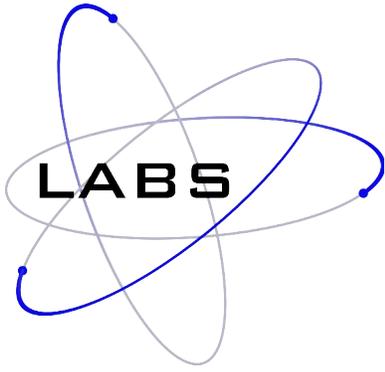


RENEGADE LABS



# Blue|328 and Blue 328|MXE Digital Audio Mixer



## Operator's Guide

Software Version: 2

# Publishing and Copyright Information

Blue|328 and Blue 328|MXE Operator's Guide  
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## About this Operator's Guide

Welcome to the Blue|328 and Blue 328|MXE digital audio mixers! The Blue|328 and the Blue 328|MXE operations are exactly the same other than the Blue 328|MXE includes the ability to transfer registers to and from a USB memory device. This Operator's Guide refers to all operations as Blue|328 with the exception of the section pertaining to the Blue 328|MXE USB register management.

### *Note*

---

To get up and running immediately, please consult the JumpStart Guide.

For detailed installation information, for example how to add input or output modules to your mixer, please consult the Installation Guide.

---

This Operator's Guide covers the following subjects:

- Overviews
- Control Descriptions
- LCD View and Menu Descriptions
- System adjustments and Information Display
- Fader Assignments
- Applying Audio Effects
- Monitoring Control
- Memory Save/Recall
- USB Register Management for Blue 328|MXE only.

This guide also includes an appendix containing some installation details you may need to refer to from time to time.

---

# Overview of the Blue | 328 Mixer

## Overview of the Blue | 328

The Blue|328 digital audio mixer is designed for use in professional audio for video applications. NLE edit suites, Telecine bays, Mobile Trucks, and similar applications benefit greatly from the wealth of capabilities provided by the Blue|328.

### *Note*

---

The Blue|328 is a self-contained standalone mixer whereas the Blue 328|MXE has a separate audio engine chassis connected to a separate Blue control panel via a Ethernet cable. All input and output functionality is the same between the two products.

---

### **Inputs and Mixing**

Optional input modules allow up to 32 audio inputs. Four slots on the back of the mixer accept either analog (4 or 6 channel) or digital (8 channel) input modules, for a maximum of 32 channels. The mixer can actively mix up to 16 channels of these inputs simultaneously, and send them out over eight program output buses. Eight more program, monitoring, or meter outputs can be added with an optional output module.

### **Monitoring**

The Blue|328 has eight analog monitor outputs and a headphone output. Any combination of the program bus, solo bus, or record-returns can be selected for listening on the monitor and/or headphone outputs.

### **Display**

An LCD display allows mixer configuration and signal characteristics to be viewed. In addition, a unique, user-friendly system of menus and variable-function buttons provides basic fader setup and extensive audio effects to be applied. This system allows a great deal of functionality to be placed in a small, space-saving console.

### **Loudness Monitoring**

The Blue|328 includes the ability to monitor the loudness level of the audio using using ITU-R BS.1770-2 gated algorithm. The Loudness Monitoring can either follow the monitoring mode or a custom set-up can be created.

### **Feature Summary**

- Accepts analog or digital audio.

- Digital inputs may be AES or SD/HD SDI (serial digital with embedded audio).
- Accepts up to 32 input channels with optional input modules.
- Mixes 16 channels simultaneously.
- Has eight program outputs.
- Loudness Monitoring using ITU-R BS.1770-2 gated algorithm.
- Has eight highly configurable monitor and stereo headphone outputs.
- Optional output module can be added for additional program, monitor, or meter outputs.
- Has powerful LCD menu system with space-saving variable-function buttons for fader setup and applying audio effects.

## About the Blue | 328

The Blue|328 is operated manually. The following figure shows a typical Blue|328 installation in a non-linear edit suite.

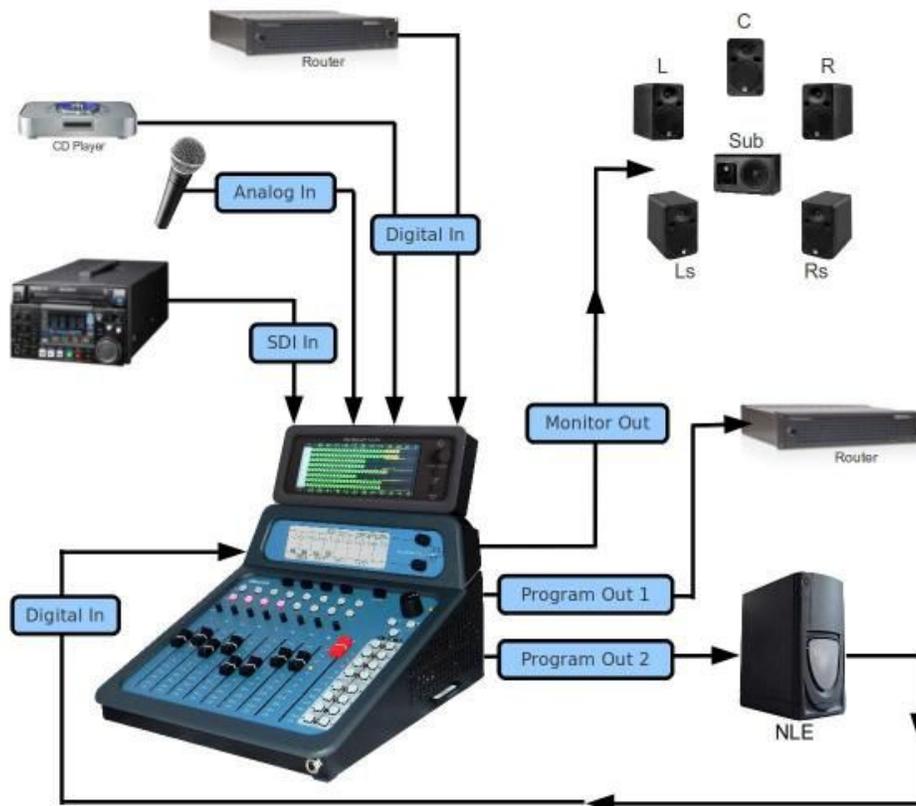


Figure 1. Blue|328 in Video Edit Suite

## Blue | 328 Audio Block Diagram

The following diagram represents the audio flow through the Blue|328 Digital Audio Mixer.

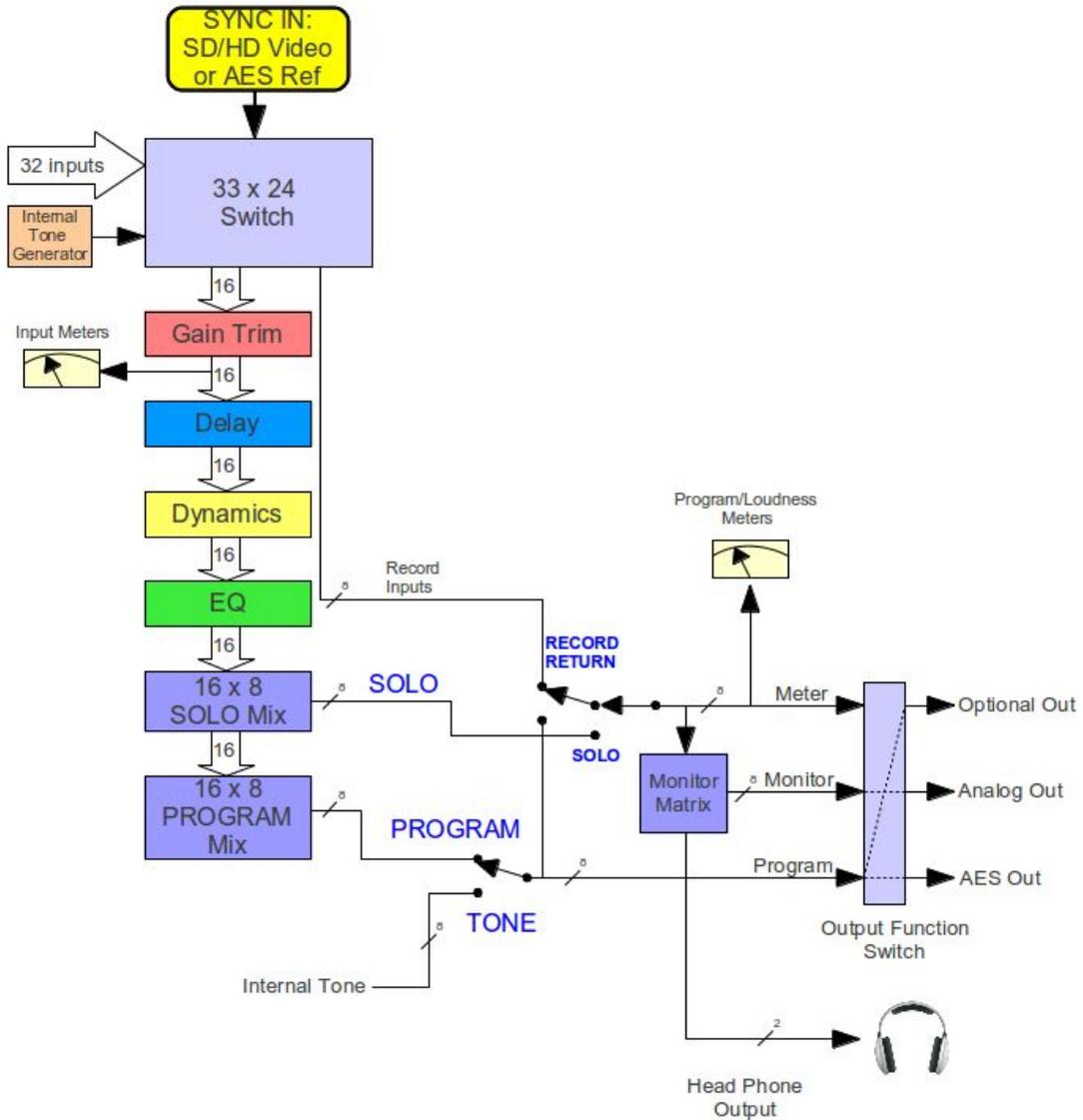


Figure 2. Flowchart for Blue|328

## Control Descriptions

### Control Panel Overview

The control panel provides access to the many features of the mixer. Intelligent software helps cut down on the number of button presses you need to get the job done. Buttons with multiple functions expand the mixer's capability.

This section provides a quick look at the control panel of the Blue|328. The sections that follow describe the controls in more detail.

### The Blue | 328 Control Panel Layout

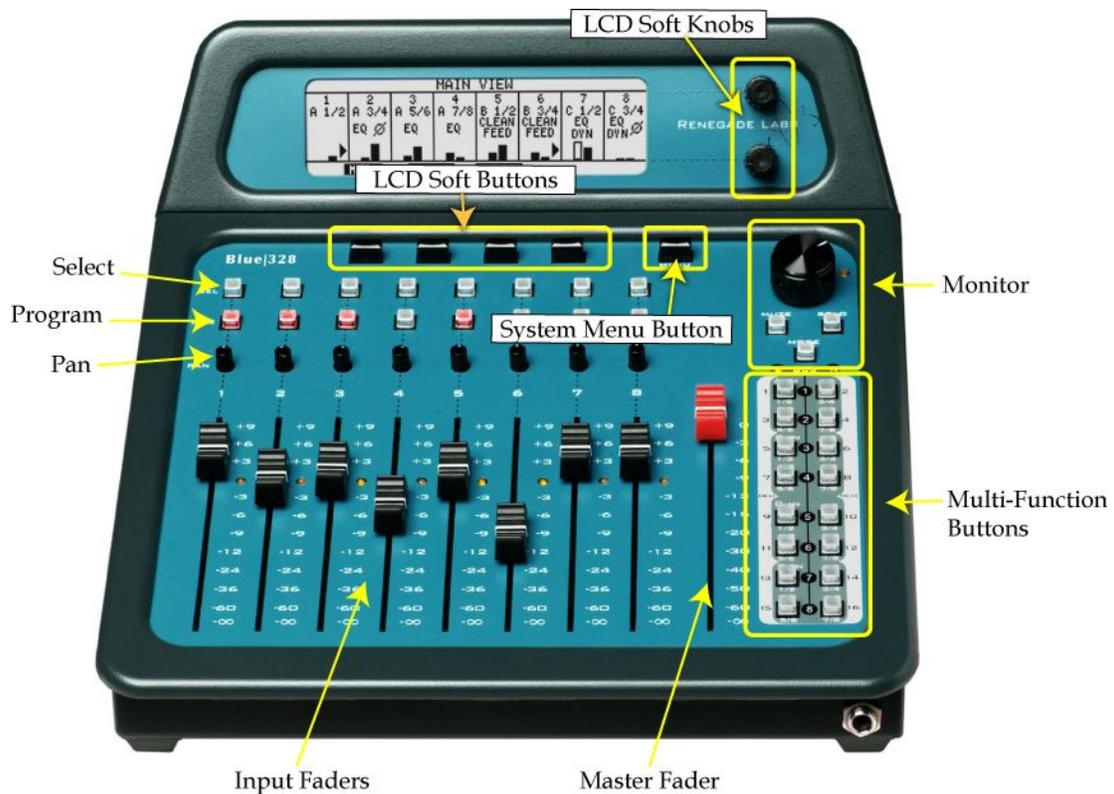


Figure 3. Blue|328 Control Panel Layout

## Display Controls



Figure 4. Display Controls

The Display Controls include the LCD display, supported by buttons and knobs that allow you to navigate through and make selections within the Views and Menus that appear on the display. The Views and Menus allow you to keep track of how your mixer is set up, View characteristics of input signals, make changes to your mixer’s setup, and apply effects to audio (also see “Introducing Views and Menus” on page 18).

### System Menu Button



Pressing this button brings up the System Menus on the LCD display. System Menus are for making system-wide changes and for Viewing certain kinds of system information (also see “Introducing Views and Menus” on page 18). The Menu button is a toggle switch; pressing it again exits the System Menus.

### Soft Buttons



These four buttons are used for making selections on Views and Menus, as shown in the example below. These are named “soft” buttons because their functions change according which View or Menu is displayed. The position of each corresponds to one of the virtual buttons (soft keys) in the display.

### Soft Knobs



The two rotary soft knobs (upper and lower) are used to change parameters in many of the display menus, as shown in the example below. These are named “soft” knobs because their functions change according which menu is displayed.

## Monitor Control Section

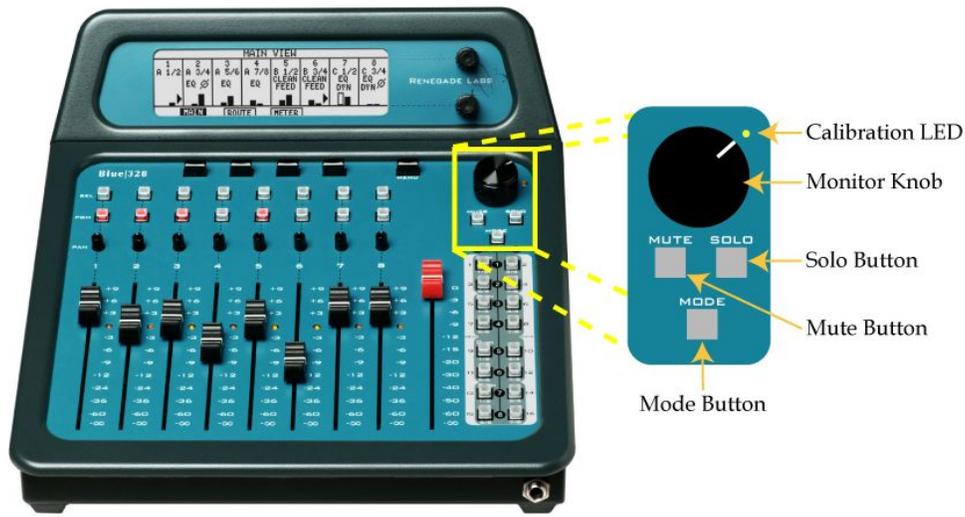


Figure 5. Monitor Controls

The Monitor controls allow you to precisely configure your monitoring environment.

### Monitor Knob

The Monitor Knob is for setting the monitor output level. Turning the knob clockwise raises the output level; turning the knob counterclockwise lowers the output level.

### Calibration LED

The Calibration LED indicates when the monitor output level is at unity. The Monitor Knob's reference indicator line also points at the Calibration LED when at unity.

### MUTE button

The MUTE button mutes all eight monitor outputs when pressed. Pressing the MUTE button again un-mutes the monitor outputs.

### MODE Button

The MODE button allows you to select or set up various monitor output matrix configurations (modes) using the Monitor Mode Menu (See "Setting up the Monitor Mode" on page 72). The modes determine how the eight program outputs are routed to the eight monitor outputs.

### Note

The level of the headphone output is independent of the Monitor knob setting or MUTE button state. See "Adjusting the Headphone Output" on page 31 for more information regarding the headphone output.

## SOLO Button

On the Blue|328, the SOLO button allows you to monitor one or more selected faders separately from the entire mix. The program outputs are not affected.

When pressed, normal monitoring is interrupted and the solo mode is entered. The Select buttons are used to select which fader(s) will be monitored. The SOLO button is toggle on/off; pressing it again will exit the solo mode and return normal program output monitoring.

### Note

---

The solo output routing follows fader output routing.

SOLO will override the Record Return monitoring when enable. Refer to “Assigning Record Returns” on page 30 for additional information.

---

- Also see “Setting Up Solo bus Monitoring” on page 71.

## Button, Pan, and Fader Rows



### Select Button Row

The Select buttons are for selecting individual faders for performing a function, for example adding equalization to a fader’s audio. There is one Select Button for each fader. For detail, see “Fader Strips” on page 12.



### Program Button Row

The Program buttons are used to place faders’ audio on the program output bus to which the fader has been assigned. There is one Program button for each fader. For detail, see “Fader Strips on page 12.



### Pan Pot Row

All fader inputs are stereo, so each fader has a pan pot to adjust the fader’s audio signal between two assigned output channels. For detail, see “Fader Strips” on page 12.



### Faders Row

There are eight stereo faders for adjusting audio gain. The faders are numbered 1 through 8 beginning from the left. For detail, see “Fader Strips on page 12.

## Fader Strips

A fader strip comprises a fader, a unity LED, a Pan Pot, a Program button, and a Select button.

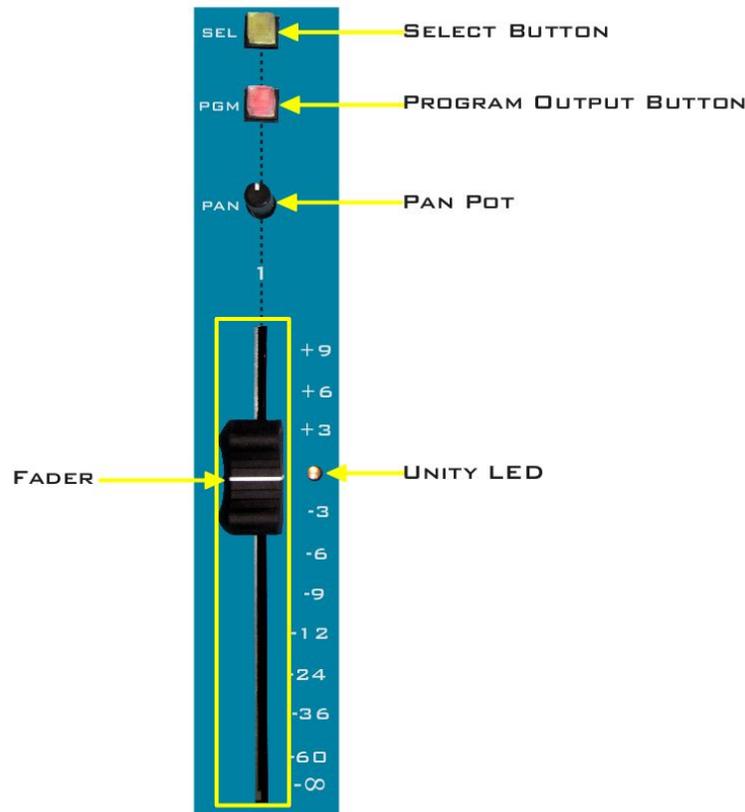


Figure 6. Fader Strip

### Fader

The fader adjusts the output audio level of its stereo inputs. The fader can adjust the output level from +9dB to  $-\infty$ . Each fader is assignable to any input, can be routed to any of the Program outputs, and can be panned between its two audio channels. The signal through the faders can be compressed/expanded, equalized, delayed, phase reversed, gain trimmed, or set to a clean feed (unmodified) for dubbing purposes.

### Unity LED

The Unity LED lights up when the fader is set at unity gain.

During Memory Recalls, the Unity LED has these functions:

- The Unity LED is red when the physical position does not match the audio position.
- The Unity LED is yellow when the audio level is at unity.
- The Unity LED is off when the physical position matches the audio position and the audio level is not at unity.

### Pan Pot

The pan pot allows you to adjust the fader's audio output between the odd and even output buses. Because any input can be routed to any of

the eight output buses, the behavior this seemingly simple pan can be complicated.

As an example, consider the usual case where output bus 1 is the left monitor output and output bus 2 is the right monitor output. Suppose the left input is routed to output bus 1 only, and the right input is selected on bus 2 only. Turning the pan knob fully counterclockwise would yield only left input audio from the left speaker. With the pan knob fully clockwise, we would hear only right input audio from the right speaker.

However, if you route the left input channel of the fader to output bus 2 and the right input channel to output bus 1, the pan pot may behave differently than you expect. Turning the pan knob fully counterclockwise yields the right input channel only in the left speaker. This is due to the right input channel being routed to the odd numbered output channel. Since the pan knob works based on the assigned output channels, whichever source is routed to the odd output channels is what is heard.

Turning the pan knob fully clockwise yields the left input channel only in the right speaker. This is due to the left input channel being routed to the even numbered output channel. Since the pan knob works based on the assigned output channels, whichever source is routed to the even output channels is what is heard.

### Program Button

The Program button places the fader's output onto the program bus. The specific program outputs on which the fader's channels will appear is determined by the output routing for the fader. See "Setting Up Fader Output Routing" on page 53.

The Program button is toggle on/off. The Program button indicates that its associated fader is on the Program bus by lighting up.

### Select Button

The Select button has various functions with regard to its associated fader, for example:

- Selecting the fader for certain operations, for example applying audio effects.
- Bringing up menus for making changes to the fader's audio input signals.
  - If no input is assigned to the fader, pressing the Select button brings up the Input Assignment Menu on the display.
  - If the fader has inputs assigned to it, the Select button accesses the various menus, with the Route Menu as the default menu.

The Select button is a toggle on/off. When the Select button is active, it is illuminated.

#### Note

---

De-selecting the Select button in a menu sequence often is equivalent to pressing the enter key on a pc. It can cause changes to be accepted.

---

## Master Fader

The Master Fader is used for adjusting the overall gain of all eight Program outputs. The gain settings of individual faders are not affected by the Master Fader.



Figure 7. Master Fader

The Master Fader range is from 0dB (unity) to  $-\infty$ . The Master Fader has no unity LED, since bringing the fader all the way to the top of its travel is unity.

When the master fader is set to 0dB (the top of its travel), the program output audio will be at unity gain with respect to the levels from individual faders.

When the Master Fader is brought down, the program output gain will be reduced by the amount of fader attenuation. The individual faders' respective gain settings will follow. In other words, if fader #1 is set to +6dB and the Master Fader is set to -3dB, fader #1's actual output level will be +3dB.

### Note

---

The Master Fader will not effect faders that are set to Clean Feed Mode. See "Enabling Clean Feed" on page 68 for more information.

---

## Multi-Function Keypad



Figure 8. Multi-Function Keypad

The Multi-function Keypad is a set of buttons that is available for use in many operations. Here are some examples:

- Headphone output bus routing
- Fader input assignment
- Program output routing
- Monitor routing and configuration
- Memory save/recall

The Multi-function Keypad provides a means for making selections and for indicating the presence of audio on specific channels.

The Multi-function Keypad is laid out to correspond with the input module slots, labeled A, B, C, and D on the rear panel of the mixer. Small buttons that light represent the possible stereo channels (1/2, 3/4, etc.)

In addition, the keypad is numbered down its middle with numerals 1 through 8, for using the keypad to indicate or select program outputs.

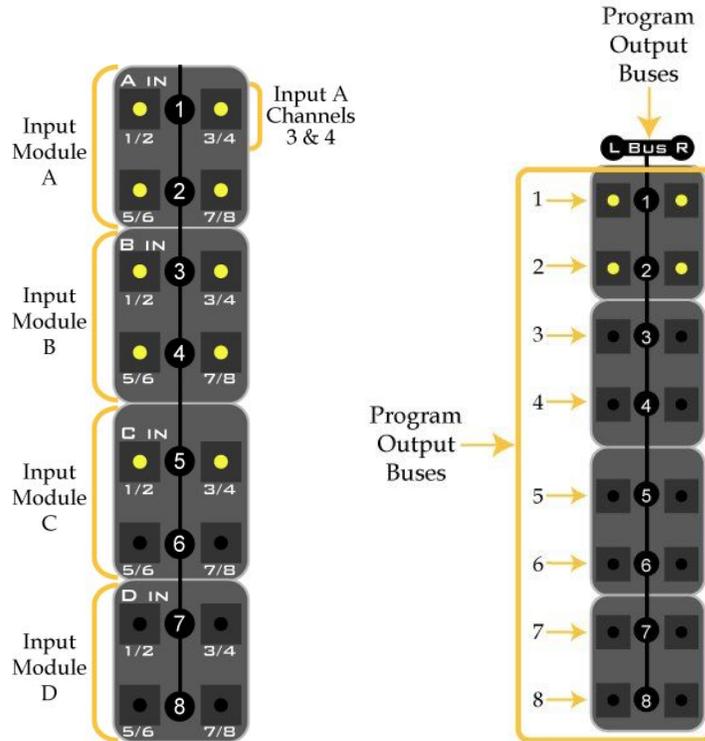


Figure 9. Multi-function Keypad Layout

The multi-function keypad may be used in conjunction with the Select buttons to indicate (or designate) which audio channels are applied to a fader. When the Select button for an individual fader is pressed, the audio assigned to it will be indicated on the multi-function keypad. The system menu must be closed for this to occur.

**Note**

In some applications, the Multi-function Keypad may be used differently than described above. Such uses will be described in the related procedures.

## Introducing Views and Menus

The LCD screen on the Blue|328 can display control panel configurations and many signal conditions. It can also display menus that allow you to make changes. There are two types of displays, *Views* and *Menus*.

### Views vs. Menus

#### Views

*Views* are displays that show the current status of the mixer. They do not provide a way to make changes. See the example below.

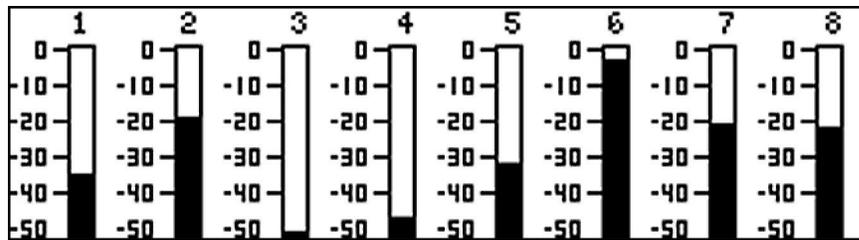


Figure 10. View Example, Meter View

This example displays the audio signal levels for each Program output.

#### Menus

*Menus* are displays that allow you to not only View status, but also make changes. See the example below.

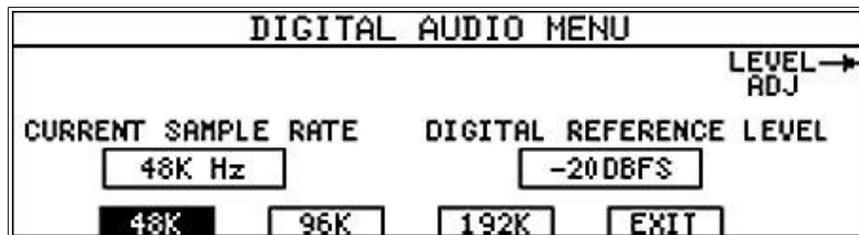


Figure 11. Menu example, Digital Audio Menu

The example above allows you to select the audio sample rate.

There are three sets of menus in the Blue|328.

- System Menus. These generally allow you to change global settings as well as observe certain system information. System Menus are activated using the MENU button on the control panel.
- Select Button Menus. These generally allow you to make fader-specific settings, such as applying audio effects to the signals through a fader. The Select Button Menus are described in the procedures where they are used. Select Button Menus are activated using the SELECT buttons associated with the faders.

- Monitor Mode Menus. These allow you to set the output matrix that feeds the monitor outputs. The Monitor Mode Menus are described in Setting up the Monitor Mode on page 72. Monitor Mode Menus are activated by pressing the MODE button in the Monitor section of the control panel.

## Navigating Views and Menus

### Basic Navigation

The default display is the Main View (see below).

MAIN VIEW				MONITOR:PGM			
1 A 1/2	2 A 3/4	3 A 5/6	4 A 7/8	5 B 1/2	6 B 3/4	7 B 5/6	8 B 7/8
MAIN		ROUTE		METER		FADER	

Figure 12. Main View

Pressing the System Menu button brings up the System Menus, beginning with the first System Menu screen. Pressing it again returns you to the Main View. When not in a System Menu, pressing one of the fader Select buttons places you in the Select Menu.

### Using Soft Buttons and Knobs

The Soft Buttons located below the LCD display correspond to “soft labels” in Views and menus. See below. Use the soft buttons to make selections within a menu, or to navigate to another display.

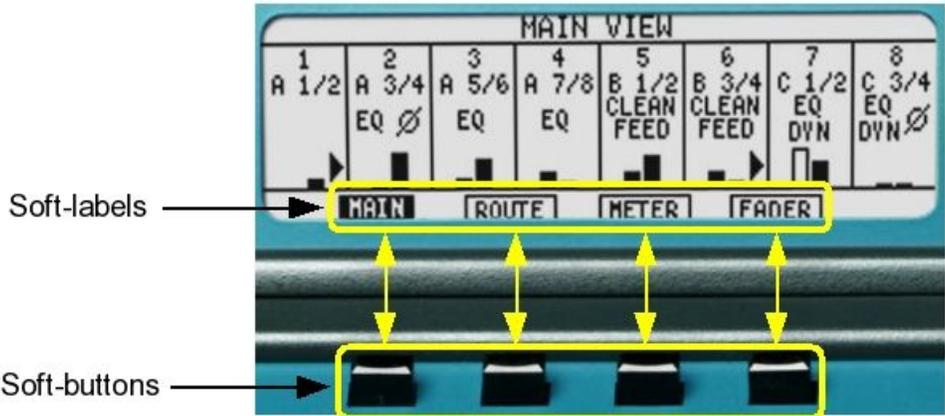


Figure 13. Main View with Soft Buttons

Soft Knobs are used to make adjustments or selections in some menus. See below.

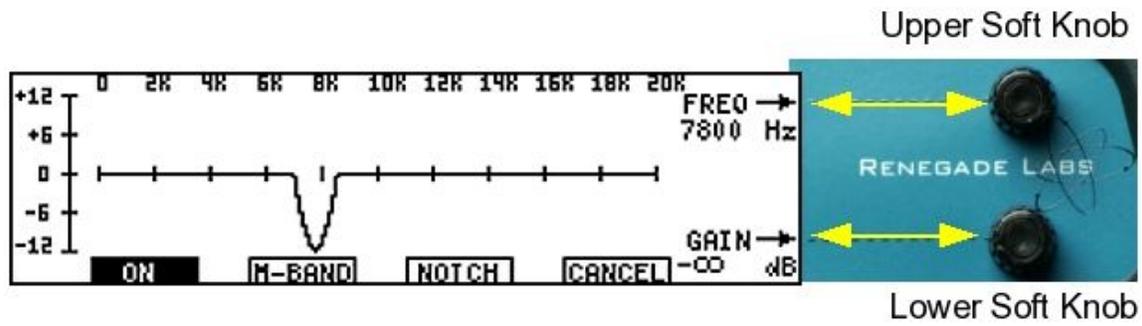


Figure 14. Example Menu with Soft Knobs

In this menu, frequency is adjusted using the Upper Soft Knob, and gain is adjusted using the Lower Soft Knob. The position at the right side of the display, with arrows, indicates that soft knobs are to be used. The vertical position indicates which soft knob to use.

# LCD Views

This section describes the LCD Views on the Blue|328.

## LCD View Tree

The following diagram represents the LCD views on the Blue|328.



Figure 15. LCD Views

## Overview

The LCD Views on the Blue|328 allow you to observe the current status of the entire mixer. No changes to any of the parameters displayed can be performed in any of the Views. Changes can only be made in Menus (Views vs. Menus on page 18).

*Note*

The Main View is the default View for the mixer. If you do not see the Main View, make sure that all Select buttons are switched off. Or if the System Menu is displayed, press the MENU button to turn off the System Menu. The MODE button in the monitor control section could also be active; switch it off if it is on.

MAIN VIEW				MONITOR:PGM			
1 A 1/2	2 A 3/4	3 A 5/6	4 A 7/8	5 B 1/2	6 B 3/4	7 B 5/6	8 B 7/8
MAIN		ROUTE		METER		FADER	

Figure 16. Main View for Blue|328

When the Main View is displayed, these navigation choices appear at the bottom of the screen:

- Main View
- Route View
- Meter View
- Fader View

Press the soft button corresponding to the desired View to display that View.

## Main View

The Main View indicates current status for each of the eight fader strips. Information shown includes the following:

- Input assignment
- Effects status
- Input levels (pre-fader)
- Pan position
- Monitoring Status

Diagrams of the various indicators are shown below.

MAIN VIEW				MONITOR:PGM			
1 A 1/2	2 A 3/4	3 A 5/6	4 A 7/8	5 B 1/2	6 B 3/4	7 B 5/6	8 B 7/8
GAIN		ROUTE		METER		FADER	

Figure 17. Main View for Blue|328

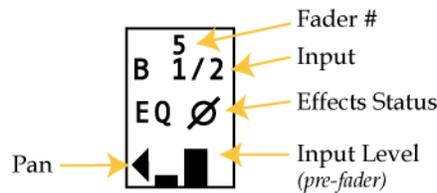


Figure 18. Main View, Fader Detail

### Input Level Indicator

The input level indicator, normally a solid black rectangle, moves up and down with the incoming audio level. The level indicator will invert to an empty rectangle with a black outline if the incoming audio signal is at full level and clipping would occur. This indication is shown below:



Figure 19. Main View, Fader Detail: Input Level Indicator

This level is pre-fader and therefore pre-program bus. This allows you to check whether a source has incoming audio before putting it on the program bus.

**Pan Position Indicator**

The Pan Position indicator on the Main View shows whether the pan is to the left or to the right. Following are examples of various indications.

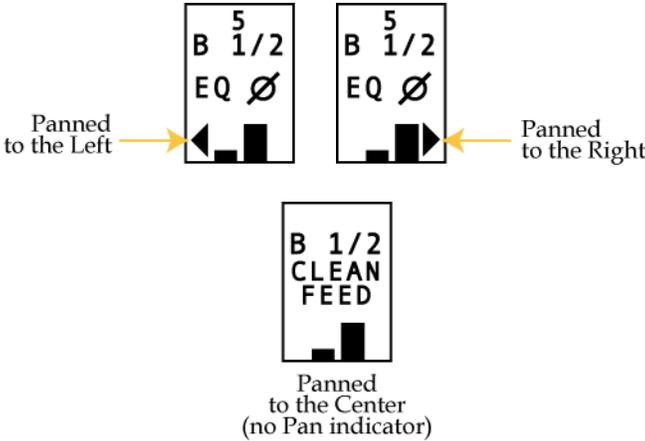


Figure 20. Main View, Pan Indicator Examples

**Note**

When left and right arrow indicators are both on, the physical position of the pan pot does not match the audio position. See “Memory Save/Recall” on page 80 for additional information.

When controls are moved, the audio position “catches up” until it equals and remains with the physical position.

**Clean Feed Indicator**

If Clean Feed is selected on a fader, the effects indicators are replaced with the words CLEAN FEED.

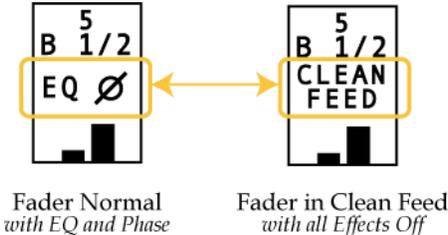


Figure 21. Main View, Clean Feed

Clean Feed mode disables all audio effects and sets the audio level to unity, causing the Unity LED on the fader strip to light. Clean feed is appropriate for dubbing, for example, when you need the level to be unity and want to pass the audio through the mixer untouched. Refer to “Enabling Clean Feed” on page 68 for more information regarding Clean Feed mode.

## Monitoring Status Indicator

The Monitoring Status indicator shows what the mixer is currently monitoring on the monitor and headphone outputs.

MAIN VIEW					MONITOR:PGM		
1 A 1/2	2 A 3/4	3 A 5/6	4 A 7/8	5 B 1/2	6 B 3/4	7 B 5/6	8 B 7/8
MAIN		ROUTE		METER		FADER	

Figure 22. Main View, Monitoring Status Indicator

The Monitoring Status indicator has three possible states:

- **PGM**: Indicates that the Program bus is being monitored.
- **RECORD**: Indicates that the Record Returns are being monitored.
- **SOLO**: Indicates that the Solo bus is being monitored.

### Note

---

Refer to section “Assigning Record Returns” on page 30 for more information regarding Record Returns.

Refer to section “SOLO Button” on page 12 for more information regarding Solo mode.

---



## Meter View

The Meter View for Blue|328 shows the audio levels for the Program outputs.

To access the Meter View, press the METER soft button in any other View.

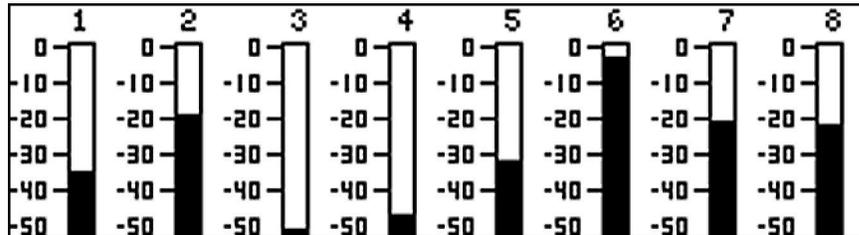


Figure 25. Meter View

### Note

Since the Meter View encompasses the entire LCD screen, the labels for the soft buttons are not visible. Press the left-most soft button to return to the Main View, the second left-most button to select the Route View, or the right-most button to select the Fader Level View.

The meters are peak reading with a 31.25dB/sec decay rate.

### Meter View Loudness Monitoring

With Loudness Monitoring enabled the Meter View changes as shown below.

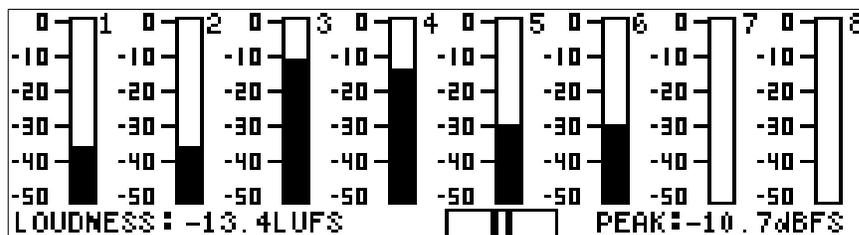


Figure 26. Meter View with Loudness Monitoring

With Loudness Monitoring enabled the Meter View also now shows the measured Loudness level in LUFS (Loudness Units Full Scale) and the Peak Level in dBFS. The METER soft-button allows for control of the Loudness Monitoring with a Pause/Play soft-button:



**Pause Soft-button:** The Pause soft-button indicates that the Loudness Measurement is running and when pressed, pauses the Loudness Measurement



**Play Soft-button:** The Play soft-button indicates that the Loudness Measurement is paused and when pressed, starts the Loudness Measurement running.

**Reset Loudness Monitoring:** To reset the Loudness Monitoring press and hold the Play soft-button for 3 seconds.

*Note*

---

In order for Loudness Monitoring to appear on the Meter View it must first be enabled from the Loudness Menu. Refer to "Loudness Monitoring" on page 47 for more information.

When analyzing the loudness of an audio segment make sure to stop the Loudness Monitoring with the Pause/Play soft-button so that the loudness algorithm can create the proper loudness measurement.

The Loudness Monitoring always follows the signals that are feeding the output meter that you see in the "Meter View". Refer to "Blue|328 Audio Block Diagram" on page 8 for more information.

---

## Fader Level View

The Fader Level View displays both the actual audio level in dB for the faders and monitor knob and it displays the *audio offset*, the fader and pan pot physical positions versus actual audio level positions recalled from memory during a memory recall (refer to “Memory Save/Recall” on page 80).

To access the Fader Level View, press the FADER soft button on the Main, Route, or Meter View.

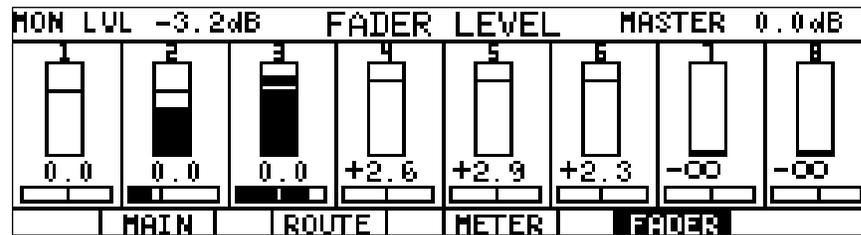


Figure 27. Fader Level View

The Fader Level View shows all eight faders and pan pots. Under each fader vertical bar graph the fader's audio level is shown in dB. The Monitor level and Master Fader level are shown on the top portion of the view. The bar graph indicators work as follows:

- The single line in the bar graphs represents the actual audio level and pan positions. Bar graphs with only a single line indicate that the fader or pan pot physical position matches the audio position. Fader channel 1 shows this.
- Vertical bar graphs with a shaded area ending below the single line indicate a fader level physical position lower than the audio position (line indicator). Horizontal bar graphs with a shaded area ending to the left of the single line indicate a pan pot position to the left of the audio position. Fader channel 2 shows these.
- Vertical bar graphs with a shaded area ending above the single line indicate a fader level physical position higher than the audio position (line indicator). Horizontal bar graphs with a shaded area ending to the right of the single line indicate a pan pot position to the right of the audio position. Fader channel 3 shows these.

### Note

Audio offset is also indicated by the fader unity LEDs on the fader strips and the pan pot indicators in the Main View. See “Main View” on page 22 and “Fader Strips” on page 12.

When controls are moved, the audio position “catches up” until it equals and remains with the physical position.

While holding the FADER soft-button down it is possible to move the physical position of the faders and pan pots without changing the audio. This allows the physical position of the faders and pan pots to be re-synchronized with the audio levels after a register recall.

## System Adjustments and Information Display

Overall system adjustments are made using the System Menus.

### System Menu Tree

The following diagram represents the System Menu Tree on the Blue|328.

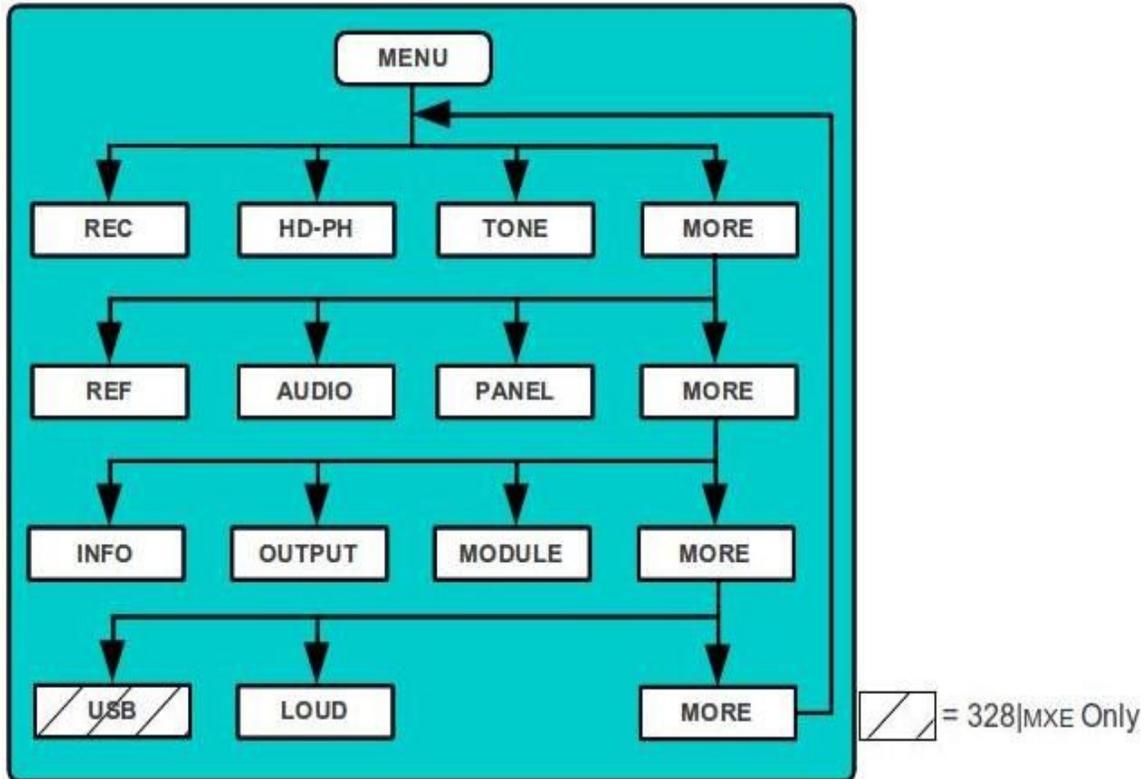


Figure 28. System Menu Tree

### Accessing the System Menus

To access the System Menus, press the MENU button on the control panel.

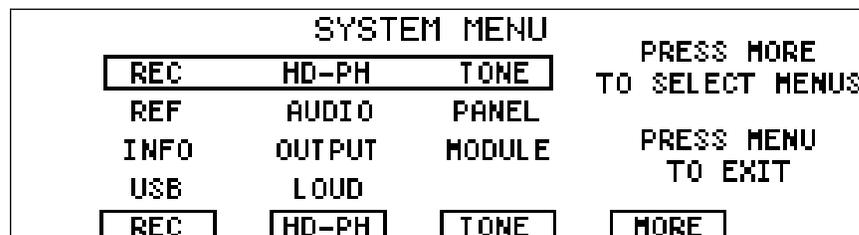


Figure 29. System Menu, Initial Screen

To access the next screen, which provides additional navigation via the soft labels at the bottom of the display, press the MORE soft button. The current selection of menus are highlighted with the rectangle.

As a general rule, while in the System Menu you can exit the menu and save your changes by simply pressing the control panel MENU button again.

## Assigning Record Returns

Record returns are outputs of a recordable device after the results of mixing have been recorded. These can be monitored for quality assurance.

The REC Menu, in conjunction with the Multi-function Keypad, is used to select which inputs feed the record returns. Up to four record return input pairs (8 channels) may be designated.

### Note

The record returns are set at unity gain with no audio effects (audio delay, equalization, dynamics, etc.). The output routing follows the inputs (input pair 1 feeds monitor outputs 1 & 2, input pair 2 feeds monitor outputs 3 & 4, etc.).

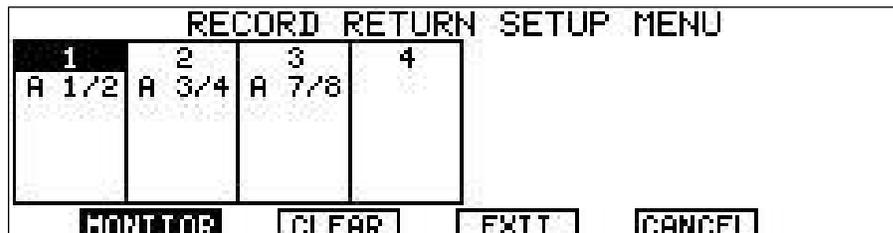


Figure 30. REC Menu for Record Returns

Note in the menu above that Record Return 1 is highlighted; this indicates that the select button for that pair is on and is in the process of assigning inputs.

To assign record returns:

Select buttons 1-4 and the Multi-function Keypad are used for assigning inputs to record return channels. The keypad is used to assign inputs; its buttons light up to indicate which inputs are available (which depends on the input modules that are installed in the mixer).

1. Make sure the SOLO button is off.
2. Press the MENU button to bring up the System Menu.
3. Press REC to bring up the REC Menu.
4. Select a record return channel using Select buttons 1 through 4.
5. Press the MONITOR soft button to feed the Monitor matrix with the record returns. When MONITOR is enabled the MONITOR button will appear in reversed video.
6. Use the Multi-function Keypad to select two inputs for the record return channel.
7. Press the EXIT soft button to exit the REC Menu.

- OR,
- Press the CLEAR soft button to clear input assignments to a Record Machine input pair.
  - Press the CANCEL soft button to cancel any setting changes.
- View the REC Menu to confirm the settings.

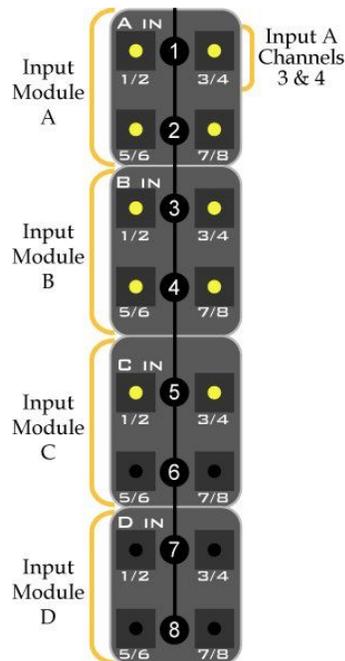


Figure 31. REC Menu Keypad

## Adjusting the Headphone Output

The Headphone Menu allows you to choose which program outputs are monitored at the headphone output (output routing). This menu also allows you to adjust the level of the headphone output.

### Selecting Headphone Output Routing

You can choose what to monitor with the headphones. Selection is done using the Headphone Menu in conjunction with the Multi-function Keypad. The Multi-function Keypad is used to make the routing selections.

On the left side of the Headphone Menu, the Matrix represents routing of program buses to the headphones. In the example below, the headphones are monitoring Program buses 1 and 2 in a mono configuration.

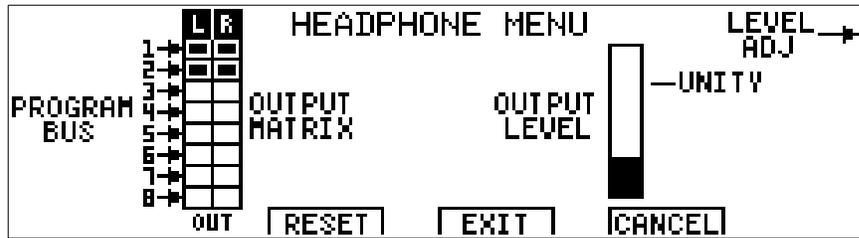


Figure 32. Headphone Menu, Default Routing

Note that the layout of the Multi-function Keypad corresponds to the Matrix diagram in the Headphone Menu. The lighted pushbuttons show current selections just as the darkened portions of the Matrix do. In the figure, the lighted button pattern indicates the same default selections as shown in the example Headphone Menu.

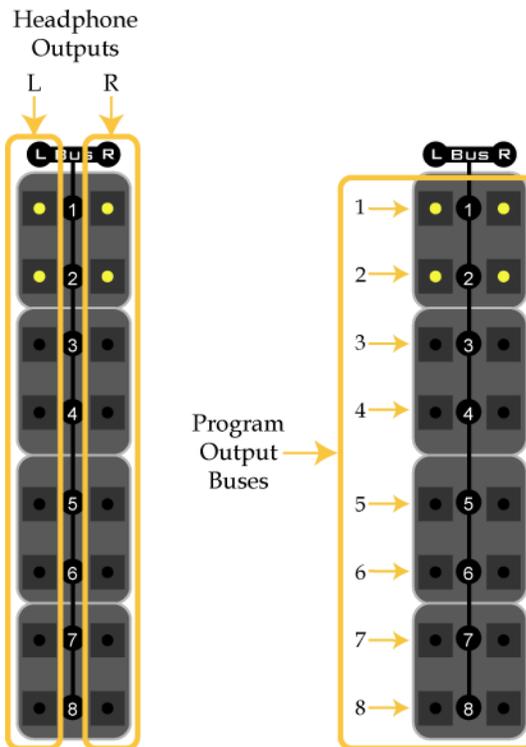


Figure 33. Multi-function Keypad in Headphone Output Routing

To change headphone output routing:

1. Press the MENU button to call up the System Menu.
2. Press the HD-PH soft button to display the Headphone Menu.
3. Use the Multi-function Keypad to select which program outputs you wish to monitor on the left and/or right channel of the headphone output.  
The menu updates as you change the headphone output routing.
4. Press the EXIT soft button exit the Headphone Menu and return to the System Menu.

OR

Press the CANCEL soft button to abort the operation. The headphone output matrix is not changed and returns to the previous settings. Press the RESET soft button to reset the crosspoints back to the default 2-channel configuration.

### Adjusting the Headphone Output Level

To adjust the headphone output level:

1. Press the MENU button to display the System Menu.
2. Press the HD-PH soft button to display the Headphone Menu.
3. Use the upper Soft Knob to set the desired level for the headphone output. The Output Level display will change as you do so. Notice the Unity marker, which can be used as a guide when making the adjustment.
4. Press the EXIT soft button to exit the Headphone Menu and return to the System Menu.

### Enable/Disable TONE

The TONE soft button will enable or disable TONE on the Program bus. When TONE is enabled the TONE button will appear in reverse video.

#### Note

---

When TONE is enabled any selection made to the Program bus will automatically disable TONE.

---

1. Press the MENU button to bring up the System Menu.
2. Press TONE to enable or disable tone.

### Selecting Reference Sync

Reference sync is the input to which the mixer is locked. The mixer can lock either to the AES audio input or the video input.

The mixer can lock to the following AES input rates: 48kHz, 96kHz, and 192kHz.

The mixer can lock to the following video formats:

Standard Definition (SD):

- NTSC (29.97 fps)
- PAL (25 fps)

High Definition (HD):

- 60Hz
- 59.94Hz 1080i
- 59.94Hz 720p
- 48Hz
- 48/1.001Hz
- 25 fps
- 24 fps

- 24/1.001Hz

Reference sync is selected using the Sync Reference Menu:

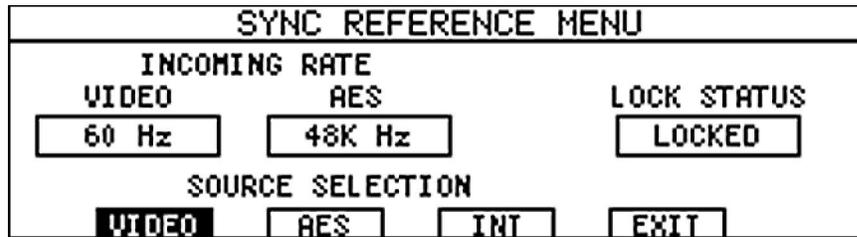


Figure 34. Sync Reference Menu

To select a reference sync signal:

1. Press the MENU button to bring up the System Menu.
2. Press the MORE button to bring up the second level of System Menu.
3. Press the REF button to bring up the SYNC REFERENCE Menu.
4. Press the corresponding soft button for the desired sync source.
5. The selected source will highlight in the display, and the incoming rate will be displayed. Lock Status indicates whether the mixer is able to lock to the selected sync source.
6. Press EXIT to exit the Sync Reference Menu and return to the System Menu.

#### Note

The preferred sync reference source is AES.

## Making Digital Audio Adjustments

The Digital Audio Menu allows you to adjust the digital reference level (-20dBFS, -18dBFS, -16dBFS, -14dBFS or -12dBFS) and the current sample rate (48kHz, 96kHz, or 192kHz).

#### Note

The default digital reference level is -20dBFS.

### Digital Reference Level Adjustment

When the digital reference level is adjusted, both the meters (Meter View) and the tone generator will follow the new settings.



Figure 35. Digital Audio Menu, Reference Adjust

To adjust the digital reference level:

1. Press the MENU button to bring up the System Menu.
2. Press MORE to display the second level of the System Menu.
3. Press the AUDIO button to bring up the DIGITAL AUDIO Menu.
4. Use the Upper Soft Knob to adjust the digital reference level. The level can be adjusted from -20dBFS to -12dBFS in 2dB steps.  
The Digital Reference Level box in the menu will change as you select different levels.
5. Press EXIT to accept the changes and return to the System Menu.

### Sample Rate Requirements

The following audio effects require the indicated sample rate in order to function.

- EQ= 48kHz or 96kHz
- Dynamics=48kHz

### Sample Rate Adjustment

The Digital Audio Menu is used to select an internal sample rate of 48kHz, 96kHz, or 192kHz.

#### Notes

---

If a Sample Rate Converter (SRC) AES Input Module is installed, the mixer will automatically up-sample or down-sample inputs with 32kHz-192kHz sample rates to match the mixer's internal sample rate.

If a non-SRC AES Input Module is installed, the input must match the mixer's internal sample rate.

---

To change the internal sample rate:

1. Press the soft button corresponding to the desired sample rate.  
The selected sample rate is displayed in the Current Sample Rate box of the Digital Audio Menu.
2. Press EXIT to accept the changes and return to the System Menu.

## Adjusting Panel LED Intensity and Panel Modes

The Panel Menu is used to adjust the intensity of the LEDs in the buttons on the control panel and for changing the modes for the Pan Pots, Monitor Level, and Master Fader controls.

#### Note

---

The LEDs cannot be turned completely off.

---

To adjust the intensity of the panel LEDs:

1. Press the MENU button to bring up the System Menu.
2. Press MORE twice to display the third level of the System Menu.
3. Press PANEL to bring up the PANEL ADJUST Menu.
4. Rotate the upper soft knob to adjust panel LED intensity.

Clockwise rotation increases intensity, and counterclockwise rotation decreases intensity. A bar graph on the Panel Adjust Menu represents the current level of LED intensity.

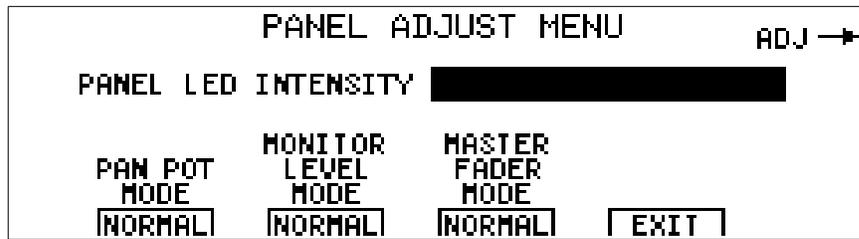


Figure 36. Panel Adjust Menu

5. Press EXIT to accept the changes and return to the System Menu.

To change the Pan, Monitor, and Master Fader control modes:

1. While in the PANEL ADJUST Menu press the soft-button under the mode.
2. The mode will toggle between NORMAL for normal operations or UNITY for unity mode. In unity mode the control (Pan Pot, Monitor Level, or Master Fader) is always set to unity gain. A warning message will appear on the LCD display indicating the control is in UNITY mode when an attempt is made to change the control.
3. Press EXIT to accept the changes and return to the System Menu.

## Displaying System Information

The Info Menu displays various information about the system, such as software version, operating temperature and the mixer's IP address.

To view system information:

1. Press the MENU button to bring up the System Menu.
2. Press MORE twice to display the third level of the System Menu.
3. Press INFO to bring up the System Information Menu.

To return to the System Menu, press EXIT.

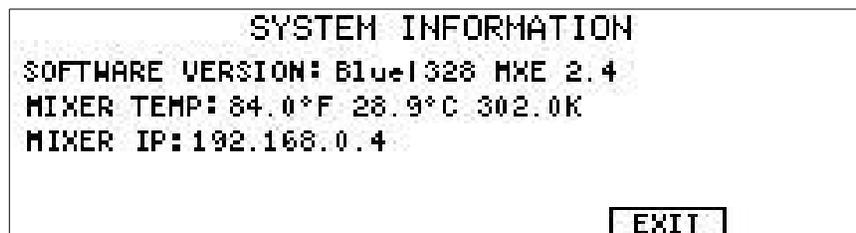


Figure 37. System Information Display

## Configuring Output Functionality

The Output Function Menu is used to route the internal audio buses of the mixer to the available physical outputs. The default routing is shown in Figure 40, with the Program bus routed to the AES digital outputs and the optional output module, and the monitor bus routed to the analog outputs.

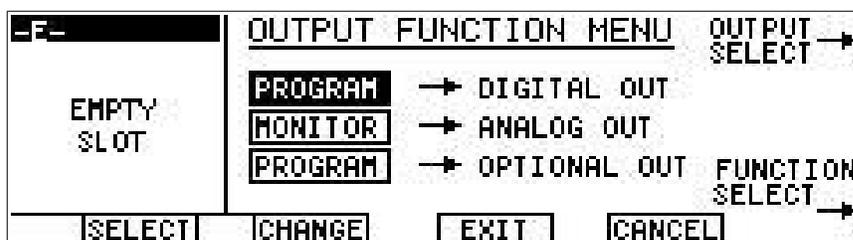


Figure 38. Output Function Menu, no optional output installed

All three mixer audio buses--PROGRAM, MONITOR and METER--may be routed in any combination to the three physical outputs: DIGITAL OUT, ANALOG OUT and the OPTIONAL OUT module. This flexibility is particularly useful if, for example, the optional output card is used for driving an external meter bridge. Refer to "Appendix A: Installation Information" on page 91 for information regarding the Blue|328 physical outputs.

The Output Function Menu is divided into two sections. The left side indicates which Optional Output module, if any, is installed in the Optional Output slot (Slot 'E'.) The right side of the menu is used to choose the audio bus to output routing.

#### Note

The soft buttons "SELECT" and "CHANGE" only function with an optional output module installed that have configuration settings possible.

#### To configure the Output Functionality:

1. Press the MENU button to call up the System Menu.
2. Press MORE twice to display the third level of the System Menu.
3. Press the OUTPUT soft button to display the Output Function Menu.
4. Use the upper soft-knob, OUTPUT SELECT, to select the outputs:
  - **DIGITAL OUT** are the standard digital outputs. On some systems these outputs are designated **PGM AES OUT**.
  - **ANALOG OUT** are the standard analog outputs. On some systems these outputs are designated **ANALOG MONITOR OUT**.
  - **OPTIONAL OUT** can be configured as either analog or digital outputs.
5. Use the lower soft knob, FUNCTION SELECT, to select the function:
  - **PROGRAM** feeds the output with the program bus.
  - **MONITOR** feeds the output with the monitor matrix output.
  - **METER** feeds the output with the meter output.

#### Note

The METER output follows the inputs to the monitor matrix.

6. Press the EXIT soft button to exit the Output Function Menu.  
OR

Press the CANCEL soft button to abort the operation.

**Note**

Output function settings are not saved in the standard memory registers however, they are saved in non-volatile memory and will survive power cycles.

**Optional output module indication:**

The Output Function Menu will indicate if a digital AES, analog, or SD/HD SDI embedder optional output module is installed in the mixer.

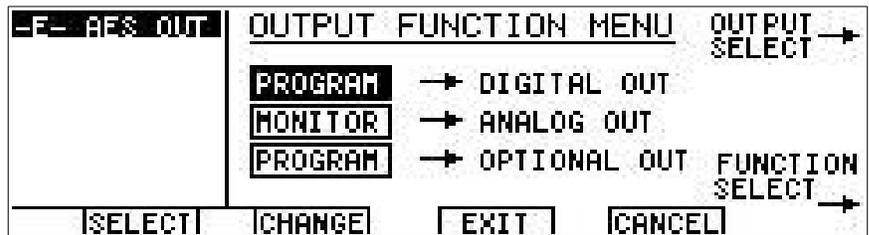


Figure 39. Output Function Menu, AES Output installed

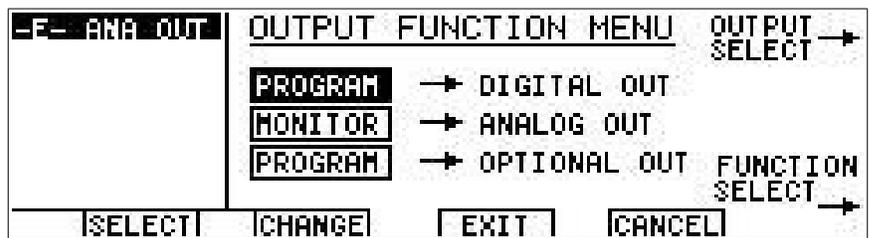


Figure 40. Output Function Menu, Analog Output installed

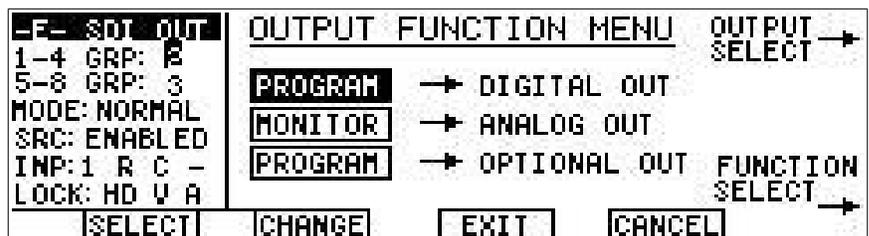


Figure 41. Output Function Menu, SDI Output installed

**Optional SD/HD SDI Embedder output module configuration:**

The SD/HD SDI (Serial Digital Interface) Embedder output module is an 8 channel output module that will embed into either SD (Standard Definition) or HD (High Definition) signals. Switching between the SD and HD format is handled automatically by the SDI Embedder module with no intervention required by the user.

*Note*

The SD/HD SDI Embedder is a pass-through audio embedder, and requires an external SD/HD SDI video input signal to function.

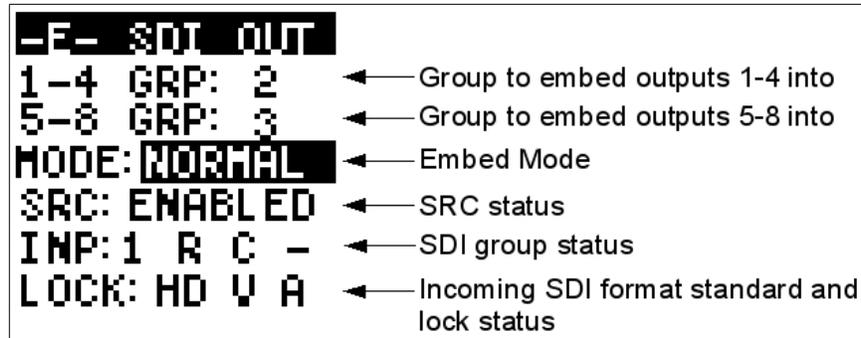


Figure 42. SDI Output Module Detail

### Embedding Audio into SDI Output Groups

An SDI ancillary audio signal consists of up to 16 audio channels, organized as four groups each containing four audio channels. The SD/HD SDI Embedder module can embed audio into any two of these four groups (8 channels total). The Optional Output bus from the mixer is split in half by the SD/HD SDI Embedder, with bus channels 1-4 routed to one SDI audio group and bus channels 5-8 to the other.

To embed audio into SDI audio groups:

1. Enter into the Output Function Menu as previously described.
2. Press the SELECT soft button to toggle to the desired outputs. The current selection will be displayed in reverse video.
3. Press the CHANGE soft button to toggle through groups 1 – 4 or select “-” to disable the embedder on the selected outputs.

*Note*

When the “-” is selected for **GRP**: the incoming group will be preserved in SD mode and may or may not be preserved in HD mode depending upon the embedding mode.

Setting the same group number for 1-4 and 5-8 is a non valid setting. The result will be silence (all zeros) being sent on that group in the output.

4. Press the EXIT soft button to exit the Output Function Menu.  
OR  
Press the CANCEL soft button to abort the operation.

*Note*

SD/HD SDI Embedder module settings are not saved in the standard memory registers however, they are saved in non-volatile memory and will survive power cycles.

### Adjusting SDI HD Embed Mode

The HD Embed Mode control is used to switch between NORMAL and REPLACE modes for the selected groups to be embedded into. For both NORMAL and REPLACE modes the SD/HD SDI Embedder module will automatically switch between replace and cascade operation on the selected group(s). Replace is used when the selected audio group is already present in the SDI signal at which time it is replaced with a new audio group. Cascade is used when the selected audio group is not present at which time a new audio group is cascaded into the selected group and all other audio groups are preserved and passed through.

- **NORMAL** mode: When replacing an audio group only the selected group(s) are replaced and all other groups are always preserved and passed through.
- **REPLACE** mode: When replacing any audio group all other existing audio groups will be strip out.

#### Note

---

When embedding audio in SD video, the operations is the same as HD NORMAL mode in that when replacing an audio group(s) only the selected group(s) are replaced and all other groups are always preserved and passed through.

---

To adjust the SDI output Embed Mode:

1. Enter into the Output Function Menu as previously described.
2. Press the SELECT soft button to toggle to the MODE. The NORMAL or REPLACE will be highlighted to indicate that it is selected.
3. Press the CHANGE soft button to change modes.
4. Press the EXIT soft button to exit the Output Function Menu.

OR

Press the CANCEL soft button to abort the operation.

### Adjusting SDI Output SRC Controls

The Sample Rate Converter (SRC) control is used to bypass or enable the SRC on the SDI output module.

- **BYPASS** indicates that the SRC is not in the audio path. This is the default setting. Bypass mode is used when the Blue|328 is running at a 48kHz sample rate and locked to the same house sync as the incoming SDI signal.
- **ENABLED** indicates that the SRC is in the audio path. Any mismatch or slip between the embedded audio sample rate and the Blue|328 master clock is compensated for with the SRC. This mode is used when the Blue|328 is running at the 96kHz or 192kKHz sample rate or when the input video and the Blue|328 are not locked to the same house sync.

To adjust the SDI output module SRC:

1. Enter into the Output Function Menu as previously described.
2. Press the SELECT soft button to toggle to the SRC. The BYPASS or ENABLE will be highlighted to indicate that it is selected.

3. Press the CHANGE soft button to toggle between BYPASS and ENABLE.
4. Press the EXIT soft button to exit the Output Function Menu.  
OR  
Press the CANCEL soft button to abort the operation.

### SDI Output Module Status

The SDI output module includes two status indicators to display information regarding the incoming SDI signal:

- **INP:** There are 4 positions, each corresponding to the 4 groups in the SDI signal, to the right of INP which indicate the following:

Symbol	Meaning
1, 2, 3, or 4	Indicates that an embedded group is present in that position and is being passed through to the output.
-	No group is present in that position.
R	Embedder is replacing that group.
C	Embedder is cascading in a new group in that position.
X	The existing group in that position has been stripped out by the embedder.

**Table 1.SDI Output Group Indication**

- **LOCK:** Indicates which SDI standard is present, SD or HD, and the lock status of the two Phase Locked Loops (PLL) on the module: one for video clock (V) and one for the audio clock (A). Normally, both A and V should be displayed indicating that the module has locked both PLLs. If one or both are missing, check your connection.

## View and Adjusting Module Parameters

The Module menu displays module status and allows for adjusting module parameters.

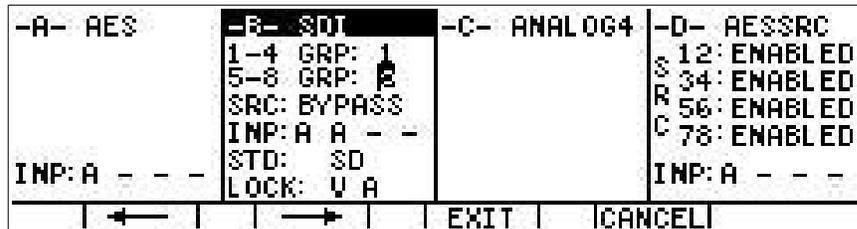


Figure 43. Module Menu

The Module menu is divided into four areas, one for each module slot in the Blue|328. Along the top, the menu shows the type of module currently installed. Each type of module has a personality. Some modules show status such as audio. Other modules allow control, for example Sample Rate Converter (SRC) bypass.

To access the Module menu:

1. Press the MENU button to call up the System Menu.
  2. Press MORE twice to display the third level of the System Menu.
  3. Press the MODULE soft button to display the Output Function Menu.
  4. Use the two arrow soft buttons to change which module is selected. The module type will be highlighted to indicate that it is selected. In the above figure the B module is highlighted.
  5. Press the EXIT soft button to exit the Module Menu.
- OR
- Press the CANCEL soft button to abort the operation.

### AES Input Module

The AES input module is an 8-channel module that accepts 4 AES input pairs.

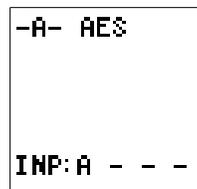


Figure 44. AES Module Detail

There are 4 positions in the display to the right of INP: for a letter or symbol indicating what the nature of the input signal is for each pair. Below is a table explaining each possible symbol:

Symbol	Meaning
A	Normal AES signal present in professional mode.
-	No signal present
D	Non-audio data present
E	Errors detected in the signal
N	Signal present with the validity bit cleared.
L	Signal present that is slipping with respect to the Blue 328 master clock
P	Signal with emphasis
S	Signal that is all zeros (Digital Silence)
C	Signal present in consumer mode.

**Table 2. AES Module Symbols**

*Note*

The AES Module has no adjustment controls.

**Analog4 Input Module**

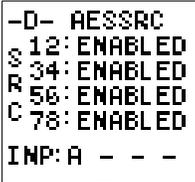
The Analog4 is a four channel line level Analog input module. The module has no status or controls.



*Figure 45. Analog4 Module Detail*

**AES-SRC Input Module**

The AES-SRC input module is an 8-channel module with sample rate conversion that accepts 4 AES input pairs.



*Figure 46. AES-SRC Module Detail*

There are 4 positions in the display to the right of INP: for a letter or symbol indicating what the nature of the input signal is for each pair. Below is a table explaining each possible symbol:

Symbol	Meaning
A	Normal AES signal present in professional mode.
-	No signal present
D	Non-audio data present
E	Errors detected in the signal
N	Signal present with the validity bit cleared.
P	Signal with emphasis
S	Signal that is all zeros (Digital Silence)
C	Signal present in consumer mode.

**Table 3. AES-SRC Module Symbols**

### Adjusting the AES-SRC Input Module

There are 4 controls, SRC:12 34 56 78, to enable or bypass the Sample Rate Converters (SRC) on this module for each audio pair independently.

- ENABLED indicates that the SRC is in the audio path. Any mismatch or slip between the input signal clock frequency and the Blue|328 master clock is compensated for in the SRC. This is the default mode.
- BYPASS indicates that the SRC is not in the audio path. In this mode, the input signal must be locked to the same house sync that the mixer is and they must be running at the same sample rate. Bypass mode is used when a clean pass through of this signal is required. Examples are: when the audio must be cloned or when the signal is non audio such as multi channel compressed audio data stream.

The adjust the AES-SRC Input Module:

- 1.** Press the MENU button to call up the System Menu.
  - 2.** Press MORE twice to display the third level of the System Menu.
  - 3.** Press the MODULE soft button to display the Module Menu.
  - 4.** Use the arrow soft buttons to select the AES-SRC input module. The module name will be highlighted to indicate that it is selected.
  - 5.** Use the upper soft knob to select SRC:12 (channels 1/2), 34 (channels 3/4), 56 (channels 5/6), or 78 (channels 7/8).
  - 6.** Use the lower soft knob to switch between ENABLED or BYPASS.
  - 7.** Press the EXIT soft button to exit the Module Menu.
- OR
- Press the CANCEL soft button to abort the operation.

**Note**

Module menu settings are not saved in the standard memory registers however, they are saved in non-volatile memory and will survive power cycles.

**SD/HD SDI Input Module**

The SD/HD SDI (Serial Digital Interface) input module is an 8 channel input module that accepts either Standard Definition (SD) or High Definition (HD) signals. The module automatically distinguishes between SD and HD signal formats.

```

-B- SDI
1-4 GRP: 1
5-8 GRP: 2
SRC: BYPASS
IMP: A A - -
STD: SD
LOCK: V A

```

*Figure 47. SDI Module Detail*

There are 4 positions in the display to the right of INP: for a letter or symbol indicating what the nature of the input signal is for each pair. Below is a table explaining each possible symbol:

Symbol	Meaning
A	Normal Audio signal present.
D	Non-audio present (Data).
-	No signal present

**Table 4. SDI Module Symbols**

- STD: This indicates which SDI standard is present.
- LOCK: There are two Phase Locked Loops (PLL) on the module: one for video clock (V) and one for the audio clock (A). Normally, both A and V should be displayed indicating that the module has locked both PLLs. If one or both are missing, check your connection.

**Selecting SDI Audio Groups**

The incoming SDI signal has embedded in it 4 groups of 4 audio channels each for a total of 16 audio channels. The SDI input module can route any 2 (8 channels total) of the incoming 4 groups to either the SDI module's outputs 1 – 4 or 5 – 8.

To select SDI audio groups:

1. Press the MENU button to call up the System Menu.
2. Press MORE twice to display the third level of the System Menu.
3. Press the MODULE soft button to display the Module Menu.
4. Use the arrow soft buttons to select the SDI input module. The module name will be highlighted to indicate that it is selected.

5. Use the upper soft knob to select 1 – 4 GRP: or 5 – 8 GRP: The GRP number will be highlighted to indicate that it is selected.
6. Use the lower soft knob to scroll through the 4 available groups.

---

*Note*

It is possible to set the SDI module outputs 1 – 4 and 5 – 8 to the same group number. However, silence will be delivered to the module's outputs 5 – 8 instead of the selected audio. To get audio on module outputs 5 – 8, the 5 – 8 GRP control must be set to a different group than the 1 – 4 GRP control.

---

7. Press the EXIT soft button to exit the Module Menu.  
OR  
Press the CANCEL soft button to abort the operation.

---

*Note*

Module menu settings are not saved in the standard memory registers however, they are saved in non-volatile memory and will survive power cycles.

---

### Adjusting SDI SRC Controls

The Sample Rate Converter (SRC) control is used to bypass or enable the SRC on the SDI input module.

- BYPASS indicates that the SRC is not in the audio path. This is the default setting. Bypass mode is used when the Blue|328 is running at a 48kHz sample rate and locked to the same house sync as the incoming SDI signal.
- ENABLED indicates that the SRC is in the audio path. Any mismatch or slip between the embedded audio sample rate and the Blue|328 master clock is compensated for with the SRC. This mode is used when the Blue|328 is running at the 96kHz or 192kHz sample rate or when the input video and the Blue|328 are not locked to the same house sync.

To adjust the SDI input module SRC:

1. Press the MENU button to call up the System Menu.
2. Press MORE twice to display the third level of the System Menu.
3. Press the MODULE soft button to display the Module Menu.
4. Use the arrow soft buttons to select the SDI input module. The module name will be highlighted to indicate that it is selected.
5. Use the upper soft knob to select SRC: The BYPASS or ENABLE will be highlighted to indicate that it is selected.
6. Use the lower soft knob to switch between ENABLED or BYPASS.
7. Press the EXIT soft button to exit the Module Menu.  
OR  
Press the CANCEL soft button to abort the operation.

Note

Module menu settings are not saved in the standard memory registers however, they are saved in non-volatile memory and will survive power cycles.

Analog6 Input Module

The Analog6 is a four channel line level analog input module with two additional microphone inputs. The module has no status or controls.



Figure 48. Analog6 Module Detail

Loudness Monitoring

The Blue|328 includes the ability to monitor the loudness level of the audio using using ITU-R BS.1770-2 gated algorithm. The LOUD menu allows the user to specify what channels are included in the loudness measurements and enables/disables the Loudness Monitoring.

Note

When Loudness Monitoring is turned on in the LOUD menu the Meter View will also show the Loudness and Peak Level. Refer to "Meter View Loudness Monitoring" on page 26 for more information.

The Loudness Monitoring always follows the signals that are feeding the output meter that you see in the "Meter View". Refer to "Blue|328 Audio Block Diagram" on page 8 for more information.

Loudness Monitoring feature only works with the mixer at a 48kHz sample rate.

To access the Loudness Menu:

1. Press the MENU button to call up the System Menu.
2. Press MORE 3 times to display the fourth level of the System Menu.
3. Press the LOUD soft-button to display the Loudness Menu.

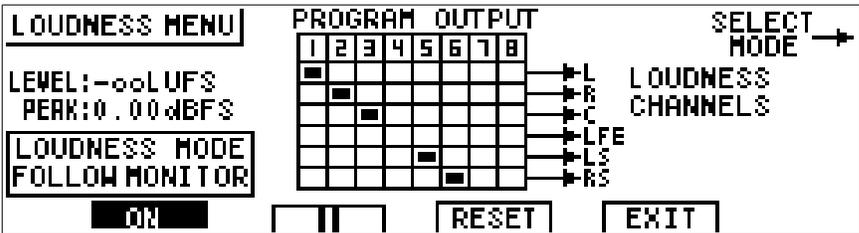


Figure 49. Loudness Menu

The Loudness Menu, when enabled, will display the loudness level in LUFS (Loudness Units Full Scale) and Peak Level in dBFS. The Loudness Menu controls are:



- **ON:** The ON soft-button toggles the Loudness Monitoring on/off. When Loudness is on, the soft-button is displayed in reversed video.
- **Pause/Play:** The Pause/Play soft-button allows the Loudness Monitoring to be stopped and started as needed. The Pause is shown when the Loudness Monitoring is running. The Play is shown when the Loudness Monitoring is paused.

*Note*

When analyzing the loudness of an audio segment make sure to stop the Loudness Monitoring with the Pause/Play soft-button so that the loudness algorithm can finalize the loudness measurement.

- **RESET:** The Reset soft-button resets the Loudness and Peak readings back to infinity.
- **EXIT:** Press the Exit soft-button to exit the Loudness Menu.
- **SELECT MODE:** The Select Mode soft-button allows the Loudness Monitoring to either follow the current Monitor Mode or allows for custom setups with Manual Mode.

**Loudness Menu Manual Mode**

The Loudness Menu allows custom loudness setups to be created using the Manual Mode. Turning the Select Mode soft-knob will toggle between “FOLLOW MONITOR” and “MANUAL”. In Manual Mode the Loudness Menu changes as follows:

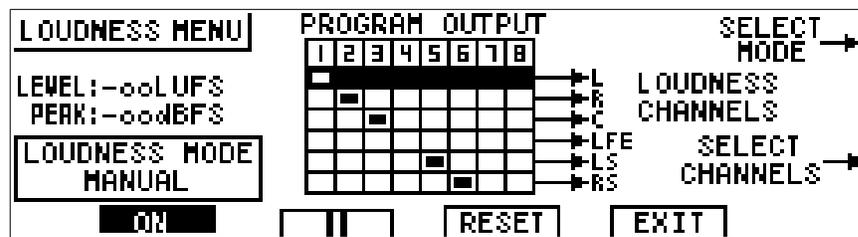


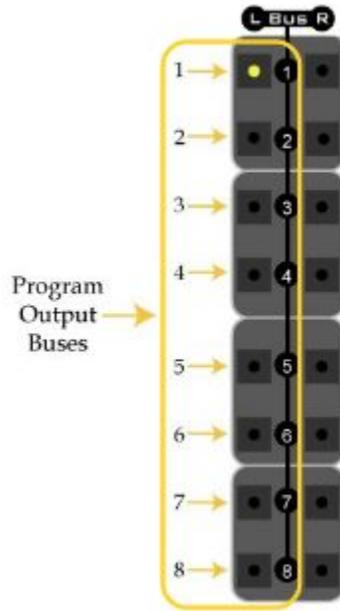
Figure 50. Loudness Menu, Manual Mode

In Manual Mode the lower soft-knob is used to select the loudness channels. The selected channel is shown in reversed video. The selected channel can be feed from any of the Program Outputs.

*Note*

Only a single Program output can feed a loudness channel.

The keypad is used to select which Program Output feeds the selected loudness channel as shown:



*Figure 51. Keypad, Loudness Menu Channel Selection*

The Loudness Menu keypad uses the “L” side only for making selections of Program Output Buses. Only a single Program output selection is permitted per Loudness channel.

In the above example the “L” loudness channel is selected and Program Output 1 is currently selected. The Program Output 1 lamp is on in the keypad to indicate it is selected. Any of the Program Outputs can be selected from the keypad to feed the loudness channel.

Use the Select Channels soft-knob in conjunction with the keypad to create a custom loudness setup.

Press the EXIT soft-button or the MENU button to exit the Loudness Menu.

---

## Making Fader Assignments

This section describes the steps involved in assigning a stereo input pair to a fader. Remember, all input faders on the mixer are stereo, but you can assign just one input channel to any fader, if need be.

### *Note*

---

This operation is different depending on whether the selected fader already has inputs assigned. If a fader already has an input assigned to it, the Route Menu is displayed first and you must press ASSIGN to go to the Fader Assignment Menu.

---

## Making Fader Input Assignments

In the example used in these instructions, input slots A and B each have 8-channel input modules, slot C has a 4-channel input module, and slot D has no input module installed.

When assigning inputs to a fader, you can choose to preview the inputs to locate the proper input before making the assignment. See the instructions.

### *Note*

---

Only one fader can be assigned at a time. If you have selected a fader for input assignment and then select a different fader, the original fader is deselected.

If you deselect the Select button during the assignment operation (without selecting an input), the assignment operation is aborted.

Faders can re-use inputs. In other words, two faders can use the same input channels.

---

### Assigning inputs to a fader

This procedure describes how to assign a stereo input pair to a fader.

- 1.** Press the Select button for the desired fader. The Select button's LED lights up.

### *Note*

---

Always make sure the SOLO button is turned off when using the Select buttons for Fader Assignments.

---



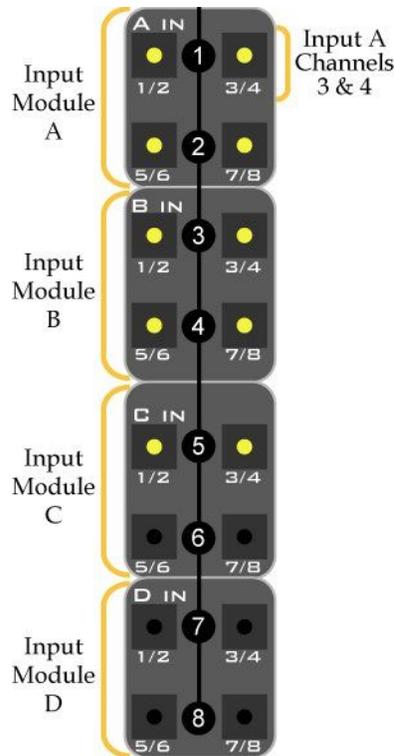
Figure 52. Fader Select Buttons

2. If the selected fader already has an input assigned to it, press ASSIGN to go to the Fader Assignment Menu. If the selected fader currently has no input assigned to it, the Fader Assignment Menu automatically appears.

FADER ASSIGNMENT							
1	2	3	4	5	6	7	8
A 1/2	A 3/4	A 5/6	A 7/8	B 1/2	B 3/4	C 1/2	C 3/4
	EQ	EQ	EQ	CLEAN FEED	CLEAN FEED	EQ DYN	EQ DYN
█	█	█	█	█	█	█	█
TONE		PW		CLEAR		CANCEL	

Figure 53. Fader Assignment Menu

3. The selected fader highlights on the display. In the example above, fader #1 is selected. The Multi-function Keypad lights up, indicating available inputs.



*Figure 54. Multi-function Keypad for Fader Input Assignment*

Note that there are four areas in the Multi-function Keypad labeled “A In”, “B In”, “C In” and “D In.” These correspond to the four input card slots on the back of the mixer. Each area has four buttons, which correspond to the four possible input pairs. The number of LEDs that light up for an input card depend upon the type of card that is installed.

If an input module is not installed, the associated LEDs for those channel pairs will not light up.

4. You can now select an input using the Multi-function Keypad or choose TONE as the assigned source.

#### Note

---

If you wish to preview the inputs to locate a particular source, press PVW. This allows you to step through several sources, previewing them without exiting the fader assignment process.

---

5. Using the Multi-function Keypad as shown above, select the input channel pair you want to assign to the selected fader.
  - Your choice is immediately assigned to the selected fader and the fader assign process is completed, unless you selected Preview in the previous step.
  - If you choose to Preview your input selection, deselect the select button to end the input assignment process.

The display changes to indicate your selection. Refer above to Figure 45 which shows Fader 1 with Input A, channels 1 and 2 assigned to it.

**Clearing an input assigned to a fader**

1. Press the Select button for the desired fader.
2. Press ASSIGN to display the Fader Assignment Menu
3. Choose CLEAR to clear the input.
4. Deselect the Select button to end the fader de-assignment process.

**Setting Up Fader Output Routing**

Output routing is the process of choosing which Program output buses a fader's stereo output will be routed to when the PGM button for the fader is selected.

To change a fader's output routing:

1. Press the Select button above the desired fader to display the Route Menu.

*Note*

If the selected fader has no inputs assigned to it, you will be taken to the Fader Assignment Menu for input assignment. The fader must have an input assigned to it in order to perform output routing. See "Assigning inputs to a fader" on page 50 for more information.

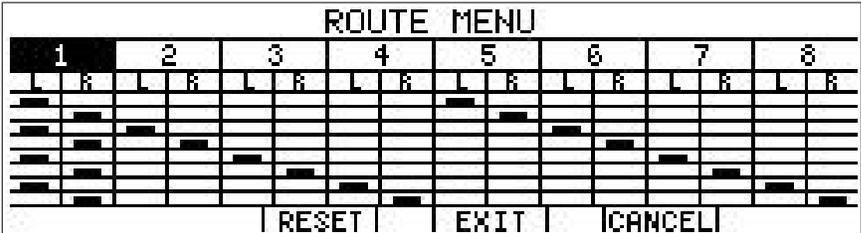


Figure 55. Route Menu

The example above shows Fader #1 selected (darkened). The program outputs to which the fader is routed are indicated in the detail, illustrated in the following:

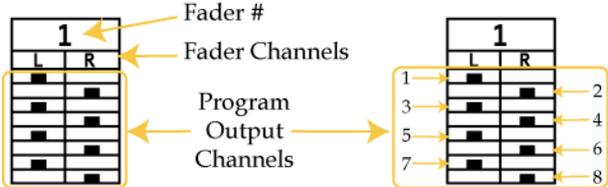
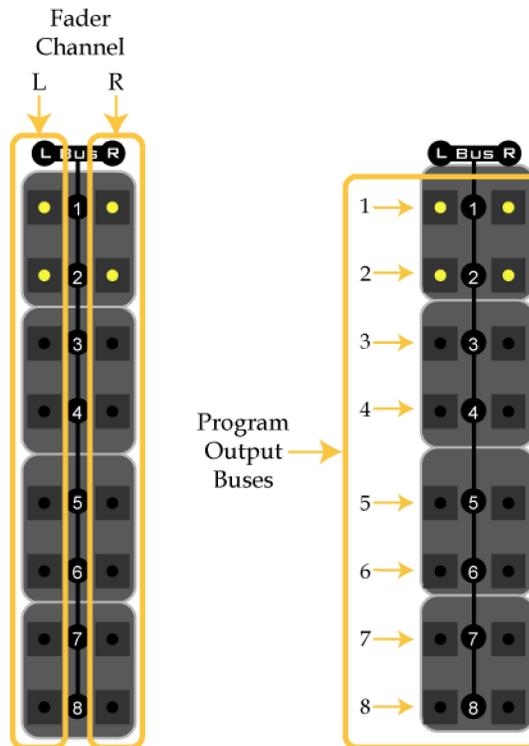


Figure 56. Route Menu Detail

2. Using the Multi-function Keypad, select the output buses to which the fader should be assigned.  
Remember that each fader is a stereo fader, and thus has a left and right channel to route. Both channels are assigned together.



*Figure 57. Multi-function Keypad for Output Routing*

The LEDs on the Multi-function Keypad, as well as the Route Menu, indicate current output routing. As you make routing changes, the Multi-function Keypad LEDs and the Route Menu display will follow.

3. Deselect the Select button or press EXIT to accept your routing changes.
- OR
- Press CANCEL to restore the routing to its previous settings and exit the Route Menu.
- Press RESET to reset the fader to its default routing. Default routing of the stereo pairs is shown here:

Fader #	Default Output Routing
1	1 / 2
2	3 / 4
3	5 / 6
4	7 / 8
5	1 / 2
6	3 / 4
7	5 / 6
8	7 / 8

Figure 58. Default Fader Output Routing

#### Notes

---

The cancel and reset options do not appear on the display until you make a change to the existing routing.

If you have selected a fader for routing and then select a different fader, the original fader is deselected, with any changes accepted. The new fader is then available for output routing.

If the fader selected for output routing assignments has its Program Output button selected during the routing assignment, the new assignments immediately appear on the program outputs. This enables you to monitor output routing changes as they occur.

---



## Applying Equalization

The Blue|328 provides you with excellent equalization (EQ) controls. You can adjust any or all inputs via the 3-band (low, mid, high) equalizer. These parameters are variable with several choices of Q (width) adjustment as well. The display provides immediate visual feedback as you make adjustments.

You can also make equalization adjustments for more than one fader at a time.

### Available Equalization Parameters

Following is a list of equalization parameters and the soft labels associated with them:

Parameter	Label	Range or Setting
Low Band	L-BAND	20Hz to 1kHz
Mid Band	M-BAND	100Hz to 10kHz
High Band	H-BAND	1kHz to 20kHz
Low Q	LOW-Q	Q = 0.7
High Q	HI-Q	Q = 2
Notch	NOTCH	Q = 5
Gain	GAIN	Low & High Q: +/- 12dB Notch: -∞

Figure 60. Available Equalization Settings

### Adjusting Equalization for a Fader

To adjust the equalization for a set of inputs assigned to a fader:

1. Press the desired fader's Select button.
2. Press the EQ soft button to bring up the Equalization Menu.

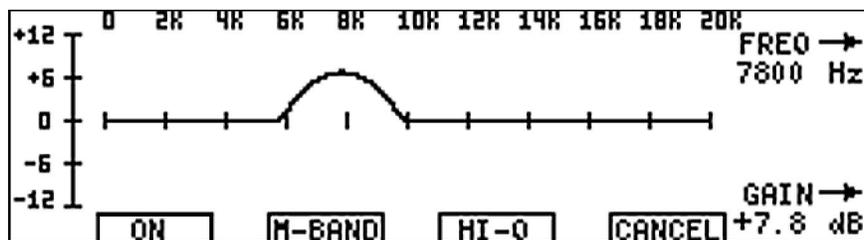


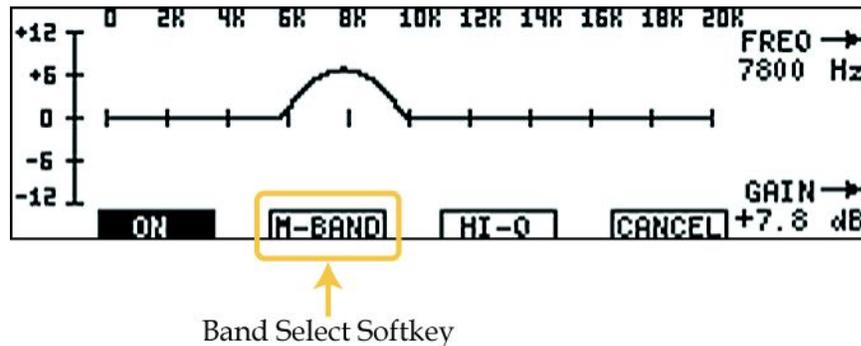
Figure 61. EQ Menu

3. Press ON to toggle the EQ processor on for the selected fader(s). Since this button is a toggle, you can turn equalization on or off to hear the effect of your adjustments as you work.

**Note**

Holding the ON soft button down for three seconds turns EQ off and restores the default settings.

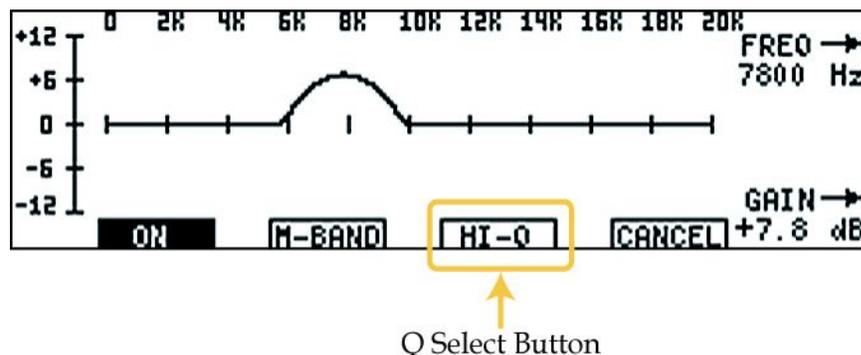
- Choose the equalization band you wish to adjust by pressing the Band Select soft button (next to the ON button) repeatedly until the name of the desired band appears.



*Figure 62. Equalization Menu: Band Selection*

In the figure above, the middle equalization band has been selected, indicated by M-BAND displayed on the screen.

- Use the Upper Soft Knob to change the frequency for the selected band.  
As you adjust the frequency, the display changes accordingly and moves the image accordingly by sliding it either to the right (higher frequencies) or left (lower frequencies).
- Use the Lower Soft Knob to adjust the gain for the selected band.  
As you adjust the gain, the display changes the height of the image accordingly.
- Press the Q select soft button repeatedly to select one of the Q settings: Low-Q, High-Q, or Notch.



*Figure 63. EQ Menu: High Q Selection*

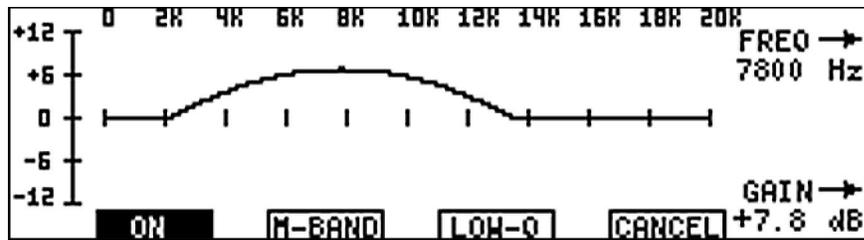


Figure 64. EQ Menu: Low Q Display

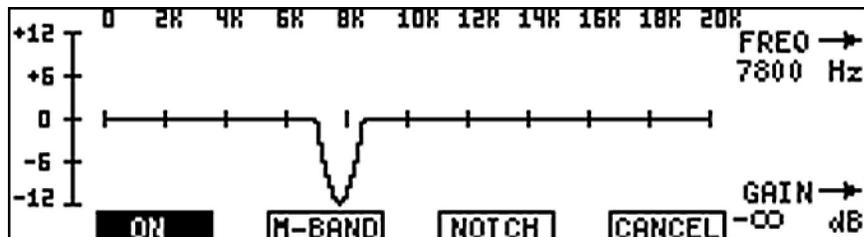


Figure 65. EQ Menu: Notch Display

8. To accept the current equalization settings, deselect the fader's Select button.

OR

Press CANCEL to exit and restore the previous settings. This will return you to the Main View.

You can also adjust the EQ settings for more than one fader at a time.

### Adjusting Equalization for Multiple Faders

To adjust equalization for multiple faders:

1. Press the Select button(s) for the other fader(s) you wish to add equalization to while in the Equalization Menu.

If the new fader(s) have EQ settings that do not match the current fader's settings, a prompt will appear on the display asking whether you wish to copy the current settings to the selected faders.

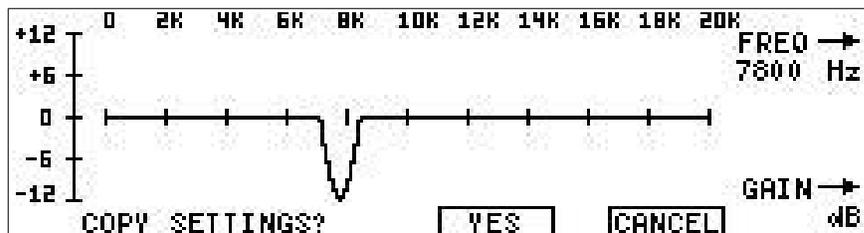


Figure 66. Equalization Menu Copy Prompt

2. Press YES to copy the equalization settings so all selected faders can be adjusted at the same time.

Or, if you do not wish to adjust equalization for the multiple faders, press Cancel.

## Applying Dynamics

The Blue|328 mixer provides you with an excellent dynamics processor that allows you to expand and/or compress/limit the audio. The LCD

display provides immediate visual feedback of your adjustments. This section contains the following subsections:

- Overview of Dynamics Controls - Listing of adjustable parameters.
- Overview of Dynamics Menu - Explanation of the Dynamics Menu.
- Dynamics Adjustment Procedures - Step-by-step instructions.

#### Note

---

Dynamics features work only at a 48kHz sample rate.

Since there is only one sidechain for both left and right channels, it is not possible to adjust the two channels independently.

---

## Overview of Dynamics Controls

Dynamics controls operate on a channel pair and consist of an expander and a compressor/limiter. The table below details the defaults and ranges of these controls.

	Default	Min	Max
<b>Expander</b>			
Threshold	-45dB	-60dB	-20dB
Ratio	OFF (1.0)	OFF (1.0)	GATE (10.0)
Attack	35 mS	0.5 mS	80 mS
Release	350 mS	50 mS	8.0 S
<b>Compressor/Limiter</b>			
Threshold	-20dB	-40dB	+15dB
Ratio	2.0	OFF (1.0)	LIMIT (10.0)
Attack	35 mS	0.5 mS	80 mS
Release	350 mS	50 mS	8.0 S
<b>Output Gain</b>	0dB	-30dB	+30dB

Figure 67. Dynamics Control Parameter List

#### Note

---

The threshold and gain settings above are in reference to the current digital reference level of the mixer. So, for example, if the current digital reference level is set to -20dBFS, the default for the Compressor/Limiter Threshold is actually equal to -40dBFS.

---

## Overview of Dynamics Menu

The following graphic provides an overview of the Dynamics Menu:

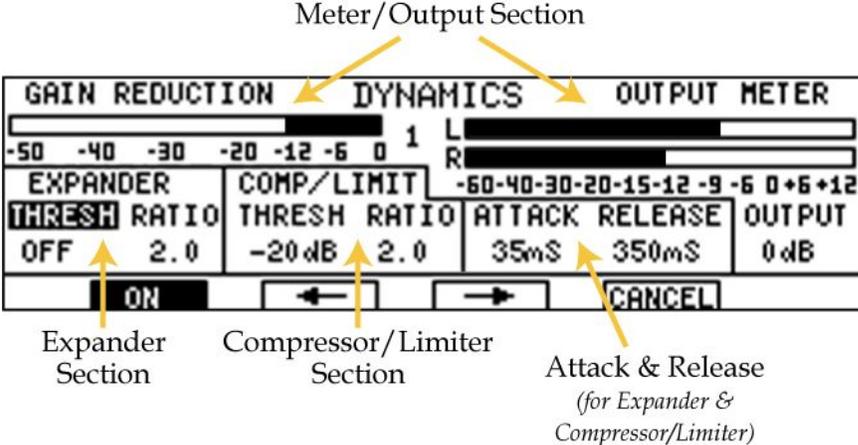


Figure 68. Dynamics Menu: Overview

The Dynamics Menu comprises the following main areas:

- Meter/Output Section
- Compressor/Limiter Section
- Expander Section

Dynamics Menu, Meter/Output Section

The Dynamics Menu incorporates stereo meters and a gain reduction meter. These meters allow you to immediately see the effect of changes you make to the dynamics. Additionally, there is an output gain adjustment to increase or decrease gain to desirable levels after making changes to the dynamics.

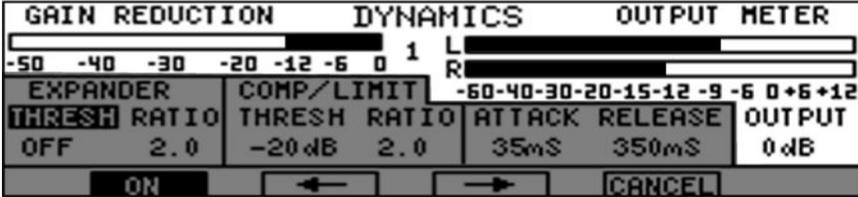


Figure 69. Dynamics Menu: Meter/Output Section

If you are applying dynamics to more than one fader, you can change which fader you are metering by rotating the Upper Soft Knob. The current fader is displayed to the left of the output meters, as illustrated below.

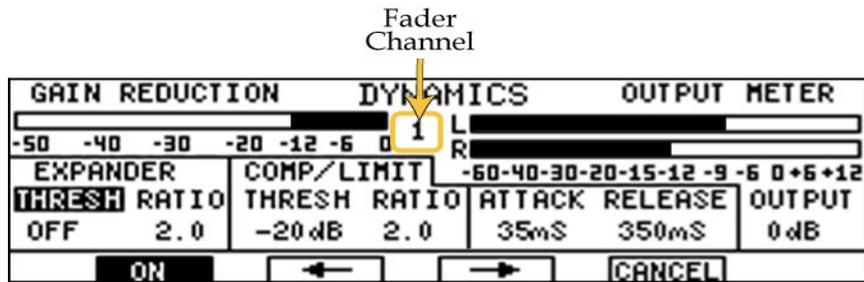


Figure 70. Dynamics Menu: Fader Channel Indicator

### Dynamics Menu, Compressor/Limiter Section

The Compressor/Limiter section provides immediate feedback on the four control adjustments: Threshold, Ratio, Attack, and Release.



Figure 71. Dynamics Menu: Compressor/Limiter Section

### Dynamics Menu, Expander Section

The Expander section provides the ability to adjust the Threshold, Ratio, Attack, and Release.



Figure 72. Dynamics Menu: Expander Section

### Dynamics Adjustment Procedures

To adjust the dynamics for a set of inputs assigned to a fader:

1. Press the desired fader's Select button.
2. Press MORE to access the next menu.
3. Press the DYN soft button to bring up the Dynamics Menu.
4. Press ON to toggle the dynamics processor on for the selected fader(s).

Because this button is a toggle, you can turn the dynamics on or off as you adjust to hear the effects of your adjustments as you work.

Note

Holding the ON button down for three seconds turns Dynamics off and restores the default settings.

- 5. Choose the parameter you wish to adjust by pressing the left or right arrow soft buttons.

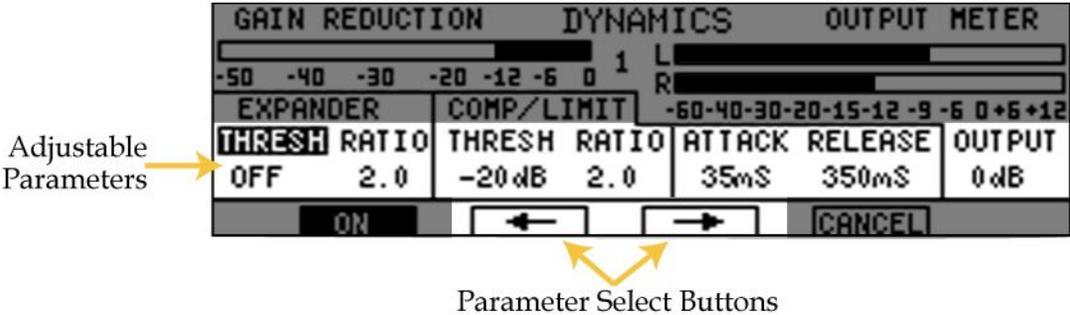


Figure 73. Dynamics Menu: Parameter Select/Adjust

- 6. Use the Lower Soft Knob to change the setting for the selected parameter.
- 7. Use the Upper Soft Knob to select which fader channel you are metering. The fader currently being metered is displayed below the word "DYNAMICS" in the menu.
- 8. To accept the current dynamics settings and exit the Dynamics Menu, deselect the fader's Select button.  
Or press CANCEL if you wish to exit and restore the previous settings. This will return you to the Main View.

You can also adjust the dynamics settings for more than one fader at a time.

To adjust the dynamics for multiple faders:

- 1. Follow the steps above to enter the Dynamics Menu and adjust the controls as you wish for one of the desired faders. Remain in the Dynamics Menu and ensure that the ON button is set.
- 2. Select the other fader(s) you wish to add dynamics to while in the Dynamics Menu.  
If the new fader(s) have dynamics settings that do not match the current fader's settings, a prompt will appear on the display asking if you wish to copy the current settings to all the selected faders.

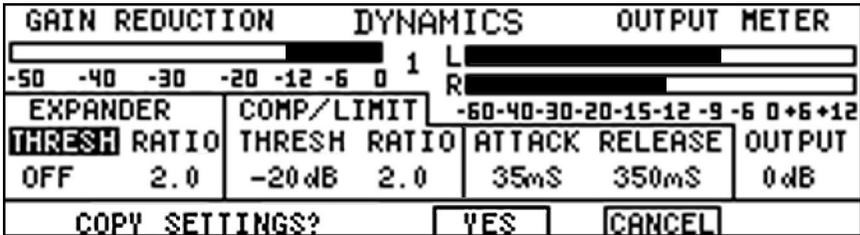


Figure 74. Dynamics Menu: Multiple Faders

- 3. Press YES to copy the dynamics settings so all selected faders can be adjusted at the same time.  
OR

Press CANCEL if you do not wish to adjust dynamics settings for the multiple faders.

4. Follow steps 5-8 above to adjust the dynamics for the selected faders.

## Applying Audio Delay

The Blue|328 incorporates the ability to delay the audio for solving issues relating to lip-sync where the audio must be delayed to match the video.

The input delay is adjusted by video frames. The maximum video frame delay varies with the digital audio sampling rate, as follows:

Sampling Rate	Frames (NTSC & PAL)
48kHz	16
96kHz	8
192kHz	4

Figure 75. Maximum Delay Values

The following screen shows the Delay Menu.

DELAY MENU								ADJ →
1	2	3	4	5	6	7	8	
A 1/2	A 3/4	A 5/6	A 7/8	B 1/2	B 3/4	B 5/6	B 7/8	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
[GANG] [CLEAR] [EXIT] [CANCEL]								

Figure 76. Delay Menu: Single Fader

To adjust the delay for a set of inputs assigned to one fader:

1. Press the desired fader's Select button.
2. Press MORE to access the next menu.
3. Press DELAY to enter the Delay Menu.
4. Rotate the Upper Soft Knob to adjust delay by frames relative to the current or default video reference.
5. Press EXIT to exit the Delay Menu.

OR

Press CANCEL to exit and restore the previous settings, press the CANCEL button. You will then return to the Main Menu.

Press CLEAR to zero the delay settings for the selected fader. You will then return to the Main Menu.

To adjust delay on all faders simultaneously:

1. Press the Select button for one of the faders.
2. Press the MORE to access the next menu.
3. Press DELAY to enter the Delay Menu.
4. Press gang to select all of the faders.

If GANG is pressed and the delay values of all faders don't match, a message will appear indicating that you can either copy the first selected input channel or exit back to the Delay Menu.

5. Follow the steps above to adjust the delay for all faders ganged together.

DELAY MENU							ADJ→
1	2	3	4	5	6	7	8
A 1/2	A 3/4	A 5/6	A 7/8	B 1/2	B 3/4	B 5/6	B 7/8
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[ GANG ]		[ CLEAR ]		[ EXIT ]		[ CANCEL ]	

Figure 77. Delay Menu: Ganged Faders

**Note**

---

Multiple channels can be selected separately from using the GANG feature by using the select row. Simply select the faders on which you wish to adjust the delay and adjust the delay value as outlined above.

---

## Applying Phase Reversal

The Blue|328 allows you to do a 180° phase reversal on the left channel of a fader by the simple push of a button.

### Note

Before you can adjust the phase, you must assign inputs to the desired fader. For information on assigning inputs to faders, see “Making Fader Input Assignments” on page 50.

To turn Phase on:

1. Press the select button above the desired fader
2. Press MORE to access the next set of soft labels.
3. Press the PHASE soft button.

The mixer will reverse the phase on the left channel of the selected fader. The menu displays the PHASE soft button in reverse video when phase reversal is on. A phase symbol appears in the Main Menu to indicate a fader has phase reversal on.



Phase Symbol

*Figure 78. Main Menu: Phase Indicator*

In the example above, Fader #2 has phase reversal applied to it.

## Enabling Clean Feed

The Blue|328 allows you to send a fader's audio cleanly through the mixer without any additional effects applied. This is quite useful for making dubs.

### Notes

---

Before you can turn Clean Feed on, you must assign inputs to the desired fader. For more information on assigning inputs to faders, see “Making Fader Input Assignments” on page 50.

Input Trim still functions while in Clean Feed mode. If you wish to maintain a unity path by using Clean Feed, you must also ensure that the input level gain is set to 0dB. See “Trim” on page 70 for more information.

If the Clean Feed inputs are coming in to the mixer via a sample-rate-converted (SRC) input module the SRC should be bypassed on that module to achieve a clean bit-accurate feed. See “Adjusting the AES-SRC Input Module” on page 44 for more information.

---

When Clean Feed is enabled, the following occurs:

- The fader can no longer be used for gain adjustment and the audio level is set to unity.
- The unity indicator for the fader is turned on.
- The Master Fader no longer effects fader channels in Clean Feed mode.
- The pan pot is no longer active and the audio balance is set to even.
- All equalizer settings are disabled.
- All dynamics settings are disabled.
- Phase reversal is disabled.
- The current routing settings are still valid.
- The Program button for the fader works normally.
- The Preset button for the fader works normally.
- The Select button for the fader works normally.
- The Trim function for input gain works normally.

When Clean Feed is disabled the following occurs:

- The fader functions normally again at its current position.
- The pan pot functions normally again at its current position.
- Any audio effects (EQ, Dynamics) that were present are restored.

To turn Clean Feed on:

- 1.** Press the desired fader's Select button.
- 2.** Press MORE to access the next menu.
- 3.** Press MORE again. The Clean Feed soft label will appear on the Main Menu display.
- 4.** Press the CLEAN soft button to activate Clean Feed Mode.

The menu displays the CLEAN soft button in reverse video when Clean Feed is on. The words CLEAN FEED appear in the Main Menu to indicate a fader has clean feed on.

The following diagram shows Clean Feed turned on fader #5.

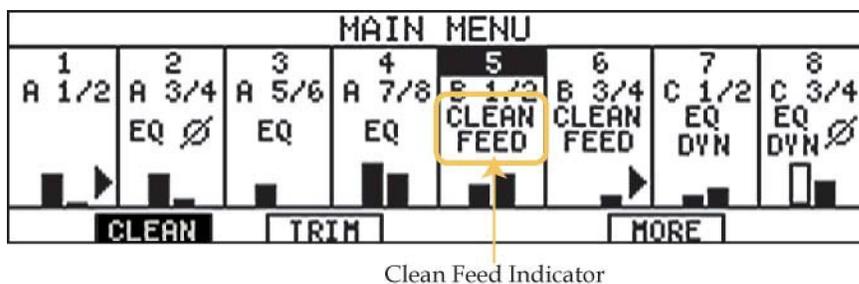


Figure 79. Main Menu: Clean Feed Indicator

## Adjusting Input Gain Trim

The trim feature allows you to adjust the input level gain on a pair of inputs assigned to a fader.

### Note

Before you can adjust the input gain trim, you must assign inputs to the desired fader. For information on assigning inputs to faders, see “Making Fader Input Assignments” on page 50.

To adjust input trim:

1. Press the Select button for the fader with the desired inputs assigned to it.
2. Press MORE to access the next menu.
3. Press MORE again.
4. Press the Trim soft button to enter the Trim Menu:

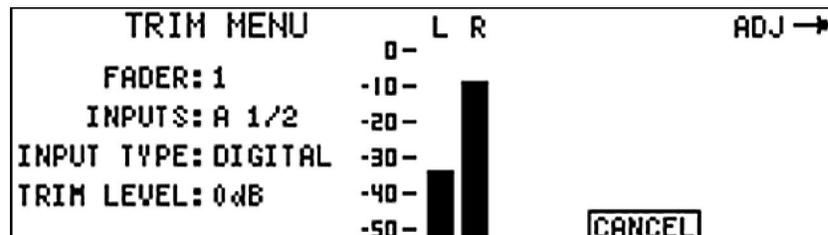


Figure 80. Trim Menu: Fader 1

The screen above is for Fader 1. The level meter shows the pre-fader levels (L and R).

5. Adjust the Upper Soft knob for trim adjustments.
6. To save the setting, deselect the Select button.  
Or, press CANCEL to cancel all changes and exit the TRIM Menu.
7. If you wish to adjust the input trim on another fader, simply press the select button for the desired fader. The Trim Menu indicates the fader number in the left-hand portion of the screen. You may now adjust trim on the newly-selected fader.

### Note

You can only select one fader at a time to adjust input trim.

Trim levels are associated with the inputs. In other words, if you de-assign the inputs after adjusting the trim levels, when the same input is reassigned the last trim level will be recalled.

Trim changes always adjust both input channels for the selected fader.

## Monitoring Control

Monitoring control on the Blue|328 gives you the ability to monitor the mixer's Program bus, the Solo bus, or the Record Returns.

The Monitoring controls are shown below.

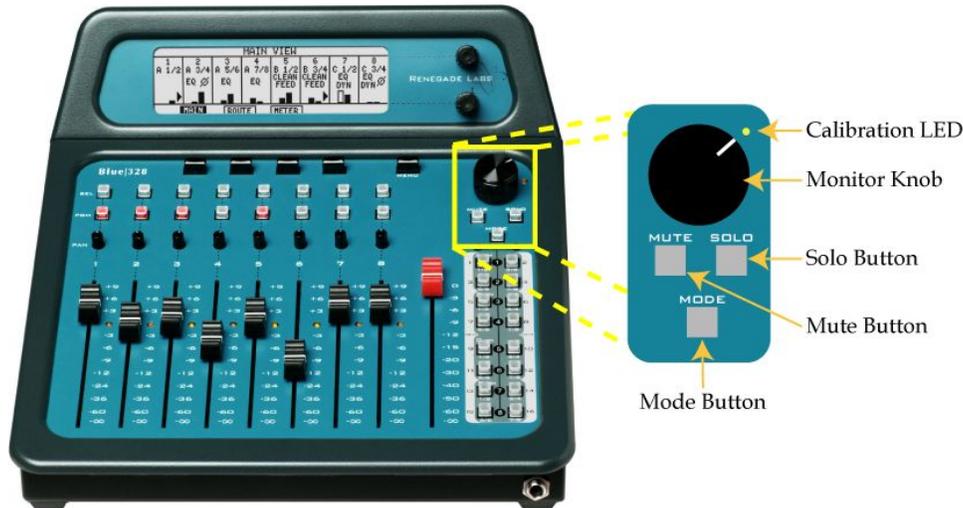


Figure 81. Monitor Control Section

### Monitoring Program Bus

1. Ensure that the audio to be monitored is selected on the PGM button.
2. Verify the input fader is positioned properly.
3. Make sure the Master fader is set to 0dB.
4. Make sure the Solo button is disabled.
5. Make sure the MUTE button is disabled.
6. Make sure the Record Return monitoring is disabled.
7. Adjust the Monitor knob to the desired listening level.

### Setting Up Solo bus Monitoring

1. Ensure that you are not in any menu.
2. Make sure the SOLO button is enabled.
3. Confirm that the audio to be monitored is selected on the SELECT buttons.
4. Verify the input fader is positioned properly.
5. Make sure the Master fader is set to 0dB.
6. Make sure the MUTE button is disabled.
7. Adjust the Monitor knob to the desired listening level.

### Monitoring Record Returns

1. Ensure that Record Returns have been properly configured. Refer to “Assigning Record Returns” on page 30 for details.
2. Make sure the SOLO button is disabled.

3. Make sure Mute button is disabled.
4. Adjust the Monitor knob to the desired listening level.

## Setting up the Monitor Mode

Monitor modes are various monitor matrix output configurations for normal monitoring of program outputs. There are nine monitor modes: Mono, 2-Channel, 4-Channel, 8-Channel, three Surround modes, and two User modes. *User modes* are modes that you can modify.

### Note

The Monitor Mode cannot be activated if the mixer is in any other mode or menu.

Fader Select buttons will not function when in Monitor Mode.

### Selecting a Monitor Mode

1. Ensure that the mixer is not in a System Menu or another menu.
2. Press the MODE button to bring up the Monitor Mode Menu.
 

When the MODE button is activated, the Monitor Mode Menu is displayed. The current mode is displayed along with a representation of the monitor crosspoints.

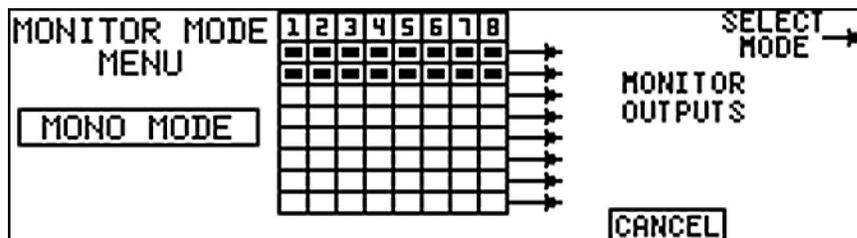


Figure 82. Monitor Mode Menu Example

3. Use the Upper Soft Knob to select monitor modes.
 

If you select one of the user modes, see the instructions for User Modes below (page 76).
4. To accept the currently-displayed monitor mode, deselect the MODE button.
 

Or, press CANCEL to cancel mode selection and return to the previously-applied monitor mode.

The modes are described below.

### Mono Mode Description

In Mono mode, the monitor matrix is set up for a monaural mix of all eight monitor input channels to monitor outputs 1 and 2. The following shows the Mono Mode screen.

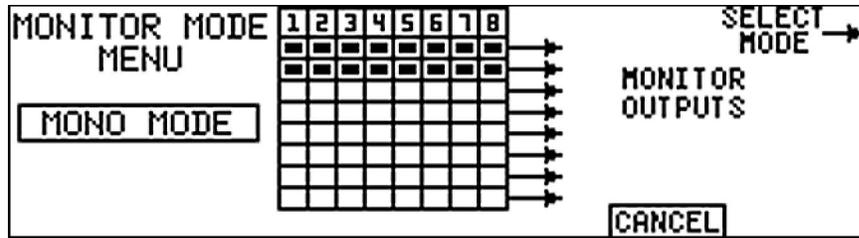


Figure 83. Monitor Mode: Mono Screen

### 2-Channel Mode Description

In 2-Channel mode, the Monitor matrix is set up for a stereo feed of the monitor inputs to monitor outputs 1 and 2. The following shows the 2-Channel Mode screen.

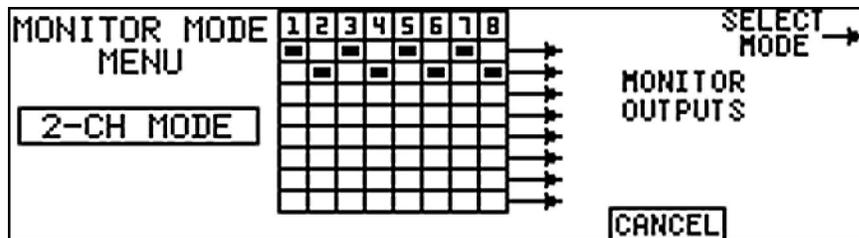


Figure 84. Monitor Mode: 2-Channel Screen

### 4-Channel Mode Description

In 4-Channel mode, the Monitor matrix is setup for a 4-channel feed of the monitor inputs to monitor outputs 1, 2, 3, and 4. The following shows the 4-Channel Mode screen.

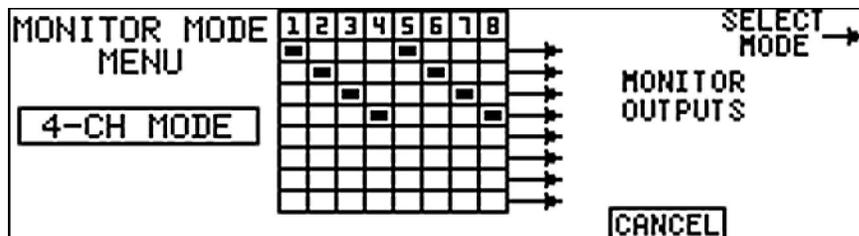


Figure 85. Monitor Mode: 4-Channel Screen

### 8-Channel Mode

In 8-Channel mode, the monitor matrix is setup for a straight feed of the monitor input channels to the monitor outputs. The following shows the 8-Channel Mode screen.

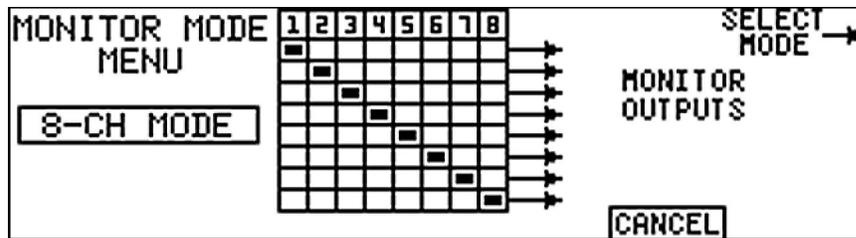


Figure 86. Monitor Mode: 8-Channel Screen

### Surround Sound Mode Description

Surround Sound modes provide three default track assignments used for surround sound. The Upper Soft Knob is used to rotate through the three surround sound modes. The track assignments are indicated at the bottom of the display. Notice that the mixer does the reassignment for you, eliminating the need for you to disconnect and reconnect the monitor outputs. All you need to do is to assign faders to the desired output bus (for information, see “Setting Up Fader Output Routing” on page 53.

The three surround sound modes are as follows:

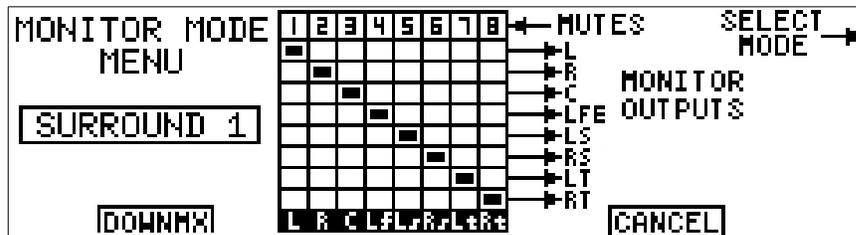


Figure 87. Monitor Mode: Surround Sound 1 Screen

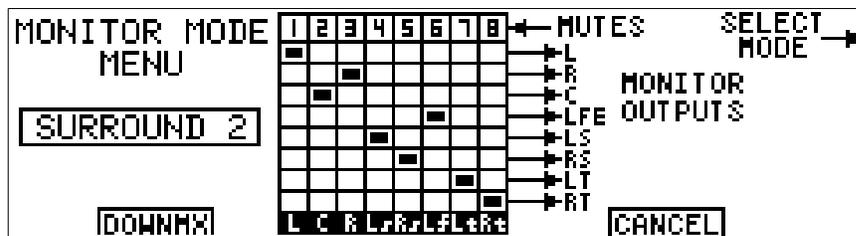


Figure 88. Monitor Mode: Surround Sound 2 Screen

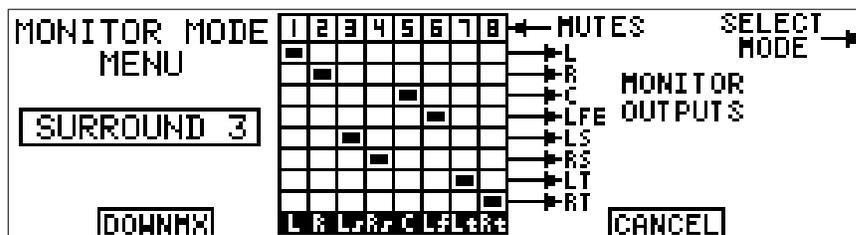


Figure 89. Monitor Mode: Surround Sound 3 Screen

### Surround Sound Downmix

The DownMix button on the Surround Sound mode menus will simulate a stereo downmix or Lo/Ro (Left only/Right only) when in one of the various 5.1 Surround Sound modes. Using the SELECT OUTPUTS soft-knob allows the stereo downmix to be outputted on the Lt/Rt outputs (monitor outputs 7 and 8) or on the L/R outputs (monitor outputs 1 and 2) while all other monitor outputs are turned off.

The Lo output is created by adding Left, plus Center (at -3dB), plus Left surround (at -3dB), and the Ro output is created similarly by adding Right, plus Center (at -3dB), plus Right surround (at -3dB). The LFE channel is discarded.

The Surround Sound 1 Downmix modes are as follows:

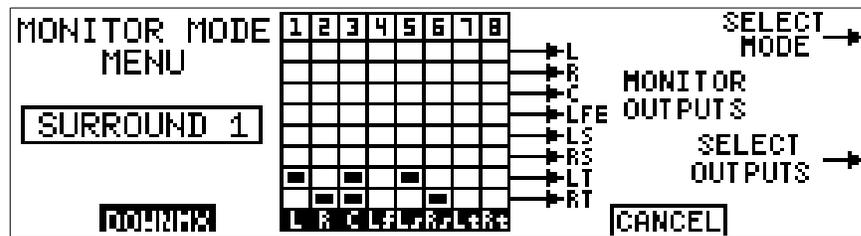


Figure 90. Surround Sound 1 Downmix Lt/Rt

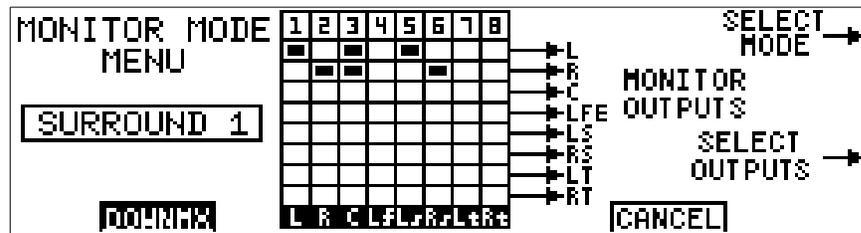


Figure 91. Surround Sound 1 Downmix L/R

The Surround Sound 2 Downmix modes are as follows:

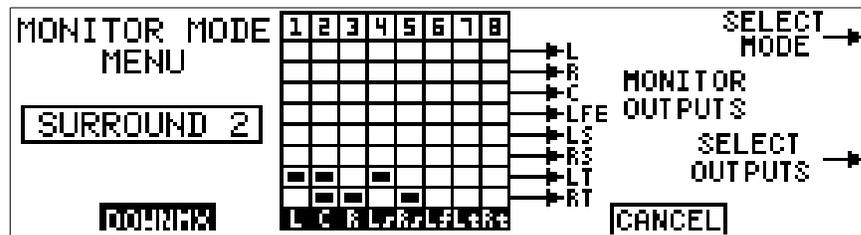


Figure 92. Surround Sound 2 Downmix Lt/Rt

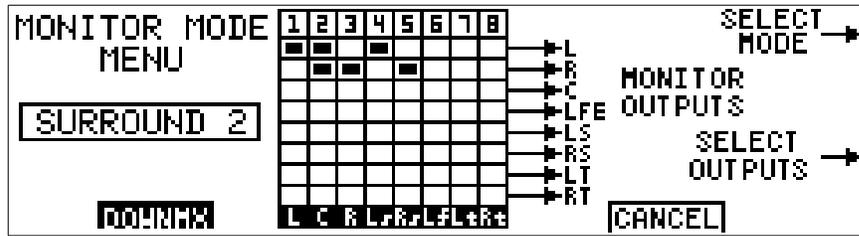


Figure 93. Surround Sound 2 Downmix L/R

The Surround Sound 3 Downmix modes are as follows:

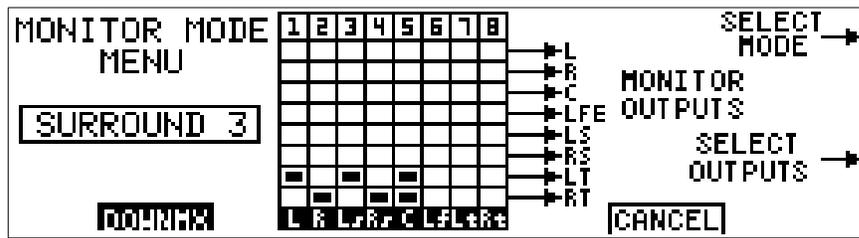


Figure 94. Surround Sound 3 Downmix Lt/Rt

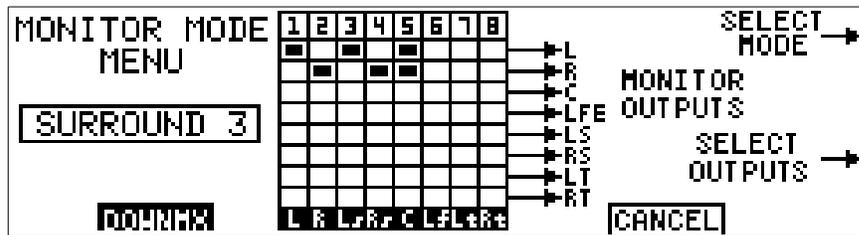


Figure 95. Surround Sound 3 Downmix L/R

### User Mode Description and Setup

The User Mode allows you to set up two custom monitor matrix configurations (USER 1 and USER 2). When selected, the display changes to the following screen.

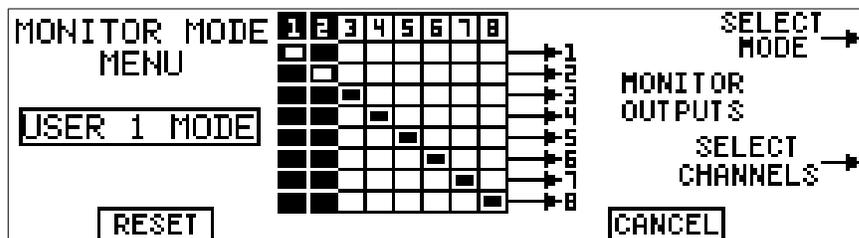


Figure 96. Monitor Mode: User 1 Screen

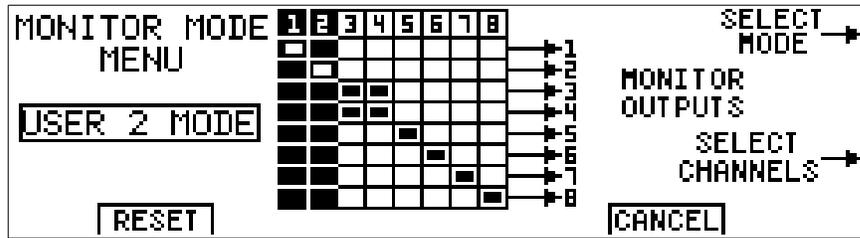
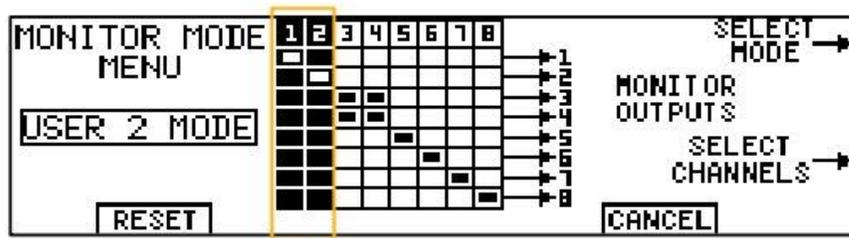


Figure 97. Monitor Mode: User 2 Screen

Lets take USER 2 MODE for an example. Notice that channels 1 and 2 of the monitor matrix are highlighted in the display.



Program Output Channels 1 & 2

Figure 98. Monitor Mode: User 2 Screen, Detail

Also, the Multi-function Keypad LEDs correspond to the active crosspoints shown on the display.

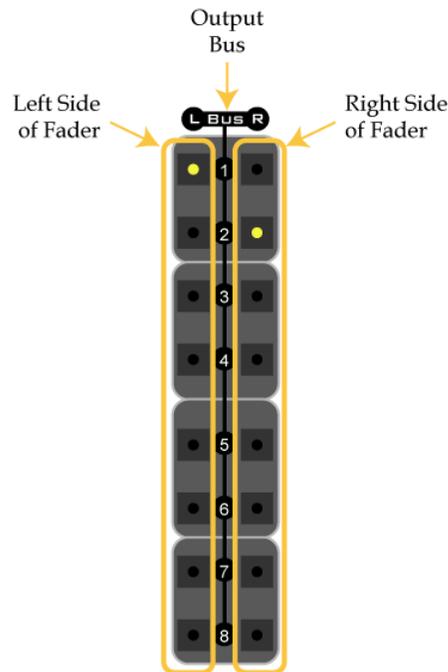


Figure 99. User Monitor Mode Crosspoints

To change the current monitor routing for program outputs 1 and 2:

1. Use the multi-function buttons to select any output configuration you wish.

For example, if you would like to mono the output of channels 1 and 2, so that whatever is going out on program output bus 1 will go out to monitor outputs (speakers) 1 and 2, press the Multi-function Keypad buttons so they end up like this:

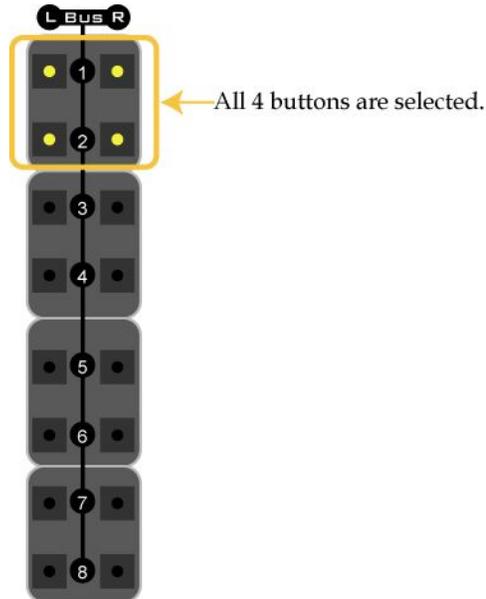


Figure 100. User Monitor Mode Crosspoints

Now Program output channels 1 and 2 are configured to be sent out to both monitor outputs 1 and 2. This results in a mono mix of program outputs 1 and 2 to monitor outputs 1 and 2. Any audio that is only on program bus 1 will be sent to both monitor outputs 1 and 2. Likewise, any audio that is only on program bus 2 will be sent to both monitor outputs 1 and 2.

Program Output  
Channels 1 & 2  
Now routed to both  
Monitor Output  
Channels 1 & 2

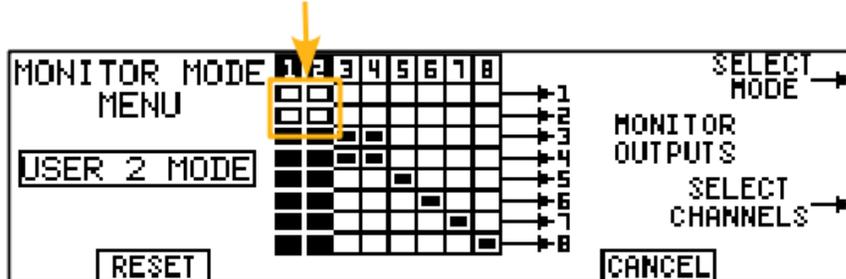
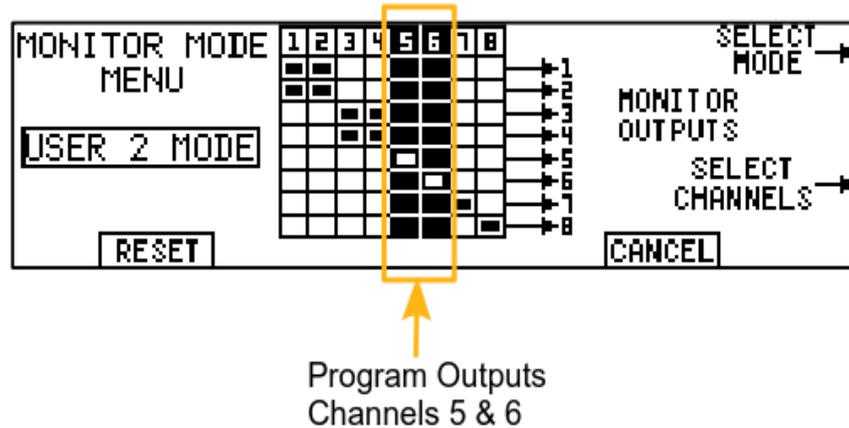


Figure 101. Monitor Mode: User 2 Mode, Detail #2

2. To switch to another set of monitor input channels, rotate the Lower Soft Knob, labeled "SELECT CHANNELS." As you rotate the knob, the display will highlight the next set of channels. The Multi-function Keypad buttons will follow the display. Lighting the LEDs to indicate active monitor matrix selections.



*Figure 102. User 2 Mode, Channels 5 and 6*

3. After you select the other channels, use the multi-function buttons to route the program outputs to monitor outputs as you wish.
4. To accept the changes, toggle the monitor MODE button off. The display returns to the previous view.
5. Or, press RESET to reset the mode to its default state (8-channel routing).

---

## Memory Save/Recall

The mixer allows you to take up to 200 snapshots of the mixer's settings, and recall them. At each memory save, the current control panel settings are stored in a register. During recall, the settings stored in a register are applied to the control panel.

### Note

---

You can only Save/Recall a register when you are not in any menu (Select, System Menu, or Monitor Mode).

Because flash memory is used, setups saved to memory are not lost if power is removed.

---

### What is stored during a Memory Save

During a Memory Save, the following settings are stored for later recall.

- Input Assignment
- EQ
- Phase
- Mute
- Headphone Output Routing
- Digital Reference Level
- Delay
- Input Level Trim
- Output Assignment
- Monitor Mode
- Solo
- Headphone Level
- Sample Rate
- Panel LED Level
- Clean Feed
- Fader levels
- Pan Pot positions
- Record Return
- Loudness Monitoring

Figure 103. Memory Save Contents

### Note

---

Monitor level, Master Fader setting, Reference source, Output Function, and Module settings are not stored during a memory save.

---

## Memory Save/Recall Operations

All memory save/recall operations are done with the Register menu which is accessed from the Multi-function Keypad.

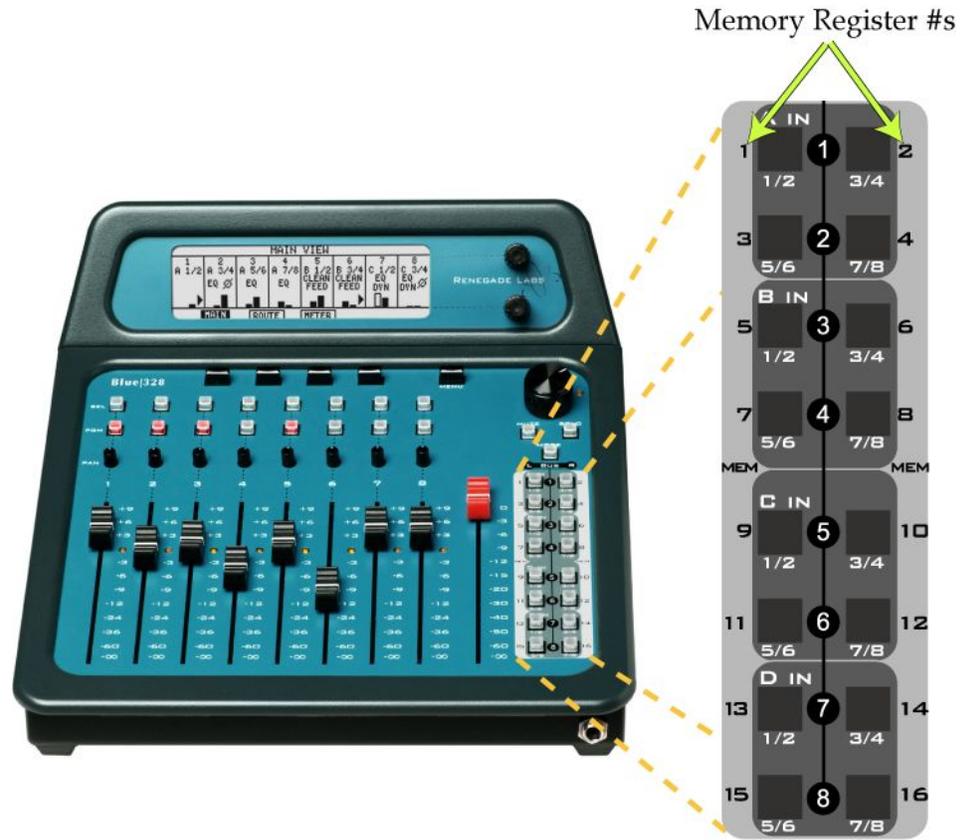


Figure 104. Memory Save/Recall: Multi-Function Buttons

The Register menu allows for register naming, register saves, and register recalls. The Register menu also indicates if the register is in use or if the register is empty.



Figure 105. Register Menu

To do a Memory Save:

1. Exit all menus (Select, System Menu, or Monitor Mode).
2. Make the adjustments to the control panel that you wish to save to memory for later recall.
3. Press a memory register button (see above). The Register menu will appear on the display.



*Figure 106. Register Menu*

If the register is already used REGISTER EXISTS will appear. If a different or empty register is desired either scroll using the upper soft knob or select a different register button with the Multi-function Keypad.

#### Note

---

Only register numbers 1 – 16 can be accessed via the Multi-function Keypad. For all other register numbers the upper soft knob must be used.

---

4. Press the SAVE soft button to save the register.

To do a Memory Recall:

1. Press a memory register button (see above). The Register menu will appear on the display.



*Figure 107. Register Menu*

If the desired register to recall exists REGISTER EXISTS will appear along with the RECALL soft button. If the register is empty the RECALL button will not appear.

2. Press the RECALL soft button to recall the selected register  
OR
  - Scroll to another register using the upper soft knob.
  - Select a different register using the Multi-function Keypad.

#### Note

---

Only register numbers 1 – 16 can be accessed via the Multi-function Keypad. For all other register numbers the upper soft knob must be used.

---

- The recalled settings may be viewed in the LCD Views. Fader and pan pot settings, as well as audio offset (see below), are also indicated in the Fader Level View. These settings are also reflected in the Unity LED on the fader strip and the pan pot indicators on the Main View. For more detail, see “Main View”, page 22; “Fader Level View”, page 28; and “Unity LED”, page 13.

**Note**


---

The difference between the recalled audio position and the current fader and pan pot positions is the *audio offset*.

---

- You may now change the controls as desired to move on from the recalled mixer setup.
- As you change the fader position, the audio position will accelerate to “catch up” with the fader position. Once this happens, the audio position will match and follow the fader position.
- The pan pot position “catches up” similarly to the fader audio position.

To Name or Rename a register:

1. Press a memory register button. The Register menu will appear on the display.
2. Press the RENAME soft button. The Register menu will now display a small name window.



Figure 108. Register Name Menu

3. Use the upper soft knob to scroll the letters, number, and characters.
4. Use the lower soft knob to move the position either before or after the current character.
5. Use the CLEAR soft button to clear out the name completely.
6. Use the BACK soft button to erase the character immediately preceding the current position.
7. Press DONE when the desired name is ready to be saved or press CANCEL to abort all changes.

**Note**


---

Once a register has been named or renamed it is no longer possible to scroll to any other registers until the register menu is re-entered.

---

## USB Register Management (328 |MXE only)

### USB Register Management Overview

USB Register Management is a powerful feature that gives the Blue 328|MXE the ability to transfer registers to and from a USB memory device. The register management allows for custom register directory naming and the ability to delete registers either locally, on the mixer, or remotely on the USB memory device. This section describes in detail the USB Register Management.

### Register Management Menu

To access the Register Management Menu perform the following:

1. Press the MENU button to call up the System Menu.
2. Press MORE 3 times to display the fourth level of the System Menu.
3. Press the USB soft button to display the Register Management Menu as shown.

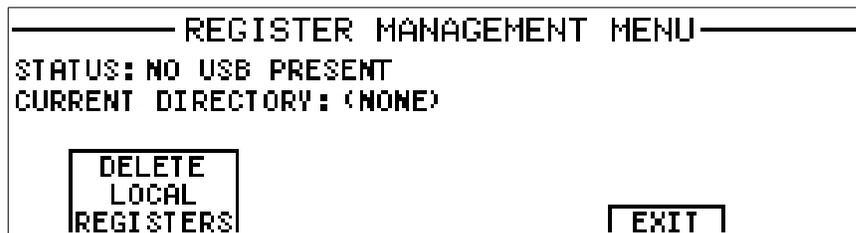


Figure 109. Register Management Menu, no USB Present

The Register Management Menu has two indicators:

- **STATUS:** This indicator tells the current status of the USB memory device.
- **CURRENT DIRECTORY:** This indicator tells the current directory in use on the USB memory device.

### Transfer Registers To/From USB Memory Device

To transfer registers to or from a USB memory device:

1. Make sure you are in the Register Management Menu as previously described in section “Register Management Menu” on page 84.

#### Note

The control panel USB port has two USB connectors. Either connector can be used for connecting the USB memory device.

**Note**

Only one USB memory device can be accessed at a time. If two USB memory devices are connected to the control panel USB port the first USB memory device installed will be used for register transfers.

2. While the USB memory device is being initialized the following screen will be shown.



Figure 110. USB Initializing

**Warning**

Do not remove the USB memory device while an operation (device is mounted) is being performed or permanent damage may occur to the USB memory device.

The indication that the device is mounted is the "STOP!" soft button. If you want to remove the device during an operation, first press the "STOP!" soft button and wait until the operation ends.

3. Once the USB memory device is initialized the Register Management Menu will display the mixer's ability to transfer registers to and from the USB device.



Figure 111. Register Management Menu, Transfer Registers

4. The CURRENT DIRECTORY will indicate the directory where the registers will be stored on the USB memory device. If other directories have been created use the DIRECTORY soft knob to select a different directory. See section "Rename or Create new USB directory" on page 88 for details on creating or renaming directories. The default directory "Registers" will be created if no directory is present.
5. Press the TO USB soft button to transfer register to the USB memory device.  
OR,

- Press the FROM USB soft button to transfer registers from the USB memory device.
- Press the EXIT soft button to exit the Register Management Menu.

### Note

---

The TO USB soft button will only appear if there are mixer registers available to transfer to the USB memory device.

The FROM USB soft button will only appear if there is a register directory available to on the USB memory device to transfer registers from.

---

6. The menu will warn that any existing registers the directory will be written over.

```

REGISTER MANAGEMENT MENU
STATUS: USB PRESENT
CURRENT DIRECTORY: Registers

      ARE YOU SURE YOU WANT TO
OVERWRITE REGISTERS IN CURRENT DIRECTORY?
      [ YES ]   [ NO ]

```

*Figure 112. Register Management Menu, Overwrite Prompt*

7. Press YES to begin the register transfer and overwrite any existing registers.  
OR,  
— Press NO to exit back to the Register Management Menu transfer selection.

### Note

---

On the USB memory device it is possible to rename or create a new directory for the register transfers. See section “Rename or Create new USB directory” on page 88 for details.

---

8. Once the transfer has began the STATUS indicator will indicate the current status of the register transfer as it proceeds.

```

REGISTER MANAGEMENT MENU
STATUS: TO USB OPERATION COMPLETE
CURRENT DIRECTORY: Registers

TRANSFER REGISTERS          DIRECTORY →
[ TO USB ] [ FROM USB ] [ MORE ] [ EXIT ]

```

*Figure 113. Register Management Menu, Transfer Complete*

## Deleting Registers

The Register Management Menu gives the ability to delete all registers either on the mixer or on the USB memory device.

1. Make sure you are in the Register Management Menu as previously described in section "Register Management Menu" on page 84.
2. Press the MORE soft button once to bring up the DELETE LOCAL REGISTERS soft button and DELETE USB REGISTERS soft button.



Figure 114. Register Management Menu, Delete Registers

### Note

The DELETE LOCAL REGISTERS soft button will only appear if there are local mixer registers currently stored.

The DELETE USB REGISTERS soft button will only appear if there are register directories on the USB memory device.

3. Press the DELETE LOCAL REGISTERS soft button to delete all locally stored mixer registers.  
OR,  
— Press the DELETE USB REGISTERS soft button to delete all registers in the CURRENT DIRECTORY on the USB memory device. If other directories have been created use the DIRECTORY soft knob to select a different directory before pressing the DELETE USB REGISTERS soft button.  
— Press the EXIT soft button to exit the Register Management Menu.
4. The Register Management Menu will confirm the delete register selection.

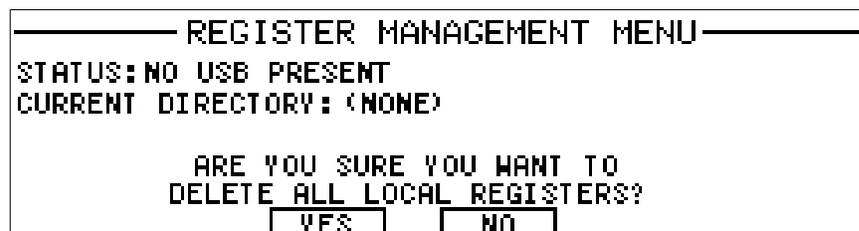


Figure 115. Register Management Menu, Register Delete Confirmation

5. Press the YES soft button to delete all registers.  
OR,

- Press the NO soft button to exit the delete register selection.

## Rename or Create new USB directory

The Register Management Menu gives the ability to either rename the current register directory on the USB memory device or to create a new directory.

1. Make sure you are in the Register Management Menu as previously described in section “Register Management Menu” on page 84.
2. Press the MORE soft button twice until Directory RENAME and NEW soft buttons appear as shown.



Figure 116. Register Management Menu, Directory

3. Press the RENAME soft button to rename the current USB memory device directory  
OR,  
  - Press the NEW soft button to create a new directory on the USB memory device.
  - Press the EXIT soft button to exit the Register Management Menu.



Figure 117. Register Management Menu, Directory Name

4. Use the upper soft knob to scroll the letters and numbers.
5. Use the lower soft knob to move the position either before or after the current character.
6. Use the CLEAR soft button to clear out the name completely.
7. Use the BACK soft button to erase the character immediately preceding the current position.
8. Press DONE when the desired name is ready to be saved.  
OR,  
  - Press CANCEL to cancel all changes.
9. Once the operation is complete the renamed or new directory will appear as the CURRENT DIRECTORY.

## USB Register Directory Overview

The register files and directory structure on the USB memory device is very simple. The mixer will create a directory called "rli" in the root of the device and all register directories are confined to this directory. This way your USB memory device is available for other uses.

The mixer registers take up very little memory, about 11K bytes each. The register files are stored in each sub directory under the "rli" directory. The registers are XML files and can be opened with a standard web browser or text editor.

## Software Upgrade using USB Memory Device

The Blue 328|MXE can perform software upgrades very simply by use of USB memory devices. The following describes the details performing a software upgrade using a USB device.

1. Using a computer download the latest Blue 328|MXE software file from the Renegade Labs website:  
<http://www.renegadelabs.com/support/dlsoftware.html>
2. Copy the Blue 328|MXE software zip file to the USB memory device's root directory.
3. Install a USB memory device into the USB port on the control panel.
4. Go to the Register Management Menu as previously described in section "Register Management Menu" on page 84.
5. After the USB device has been initialized the following screen will be displayed.

```

———— REGISTER MANAGEMENT MENU ————
STATUS: SOFTWARE UPGRADE
CURRENT DIRECTORY: (NONE)

SOFTWARE UPGRADE FILE DETECTED
DO YOU WANT TO UPGRADE NOW?
  [ YES ]   [ NO ]

```

*Figure 118. Register Management Menu, Software Upgrade*

6. Press the YES soft button to begin the software upgrade process.  
OR,  
— Press the NO soft button to exit the software upgrade process.
7. The Software Upgrade Menu will display the status of the software upgrade process.

```

———— SOFTWARE UPGRADE MENU ————
STATUS: PREPARING TO UPGRADE...

WARNING: DO NOT REMOVE USB DEVICE! [STOP!]

```

*Figure 119. Software Upgrade Menu*

*Note*

---

Once the software upgrade process begins it can only be stopped by pressing the STOP! soft button.

Do not remove the USB memory device while the software upgrade is being performed or permanent damage may occur to the USB memory device.

The software upgrade process takes approximately 90 seconds and the mixer will re-boot when the upgrade has been completed.

---

## Appendix A: Installation Information

### Input/Output Configuration

The Blue|328 mixer can be configured in several different ways by installing up to four optional input modules, and one output module.

#### Optional Input Modules

Four input slots are located on the back of the console, accepting either analog (4 channel or 6 channel with mic) or digital (8 channel) input modules. The digital input module can be either an AES, AES with sample rate conversion, or SDI (Serial Digital with embedded audio) for a total input capability of 32 inputs.

#### Optional Output Module

Besides the standard eight digital outputs and the eight standard analog outputs, an optional output module may be installed to supply eight more outputs. These outputs may be AES digital, analog, or SD/HD SDI.

### Mixer Rear Panel Detail

Details of the rear panel are shown below.

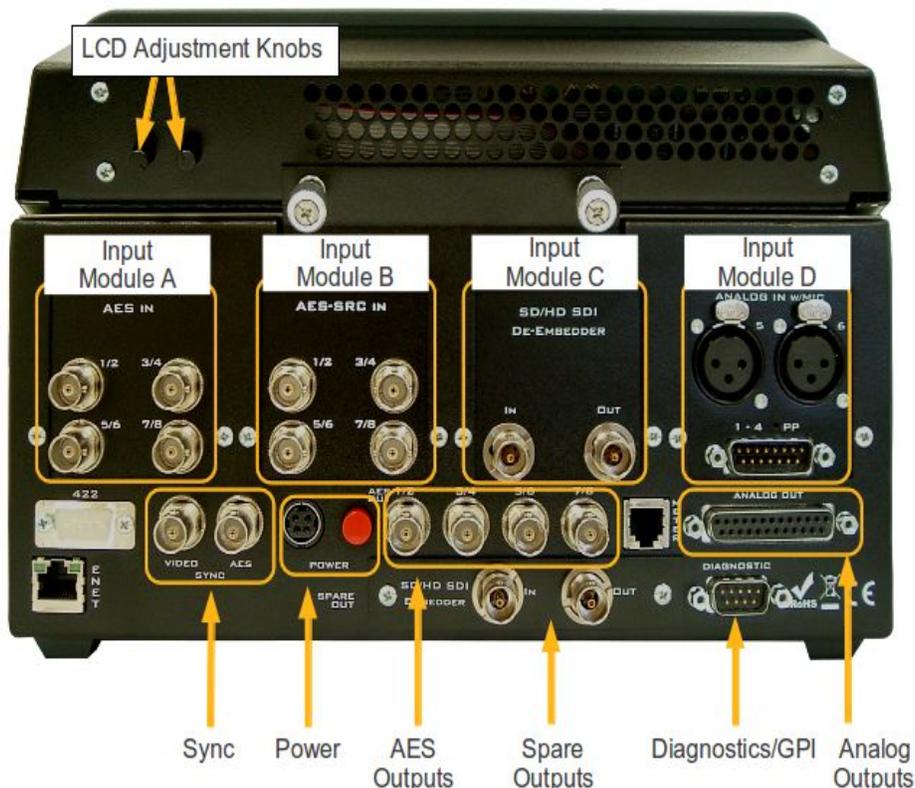


Figure 120. Rear Panel Details

### **LCD Adjustment Knobs**

Two knobs on the rear of the panel set the brightness and contrast of the LCD display. The knob on the left (as seen from the rear) adjusts the LCD backlight brightness. The knob on the right adjusts the LCD contrast.

### **Input Modules**

There are four input module slots in the back of the control panel. The slots are labeled A, B, C, and D from left to right (as seen from the rear).

Each slot can accept several different types of input modules. These are typically installed at the factory, but can be installed by the user. Please consult the Blue|328 and Gray|328 Installation Guide for detailed information on installing input modules.

### **Sync**

There is an input connector for Video and/or AES sync.

### **Power**

The factory-supplied power supply must be attached to this connector. This is a locking connector to prevent accidental release.

### **AES Outputs**

Four AES outputs (8 channels) are provided via BNC connectors.

### **Spare Outputs**

The spare outputs can be either analog or digital, depending upon which optional output module is installed. For pinout information, please refer to the Installation Guide.

### **Analog Outputs**

Eight analog outputs are provided via a 25-pin D-Sub connector.

### **Diagnostics/GPI (optional)**

The Blue|328 Diagnostics port can be installed with an optional GPI interface. The optional GPI interface allows for 4 GPI inputs that can be used for recalling registers and monitoring control. Refer to “Appendix C: Diagnostic Port/GPI Option” on page 94 for more information regarding the optional GPI interface.

# Appendix B: Assigning Single Channels

Normally, you assign inputs as stereo pairs to a fader on the Blue|328. However, sometimes you need each channel of an input pair on a different fader for level control or possibly adding effects.

To do this, you just assign the same source to two faders, and turn off the output routing of half of each fader.

To assign single input channels to faders:

- 1. Assign the same input to two faders by following the steps for "Making Fader Input Assignments" on page 50 for both faders. Perform the steps twice, once for each fader.
- 2. Select the first fader you assigned and follow the steps for "Setting Up Fader Output Routing" on page 53. Assign only the "left" side of the fader to an output bus.

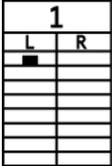


Figure 121. Single Channel Assign, Ch. 1

- 3. Select the second fader you assigned, and route the "right" side of the fader to the other desired output bus.

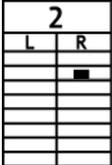


Figure 122. Single Channel Assign, Ch. 2

For example, faders 1 and 2 have inputs A 1/2 assigned to them. The "left" side of Fader 1 is routed to output bus 1 and the "right" side of fader 2 is routed to output bus 2. So, fader 1 only controls input A1 and fader 2 only controls input A2.

## Appendix C: Diagnostic Port/GPI Option

### Diagnostics Port

The Blue|328 uses the diagnostic port to communicate with the mixer's software. Though not fully supported the diagnostic port does provide access to additional functionality not found in the normal mixer operations.

#### Connection

The diagnostic port is a standard PC RS-232 9-pin serial port. Because of this it is necessary to use a null-modem adapter when communicating with a PC. Typically any PC with a serial port and terminal emulation software will work for communications.

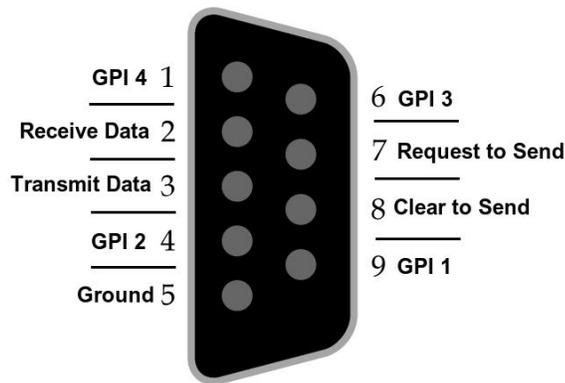


Figure 123. Diagnostic Port/GPI Pinout

The diagnostic port communicates at 115K baud, no parity, 8 data bits, and no hardware/software control. When proper communications is established the “**mon>**” prompt will appear after pressing “ENTER” on the PC.

#### Write Protect Registers

Write protect registers gives the ability to protect a register from accidentally being written over. To write protect a register:

- Using a PC connected to the mixer's diagnostic port press “ENTER” until the “**mon>**” prompt appears.
- At the monitor prompt, enter a “wp” followed by the register number and a “1” to enable write protection or a “0” to disable write protection. Here is an example of how to enable write protection on register number 1.  

```
mon> wp 1 1
mon>
```
- Here is an example of how to disable write protection on register 3.  

```
mon> wp 3 0
mon>
```

---

**Note**

When a register is write protected no saves of that register are allowed from the Register Menu. The SAVE soft button will not be available.

When a register is write protected it can not be renamed from the Register Menu. The RENAME soft button will not be available.

When a register is write protected it cannot be deleted from the USB Register Management Menu.

---

### Pan Pot Offset Calibration

The pan pot offset calibration is used to calibrate the pan pot mechanical center detent to the exact audio 'center' of a stereo pair. This offset calibration is stored locally in the mixer's flash memory. The pan pot calibration is performed at the factory and under normal operating conditions does not need to be re-calibrated.

In the event the mixer's flash memory is changed or the mixer's Fader/Switch module is changed it maybe necessary to re-calibrate the pan pots. Indication that a re-calibration is necessary is when the pan pots are centered yet the left or right pan indicators in the Main View are still visible. Refer to "Main View" on page 22 for more information.

---

**Note**

Always make sure that there are no audio offsets present before checking pan pot indicators. Refer to "Fader Level View" on page 28 for more information.

---

To re-calibrate the pan pots perform the following:

1. Adjust all pan pots to their center detent position.
2. Enter "pan" at the **mon>** prompt.
3. The mixer will respond with a "Pan offsets saved" indicating that the re-calibration is complete.

---

**Note**

After a pan pot calibration is performed it is necessary to re-adjust each pan pot in order for the new calibration values to take effect.

---

## GPI Interface (Optional)

The optional GPI (General Purpose Interface) adds 4 GPI inputs to the Blue|328. The four GPI inputs are defined as follows:

- **GPI 1:** Progam bus selected for monitoring.
- **GPI 2:** Record Return inputs selected for monitoring.
- **GPI 3:** Recall next register.
- **GPI 4:** Recall register 1.

*Note*

---

The optional GPI interface can only be factory installed.

All GPI inputs are contact closure to ground.

All GPI inputs have internal pull-ups.

---

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