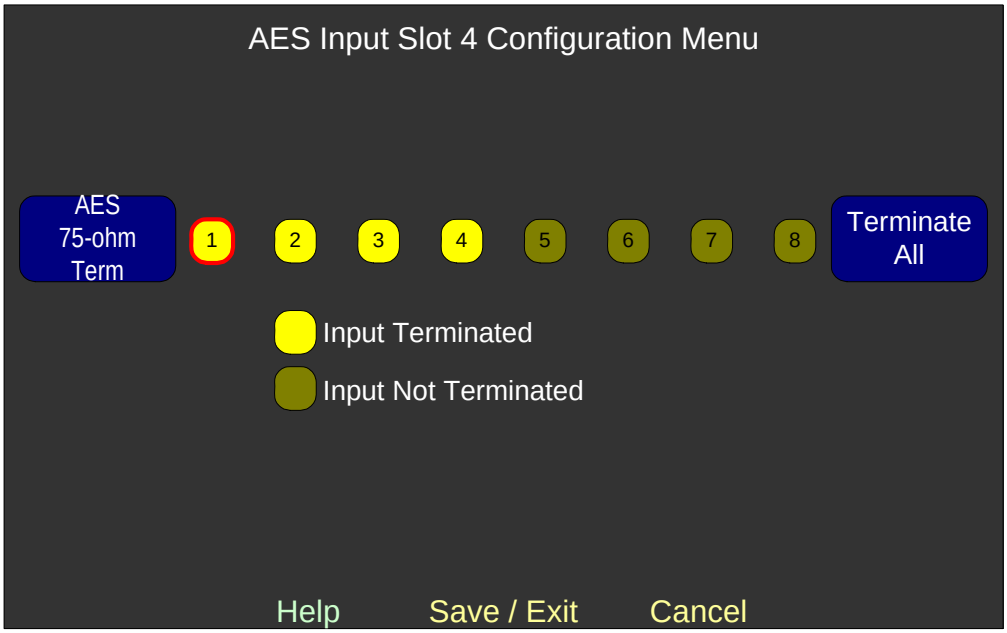
Figure 6–1 Menu Tree



AES Input Configuration Menu

This menu allows you to set the termination on the input connectors either individually or all at once.

Figure 6–2 AES Input Configuration Menu



- **AES 75-ohm Term**: Rotate the knob to highlight each individual channel and then press the knob to toggle termination
- **Terminate All**: Press the knob to toggle the termination of all the channels simultaneously on or off.

AES Output Configuration Menu

This menu allows you to:

- Select the source of each of the eight AES output channel pairs,
- Adjust the level of each channel, and
- Mix or direct sources to outputs.

The menu can take one of two forms depending on the channel pair you want to send to the output port:

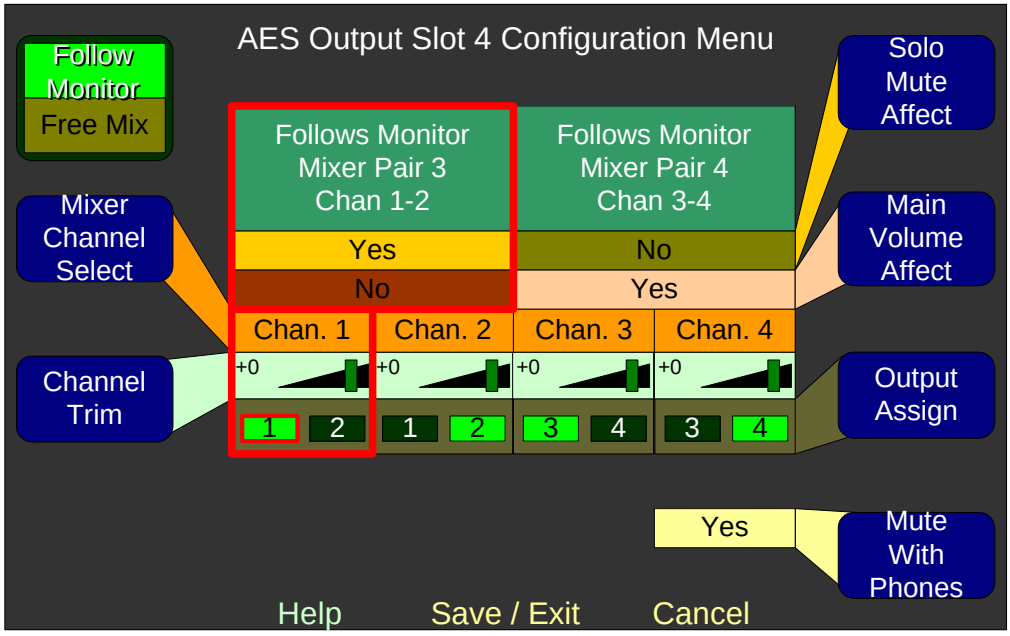
- The same input pair selection that is audible on the speakers (*Follow Monitor* mode), or
- Any other pair selection (*Free Mix* mode).

Follow Monitor/Free Mix: Pressing this knob toggles between the menu display shown in Figure 6–3 below, and the display shown in Figure 6–4 on page 78.

Follow Monitor Mode Controls

In *Follow Monitor* mode (Figure 6–3 below) you can direct the channels selected in the **Monitor Mixer Configuration Menu** (Figure 6–4 on page 78) to be output through the AES Output Card.

Figure 6–3 AES Output Configuration Menu - Follow Monitor



- **Mixer Channel Select:** Rotating this knob moves a highlight between the source channels and pairs. Other controls then affect the selected channel and pair.

- **Channel Trim:** Rotaing this knob changes the gain on the selected channel. The number inside the light green box changes and the trim handle moves accordingly. This control has a range of -60 dB to +12 dB (inclusive) in 1 dB increments. You can mute the channel by turning the knob counterclockwise beyond -60 dB. Pressing and holding this knob returns the setting to 0 dB.

- **Solo/Mute Affect:** Pressing or rotating this knob selects **Yes** or **No**, and determines whether the selected pair is affected by solo or mute operations on the **Main Screen**.

- **Main Volume Affect:** Pressing or rotating this knob selects **Yes** or **No**, and determines whether the selected pair is controlled by the front panel **Volume** control.

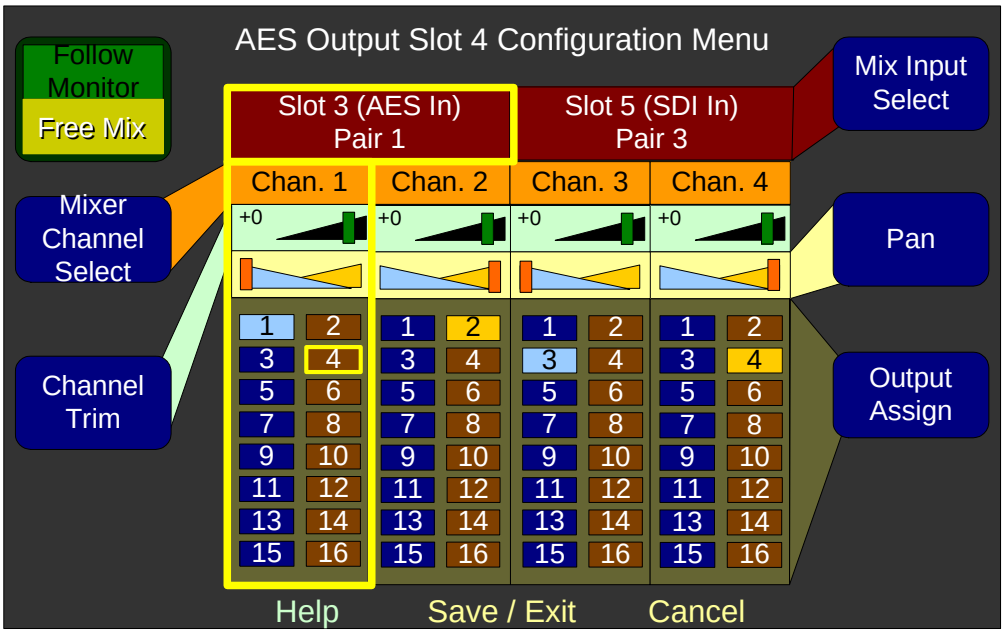
- **Output Assign:** Rotating this knob moves a highlight between possible output channel numbers and between channels and pairs. Pressing the knob enables or disables the highlighted channel.

- **Mute with Phones:** Pressing or rotating this knob selects **Yes** or **No**, and determines whether the output port is controlled by the presence of a plug in the front panel headphone jack.

Free Mix Mode Controls

In *Free Mix* mode you can mix and output any combination of channel pairs into any combination of output channels, or you can turn the output pair **Off** altogether. Adding a Dolby D/E Card adds the five decoded Dolby output pairs, so you can select one of many inputs (up to four other processor cards at 8 channel pairs each, plus five Dolby output pairs). You will see the choices displayed as **Slot x (<card name>) Channel y** or **Dolby Decoder Pair z**. (This mode is represented by all the other lines coming into this menu in Figure 2–3 on page 30.)

Figure 6–4 AES Output Configuration Menu - Free Mix



- **Mixer Channel Select**: Rotating this knob moves a highlight between the source channels and pairs. Other controls then affect the selected channel and pair.

- **Channel Trim**: Rotaing this knob changes the gain on the selected channel. The number inside the light green box changes and the trim handle moves accordingly. This control has a range of -60 dB to +12 dB (inclusive) in 1 dB increments. You can mute the channel by turning the knob counterclockwise beyond -60 dB. Pressing and holding this knob returns the setting to 0 dB.

- **Mix Input Select:** Rotating this knob selects between any input card sources, the monitor mix pair, and any Dolby decoder sources (if the Dolby D/E Card is installed). Setting the channel pair to **Off** disables the other adjustments for that channel pair.

- **Pan**: Rotating this knob changes the relative gain on the selected channel to the selected odd and even numbered output channels, allowing the customer to pan the selected input between the odd and even numbered output channels. Pressing and holding this knob for a second returns the setting to the center, providing equal signal levels to all selected output channels.

- **Output Assign**: Rotating this knob moves a highlight between possible output channel numbers and between channels and pairs. Pressing the knob enables or disables the highlighted channel.

Analog Output Configuration Menu

This menu allows you to:

- Select the source of each of the four analog output channel pairs,
- Adjust the level of each channel, and
- Mix or direct sources to outputs.

The menu can take one of two forms depending on the channel pair you want to send to the output port:

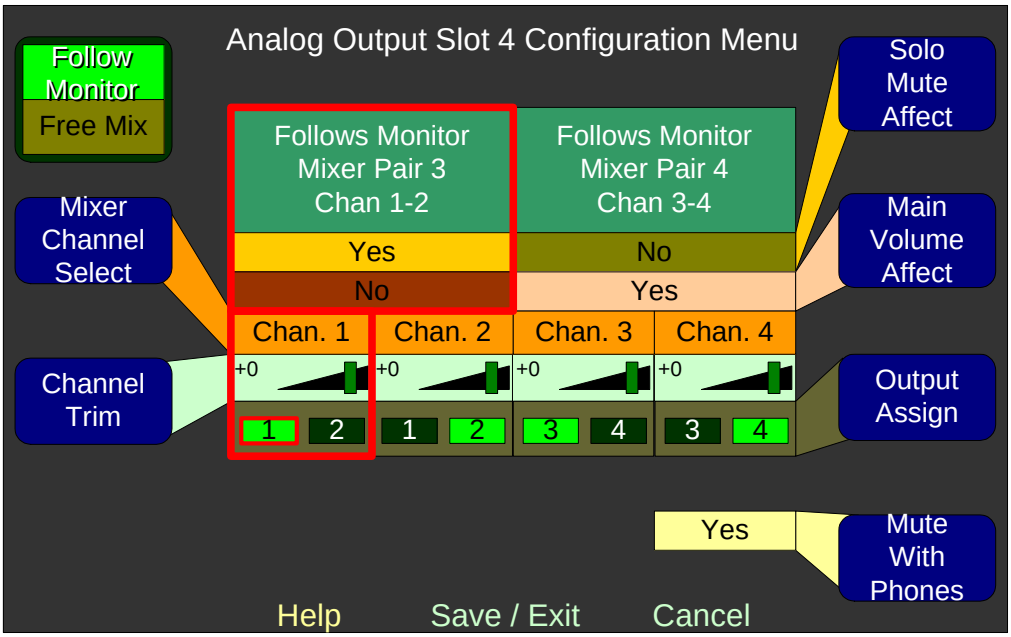
- The same input pair selection that is audible on the speakers (*Follow Monitor* mode), or
- Any other pair selection (*Free Mix* mode).

Follow Monitor/Free Mix: Pressing this knob toggles between the menu display shown in Figure 6–3 below, and the display shown in Figure 6–4 on page 78.

Follow Monitor Mode Controls

In *Follow Monitor* mode you can direct the channels in the **Monitor Mixer Configuration Menu** (Figure 6–20 on page 102) to be output through the Analog Output Card.

Figure 6–5 Analog Output Configuration Menu - Follow Monitor



- **Mixer Channel Select:** Rotating this knob moves a highlight between the source channels and pairs. Other controls then affect the selected channel and pair.

- **Channel Trim**: Rotaing this knob changes the gain on the selected channel. The number inside the light green box changes and the trim handle moves accordingly. This control has a range of -60 dB to +12 dB (inclusive) in 1 dB increments. You can mute the channel by turning the knob counterclockwise beyond -60 dB. Pressing and holding this knob returns the setting to 0 dB.

- **Solo/Mute Affect:** Pressing or rotating this knob selects **Yes** or **No**, and determines whether the selected pair is affected by solo or mute operations on the **Main Screen**. This knob is disabled on the **Input Pair Select** screen.

- **Main Volume Affect:** Pressing or rotating this knob selects **Yes** or **No**, and determines whether the selected pair is controlled by the front panel **Volume** control. This knob is disabled on the **Input Pair Select** screen.

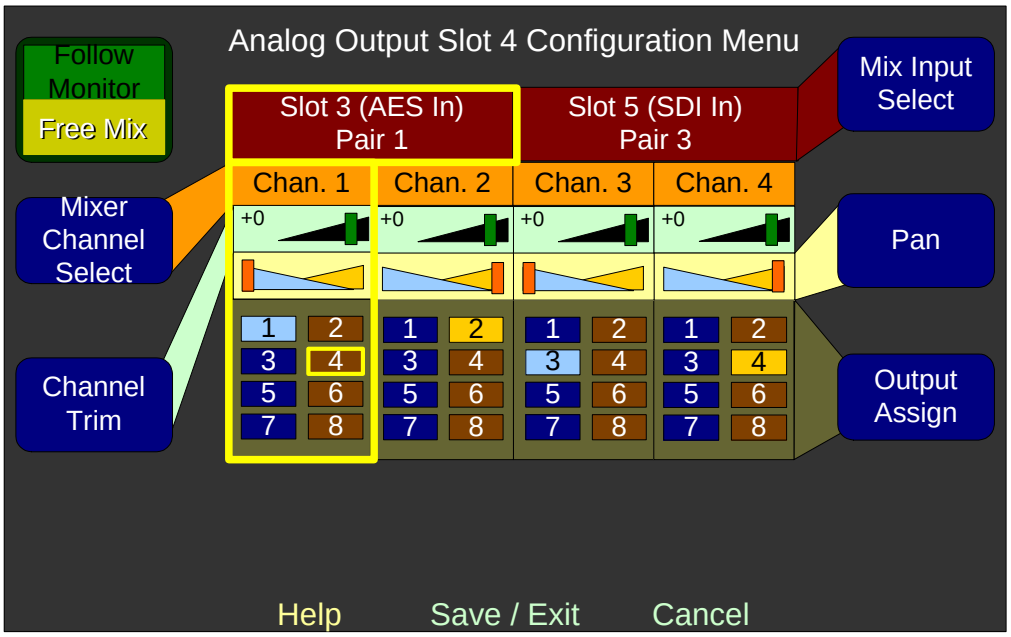
- **Output Assign**: Rotating this knob moves a highlight between possible output channel numbers and between channels and pairs. Pressing the knob enables or disables the highlighted channel.

- **Mute with Phones:** Pressing or rotating this knob selects **Yes** or **No**, and determines whether the output port is controlled by the presence of a plug in the front panel headphone jack.

Free Mix Mode Controls

In *Free Mix* mode you can mix and output any combination of channel pairs into any combination of output channels, or you can turn the output pair **Off** altogether. Adding a Dolby D/E Card adds the five decoded Dolby output pairs, so you can select one of many inputs (up to four other processor cards at 8 channel pairs each, plus five Dolby output pairs). You will see the choices displayed as **Slot x (<card name>) Channel y** or **Dolby Decoder Pair z**.)

Figure 6–6 Analog Output Configuration Menu - Free Mix



- **Mixer Channel Select**: Rotating this knob moves a highlight between the source channels and pairs. Other controls then affect the selected channel and pair.

- **Channel Trim**: Rotaing this knob changes the gain on the selected channel. The number inside the light green box changes and the trim handle moves accordingly. This control has a range of -60 dB to +12 dB (inclusive) in 1 dB increments. You can mute the channel by turning the knob counterclockwise beyond -60 dB. Pressing and holding this knob returns the setting to 0 dB.

- **Mix Input Select**: Rotating this knob selects between any input card sources, the monitor mix sources, and any Dolby decoder sources (if the Dolby D/E Card is installed). Setting the channel pair to **Off** disables the other adjustments for that channel pair.

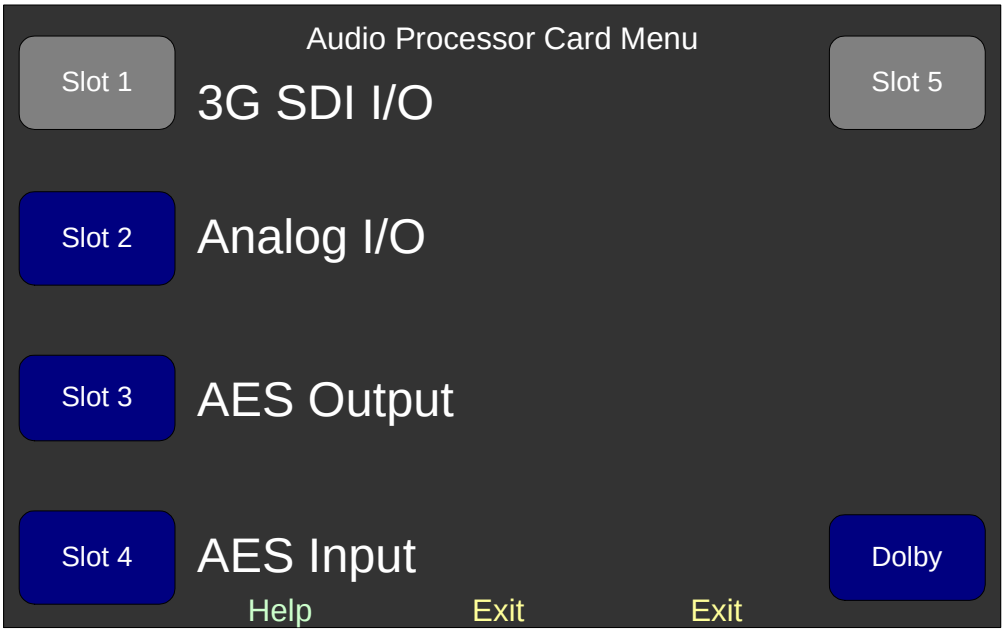
- **Pan**: Rotating this knob changes the relative gain on the selected channel to the selected odd and even numbered output channels, allowing the customer to pan the selected input between the odd and even numbered output channels. Pressing and holding this knob for a second returns the setting to the center, providing equal signal levels to all selected output channels.

- **Output Assign**: Rotating this knob moves a highlight between possible output channel numbers and between channels and pairs. Pressing the knob enables or disables the highlighted channel.

Audio Processor Card Menu

The **Audio Processor Card Menu** allows you to select each optional module independently to configure inputs, mixing, and outputs.

Figure 6–7 Audio Processor Card Menu



Slots 1 through 5: Each occupied slot displays the name of the card in that slot. Press the knob of the corresponding card to display the

Configuration Menu for the card in that slot. If a slot is empty, the label will be gray and disabled, no card name will appear, and the knob will have no function. Rotating the knob does nothing; select the card by pressing the knob. Refer to the AES Output Configuration Menu on page 75 and/or the Analog Output Configuration Menu on page 79 for configuration option examples.

- **3G SDI I/O:** This selection only appears if one or more 3G SDI I/O cards is installed inthe system. The knob will have no function, however, since the **3G SDI Output Configuration Menu** is not available at this time.

- **Analog Input/Output:** This selection only appears if one or more Analog I/O Cards is installed in the system. Note that only the outputs are configurable. If one card is installed, pressing this knob displays the **Analog Output Configuration Menu** where you can configure output parameters. If more than one analog output card is installed, then a card slot number appears (with the card's slot number) beside the knob label. Pressing this knob does nothing.

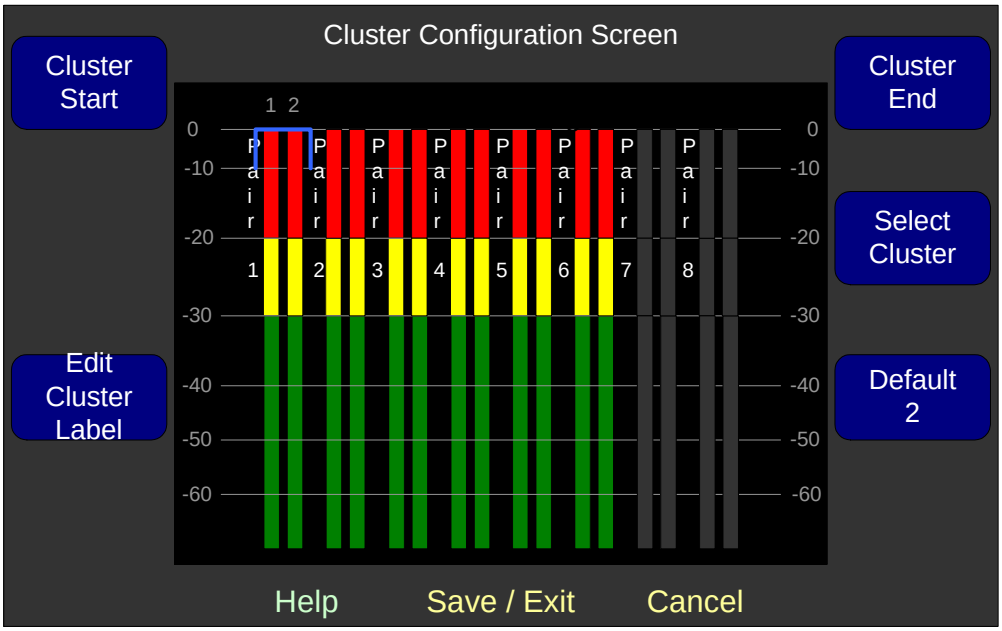
- **AES Output:** This selection appears if one or more AES Output Cards are installed in the system. If one card is installed, rotating this knob displays the **AES Output Configuration Menu** where you can set up output parameters for it. If more than one card AES output card is installed, then a card slot number appears (with the card's slot number) beside the knob label. Pressing this knob does nothing.

- **Dolby:** Pressing this knob displays the **Dolby Configuration and Metadata Display Menu** as shown on page 86 where you can configure the Dolby D/E Card (if equipped) and display live Dolby metadata.

Cluster Configuration Screen

The **Cluster Configuration Screen** allows you to define and select clusters for display on the **Main Screen**.

Figure 6–8 Cluster Configuration Screen



Note: When you turn off channels in the **Monitor Mixer Configuration Menu**, they will appear gray on the **Cluster Configuration Screen** as shown above on the right. Moreover, they will not appear at all on the **Main Screen** and the remaining meters will automatically redistribute themselves to display evenly in the window.

- **Cluster Start:** Rotating this knob moves the left side of the bracket so you can select the starting channel of a cluster. You can create up to eight clusters. Pressing this knob sets the new cluster.

- **Edit Cluster Label:** Pressing this knob proceeds to the **Label Menu** so you can enter or change the cluster label, shown in Figure 6–8 as **Pair 1**. If a partial cluster or multiple clusters is bracketed, then this knob is disabled.

- **Cluster End:** Rotating this knob moves the right side of the bracket to select the ending channel of a cluster. Pressing this knob sets the new cluster. Channels from other existing clusters are automatically

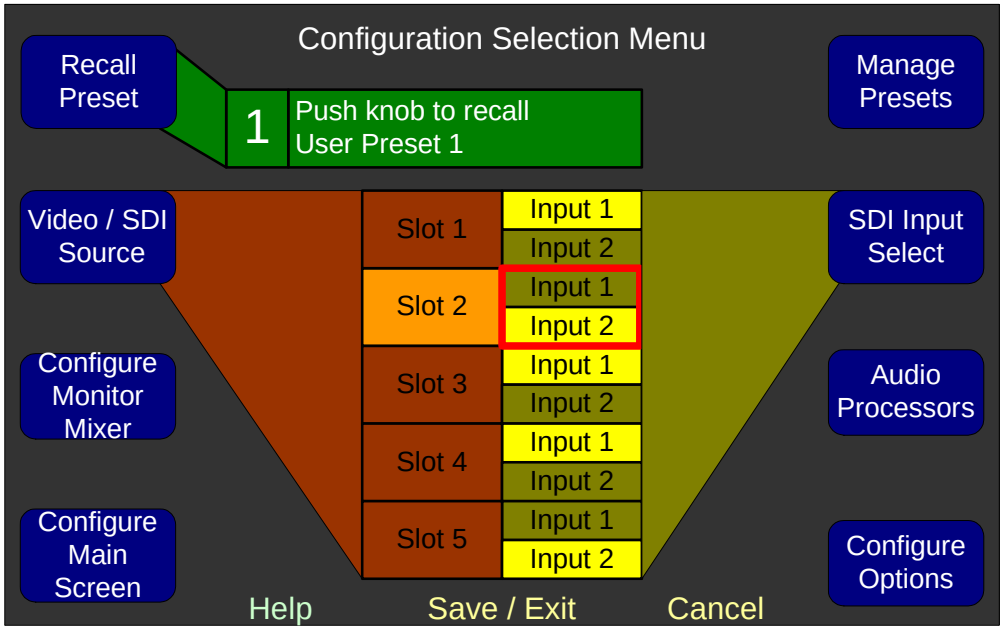
removed and added to the one being set. You can create up to eight clusters.

- **Select Cluster:** Rotating this knob moves the bracket from cluster to cluster so you can adjust each one.
- **Default 2-4-8:** Rotating this knob configures the meters into clusters of two, four, or eight. Pressing this knob reformats the screen to form two clusters of eight channels each, four clusters of four channels each, or eight clusters of two channels each.

Configuration Selection Menu

The **Configuration Selection Menu** allows you to modify meters, audio, and Dolby configurations and it allows you to select and modify SDI input selections, and audio outputs.

Figure 6–9 Configuration Selection Menu



- **Recall a Preset:** Rotating this knob steps through each of the eight user-defined presets. Pressing the knob recalls the preset shown.
- **Video/SDI Source**: Rotating this knob highlights each of the 3G/HD/SD-SDI-V cards installed in the monitor. If only one card is

installed, rotating the knob does nothing. Pressing the knob does nothing.

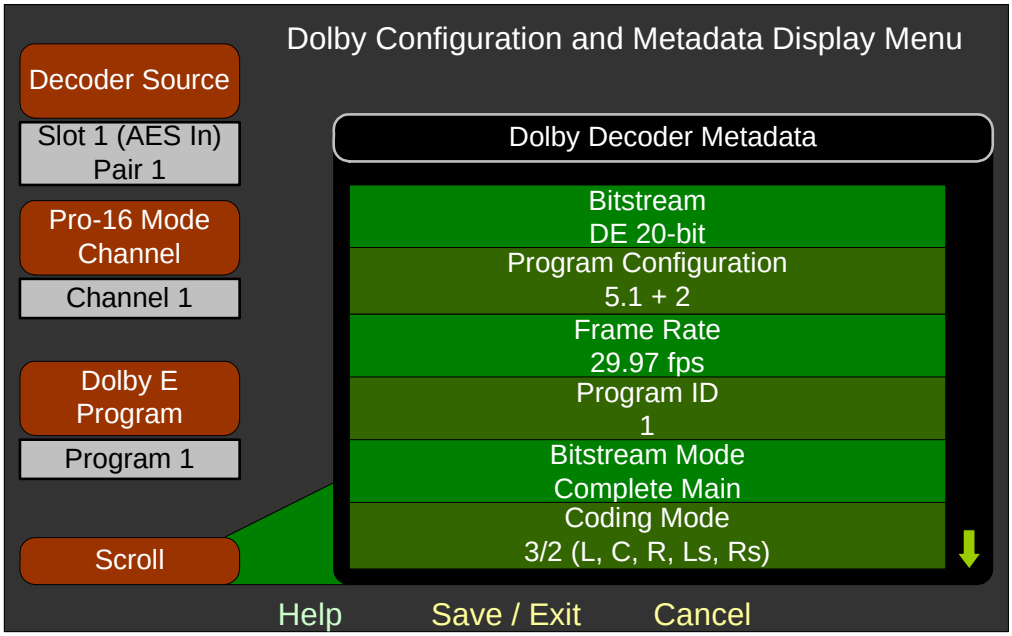
- **Configure Monitor Mixer:** Pressing this knob displays the **Monitor Mixer Configuration Menu** where you can define the relationships of channels to speakers as well as solo/mute assignments, and meter clusters.
- **Configure Main Screen:** Pressing this knob displays the **Main Screen Configuration Menu** where you can change various parameters displayed on the **Main Screen**.
- **Manage Presets:** Pressing this knob displays the **Preset Management Menu** where you can save, name, and manage presets.
- **SDI Audio Input Select**: This knob appears when one or more 3G SDI I/O Cards is installed. Pressing this knob selects the input source for that card.
- **Audio Processors**: Pressing this knob displays the **Audio Processor Card Menu**.

Dolby Configuration and Metadata Display Menu

Important: The **Dolby Configuration and Metadata** screen is only available when the Dolby D/E Card is installed.

This menu allows you to configure the Dolby Decoder Card, and see the metadata associated with the currently-selected bitstream (if any).

Figure 6–10 Dolby Configuration and Metadata Display Menu



- **Decoder Source:** Rotating this knob selects the source of the Dolby D/E Card. The source choices include all available AES input pairs and all available SDI de-embedded pairs.

  Note: The pair selected here will be designated as a Dolby-encoded pair in the main screen and treated as such, even if it is, in fact, a PCM pair.

- **Pro-16 Mode Channel:** Rotating this knob selects which stream to decode when two are present in the decoder source pair.

- **Dolby E Program:** Rotating this knob selects the Dolby E program. If the selected program is not available, the metadata from Program 1 will display.

- **Scroll:** Rotating this knob scrolls the list of available Dolby metadata up or down. The arrows at the right of the list indicate whether there is more data above or below.

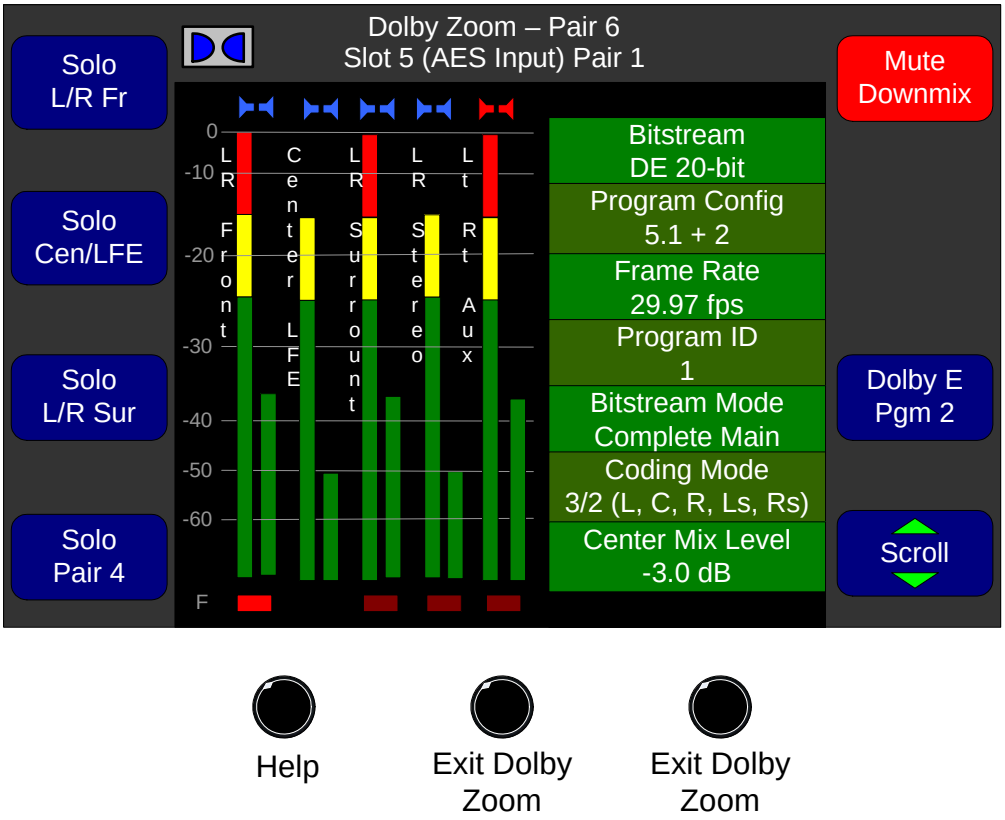
Dolby Zoom Screen

Important: The **Dolby Zoom** screen is only available when the Dolby D/E Card is installed.

The **Dolby Zoom** feature allows you to view the Dolby metadata and the level meters simultaneously while also playing the Dolby audio pairs in the front panel speakers.

To display the **Dolby Zoom** screen from the **Main Screen**, press a **Dolby Zoom** hot key. For detailed instructions for creating a **Dolby Zoom** hot key, refer to Creating a Dolby Zoom on page 44.

Figure 6–11 Dolby Zoom Screen



Note: The solo and mute keys on the **Dolby Zoom** Screen are automatically configured to allow you to easily isolate and listen to the audio of any channel or channels. With the twist of a knob, these hot keys can be converted from solos to mutes. They are automatically labelled according to the Dolby metadata, as are the meter pairs.

- **Solo/Mute Pair 1 through 4 and Downmix**: To **Solo / Mute** any of the Dolby pairs or the downmix:

  A. Rotate the knob to the left to select soloing (blue) or to the right to select muting (red).

  B. Press the knob to activate the solo or mute.

  C. Rotate the knob one turn at a time to select one or the other of the channels in the pair to solo or mute. The speaker symbol above the level meter will turn into the Dolby symbol.

  D. Press the knob again to remove the **solo / mute**.

- **Dolby Program**: Rotate to select the program you want. If the knob label is gray, then only one program is available.

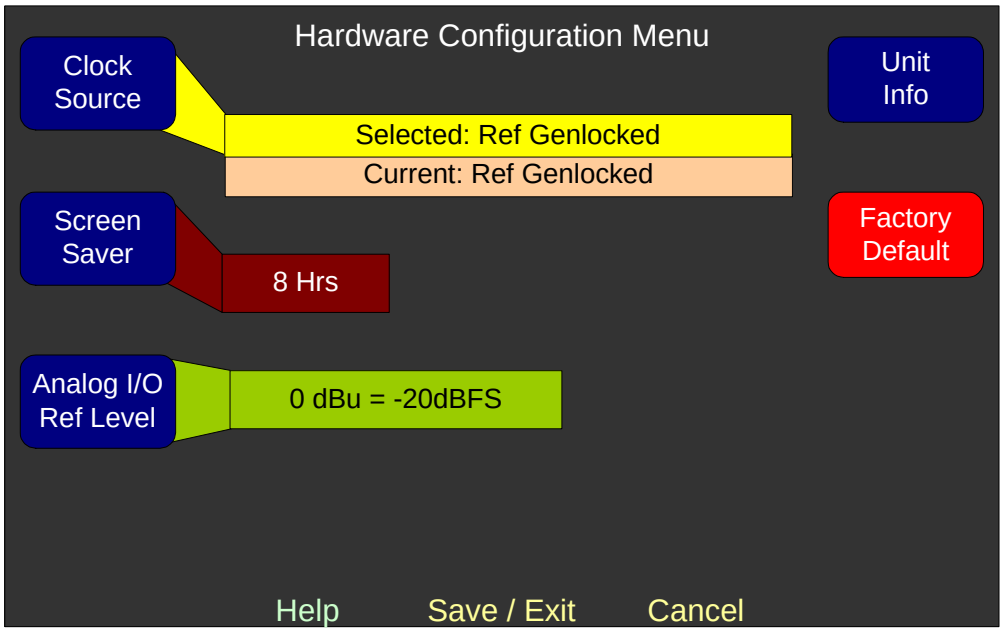
- **Scroll**: Rotate the knob to the left to scroll the list down or to the right to scroll the list up.

Hardware Configuration Menu

The menu allows you to select a clock source and set reference levels. It also provides a link to the **Unit Information Menu**.

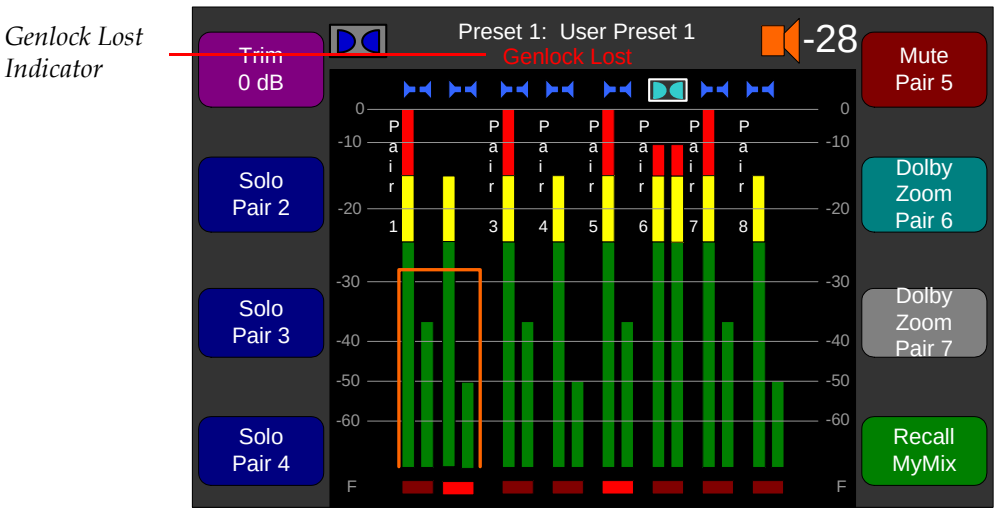
Note: These settings are not stored or recalled as part of a preset.

Figure 6–12 Hardware Configuration Menu



- **Clock Source:** Rotating this knob selects the input source for audio clocking. You can use the **Ref** input on the rear panel to provide a genlock sync signal to which all sources are locked. To use this connector, set this control to **Ref Genlocked**. If there is only one input card and no **Ref** input, this is automatically set to that card. If the currently-selected source is unlocked, the system will automatically choose another locked source. When this happens, the current source and the selected source fields will be different. Clock problems are displayed in red on the **Main Screen** as shown in Figure 6–13 below.

Figure 6–13 Genlock Lost Indicator on Main Screen



- **Screen Saver**: Rotate this knob to select the interval of time the system will wait from the time the user last touched any of the front panel controls, to the time that the system will display the screen saver across both OLED screens. Values can be **Off** (no screen saver display) or from **5 Mins** to **24 Hrs**. Setting a time will prolong the life of the front panel screens.

- **Analog I/O Reference Level:** Rotating this knob allows you to select from any of the following eight analog I/O reference levels:

  - -22 dBFS = +4 dBu
  - -20 dBFS = +4 dBu
  - -18 dBFS = +4 dBu
  - -16 dBFS = +4 dBu
  - -20 dBFS = +8 dBu
  - -20 dBFS = 0 dBu
  - -18 dBFS = 0 dBu
  - -9 dBFS = +6 dBu

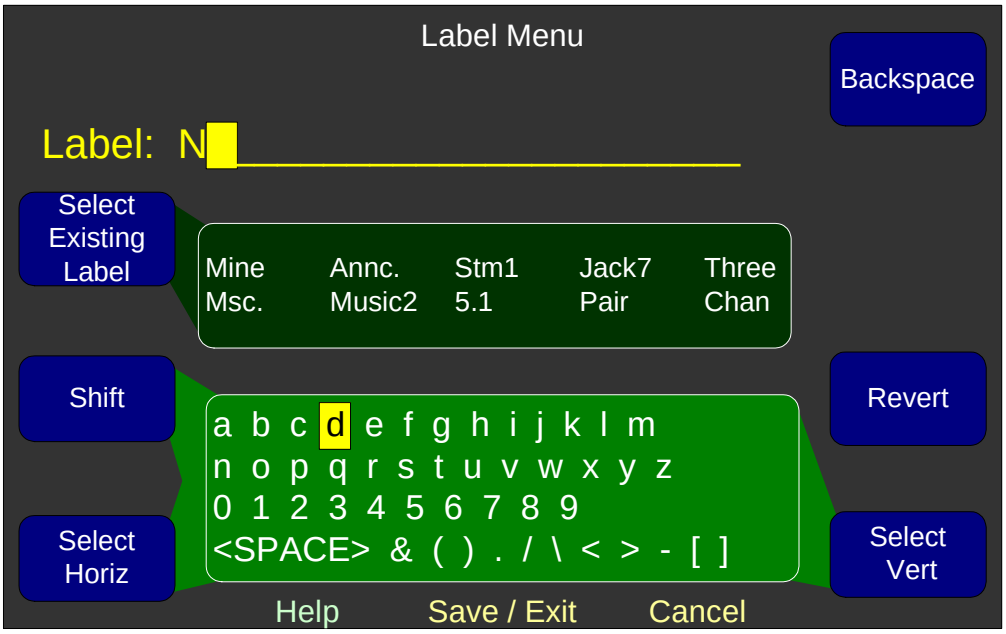
- **Unit Info:** Pressing this knob displays the **Unit Information Menu** where you can display the version of the various software components in the system and/or update those software components.

- **Factory Default:** Pressing this knob displays a diamond-shaped warning that explains that all the presets and options will be lost. Pressing this knob a second time clears the memory and returns the unit to its factory defaults. If the knob is not pressed a second time, the warning times out after five seconds.

Label Menu

This menu allows you to modify the knob labels for clusters, presets, and hot keys.

Figure 6–14 Label Menu



- **Select Existing Label:** This knob allows you to use an existing label to create a new one rather starting from scratch. Rotating the knob left and right moves the cursor left and right among the labels. Pressing the knob replaces the label in the **Label** field with the selected label.

- **Shift**: Pressing this knob toggles between upper and lower case letters. Rotating it left selects upper case; rotating it right selects lower case. The letters inside the dark area of the screen change accordingly.

- **Select Horiz**: Rotating the knob moves the cursor inside the character field horizontally. If the cursor goes off the right edge, the cursor is advanced to the beginning of the next line. Similarly, if the cursor goes off the left edge, the cursor retards to the end of the previous line. The cursor wraps to and from the last character (']') to the first character ('A').

  Pressing this knob selects the letter or symbol in the character field, and places it in the next character location in the **Label** field. The cursor in the **Label** field is advanced one character.

- **Backspace**: Pressing this knob deletes the character immediately to the left of the cursor in the **Label** field.

- **Revert**: Pressing this knob recalls the previous label, and allows you to continue editing.

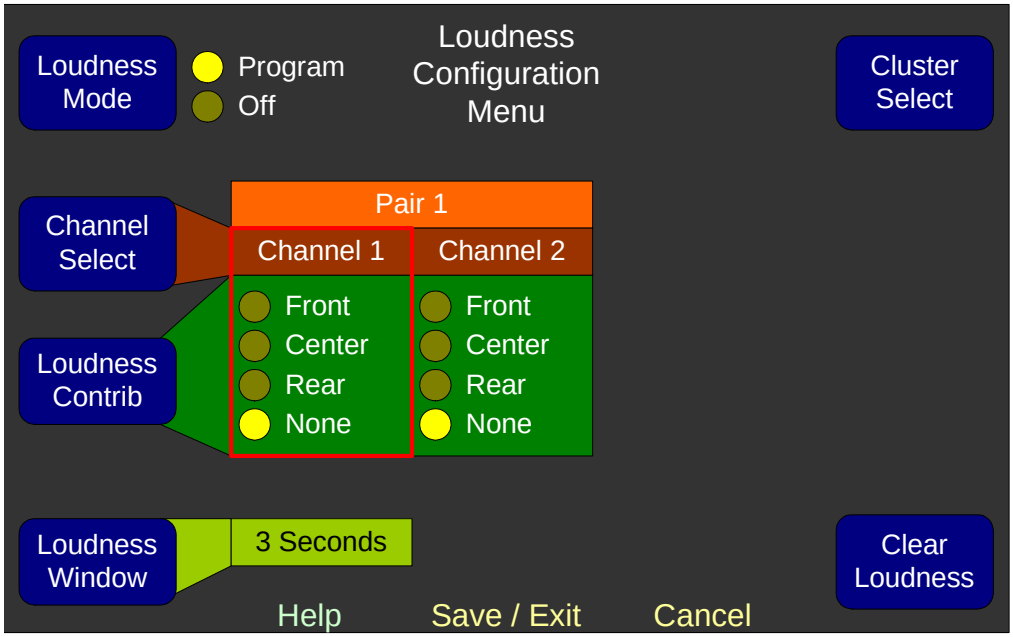
- **Select Vert**: Rotating this knob moves the cursor within the character field vertically. If the cursor goes beyond the bottom edge, it is advanced one space to the right, and reappears at the top line. If the cursor goes above the top line, it is retarded one space to the left. The cursor wraps to and from the last character (*]*) to the first character (*A*).

  Pressing this knob selects the letter or symbol in the character field, and places it in the next location in the **Label** field. The cursor in the **Label** field is advanced one character.

Loudness Configuration Menu

The two modes of the **Loudness Configuration Menu** are controlled by rotating the **Loudness Mode** knob. Pushing the button has no effect. Figure 6–15 shows the **Loudness Mode** set to **Program**.

Figure 6–15 Loudness Configuration Menu (Program Mode)



- **Loudness Mode**: Rotating this knob selects the loudness mode.
- **Channel Select**: Rotating this knob moves the box from channel to channel. Pushing the knob has no effect. The channels scroll left and right as necessary.
- **Loudness Contribution**: Rotating the knob moves the box around within the contribution fields to allow you to select how the channel contributes to the loudness measurement.

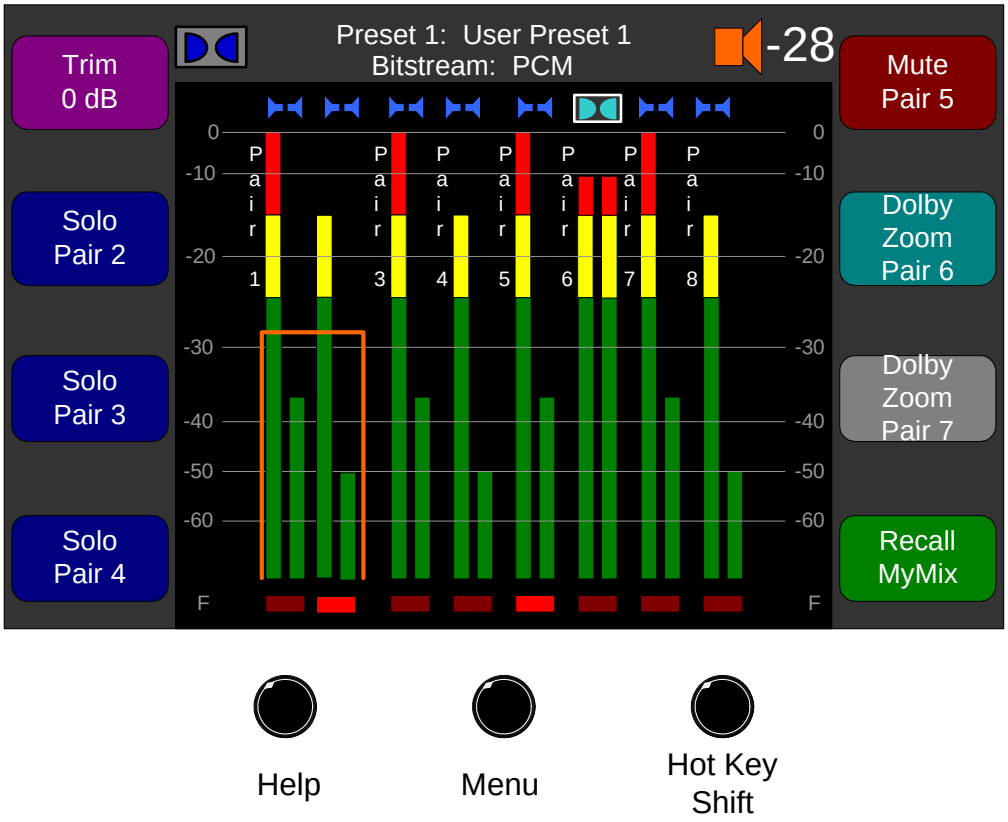
  In **Program Loudness Mode**, there is no difference between the contribution of a front channel or a center channel. Nonetheless, the system allows, at most, one center channel designation with the cluster.
- **Loudness Window**: This knob is active only when **Program Loudness Mode** is selected. Rotating the knob adjusts the averaging time in 1 second increments, between values of 1 and 60 seconds.
- **Cluster Select**: Loudness may only be displayed for one cluster at a time. Turn this knob to select the desired cluster. When any of the channels of the currently displayed cluster has a loudness value other than **None**, this knob is disabled.

- **Clear Loudness**: Pressing this knob sets the loudness contribution of all of the channels in this cluster to **None**, allowing you to change clusters.

Main Screen

In the following screen, the Dolby symbol will appear above the left side of the meter window if the Dolby decoder module is installed and the card has a selected input. Also, a line of Dolby metadata identifying the Dolby bitstream (or PCM) will display centered under the preset name and number at the top of the screen. The loudness symbol, level, and graph will only appear if a loudness cluster is set.

Figure 6–16 Main Screen



On the **Main Screen Hot Key Configuration Menu**, you can assign the rotary knobs to be either **Solos** or **Mutes** for a programmable set of channels, or to be preset changers. You can change the knob names in the **Label Menu** (See the Label Example on page 49.).

Solos and Mutes

When you rotate a **Solo** or **Mute** knob, you can **Solo** the selected channels by turning the knob to the left, or **Mute** the same channels by turning the knob to the right. When you press a **Solo / Mute** knob, the speaker symbol above the corresponding level meter(s) will change to indicate that the **Solo** or **Mute** function is affecting that channel. If a channel is both Soloed and Muted, then the **Mute** function overrides.

Sometimes, you may only want to hear or mute only one of the channels. Turning the **Solo / Mute** knob when it is soloed or muted effectively steps the **Solo** or **Mute** function through the controlled channels one at a time.

Settings in the **Option Configuration Menu** determine whether:

- You will hear the soled or muted, singled out channel on both of the speakers, or only on one speaker (in place); and
- Pressing the **Solo / Mute** knob automatically latches either:
  - **Momentarily**, when you press and hold the knob, or
  - **Always**, when you quickly press the knob and release it, so that it will stay on until you press it again. (Refer to the Option Configuration Menu on page 104 for details).

For more information about hot keys, refer to Hot Keys on page 51 and/or the Main Screen Hot Key Configuration Menu on page 99.

Presets

Individual Presets

If a knob is assigned as an individual preset changer, the background color of the knob label will change when you recall the preset. Once you press a preset, reconfiguring the system to the preset's settings is instantaneous.

Selectable Presets

If the preset changer is assigned as selectable, rotating it will display the number and label of the selected preset above the meters. (The meters continue to operate throughout this process.) Pressing it will

then recall that preset. If the knob isn't rotated or pressed again for three seconds, the preset change times out and the screen returns to normal.

Note: If you press or rotate a second knob during this process, it will overrride the first knob and the screen immediately returns to normal.

For more information about presets, refer to Presets on page 48 and/or the Main Screen Hot Key Configuration Menu on page 99.

Channel Trims

If a knob is assigned as a channel trim, then rotating the knob clockwise increases the gain on the selected channel(s). Rotating the knob counterclockwise decreases the gain. For more details for setting the Channel Trims, refer to Main Screen Hot Key Configuration Menu on page 99.

Dolby Zoom

Pressing a Dolby Zoom hot key (for a Dolby channel pair) displays the **Dolby Zoom** Screen. For more details, refer to Dolby on page 39.

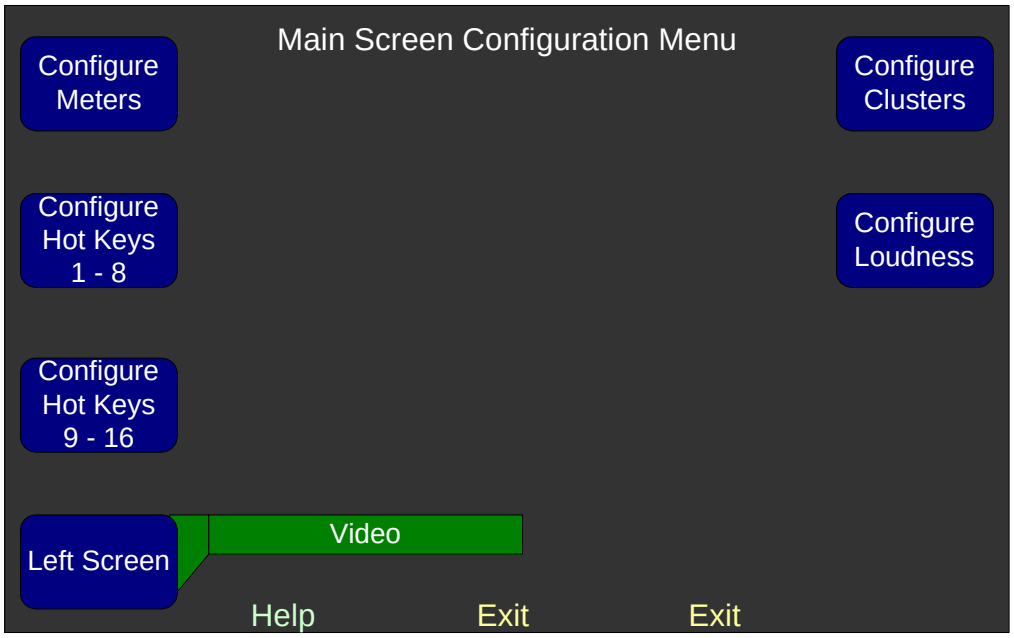
Off Option

If a knob is not assigned as a preset changer, solo, mute, or channel trim, then the knob is disabled. For more details for setting the hot key to **Off**, refer to Main Screen Hot Key Configuration Menu on page 99.

Main Screen Configuration Menu

This menu provides links to other menus where you can configure the meters, clusters, other options, hot keys, and loudness settings.

Figure 6–17 Main Screen Configuration Menu

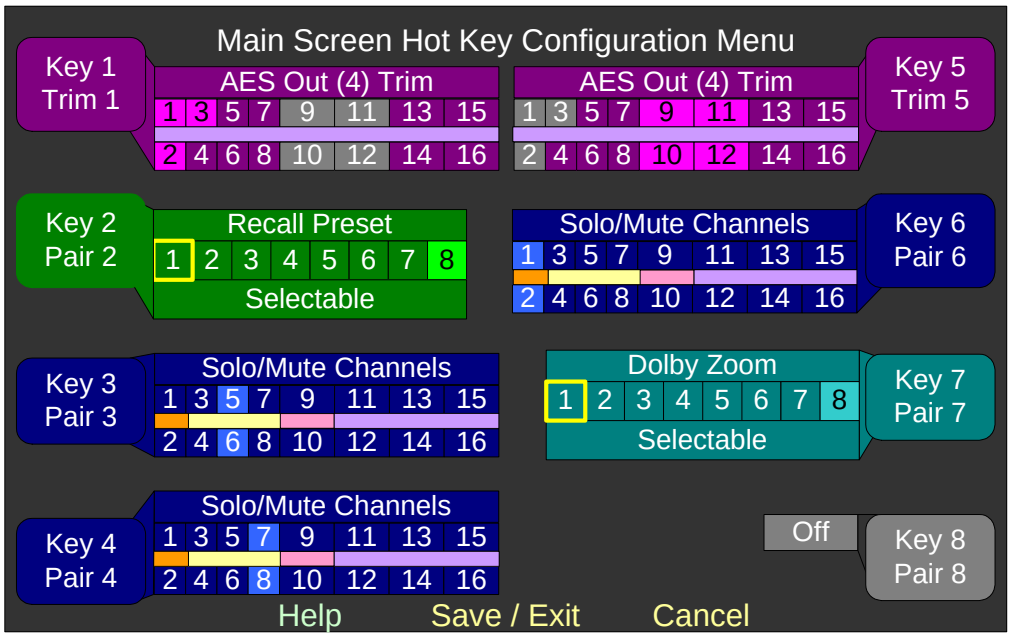


- **Configure Meters:** Pressing this knob displays the **Meter Configuration Menu**.
- **Configure Hot Keys 1 - 8:** Pressing this knob displays the **Main Screen Hot Key Button Configuration Menu** that will allow you to set up the function of the first eight **Main Screen** hot keys.
- **Configure Hot Keys 9 - 16:** Pressing this knob displays the **Main Screen Hot Key Button Configuration Menu** that will allow you to set up the function of the second eight **Main Screen** hot keys.
- **Left Screen**: Rotataing this knob toggles between **Video** and **Dolby Metadata**. Pressing this knob does nothing.
- **Configure Clusters:** Pressing this knob displays the **Cluster Configuration Menu** used to define level meter clusters.
- **:** Pressing this knob displays the **Loudness Configuration Menu** where you can set up parameters relative to the display of loudness.
- **Configure Options**: Pressing this knob displays the **Option Configuration Menu** where you can figure the functionality of solos, mutes, and channel trims.

Main Screen Hot Key Configuration Menu

This menu allows you to configure the eight hot key knobs on the **Main Screen**.

Figure 6–18 Main Screen Hot Key Configuration Menu



Rotary Knobs: Rotating this knob moves the highlight from the knob label itself to the function field and then steps throug the channel numbers.

- Pressing the knob while the highlight is over the knob label displays the **Label Menu** so you can rename the hot key.
- Pressing the knob while the description (**Solo / Mute Channels**, **Recall Preset**, **Trim**, or **Off**) is highlighted steps through these four options. As each option is displayed, the color scheme changes as shown in Figure 6–18 above.

  Note: Multiple trim hot keys cannot adjust the same channels on the same menu, so channels that are not selectable are disabled and grayed out.

- Pressing the knob while a channel is highlighted selects or deselects this channel from the solos/mutes or trims applying to this hot key. Note that you can select multiple channels.

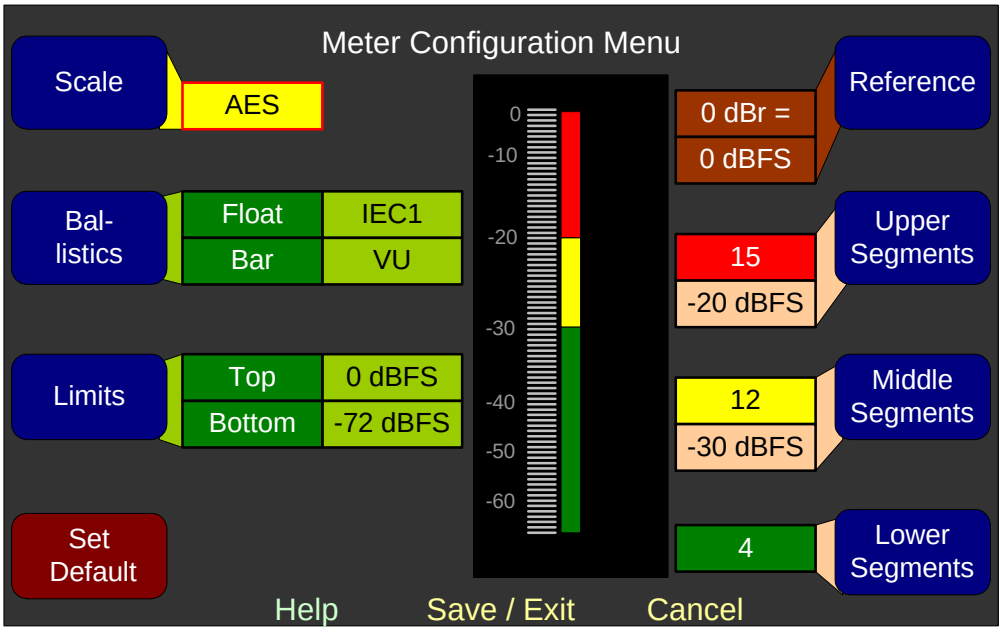
- Colored bars between the two rows of channel numbers indicate the clustering of the channels. Channels that are in the same cluster share the same colored bars. The system automatically selects the colors so that they can be easily differentiated from each other, as well as from the channel number blocks.

- Pressing the knob while a preset is highlighted, selects it and deselects any other preset that was already selected. If you choose **Selectable**, you will be able to rotate the knob to display the available presets on the **Main Screen**.

Meter Configuration Menu

This menu allows you to configure the appearance of the **Main Screen** meter characteristics, including: scale, ballistics, limits, reference levels, and upper, middle, and lower segment set points, and colors.

Figure 6–19 Meter Configuration Menu



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- **Scale**: Rotating this knob steps through the scales for the level meters. Seven selections are available per the following table. Six settings are predefined; a seventh setting is user defined.

Table 6–1 Meter Limits and References

Scale	Bottom Limit	Top Limit	Default Reference	Default Color Bounds		Default Ballistics	
				Lower	Upper	Float	Bar
AES	-72 dBFS	0.0 dBFS	0 dBFS = 0 dBFS	-30 dBFS	-20 dBFS	IEC Type I	VU
VU	-45 dBr	+3.5 dBr	-20 dBFS = 0 dBr	-3 dBr	0 dBr	–	VU
Extd VU	-56 dBr	+16.0 dBr	-20 dBFS = 0 dBr	-10 dBr	0 dBr	–	VU
BBC (EBU)	-13.25 dBr	+13.0 dBr	-18 dBFS = 0 dBr	0 dBr	8 dBr	–	IEC Type II
Nordic	-44 dBr	+12.5 dBr	-18 dBFS = 0 dBr	-10 dBr	0 dBr	–	IEC Type I
DIN	-53 dBr	+5.5 dBr	-15 dBFS = 0 dBr	-5 dBr	0 dBr	–	IEC Type I
Custom	-72 dBr (min) (2)	+20.0 dBr (max) (2)	0 dBFS = 0 dBr	-30 dBr	-20 dBr	IEC Type I	VU

- **Ballistics**: Rotating this knob adjusts the float. Pressing and then rotating adjusts the bar. Ballistic timings are valid only at 48 kHz.

Table 6–2 Meter Timings

Ballistics	Rise	Fall	
		Level Change	Time
VU	Not Specified		
IEC Type I	5 ms to reach -2 dB of settled reading	-20 dB	1.7 sec.
IEC Type II	10 ms to reach -2 dB of settled reading	-24 dB	2.8 sec.
None	Bar or Floating Segment Not Displayed		

- **Limits**: Rotating this knob sets the upper limit of the display. Pressing and then rotating sets the lower limit. Top and bottom limits are adjustable in 1 dB increments. This function is available on the custom meter scale only.

- **Set Default**: Pressing this knob returns all settings on this menu to the original factory settings.

- **Reference**: Rotating this knob adjusts the display reference level. This function is available on all scales except the AES scale.

- **Upper Segment Color**: Rotating this knob cycles the upper color of the displayed sample level meter color through a wide variety of

colors. Pressing this knob allows you to adjust the division between the upper and middle segments. Color boundaries are adjustable in 1 dB increments, and have the same range as the bottom and top limits of the meter.

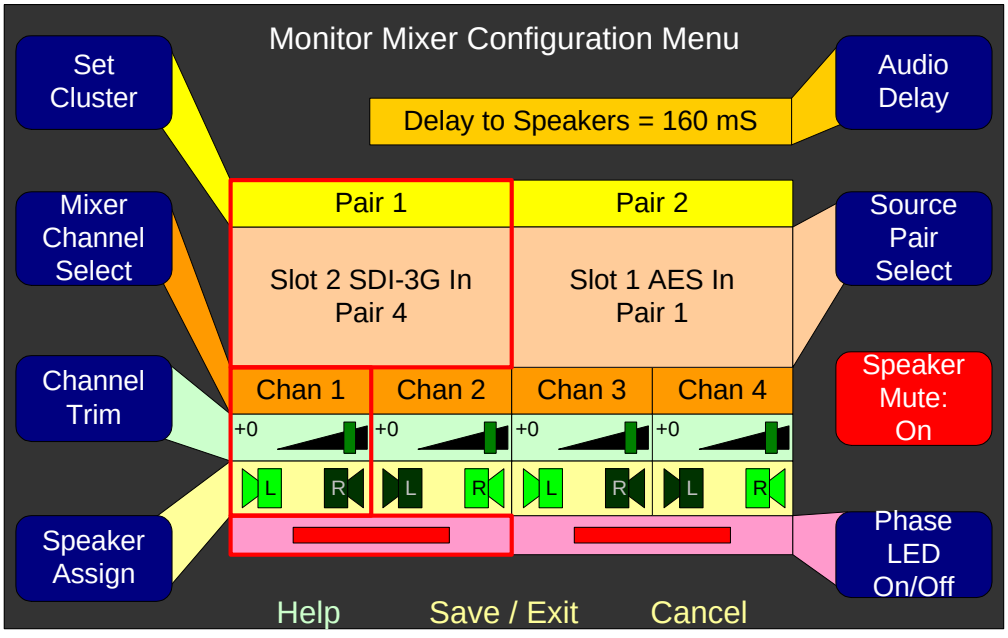
- **Middle Segment Color**: Rotating this knob cycles the middle color of the displayed sample level meter color through a wide variety of colors. Pressing this knob allows adjusting the division between the middle and lower segments. Color boundaries are adjustable in 1 dB increments, and have the same range as the bottom and top limits of the meter.

- **Lower Display Color**: Rotating this knob cycles the lower color of the displayed sample level meter color through a wide variety of colors.

Monitor Mixer Configuration Menu

This menu allows you control the audio monitoring of each channel and to control the phase displays for each channel pair. It also links to the **Cluster Configuration Screen**, where you can configure the clustering of the channels on the **Main Screen**.

Figure 6–20 Monitor Mixer Configuration Menu



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With the combination of the **Volume** control, channel clustering, and speaker setting, you has a very powerful, intuitive tool to arrange the metering and monitoring options on the **Main Screen** so users can tell at a glance what is happening with the monitored sources. Individual channels can be displayed or turned off. Channels can also be visible without having to be audible, although the reverse is not true.

- **Set Cluster:** Pressing this knob continues on to the **Cluster Configuration Screen**, where you can configure and label the meter clusters, and how they will display on the **Main Screen**.

- **Mixer Channel Select:** Rotating this knob moves the red selection boxes from side to side, selection the monitor mixer channel and pair to configure.

- **Channel Trim:** Rotating this knob changes the gain. The number inside the box changes and the blinking box moves accordingly. This knob has a range of -60 dB to +12 dB (inclusive) in 1 dB steps. Pressing and holding this knob for over 1 second returns the setting to 0 dB.

  You can mute the channel by turning this knob counterclockwise beyond -60 dB, by turning off both speaker assignments, or by using the solo/mute controls in the **Main Screen**.

- **Speaker Assign:** This knob moves the highlight around the speaker symbols. Pressing the knob enables/disables the highlighted speaker. If both speakers are deselected, the channel turns off and is not displayed on the **Main Screen**. If you want to mute the channel while still displaying the meter, use the **Channel Trim** instead, and leave at least one speaker assigned.

- **Audio Delay**: Rotating this knob allows you to add an audio delay of up to approximately 170 ms in 1 ms increments to the speaker audio. As you turn the knob, the audio delay varies dynamically so that you can audibly determine the correct delay. Pressing the knob toggles between no delay (**Off**) and the current delay setting.

  Note: While adjusting the delay, the monitor may produce a small clicking noise as you turn the knob.

- **Source Pair Select:** Rotating this knob steps you through all the possible source pairs for this particular monitoring pair, or **Off**. Pressing this knob has no effect.

You can choose any one of the eight channel pairs of any active input or output card, or **Off**. In Dolby-capable units, the five Dolby output pairs will be added. This will select between one of many inputs (five processor cards at 16 channel pairs each plus five Dolby output pairs). The choices are presented to you as **Slot x (<card name>) Pair y** or **Dolby Decoder Pair z**.

Setting the channel to **Off** disables the other knobs for that channel pair.

Turning a channel **Off** removes its meter, its associated text, and its phase LED from the **Main screen**. The remaining meters will automatically scale and rearrange themselves to fill the void.

- **Speaker Mute On/Off:** Rotating or pressing this knob turns the knob label on or off. When the **Speaker Mute** is **On**, no sound will emit from the speakers, although the metering will work normally. This is useful for an external surround sound system, for example. When the **Speaker Mute** is **Off**, the speakers work normally.

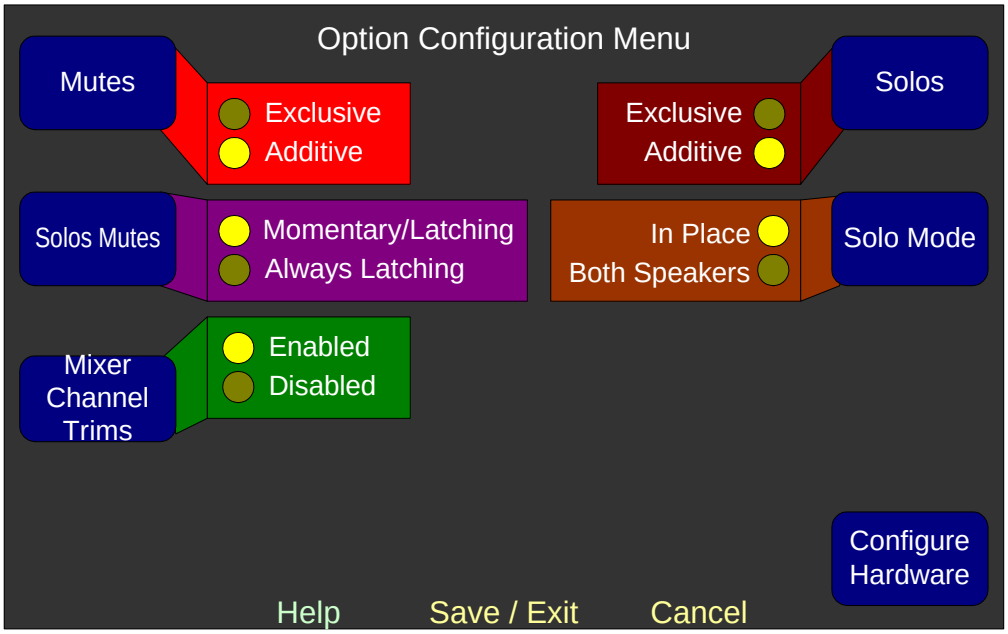
- **Phase LED On/Off:** Rotating or pressing this knob turns the selected phase indicator on or off. The effect is to either enable or disable a phase indicator on the **Main Screen**.

  The phase indicators can be enabled for adjacent channels that are part of the same cluster only. A phase indicator can not be enabled for any channel that is off, or for any two channels that are not adjacent to each other, or that are not part of the same cluster. The box is disabled for any phase indicator that cannot be enabled.

Option Configuration Menu

This menu allows you to determine exactly how you want the audio to come through the internal speakers and whether you want to enable the **Main Screen** solos/mutes for this source. It also provides a link to the **Hardware Configuration Menu**.

Figure 6–21 Option Configuration Menu



- **Mutes**: Rotating or pressing this knob determines whether you can select more than one **Mute** at a time on the **Main Screen**.

- **Solos Mutes**: Rotating or pressing this knob determines whether the **Solo / Mute** knobs will automatically be momentary or latching, or whether they will always latch.

  - **Momentary / Latching** means that you can press the knob quickly (for a half a second or less) to keep the **Solo / Mute** on until you press it again to turn it off. On the other hand, if you press and hold the knob down for longer than a half a second, the **Solo / Mute** function will stay on as long as you hold the knob, and then turn off again when you release it.

  - **Always Latching** means that when you press the knob the **Solo / Mute** knob engages and stays that way until you press the knob a second time to disengage the **Solo** or **Mute**.

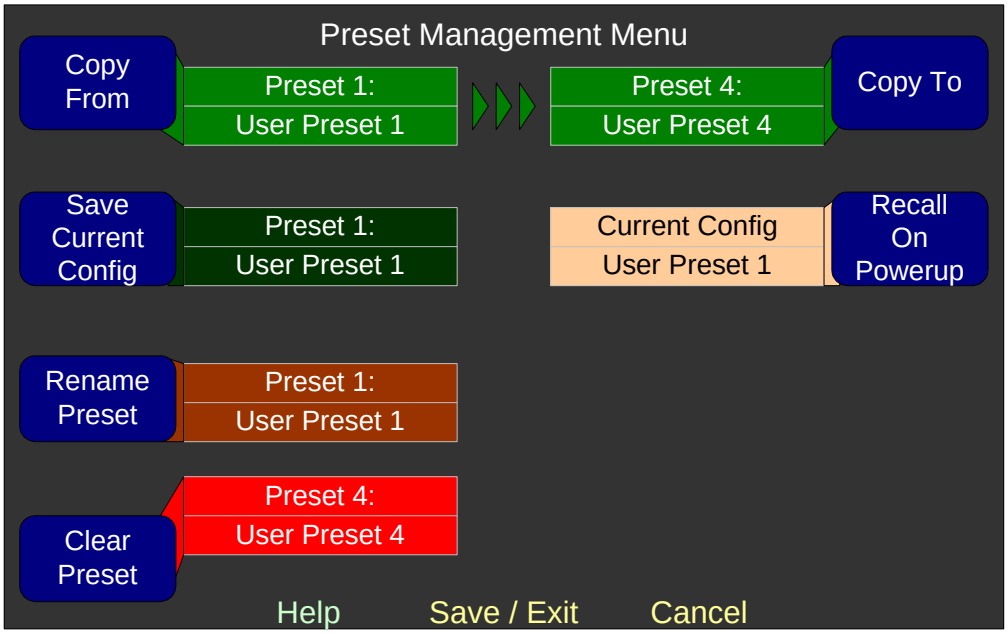
- **Mixer Channel Trims**: Rotating or pressing this knob determines whether the **Channel Trim** knobs on the **Monitor Mixer Configuration Menu** can be adjusted. Selecting disabled will set all the trim values to 0 dB (unity gain). This control also disables hot key trims for the monitor mixer.

- **Solos**: Rotating or pressing this knob determines whether you can select more than one **Solo** at a time on the **Main Screen**.
- **Solo Mode**: Rotating or pressing this knob determines whether individual solos are heard on both speakers, or in place on the left or right speaker.
- **Configure Hardware**: Pressing this knob displays the **Hardware Configuration Menu**. Refer to Hardware Configuration Menu on page 89 for more details.

Preset Management Menu

This menu allows you to name, save, copy, and clear presets. Presets should be saved after changes are made to them. This menu will also let you set how the system is configured after power is lost and then restored.

Figure 6–22 Preset Management Menu



- **Copy From:** Rotating this knob steps through source presets for the copy. Press the knob to copy the preset shown. This knob is to be

used in conjunction with the Copy To knob. Pressing either one will copy the indicated preset.

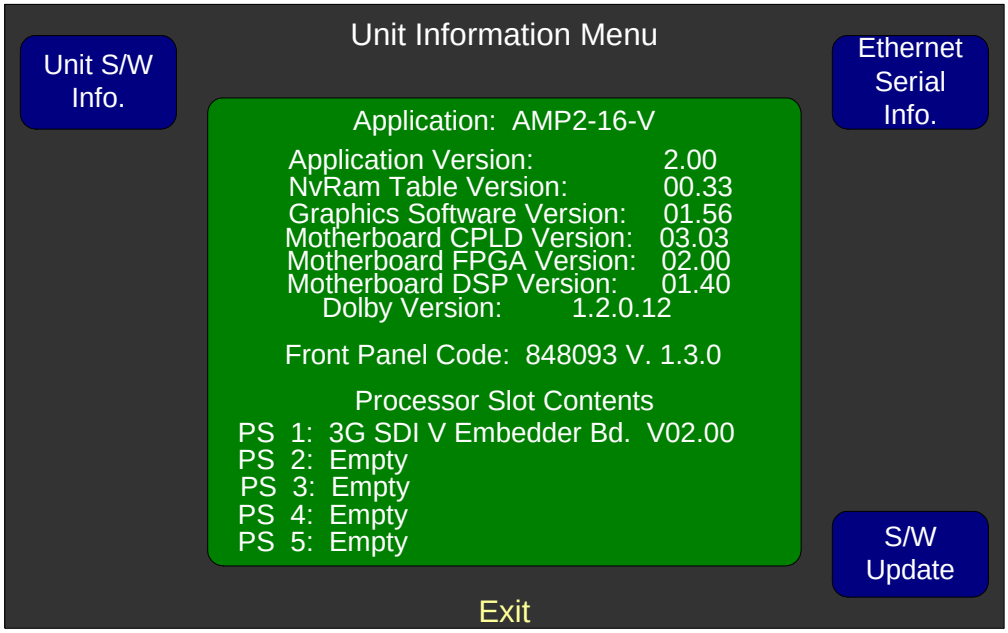
- **Save Current Config:** Press the knob to display the **Preset Label Menu**.
- **Rename Preset:** Rotating this knob allows you to select from any of the presets. Pressing this knob displays the **Label Menu** where you can enter a new name for the preset.
- **Clear Preset:** Rotating this knob allows you to clear any of the presets. Pressing this knob displays a diamond-shaped warning that explains that the preset is about to be cleared. Pressing this knob a second time deletes all unique settings from the preset, returning it to its factory default settings. If you don't press the knob a second time within five seconds, the system will cancel the operation.
- **Copy To:** Rotating this knob selects the destination preset for the copy. Pressing the knob completes the copy. This knob is to be used in conjunction with the Copy From Knob. Pressing either one will copy the indicated preset.
- **Recall on Power Up**: Rotating this knob allows you to select from any of the presets, plus the last known state of the unit. Thus, after a power failure, or after the unit is unplugged and then subsequently powered up, the unit can either start up in its last known state, or in the selected preset.

Unit Information Menu

This menu allows you to display the current software version of various internal components, upgrade the software of those components, and establish Ethernet and/or serial connectivity from the unit to a PC. Pressing the **S/W Update** knob enables and displays the **ENABLE FTP** knob.

When you first display the **Unit Information Menu**, the **Unit S/W Info.** information will automatically display.

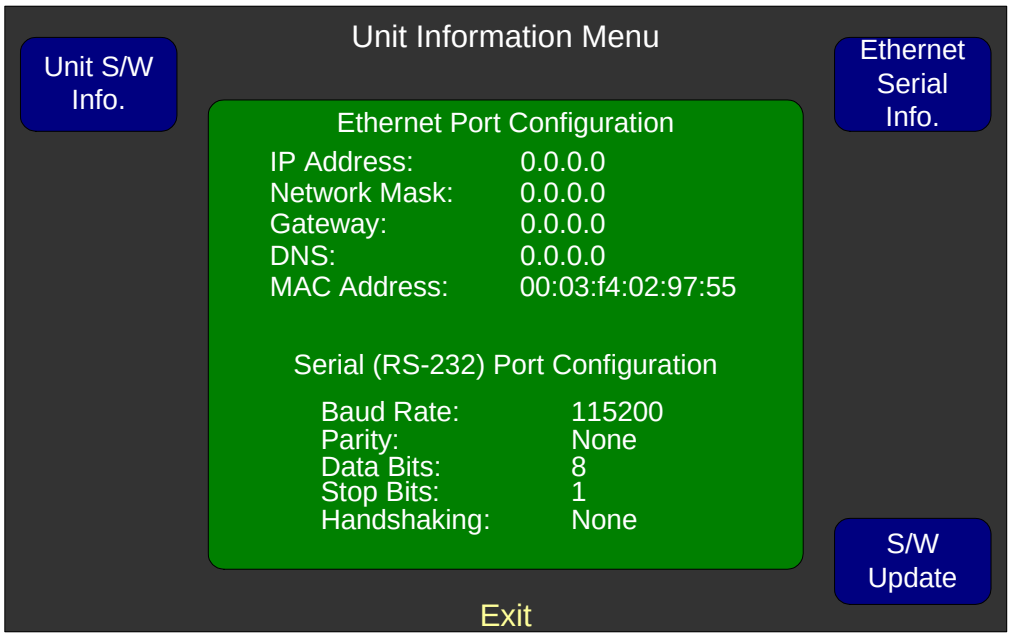
Figure 6–23 Unit Information Menu - (Application)



- **Unit S/W Info.:** Pressing this knob displays the version of each software component in the unit and the I/O modules that this unit contains.

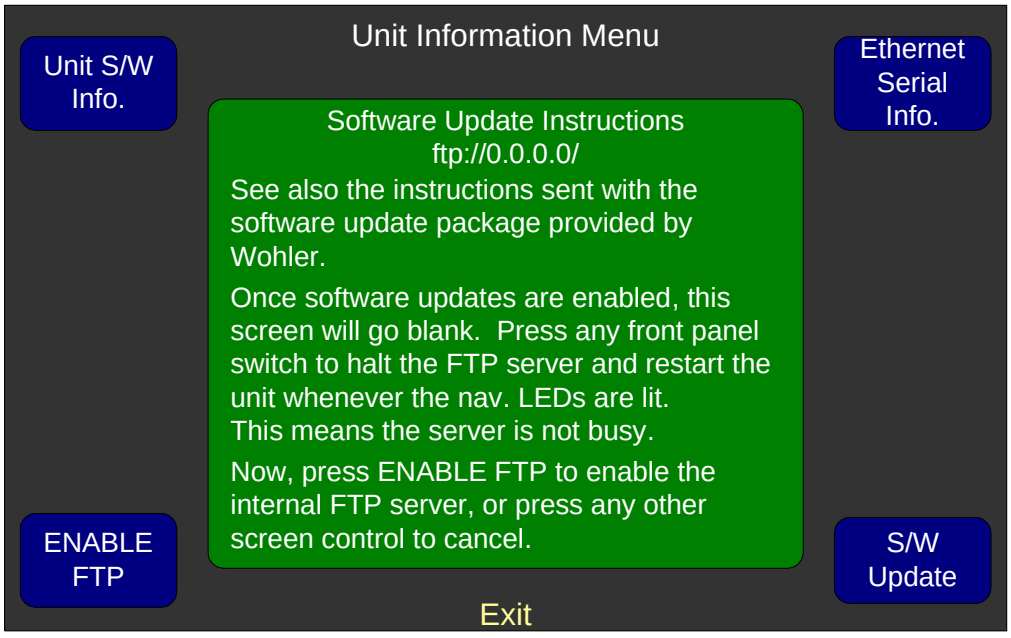
- **Ethernet Serial Info:** Pressing this knob changes this menu to show the Ethernet and serial port information as shown in Figure 6–24 on page 109.

Figure 6–24 Unit Information Menu - (Ethernet)



- **S/W Update:** Pressing this knob displays the **ENABLE FTP** knob and allows you to upgrade the software. See Chapter 7 for details.

Figure 6–25 Unit Information Menu - (Software)



CHAPTER 7
System Maintenance

Introduction

Overview

This procedure details how to download the upgrade files, establish connectivity to the AMP2-16V Series monitor, and then how to upgrade new Netburner software and firmware.

Note: It may prove useful to reprint this chapter every time you need to perform an upgrade, since several sections provide fill-in spaces to record existing values.

Topics

File Download Requirements

To perform this procedure you will need:

- A PC or laptop with an Internet connection
- Your product's serial number (if you have not already created a user ID and password for the Wohler web site)

Downloading the Upgrade Files

1. Power up your laptop and launch the web browser.
2. Create a folder on your desktop called **AMP2-16V Upgrade**.
3. Navigate to the wohler web site: www.wohler.com.

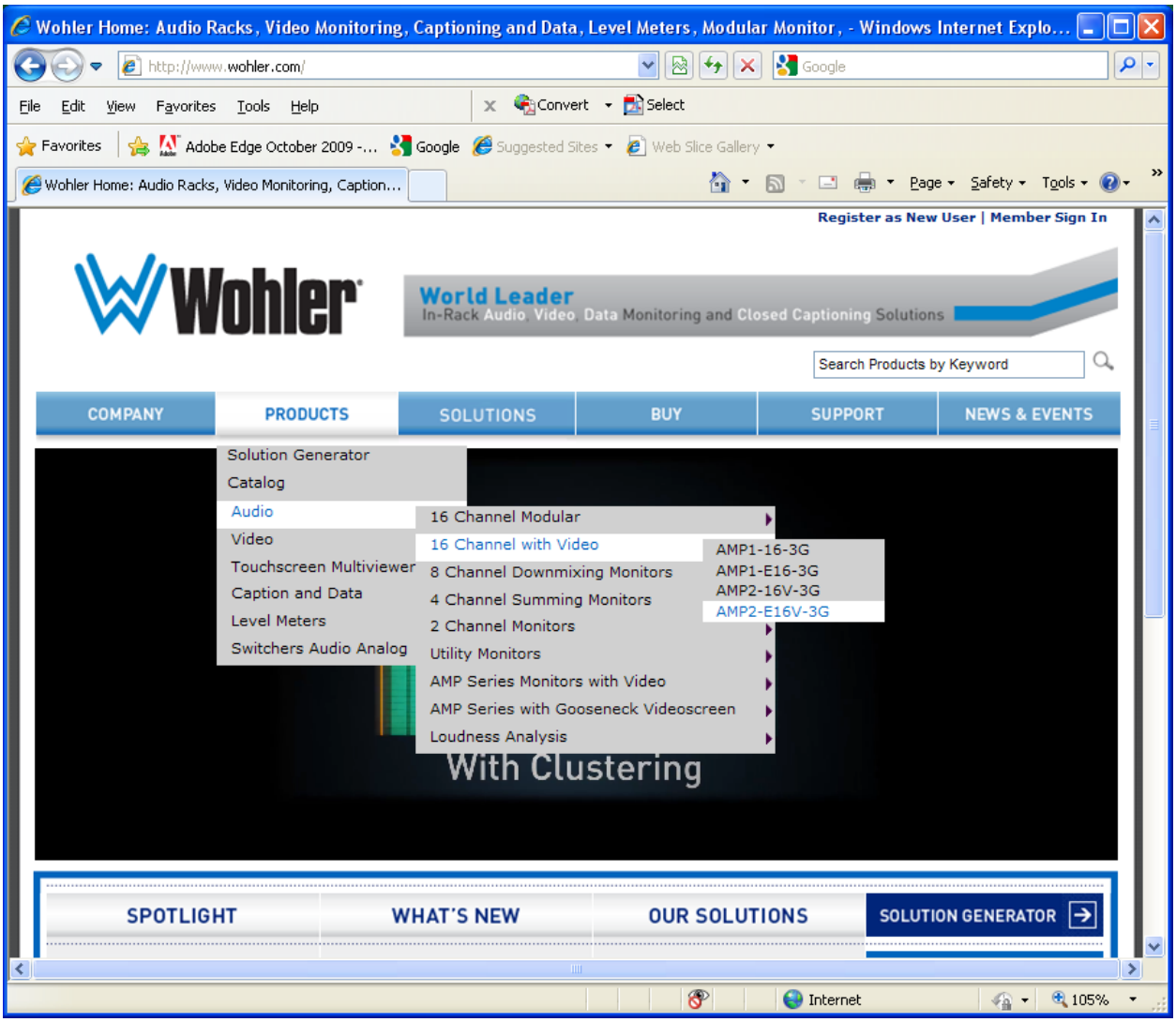
Decision Point:

If you already have a member user ID and password for the Wohler web site, then log in by clicking on the Member Sign In link at the top right hand corner of the home page and sign in.

Otherwise, if you do *not* already have a member user ID and password then you must click Register as New User at the top right hand corner of the home page, and enter the requested data. Remember to log in after you have created your account.

4. Once you have successfully logged into the Wohler web site, click **Products** from the home page menu bar.
   A. Move the cursor down the menu to highlight **Audio.**
   B. Then move the cursor to the sub-menu to highlight **16 Channel with Video**.
   C. Finally, move the cursor to the third menu to click on **AMP2-16V-3G** or **AMP2-E16V-3G**. (See Figure 7–1 on page 113.)

Figure 7–1 Selecting the AMP



5. When the monitor's page displays, click on the **Downloads** tab in the middle of the page.

6. double-click **AMP2-16V Upgrade Package (ZIP)** to begin the download.

7. When the **File Download** dialog appears, click **Save**.

8. When the **Save As** dialog appears, navigate to the folder you created in Step 2 on page 112 and click **Save**.

9. After the download is complete, double-click the compressed file on the desktop to display the contents.

Upgrade Requirements

- An AMP2-16V Series monitor connected to PC on a Local Area Network (LAN) or connected to a host computer with a peer-to-peer (P2P) Ethernet connection. Refer to Establishing Connectivity on page 115 for instructions.
- The AMP2-16V Series monitor update package which includes:
  - NetBurner IPSetup V2.0 or later (**IPSetup.exe**).
  - NetBurner AutoUpdate V2.0 or later (**AutoUpdate.exe**).
  - The unit's main processor software (AMP2_16_Vx.xx _APP.s19).
- A host computer running Windows XP connected to the same LAN. (Other Windows operating systems may work, but are untested.)
- If you are using a LAN connection, you will need two standard Ethernet cables—not crossover cables.

  If you are using a P2P connection, you will need a single crossover Ethernet cable.

Important: If you received this package from an e-mail, you will need to change the filename extensions. Anything with a **.wwe** file extension is actually a **.exe** file. Anything with a **.wzp** extension is actually a **.zip**.

- If you are updating the unit's firmware for one of the unit's sub-processors, you will also need one or more of the following files which are also included with the update package. The actual file names will likely have version information appended to them.
  - AesIn_V1.0x.S19 (for 919269 – older AES card)
  - AesIn_Vxx.4x.S19 (for 919282 – newer AES card)
  - SMB_DSP_Vxx.xx.S19
  - AnlgIo_Vxx.xx.S19
  - AesOut_Vxx.xx.S19
  - 3GSdiEmbed_Vx.xx.S19
  - Dolby_Vx.x.x.x.S19
  - SdiIo_Vxx.xx.S19

- MB_FPGA_Vxx.xx.S19
- Graphics_Vxx.xx.S19

Establishing Connectivity

The fastest and simplest way to establish connectivity to your AMP2-16V-3G Series monitor is through a LAN (local area network).

Decision Point:

If your PC/laptop is *not* connected to a LAN (local area network) then continue on to Connecting Peer-to-Peer on page 118.

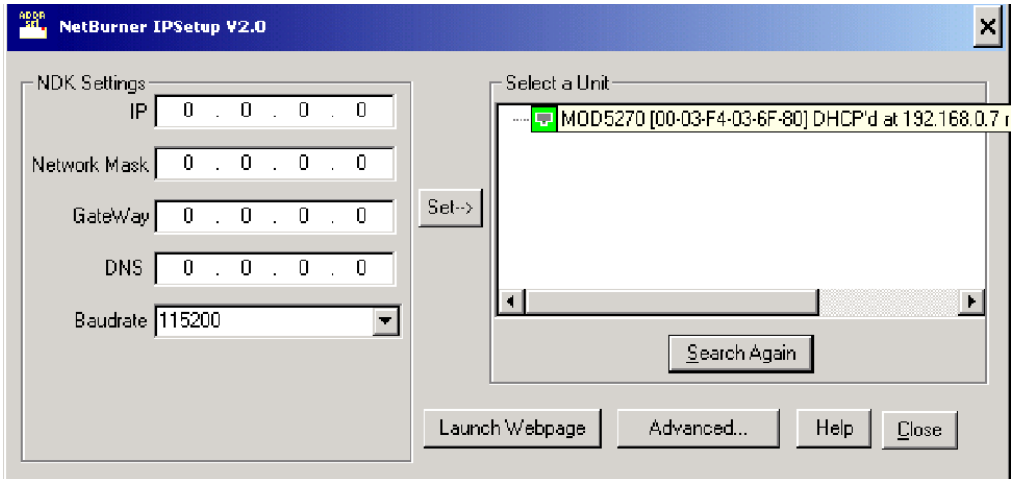
Otherwise, if it's connected to a LAN, then continue on to File Download Requirements immediately below.

Connecting to a LAN

Launching the Setup Tool

1. Connect the unit and your host PC to a LAN (local-area network).
2. Run the **NetBurner IP Setup Tool**.
3. You should see something similar to the dialog shown in Figure 7–2 below. This dialog shows a NetBurner module fresh from the Wohler factory.

Figure 7–2 NetBurner IPSetup Dialog - Unconfigured

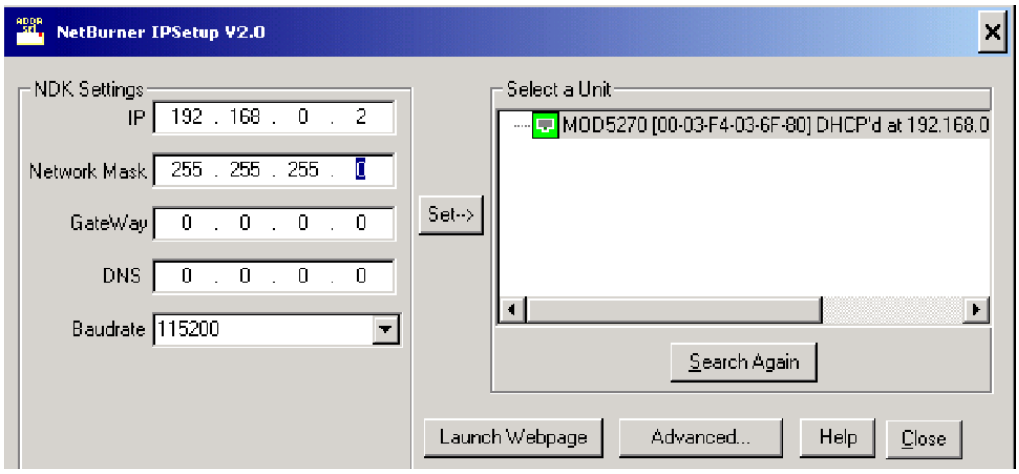


4. If multiple NetBurner modules appear in the **Select a Unit** box, be sure to highlight the unit you are working with.

Setting the IP Address and Network Mask

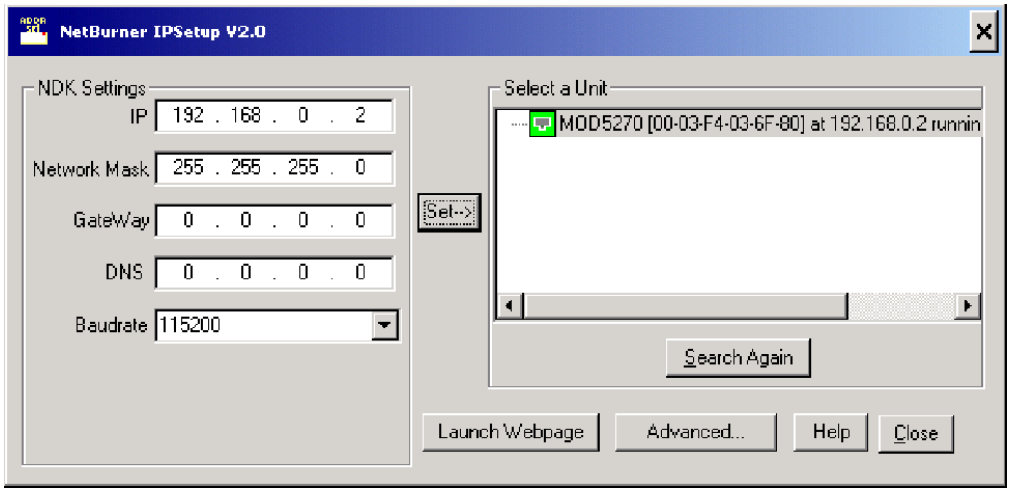
1. An IP address of `0.0.0.0` means the Netburner is using DHCP addressing, and the network will give the module its address (as it has in the example in Figure 7–2 above: `192.168.0.7`. With these procedures, you can also enter a fixed network address and mask if desired. You can use any network address and mask approved by your network administrator. For our example, we'll be using the address `192.168.0.2` with the network mask of `255.255.255.0`. Simply type the IP address into the **IP** field and the network mask into the **Network Mask** field.

Figure 7–3 NetBurner IPSetup Dialog - With IP Address and Net Mask



2. Press the **Set** button and wait approximately 30 seconds. If the NetBurner module does not appear with the new address, press the **Search Again** button. The window should now look like the one shown in Figure 7–4 below.

Figure 7–4 NetBurner IPSetup Dialog - New Address Accepted



3. Close the **NetBurner IPSetup** utility by pressing the **Close** button.

Connecting Peer-to-Peer

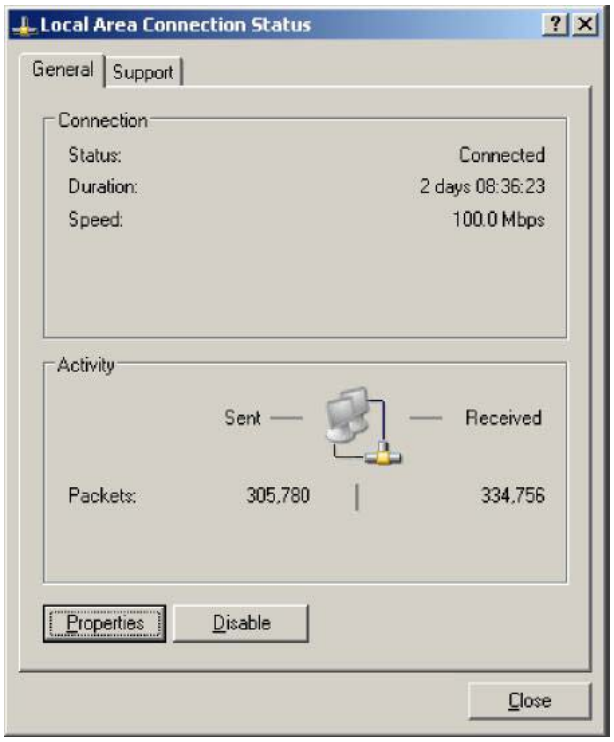
These instructions describe the procedure using a Windows XP machine. Host computers running other operating systems may have these controls in slightly different locations.

1. Connect the crossover cable directly between the unit's Ethernet port and your host computer's Ethernet port.

2. On the host computer, go to the **Control Panel** and double-click on **Network Connections**.

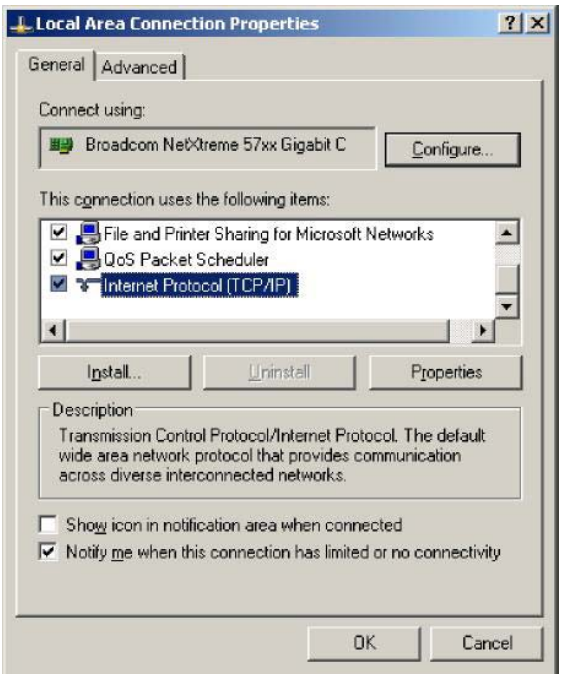
3. Open **Local Area Connection**. If you have more than one Network Interface Card (NIC) in the host machine, select the **Local Area Connection** that corresponds to the NIC connected to the unit. You should see a dialogue like the one in Figure 7–5 below.

Figure 7–5 Local Area Connection Status Dialog



4. Click the **Properties** button. You should see another dialogue box open like the one in Figure 7–6 below.

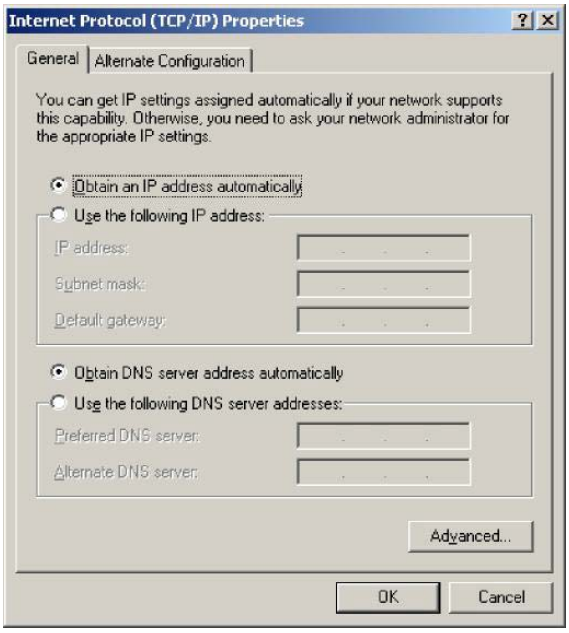
Figure 7–6 Local Area Connection Properties Dialog



5. Highlight the **Internet Protocol (TCP/IP)** check box.

6. Click the **Properties** button. You should see another dialogue box like the one shown in Figure 7–7 below.

Figure 7–7 Internet Protocol (TCP/IP) Properties Dialog - Unconfigured



7. Record any current settings in this dialogue box, because they may need to be changed.

   IP Address: _____

   Subnet Mask: _____

   Default Gateway: _____

   Preferred DNS: _____

   Alternate DNS: _____

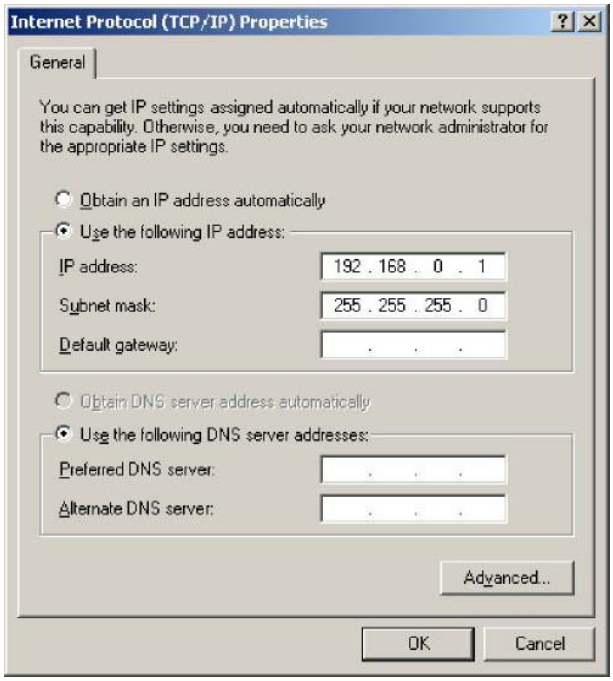
8. Click the **Use the following IP address** radio button.

9. Type in the address `192.168.0.1`.

10. Type in the subnet mask `255.255.255.0`.

11. You can leave the DNS server address fields blank. The dialogue box should now look like the one in Figure 7–8 below.

Figure 7–8 Internet Protocol (TCP/IP) Properties Dialog - With IP and Subnet Mask



12. Click **OK** and close any LAN or IP setup dialogs you have open.

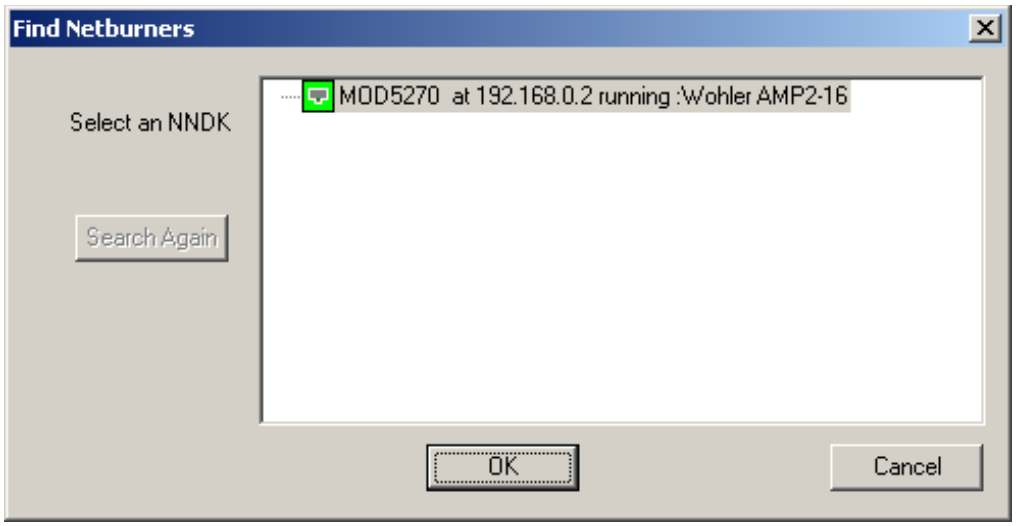
13. You **must** set a static IP address for the unit as described in Setting the IP Address and Network Mask, Step 1 (page 116). We suggest you enter 192.168.0.2. You must also set the mask to the same value set in Connecting Peer-to-Peer in Step 7 (page 120). We suggest you enter 255.255.255.0.

14. When you are finished with the file transfer(s), you should return all the IP address and network mask fields to their original values.

Upgrading the Netburner Software

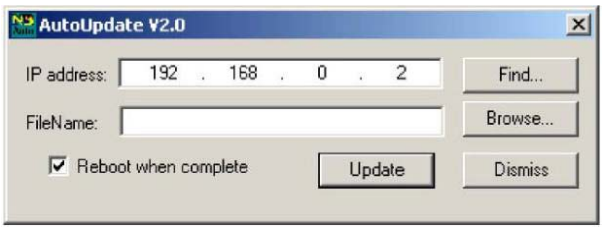
1. Launch the **NetBurner AutoUpdate** utility. Click on the **Find** button. You should see something similar to Figure 7–9 below.

Figure 7–9 Find Netburners Dialog



2. Click to highlight the NetBurner module you want to update, and click **OK**.

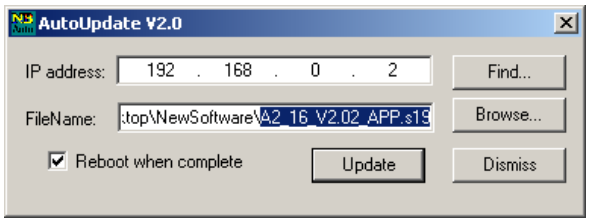
Figure 7–10 AutoUpdate IP Address Input Dialog - Incomplete



3. Click **Browse** and locate the **AMP2_16_Vx.xx_APP.s19** file. (The x's will be replaced with the software version.)

4. Check the **Reboot when complete** check box. The **Autoupdate** dialog box should look like the one in Figure 7–11 below.

Figure 7–11 AutoUpdate IP Address Input Dialog - Complete



5. With the unit fully booted and running, press the **Update** button on the dialog in Figure 7–11. A successful update is indicated by the window in Figure 7–12.

Figure 7–12 Autoupdate Confirmation Dialog

6. Click **OK** and both the dialog box and the **AutoUpdate** utility will close, and the unit will reboot and run the new software.

Upgrading the Sub-Processor Firmware

Navigating to the Unit Information Menu

7. Turn the unit on and navigate to the **Unit Information Menu** as shown in Figure 7–13 below.

   A. When the **Main Screen** appears, press the **Save/Exit** button to display the **Configuration Selection Menu**.

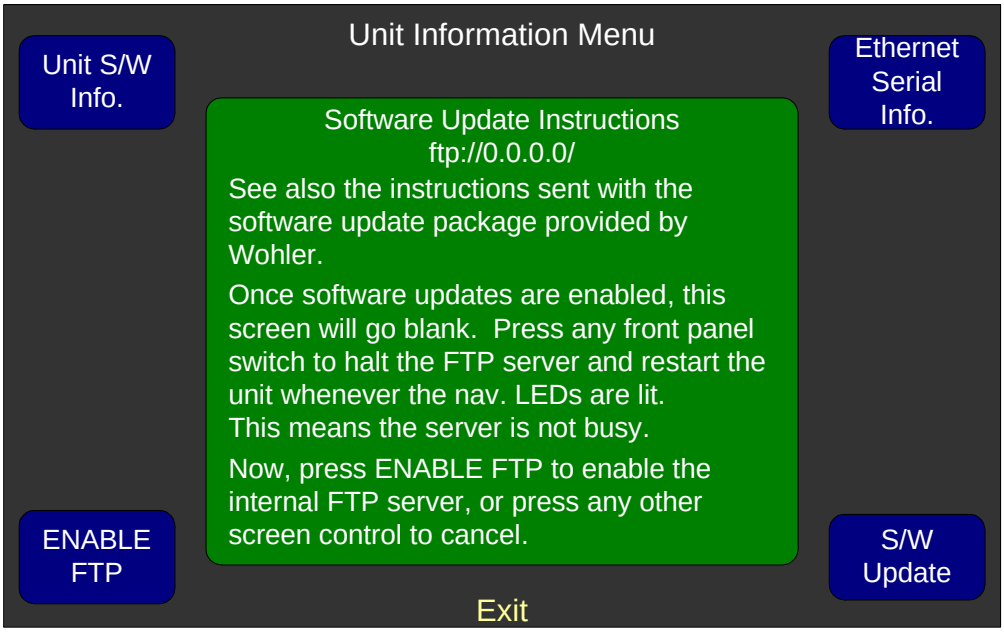
   B. When the **Configuration Selection Menu** appears, press the **Options** knob to display the **Option Configuration Menu**.

   C. When the **Option Configuration Menu** appears, press the **Config HW** knob to display the **Hardware Configuration Menu**.

   D. When the **Hardware Configuration Menu** appears, press the **Unit Info** knob to display the **Unit Information Menu**.

   E. When the **Unit Information Menu appears**, press the **S/W Update** button to display the **ENABLE FTP** button.

Figure 7–13 Unit Information Menu



8. Note the line of text at the top of the window with the FTP address. It should read something like `ftp://192.168.0.2/`.

Important: If the address comes up as ftp://0.0.0.0/, the unit is using DHCP in a peer-to-peer connection, or no Ethernet connection exists. Refer to Step 1 in Setting the IP Address and Network Mask on page 116.

Write it here: _____

Enabling FTP Access

1. On the monitor, press the **ENABLE FTP** button.

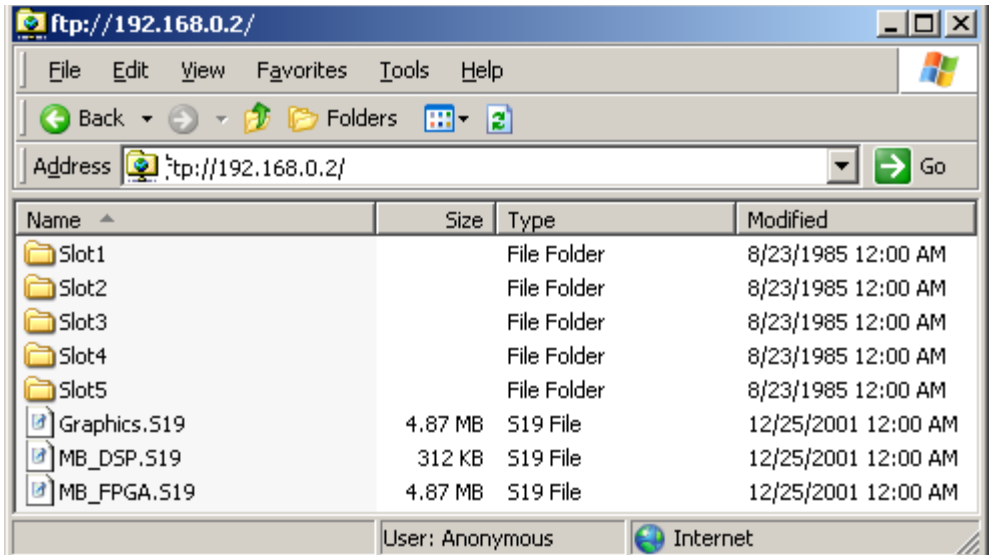
   Note: Pressing the **ENABLE FTP** knob will cause the monitor's display to go dark.

2. On the PC, open **My Computer** from the Windows desktop.

3. In the **Address** line, enter the address you wrote down in Step 8 (above), exactly as noted. For example, enter `ftp://192.168.0.2`.

4. You will see something similar to the following screen shot in Figure 7–14 on page 125, if the folders are set to detail view. The filename, folder name, and file sizes below are accurate. All other attribute information, especially the dates, are bogus and should be ignored.

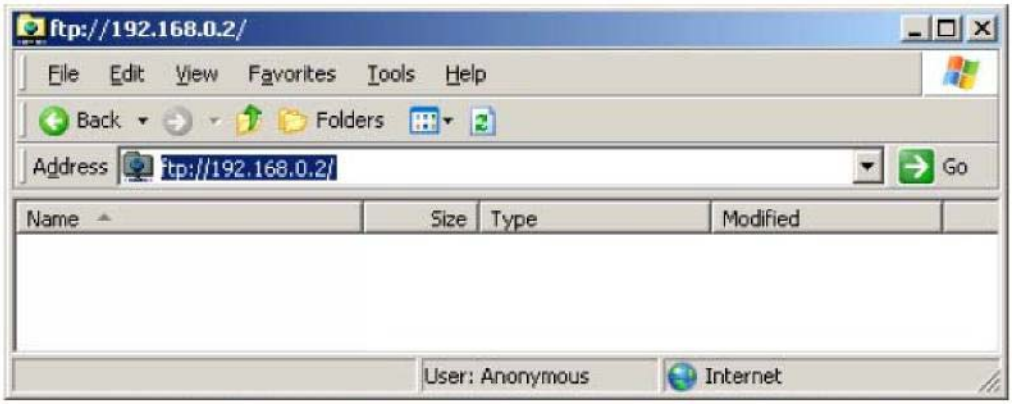
Figure 7–14 FTP Location



5. If you see the following dialog similar to the one in Figure 7–15 after a minute or so, it means the FTP connection failed. Try power cycling the unit, and repeating the steps (1 through 4) above. When you get back to this point, press the F5 key to refresh the window.

Figure 7–15 Failed FTP Connection

Figure 7–16 FTP Window



6. Press the F5 key to refresh the window.

Important: You must refresh the file window after each file transfer since Windows caches the file and folder information. If any of the files change, Windows will report the previous information from its cache rather than the current information. Refreshing the folder after each file change resolves this issue.

Important; If the motherboard FPGA file is to be updated in addition to other files, transfer the MB_FPGA file first.

7. From here on, drag and drop each file (individually) from where is is stored on the local host to the unit's FTP window.

Important Program only one device at a time. Windows will allow you to drag and drop multiple files, but the FTP server in the monitor cannot handle this. In addition, the files in the monitor are write-only so they cannot be read. In all other respects, the FTP window behaves like any other file/folder window.

Figure 7–17 File Transfer Example

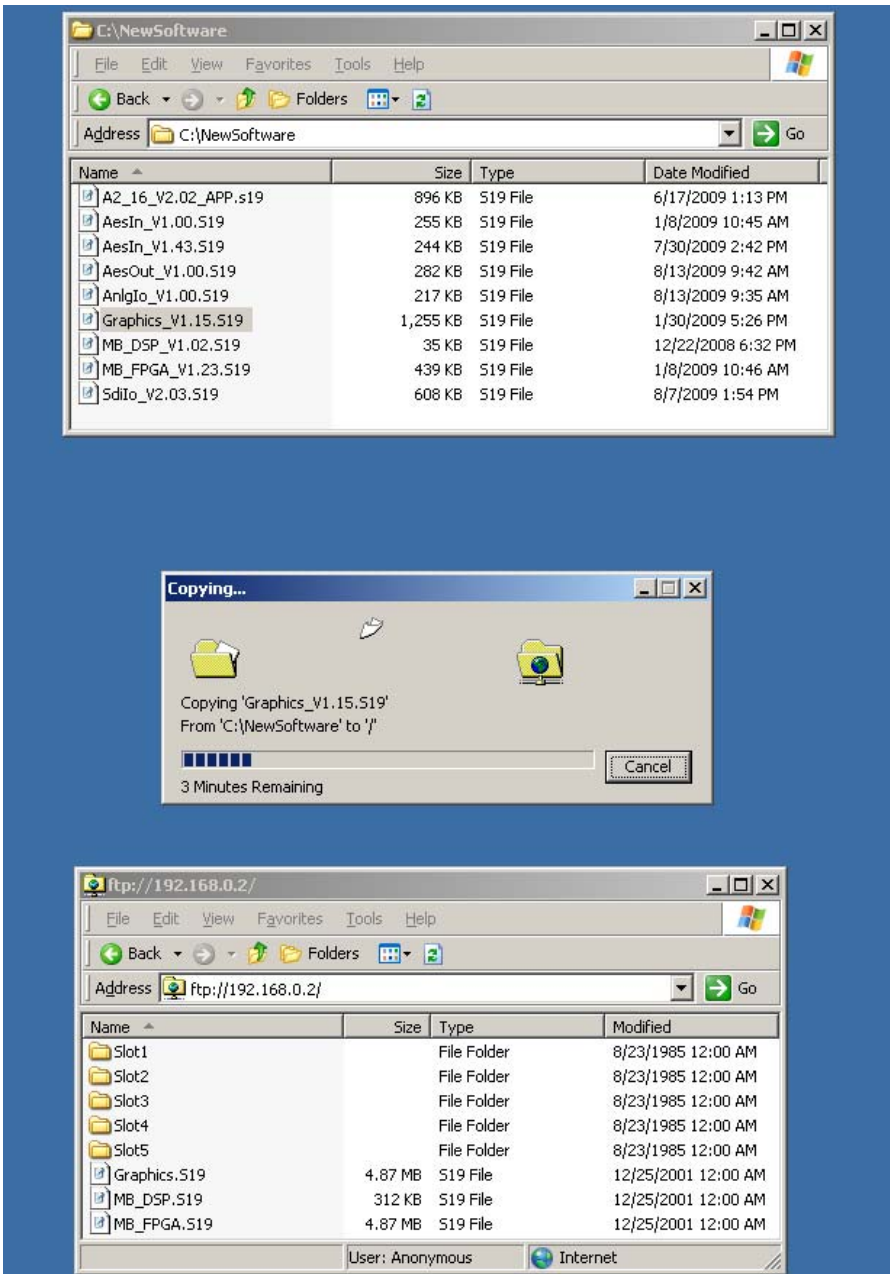
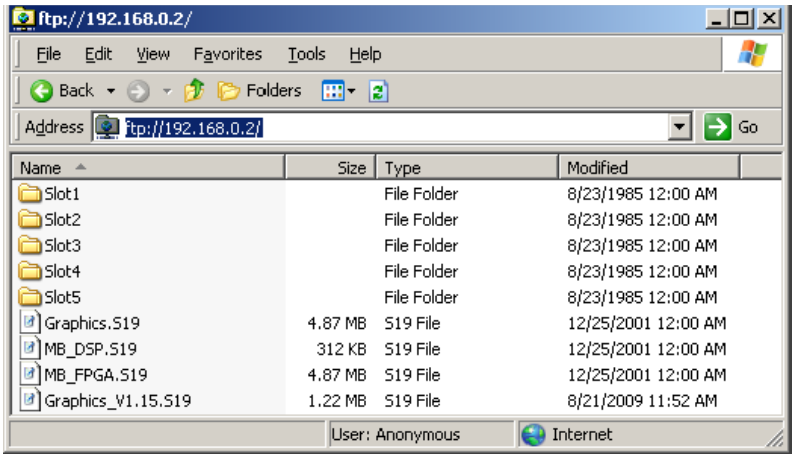


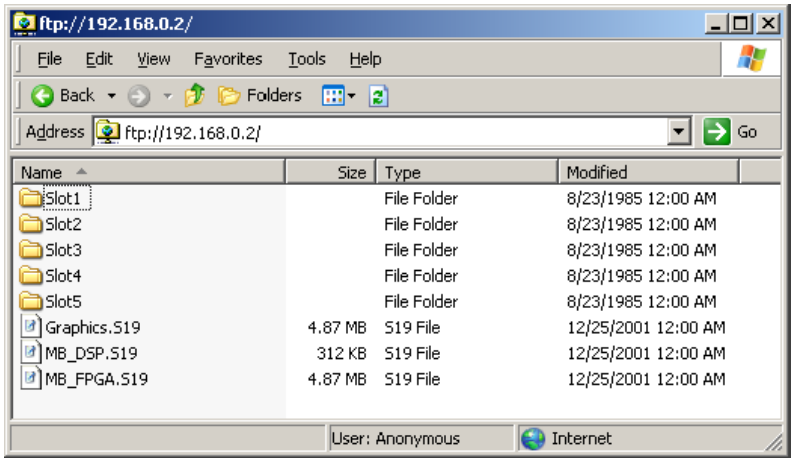
Figure 7–17 above shows a sub-processor being programmed.

Figure 7–18 Copy Completed



8. Once an sub-processor has been reprogrammed, press F5 to refresh the window. The window will now appear like the one shown in Figure 7–19 below.

Figure 7–19 Refreshed Window



9. When all the sub-processors have been reprogrammed, press one of the front panel navigation control buttons. This will restart the unit.

Important: This concludes the upgrade procedure for the NetBurner and the sub-processors.

CHAPTER 8
Input/Output Modules and Options

Introduction

Overview

This chapter discusses the various modules and their impact on the menu system, as well as other available options for the AMP2-16V Series monitors.

Topics

Distinctions Among Models

Optional I/O Modules

You can further customize the AMP2-16V by inserting additional I/O modules (a total of five) to the back plane.

Figure 8–1 Optional I/O Modules

Note that you can add any of the I/O modules (listed in Table 8–1) or multiples of I/O modules, in any order.

Table 8–1 Available Add-On I/O Modules

I/O Module Name	Functionality Provided
3G/HD/SD-SDI-V Card	2 3G/HD/SD-SDI audio/video inputs 8 de-embedded AES pairs outputs (Includes automatic frame rate detection)
HD/SD-SDI Card	1 HD/SD-SDI audio only inputs 8 de-embedded AES pairs outputs (Includes automatic frame rate detection)
AES Input Card	16 channel (eight AES pairs)
AES Output Card	16 channel (eight AES pairs) consisting of a mix of any channels
Analog I/O Card	8 channel
Analog I/O and SPDIF TOSLINK Card[a]	8 channel and 1 optical pair
Dolby Card D/E Card[b]	Provides Dolby decoding for an AES pair or de-embedded SDI of your choice

a The SPDIF TOSLINK card can be added to an existing Analog I/O card, provided the Analog I/O card and the rest of the unit have the right firmware

b The Dolby D/E Card is a daughter card and does not occupy one of the vacant slots since it does not require its own external connectors.

Standard Models

The model names rely on the following naming schema.

Table 8–2 AMP2-16V Model Naming Schema

Letter	Description
E	Includes Dolby D, E, and Dolby Digital Plus decoding capability
3G	Includes dual 3G/HD/SD-SDI inputs and reclocked output

While a huge number of functional combinations are possible, the following typical combinations form Wohler's standard offering.

Table 8–3 Relationship Between Model Name and Included I/O Modules

Model	HD/SD-SDI Card	3G/HD/SD-SDI Card	AES Input Card	AES Output Card	Analog I/O Card	Dolby D/E Card
AMP2-16V-3G		✓				
AMP2-E16V-3G		✓				✓

Menu Modifications for Input I/O Modules

The menus automatically adjust themselves to accommodate any I/O modules that are added to the system. This means that the channels of any new input cards and the mixed outputs of any output cards automatically appear as sources in the available monitoring or output menus. The output cards automatically cause output menus to appear so that you can assign sources to them.

Important: If a card is removed, the unit will return to the factory default settings when it is turned on again.

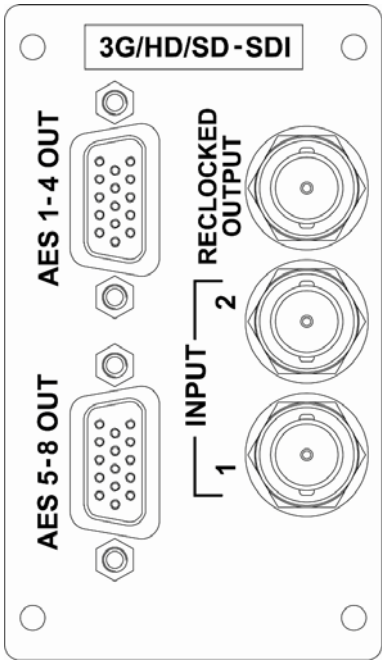
Do NOT add or remove processor cards with system power applied.

3G/HD/SD-SDI Card

3G/HD/SD-SDI Rear Panel Adaptor

After adding the 3G/HD/SD-SDI Card and its corresponding rear panel adaptor to the AMP2-16V, the rear panel adaptor provides the connectors shown in Figure 8–2.

Figure 8–2 3G/HD/SD-SDI Card Rear Panel Adaptor and Rear Card Cover Plate



Menu Modifications

Inputs

The 3G/HD/SD-SDI Card rear panel adaptor has two selectable BNC inputs from the **Configuration Selection Menu.** The de-embedded audio channels from the selected BNC will appear on the **Monitor Mixer Configuration Menu.**

Outputs

The eight AES output pairs on this card are de-embedded and re-clocked from the 3G/HD/SD-SDI signal. No other signals can be routed to these particular outputs. Pairs 1 through 4 are output through the top DB-9 connector and Pairs 5 through 8 are output through the bottom DB-9 connector. The de-embedded pairs that you select in the **Monitor Mixer Menu** are the same ones that display on the level meters and are audible through the internal speakers.

Connector Pin Outs

The pin out of the unbalanced AES output connectors on the 3G/HD/SD-SDI rear panel adaptor is listed in Table 8–4 below.

Note: The unbalanced AES output pin-out is the same as a commercially-available VGA cable.

Table 8–4 Unbalanced AES Output Connector Pin Out

Pin	AES Outputs 1 thru 4 Function	AES Outputs 5 thru 8 Function	Use
1	AES Pair 1	AES Pair 5	Unbalanced AES Outputs
2	AES Pair 2	AES Pair 6	
3	AES Pair 3	AES Pair 7	
4	Ground	Ground	Chassis Ground Return
5	Ground	Ground	
6	Ground	Ground	
7	Ground	Ground	
8	Ground	Ground	
9	Ground	Ground	
10	Ground	Ground	
11	Ground	Ground	
12	Ground	Ground	
13	AES Pair 4	AES Pair 8	Unbalanced AES Outputs

Table 8–4 Unbalanced AES Output Connector Pin Out (Continued)

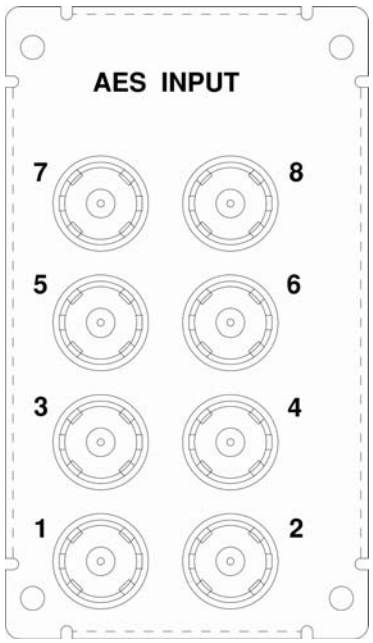
Pin	AES Outputs 1 thru 4 Function	AES Outputs 5 thru 8 Function	Use
14	Ground	Ground	Chassis Ground Return
15	Ground	Ground	

AES Input Card

AES Input Rear Panel Adaptor

After adding the AES Input Card and its corresponding rear panel adaptor to the AMP2-16V Series monitor, the rear panel adaptor provides the input connectors shown in Figure 8–3.

Figure 8–3 AES Input Card Rear Panel Adaptor and Rear Card Cover Plate



Menu Modifications

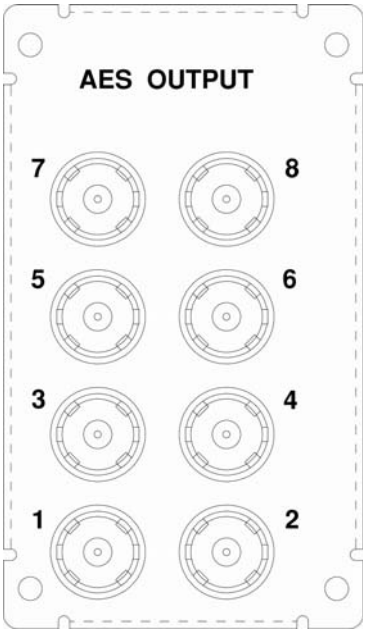
All of the AES input pairs on the AES Input Card rear panel adaptor are selectable on the **Monitor Mixer Configuration Menu** and are also sources on the AES or Analog Output Cards or on the optional Dolby D/E Card.

AES Output Card

Rear Panel Adaptor

After adding the AES Output Card and its corresponding rear panel adaptor to the AMP2-16V, the rear panel adaptor provides the connectors shown in Figure 8–5.

Figure 8–4 AES Output Card Rear Panel Adaptor and Rear Card Cover Plate



Menu Modifications

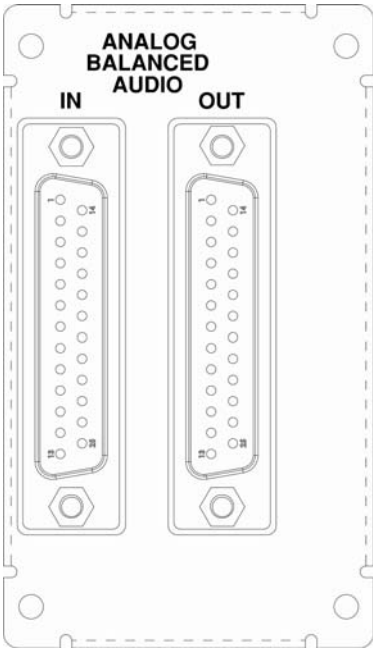
Pressing the **AES Out** knob from the **Audio Processors Configuation Menu** will display the **AES Output Configuration Menu** from which you can select and/or configure each of the AES output pairs.

Analog I/O Card

Rear Panel Adaptor

After adding the Analog I/O Card and its corresponding rear panel adaptor to the AMP2-16V, the rear panel adaptor provides the connectors shown in Figure 8–4.

Figure 8–5 Analog I/O Card Rear Panel Adaptor and Rear Card Cover Plate



Menu Modifications

You can select the analog input from the **Monitor Mixer Configuration Menu** and also from the **AES** and **Analog Output Menus**.

The **Audio Processor Configuration Menu** will now display an **Analog I/O** knob. Pressing this knob will display the **Analog Output Configuration Menu** from which you can select and configure the outputs.

Note: You can modify the analog reference levels in the **Hardware Configuration Menu**.

Connector Pin Outs

The pin out of the balanced analog input connector is listed in Table 8–5 below.

Note: The balanced analog input connector pin out is the same as the commercially-available Tascam DA-88 adapter cables.

Table 8–5 Balanced Analog Input Connector Pin Out

Pin	Function	Use
1	Channel 8 (+)	Non-inverted Balanced Analog Input
2	Ground	Channel 8 Shield
3	Channel 7 (-)	Inverted Balanced Analog Input
4	Channel 6 (+)	Non-inverted Balanced Analog Input
5	Ground	Channel 6 Shield
6	Channel 5 (-)	Inverted Balanced Analog Input
7	Channel 4 (+)	Non-inverted Balanced Analog Input
8	Ground	Channel 4 Shield
9	Channel 3 (-)	Inverted Balanced Analog Input
10	Channel 2 (+)	Non-inverted Balanced Analog Input
11	Ground	Channel 2 Shield
12	Channel 1 (-)	Inverted Balanced Analog Input

Table 8–5 Balanced Analog Input Connector Pin Out

Pin	Function	Use
13	(NC)	Not Used
14	Channel 8 (-)	Inverted Balanced Analog Input
15	Channel 7 (+)	Non-inverted Balanced Analog Input
16	Ground	Channel 7 Shield
17	Channel 6 (-)	Inverted Balanced Analog Input
18	Channel 5 (+)	Non-inverted Balanced Analog Input
19	Ground	Channel 5 Shield
20	Channel 4 (-)	Inverted Balanced Analog Input
21	Channel 3 (+)	Non-inverted Balanced Analog Input
22	Ground	Channel 3 Shield
23	Channel 2 (-)	Inverted Balanced Analog Input
24	Channel 1 (+)	Non-inverted Balanced Analog Input
25	Ground	Channel 1 Shield

The pin out of the balanced analog output connector is listed in Table 8–6 below.

Table 8–6 Balanced Analog Output Connector Pin Out

Pin	Function	Use
1	Channel 8 (+)	Non-inverted Balanced Analog Output
2	Ground	Channel 8 Shield
3	Channel 7 (-)	Inverted Balanced Analog Output
4	Channel 6 (+)	Non-inverted Balanced Analog Output
5	Ground	Channel 6 Shield
6	Channel 5 (-)	Inverted Balanced Analog Output
7	Channel 4 (+)	Non-inverted Balanced Analog Output
8	Ground	Channel 4 Shield
9	Channel 3 (-)	Inverted Balanced Analog Output
10	Channel 2 (+)	Non-inverted Balanced Analog Output

Table 8–6 Balanced Analog Output Connector Pin Out

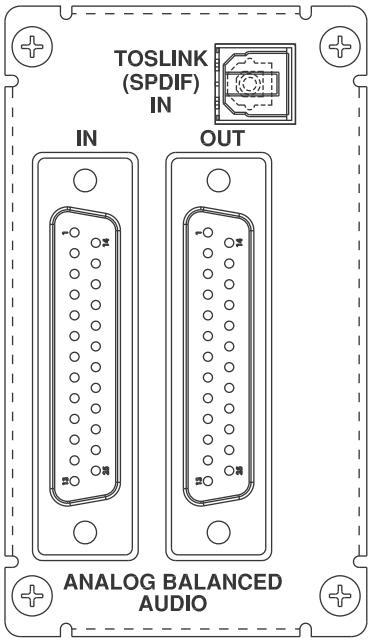
Pin	Function	Use
11	Ground	Channel 2 Shield
12	Channel 1 (-)	Inverted Balanced Analog Output
13	(NC)	Not Used
14	Channel 8 (-)	Inverted Balanced Analog Output
15	Channel 7 (+)	Non-inverted Balanced Analog Output
16	Ground	Channel 7 Shield
17	Channel 6 (-)	Inverted Balanced Analog Output
18	Channel 5 (+)	Non-inverted Balanced Analog Output
19	Ground	Channel 5 Shield
20	Channel 4 (-)	Inverted Balanced Analog Output
21	Channel 3 (+)	Non-inverted Balanced Analog Output
22	Ground	Channel 3 Shield
23	Channel 2 (-)	Inverted Balanced Analog Output
24	Channel 1 (+)	Non-inverted Balanced Analog Output
25	Ground	Channel 1 Shield

Analog I/O and SPDIF TOSLINK Card

Rear Panel Adaptor

After adding the Analog I/O Card and its corresponding rear panel adaptor to the AMP2-16V, the rear panel adaptor provides the connectors shown in Figure 8–4.

Figure 8–6 Analog I/O and SPDIF TOSLINK Rear Panel Adaptor and Cover Plate



Menu Modifications

You can select the analog input or the **Toslink Input** from the **Monitor Mixer Configuration Menu** and also from the **AES** and **Analog Output Menus**.

The **Audio Processor Configuration Menu** will now display an **Analog I/O** knob. Pressing this knob will display the **Analog Output Configuration Menu** from which you can select and configure the outputs.

Note: You can modify the analog reference levels in the **Hardware Configuration Menu**.

Note: Analog I/O cards with TOSLINK options will not allow the analog outputs to be routed back to the monitor mixer. The internal pathways used for this feature are also used by the TOSLINK card.

Connector Pin Outs

Since the pin-outs fo the Analog I/O and SPDIF TOSLINK Card are identical to those of the Analog I/O Card, refer to Connector Pin Outs on page 141.

Dolby D/E Card

Note: The Dolby D/E Card does not have a rear panel adaptor.

Menu Modifications

Installing a Dolby D/E Card activates the **Dolby Configuration and Metadata Display Menu** and allows hot keys to be assigned to the **Dolby Zoom** function. Also, refer to Chapter 4: Dolby on page 39 for more information.

Adding a Redundant Power Supply

The AMP2-16V Series monitors come with a single 150W power supply that is sufficient to drive a fully-loaded monitor. However, an additional power supply (also 150W) is available as an option to provide for system redundancy. Unlike the I/O modules that can go in any available slot, the redundant power supply can only go into the far right-hand side of the unit (as seen from the rear).

Precautions

Before unpacking your new power supply, make sure you have a static-free surface on which to work.

CAUTION! Static discharge can cause serious damage to sensitive semiconductor devices. Avoid handling the circuit boards in high static environments such as carpeted areas, and when synthetic or wool fiber clothing is worn. Touch the frame to dissipate static charge before removing boards from a frame, and always exercise proper grounding precautions when handling circuit boards.

Requirements

- A small Phillips screwdriver
- The redundant power supply option kit (See Option Kits on page 154 for more information.)

Adding the Power Supply

To install an additional power supply, follow the instructions below.

Note: It may prove helpful to place the monitor with the rear panel facing you for this procedure.

1. Place the monitor on a solid, static-free surface and remove the power cord.
2. Using a small Phillips screwdriver, remove the top cover.
3. Remove the blank cover plate on the rear panel on the far right-hand side.

Important: Keep the blank cover plate for future use. We recommend taping it to the side of the monitor; but do not cover the air vent.

4. Slide the power supply into the slot from the rear panel, making sure that the power supply's connector snaps securely into the connector inside the monitor.
5. Screw in the two captive thumbscrews that hold the power supply in place.

6. Replace the lid and the screws.

7. Attach the power cord to the connector and plug it into an outlet on a different circuit breaker than the original power supply.

Important: It is crucial that the secondary power supply be plugged into an outlet on a different circuit breaker than the original power supply to ensure system redundancy.

Adding/Removing Modules

Wohler's standard models typically do not populate all five slots, allowing for the addition of other modules. This section describes the procedures for adding new cards and removing existing cards.

Important: After removing a card from the monitor, the software will automatically recognize the new card and automatically implement all appropriate changes to the menu system. No software upgrades or further modifications are necessary. However, the may take two minutes for the unit to boot the first time after a card swap. An message will briefly be displayed (See Upgraded Software on page 165), and the user will have to press **Initialize** to proceed.

Precautions

Before unpacking your new module, make sure you have a static-free surface on which to work.

CAUTION! Static discharge can cause serious damage to sensitive semiconductor devices. Avoid handling the circuit boards in high static environments such as carpeted areas, and when synthetic or wool fiber clothing is worn. Touch the frame to dissipate static charge before removing boards from a frame, and always exercise proper grounding precautions when handling circuit boards.

Do NOT add or remove processor cards with system power applied.

Requirements

- A small Phillips screwdriver
- A wrench, preferably an adjustable one
- If you are adding hardware, the components of the option kit you want to add
- If you are removing hardware, a static-free bag or container

Adding a Dolby D/E Card

To add a Dolby D/E Card, follow the instructions below.

Note: It may prove helpful to place the monitor with the rear panel facing you for this procedure.

1. Place the monitor on a solid, static-free surface and remove the power cord(s).
2. Using a small Phillips screwdriver, remove the top cover.

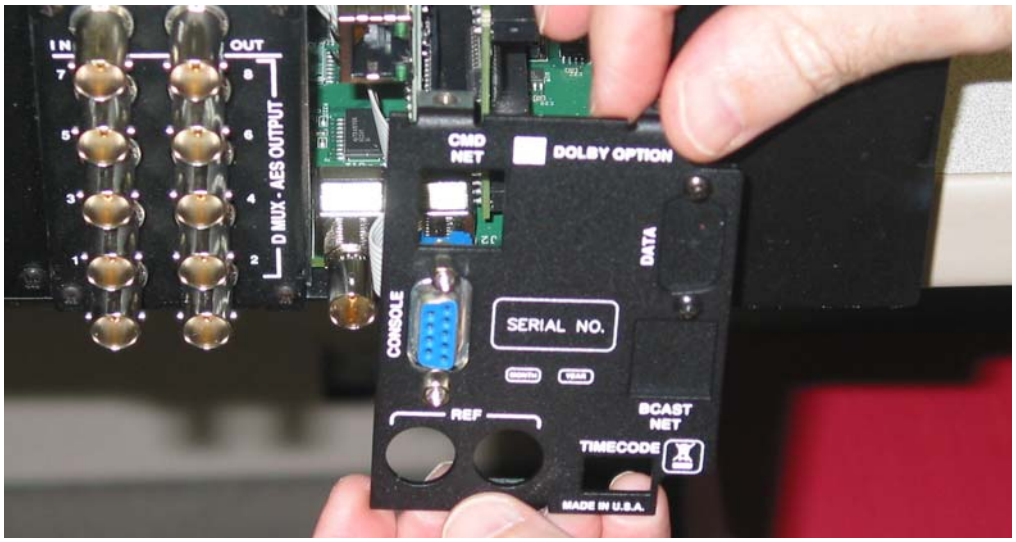
Figure 8–7 Remove Bottom Screw

3. Pull the monitor so that it slightly hangs over the edge of the surface on which it is sitting, and remove the screw on the bottom as shown in Figure 8–7 above.

Figure 8–8 Remove Nuts and Washers

4. Using the wrench, remove the nuts and washers from the **REF** connectors as shown in Figure 8–8 above.

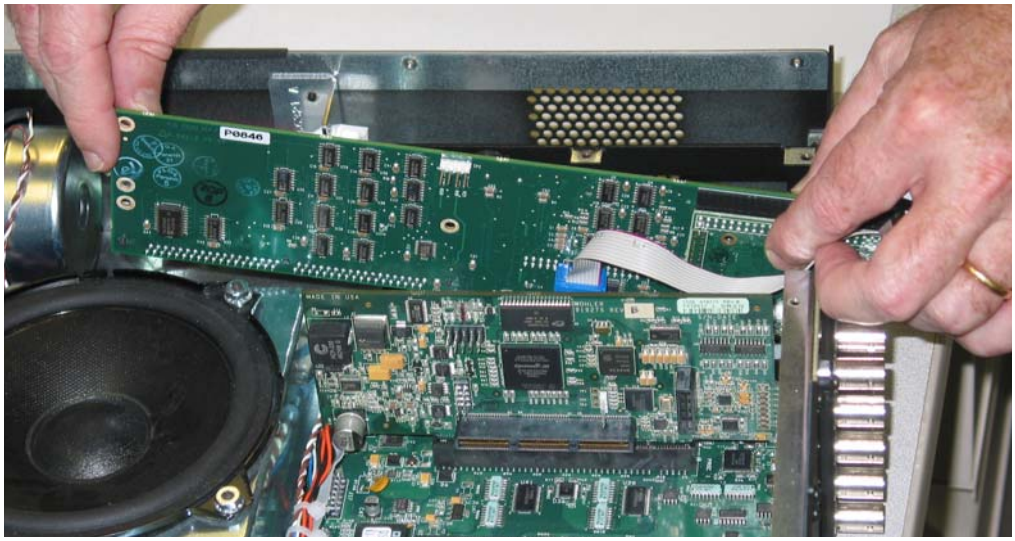
Figure 8–9 Remove System Control Board's Rear Panel Adaptor



5. Remove the rear panel adaptor for the system control board as shown in Figure 8–9 above.

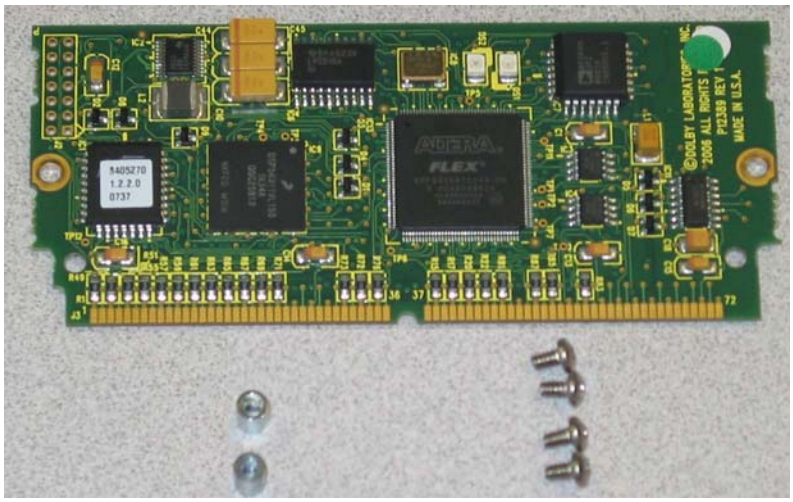
Important: Do not remove the ribbon cable from the system board or from the rear panel adaptor.

Figure 8–10 Remove System Control Board



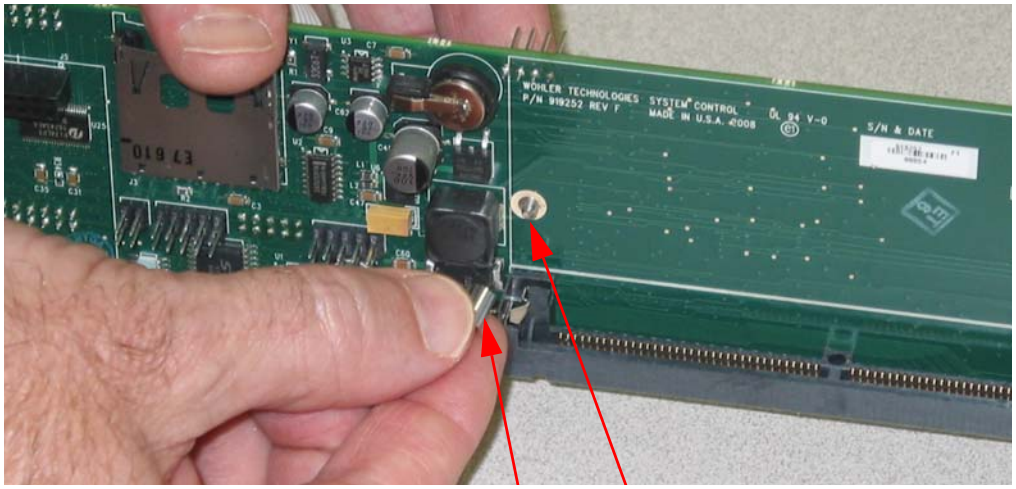
6. Gently tilt the system board out of its slot and remove it from the monitor as shown in Figure 8–10 above.

Figure 8–11 Dolby D/E Option Kit



7. Remove the new Dolby D/E Card from its shipping container being careful to remain grounded. Figure 8–11 above illustrates the card and the two standoffs (left) and the four screws (right).

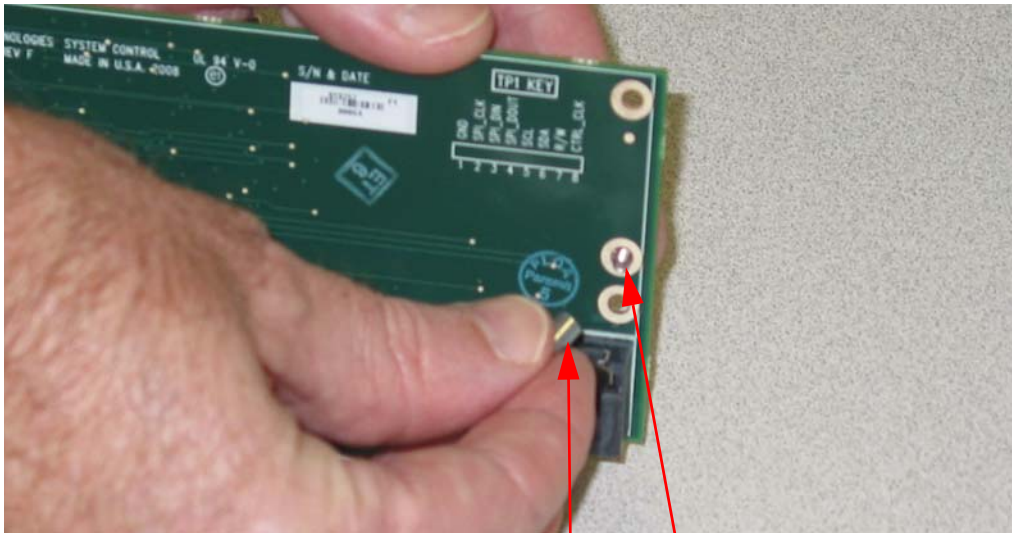
Figure 8–12 Attach First Standoff



Standoff *Screw from the Other Side*

8. Attach a standoff to the side of the system control board containing the Dolby slot, by screwing it in from the other side of the board as shown in Figure 8–12 above.

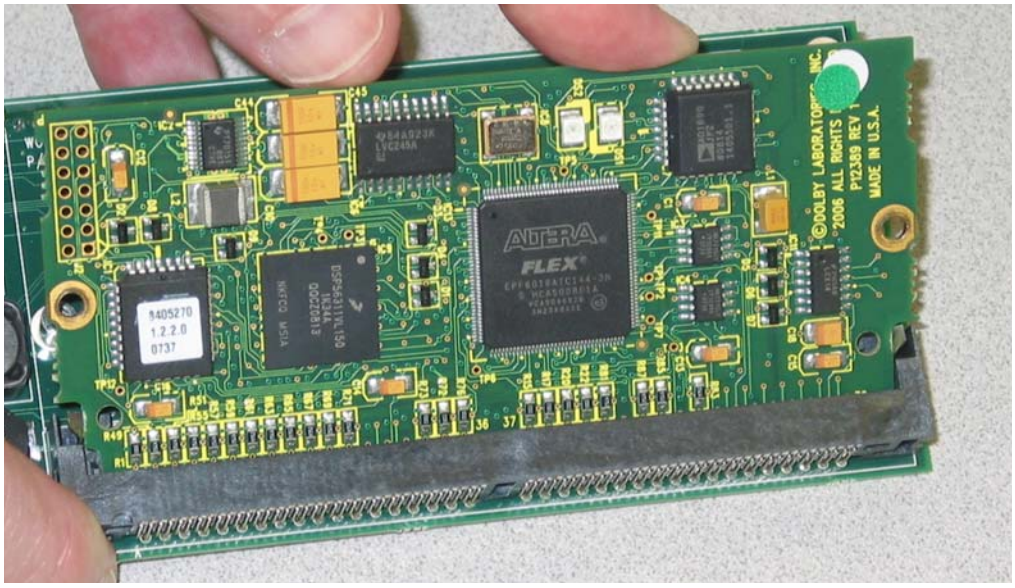
Figure 8–13 Attach Second Standoff



Standoff *Screw from the Other Side*

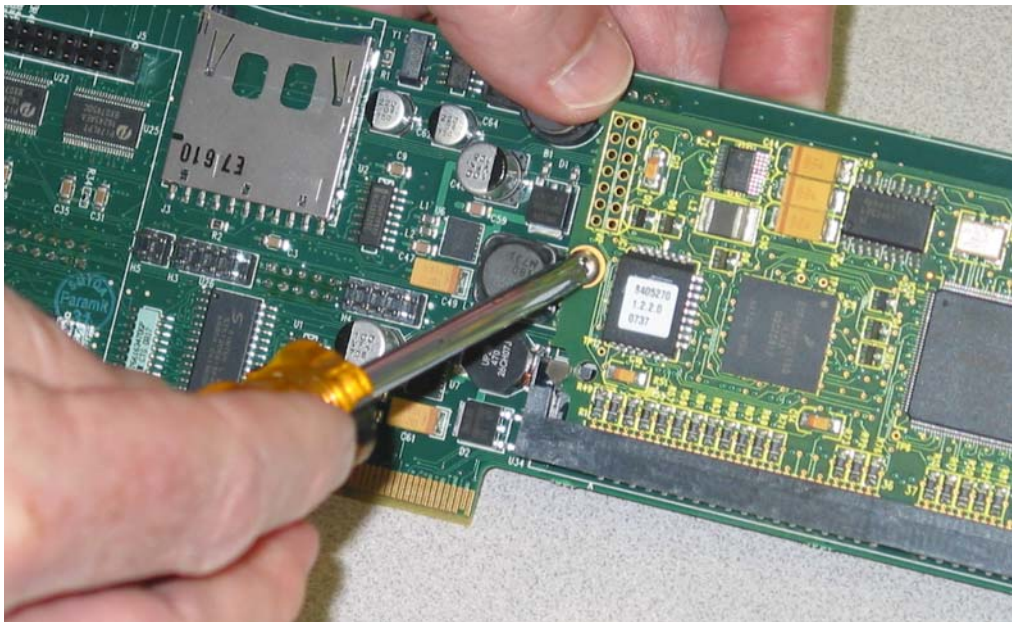
9. Attach the second standoff similarly as shown in Figure 8–13 above.

Figure 8–14 Insert Dolby D/E Card



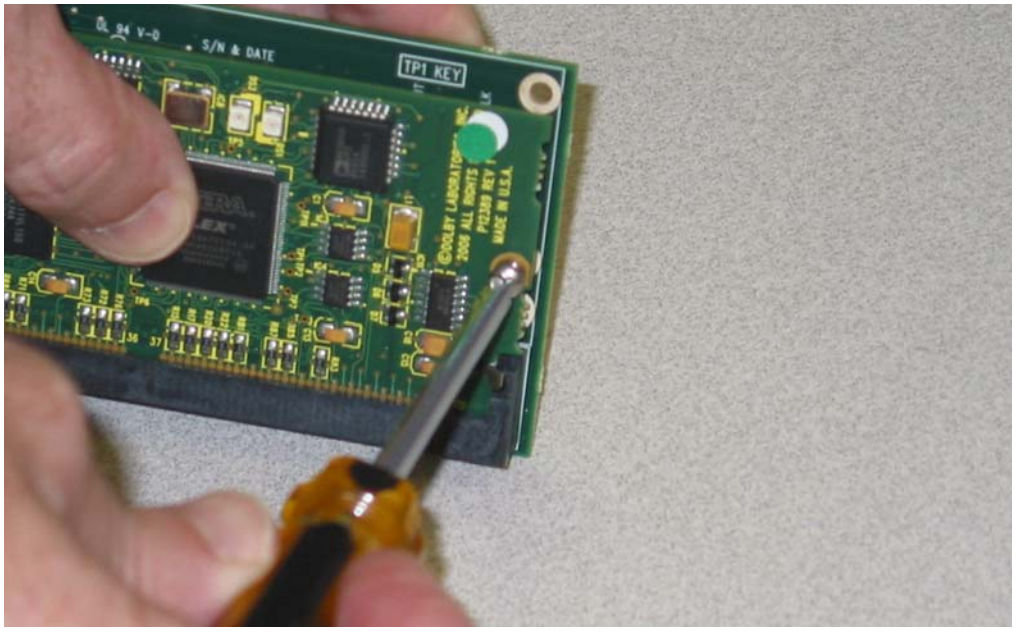
10. Insert the Dolby D/E Card into the slot as shown in Figure 8–14 above.

Figure 8–15 Tighten First Standoff Screw



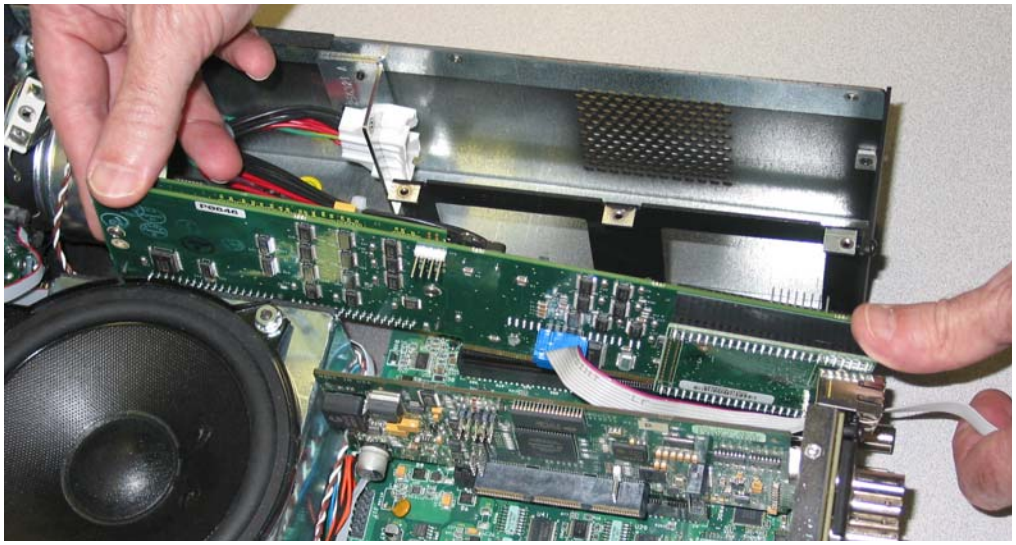
11. Adjust (if needed) and tighten the first standoff screw on the opposite side of the system control board, and then attach another screw on top of the standoff as shown in Figure 8–15 above.

Figure 8–16 Tighten Second Standoff Screw



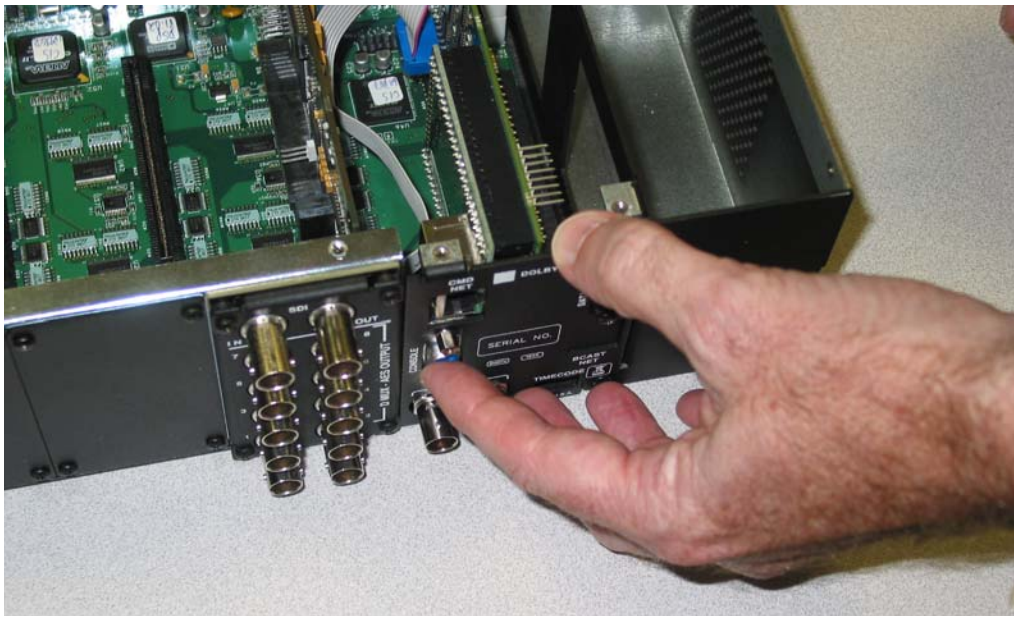
12. Similarly, adjust and tighten the second standoff screw on the opposite side of the system control board, and then attach another screw on top of the standoff as shown in Figure 8–16 above.

Figure 8–17 Re-Seat System Control Board



13. Firmly press the system control board back into it's slot so that it is securely connected as shown in Figure 8–17. Generally, this board does not snap in.

Figure 8–18 Replace Rear Panel



14. Replace the rear panel as shown in Figure 8–18 above.
15. Replace the washers and nuts on the **REF** connectors.
16. Screw in the rear panel from the bottom of the monitor.
17. Replace the lid and the screws.

Removing a Dolby D/E Card

To remove a Dolby D/E Card, follow the instructions in reverse for Adding a Dolby D/E Card on page 144 and leave the standoffs attached to the system control board.

Note: All presets will be set to a factory default appropriate for the new arrangement of cards.

Adding an I/O Module

Decision Point:

If you would like to add a 3G Card, then continue on to Adding a 3G Option Card immediately below.

Otherwise, if you would like to add a different type of I/O module, continue on to Adding a Non-3G Card I/O Module on page 152.

Adding a 3G Option Card

To add a new 3G card, follow the instructions below.

Note: It may prove helpful to place the monitor with the rear panel facing you for this procedure.

1. Place the monitor on a solid, static-free surface and remove the power cord(s).
2. Using a small Phillips screwdriver, remove the top cover.
3. Remove the blank cover plate from the rear panel for the new I/O module's slot. Remember to save the four screws for the new rear panel cover plate.

Important: Keep the blank cover plate for future use. We recommend taping it to the side of the monitor; but do not cover the air vent.

4. Remove the 3G Option Card from its shipping container being careful to remain grounded.
5. When you receive your 3G Option Card, it will arrive partially assembled. Verify that the external nuts and washers on the gold BNC connectors are loose.
6. Insert the 3G Option card into the rear panel opening being careful not to snag the ribbon cables. Keep them folded against the circuit board to keep them out of the way.
7. Insert the card into the slot and press firmly until it plugs in securely.
8. Insert the rear panel cover screws and tighten.
9. Replace the lid and the screws.
10. Tighten the external nuts on the gold BNC connectors.

WARNING! Do not attempt to operate the monitor without all rear panel cover plates in place. Doing so will compromise the unit's shielding.

Adding a Non-3G Card I/O Module

To add a new I/O module, follow the instructions below.

Note: It may prove helpful to place the monitor with the rear panel facing you for this procedure.

1. Place the monitor on a solid, static-free surface and remove the power cord(s).
2. Using a small Phillips screwdriver, remove the top cover.
3. Remove the blank cover plate from the rear panel for the new I/O module's slot.

Important: Keep the blank cover plate for future use. We recommend taping it to the side of the monitor; but do not cover the air vent.

4. Remove the new I/O module from its shipping container being careful to remain grounded.
5. Insert the new I/O module in the empty slot until the I/O module snaps in securely.
6. Attach the rear panel connectors to the card and screw it to the rear panel frame.
7. Replace the lid and the screws.

WARNING! Do not attempt to operate the monitor without all rear panel cover plates in place. Doing so will compromise the unit's shielding.

Removing an I/O Module

CAUTION! Static discharge can cause serious damage to sensitive semiconductor devices. Avoid handling the circuit boards in high static environments such as carpeted areas, and when synthetic or wool fiber clothing is worn. Touch the frame to dissipate static charge before removing boards from a frame, and always exercise proper grounding precautions when handling circuit boards.

Decision Point:

If you would like to remove a 3G Option Card, continue on to Removing a 3G Option Card immediately below.

Otherwise, if you would like to remove a different type of I/O module, then continue on to Removing a Non-3G I/O Module on page 153.

Removing a 3G Option Card

To add a new 3G card, follow the instructions below.

Note: It may prove helpful to place the monitor with the rear panel facing you for this procedure.

1. Place the monitor on a solid, static-free surface and remove the power cord(s).
2. Using the needle-nose plyers, loosen the nuts on the gold BNC connectors and remove them.
3. Using a small Phillips screwdriver, remove the top cover.
4. Unseat the card from the slot and remove the card (still connected to the rear panel) through the rear panel opening.
5. Cover the rear panel opening with a blank rear panel cover.
6. Insert the rear panel cover screws and tighten.

WARNING! Do not attempt to operate the monitor without all rear panel cover plates in place. Doing so will compromise the unit's shielding.

7. Replace the lid and the screws.

Note: All presets will be set to a factory default appropriate for the new arrangement of cards.

Removing a Non-3G I/O Module

To remove an I/O module, follow the instructions below.

1. Place the monitor on a solid, static-free surface and remove the power cord(s).

Note: It may prove helpful to place the monitor with the rear panel facing you for this procedure.

2. Using a small Phillips screwdriver, remove the top cover.

3. Unscrew the rear panel adaptor from the rear panel.

4. Being careful to remain grounded by remaining in contact with the monitor's frame, carefully disconnect the rear panel adaptor from the I/O module and place it on a static-free surface.

5. Again, being careful to remain grounded, remove the I/O module from its slot and place it on a static-free surface.

6. Screw in a blank rear panel adaptor cover over the empty slot's rear panel space.

WARNING! Do not attempt to operate the monitor without all rear panel cover plates in place. Doing so will compromise the unit's shielding.

7. Replace the lid and the screws.

Note: All presets will be set to a factory default appropriate for the new arrangement of cards.

Option Kits

Table 8–7 below lists the option kits with their respective hardware components for your convenience. Please contact your Wohler sales representative for further information.

Table 8–7 Part Numbers for Optional Hardware/Kits

Part Number	Description
829024	**3G/HD/SD-SDI Audio/Video I/O Card with Data Re-Embedding Option Kit** Note: The 3G/HD/SD-SDI I/O Module does not have a *separate* rear panel adaptor. The I/O module and the rear panel connectors are all on one piece of hardware. (includes 256755, 919313 and 750645)
256755	3G SDI Rear Cover Plate
919313	3G SDI I/O Module

Table 8–7 Part Numbers for Optional Hardware/Kits

Part Number	Description
750645	2 Cables (15-Pin VGA Female to IDC 16 Pos Female 6" LG)
829001	**AES Input Option Kit** (includes 256455-01, 919256, and 919282)
256455-01	AES Input Rear Cover Plate
919256	AES Input Rear Panel Adaptor
919282	AES Input I/O Module
829002	**AES Output Option Kit** (includes 256455-02, 919256, 919283)
256455-02	AES Output Rear Cover Plate
919256	AES Output Rear Panel Adaptor
919283	AES Output I/O Module
829010	**Analog I/O Option Kit** (includes 256885, 919277, and 919285)
256885	Analog I/O Rear Cover
919277	Analog I/O Rear Panel Adaptor
919285	Analog I/O Module
829021	**Analog I/O and SPDIF TOSLINK Card Option Kit** (includes 256767, 919316, 919285, and 919301)
256767	Analog I/O Rear Cover for TOSLINK Child Card
919316	Analog I/O Rear Panel Adaptor for TOSLINK Child Card
919285	Analog I/O Module with TOSLINK Child Card Connector
919301	TOSLINK Child Card
829014	**Dolby D/E Option Kit** Note: The Dolby D/E Card is a daughter card to the system control board (P/N 919252), so it does not have a rear panel adaptor or a rear panel cover plate. [includes 919210, 281422 (x4), and 285050 (x2)]
919210	Dolby D/E Decoder Module

Table 8–7 Part Numbers for Optional Hardware/Kits

Part Number	Description
281422	4 Screws (4-40 x 3/16")
285050	2 Standoffs (Rnd 4-40 x 3/16" x 1/4" Brass F-F)
829013	**Redundant Power Supply Option Kit** (includes 760033 and 600001)
760033	Power Supply
600001	Power Cord
829015	**Harness DB25 to Female XLR Option Kit** (includes 751017)
751017	Cable (DB25 to Female XLR)
829016	**Harness DB25 to Male XLR Option Kit** (includes 751018)
751018	Cable (DB25 to Male XLR)
Other Optional Hardware	
256262	Blank Rear Cover Plate (does not include additional screws)

CHAPTER 9
Features and Specifications

Introduction

Overview

This chapter lists the features and specifications for the AMP2-16V Series monitors.

Topics

Features

Product Benefits

- Monitor video and audio level meters with **Dolby Zoom** simultaneously
- Sixteen hot keys all you to recall presets, mute, solo, or trim channels.
- Monitoring of up to 16 channels of embedded audio in a single, multirate SDI signal can be used in the most complex, multi-channel and surround applications: a must for DTV production and signal chain.
- The totally digital system architecture with high fidelity, class D amp provides absolute reproduction of the embedded signal with unsurpassed fidelity in a near-field audio monitor.
- You can assign any channel on any input to the left, right, or both speakers. Production tools and needs for monitoring can vary from job to job, so these units provide optimum flexibility in signal monitoring, allowing you to configure the system to your needs for any given production.
- Near-field audio monitors are often placed in a signal path. Re-clocked loop output of the SDI signal and demux outputs for eight AES pairs (on unbalanced 75Ω BNC connectors) provide cost savings in signal chain management, with the precision required for the digital infrastructure.
- You can create and store eight user-defined presets of system configurations for quick configuration changes.
- DTV programming requires absolute adherence to standards and requirements. Crucial elements of the audio signal (such as loudness and dial norm) are constantly sampled and instantly displayed on the LCD screen to prompt operators to take appropriate measures.
- You can direct each channel of each chosen channel pair to any or all of the 16 channel outputs of the AES Output card (or eight channel outputs of an Analog Output Card.)

- Production facilities and outside broadcast (OB) operators provide programming for clients on a global basis. Program producer and networks metering standards can be instantly accommodated with metering resolution (210 segments displayed with stereo phase indicators for stereo pairs) that is unmatched in precision. User-selectable meter characteristics include:
  - Range
  - Scale
  - Color thresholds
  - Ballistics

Additional Features

- 2RU case for space savings
- 1/4" (7 mm) Stereo front panel headphone jack
- Optional I/O modules provide a variety of inputs and outputs. The types of I/O modules available include:
  - 3G/HD/SD-SDI-V Card
  - AES Input Card
  - AES Output Card
  - Analog I/O Card
  - Analog I/O SPDIF TOSLINK
  - Dolby D/E Card
- Stereo phase indicator is present for each stereo input source monitored. Stereo phase indication occurs in adjacent channels in the signal chain before routing to speakers.
- 100 to 240 VAC (± 10%) operation with a self-contained power supply. An identical additional power supply is also available for redundancy.

Compliance

All components comply with UL, CE, and RoHs specifications.

Standards

Loudness measurements comply with ITU-1770/1771 standards.

Specifications

The AMP2-16-3G series monitors meet the following specifications.

Table 9–1 Specifications

Specification	Values / Domains
Power requirements	100 V to 240 V AC ± 10%, 50/60Hz
Power consumption	150 Watts max
Dimensions (H x W x D)	3.5″ x 19″ x 14.5″ (89 mm x 483 mm x 368 mm)
Weight	about 18 lbs.; depends on configuration
Space Required	2 RU (rack unit)
Supplied Accessories	AC Power Cord (North America)
Optional Accessories	See card list in Table 8–1 on page 130.
OLED Resolution	480 x 272
Level Meter Resolution	210 segments
Level Meter Scales	Selectable: • AES, • VU, • Ext. VU, • BBC, • EBU, • Nordic, and • DIN • Custom

Table 9–1 Specifications (Continued)

Specification	Values / Domains
Level Meter Characteristics	Selectable: • Meter range • Meter thresholds, • Reference, • Segment Colors, and • Ballistics • Phase Indicators
Peak Acoustic Output	104 dB SPL (@ 2 feet)
Power Output	15 W per speaker
Frequency Response	60 Hz - 16 kHz (±5 dB) (-10 dB @ 50 Hz, 20 kHz)
AES/EBU Input Termination	75 Ohms unbalanced, switchable
SDI Input Termination	75 Ohms unbalanced
AES/EBU Input Sampling Rate	48kHz, Auto-detecting
Analog Input Impedance	40K Ohms
Hum and Noise	Better than -75dB below full output
Electrical Distortion	<0.15% at any level below limit threshold
Acoustic Distortion	8% or less at worst case frequencies above 300 Hz; typically <2%
Magnetic Shielding	<0.8 gauss any adjacent surface

CHAPTER 10
Troubleshooting

Introduction

Overview

This chapter lists the potential error and warning messages in the event the AMP2-16V Series monitor may experience an unexpected condition.

If on the outside chance you cannot recover from an error message, contact Wohler's customer support. (Wohler's contact information is on the copyright page of this document.)

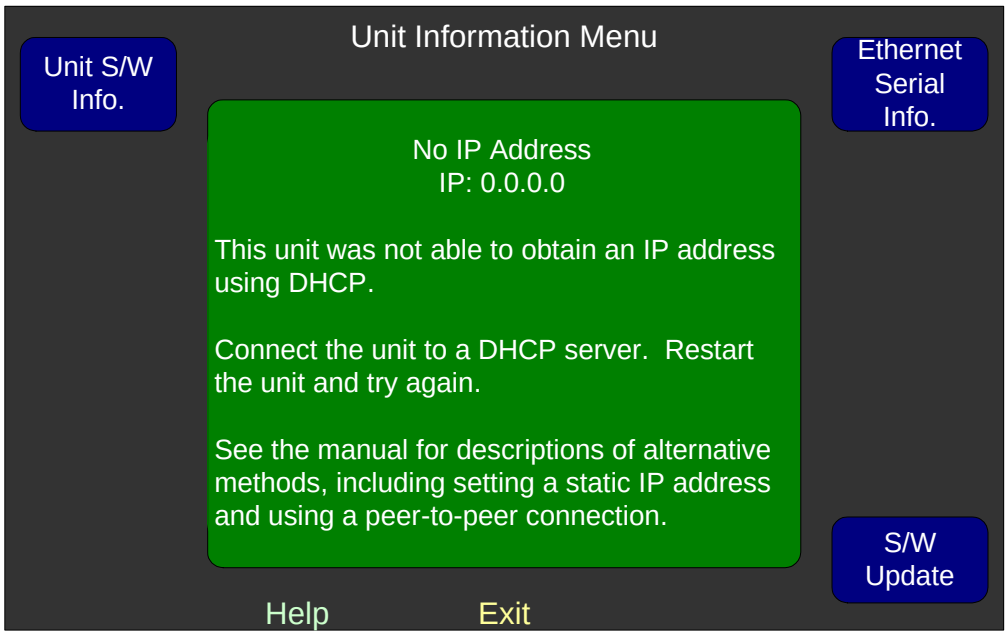
Topics

Normal Messages

Occasionally, if you may make changes to your system, you may receive an unexpected message the next time you power up the AMP2-16V Series monitor. Receiving any of the following messages is part of the normal operation of the unit.

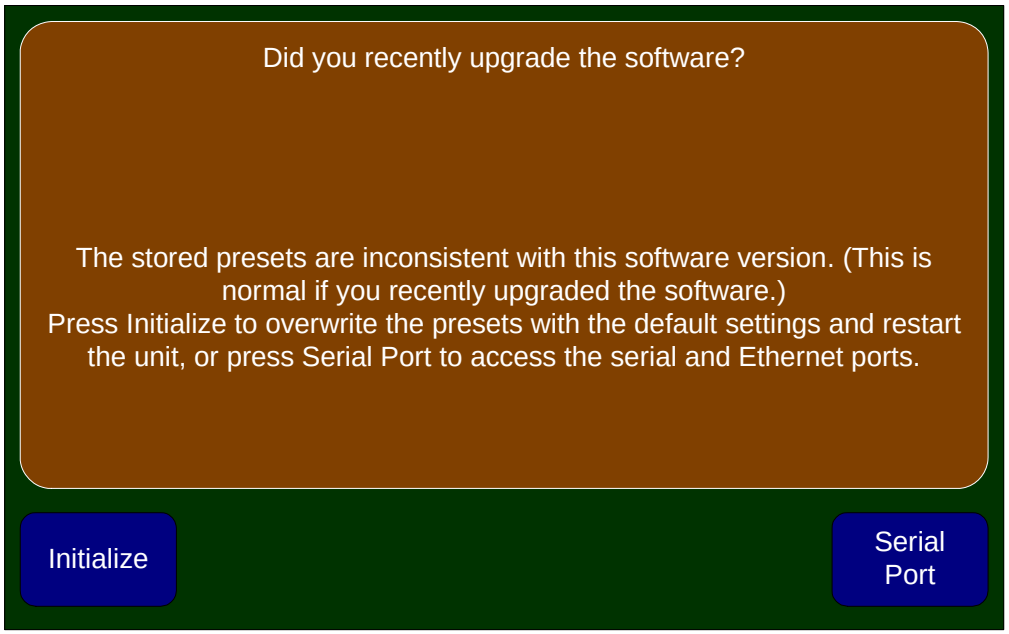
No IP Address

If you are attempting to connect your AMP2-16V Series monitor to your network and you see this message displayed on the **Unit Information Menu**, refer to Appendix B: Establishing Connectivity on page 153.



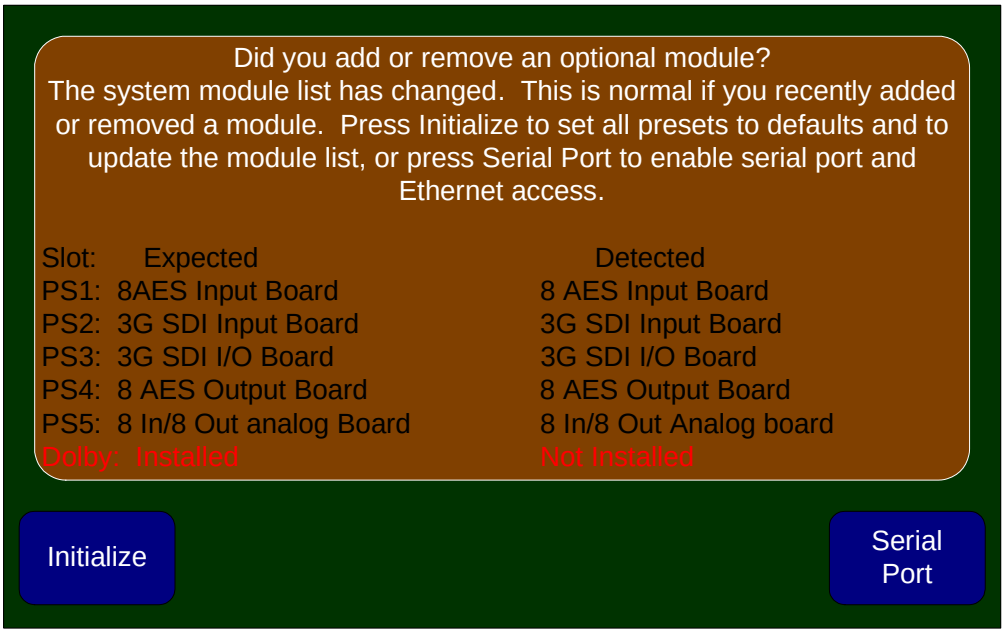
Upgraded Software

In the event you have recently upgraded the software, you may see the following message. This is a normal condition.



Inconsistent Module List

If you recently added or removed any of the I/O cards from the AMP2-16V Series monitor, you will see the following message.



If you have not recently added or removed an I/O module, remove the top cover to verify that all the cards are seated properly, then restart the unit.

Restart

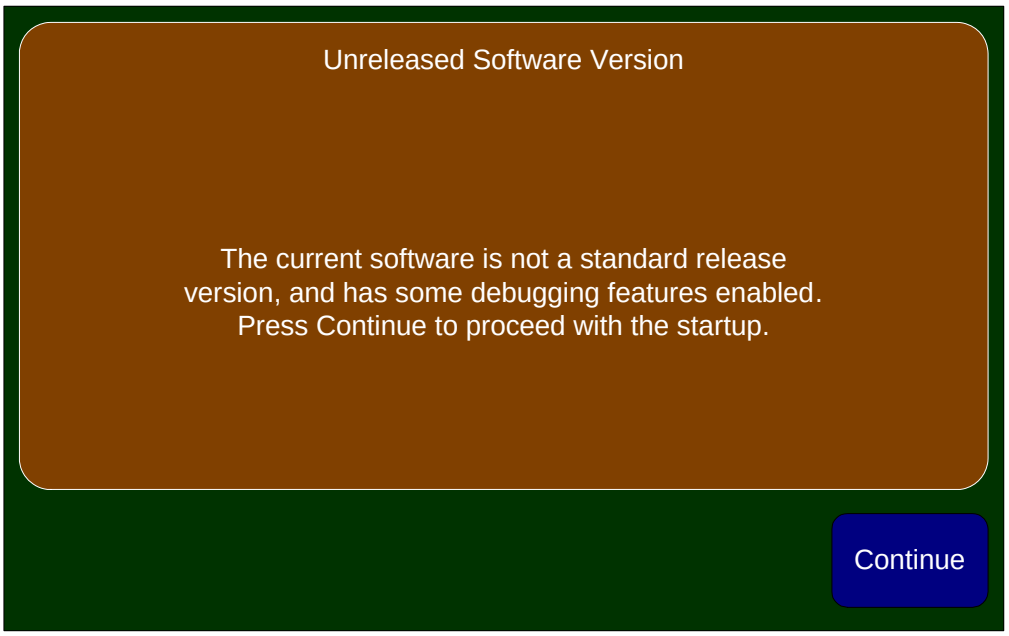
When powering up the AMP2-16V Series monitor, you may see the following message.

Error Messages

In the event your AMP2-16V Series monitor encounters an unexpected problem or issue, you may see any of the following messages.

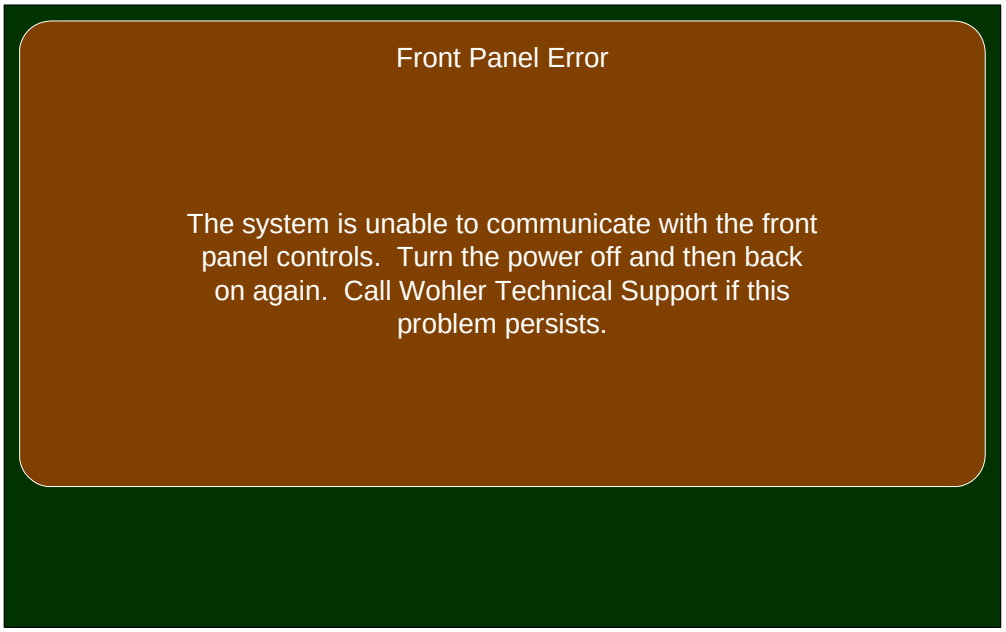
Unreleased Software Version

If you see this error, please contact Wohler customer support.

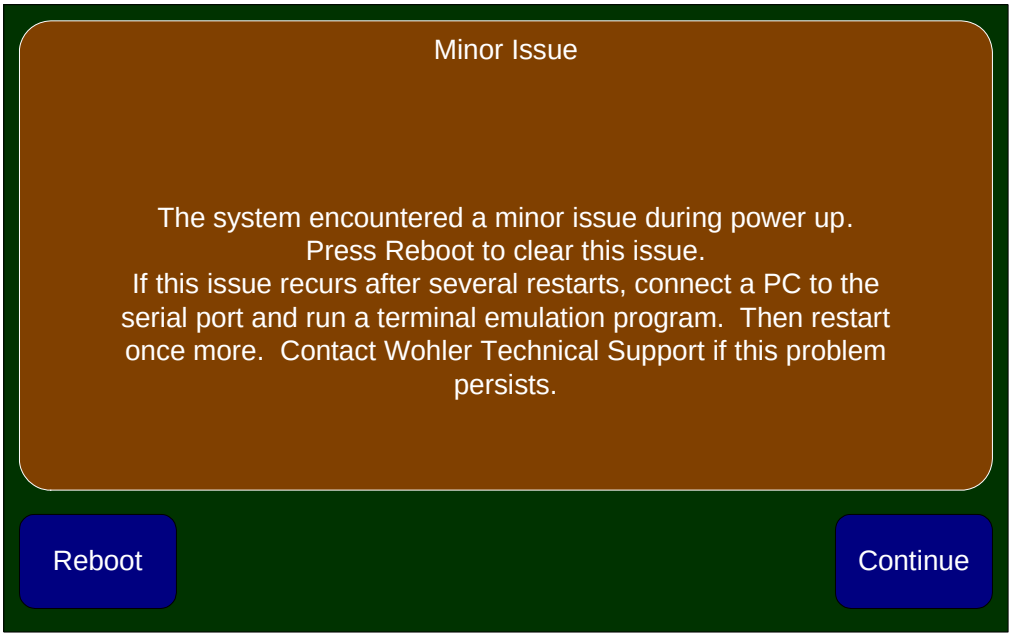


Front Panel Error

If the AMP2-16V Series monitor cannot communicate with its internal input controls, restarting the unit can often correct this condition.



Minor Issue



Serial Port Access

In the event of the following error, please print the report and have it available before contacting Wohler's customer support.