Max Air

Operation Manual

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Note: *This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.*

Caution: *Any changes or modifications made by the user that are not expressly approved by Euphonix could void the user's right to operate the equipment.*

IMPORTANT SAFETY INSTRUCTIONS



The lighting flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.

The exclamation point within an equilateral triangle, is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this apparatus near water.

6) Clean only with a dry cloth.

7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11) Only use attachments/accessories specified by the manufacturer.

12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15) **WARNING** – TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

16) Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.

17) To completely disconnect this equipment from the AC Mains, disconnect the power supply cord plug from the AC receptacle.

18) The mains plug of the power supply cord shall remain readily operable.

19) This unit is provided with a power supply cord set suitable for 120V AC input only (for U.S.A. and Canada). For other than U.S.A. and Canada, a qualified person must provide for use with this unit, an appropriate, approved power supply cord set which is in compliance with the end use country requirements and has a minimum cross-sectional area of 1.0mm^2.

20) For units with more than one power cord:

    Caution: This unit has more than one power supply cord. Disconnect two power supply cords before servicing to avoid electrical shock.

    Attention: Cet appareil comporte plus d'un cordon d'alimentation. Afin de prévenir les chocs électriques, débrancher les deux cordons d'alimentation avant de faire le dépannage.

21) Operator Accessible Fuse:

    Caution: For continued protection against risk of fire, replace only with same type and rating of fuse.

    Attention: Pour ne pas compromettre la protection contre les risques d'incendie, remplacer par un fusible de même type et de même caractéristiques nominales.

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Chapter 1: Introduction

Congratulations on your purchase of Max Air, a compact high-performance digital mixing console intended for on-air broadcast and live applications. Max Air has been designed to satisfy broadcast audio professionals who demand the highest quality standards. Max Air is the perfect choice for serious broadcast audio production facilities that require a powerful digital mixing system with an easy-to-use interface.

1.1 How to Use This Manual

Euphonix has dedicated substantial time and resources to the Max Air documentation. We recognize the diverse range of experience among our customers and have written and organized the manual to be accessible to everyone. Of course it is more fun to use Max Air than read about it but we assure you that your time reading this manual will be well spent.

Manual Structure

We recommend that everyone read this introduction in its entirety. The manual contains the following chapters:

- Chapter 3: *Quickstart to Common Tasks*: Provides the fastest way to begin using Max Air's basic features. Since this chapter depends on using the Touchscreen, read page 45–48 to acquire introductory knowledge before beginning.
- Chapter 4: *Touchscreen*: Since Max Air uses Touchscreen software to implement its ground-breaking user-interface, it is important to get acquainted with this new technology. We recommend reading this chapter in its entirety.
- Chapter 5: *Channels and Strips*: Discusses the physical area of the console used to control channels and the channel processing functions.
- Chapter 6: *Busses*: Discusses Max Air's bus system consisting of 24 Main busses, 24 Group busses, 16 Aux busses, and a stereo solo bus.
- Chapter 7: *Center Section*: Discusses Max Air's center section including the Super Channel, monitors, talkback/slate, oscillator, solo, Soft Knobs, faders, keypad, global functions, and Custom keys.
- Chapter 8: *Control Groups and Multi Format Masters*: Discusses how to use Control Groups and Multi Format Masters and the difference between them.
- Chapter 9: *Layouts and Snapshots*: Discusses how to store/recall channel-to-strip mappings (layouts) to the console and how to store/recall channel functions (snapshots).
- Chapter 10: *Event System*: Discusses how to use the event system to program Max Air.

How to Use the PDF

The Acrobat PDF version of this manual provided in your system can be a valuable "on-line help" learning tool while using Max Air. We have included some amenities that we wish to explain for those not familiar with Acrobat:

- The Bookmarks on the left serve as a continuously visible table of contents while reading. Click on a subject heading to jump to that page. Click a + symbol to expand that heading to show subheadings. Click the - symbol to collapse the subheadings.

- The manual's table of contents and list of figures are "active links" to their pages. Select the "hand" cursor, allow it to hover over the heading and turn into a "finger." Then click to locate to that subject and page.

- All cross references are active links. Allow the "hand" cursor to hover over the reference, turn into a "finger," and click to follow the reference.

- Use the left and right arrow keys on the top bar to go back and forth between views. This is a great way to follow a cross reference and return to the page from which you were reading.

- Select the **Find** item from the Edit menu (Ctrl-F) to search for a subject. This can be used as an "index on the fly."

- Use the magnifying glass tool or the zoom edit box on the top bar to zoom in/out. This is helpful when examining a complex graphic or setting the text size for easy reading online.

Acrobat Reader version 4 or later is required to open the PDF. This can be downloaded for free at http://www.adobe.com/products/acrobat/readstep2.html.

1.2 Overview of the System Components

1.2.1 DF64 Digital Audio Frame

The DF64 Digital Frame performs all Max Air audio processing: dynamics and EQ; Main, Record, Aux, and Monitor busses. Max Air can employ two *Mixer Models* that utilize one DF64 (one with and one without an SH612 Studio Hub), both of which have the following characteristics: 96 channels, 24 groups/clean feeds, 16 Aux busses, 24 Main busses and 24 external inputs).

1.2.2 Analog and Digital I/O

The engineer has complete freedom to decide how to route sources and destinations to the console from the Touchscreen Patch View, which easily handles 224 digital and analog sources. Max Air can be expanded to accommodate 672 sources, suitable for large commercial installations.

Digital and analog I/O units connect all of the devices in the studio via MADI. All audio signals are converted to and from the MADI format through analog and digital converters. The basic Max Air system includes four MADI Inputs and three Outputs to connect I/O devices. Additional MADI ports can be added by expanding the system with an SH612 Studio Hub MADI Router. Each 75-Ω coaxial MADI cable can carry up to 56 channels of 24-bit digital audio at 44.1 or 48 kHz. These MADI inputs and outputs appear at the console's internal router/patchbay. See *Console I/O* on page 55 for more information.

Microphone Inputs

Microphone inputs are handled by the ML530 Mic/Line Interfaces. Each unit contains 24 remote-controlled microphone preamps. Each ML530 is connected to a dedicated AM713 Analog to MADI Converter. A system can include up to seven ML530s.

Monitoring

The MC524 Monitor Controller provides analog monitor outputs. This unit provides Main (7.1), Alt 1 (5.1), and Alt 2 (stereo) control room monitoring, SLS (7.1), and Cues 1–3 (each stereo) studio monitoring, two talkback preamps, and four listen microphone preamps. The MC524 is connected to a dedicated MA703 MADI to Analog Converter.

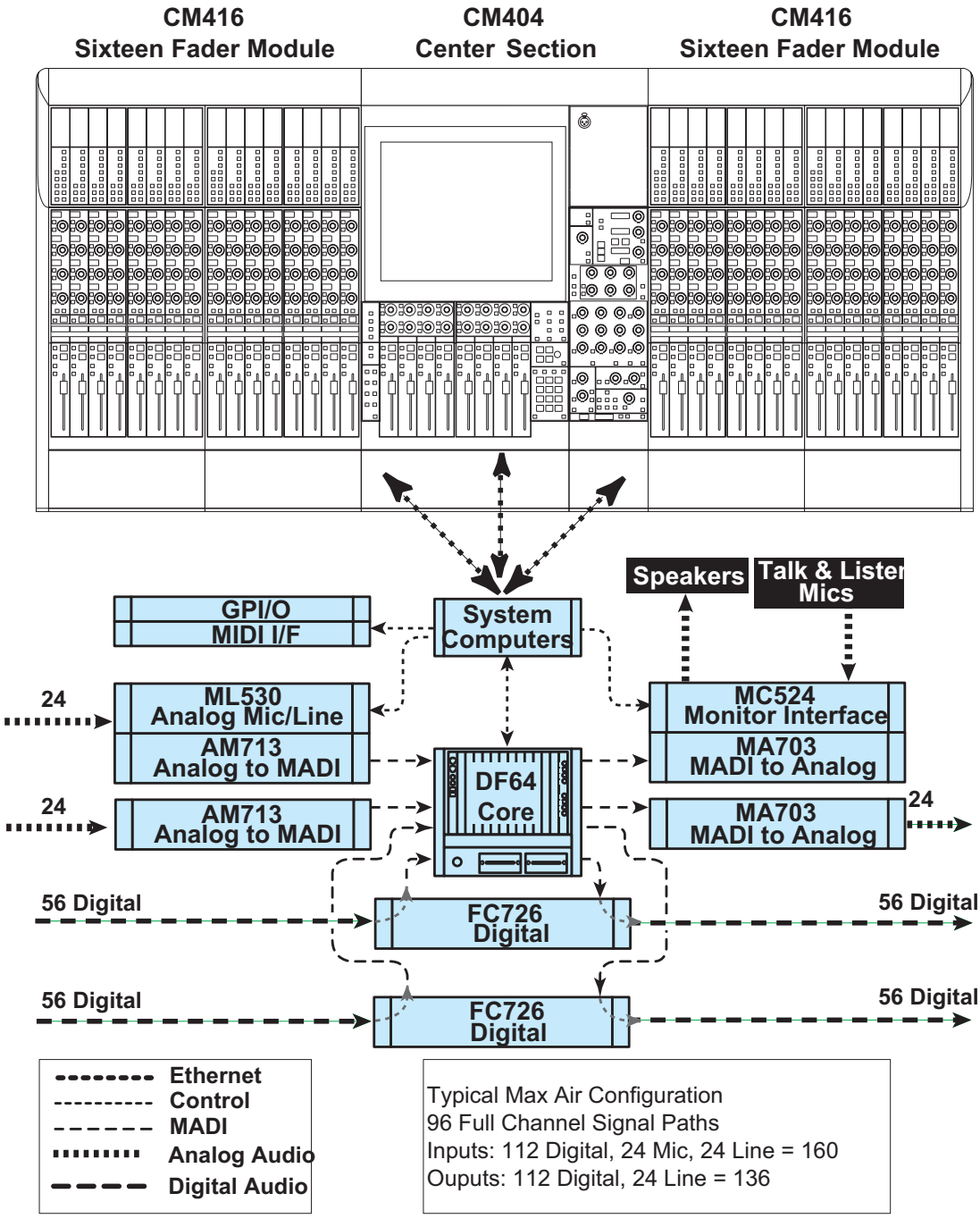


Figure 1-1 Typical Max Air Hardware Configuration

1.2.3 Control Surface

Max Air features a professional modular control surface that can be easily configured to suit a variety of operational layouts. The CM416 module contains sixteen identical *strips*, the physical area on the console that contains keys, knobs, displays, and a fader. *Channels* perform all of the signal processing (EQ, dynamics, routing, gain, etc.). The control surface connects to the DF64 via ethernet and the EuCon Hub; audio does not pass through the control surface.

The Max Air control surface consists of a CM404 center section with Touchscreen (1), Super Channel (4), Soft Knobs (2) and 8 center section faders (3). The channel strips (5), of which there can be a total of 48 (3 CM416 modules), contain a function select area (6), four assignable knobs (7) and a fader (8).

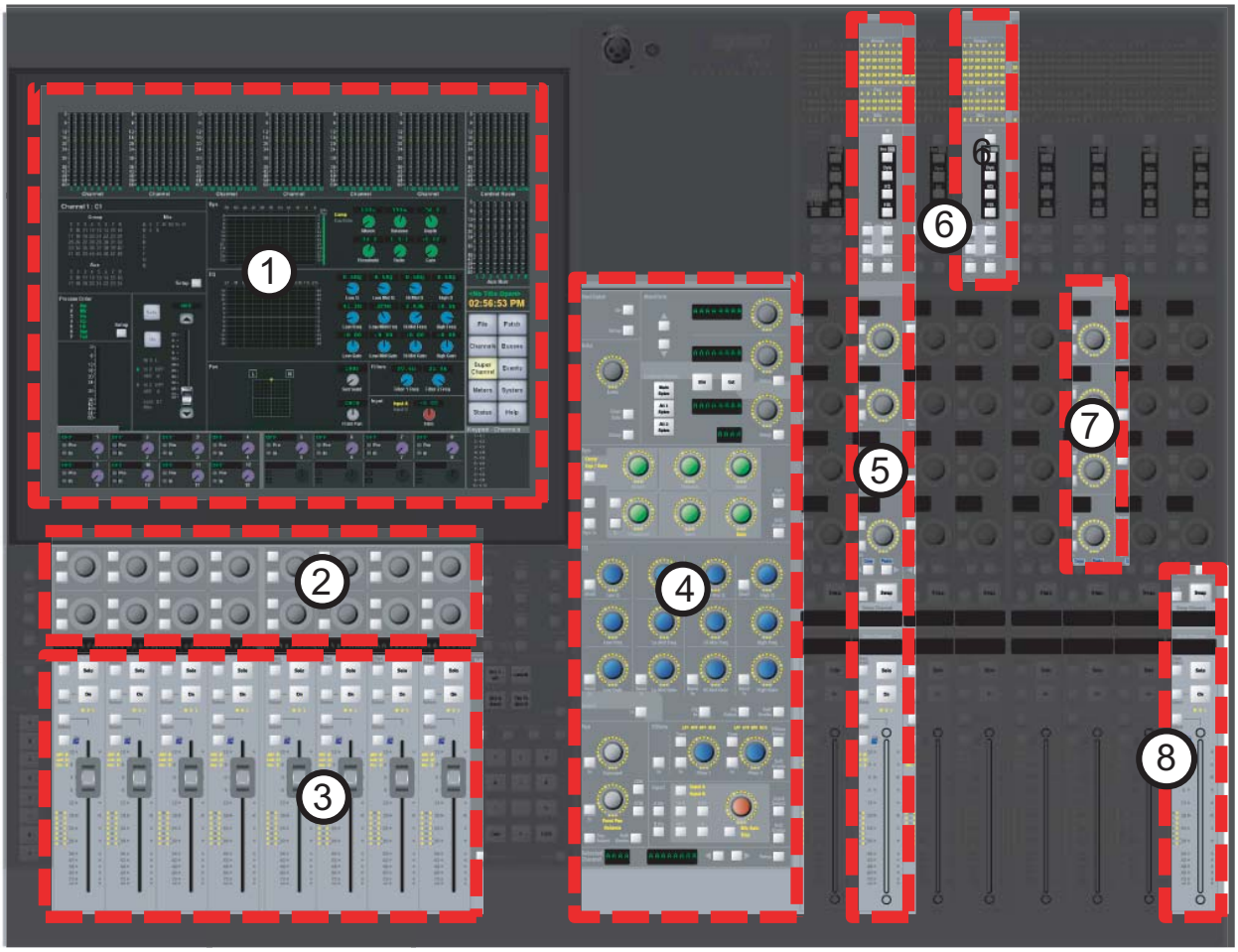


Figure 1-2 Max Air Control Surface

Channels and Strips

A CM416 module contains sixteen identical ***Strips***. The Strip is the physical control area on the console that contains keys, knobs, displays, and a fader. A ***Channel*** performs all of the signal processing (EQ, dynamics, routing, gain, etc.). Max Air has 96 channels, each of which may be assigned to a Strip. A Strip has room for ***Swap*** and ***Main*** channels that can be switched with one button press. Max Air allows tremendous flexibility with how Strips are assigned channels and how they are controlled.

Channel Format

Most analog consoles are limited to mono or stereo channels. Max Air supports mono and stereo channels as well as LCRS, 5.1, 6.1, and 7.1 Multi Format Masters (Chapter 8: *Control Groups and Multi Format Masters*).

1.3 Additional Hardware Components

The following hardware devices are also used in the Max Air system:

- **System Computer (SC261)**: Runs the Max Air Touchscreen software application; all file management and system setup is done from this computer. See Chapter 4: *Touchscreen*.
- **Interface Pilot Computer (PC253i)**: Supervises control functions for the analog monitor controller, remote microphone preamps, and transport control.
- **Digital Pilot Computer (PC253d)**: Controls a digital audio frame (DF64).
- **Studio Hub (SH612)**: This optional device can be used to add additional MADI ports to route digital audio to and from the DF64 and the system I/O devices.

NOTE: *This brief description to the Max Air hardware components is intended to introduce the reader to the audio path in and out of the system. More detailed information about all of the hardware is covered in the Max Air Technical Manual.*

1.4 Max Air Startup Sequence

With all system components turned off:

1. Turn on all of the surface modules.
2. Turn on the SC261 System Computer
3. Make sure the system digital sync source is on.
4. Turn on the SH612 Studio Hub (if present), all I/O units, the MOTU MIDI Interface and the GP132.
5. The System Computer will finish booting to the Windows desktop.

With the system computer booted and the SH612 Studio Hub (if present), all I/O units, the MOTU MIDI Interface and the GP132 turned on:

1. Double-click the **Max Air** icon on the desktop.
2. Turn on the PC253i Interface Pilot, the PC253d Digital Pilot and the DF64.
3. If the modules on the system have previously been saved as default, Max Air will continue to boot when all modules reach 100%.
4. If modules appear as **Unexpected**, the user can select all of the modules by holding down the **Ctrl** key on the keyboard and selecting each of them. When all modules are selected, touch **Save selected as default**, and confirm the selection by clicking **OK**.
5. Click **Continue** to finish booting.

Since Max Air has been designed for live, on-air applications, the system is designed to tolerate variations in the startup sequence. The system will boot properly if power is applied to all components simultaneously. If this occurs, be sure to check that all components are properly locked to a valid master digital sync source.

To restart the system:

1. Shutdown the System PC with the **Shutdown** button in the About View.
2. Reset the CM404 and CM408 surface modules.
3. Power off the Digital Pilot, Interface Pilot, and DF64 core.
4. Power on the System PC.

   Since this takes the longest to boot, power it up first.
5. Power on the Digital Pilot and Interface Pilot.
6. Power on the DF64.

   The DF64 must be off for 5 s before powering back on to discharge the PSUs.
7. The system will boot the rest of the way by itself.

Chapter 2: New Features in Version 1.4

Mix Bus Terminology

Newer Max Air surface hardware now uses the term *Main Bus* instead of *Mix Bus*. The manual has been updated to reflect this change. The two terms can be used interchangeably.

Mixer Model

A new Mixer Model now supports 24 Aux busses.

USB Support

The Max Air System Computer now supports removable USB memory devices and drives. Removable USB devices can be used to save titles and configuration data.

Router Mnemonics

Max Air now provides support for displaying router mnemonics on channels which are fed from a facility router (see page 58).

Preferences

The Preferences tab in the System View has several new items (see page 72).

Aux Bus Configuration

Aux bus parameters can now be quickly set for multiple Aux busses (unity, pre-/post-fader, on/off, stereo/mono). Level settings can be copied from Faders to Aux and from Aux to Aux. It is also possible to control Aux busses from the faders. Aux busses now have a gain range from off to +12 dB to match the range of the channel fader (see page 114).

Chapter 3: Quickstart to Common Tasks

Since this chapter depends on using the Touchscreen, please read page 45–48 to acquire introductory knowledge before beginning.

3.1 Create a Title

We will begin by creating a Title that allows you to save console and patch settings for later recall.

On the Touchscreen:

1. Select **File** from the Main Menu buttons.
2. Select the **Drives** tab.
3. Select the **C:** drive (the C: Local Disk drive).
4. Select the **Projects** tab.
5. Create a new Project by touching the **New** button.

   A Project is a folder that contains titles for a show, location, or operator.
6. Name the project using the keyboard popup and press **Enter**.
7. Select **Titles** tab.
8. Create a new Title by pressing the **New** button.

   A Title can contain all settings for a show, each engineer can have their own Title, different Titles can be used for different versions of the same show.
9. Name the Title using the keyboard popup and press **Enter**.
10. To save the current console setup into the newly created Title, press **Yes** when prompted to **Save Current Data**. To clear the console setup back to the Default Title settings, press **No** to save the new title without the current console settings.

3.2 Initial Router and Patchbay Setup

Max Air has an internal router that acts as a digital patchbay, allowing connection to Sources, Console I/O and Destinations.

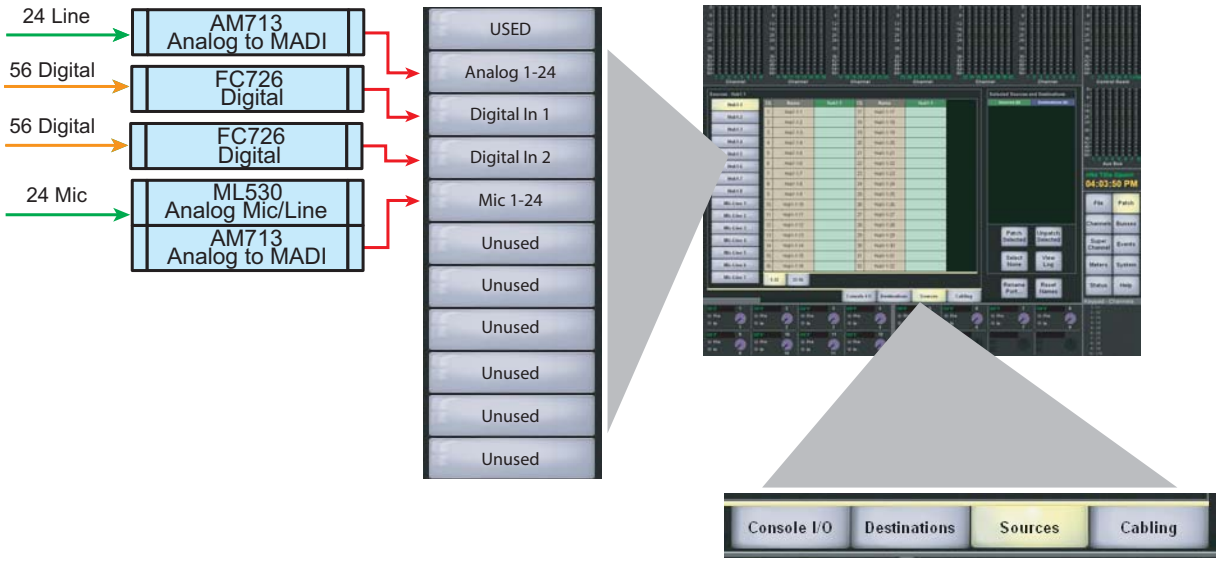


Figure 3-1 Console Sources

Each button along the left of the Patch view (Figure 3-1) represents a MADI connection to an I/O device. These MADI "Ports" are initially labeled as Hubx-x. We will start by renaming these inputs and outputs and the individual sources and destinations to meaningful labels. This is like labelling a patchbay with the equipment available for patching. Once this is done these settings can be saved as the Default Title and used for newly created Titles. Commonly used patches can be added to the Default Title setup in the same way a traditional patchbay can be normalled.

3.2.1 Name Ports

1. Select **Patch** from the Main Menu buttons on the right of the Touchscreen.
2. Select the **Sources** tab in the Patch view.

We will rename ports to match the connections of the system shown in Figure 1-1. The first MADI input (Hub1-1) is connected to 24 Mic Preamps.

3. Select **Hub1-1** on the left of the screen.
4. Touch **Rename Port**. Type *USED (Mics 1-24)* using the keyboard popup.

5. Select **Hub1-2** and touch **Rename Port**. Type *Analog 1-24*.
6. Select **Hub1-3** and touch **Rename Port**. Type *Digital In 1*.
7. Select **Hub1-4** and touch **Rename Port**. *Type Digital In 2*.
8. If any of the MADI inputs are not connected, rename them *UNUSED*. Use the keyboard commands <Ctrl-C> and <Ctrl-V> to copy and paste *UNUSED* to save time.

NOTE: *Systems with a SH612 Studio Hub will display additional ports.*

3.2.2 Assigning the Mic Preamps to Hubs

In the above example the first MADI input port is used for the Mic Preamps. The patch system must be informed which MADI input each ML530 (24-Channel Mic Pre) connects to so their input controls appear on the corresponding input channel knobset.

1. In the Patch view, select the **Cabling** tab.
2. Select **MADI Out Ports** from the list on the left.

   These refer to the MADI output of external mic preamps, each with 24 channels. In our example, we only have one.
3. Select the green **MADI Out** box next to Mic1 Port.

   It is displayed in the Sources list on the right.
4. Select **MADI In Ports** from the list on the left.
5. Select the blue **MADI In** box next to Hub1-1.

   It is displayed in the Destinations list on the right.
6. Touch **Patch Selected** to make the connection.

The console now knows how the mic/line interface is connected so the proper input controls appear at the top of the channels they are connected to.

Because Hub1-1 has been designated as a MADI connection to the Mic/Line interface, selecting the Hub1-1 sub-category in **Sources** shows Device Patch in the first 24 cells and will not allow selection unless they are unpatched.

3.2.3 Label Destination Ports and Signals

Select the **Destinations** tab to name the output MADI ports and their individual signals. Their names will depend on how these MADI ports are connected to the outside world. In the system diagram (Figure 1-1), four ports are shown. One of these ports is always used for the monitor outputs that connect to the MC524 Monitor Interface so only three ports appear in the destinations list as Hub1-1, Hub1-2, Hub1-3. In the above example, Hub1-1 is connected to 24 analog outputs, the other two to 56-channel digital format converters. Rename the Hub1-1, Hub1-2, Hub1-3 ports and their individual signals.

3.2.4 Label Individual Signals

From the Patch view:

1. Select the **Sources** tab.
2. Select **Mic Line 1** from the list on the left.
3. Select **Rename Port** and enter *Mic 1-24* using the keyboard popup.

   This enters meaningful names into each of the 24 mic input name slots.
4. Each mic can now be individually named. Touch the first beige box in the **Name** column that shows **Mic 1-24-1**. Use the keyboard popup to rename it *Mic 1*. You can use the hardware keyboard's down arrow to tab to the next name field.
5. Touch the gray **Analog 1-24** button (the second gray button from the top-left, originally labeled **Hub 1-2**).
6. The names in the beige Name list can now be changed to reflect the actual sources connected to these 24 analog inputs (VTRA1, VTRA2, TEL1, etc.).
7. Touch the gray **Digital In 1** gray button (the third from top-left) to rename the individual digital inputs from the third MADI port. Do the same for the fourth Hub input we earlier named Digital In 2.

3.3 Channel to Strip Layout

Euphonix digital consoles allow the user to adjust the relationship between the 96 logical channels (logical channels are the actual channel signal paths) and the 16–48 physical channel strips on the surface.

Each channel strip has a **Swap** button that switches the Strip between the Main and Swap channels. Backup mics are often connected to the Swap channel to allow swift changeover at the push of a dedicated button.

To create an easy starting point, we will assign 96 logical channels to the 32 physical strips as shown in Table 3-1.

Table 3-1 Mapping Logical Channels to Physical Strips

Physical Strips	Logical Channels
Main Strips 1-16	Logical Channels 1-16
Swap Strips 1-16	Logical Channels 17-32
Main Strips 17-32	Logical Channels 33-64 (16 stereo channels)
Swap Strips 17-32	Logical Channels 65-96 (16 stereo channels)

3.3.1 Setting up Stereo Channels using MF Masters

Table 3-1 shows that the first 32 logical channels are mono channels, 33–96 are stereo channels.

A Multi Format Master is a single control strip that can control more than one channel. It can be setup as a stereo master (controlling 2 channels) with a balance control and Left/Right to Mono selection. The MF Master Strip controls both channels: adjusting the EQ on a Stereo MF Master adjusts the EQ's of the two channels assigned to it.

Setup Stereo Multi Format Masters for Channels 33-96

1. Select **Channels** from the Main Menu buttons.
2. Select the **MF Masters** tab, and the **Masters 1-8** tab under the bank of buttons.
3. In the **Format Selector**, press the arrows to display **Stereo**.

   The eight boxes below show the channels controlled by this format (two for stereo, L and R).
4. In the list of logical channels to the left, press the arrows to display the third page (channels 33–48**)**.

5. To make the first MF Master (labeled M1) control channels 33 and 34 simply select buttons **33** and **34** in the first row and press the **Set Format** button.

   The format displayed (in this case Stereo) on these channel buttons is **St L** and **St R**, showing that these two channels can now be controlled as a stereo pair from MF Master 1.

   To set six channels to be controlled as a 5.1 format is identical: just select the 5.1 format from the Format Selector and select six rather than two channels.

6. The MF Master can be named to correspond to the actual source. Touch the MF Master's button (they default to M1, M2, etc.) on the left and name them with the keyboard popup (ST1, ST2 or with actual source names such as VTR1).

7. To assign the rest of channels to MF masters, repeat the process for each MF master button.

3.3.2 Assign Channels to Strips

1. Touch the **Channels** menu button on the right side of the screen
2. Select the **Assign** tab.
3. Select the **Select Range** button.

To assign Channels to Strips:

4. Select the **1–48** tab beneath the left bank of buttons called Channels. Select channels **1–16** from the bank by pressing channel **1** button and then **16**.

   All 16 channels are selected.

5. Select the **Main** tab beneath the right bank of buttons called Strips. Touch the Strip **1** button to select and assign the 16 channels on the left to the 16 main strips on the right.

   The next 16 Strips starting at Strip 1 were automatically assigned to save time. The first 16 Strips light up on the control surface.

6. Select channels **17–32** from the left channel bank of buttons. Select the **Swap** tab beneath the right bank of strip buttons. Touch Strip **1** to assign channels 17–32 to the first 16 Swap channels.

   The Swap designations light up just beneath the **Swap** button on each of the first 16 Strips on the control surface.

To assign MF Masters to Strips:

7. Select the **MF Masters** tab from beneath the left bank of buttons
8. Select MF Masters **1–16** and select the **Main** tab button beneath the right Strips bank of buttons.

9. Touch the Strip **17** button in the right bank to assign the first 16 MF Master to Main Strips 17–32.
10. Select MF Masters **17–32** and assign them to Swap Strips 17–32.

NOTE: *To simply and quickly assign channels 1-x to Strips 1-x, press the **1:1** button. However, use caution because this overwrites previous assignments!*

3.4 Busses

3.4.1 Create Main Sections and Audio Subgroups

Max Air has 24 individual Main busses that can be grouped into 16 sections labeled A–H and J–U (*I*, *L*, *M*, *N*, and *O* have been omitted to avoid being confused with one another). Main sections can be setup in the following formats:

mono (M)
mono LR (M, M)
stereo (L, R)
LCRS (L, C, R, S)
5.1 (L, C, R, SL, SR, B)
6.1 (L, C, R, SL, SR, SC, B)
7.1 (L, LC, C, RC, R, SL, SC, SR, B)

Main sections can be set to different formats (i.e., A = stereo, B = mono, C =5.1). These are the Main output groups of the console which can be monitored directly from the control room monitor section. They can also be used as audio subgroups and clean feeds.

Setup Subgroups and Main Program Output

This example creates four stereo subgroups using Main sections A–D and sets the main stereo program to Main section E.

1. Select **Busses** from the Main Menu buttons.
2. Select the **Main** tab at the bottom.
3. Select the **A–H Sections** tab beneath the bank of buttons.
4. Make sure Main busses 1–16 are shown by using the arrows to locate page 1 of 2.
5. Select **Stereo** in the Format Selector.
6. Touch Main Bus buttons **1** and **2** in the first row (Main section A).

7. Touch **Set Format** to make busses 1 and 2 into a stereo pair assigned to Main section A.

   The Main Section Master Level control can be mapped to the Soft Knobs just below the screen by pressing the **Main Masters** key just below the screen in the Soft Knobs section. This allows the main section to be switched on/off and level trimmed.

8. Assign Main busses 3 and 4 as Stereo to main section B, 5 and 6 to main section C, 7 and 8 to main section D, 9 and 10 to main section E.

9. Since main section E is the main stereo program bus, press the **E** button on the left and name it *Prog* in the keyboard popup. Name the other main sections SubA, SubB, etc.

Setup Four Output Faders for Main Sections A–D

Create four stereo MF Masters to act as Subgroup Master Channels fed from Main sections A–D. This allows fader level control and full output processing.

1. Select **Channels** from the Main Menu buttons.

2. Select the **MF Masters** tab.

3. Since MF Masters 1–32 are already used, select the **Masters 33–40** tab beneath the bank of channel buttons.

4. Page through the channels to show **Page 7 of 7**.

   This brings up *bonus* channels 97–106. These extra channels are very useful as processing channels for group masters. Max Air only allows the first 96 channels to be assigned to Strips, so these bonus channels are always available for subgroup masters.

5. Assign channels 97 and 98 as a stereo pair to MF Master 33, channels 99 and 100 to MF Master 34, channels 101 and 102 to MF Master 35 and channels 103 and 104 to MF Master 36.

6. Touch the four MF Masters buttons (M33, M34, etc.) to name them in the keyboard popup (SubA, SubB, SubC and SubD).

Patch the Main section outputs A–D into these channels.

7. Select **Patch** from the Main Menu buttons.

8. Select the **Console I/O** tab.

9. Select the **Main Busses** gray button on the left and the **1–16** tab to show the first 16 Main busses.

10. Touch and drag through the first eight bus outputs in the green **Out** column to select Main Bus Outputs 1–8 (used by Main sections A–D, labelled Sub A, etc.).

11. Select the **A and B Inputs** gray button on the left and the **97–106** tab.
12. Touch and drag through the blue **A Input** column to select the A inputs of channels 97–104.
13. Touch the **Patch Selected** button to make the patch.

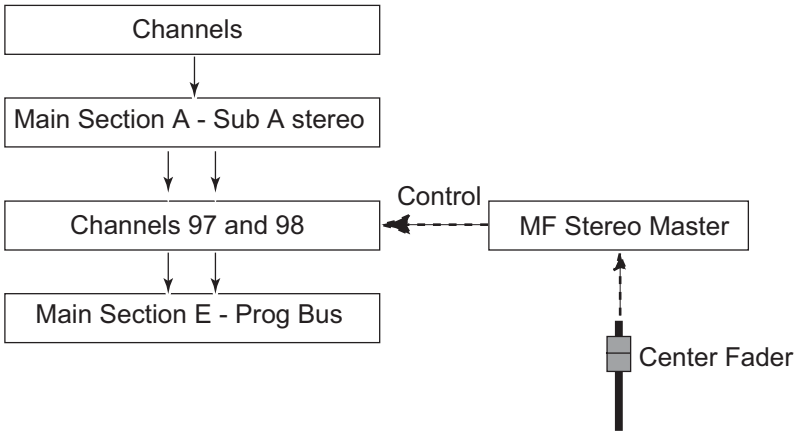


Figure 3-2 Main Section A signal flow

Bring up the Subgroups on the Center Faders

1. Select **Channels** from the Main Menu buttons.
2. Select the **Assign** tab at the bottom.
3. Select **MF Masters** beneath the left bank of buttons.
4. Select the four MF Masters from the left bank of buttons that control the A, B, C and D Subgroups (MF Masters 33–36).

   The **Select Range** button must be selected.
5. Touch the **Center** tab under the right bank of buttons and touch the first button labeled **1** to assign the four MF Masters to the first four faders in the center.

   Their designations light up on the surface to show they have been assigned.

It is also possible to use two channels (105 and 106) controlled by another MF Master to act as main signal processing stereo channel for the program bus E if required. These would be set up as above fed from Main section E. The main program output would be the channel output of channels 105 and 106. These patch points are found within the **Console I/O** tab of the Patch view under **Channel/Main- Outs** from the list of buttons on the left.

In the above examples we used the Main sections as subgroups because it is easy to assign channels to these Main sections: simply select Main section A and the channel is routed to this stereo bus. It is also easy to Monitor these subgroups because the Monitor section directly monitors the Main sections.

3.4.2 Route to the Main Sections and Busses

Route Channels

1. Press **All** key on center section just below the left of the screen.
2. Press the **Main** button at the top of any strip to select Main section routing on all strips.

   The ◀▶ keys at the bottom of the knobsets allow paging if there are more than four Main sections.In this case the Prog (Main section E) appears on the 2nd page.
3. The four Main sections are shown as SubA, SubB, SubC and SubD in each Strip. To route the channel to SubA, press the **On** key next to the knob labeled SubA.

   The routing LED at the top of the Strip shows the channel is routed to Main section A. Do this for the first 16 Strips.
4. Press any Strip's **Swap** button and repeat steps 2 and 3 so that the backup mics plugged into channels 17–32 are also routed to Main section A.

Route Subgroups A–D, to the E Main Section (Program Output)

1. Press the blue **Wave** key next to the first center section fader which controls MF Master SubA.

   This brings the MF Master's parameters into the Super Channel to the right of the Touchscreen.
2. Select **Super Channel** from the Main Menu buttons to display this same MF Master's parameters on the screen.
3. Route this MF Master, which controls SubA, to the program Main section E by pressing the **Setup** button in the top left routing box on the screen.
4. Select the Main sections tab **Section A–H** and then select the **Prog** Main section (fifth from top: Main section E).
5. Repeat for the remaining three the Main sections B–D.

Alternate Method of Routing to Main Sections – Busses/Main View Screen

1. Select the **Busses** Main Menu button.
2. Select the **Main View** tab.
3. Touch the **Strip View** button and select **Main** from the arrow keys at the top.
4. Select Main section **B** from the row of buttons along the bottom.
5. Touch the top knob bank to highlight 16 channels.

   The knob bank highlighted corresponds to center section's 16 Soft Knobs.
6. Touch the **On** key using the buttons just below the screen for the applicable channels to send to sub B.
7. The arrow keys at the top allow routing for Main Strips, Swap Strips and the Center Section's eight faders (which have the MF Master Subgroups A, B, C and D assigned to them).

3.4.3 Using the 24 Group Busses

Max Air includes 24 Group busses. These are very useful for additional clean feeds or extra stereo outputs. As an example we could use Groups 1 and 2 as a stereo foldback output.

1. Select **Busses** from the Main Menu and the **Group** tab.
2. Check that 1 and 2 are set to stereo. If not select the stereo format from the Format Selector, select busses **1** and **2**, and press the **Set Format** button.

   For mono mix minus, these could be set as mono busses.
3. To route a channel to these busses, press the **Group** button at the top of a Strip. The group pairs show next to the four knobsets.
4. Press the two buttons below the 1/2 group display next to the top to route the channel to these busses.

   The routing LEDS at the top of the channel light to show routing to Groups 1 and 2.
5. The output level of the groups can be brought up on the Soft Knobs below the screen by pressing the **Group Bus Masters** button on the surface just below the right edge of the Touchscreen.

3.5 Meters

After channels are assigned to the surface, set the meters to suit your needs.

3.5.1 Setting the Fader Meters On Each Strip

We recommend beginning here since you will be able to see signal when you patch into the channel.

1. Select **Meters** from the Main Menu.
2. Select the **Fader** tab.

   This view shows all available Strips on your Max Air Console.
3. Touch **Select All**, then choose **Fader** in the Meter Display area to the right to enable the meter next to each fader on the Strips.

   When you begin patching audio into console, you will now see signal on each channel as you patch.

3.5.2 Screen Meters on the Touchscreen

There are eight meter banks across the top and down the right side of the Touchscreen. You can choose from a wide variety of signals to display here. Since there are meters set up on every channel, it is probably best to select the screen meter area to display Subgroups, Aux Masters, Solo, and Program. In this example we will place the meters for these busses on the screen.

1. Select **Meters** from the Main Menu.
2. Select the **Screen** tab.
3. Select the left-most meter bank area (selected bank shows a yellow outline box).
4. To select the four stereo subgroup masters we created earlier, press the **Main Sections** button in the Function area.
5. Select Main section **A** (labeled **SubA** in the Main Section box).

   You will see the SubA stereo meters appear in the selected bank.
6. Select the adjacent meter bank to the right and repeat above steps until SubA, SubB, SubC, and SubD meters are visible.

On the fifth meter bank from the left, place eight Aux masters:

7. Select the fifth meter bank area from the left.
8. Select **Aux Busses** from the Function area – the available aux busses buttons appear on the right area of the screen.

9. Touch the **Select Range** button in the Aux Busses view. Touch **1**, then **8**.

   This places the first eight aux meters in the fifth bank.

10. Repeat above steps for the Solo (in **Solo Bus**), Program (in Main sections by selecting Main section **E**), and Control Room Meters (in **Control Room**).

The names that appear below the meters are the names assigned to the busses earlier.

Metering Multiple MF Masters in One Block

The previous example used four meter blocks to show four Main sections A–D. Because these four Main sections are assigned to four MF Masters (33–36) and to the center faders, it is possible to place all four of these stereo meters in one bank.

1. Select the bank for the meters.
2. Select the **Strips** function then select the **Center** tab.
3. Select a meter bank and touch the first four buttons to bring the four MF Masters into one block.

Channel/Strip Metering

You can put channel meters along the top of the Touchscreen. There are 48 meter spaces available along the top row, not including the right corner section. Note that there are two options with the **Channels** and **Strips** buttons: channels are the actual logical channels, Strips are the physical position of the Strips on the console. If you set the meters to show channels, these will not necessarily match what is on the actual console Strips.

When you select the **Strips** button you will notice that you can set the meters to look at just the Main or the Swap or whatever is on the Fader by selecting the appropriate tab below the bank of buttons. If you select **Fader**, the meters change when you press the Swap button on a Strip. The meters will read the signal path that is being controlled by the actual fader. Also note that the position of the meter point in a channel can be individually set to one of seven positions, so it can meter pre- or post-fader, pre- or post-EQ, etc. The position of the meter in the channel signal path can be set by selecting the **Super Channel** Main Menu button, then the **Setup** button in the Process Order box to the left.

3.6 Knobsets

Knobsets allow users to customize the four rotary controls on the surface to suit their individual requirements. There are six buttons at the top of each strip (Pan, Filt, EQ, Dyn, Inp and *) that determine which parameters the knobset controls. In this example, we will configure the * custom knobsets for mono and stereo channels. From bottom to top, we will configure mono channels to have mic gain, pan, aux 1 and aux 2. Stereo channels will have line trim, balance, aux 1 and aux 2.

3.6.1 Creating a Custom Knobset for Mono Channels

1. Select **System** from the Main Menu.
2. Select the ***Knobset** tab.

   The * in front of Knobset in the tab indicates that this custom set of knobs is accessible by pressing the * key at the top of each channel strip.
3. The view shows two boxes, the one on the left is a set of rotary controls and keys found on the strip. The boxes on the right are buttons that indicate the channel functions.
4. Select the bottom box on the left.

   It highlights yellow to show it is selected.
5. Select the **Input** function in the middle column.

   The grid on the right shows all input functions of the channel strip.
6. Select the A input **Gain** situated in the bottom-left of the bank of buttons.

   There are two inputs per channel each with Impedance, 48 V phantom, High-Pass Filter, Mic Gain, digital input Trim, and Phase controls. The Delay settings and the Input key (between the A and B Inputs) are common to both inputs. Note that the Impedance, 48 V phantom, High-Pass Filter, and Mic Gain controls appear only on channels that have been connected to a Mic Preamp (Channels 1–24 in the example at the beginning of the Quickstart).

   You have just configured the Mic Gain control to appear on the bottom control on the channel strip when the * key is selected on any strip.
7. Repeat the above steps choosing Pan F (Front pan) for the panner and Aux 1 and Aux 2 for the auxes. From bottom to top the four knobs will show Mic Gain, Pan, Aux 1 and Aux 2.
8. By paging to the next set of knobs using the arrow keys at the top you can set a total of 16 custom knobs.

3.6.2 Creating a Custom Knobset for Stereo Channels

1. Select **System** from the Main Menu.
2. Select the ***Knobset** tab.
3. Scroll to Page 2 using the arrow button on the top-left.
4. Select the bottom area in the left box.

   It highlights yellow to show it is selected.
5. Select the **Input** function in the middle column.

   The grid on the right shows all input functions of the channel strip.
6. Select the A input **Atrim**
7. Select the second knob area on the left and select **Input,** then **Balance**.
8. Repeat for the other knobset positions choosing Aux 1 and Aux 2.

3.7 External Device Setup

Max Air includes 24 external inputs that can be directly monitored at the touch of a button. These individual inputs need to be grouped together, assigned a format, named and attached to External Device buttons to match the external sources (i.e., Off Air Stereo, Dolby E Decoded 5.1, CD player, etc.).

3.7.1 Patching External Devices into the External Inputs

Decide the sources to be patched into external inputs. For example, the first 24 digital sources coming into the console that we labeled **Digital In 2** are external sources.

1. Select **Patch** from the Main Menu.
2. Select the **Sources** tab.
3. Select the fourth gray button which should now be labeled **Digital In 2**.
4. Select the **1–32** tab.
5. Touch and drag through the green **Digital In 2** column to select the first 24 sources.

   These appear in the green Sources list to the right.
6. Select the **Console I/O** tab and select the **Externals** button on the left.
7. Touch and drag through the blue **External** column to select all 24 External inputs.
8. Touch the **Patch Selected** button to make the patch.

The first 24 devices coming into the fourth MADI input (in this case the second Digital Format Converter) are patched to the 24 External Inputs of the console. Note that it is also possible to patch these into channels: the router allows any patch output to be sent to more than one source.

3.7.2 Assign External Inputs a Format and a Button

1. Select **System** from the Main Menu.
2. Select the **Externals** tab.
3. Select **Sets 1–8**
4. Set the format to **Stereo L R**.
5. To assign Ext Mon Inputs 1 and 2 to Device 1 button as a stereo pair, touch the buttons labeled **1** and **2** in the first row and touch **Set Format**.
6. Touch the **Device 1** button on the far left and name the device *Off Air*.
7. Repeat the steps above for all externals.

The system allows any combination of formats. For example, a 5.1 Dolby E monitor set of six inputs could be assigned as a 5.1 format to device button 2.

3.8 Monitors

Setting up the monitors is the final step to getting sound to the speakers. Note that only certain monitor outputs can handle surround outputs.

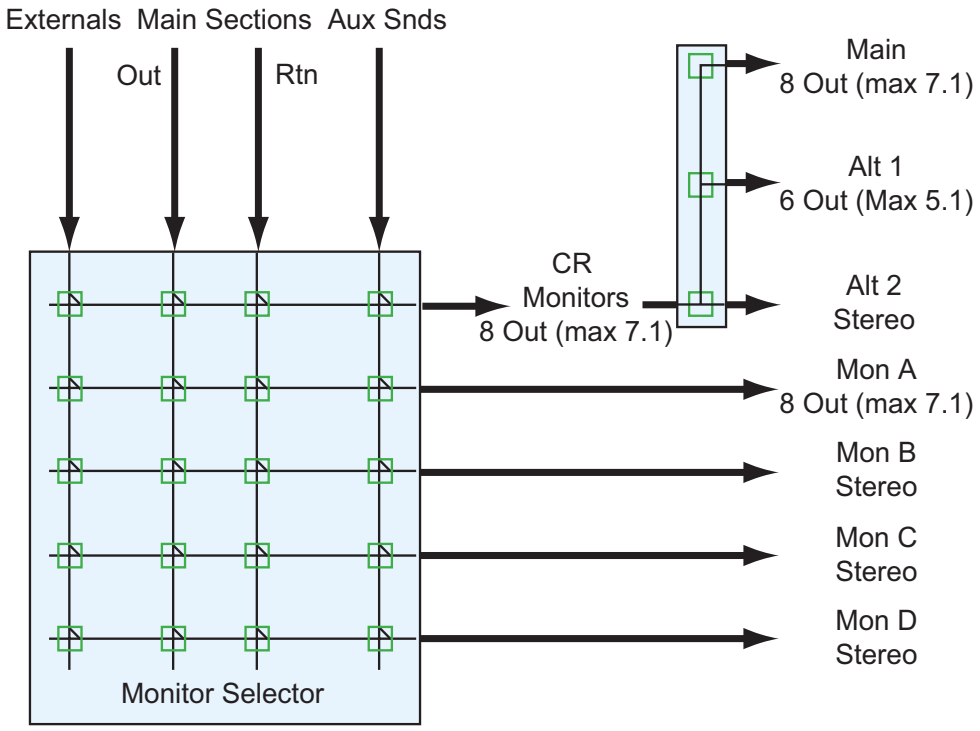


Figure 3-3 Monitor Routing

Control Room Monitors

1. Press the **Setup** button in the Control Room Monitor area of the Super Channel on the surface.
2. Select the **CR Source** tab.
3. Select the appropriate source from the screen.

   In our example the fifth Main section should be labeled *Prog* and has the main program output.

The three buttons labeled **Main Spkrs**, **Alt 1**, and **Alt 2** allow using three different speaker sets in the control room.

Monitor A–D

The four speaker sets labeled **Mon A–D** can be used for additional monitoring including green room feeds, floor foldback, etc. Setup is simple: press the **Setup** button at the top-right of the Super Channel section to bring up the source options for these monitors.

3.9 Save a Default Title

Once you have completed this setup process, you should save this Title.

1. Touch the **File** menu button and select the **Title** tab.
2. Touch the **Save** button in the **Current Title** box to save all the changes you have made. Do this frequently when making changes.
3. If you touch the **Save As Default** button, the current settings will become the default settings and will be loaded when a new Title is created.

WARNING: *Do not do execute step 3 if your technical or operational department has already set up the console and saved a Default Title.*

Chapter 4: Touchscreen

4.1 Introduction to the Touchscreen

The Max Air Touchscreen allows you to touch items on the screen that you would normally click with a mouse. The software can still be operated with a mouse and keyboard but we will confine our instructions to the "touch" interface because most users are unfamiliar with it. The main difference between a touch and conventional interface is that there is no "double-touch" corresponding to a double-click to launch or open an item.

The term *View* is used for a screen of information that is activated by touching a menu button or tab. There is no **Close** button to a View. Change Views by selecting another View.

The term *Popup* is used for a window of topical information that is opened by touching a button and closed by touching a **Close** button. A Popup is similar to a dialog box in other systems.

When a keyboard popup is presented to name something (Figure 4-1), either touch the letters onscreen or type them on the system computer keyboard. Either touch the **Enter** button onscreen or hit the **Enter** key on the system computer keyboard.



Figure 4-1 Keyboard Popup

We will use the word *select* to refer to items that stay selected or illuminated when touched, or that activate a new mode.

We will use the word *touch* to refer to items that are activated when touched but do not persist or activate a new mode.

The Max Air Touchscreen application has 10 Main Menu buttons along the right side of the screen that access its functions:



Figure 4-2 Touchscreen Main Menu Buttons

- **File**: file management
- **Patch**: digital patchbay
- **Channels**: configure Multi Format Masters, assign and name Control Groups, assign channels to Strips, configure Layouts and Snapshots, lock Strips, and set faders to unity gain
- **Busses**: configure and assign group, main, and aux busses
- **Super Channel**: shows all settings of the Super Channel
- **Events**: GPI/O event configuration
- **Meters**: configure meters and meter presets
- **System**: configure external monitor inputs, configure custom knobset, view Mixer Model, and set Preferences
- **Status**: view the status of any installed module; also performs some diagnostic functions
- **Help**: view Max Air Help files

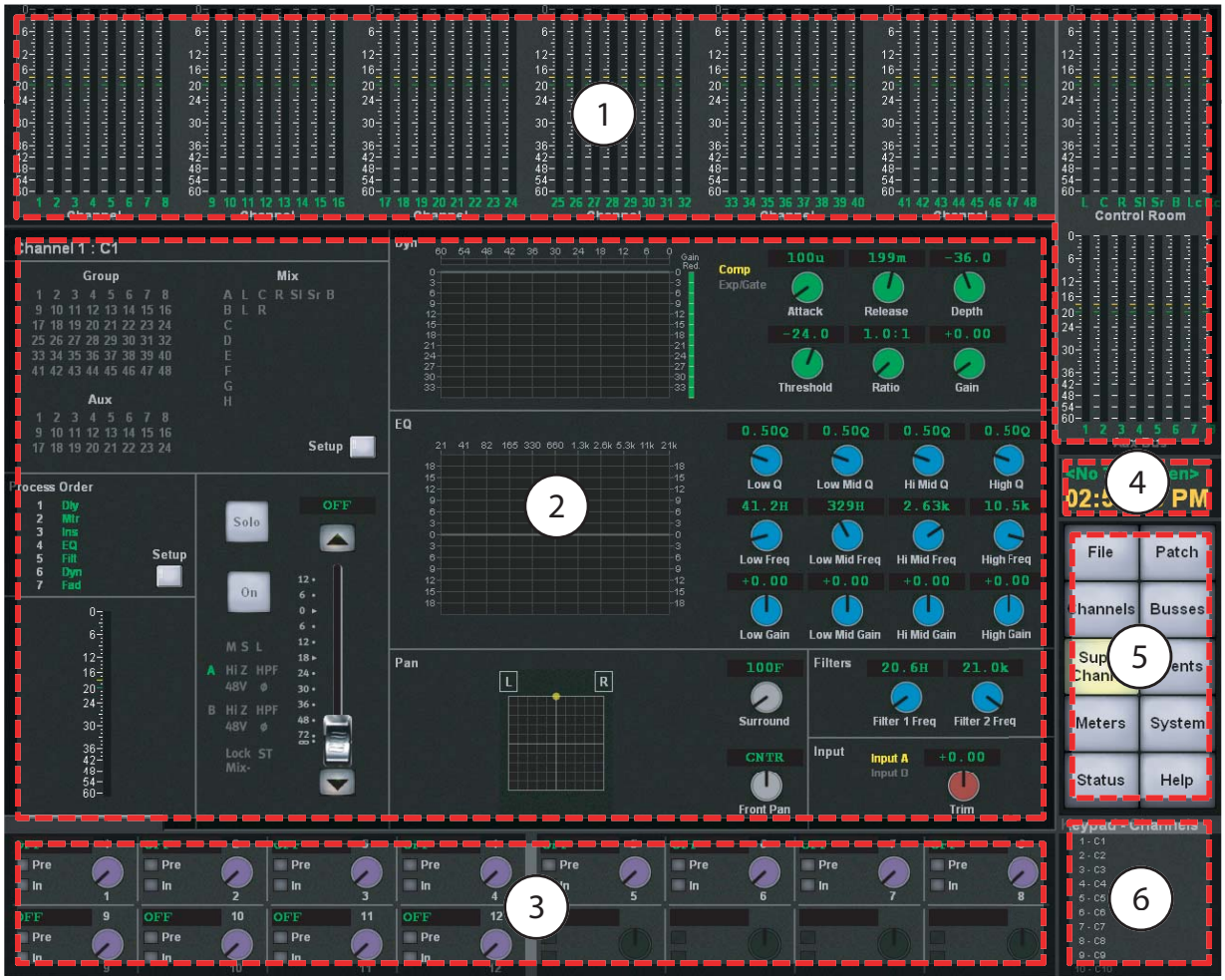


Figure 4-3 Touchscreen Main View

Four important types of information are displayed on the Touchscreen:

- **Permanent Display:** Consists of the Soft Knobs Display (3), the Main Menu buttons (5), a Keypad Function Viewer (6) and a display of the current Title and Time of Day Clock (4).
- **Meters (1):** The area at the top and upper-right of the display is used for level meters.
- **View Area (2)**: The majority of the screen area between the meters and the permanent display is used for context-sensitive Views.
- **Popups**: These are like dialog boxes used for a specific task (i.e., oscillator parameters, keyboard, etc.) that remain on screen until their task is completed or canceled.

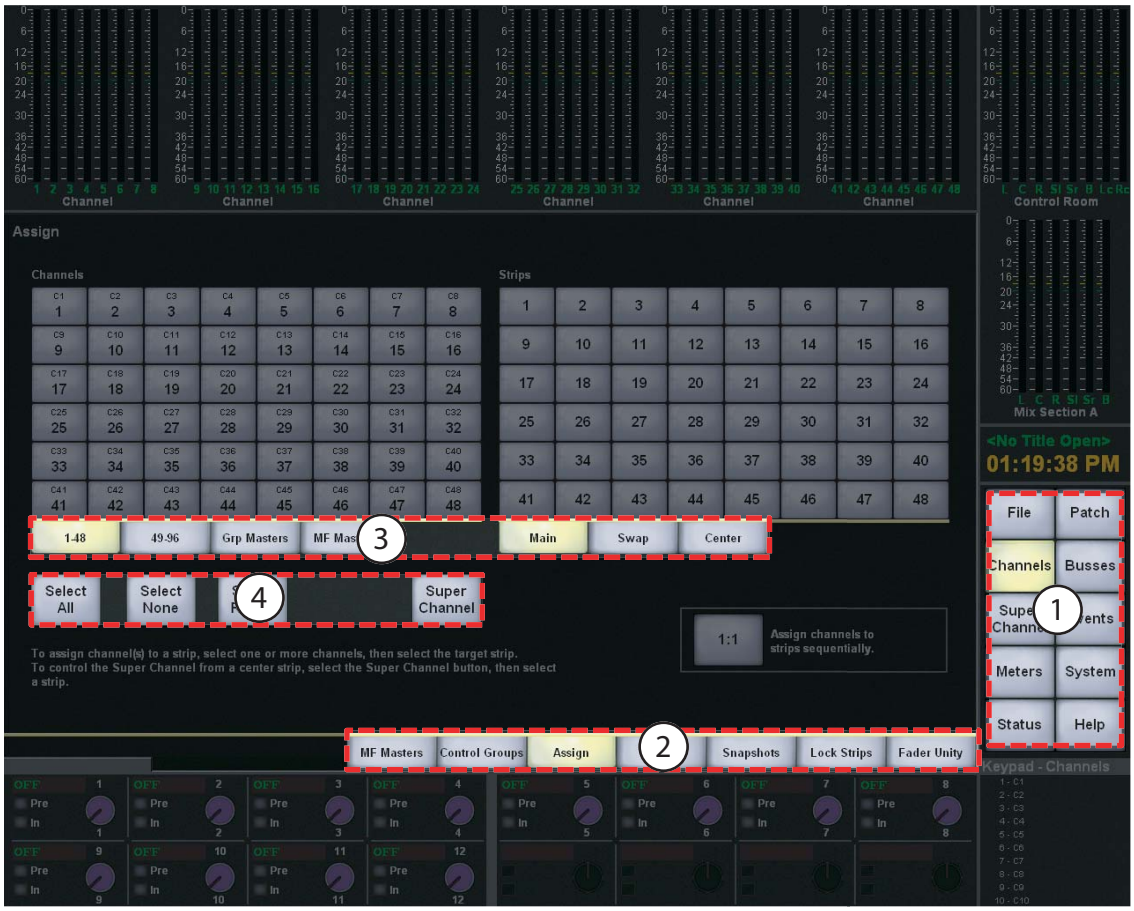


Figure 4-4 Touchscreen Navigation

Views are selected from the Main Menu buttons on the right side of the screen (1). Several views have multiple sub-views accessed by tabs (2). Within a view, Ranges Tabs (3) select additional values and Screen Buttons (4) control various functions.

4.2 File

Select the **File** button to navigate the Max Air file system. Three tabs along the bottom of the view list the main subjects: **Drives**, **Projects**, and **Titles**. The order of these tabs also represents their hierarchy (i.e., a Title is within a Project located on a Drive). File operations are almost identical to those in Windows or the Macintosh.

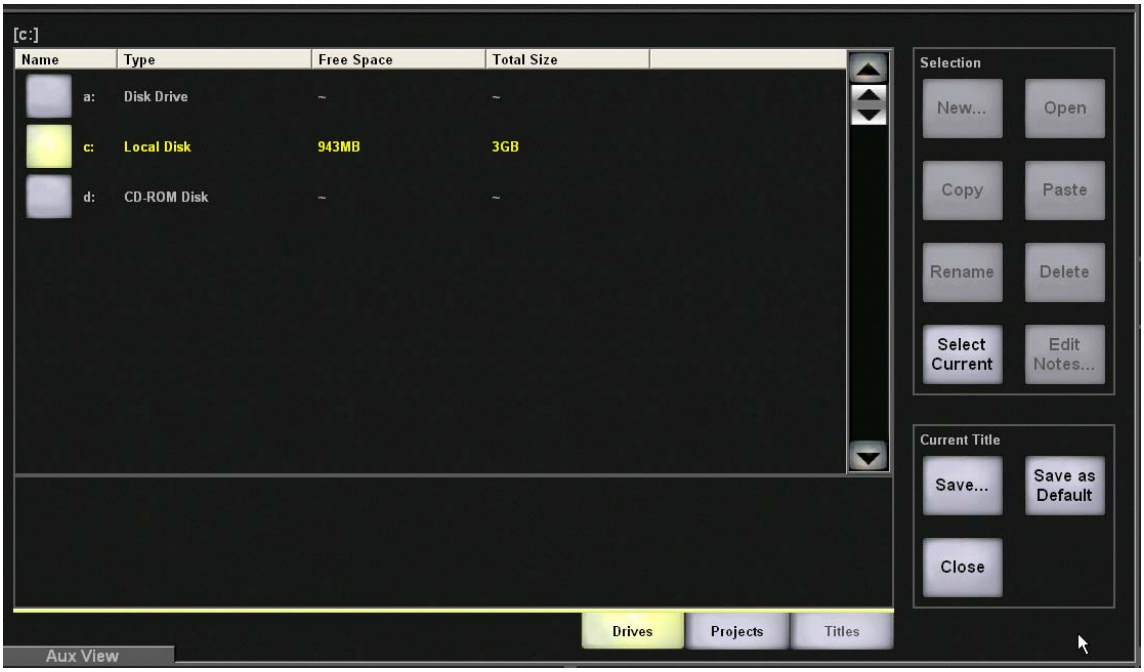


Figure 4-5 Drives View

Select the Drive on which to begin a new Project or open an existing Project. The Drive name highlights but the **Open** button is dim because it is not necessary to open the drive; just select the Projects tab to find the project to open on that Drive.

4.2.1 Projects

Select the **Projects** tab to view the Projects on the selected Drive. A Project must exist before you can create a Title. A Project is essentially a folder in which Titles are stored.

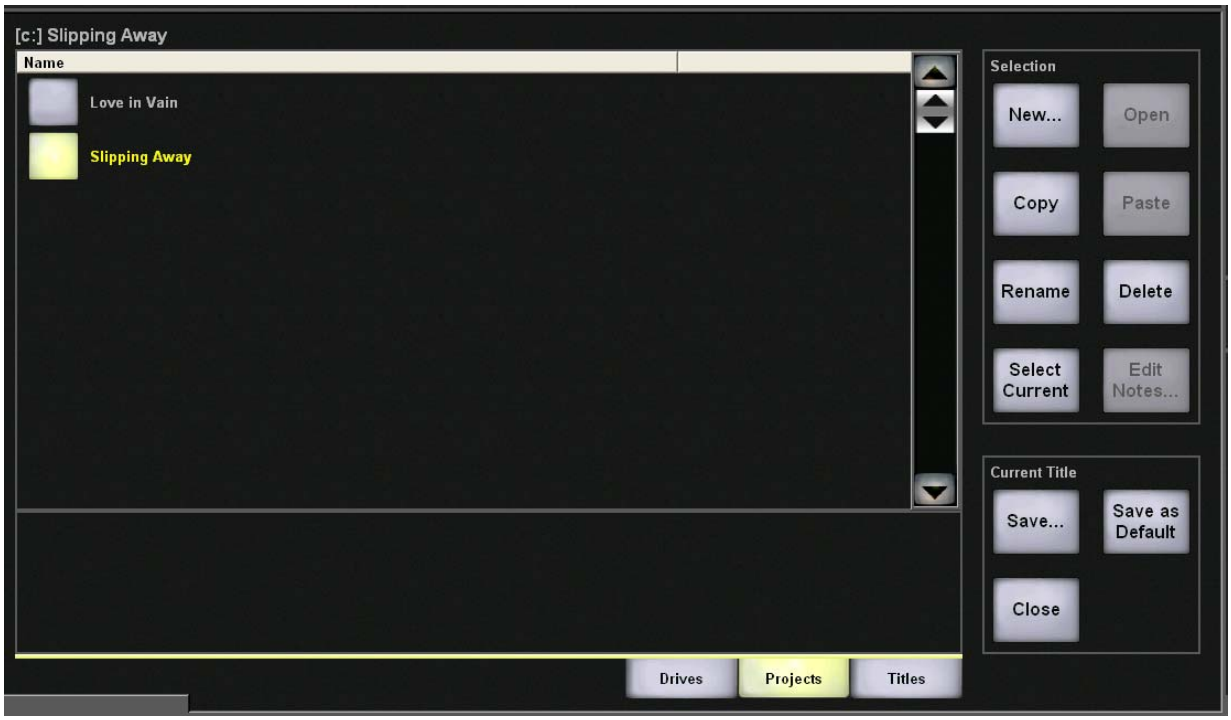


Figure 4-6 Projects View

Create a New Project

Touch the **New** button in the **Selection** area along the right side of the Projects View. Type a name in the view that appears and touch **Enter**.

Open an Existing Project

Select a Project name. The name highlights and there is no need to touch the **Open** button for the Project (since it is dim, you cannot). Just touch the **Titles** tab to see the Titles within the selected Project (see *Titles* on page 51 to learn how to open a Title).

Rename, Copy, Paste, or Delete Project

The **Rename**, **Copy**, **Paste** and **Delete** buttons are located in the **Selection** area on the right side of the Projects View. The easiest way to backup a Project is by copying and pasting it to another Drive.

Select a Project from the Projects View.

- Touch the **Copy** button to copy the selected Project.

  The **Paste** button remains dim until the **Copy** button is used. Note that you cannot copy a project to a CD-RW or CD-R drive from the application.

- Touch the **Paste** button to paste the copied Project. Of course, you can navigate to another Drive before pasting.

  If the selected Project's name is *Test*, the copied Project is *Copy of Test*.

- Touch the **Rename** button to rename the selected Project in the keyboard pop-up that appears. Touch **Enter** to complete the process or **Cancel** to leave the name unchanged.

- Touch the **Delete** button to delete the selected Project.

  The Project is deleted and cannot be pasted.

4.2.2 Titles

A Project must exist before selecting, opening, or creating a new Title. The **Rename**, **Copy**, **Paste**, and **Delete** buttons work the same on Titles as described above for Projects.

To open or create a Title, a Project must first be selected (see *Projects* on page 49).

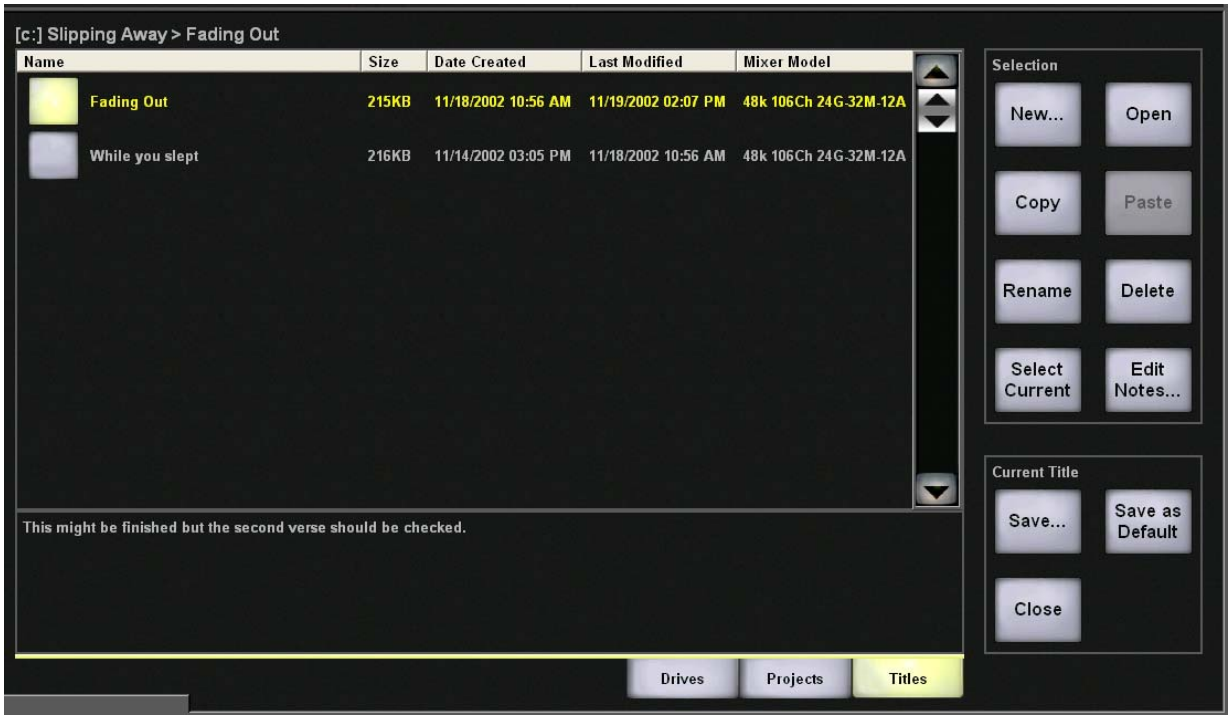


Figure 4-7 Titles View

Create New Title

Touch the **New** button in the Selection area along the right side of the Titles View. Type the Title name in the New Title Name View that appears. Touch **Enter** to complete the process or **Cancel** to exit without creating the Title. The following popup appears:

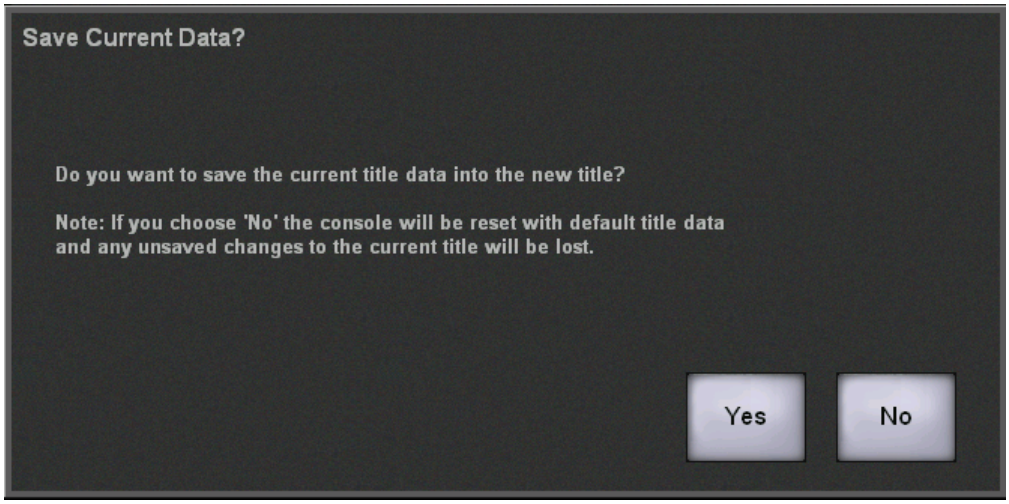


Figure 4-8 Save Current Data Popup

- **Yes:** Saves the settings from the current title into the new title.
- **No:** Uses settings for Default Title to reset console. See page 53 to see how to change the default settings.

Open Existing Title

Select the Title name and touch the **Open** button in the **Selection** area.

4.2.3 Operations on the Current Title

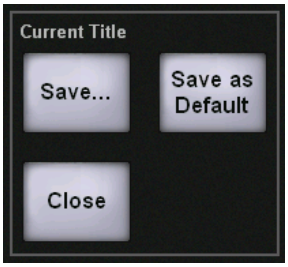


Figure 4-9 Current Title Buttons

The three buttons in the **Current Title** area provide an easy way to operate on the currently open Title from any File view. They are dim if a Title is not open.

- **Save:** Performs both regular Save and Save As functions. A keyboard popup appears with the current Title's name in the edit box. Touch **Enter** to save changes to the current Title. Save a copy under a different name by typing a new name. The new Title becomes the currently open Title.
- **Save as Default:** Uses the settings in the current Title for new Titles. See *Default Titles* on page 53 for more information about what is saved.
- **Close:** Prompts you to save changes before closing the current Title.

Select Current

Touch the **Select Current** button to instantly navigate back to the currently open Title in the Titles View. This is a convenient way to browse the File system without losing your place.

Edit Notes

Touch the **Edit Notes** button to enter any information about the Title. The notes are displayed below Title names in the Title View.

4.2.4 Default Titles

The settings stored in the Default Title are automatically included with each new Title. Each Mixer Model has a Default Title file. The following settings are contained in the Default Title:

- Patch settings and names
- Bus Setup: names and formats
- Externals Setup: names and formats
- SnapShots
- Layouts
- Meter setups

NOTE: *The Default Title is a file on the System Computer but does not appear in the Directory.*

Setting the Default Title

The Default Title can be set by touching the **Save As Default** button in the Titles View. This copies all settings listed above from the currently open Title into the Default Title for the current Mixer Model. A warning view appears to confirm this action.

4.3 Patch

The Patch View allows connections between the console and external devices in exactly the same way as a conventional analog patchbay. The most significant difference is that patches can be created then saved and recalled with the Title.

The Patch View implements a digital patching system that uses a MADI routing hub to connect sources to the console and its destinations.

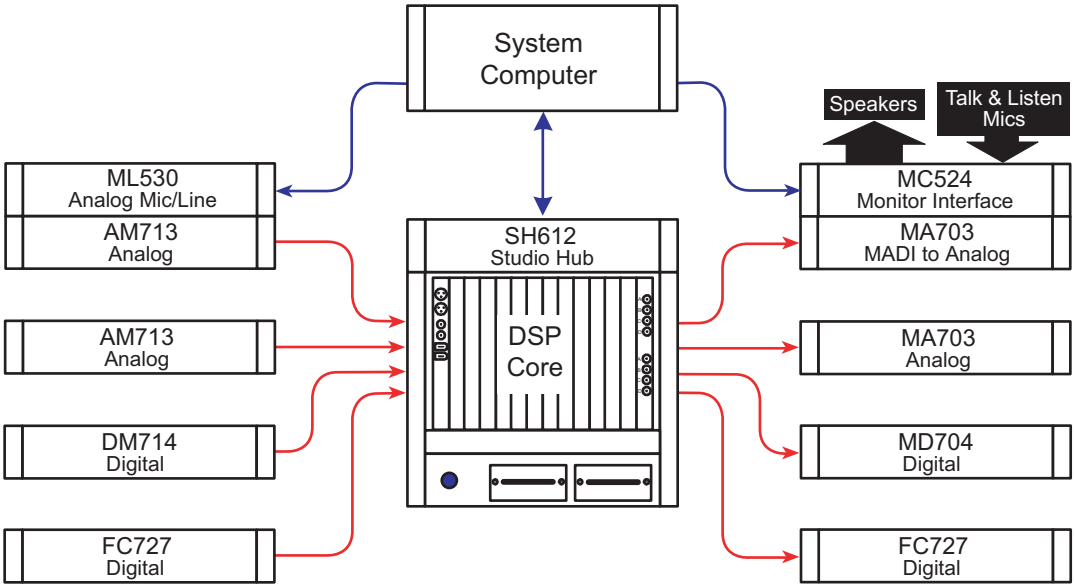


Figure 4-10 Simplified MADI routing diagram

The following devices provide a robust and complete I/O interface:

- The Euphonix DM714 (AES/EBU-to-MADI) and MD704 (MADI-to-AES/EBU) converters provide 26 channel inputs and outputs.
- The Euphonix AM713 (analog-to-MADI) and MA703 (MADI-to-analog) provide 24 fixed-gain channel inputs and outputs.
- The Euphonix ML530 provides 24 remote, variable gain, analog, mic/line preamps that can be controlled from the Strip.
- The Euphonix FC727 and FC726 provide 56 channels of digital format conversion.

Some equipment, such as the Euphonix R-1, the Sony 3348HR recorder and some high end consoles, offer a MADI interface. Most equipment, however, (i.e., mics, speakers, DAWs that support AES/EBU and vintage gear) must convert to and from MADI using the appropriate Euphonix converter.

Max Air must be initially setup so that all the studio equipment is displayed and correctly labelled and normalled ready for a session. This basic wiring information is stored in the Default Title so these settings can be used when starting a new session with a new Title. To setup Max Air studio wiring, see Chapter 3: *Quickstart to Common Tasks*.

Select **Patch** from the Main Menu buttons. The Patch View has four categories represented by tabs on the bottom of the screen: **Console I/O**, **Destinations**, **Sources**, and **Cabling**.

4.3.1 Destinations and Sources

Figure 4-11 shows that *sources* and *destinations* refer to the Max Air console. Sources are signals sent to the console (i.e., signals from the analog to MADI and digital to MADI converters, microphones, tape/VTR outputs). Destinations are signals sent from the console (i.e., signals sent to the MADI to digital converters, VTR inputs).



Figure 4-11 Sources and Destinations with respect to Max Air

If you have purchased an SH612 Studio Hub, there are up to 12 MADI device input ports and 11 MADI output ports on the console, each carrying up to 56 channels. If you do not have a Studio Hub, there are four MADI input ports and three MADI Output ports available.

4.3.2 Console I/O

Select the **Console I/O** tab on the bottom of the Patch View, then select the **A and B Inputs** sub-category on the left (Figure 4-12). This is where connections to the channel's A and B inputs are made. Touch the **Name** field (1 in Figure 4-12) and type a name for a channel.

Touch and drag through the A Input cells (2 in Figure 4-12) for which you would like to assign. Figure 4-12 shows the result of selecting the A Input cells for channels 1–5. Note that the channel names appear in the **Destinations** column (3 in Figure 4-12) in the **Selected Sources and Destinations** area. The numbered tabs (4 in Figure 4-12) display additional pages of patchpoints.



Figure 4-12 Console I/O -A and B Inputs View

The four buttons (5 in Figure 4-12) on the lower-right perform the following functions:

- **Patch Selected**: Patches selected patchpoints (3 in Figure 4-12)

  An error message appears if the sources are not properly matched to the destinations. There must be an equal number of sources and destinations or one source to multiple destinations.

- **Unpatch Selected**: Unpatches selected patchpoints
- **Select None**: Deselects all patchpoints
- **View Log**: Shows a log of failed patches

To complete this Patch example:

1. Select the **Sources** tab (1 in Figure 4-13).
2. Touch and drag through the first five cells in the Hub 1-1 column (2 in Figure 4-13).

   Note that these names appear in the **Sources** column of the **Selected Sources and Destinations** area next to their counterparts in the **Destinations** column (3 in in Figure 4-13).



Figure 4-13 Sources and Destinations Selected

3. Touch the **Patch Selected** button (4 in Figure 4-13) to make the Patch.

   Note in Figure 4-14 that the **Selected Sources and Destinations** area is cleared (1 in Figure 4-14) and the A Input names appear next to their source channels (2 in Figure 4-14).



Figure 4-14 Patch Complete

Router Mnemonics

Max Air supports importing router mnemonics to name channels. See page 72 to enable this feature in Preferences.

NOTE: *This function will only work as described if the console has been integrated with the router system as described in the Max Air Installation Guide.*

To enable importing of names to channels, enter "%X" as the Source Input name on the Touchscreen. "%" indicates that the input is a router input or output. "X" indicates the number associated with that router destination (console input).



Figure 4-15 Source input naming

The channel displays on the console surface are updated as the names associated with the sources patched to the channels are changed and sent from the router.



Figure 4-16 Sources patched to channels

4.3.3 Cabling

This category handles MADI cable connections for the ML530 Mic/Line Interfaces.

Mic/Line Interface Patching

For mic inputs and analog inputs not at +4 dB, the Euphonix ML530 provides 24 preamps each with gain, phantom power, high-pass filter, and hiz/loz switching. The analog outputs are connected to an AM713 Analog to MADI converter which then connects to one of the MADI inputs.

The patch system must be informed which MADI input each ML530 connects to so their input controls appear on the corresponding input channel knobset. Note how each Mic/Line Interface is connected.

In the example that follows, the MADI output from the Analog to MADI converters of two ML530 Mic/Line interfaces have been connected to the inputs of Hub1-1 and Hub1-2.

NOTE: *We recommend patching each ML530 channel to only one channel input.*

1. Select the **Cabling** tab (1 in Figure 4-17).
2. Select the **MADI Out Ports** sub-category (2 in Figure 4-17).

   The list shows seven Mic/Line Interfaces but configure only those wired to the SH612 Studio Hub (i.e., Mic1 and Mic2).
3. Touch and drag through the cells next to Mic1 and Mic2 in the **MADI Out** column (3 in Figure 4-17).

   The cells highlight green and the names appear in the **Sources** column of the **Selected Sources and Destinations** area (4 in Figure 4-17).

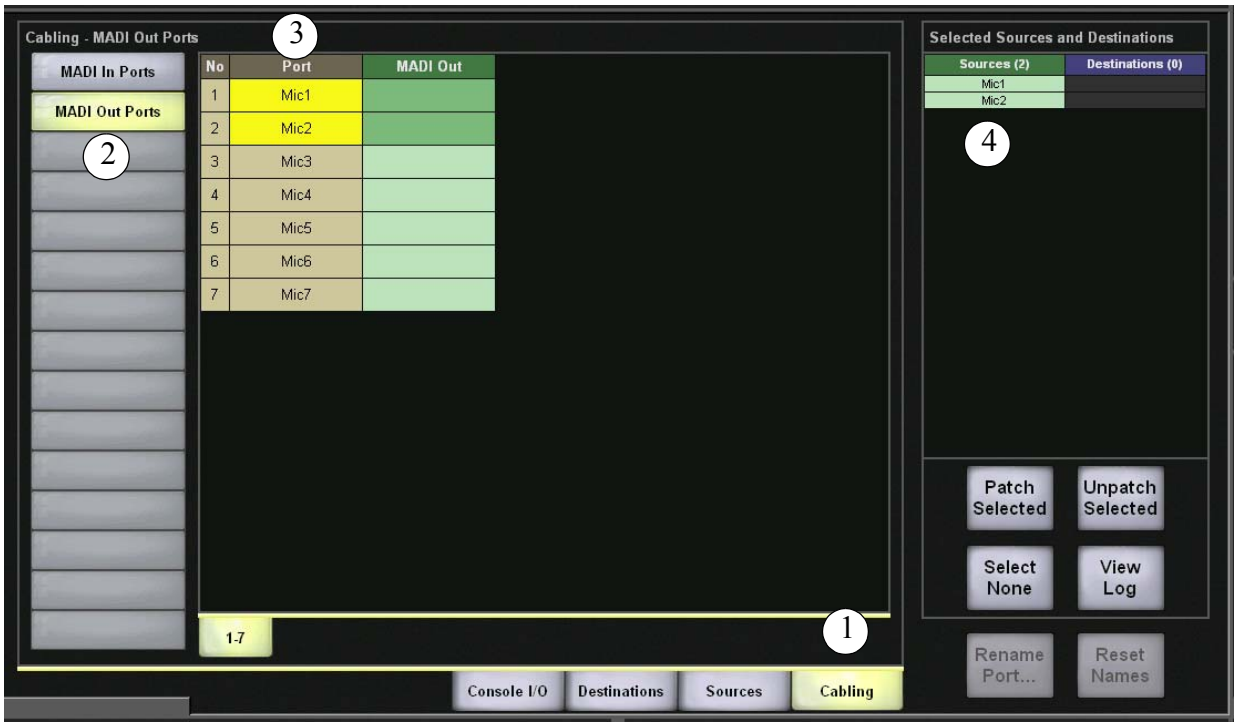


Figure 4-17 Cabling: MADI Out Port

4. Select the **MADI In Ports** sub-category (1 in Figure 4-18).
5. Touch and drag through the cells to the right of the two Hub1 inputs Hub1-1 and Hub1-2 (2 in Figure 4-18).

   The cells highlight green and the names appear in the **Destinations** column of the **Selected Sources and Destinations** area (3 in Figure 4-18).

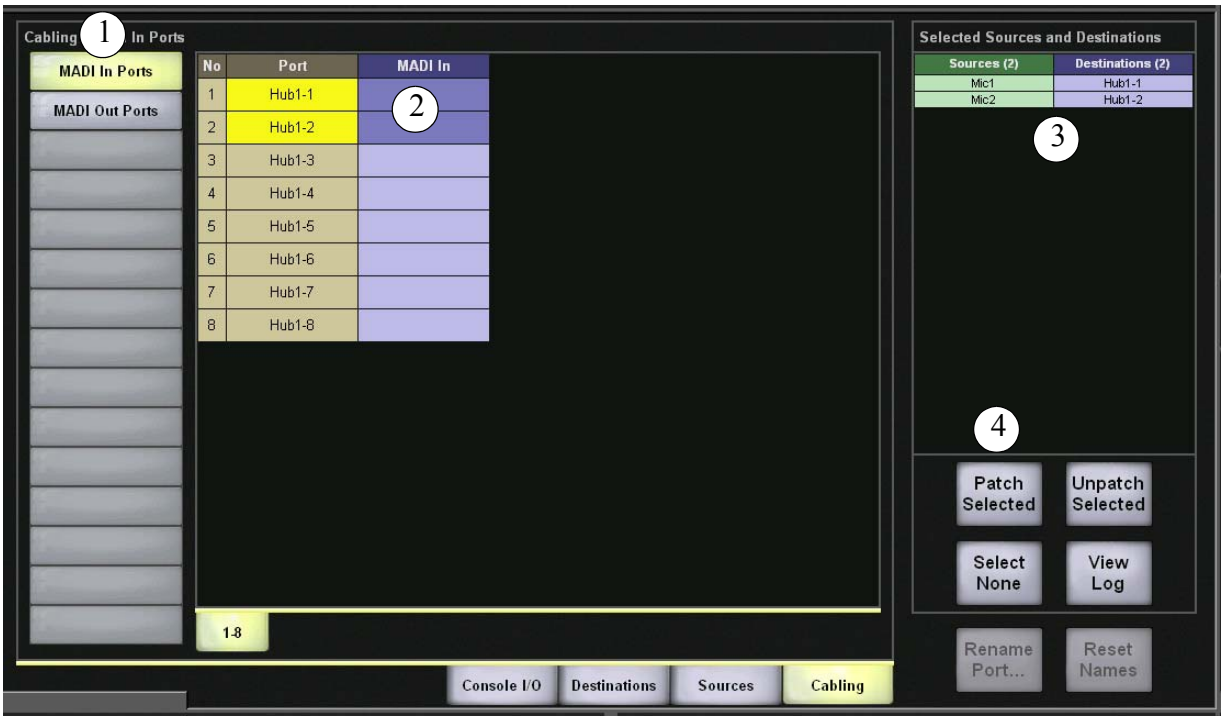


Figure 4-18 Cabling: MADI In Port

6. Touch the **Patch Selected** button (4 in Figure 4-18) to make the patch.

The Patch system now knows how the two mic/line interfaces are connected so the proper input controls appear at the top of the channels they are connected to.

Because Hub1-1 and Hub1-2 have been designated as MADI connections to the Mic/Line interfaces, touching Hub1-1 and Hub1-2 in **Sources** shows **Device Patch** in the first 24 cells and will not allow selection unless they are unpatched.

4.4 Patching Examples

These examples assume that the steps in *Mic/Line Interface Patching* on page 60 have been successfully completed.

4.4.1 Patch 12 Mics Into Channels 25–36

Select the Sources

1. Select the **Sources** tab (1 in Figure 4-19).
2. Select Mic-Line 1 from the sub-categories (2 in Figure 4-19).

   This displays all inputs from the first Mic-Line Interface in the **Name** column. The Mic-Line Interface is connected as part of the initial studio setup.
3. Select Mic1-1–Mic1-12 from the **Mic-Line** column by touching and dragging through the cells (3 in Figure 4-19).

   These entries are highlighted in green in the **Sources** column of the **Selected Sources and Destinations** area (4 in Figure 4-19). If there were more than 24 sources, additional tabs would appear to the right of the **1–24** tab.

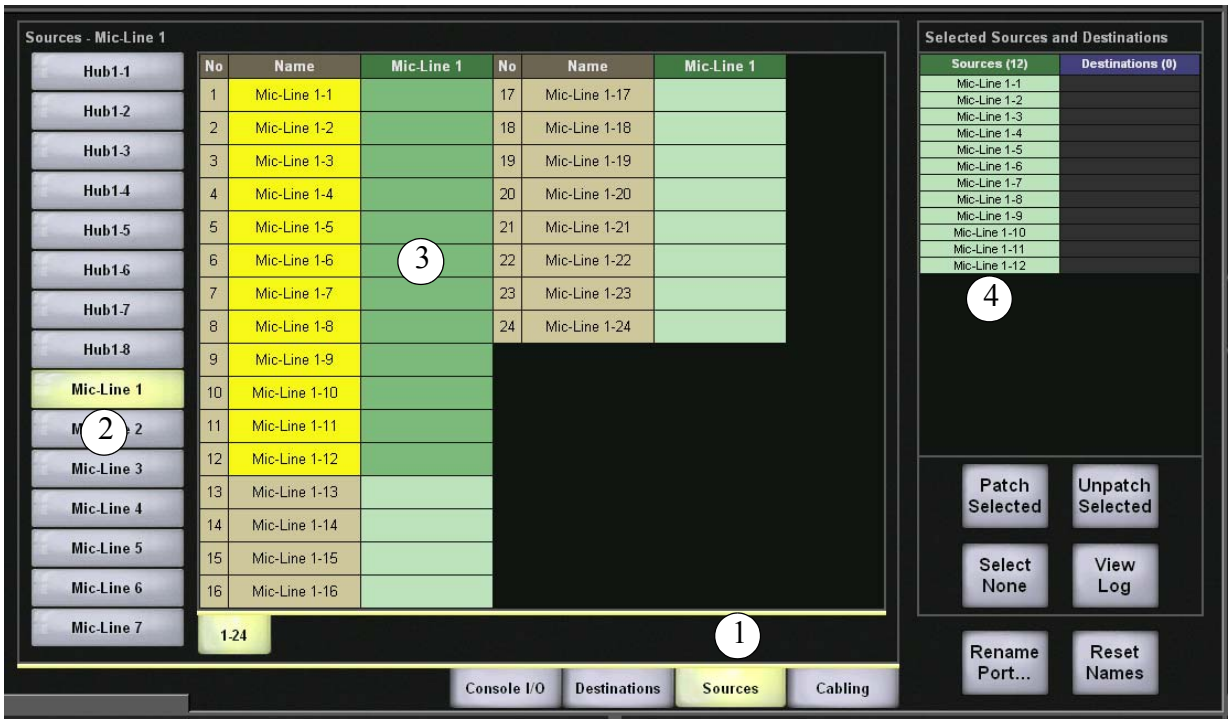


Figure 4-19 Sources View with 12 Mic-Line Sources Selected

Select the Destinations

There can be:

- one source to one destination;
- an equal number of sources to destinations;
- one source to multiple destinations.

Multiple sources cannot be routed to one destination.

To set the destinations for the 12 mics:

4. Select the **Console I/O** tab (1 in Figure 4-20), then select the **A and B Inputs** sub-category (2).
5. Select the **17–32** tab to display those channels.
6. Select channels 25–32 by touching and dragging through the **A Input** column next to C25–C32.
7. Select the **33–48** tab to display those channels.
8. Select channels 33–36 by touching and dragging through the **A Input** column next to C33–C36 (3 in Figure 4-20).

   The entries are highlighted in green and the list of A input channels appears in the **Destinations** column in the **Selected Sources and Destinations** area (4 in Figure 4-20).

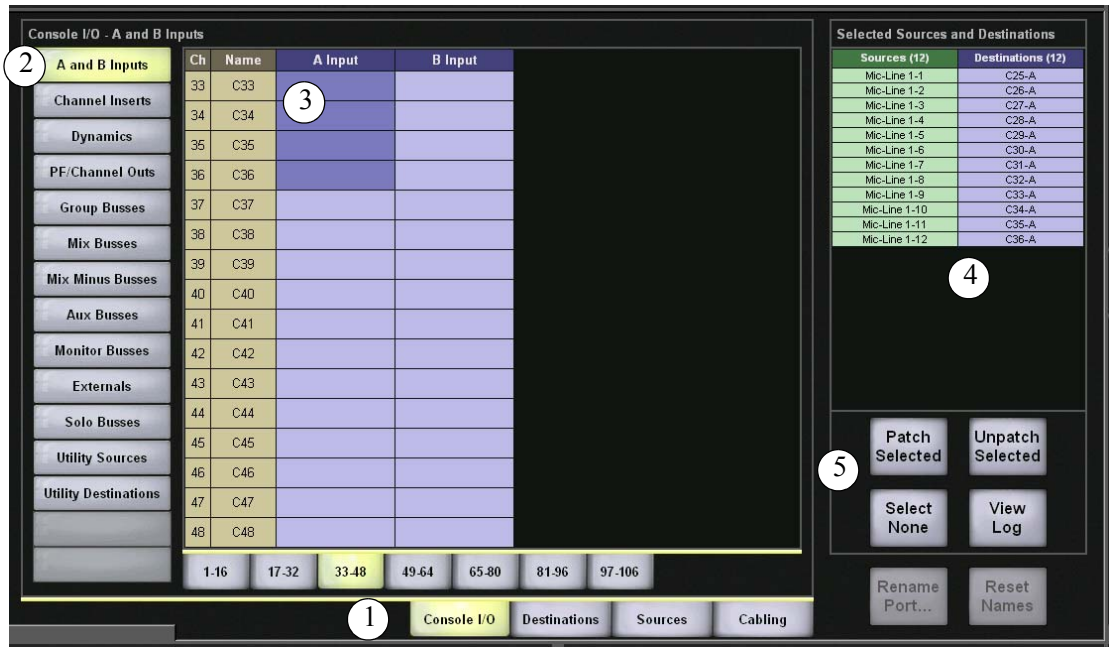


Figure 4-20 Selecting Destination Channels

9. Click the **Patch Selected** button (5 in Figure 4-20) to make the connection.

The sources and destinations appear in the **A Input** and **Name** columns, respectively (1 in Figure 4-21). The sources and destinations are cleared from the **Selected Sources and Destinations** area (2 in Figure 4-21).

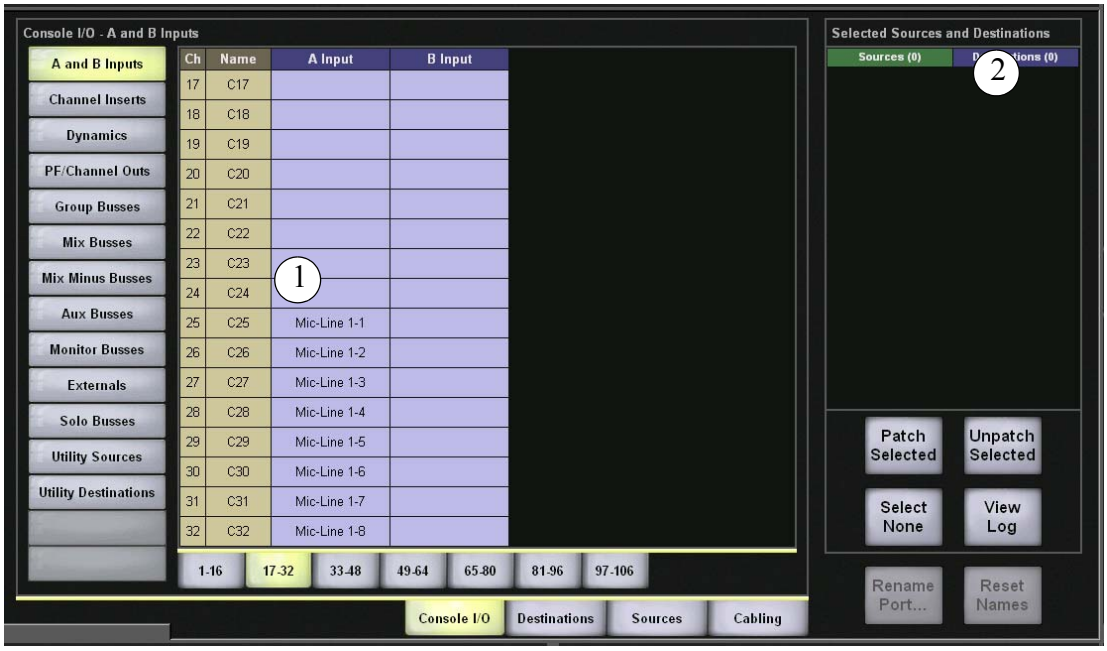


Figure 4-21 Mic Patch Complete

Patch the Multitrack Returns Into Channels 1–24

1. Select the **Sources** tab (1 in Figure 4-22).
2. Select the **Hub1-3** sub-category (2 in Figure 4-22).
3. Touch and drag through the first 24 cells in Hub1-3 column (3 in Figure 4-22).

   These cells are highlighted and their names appear in the **Sources** column in the **Selected Sources and Destinations** area on the right (4 in Figure 4-22).

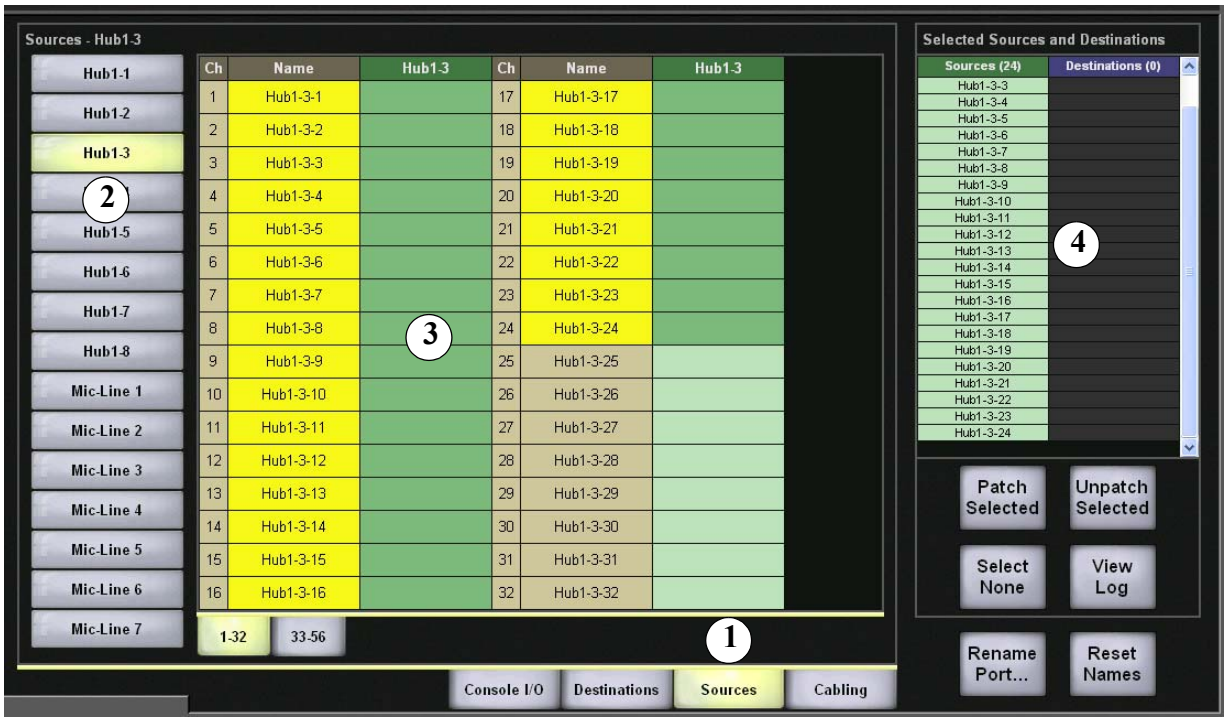


Figure 4-22 Sources Selected

4. Select the **Console I/O** category.
5. Select the **A and B Inputs** sub-category.
6. Touch and drag through the first 24 cells in the **A Input** column.

   These cells are highlighted and their names appear in the **Destinations** column in the **Selected Sources and Destinations** area on the right.
7. Touch the **Patch Selected** button to make the connection.

   The sources and destinations appear in the **A Input** and **Name** columns, respectively (1 in Figure 4-23). The sources and destinations are cleared from the **Selected Sources and Destinations** area (2 in Figure 4-23).

   After connecting the 12 mics and the R-1 returns, the Console I/O A and B Inputs View is shown in Figure 4-23.

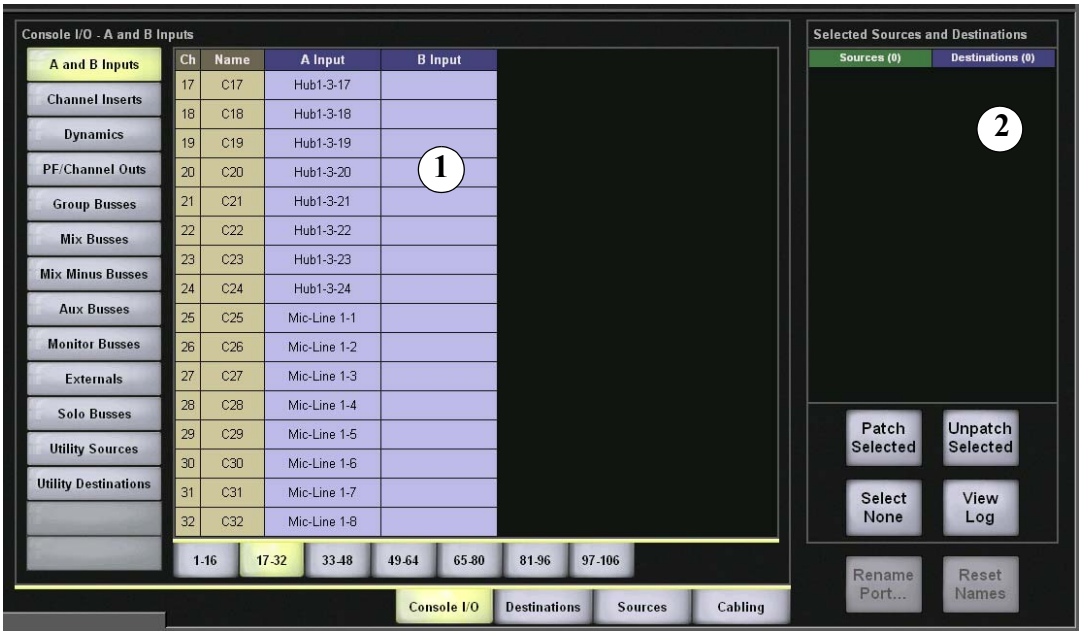


Figure 4-23 R-1 and Mics Patched

4.4.2 Main Bus Send/Return

Select the **Console I/O** category and then select the **Main Busses** sub-category. Each Main bus has a send and return. Figure 4-24 shows the first six sends (a 5.1-channel Main section) routed to channels 41–46 A inputs. The insert is switched in/out from the Bus Masters Config Page (see *Bus Inserts* on page 122).



Figure 4-24 Main Bus Send and Return

For every Main section, there is a corresponding return in the same format, which allows patching the Main section recorder output back into the console. The Main section return can be routed to the monitors from the Main Section page in the CR Source Panel (see *Control Room* on page 131).

4.4.3 Monitor Patching

The monitor outputs are automatically routed to the analog patch unit supplied with Max Air and are ready to be normalled to the speaker inputs. The monitor feeds are also available within the Patch View for routing to other destinations if necessary.

Select the **Console I/O** category and the **Monitor Busses** sub-category. This window shows all 22 monitor feeds:

Table 4-1 Monitor Busses

Monitor	Busses	Format
1–8	Control Room	L, C, R, Sl, Sr, Bm, X, Y
9–16	Mon A	L, C, R, Sl, Sr, Bm, X, Y
17–18	Mon B	L, R
19–20	Mon C	L, R
21–22	Mon D	L, R

The Cascade inputs allow for direct bus injection prior to the insert point into all monitor signal paths.

4.4.4 Solo Bus and Utility Patching

The **Solo Busses** sub-category in **Console I/O** allows custom patching into the stereo Solo Bus.

The **Utility Sources** sub-category includes the Oscillator output. The **Utility Destinations** sub-category includes the Slate In which must be patched to the Talkback mic feed from the Monitor Interface.

4.4.5 Talkback Signal Patching

The talkback mics are wired to the MC524 Monitor Controller. They are amplified to produce a single talkback signal. This analog signal must be fed into the system through an Analog to MADI converter.

To send talkback to the busses, this signal must be patched to the Slate-TB Input (in the **Utility Destinations** subcategory of the **Console I/O** category). Note which analog to MADI converter input the talkback signal has been patched to and connect that channel to the Slate-TB Input.

4.5 Busses

See Chapter 6: *Busses*.

4.6 System

The System View has five tabs: **Externals**, ***Knobset**, **Mixer Model**, **Preferences**, and **About**.

4.6.1 Externals

Select the **Externals** tab from the System View to configure the Externals in the same way as Main and Group busses.

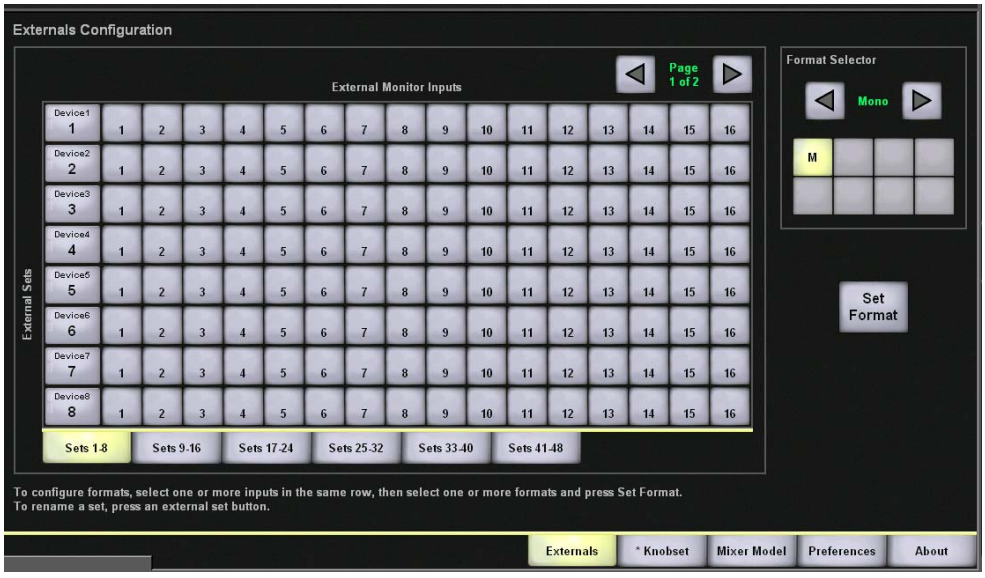


Figure 4-25 Externals View

4.6.2 *Knobset

Select the ***Knobset** tab from the System View. The *Knobset View allows a customized set of 16 knob parameters to be displayed on the Strip when the channel's * key is pressed at the top of the Strip.

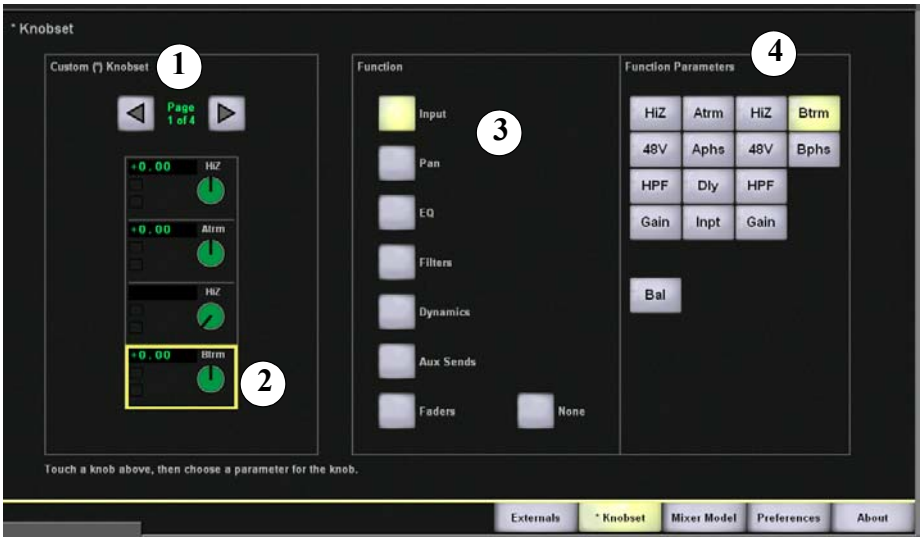


Figure 4-26 *Knobset View

1. Select the page (1 in Figure 4-26) and knob position (2) for the function parameter from the **Custom (*) Knobset** area on the left.
2. Select a **Function** from the center of the View (3).
3. Select the parameter from the **Function Parameters** section on the right (4).
4. Repeat for each of the four knob positions and pages.

The **Fader** button can be used to put the Swap channel's fader on a knob. This can provide simultaneous control of the Main and Swap fader level controls.

4.6.3 Mixer Model

Select the **Mixer Model** tab from the System View. Max Air currently supports two Mixer Models: one with and one without a Studio Hub. To activate a different Mixer Model, touch the **Max Air Models** button on the left of Figure 4-27. The two Mixer Models are displayed in the area below. Select the desired Mixer Model and touch the **Activate** button.



Figure 4-27 Mixer Model View

4.6.4 Preferences

Select the **Preferences** tab from the System View.

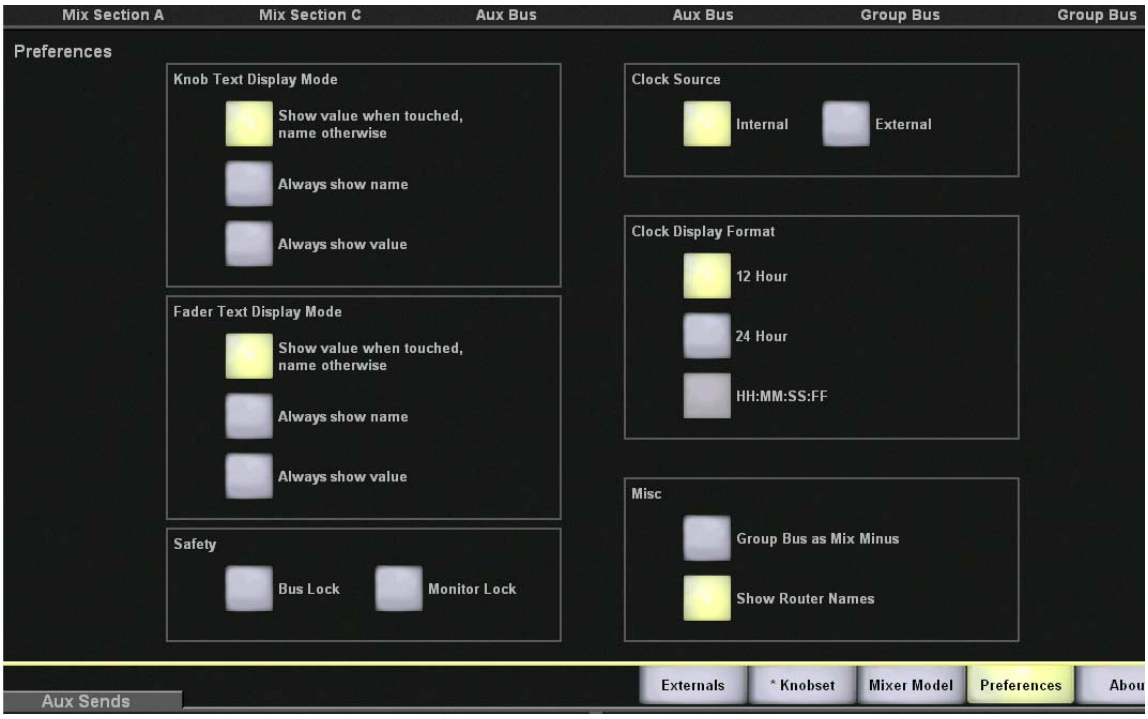


Figure 4-28 Preferences View

Knob Text Display Mode

The **Knob Text Display Mode** buttons intercancel between three values:

- **Show value when touched, name otherwise**: Displays the value of the knob parameter when touched and reverts to the name afterwards.
- **Always show name**: Displays the parameter name even when touched.
- **Always show value**: Displays the parameter value even when touched.

Fader Text Display Mode

The **Fader Text Display Mode** buttons intercancel between the same three values described above but the setting applies to touching the faders instead of knobs.

Safety

The **Safety** section includes two buttons that can be set independently:

- **Bus Lock**: Disables the following functions when activated: Bus Levels (Main Master, Master Trims, and Leg Trims), Bus Inserts, Bus On/Off keys.

  While these functions are disabled, their values may still be interrogated.

- **Monitor Lock**: Disables the Control Room and Monitor levels. **Dim** and **Cut** always remain active.

Clock Source

The on-screen clock can be set to **Internal** or **External**.

Select **External** to synchronize to a facility called "Time of day" clock using LTC.

1. Connect LTC to the LTC input of the system MIDI interface.
2. From the **Main Menu**, press **System**.
3. Set the **Clock Source** to **External**.
4. Select the desired display format from **Clock Display Format**.

Clock Display Format

Allows the clock to be displayed in three formats: 12, 24 hour, HH:MM:SS:FF.

Misc

Show Router Names: This enables the router mnemonics feature (see page 58).

Group Bus as Mix Minus: Activating this button inverts the group bus assignment indicators so channels *NOT* assigned to the bus are lit.

4.6.5 About

Select the **About** button in the lower-right corner of the System View to display software version information and a **Shutdown** button. *Touching the **Shutdown** button does not prompt you to save changes, so be sure to save before exiting the program* (see *Operations on the Current Title* on page 52). You can also use the keystrokes Ctrl-Alt-* simultaneously. The * is from the numeric keypad not Shift-8.

4.7 Channels

Select **Channels** from the Main Menu buttons. There are seven views that are accessed by tabs along the bottom of the screen.

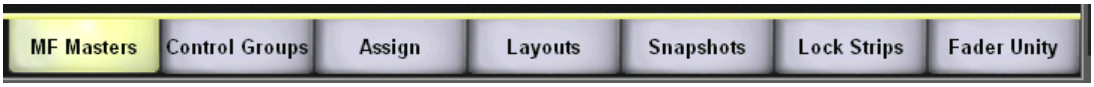


Figure 4-29 Channels Tabs

4.7.1 Multi Format Masters

See Chapter 8: *Control Groups and Multi Format Masters*.

4.7.2 Control Groups

See Chapter 8: *Control Groups and Multi Format Masters*.

4.7.3 Assign

Select the **Assign** tab from the Channels View to assign channels to strips in the Assign View (Figure 4-30 shows the Assign View with channels 1–8 selected).

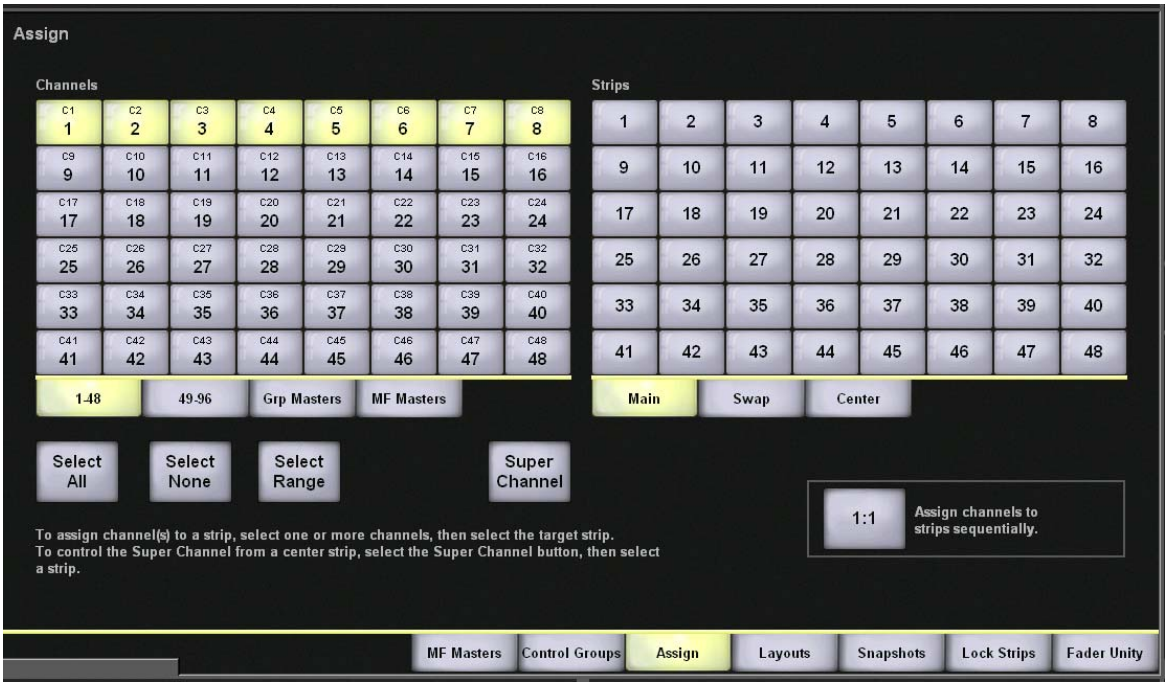


Figure 4-30 Assign View

Select the channels to assign by touching them individually, touching and dragging through a continuous set, or by using the three utility buttons (**Select All, Select None, Select Range**) on the bottom-left of the Assign View (see below for a discussion of these buttons). Select the Main, Swap, or Center tabs to assign the channels to the desired strip type.

Touch a single strip to assign the selected channels sequentially from that strip upwards. If the channels are not contiguous (i.e., 2–3, 5), they will still be assigned to sequential strips, even if some of the strips already have channel assignments.

To control the Super Channel from the Center Strip, select the **Super Channel** button and select a strip.

Touch the **1:1** button to assign channels 1–48 to Strips 1–48 Main.

Select Range

Use the **Select Range** button at the bottom-right of the Assign View to select a channel, then select a higher or lower numbered channel to select all channels in between. The range can include channels in another tab (i.e., C25–C55, C15–M25). The range is set by each pair of selections.

When a channel is selected in a tab other than the selected tab, that tab highlights dimly around the edges. In the figure below, 49–96 is the selected tab but channels are also selected in 1–48.



Select All

Use the **Select All** button to select all channels across all tabs (1–48, 49–96, Grp Masters, and MF Masters).

Select None

Use the **Select None** button to deselect all selected channels.

4.7.4 Layouts and Snapshots

See Chapter 9: *Layouts and Snapshots*.

4.7.5 Spill Area

Spill allows Control Groups and Multi Format Masters to *spill* their slaves to a defined area so they can be individually accessed. See *Spill* on page 153 for details.

To create a Spill area:

1. From the **Main Menu**, press the **Channels** button.
2. Select the **Spill** tab.
3. Select the strips to include in the Spill area.

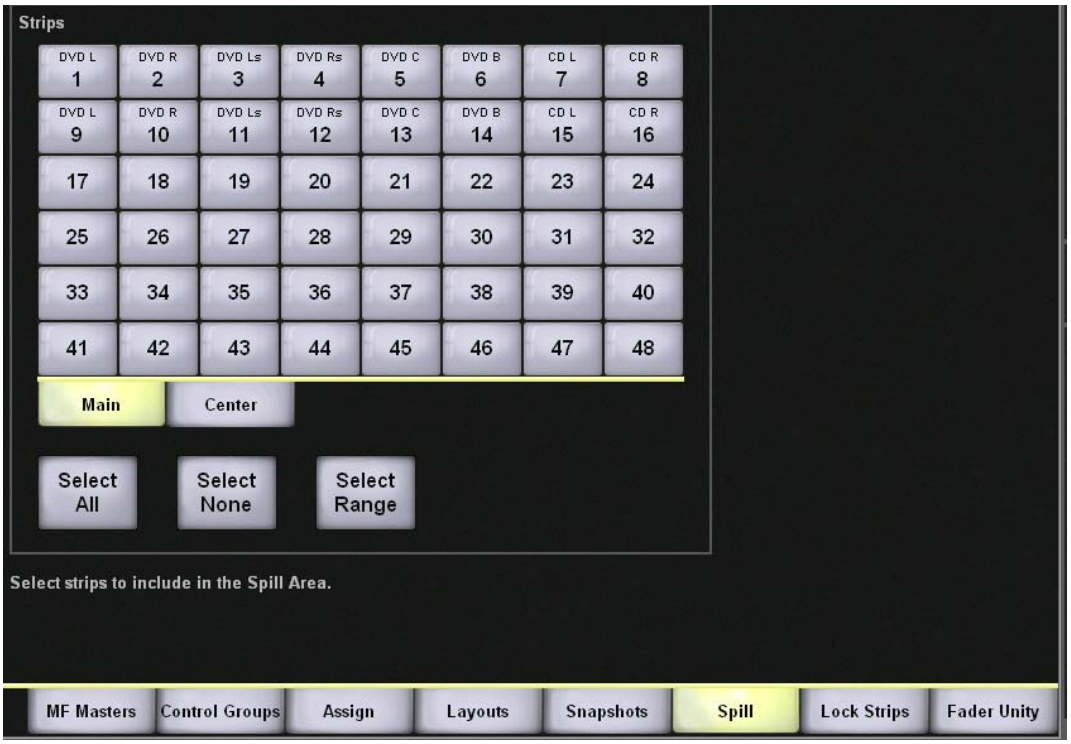


Figure 4-31 Spill Area function

4.7.6 Lock Strips

Select the **Lock Strips** tab to display the Lock Strips View (Figure 4-32), which provides the ability to prevent strips from being affected by Layout recall.

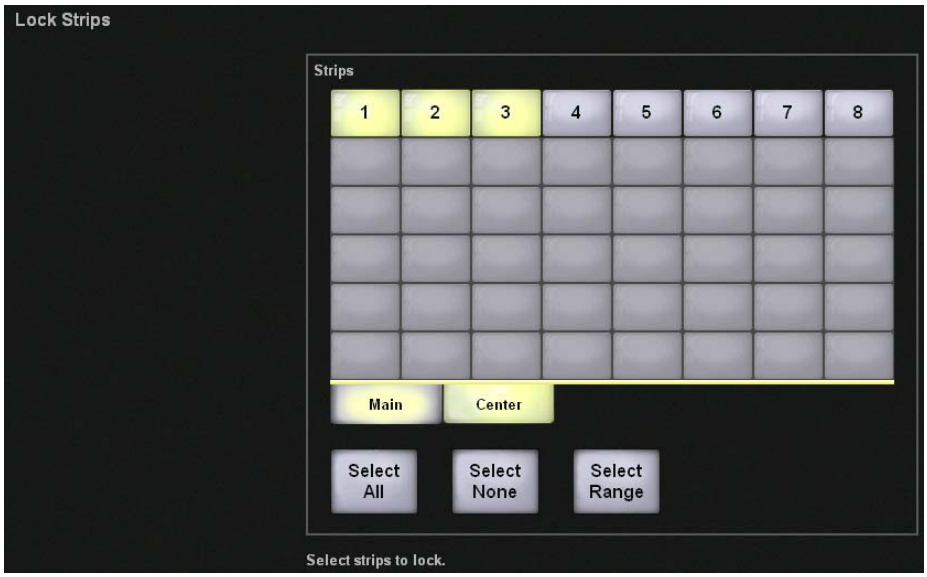


Figure 4-32 Lock Strips View

Select one or more Strips to lock. Use the **Main** and **Center** tabs to select the strip type (Main locks both Main and Swap). Use the **Select All**, **Select None**, and **Select Range** buttons (see page 75) to assist your selection. There is no Close button; just select another view and this information is retained.

4.7.7 Fader Unity

Select the **Fader Unity** tab to display the Fader Unity popup (Figure 4-33), which allows setting the fader on designated strips and channels to 0 dB.

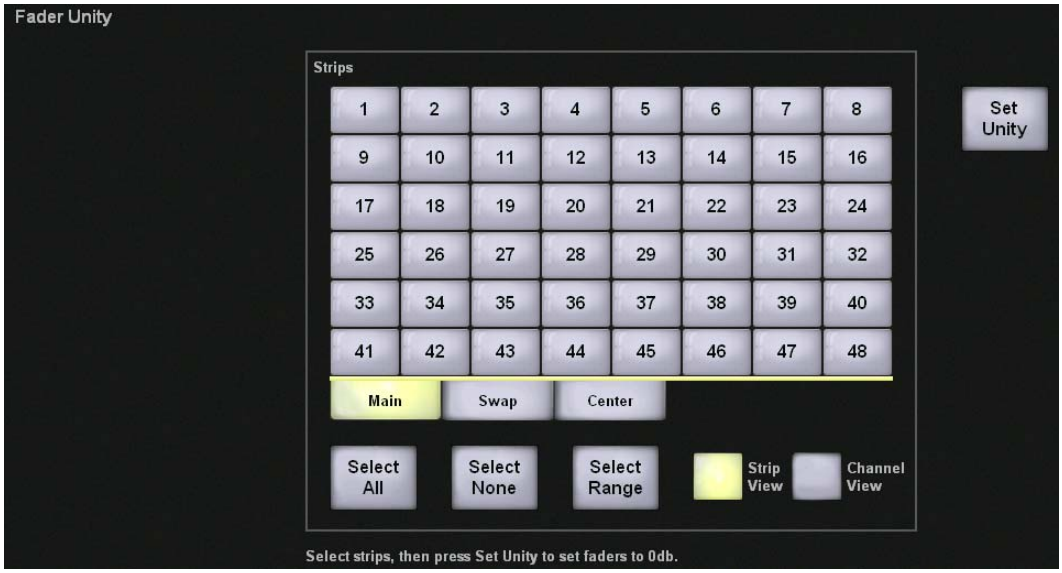


Figure 4-33 Fader Unity popup

Select **Strip View** or **Channel View** to view strips or channels, respectively. Select one or more Strips or channels to set to unity gain. Use the **Main**, **Swap**, and **Center** tabs to select the strip/channel type. Use the **Select All**, **Select None**, and **Select Range** buttons (see page 75) to assist your selection. Touch the **Set Unity** button to set the selected faders to 0 dB.

4.8 Status

Touch the **Status** Main Menu button to display the Status View.

When a system error occurs and the user is not in the Status View, the Status Main Menu button turns red, alerting the user to inspect the Status View.



Figure 4-34 Status View

4.9 Super Channel

The Super Channel provides a way to view and edit the most important functions of a channel. Select the **Super Channel** Main Menu button to display the settings of the channel currently assigned to the Super Channel.

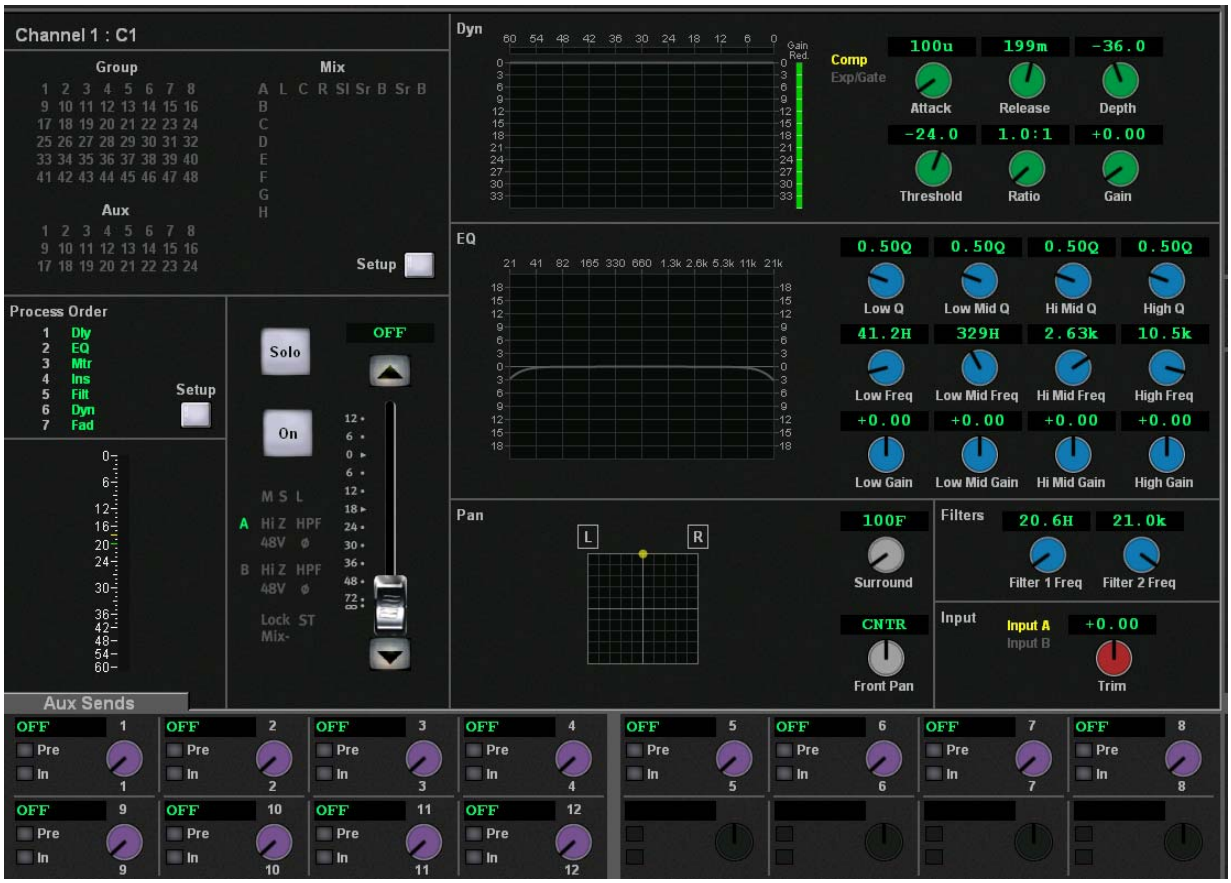


Figure 4-35 Super Channel View

Assign a channel to the Super Channel by any of the following methods:

- Press the **Wave** key on any Strip;
- Enter the channel number on the numeric keypad on the Center Section. See *Keypad* on page 145.
- Press the arrow keys in the Selected Channel area of the Super Channel on the console surface to select a channel.
- Press the **Setup** button in the Selected Channel area of the Super Channel on the console surface. The Channel Selector popup appears (Figure 4-36).

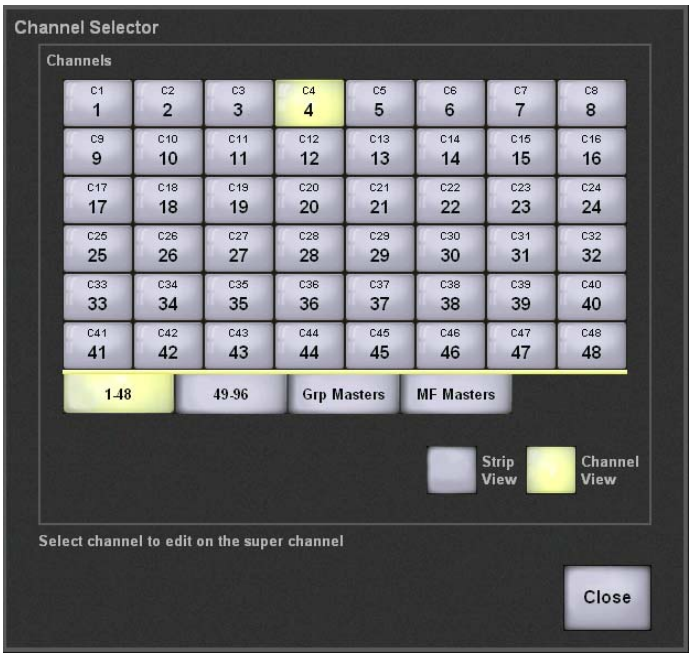


Figure 4-36 Channel Selector Popup

Select the **Strip View** button to assign the Main or Swap channel on a Strip to the Super Channel. Select the **Channel View** button to assign any channel, Group Master, or Multi Format Master to the Super Channel by selecting the **1–48**, **49–96**, **Grp Masters**, or **MF Masters** tabs, respectively.

4.9.1 Process Order

The process order for the channel assigned to the Super Channel can be changed by touching the **Setup** button on the left of the Touchscreen.

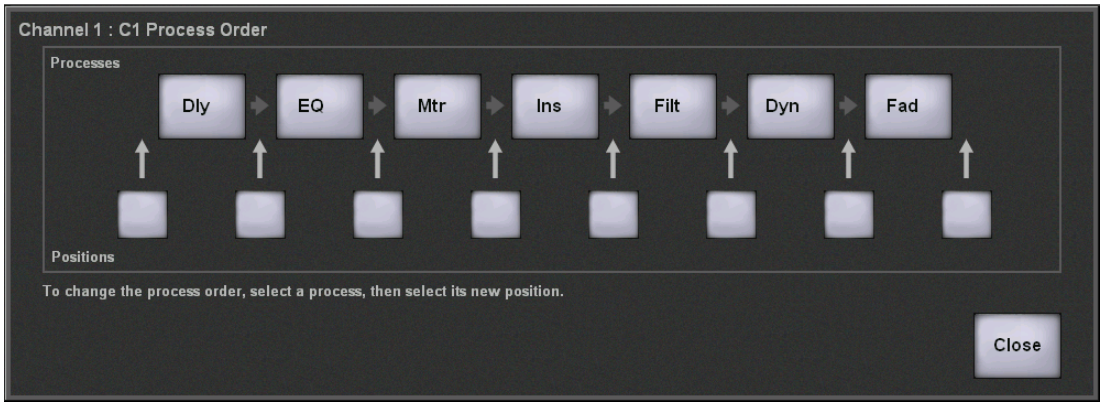


Figure 4-37 Process Order Popup

Select a **Processes** button and then touch one of the **Positions** buttons to assign that process to the position pointed to by the arrow. The processes move left or right depending on the position vacated relative to the new position selected. For example, in Figure 4-37 if EQ is selected and assigned the fourth **Positions** button, it becomes the third process with Mtr sliding one position to the left. If Dyn is selected and assigned the fourth **Positions** button, it becomes the fourth process with Ins sliding one position to the right.

4.9.2 Main and Group Bus Routing

The Main and Group bus routing for the channel assigned to the Super Channel can be set by touching the **Setup** button on the upper-left of the Super Channel View (Figure 4-35).

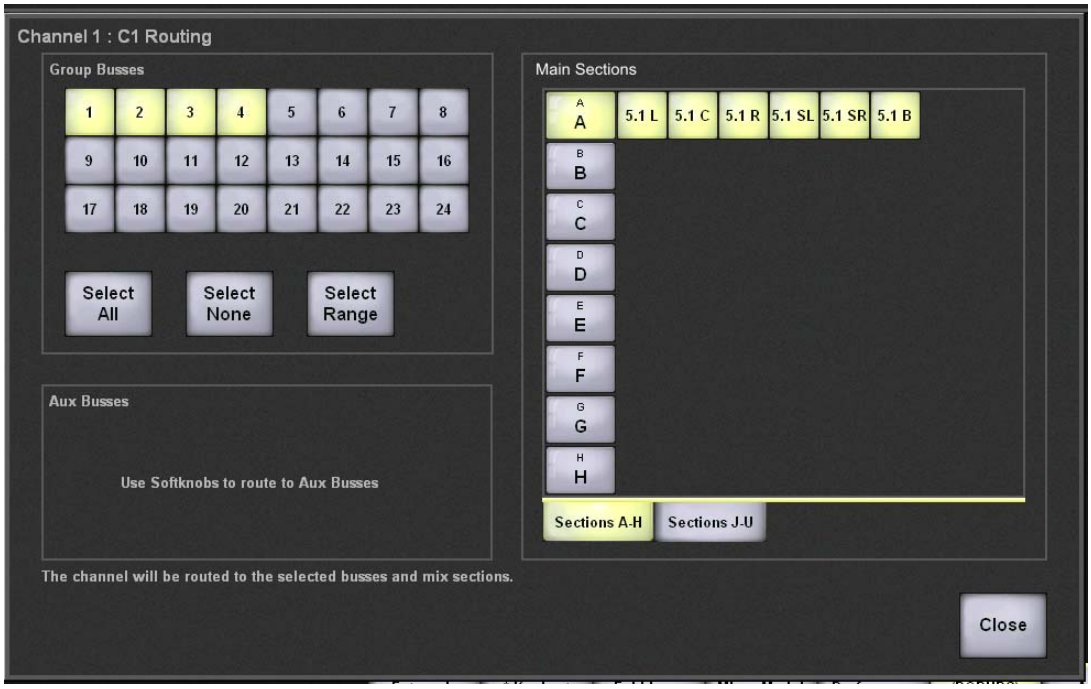


Figure 4-38 Channel Routing Popup

Touch the Group Busses buttons to assign the channel to those busses (Figure 4-38 shows 1–4 selected). Touch the Main sections to assign the channel to them. Figure 4-38 shows Main section A selected and set to a 5.1-channel format. Use the **Select All**, **Select None**, and **Select Range** buttons to assist your selection (page 75). Use the Soft Knobs to route to the Aux Busses.

4.10 Meters

Select the **Meters** Main Menu button to display the Meters View. There are four tabs along the bottom: **Presets**, **Screen**, **Fader**, and **Setup**.

4.10.1 Presets

After configuring the meters using the **Screen**, **Fader**, and **Setup** tabs discussed below, the configuration can be captured as a preset, named and recalled for later use.

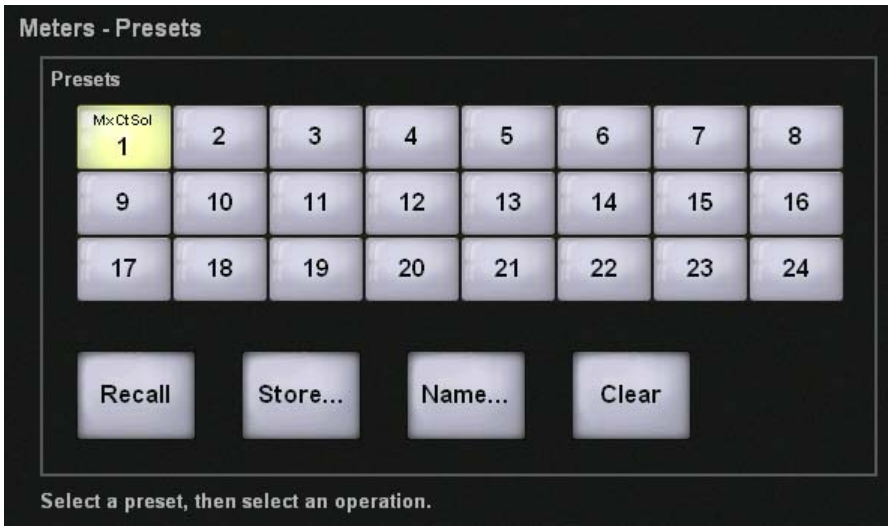


Figure 4-39 Meters-Presets Popup

Select a numbered preset button. Touch the **Store** button to store the current meter configuration to that preset. Touch the **Name** button to assign an 8-character name in the keyboard popup.

To recall a preset, touch the desired preset button and then touch the **Recall** button.

To delete a preset, touch the desired preset button and then touch the **Clear** button.

4.10.2 Screen

Select the **Screen** tab to configure the meters that will appear across the top and right side of the Touchscreen. There are eight meter banks, each of which can contain up to eight channels.

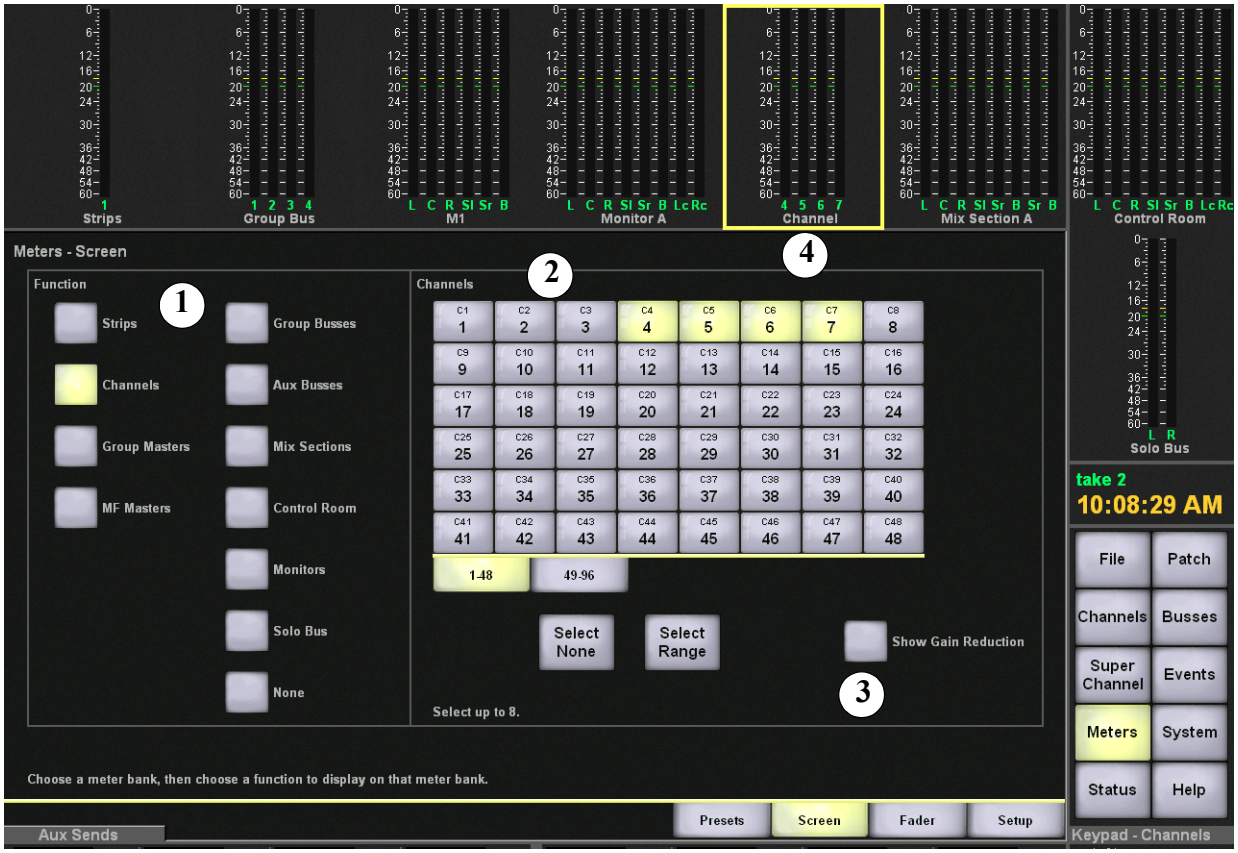


Figure 4-40 Meters-Screen Popup with Meters Display

The **Function** section (1 in Figure 4-40) lists the types of meters that can be displayed. The Channels function (2) is shown in Figure 4-40, which is representative of the interface for the other functions. The Strips, Channels, Group Masters, and MF Masters functions have a **Show Gain Reduction** button (3) which, when activated, displays the amount of gain reduction applied by the compressor.

Select a meter bank on the top or right of the Touchscreen to assign the meter characteristics to. The meter bank highlights with a yellow rectangle (4).

4.10.3 Fader

Select the **Fader** tab to display the Meters-Fader View. This configures the meter display next to the fader (Figure 4-41).

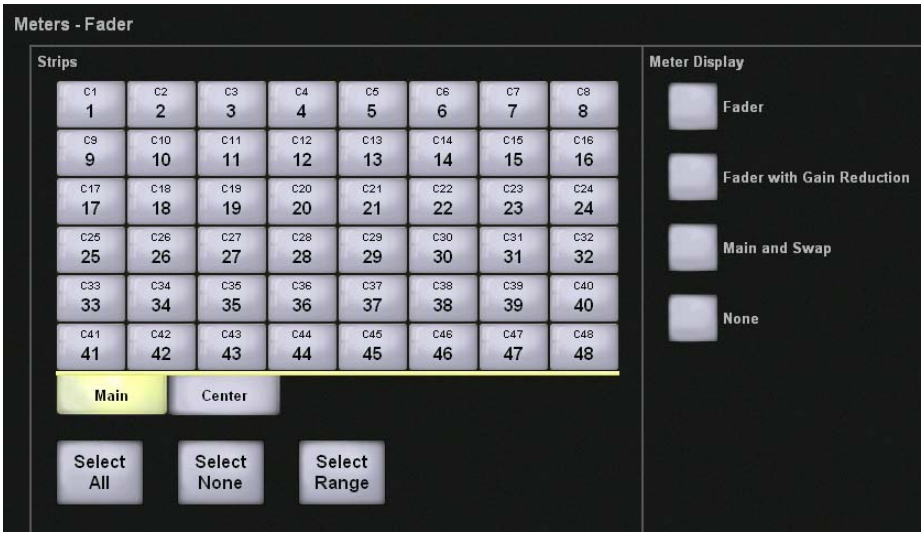


Figure 4-41 Meters-Fader Popup

Select a Strip button from the Strips section. Use the **Main** or **Center** tabs and the **Select All**, **Select None**, **Select Range** to assist your selection (page 75). Touch a Meter Display button to configure the selected Strip.

- **Fader**: The Main or Swap channel is displayed, depending upon the state of the strip's **Swap** button. When the **Swap** button is pressed to change from the Main to Swap channel, the meter follows this change.
- **Fader with Gain Reduction**: The Main or Swap channel is displayed with gain reduction.
- **Main and Swap**: The Main and Swap channels are always displayed in the left and right meters respectively, regardless of whether the **Swap** button is pressed or not.
- **None**: No meter is displayed.

4.10.4 Setup

Select the Setup button to display the Meters-Setup View, which determines the meter ballistics for all currently displayed meters. Select **Peak** or **Average** to display the desired meter ballistics.

NOTE: *This setting, although not saved with the preset, is saved between system shutdown and restart.*

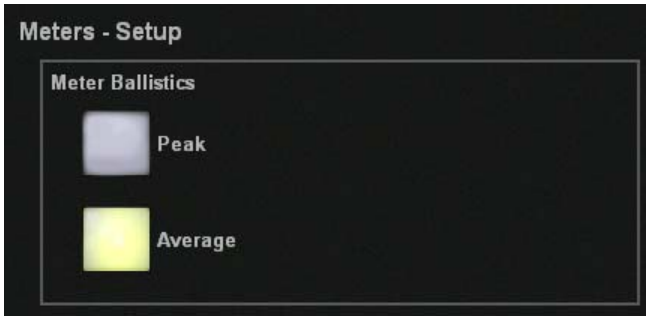


Figure 4-42 Meters-Setup View

4.11 Events

See Chapter 10: *Event System*.

Chapter 5: Channels and Strips

5.1 Strips

A CM416 module contains sixteen identical ***strips***. The strip is the physical control area on the console that contains keys, knobs, displays, and a fader. A ***Channel*** performs all of the signal processing (EQ, dynamics, routing, gain, etc.). Max Air has 96 channels, each of which may be assigned to a strip. A strip has room for ***Swap*** and ***Main*** channels that can be switched with one key press. Max Air allows tremendous flexibility with how strips are assigned channels and how they are controlled:

- Any channel can be assigned to any strip; assignments need not be consecutive.
- Channels with related functions, such as all VTRs, can be assigned to neighboring strips.
- Two strips can control one channel, allowing convenient access to that channel from two locations.
- Channel-to-strip assignments can be named, stored, and recalled as ***Layouts*** (see *Layouts* on page 155).
- Channel settings (EQ, dynamics, routing, gain, etc.) can be named, stored, and recalled as ***Snapshots*** (see *Snapshots* on page 157).
- Max Air channels are mono unless they are defined as stereo, LCRS, 5.1, 6.1, 7.1 formats through ***Multi Format Masters*** (see Chapter 8: *Control Groups and Multi Format Masters*).

A 96-channel, 48-strip configuration could assign all channels to the control surface: **Main** (channels 1–48 to strips 1–48); **Swap** (channels 49–96 to strips 1–48). A 96-channel, 32-strip Max Air configuration cannot assign all channels to the console at once but could use two Layouts to easily interchange the channels. Figure 5-1 shows a strip with its bus displays that appear on the surface above the channel, and block diagrams for the Swap and Main channels.

NOTE: *The term "active channel" will be used throughout the manual to refer to the Main or Swap channel currently assigned to the fader.*

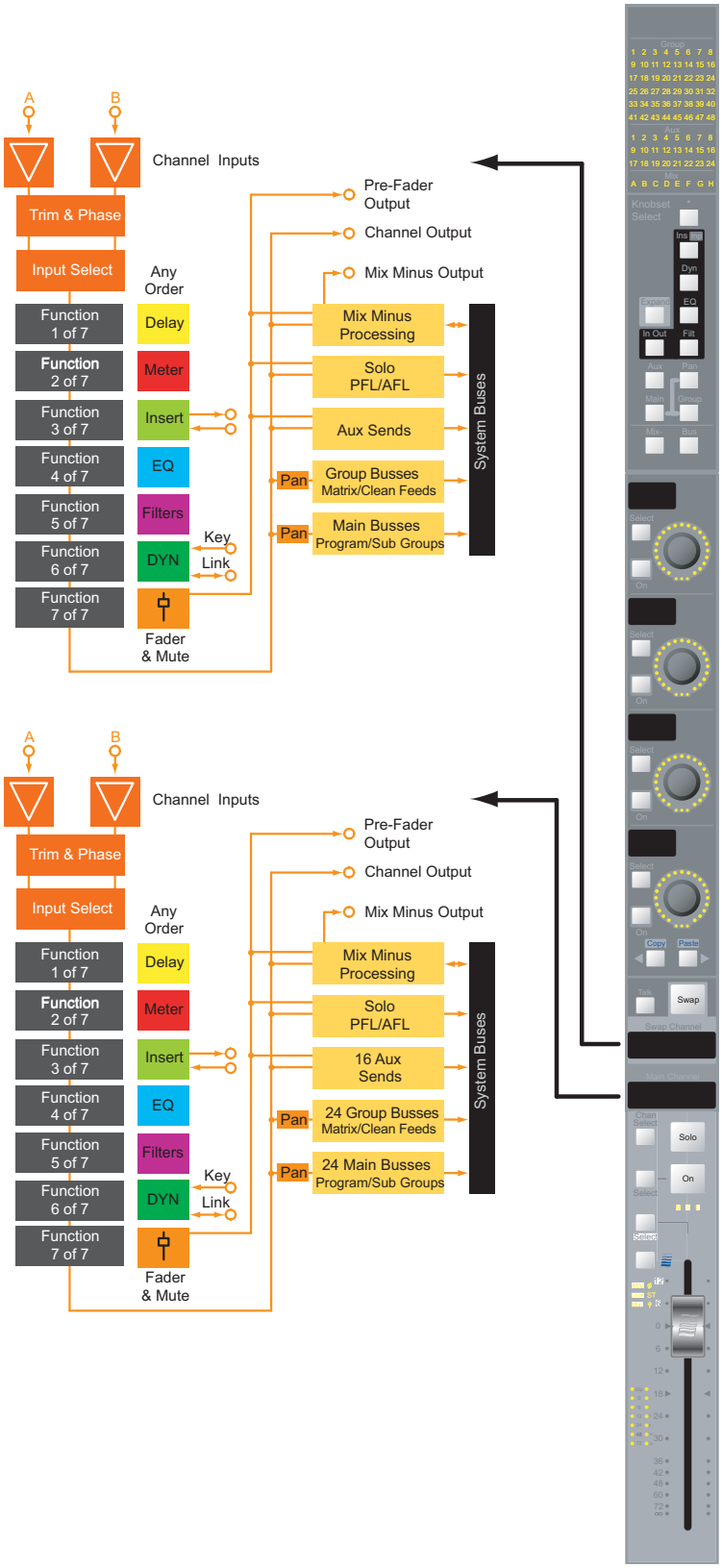


Figure 5-1 Console Strip and Bus display with block diagrams for Main and Swap channels

5.1.1 Assign Channels to Strips

Each strip can control a Main and Swap channel. One or both of the channels can be a Control Group Master or Multi Format Master instead of a normal channel (see Chapter 8: *Control Groups and Multi Format Masters*). Channels can be assigned individually using the strip controls or to multiple strips using the **Channels - Assign View** (see *Channels* on page 74) from the Touchscreen.

Channel Assign View

The **Channels - Assign View** on the Touchscreen is most commonly used to assign channels to multiple strips but can also be used for a single assignment.

1. Select **Channels** from the Main Menu buttons.
2. Select the **Assign** tab.

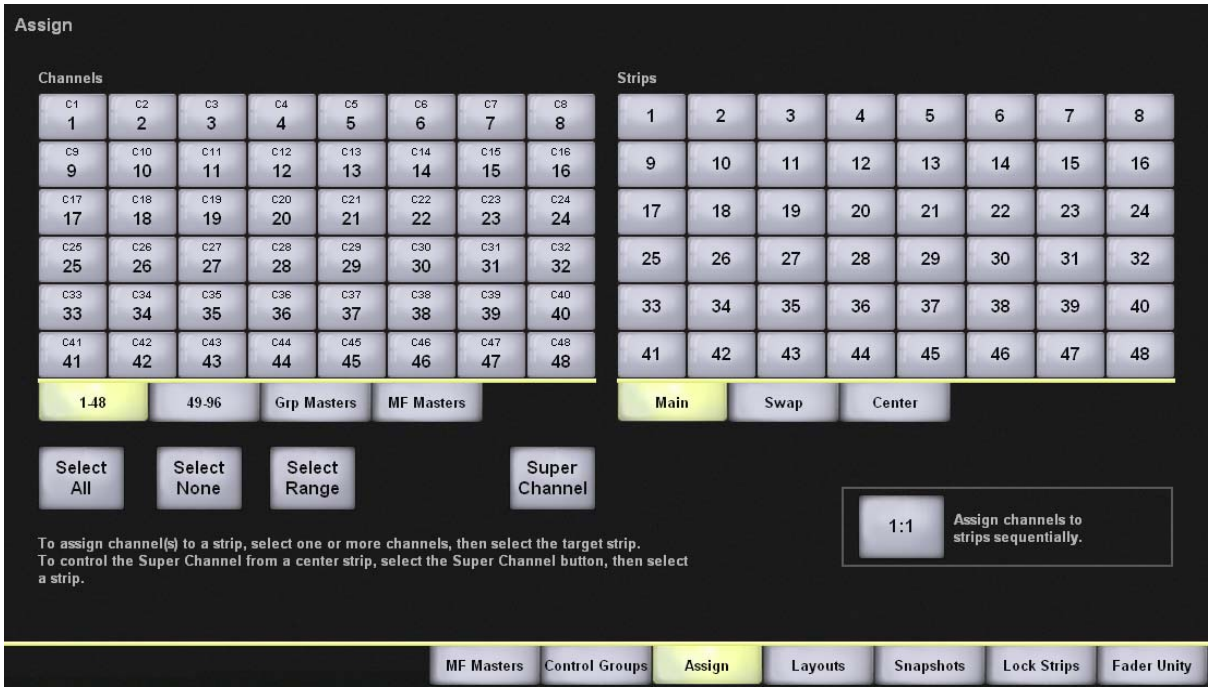


Figure 5-2 Channel Assign View

3. In the **Channel Assign View**, select the channel to assign from the Channels bank.
4. Select the strip to assign the selected channel to from the **Strips** bank.

Assign Multiple Channels

Use the following procedure to assign multiple, consecutive channels to the console surface:

1. In the **Channel Assign View**, select **Select Range**.
2. Select the first and last channel of a range of channels from the Channels bank.
3. Select the first strip from the **Strips** bank.

   The selected range of channels is assigned to strips starting at the first selected strip.

Assign Channels Sequentially

Select **1:1** to automatically assign channels, starting with channel 1, to the main layer of all strips starting at strip 1.

Super Channel

To assign a strip to follow the Super Channel:

1. Select **Super Channel** (below the channels bank).
2. Select a strip from the strips bank

Any channel assigned to the Super Channel is now controlled by that strip.

Using the Strip to Assign Individual Channels

The **Chan Select** key can be used to assign individual channels to the console surface:

1. Press the **Swap** key to assign the Main or Swap channel.
2. Press and hold down the **Wave** key and press the **Chan Select** key.

   The Channel Selector appears on the Touchscreen.

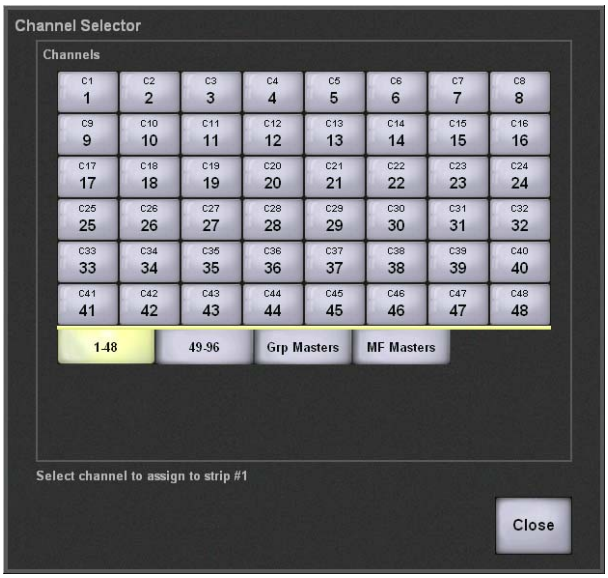


Figure 5-3 Channel Selector

3. Select the channel (1–48, 49–96), **Grp Master** (Control Group Master), or **MF Master** (Multi Format Master) to assign to the strip.

5.2 Channel Control Features

5.2.1 Channel Name

The Main and Swap channels are designated by a number (C# by default) or by an eight-character name assigned in the **Patch View** (see *Patch* on page 54). The Main channel is below the Swap channel. Press the **Swap** key to key between the Swap and Main channels. The strip functions control only the active channel.

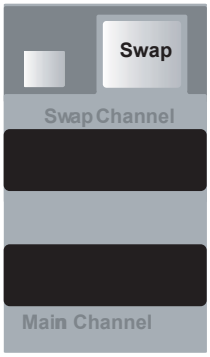


Figure 5-4 Main and Swap Channel displays

5.2.2 Fader

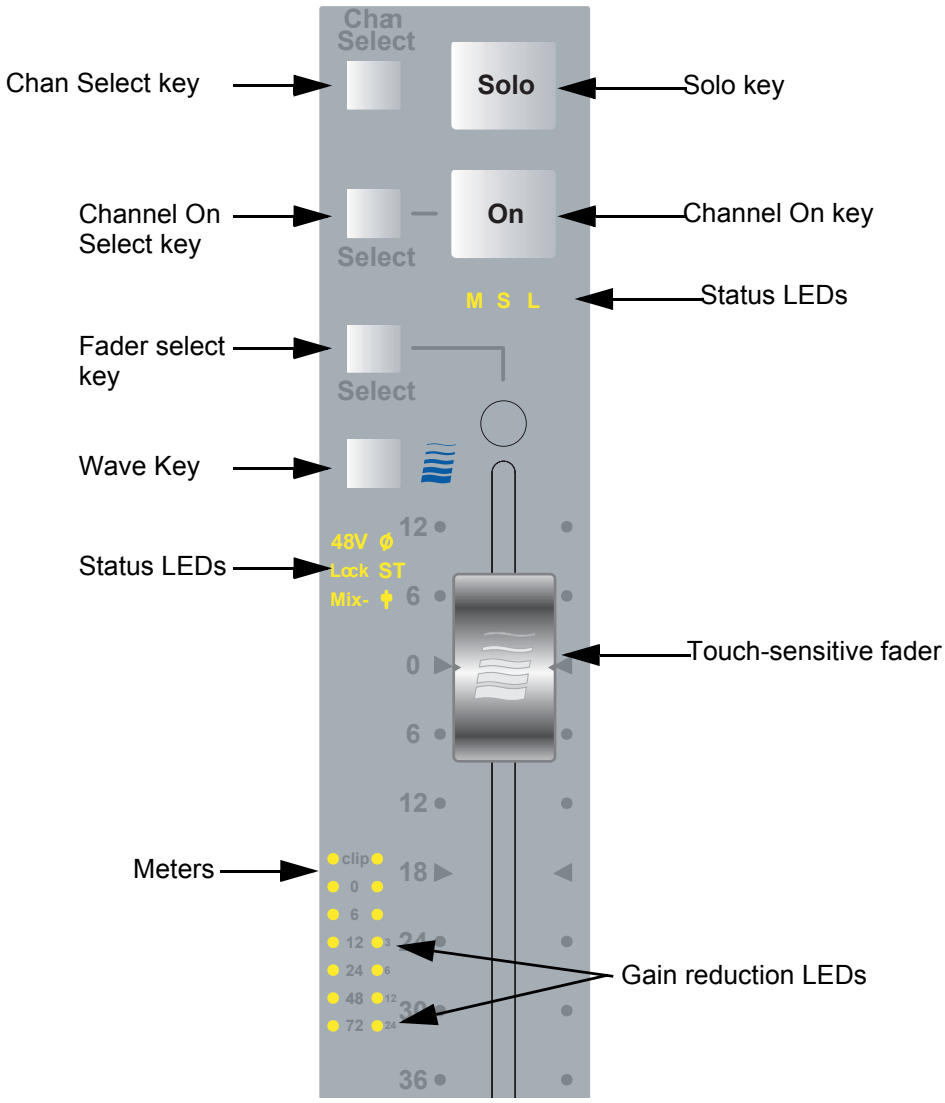


Figure 5-5 Strip Fader

Each strip has a touch-sensitive moving fader. The fader has 12 dB headroom from the 0 dB position.

Fader Select Key

The fader **Select** key is used to select the fader for copy (page 94) and clear operations (page 147).

Backstop PFL

The Max Air faders have a backstop key past the bottom of their travel. Pull a fader back to route the channel's PFL signal to the solo bus. Releasing the fader cancels that fader's routing to the solo bus. **Backstop PFL** can be used on group masters to solo a control group. See page 142 for more information.

5.2.3 Meters

The meter can show the active channel, or Main and Swap, and can also show gain reduction in the bottom four LEDs on the right meter (see *Meters* on page 82). Stereo channels display the left and right channels on the left and right sides of the meter, respectively.

5.2.4 Status LEDs

The following explanations pertain to the LED being illuminated.

- **48 V:** phantom power is on for the mic preamp of the active channel.
- **Phase:** phase is inverted for the active channel.
- **Lock:** strip is locked (page 76).
- **ST:** active channel is stereo (page 151).
- **Mix Minus:** mix minus key is pressed (page 108).
- **Fader Touch Sensor LED:** fader is being touched.
- **M:** active channel is Group or Multi Format Master (Chapter 8: *Control Groups and Multi Format Masters*).
- **S:** active channel is a slave to a Group or Multi Format Master (Chapter 8: *Control Groups and Multi Format Masters*).
- **L:** reserved for future use

5.2.5 Wave Key

Pressing the **Wave** key has two functions:

- brings the channel to the center Super Channel (see page 124).
- modifies other keys like a shift key.

5.2.6 Channel On Key

The **On** key turns the channel on and off.

Channel On Select Key

The **Select** key is used to include the channel **On** key in copy and clear operations.

5.2.7 Channel Select Key

The **Chan Select** key is used:

- to include the entire channel in a copy or clear operation.
- in conjunction with the **Wave** key to assign channels (page 90).

5.2.8 Solo Key

The **Solo** key is used to solo the active channel (page 139).

5.2.9 Copy and Paste

Settings from one channel may be copied and pasted to others.

To copy the settings:

1. Press and hold the **Wave** key down and press the **Copy** key.

   The strip dims and the **Copy** key flashes.

2. Press the **Chan Select** key to select the entire channel, or press any Knobset Select key at the top of the strip to copy that function to the copy buffer. Other functions can be added to the buffer by pressing their Knobset Select keys.

3. Press and hold the **Wave** key down and press the **Copy** key to stop it from flashing and exit the mode.

To paste the settings to a new channel:

1. Select the Swap or Main channel within the desired strip.

2. Press and hold the **Wave** key down and press the **Paste** key on the new channel.

   The buffered information is pasted to the channel on the new strip.

5.2.10 Rotary Knobs

Each strip has four rotary knobs each with a four-character display and two keys. The knob is a continuous controller; as the knob turns, the LEDs on the outer ring light. The display shows the knob's current function or parameter value.

- The lower key to the left of the knob toggles the knob's function **In/Out**.
- The upper key to the left of the knob is the **Select** key for the **In/Out** key below it. This key is also used to select the **On/Off** key for inclusion in a Snapshot and pages to a second knobset function, if it exists.

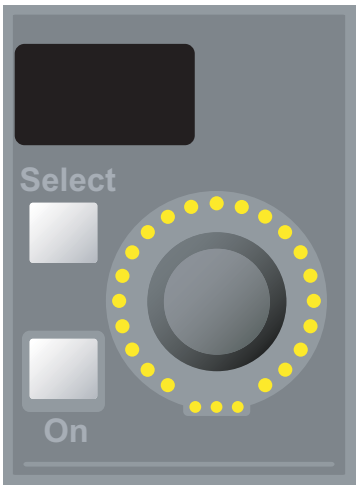


Figure 5-6 Rotary Knob Controls

5.2.11 Knobset Select Keys

The **Input**, **Dynamics**, **EQ, Filters**, **Pan**, **Aux**, and **Routing** functions can be assigned to a strip's four rotary knobs by the Knobset Select keys above the knobs. If the function has more than four parameters, the ◀▶ keys (below the first knob) page backward and forward to display the additional settings. The **Ins/Inp, Dyn, EQ** and **Filt** keys double as process in/out keys when the In/Out key is selected.

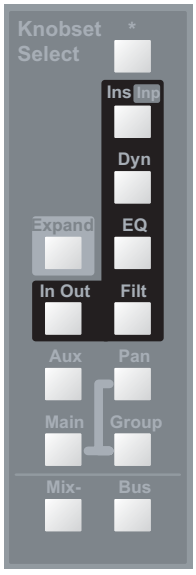


Figure 5-7 Strip Function Switches

5.2.12 In/Out Keys

There is one **In/Out** key for each set of eight strips. When this key is *on*, the **Ins/Inp, Dyn, EQ** and **Filt** keys act as function in/out keys. When the **In/Out** key is off, the **Ins/Inp, Dyn, EQ,** and **Filt** keys return to their knobset selection mode but remain half-lit if the function has been switched *in*.

5.2.13 Expand

There is one Expand key for each set of eight strips. Expand has not been implemented in v1.0 software.

5.3 Channel Processing Functions

Max Air provides flexible and complete processing functions for each channel: Input, Dynamics, EQ, Filters, Panning, Aux Busses and Routing.

5.3.1 Inputs

Press the **Ins/Inp** Knobset Select key to display the input controls on the knobs. Press the ▶ key to display the B input page with the same controls as the A input.

Each channel has an A and B input. The **Inpt** knob (bottom) can feed A, B, or A+B to the channel. These two inputs can be used in many ways but a common application is one Mic and one Line. Another common use is for backup mic inputs: Channel 1A is from the main mic while 1B is from the backup. The **Inpt** knob then acts as a main/backup mic key.

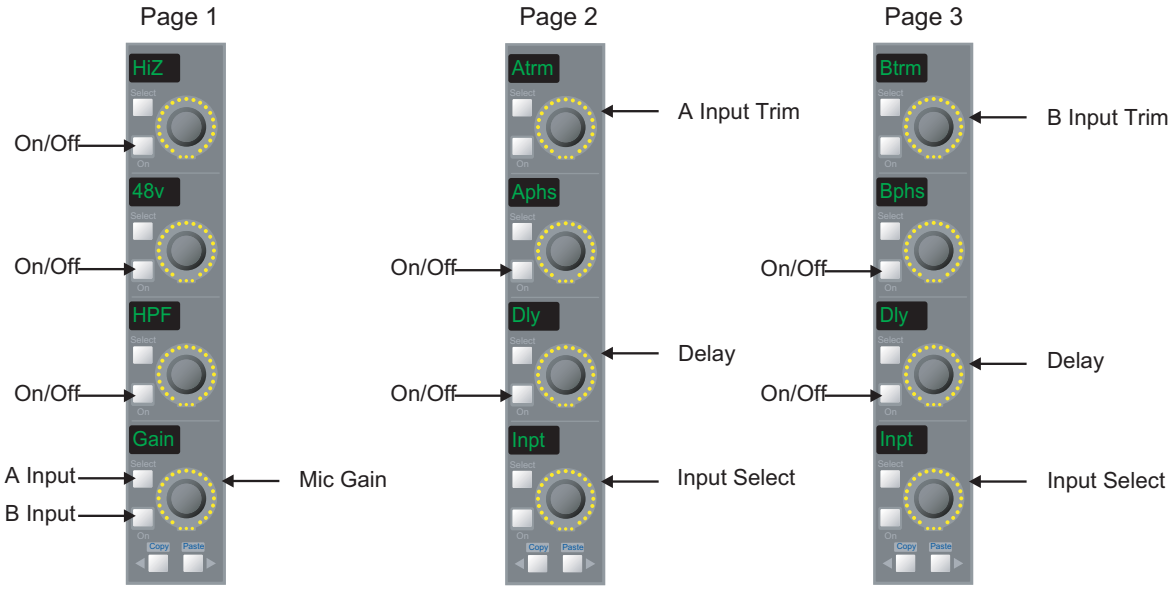


Figure 5-8 Mono Input knobsets

Analog Controls

If an ML530 Mic/Line Interface is patched to the input, the knobs show the analog mic/line controls:

- **HiZ:** Press the lower key to the left of the knob to toggle the input between high and low impedance. When the key is lit, the input is high impedance.
- **48V:** Press the lower key to the left of the knob to toggle phantom power on/off. When the key is lit, phantom power is on.
- **HPF:** Press the lower key to the left of the knob to toggle the high-pass filter on/off. When the key is lit, the high-pass filter is on.
- **Gain:** Rotate the knob to adjust the analog input gain between -12 and +72 dB. The upper key toggles the A input on/off, and the lower key toggles the B input on/off. Press both keys down to mix the A and B inputs together.

If an ML530 Mic/Line Interface is *not* patched to the input, the first page does not appear.

Digital Controls

The second page controls the digital parameters of the A and B inputs:

- **Atrm:** This knob adjusts the digital trim ±15 dB.
- **Aphs:** Press the lower key to the left of the knob to toggle the phase. The key lights to indicate phase reversal. There is also a phase reversal light next to the fader.
- **Dly:** Press the lower key to the left of the knob to enable the delay. The key lights to indicate the delay is active. Rotate the knob to adjust the delay in the range 0–2160 samples.
- **Inpt:** This knob selects between inputs A, B, and A+B (mixes both inputs).

Atrm and **Aphs** have corresponding controls for the B input; **Dly** and **Inpt** adjust one parameter that applies to both inputs.

Stereo Controls

There are two additional controls used for stereo channels (see *Multi Format Master Channels* on page 151).

- **Balance:** Rotate the **Bal** knob left to hear more of the left channel; rotate right to hear more of their right channel. Rotate left or right until the display reads 100L or 100R to hear only the left or right channel.

  Left-to-mono: Press the upper key next to the **Bal** knob to send the left channel equally to both the left and right sides of the stereo channel.

  Right-to-mono: Press the lower key next to the **Bal** knob to send the right channel equally to both the left and right sides of the stereo channel.

Both-to-mono: Press both keys next to the **Bal** knob to send a mono mix of both channels equally to both sides of the stereo channel. The **Bal** knob then adjusts the mix between left and right channels.

- **Swap:** Press the lower key to reverse the left and right channels.

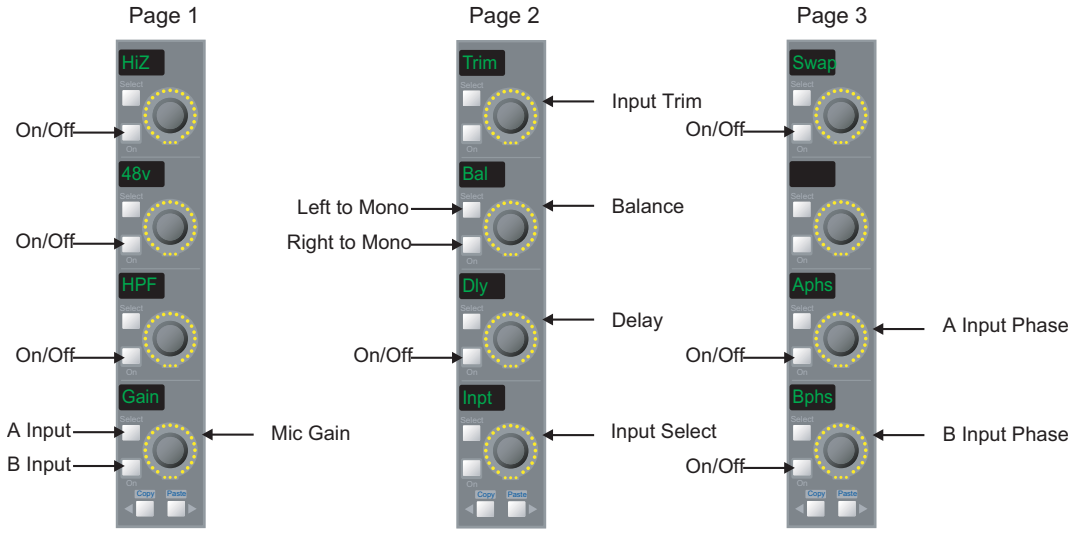


Figure 5-9 Stereo Input Knobsets

5.3.2 Dynamics

Each channels dynamics processor can be configured as a compressor/limiter or an expander/gate. Press the **Dyn** Knobset Select key to assign Dynamics to the knobs.

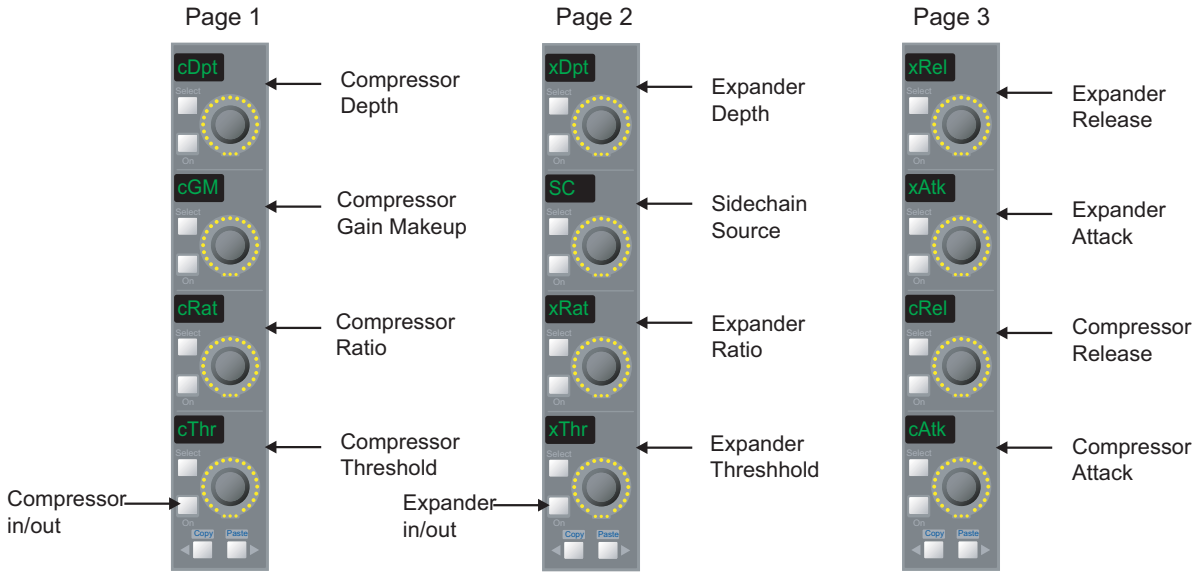


Figure 5-10 Dynamics knobsets

The lower key next to the **cThr** knob switches the compressor in/out.

The lower key next to the **xThr** knob switches the expander in/out.

The dynamics function consists of the following controls (see Figure 5-10).

cDpt: compressor depth limits the maximum gain reduction in the compressor
cGM: gain makeup (dB)
cRat: ratio (infinity:1 = hard limiter)
cThr: Compressor threshold (dB)
xDpt: expander depth limits the maximum gain reduction in the expander
SC: sidechain source (channel, key, link)
xRat: ratio (infinity:1 = gate)
xThr: Expander threshold (dB)
xRel: Expander release time
xAtk: Expander attack time
cRel: Compressor release time
cAtk: Compressor attack time

5.3.3 EQ

Each channel has a four-band, parametric equalizer. Press the **EQ** Knobset Select key to display the EQ controls on the knobs.

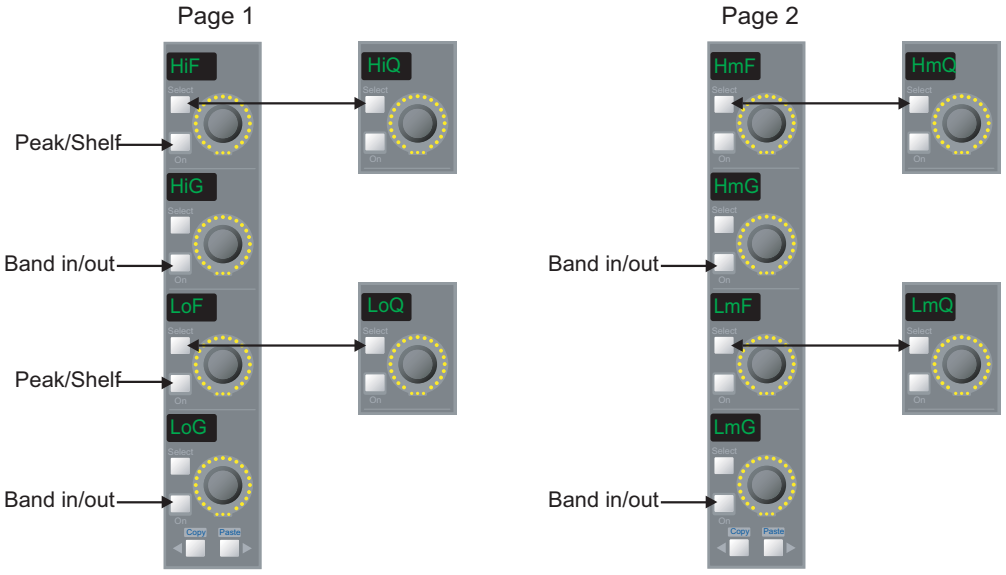


Figure 5-11 EQ knobsets

Each parametric EQ band has two knobs: one shared between frequency and Q and another for gain. Press the upper key to the left of any of the frequency knobs to toggle between Q and frequency. Use the gain knob to adjust the gain for that band. The lower key to the left of the gain knob switches that band In/Out.

The four bands are identical (20.5 Hz – 21 kHz) except the HiF and LoF bands can be switched between peak or shelf filters. Press the lower of the keys to the left of the HiF or LoF knob to toggle between shelf (no light) and peak (key lights green).

The gain can be adjusted in $^{1}/_{8}$ dB increments in a range from -24 to +24 dB. As the gain is changed from 0, the LEDs light dimly from the center LED in the direction turned (clockwise = boost); the level is indicated by a bright LED.

Q can be adjusted in the range from 0.2 to 12 (higher number corresponds to narrower bandwidth). At a given Q setting, changing the gain affects the bandwidth slightly: the bandwidth decreases as gain increases. This creates a wider area of boost/cut at low gain and allows a more natural sound as gain changes without altering the Q. At full boost or cut, the bandwidth is measured 3 dB down from the center frequency.

Since Q and Frequency share the same knob, both parameters are indicated on the knob LEDs: Frequency is indicated by a bright LED at its proportional position from first to last LED. For example, 10 kHz would be approximately in the middle. Q is indicated by dim LEDs extending to either side of the frequency LED.

5.3.4 Filters

Each channel has two filters with four filter types available: high-pass filter, low-pass filter, band-pass filter and a notch filter. Press the **Filt** Knobset Select key to display the Filter controls on the knobs.

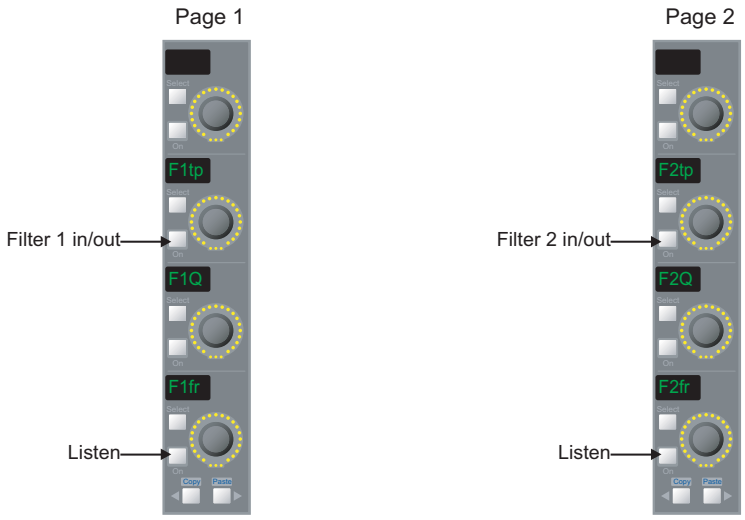


Figure 5-12 Filters knobsets

Filter Type (F1tp, F2tp): Select from four filter types low-pass filter (LPF), high-pass filter (HPF), band-pass filter (BPF), and notch filter (NTCH). The lower key to the left of the filter type knob switches each filter in/out.

Filter Q (F1Q, F2Q): The band-pass and notch filters have a variable Q from 0.2 to 12. This function has no effect on high- or low-pass filter types.

Filter Frequency (F1fr, F2fr): The frequency range is 20.5 Hz to 21 kHz.

Listen: To help find problematic frequencies, the Notch filter can be put into a band-pass mode by pressing the Listen key to the lower left of the Filter Frequency knob. The boost setting is not saved in the Title and defaults to Off.

5.3.5 Pan

Max Air is not limited to a single pan format and one pan control per channel imposed by the traditional analog console. Max Air allows the following pan formats (also called *pan laws*): mono, stereo, LCRS, 5.1, 6.1, and 7.1. The limit is 16 multi format main sections each with up to eight busses. See *Configuring Main and Group Busses* on page 110 to learn how to assign main and group bus formats. A single pan knob can control several different main or group busses at once, each with different formats.

Press the **Pan** Knobset Select key to assign the Pan parameters to the knobs. See *Pan* on page 126 for information about engaging the panner to the busses.

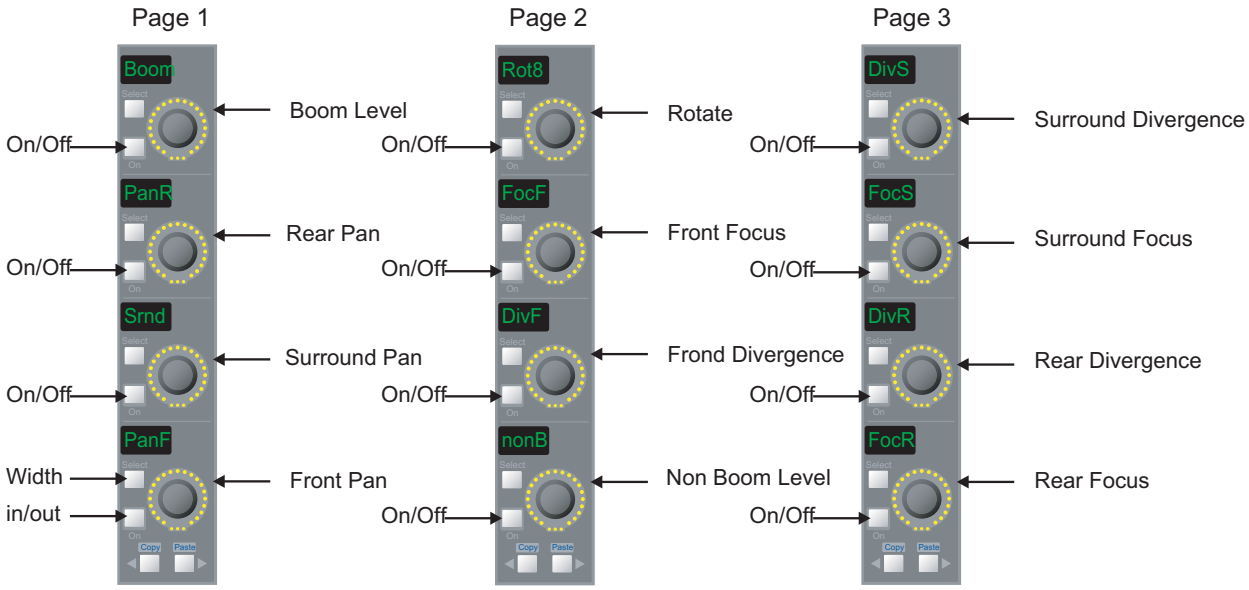


Figure 5-13 Pan Knobsets

Boom Level (Boom): The level to *only* the Boom channel. For example, in 5.1-channel format, the Boom level applies to only the Sub.

Pan Rear (PanR): Same as PanF for rear speakers.

Surround Pan (Srnd): Controls the front-to-surround levels without changing the individual front or surround pan settings.

Pan Front (PanF): Controls the front channel levels only (i.e., in 5.1-channel format, pan applies to LCR). This is the familiar pan control for a stereo Main bus.

Rotate (Rot8): Allows circular panning.

Focus Front (FocF): This parameter requires at least three speakers to function. Focus ranges from 0–100%. At 100%, the signal has a pinpoint image: as the signal is panned, it crossfades directly from one channel to the next, completely fading from the first *before* entering the third. As Focus decreases, the signal blurs across multiple channels: the signal moves from channel one into two, and then begins crossfading into channel three before channel one has completely faded out. This results in smoother, dynamically panned objects across the sound field.

0% Focus eliminates the center channel from the pan range entirely. The pan control still functions, although the signal crossfades directly from bus one to bus three. One use of 0% Focus is to create phantom-centered images, where the signal is sourced equally from the left and right front speakers instead of directly from the center speaker.

Divergence Front (DivF): This parameter requires at least three speakers to function. Divergence ranges from 0–100%. At 100%, panning works as expected: Panned to maximum left, there is no signal present in the right or center channels; at the center position, no signal is present in the left or right channel, etc. As the Divergence is decreased, the degree of panning is decreased: The signal level increases in channels that previously had no signal and the difference in signal level between channels decreases.

The purpose of Divergence is to allow someone listening on the extreme left or right to hear a sound panned fully to the other side. For example, at 50% Divergence, a sound panned fully left will retain approximately half its signal level in the right channel compared to the left.

Non Boom Level (nonB): The level to all channels except the Boom channel. For example, in 5.1-channel format, the Non-Boom level applies to L, C, R, Sl, Sr.

Divergence Surround (DivS): Same as Divergence Front.

Focus Surround (FocS): Same as Focus Front.

Divergence Rear (DivR): Same as Divergence Front.

Focus Rear (FocR): Same as Focus Front.

Width (Wdth): Available only on Multi Format Masters (see page 151). Controls the front channel width.

SmartPan

The Max Air panner has an automatic function called *SmartPan* that prevents the disappearance of the audio signal during panning if some of that Main Section's busses are not assigned. For example, if a channel is assigned to a 5.1 Main Section output but does not send anything to the center Main bus, SmartPan automatically uses a stereo pan law so the signal is still present when panned to the center. SmartPan is always on and cannot be disabled by the user.

5.3.6 Aux Busses

The CM404 Center Section has Bus Master functions. See page 116 to configure Aux busses as stereo pairs.

Aux busses can be mono or stereo pairs. Each Aux bus can be configured as pre- or post-fader. Press the **Aux** Knobset Select key to assign the Aux bus parameters to the knobs. Aux bus assignments are displayed at the top of the strip. Pre-fader sends are displayed in yellow; post-fader sends are in green.

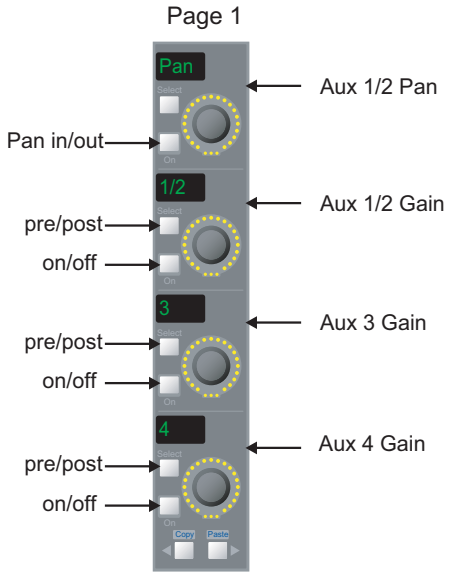


Figure 5-14 Aux bus Knobset

Figure 5-14 shows the first four Aux busses with 1/2 set to a stereo pair and others to mono. Press the ▶ key to display additional busses. Stereo busses use two knobs:

- The Pan knob (top) adjusts the stereo Pan and its lower-left key switches Pan in/out.
- The Gain knob (labeled with the send numbers) adjusts the overall Gain for both sends and its lower-left key switches the pair in/out. The upper-left key switches the send from post- to pre-fader.
- Mono busses use one Gain knob and its lower-left key switches the send in/out. The upper-left key switches the send from post- to pre-fader.

5.4 Channel Processor Order and Patch Points

The seven channel processors can be placed in any order to suit different applications. The default order is Delay, Metering, Insert, EQ, Filters, Dynamics, and Fader. The ten patch points are A Input, B Input, Insert Send/Return, Pre-fader Output, Post-fader Channel Output, Dynamics Key Input, Dynamics Side-Chain Link In/Out and Mix Minus Output. All patching can be done from the Patch View (see *Patch* on page 54).

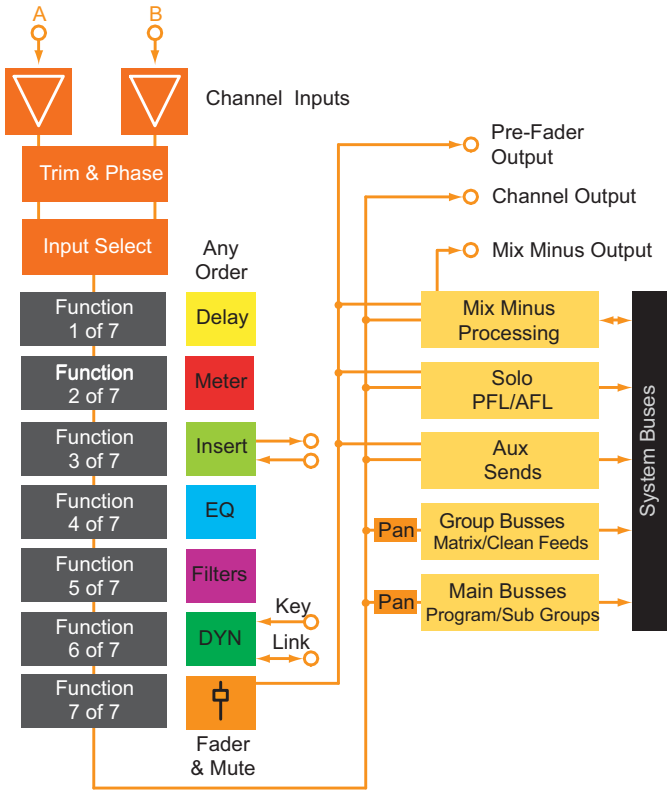


Figure 5-15 Channel processor order and patch points

5.4.1 Channel Processor Order

See *Process Order* on page 80 for information on changing the processor order.

5.4.2 Insert Point

Each channel has an insert point with a send and return that can be patched within the Patch View. The insert point can be anywhere among the six other processors (Delay, Metering, EQ, Filters, Dynamics, and Fader).

The insert point can be switched in/out using the **Ins/Inp** Knobset Select key when **In/Out** is selected.

5.5 Channel Routing Functions

5.5.1 Group Bus Routing

Max Air's group busses can be used for sub-groups, clean feeds and matrix outputs. The CM404 center section has bus master functions (see Chapter 6: *Busses*).

Route a Channel to a Group Bus

To route the post-fader channel signal to a group bus, press the **Group Knobset Select** key. This assigns the group bus routing parameters to the knobs. Two group busses are displayed per knob (i.e., 1/2, 3/4, etc.). Since the display shows only four characters, group busses 11/12 are displayed as 11/2.

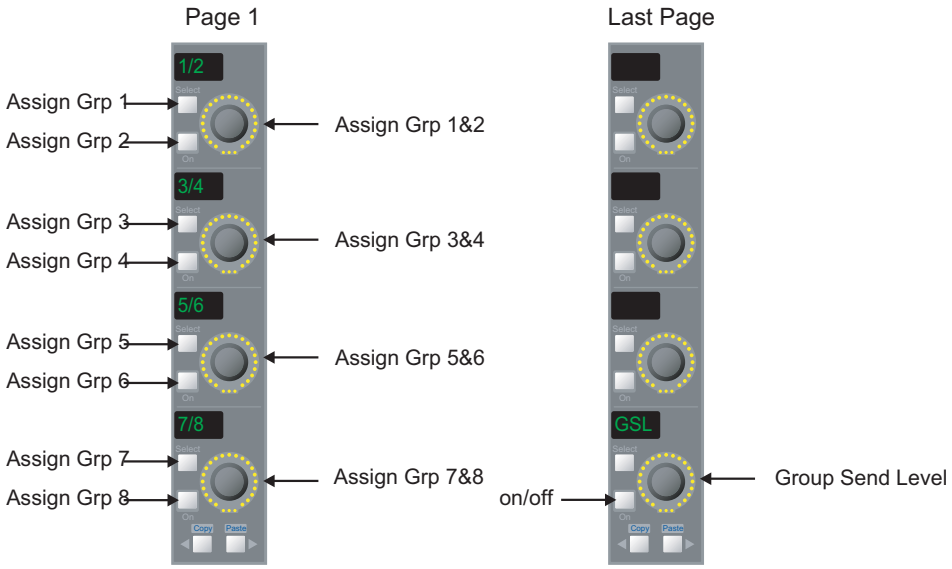


Figure 5-16 Group Bus Routing Knobsets

The upper key to the left of each knob assigns the first of the two group busses in the display, the lower key assigns the second (i.e., for 1/2, the upper key assigns 1 and the lower key assigns 2). The keys light to indicate this channel is assigned to that group bus. Group busses can be assigned in pairs by pushing the knob.

Hold the **Group** key and press the **Pan** key to engage the Pan for the group busses. The **Pan** key lights dimly in other modes to show that Pan is active in main and/or group bus routing. The **Group** key also lights dimly in other modes to show that the channel is assigned to one or more group busses.

Press the ▶ key to display additional Group Bus Routing pages or the last page, which has the **GSL** (Group Send Level) controls on the bottom knob. The lower key to the left of the **GSL** knob is the **Group Send** on/off key. The knob adjusts the master level to all the Group busses from that channel.

5.5.2 Main Bus Routing

There are 16 Main sections each comprised of individual main busses in a pan format. For example, one section with a stereo format uses two busses, another section with a 5.1 format uses six busses. See *Configuring Main and Group Busses* on page 110 for main section setup. The CM404 center section has bus master functions (see Chapter 6: *Busses*).

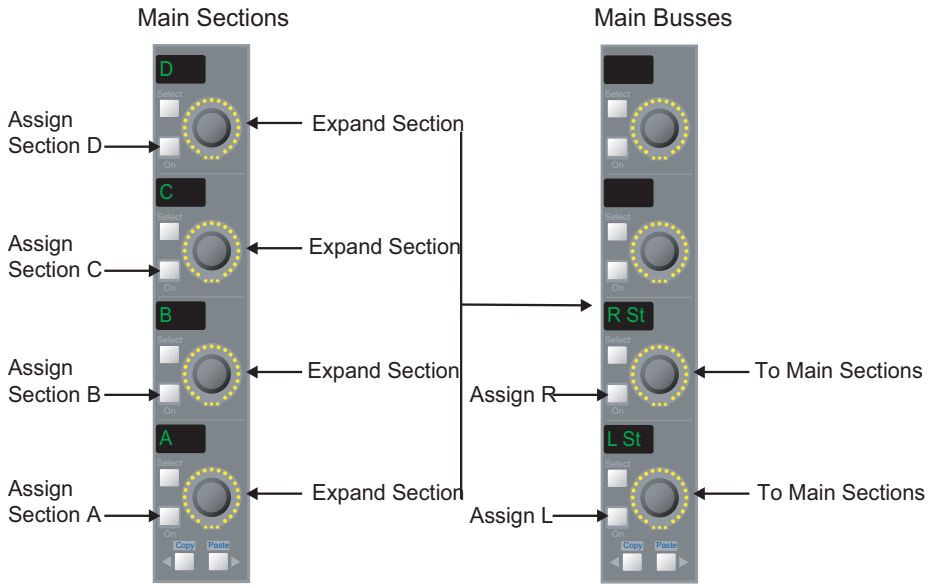


Figure 5-17 Main Section Routing Knobset

To route the post-fader channel signal to a Main section, press the **Main** Knobset Select key. This assigns the first four Main sections to the knobs if they have been defined. If they have not been defined, the knob display is blank. Press the ▶ key to display additional Main Section Routing pages if there are more than four.

- The lower key to the left of each knob turns that section on/off.
- Pressing the knob displays the individual busses of that main section on the knobs. The lower key to the left of the knob toggles that bus on/off.

Hold the **Main** key and press the **Pan** key to key Pan in/out for the Main sections. The Pan key lights dimly in other modes to show that Pan is active in main and/or group bus routing. The **Main** key also lights dimly in other modes to show that the channel is assigned to one or more Main sections.

5.6 Mix Minus

Each channel has a mix minus output that can be used to send a unique feed to an announcer. The Mix Minus Reference Bus is the console's single mono mix minus bus. A channel is routed to it by pressing the **Bus** key. Pressing the **Main-** key creates a feed for an announcer's ear piece on the channel's mix minus output. The channel's signal is subtracted from the mix minus bus, allowing the announcer to hear all voices on the bus except their own.

To enable talkback functions:

1. Physically connect the CM404's rear panel **External** or **Internal Talkback Mic** XLR to the MC524's **Talkback 1** input.
2. Physically connect the MC524's **Talkback 1** output to a spare A/D input on an AM713.
3. In the Patch view, patch the A/D Source into the **Utility Destinations/Slate-TB_In**.

Holding down the **Talk** key (located to the left of the **Swap** key above the fader) switches the talkback mic into the channel's mix minus output.

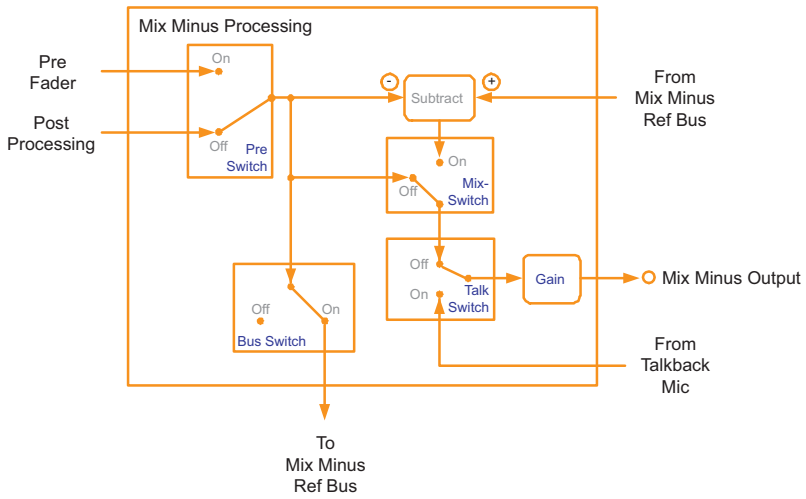


Figure 5-18 Mix Minus Processing

The Pre/Post Selector is set from the Mix Minus Bus Configuration view on the Touchscreen (see *Mix Minus* on page 117). It is not controlled from the channel strip.

There is a gain control just before the Mix Minus Output. This is controlled from the Mix Minus Bus Configuration view on the Touchscreen. It is not set from the channel strip.

Chapter 6: Busses

6.1 Introduction to Max Air Busses

Max Air has 24 Main busses, 24 Group busses, 16 Aux busses, and a stereo Solo bus. See page 73 to learn about the Bus Lock feature.

Main Busses

Max Air has 24 *Main sections*, each with between one and eight individual busses. For example, a stereo main section contains two busses and a 5.1-channel main section contains six busses. Main busses have playback returns, aux and groups do not.

Group Busses

Group busses are used to route channels to multitracks, DAWs, complex mix-minus feeds that require more than one channel being subtracted (see page 108 for conventional mix minus bus routing), and sub-groups. Group busses can be configured to any format but are usually set to odd/even stereo pairs. With Pan switched out, they act as mono busses.

Aux Busses

Aux busses are used for effects, foldback, and complex mix-minus feeds that require a separate level control for each channel (see page 108 for conventional mix minus bus routing). Aux busses can be configured as mono or stereo pairs and can be set pre- or post-fader.

Solo Bus

The Solo bus is fixed at stereo. After Fader Listen (AFL) and Pre-Fader Listen (PFL) route signals to the solo bus. Each strip's fader also has a Backstop PFL function: move the fader past the bottom of its travel to activate the PFL solo mode (see *Backstop PFL* on page 93). Solo In Place (SIP) is a destructive solo mode and does not use the solo busses. See *Solo Mode* on page 140 for more information on SIP.

6.2 Configuring Main and Group Busses

Select the **Busses** Main Menu button. Select either the **Group** or **Main** button to configure the Group or Main busses, respectively (Figure 6-1 shows the Main busses; Figure 6-2 shows Group busses). Group and Main busses differ in three ways:

- There are 24 Main busses but only one set of Group busses.
- Main busses have associated recorder playback returns.
- Main busses can be named but Group busses cannot.

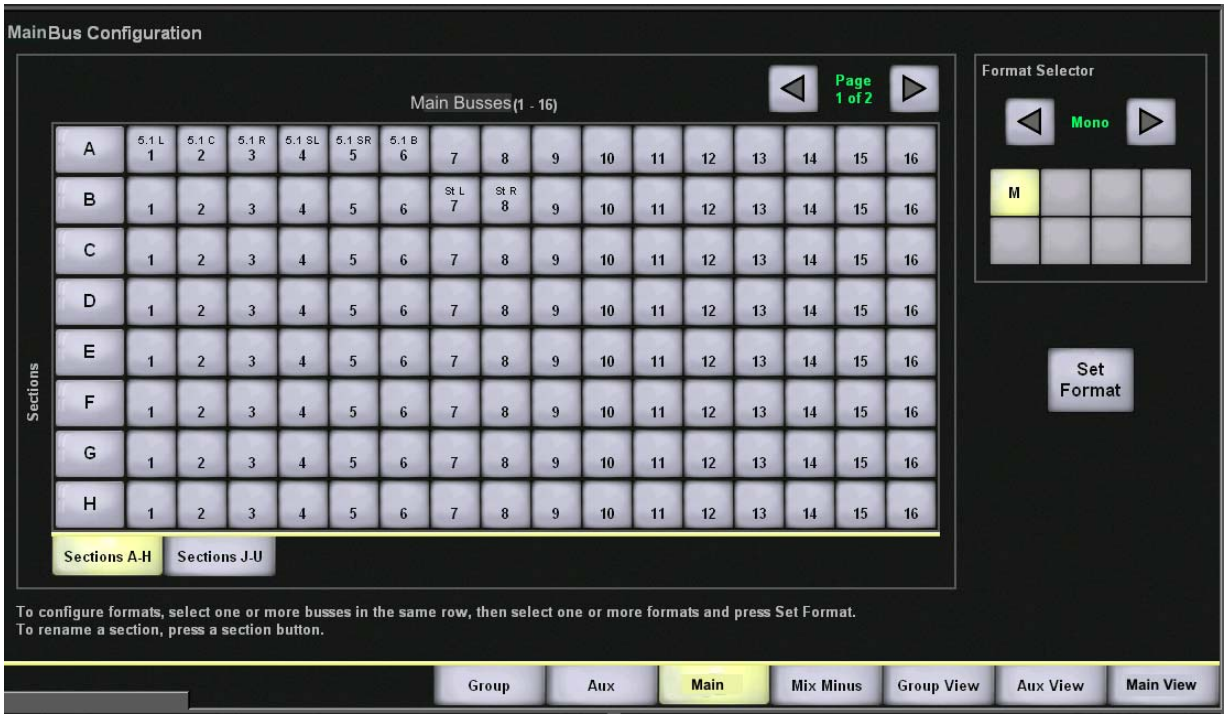


Figure 6-1 Main Bus View

NOTE: *There are 16 Main Sections: A–H, J–U. The letters I, L, M, and N were not used to avoid confusion.*

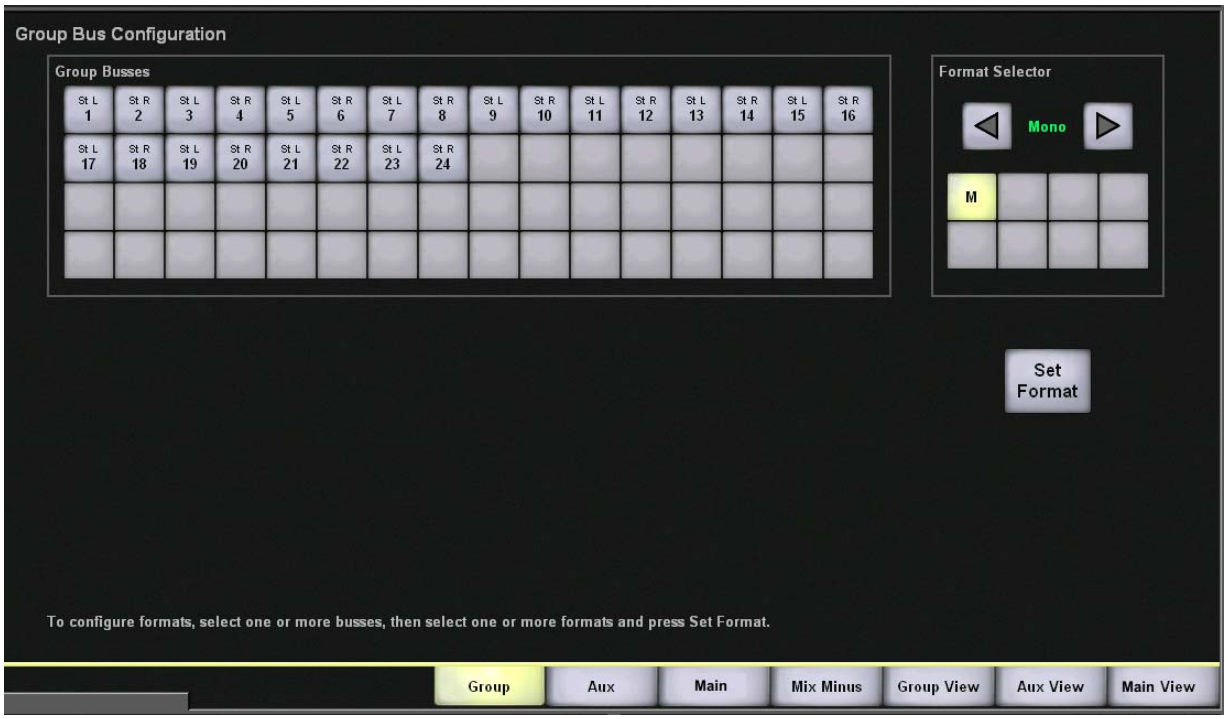


Figure 6-2 Group Bus View

The letters on the left of Figure 6-1 denote the 16 Main sections. The letters *I*, *L*, *M*, *N*, and *O* have been omitted to avoid being confused with one another. Touch the cell to the right of the letter to name the section.

The Main sections are the main mix outputs of the console. A Main section consists of one or more Main busses. There are 24 busses available.

6.2.1 Format Selector

To set the pan format for a Main section:

1. Select the busses to configure.
2. Touch the right arrow in the Format Selector to scroll through the formats.

   Touch the left arrow to scroll backwards.



Figure 6-3 Format Selector

The possible formats are:

none (remove a format from a bus)
mono (M)
stereo (L, R)
LCRS (L, C, R, S)
5.1 (L, C, R, SL, SR, B)
6.1 (L, C, R, SL, SR, SC, B)
7.1 (L, LC, C, RC, R, SL, SC, SR, B)

3. Touch the **Set Format** button when the desired format appears.

If the number of bus cells selected is less than the number of channels in the format, the first channels in the format are used. For example, if two bus cells are selected and the LCRS format is selected, the two lower numbered cell receives **LCRS L** and the higher numbered cell receives **LCRS C**.

It is also possible to set busses to a format and then reformat some of those busses to **None**. For example, if four busses receive the LCRS format, three could be selected and set to **None**, leaving just **LCRS S**.

If there are more selected bus cells than channels in the format, the first channels are re-used for the additional cells, For example, if six bus cells are selected and the LCRS format is selected, the first four cells are labeled as expected (LCRS), but the last two are **LCRS L** and **LCRS C**.

A useful application of the Format Selector is to change the order of channels used to accommodate different standards (i.e., L,R,C,B,Sl,Sr instead of L,C,R,Sl,Sr,B). Any format can be re-ordered but the following example sets a 5.1-channel mix to an arbitrary order:

1. Select a Main bus.
2. Select the **5.1** format from the Format Selector.
3. Touch all channels except the first channel in your new order in the Format Selector to de-select them.
4. Touch the **Set Format** button to set that channel to the selected bus.
5. Repeat steps 1–4 for each Main bus to reorder.

6.3 Configuring Aux Busses

Select the **Busses** Main Menu button, then select the **Aux** tab to display the Aux Bus Settings shown in Figure 6-4. Each button pertains to a specific Aux function, which is discussed in the following sections.

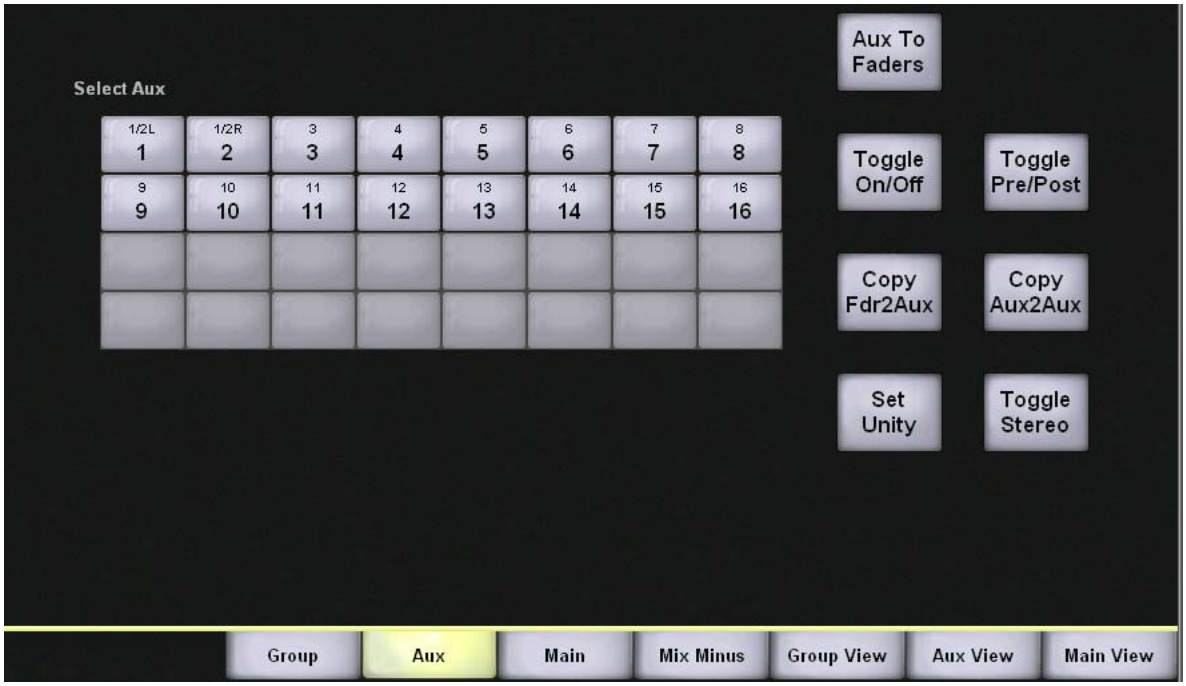


Figure 6-4 Aux Bus Settings View

NOTE: *The number of Aux busses (16 or 24) depends on the Mixer Model.*

6.3.1 Aux to Faders

It is now possible to control a selected Aux bus from the faders. Aux busses now have 12 dB of gain to match the range of the channel fader.

1. Touch the **Aux to Faders** button.

   The button illuminates.

2. Touch the desired Aux bus to map onto the faders.

   The button illuminates.

3. When finished, select another Aux or select a different Aux function.

   This stays enabled if you navigate to a different Touchscreen so touch **Aux to Faders** again to disable when finished.

This effects all channels including those not on the surface.

6.3.2 Toggle On/Off

Selected Aux busses can now be toggled on/off from this View.

1. Touch the **Toggle On/Off** button.

   The button illuminates.

2. Touch the desired Aux busses to toggle.
3. When finished, select a different Aux function.

This effects only those channels on the surface.

6.3.3 Toggle Pre/Post

Selected Aux busses can now be toggled pre-/post-fader from this View.

1. Touch the **Toggle Pre/Post** button.

   The button illuminates.

2. Touch the desired Aux busses to toggle.
3. When finished, select a different Aux function.

This effects only those channels on the surface.

6.3.4 Copy Fader to Aux

The CM416 fader levels (and pan for those faders controlling stereo channels) can be copied to a selected Aux bus from this View.

1. Touch the **Copy Fdr2Aux** button.

   The button illuminates.

2. Touch the Aux bus to which the fader settings are copied.
3. When finished, select a different Aux function.

This effects only those channels on the surface.

6.3.5 Copy Aux to Aux

The settings from one Aux bus can be copied to another from this View.

1. Touch the **Copy Aux2Aux** button.

   The button illuminates.
2. Touch the Aux bus *from* which the settings are to be copied.
3. Touch the Aux bus *to* which the copied settings are to be pasted.
4. When finished, select other Aux busses to copy or select a different Aux function.

This effects only those channels on the surface.

6.3.6 Set Unity

Selected Aux busses can be set to unity from this View.

1. Touch the **Set Unity** button.

   The button illuminates.
2. Touch the Aux busses to set to unity.
3. When finished, select a different Aux function.

This effects only those channels on the surface.

6.3.7 Toggle Stereo

Pairs of Aux busses can be set to stereo or toggled back to mono from this View.

1. Touch the **Toggle Stereo** button.

   The button illuminates.
2. Touch an odd numbered Aux bus followed by an even numbered Aux bus to toggle them to or from stereo.

   The Aux busses indicate their new status.
3. When finished, toggle additional odd/even numbered pairs or select a different Aux function.

This effects all channels including those not on the surface.

6.4 Mix Minus

Select the **Mix Minus** tab to display the Mix Minus Configuration View. Touch the **Strip View** or **Channel View** buttons (1 in Figure 6-5) to display strips and channels, respectively. The Mix Minus feature allows a broadcaster to hear all channels except their own (see page 108 for a complete explanation of this feature).



Figure 6-5 Mix Minus Configuration-Strips View

Touch the arrows to select the Main, Swap, or Center levels (3).

Touch one of the four banks of 16 channels/strips to assign them to the Soft Knobs. The top bank (2) is selected in Figure 6-5. The Soft Knobs are represented by the lowest two rows labeled Mix Minus View (4). The knob sets that channel's level sent to the mix minus bus.

Push the **Pre** button down (illuminates) to set the level to pre-fader. When the **Pre** button is up (not illuminated), the level is post-fader.

6.5 Bus Centric Views

Max Air provides easy access to visually inspecting which channels are routed to the busses. This allows finding and correcting why sounds are on the bus that should not be there and vice versa.

6.5.1 Goup Bus View

Select the **Group View** button to display and set how channels are mapped to group busses. Touch the **Strip View** or **Channel View** buttons (1 in Figure 6-6) to display strips and channels, respectively. Figure 6-6 shows the Strip View.

Touch the arrows to select the page to view more strips (2). Select the group bus to view in the buttons at the bottom (3). Touch the strips to assign to the selected bus.

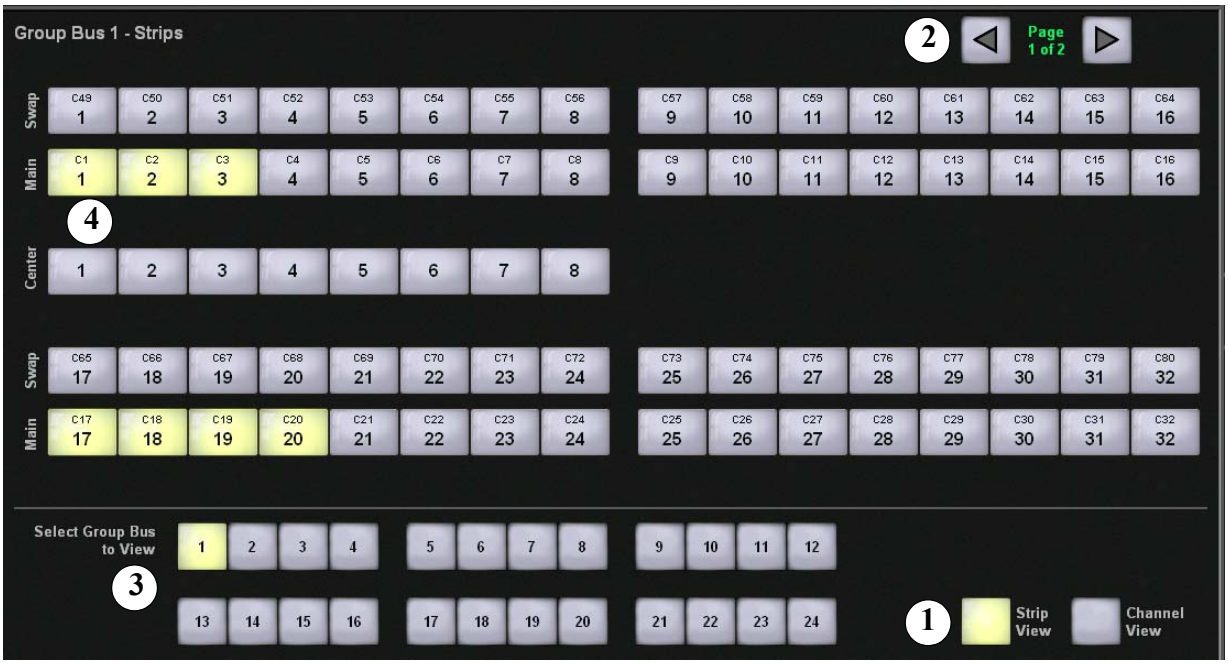


Figure 6-6 Group Bus View-Strips

6.5.2 Aux View

Select the **Aux View** button to display and set how channels are mapped to the aux busses. Touch the **Strip View** or **Channel View** buttons to display strips and channels, respectively.



Figure 6-7 Aux Bus View-Channels

Figure 6-7 shows the pan settings for channels 1–48 routed to aux bus 5/6.

Touch a bank of 16 knobs to assign them to the Soft Knobs to edit aux level, pre/post setting, and in/out.

6.5.3 Main View

Select the **Main View** button to display how channels are mapped to the Main busses. Touch the **Strip View** or **Channel View** buttons (1 Figure 6-8) in to display strips and channels, respectively. Figure 6-8 shows the Main A Channels View.

Select a Main section from the bottom lettered buttons (2) to view channels mapped to that section. Touch the arrow buttons (3) to display the channels or strips to view.

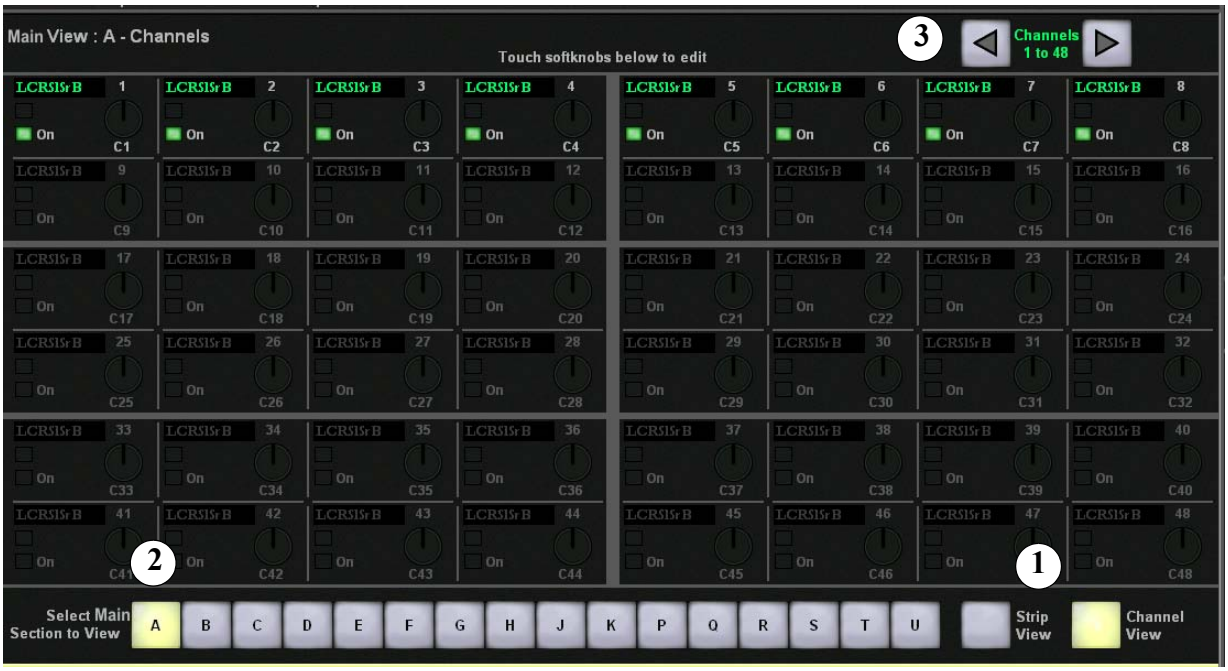


Figure 6-8 Main View: A-Channels

Touch a bank of 16 knobs to assign them to the Soft Knobs to assign or de-assign a channel from a Main bus.

6.6 Bus Masters

Each Group bus, Aux bus, and Main section has a Bus Master level control. The Soft Knobs in the CM404 Center Section are used to control bus masters.

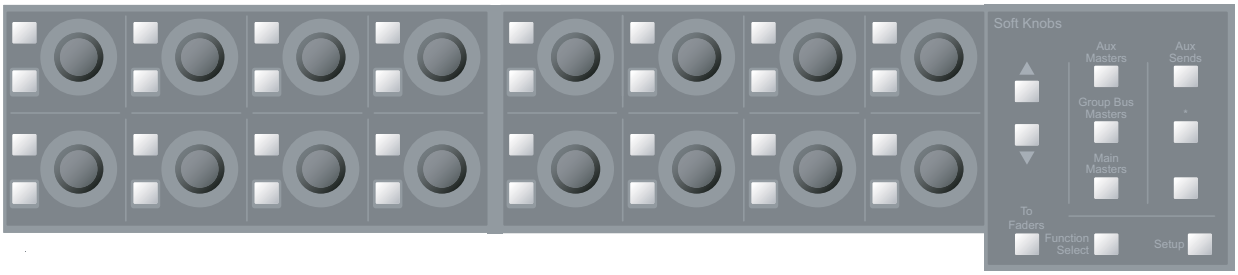


Figure 6-9 CM404 Center Section with Soft Knobs

6.6.1 Main Section Masters

Each Main section has its own level control as well as trim controls for each Main bus in its selected format (see *Busses* on page 69 to see how to set the format).

Press the **Main Masters** key to display the Main section masters on the Soft Knobs. The 16 Soft Knobs can then be used to change the level control for the 16 Main sections.

- Adjust the knob to control the overall level of the Main section.
- Press the lower key to the left of the knob to toggle the Main section on and off. The key is lit if the Main section is on.

Master levels for each individual Main bus contained in a Main section can also be adjusted.

- Press a Main section knob to display its individual Main bus level controls on the Soft Knobs.
- Adjust the knob to control individual Main bus level.
- Press the lower key to toggle the Main bus on and off.
- Press any knob to return the Soft Knobs back to displaying Main sections.

6.6.2 Group and Aux Bus Masters

The Group and Aux bus masters have bus master level controls. Press the **Group Bus Masters** key to display the first 16 group bus masters on the Soft Knobs. Use the ▼ key to display the remaining eight group bus masters. Use the ▲ key to get back to the first 16 group bus masters. Press the **Aux Masters** key display the 16 aux bus masters on the Soft Knobs.

The knobs control the bus levels and the lower button to the left of the knob turns that bus on/off.

6.6.3 Bus Inserts

Each group, main, and aux bus has an insert point. See *Patch* on page 54 to patch the busses. Switching the insert in/out works the same for aux, main, and group busses.

- Press the **Aux Masters**, **Group Bus Masters**, or **Main Masters** key to display those master level controls on the Soft Knobs.
- Press both the ▲ and ▼ keys simultaneously. You can now use the lower key to toggle the insert for that bus on and off. The insert is on when the key is lit.
- Press the **Aux Masters**, **Group Bus Masters** or **Main Masters** keys to display those master level controls on the Soft Knobs.

Chapter 7: Center Section

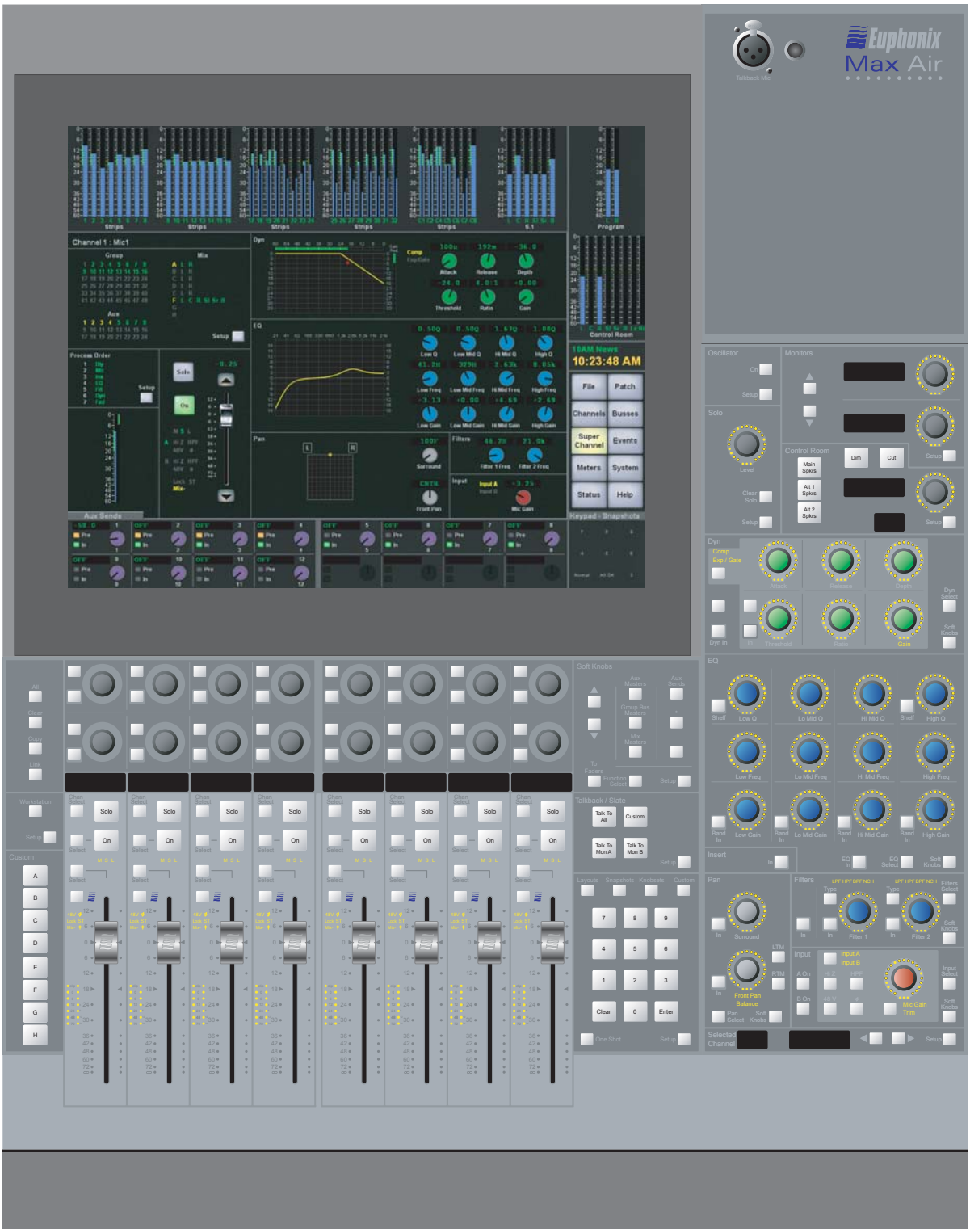


Figure 7-1 CM404 Master Module

7.1 Super Channel

The Super Channel provides a way to view and edit the most important functions of a channel. Select the **Super Channel** Main Menu button on the Touchscreen to display the settings of the channel currently assigned to the Super Channel. Any channel, control group, or Multi Format Master can be assigned to the Super Channel.

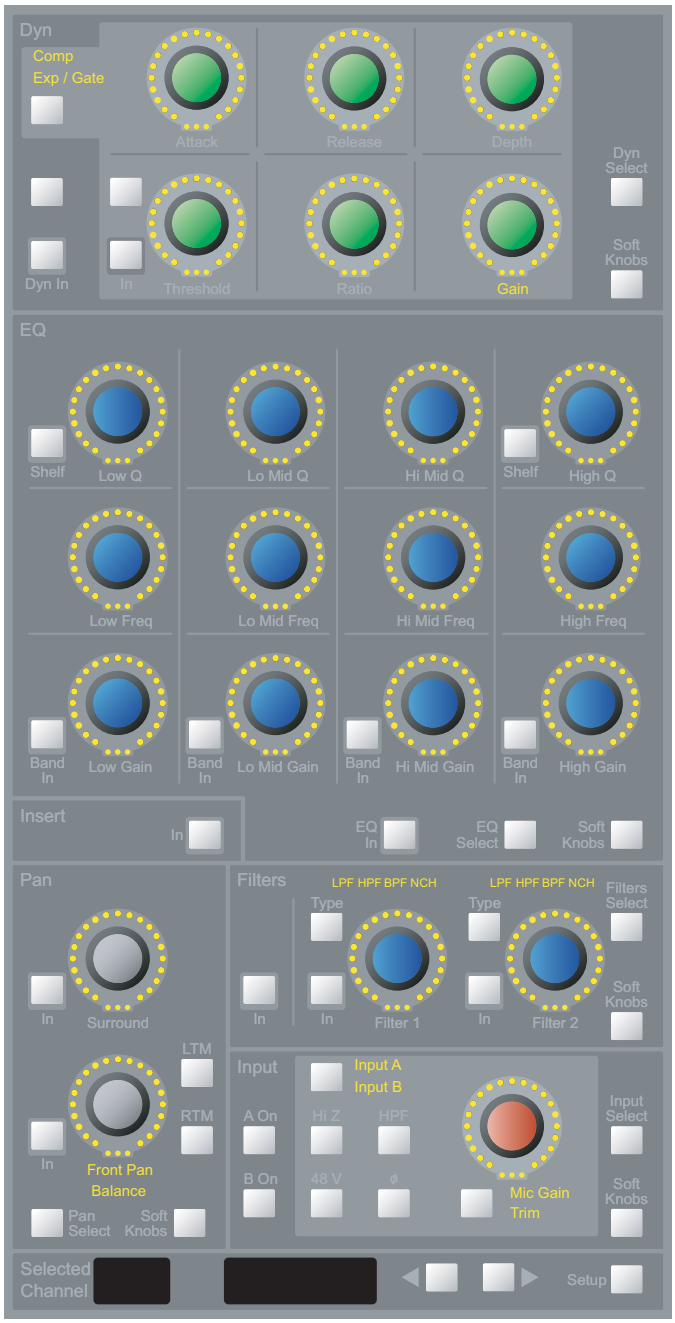


Figure 7-2 CM404 Super Channel Controls

7.1.1 Assign a Channel to the Super Channel

Assign a channel to the Super Channel by any of the following methods:

- Press the **Wave** key on the channel strip.
- Enter the channel number on the numeric keypad on the center section. See *Keypad* on page 145.
- Press the arrow keys (2 in Figure 7-3) in the Selected Channel area of the Super Channel on the console surface to select a channel.
- Press the **Setup** button (3) in the Selected Channel area of the Super Channel on the console surface. See page 79.

The selected channel display (1 in Figure 7-3) includes the channel number and eight-character name of the channel currently selected for the Super Channel. The left and right arrow keys (2) select the previous or next channels in numeric order.

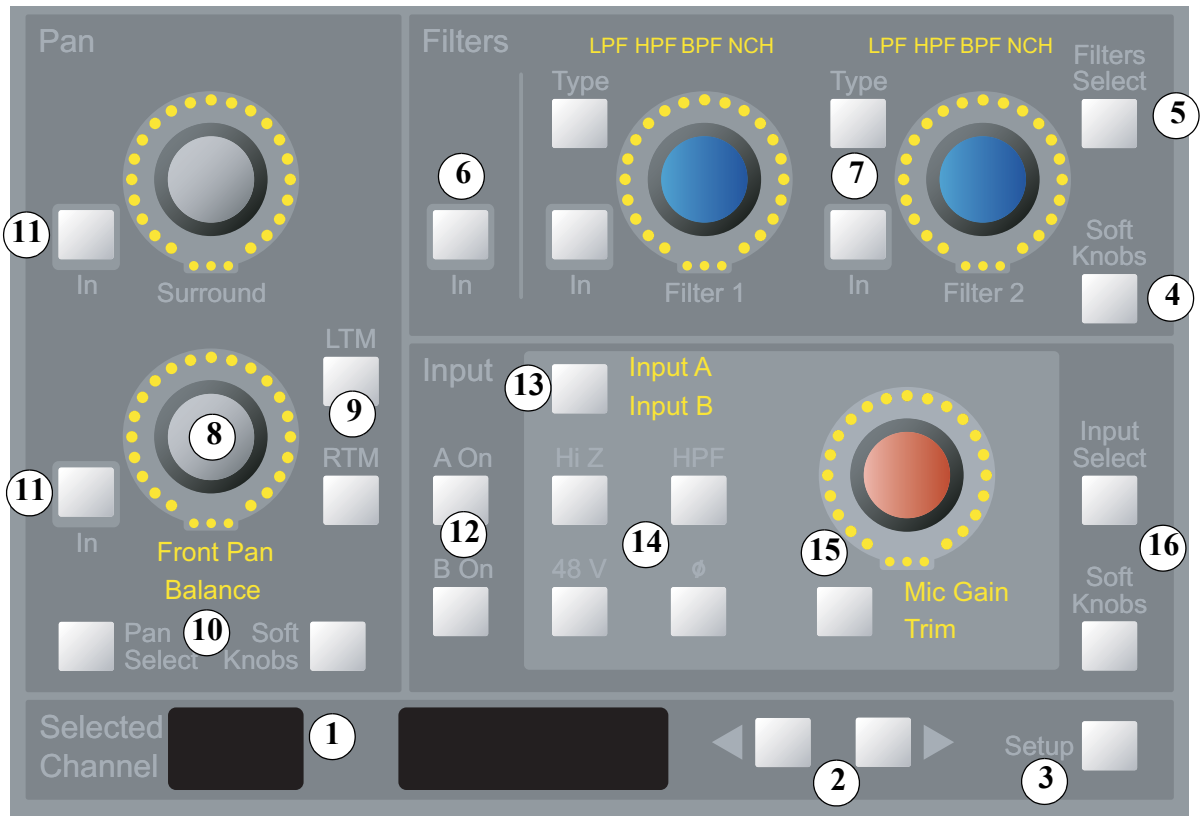


Figure 7-3 Super Channel: Selected Channel, Pan, Filters, and Input

The **Setup** button (3) displays the Channel Selector popup on the Touchscreen.

7.1.2 Input Section

The **A On** and **B On** buttons (12) select A, B, or A + B. They intercancel except that they can be pressed together to turn them both on.

The Input Edit key (13) selects the A or B input for editing using the input controls (14 and 15). The **Input A** and **Input B** displays show which input is selected.

The **Hi Z**, **48 V**, ∅ (phase), and **HPF** keys (14) toggle those functions on/off for the selected input.

The key below the knob (15) sets the selected input to control either Mic Gain or Trim on the knob. The **Mic Gain** or **Trim** legend lights to show which is selected. If the channel has a mic preamp attached, the setting defaults to **Mic Gain**, otherwise it defaults to **Trim**.

The **Input Select** key (16) selects the entire input section for a Clear function. The **Soft Knobs** (16) key maps all input functions (including functions not shown on the Super Channel) onto the Soft Knobs.

7.1.3 Pan

This section controls front and surround pan for the selected channel. Front pan is used for balance if the Super Channel contains a stereo channel. In this case, the **Balance** legend under the knob is lit, otherwise the **Front Pan** legend is lit (8 in Figure 7-3). Surround is used if the Super Channel has surround channels.

LTM (Left to Mono) operates on a stereo channel only. Press the **LTM** key (9) to place the left channel, reduced in level 3 db, on both the left and right channels. RTM (Right to Mono) operates on a stereo channel only. Press the **RTM** key (9) to place the right channel, reduced in level 3 db, on both the left and right channels. If both the **RTM** and **LTM** buttons are pressed, the left and right channels, each reduced 3 db, are summed and sent to both the left and right channels. The **Balance** knob then varies the mix between 100% left to 100% right. The **LTM** and **RTM** keys illuminate when active.

The **Soft Knobs** key (10) maps all pan parameters, including those not displayed in the Super Channel, onto the Soft Knobs. The **Pan Select** key (10) selects the entire pan section for the Clear function. The **In** key to the left of the knob (11) switches that particular pan control in/out.

7.1.4 Filters

The filters section controls two filters for the selected channel. The **In** key (6) switches the entire filters section in/out. The **In** key to the left of the knob (7) switches that individual filter in/out. The **Filter 1** and **Filter 2** knobs control the frequency of filter 1 and 2, respectively. The **Type** key toggles through the filter types: LPF (low-pass), HPF (high-pass), BPF (band-pass), NCH (notch). The **Soft Knobs** key (4 in Figure 7-3) maps all filter parameters onto the Soft Knobs. The **Filters Select** key (5) selects the entire filter section for a Clear function.

7.1.5 Insert

Each channel has an insert point with a send and return that can be patched in the Patch View. Press the **In** key (1 in Figure 7-4) to toggle the insert on/off for the selected channel.

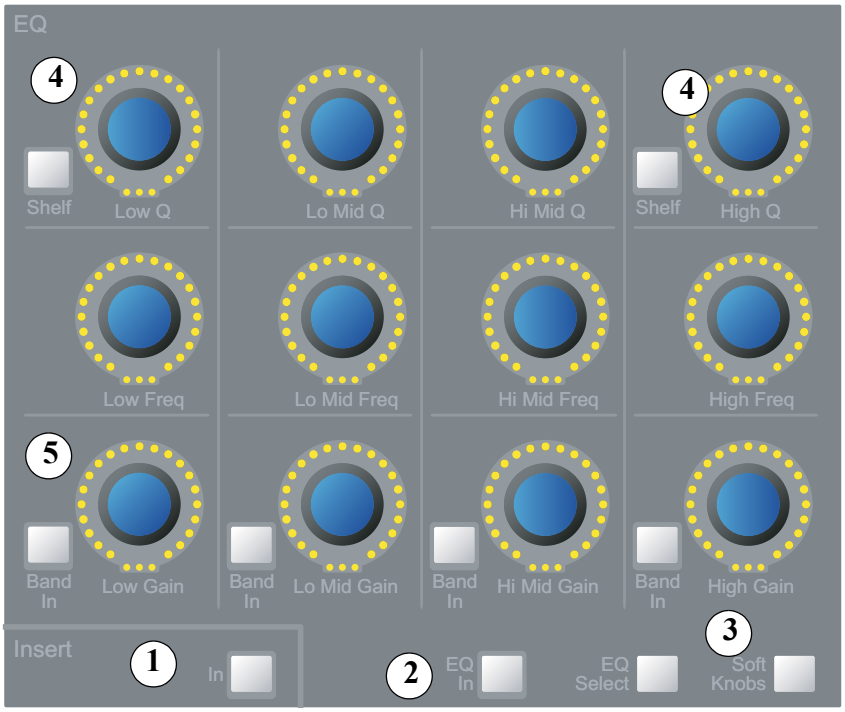


Figure 7-4 Super Channel: EQ, Insert

7.1.6 EQ

This section controls the four-band EQ for the selected channel. The **EQ In** key (2) toggles the entire EQ section in/out. The **Band In** key (5) toggles each of the four EQ bands in/out. Each band has knobs to control gain, frequency, and Q. The **Soft Knobs** key (3) maps all EQ parameters onto the Soft Knobs. The **EQ Select** key (3) selects the entire EQ section for a Clear function. The **Shelf** key (4) toggles the **Low Q** and/or **High Q** band to a shelf rather than a bell filter.

7.1.7 Dynamics

This area provides control over the most commonly used dynamics parameters for the selected channel.

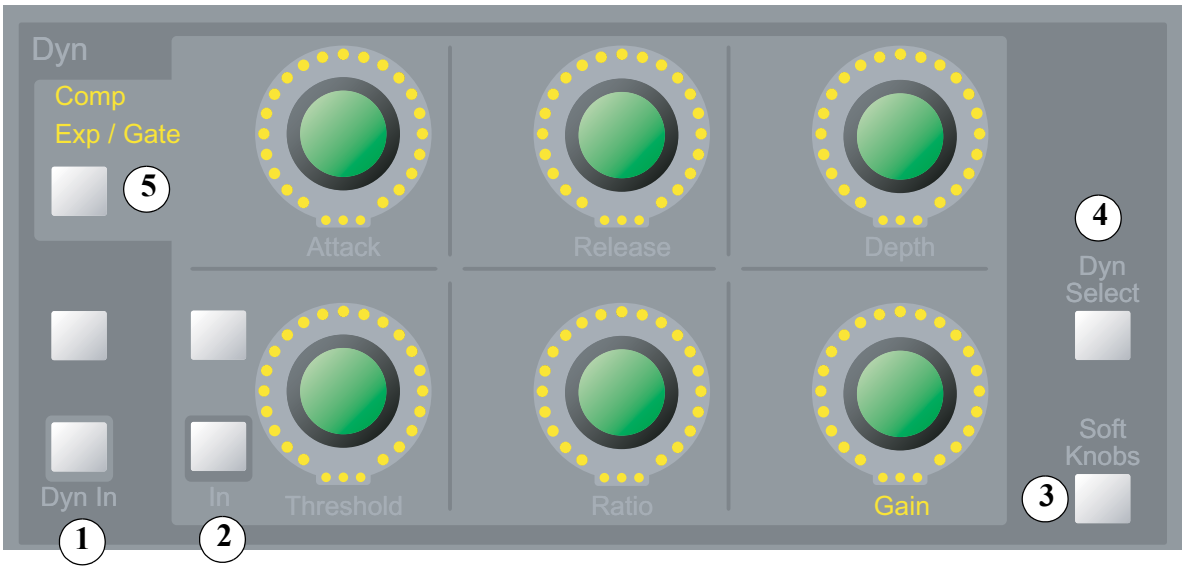


Figure 7-5 Super Channel: Dynamics

The **Dyn In** key (1) toggles the entire Dynamics section in/out. The Dyn Edit key (5) toggles the knobs and **In** key (2) between controlling the compressor or expander/gate. The **In** key (2) toggles either the compressor or expander/gate (whichever is selected) in/out. The knobs control Attack, Release, Depth, Threshold, Ratio, and Gain (used only when compressor is selected).

The **Soft Knobs** key (3) maps all dynamics parameters (including those not shown on the Super Channel) onto the Soft Knobs. The **Dyn Select** (4) key selects the entire Dynamics section for a Clear function.

7.1.8 Fader

Although there is no dedicated hardware fader to control the channel selected for the Super Channel, any CM404 center section strip can be assigned to control the Super Channel. Use the Touchscreen to configure a strip to follow the Super Channel (see page 74). This assigns the channel selected for the Super Channel to that strip.

7.2 Monitors and Control Room

The Max Air monitor system accommodates multi format outputs up to 7.1 channels. There are seven monitor outputs (Figure 7-6):

- The Main Control Room and Mon A (7.1 max)
- Alt 1 (5.1 max)
- Alt 2, Mon B, C, and D (stereo)

Mon A, B, C, and D are used for studio speaker/Cue feeds.

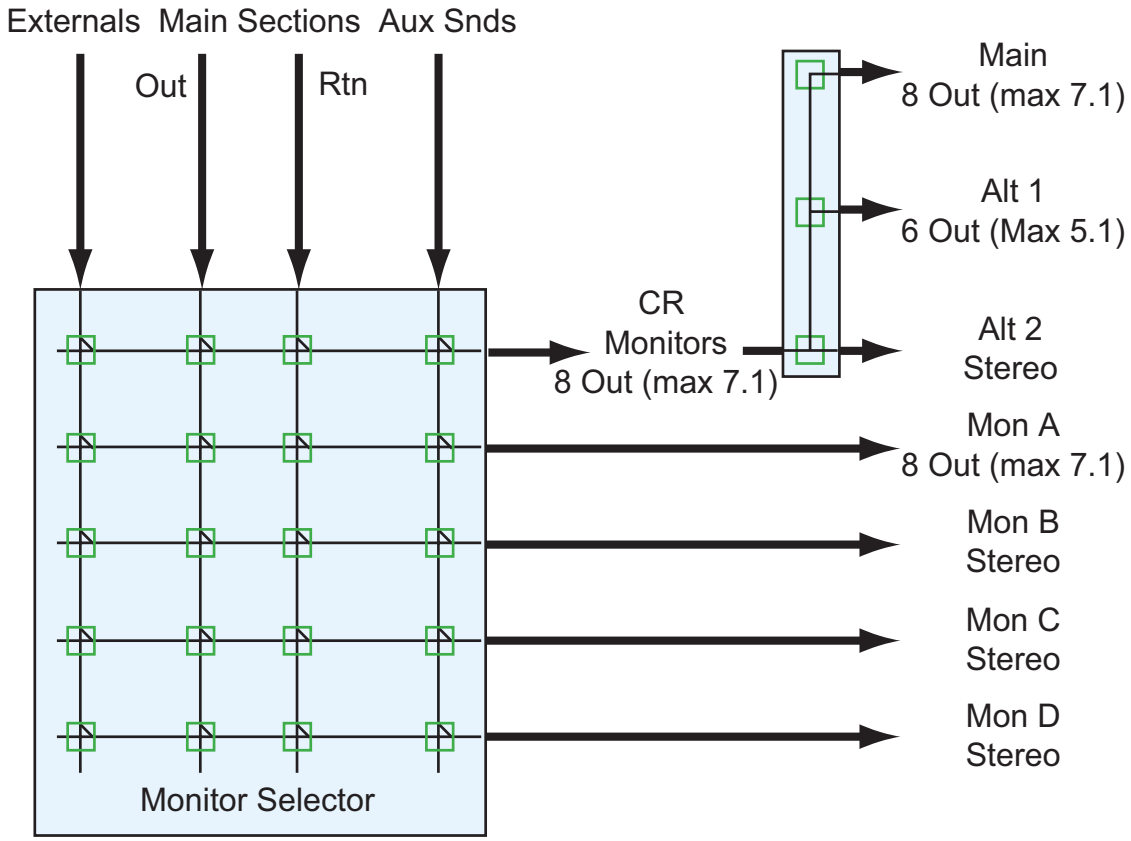


Figure 7-6 Monitoring Matrix

Source selection for the monitor output can either intercancel (allows only one source to a monitor output), or sum (allows multiple sources).

7.2.1 Monitors

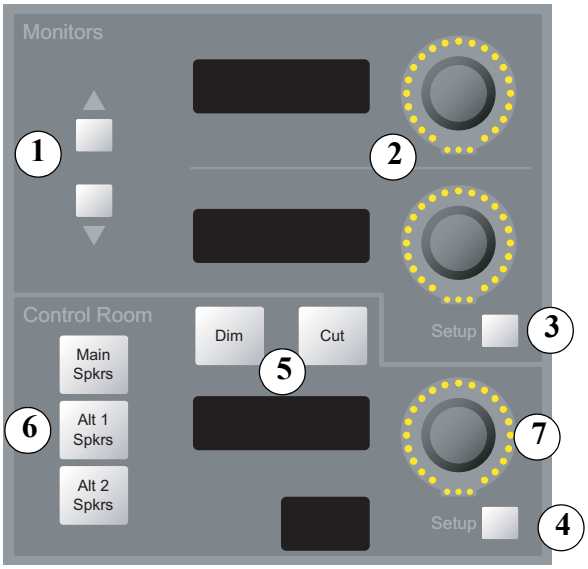


Figure 7-7 CM404 Monitor Controls

Mon A–D each has a level control and LCD display (2 in Figure 7-7) that shows the source. The knobs (2) are level controls. Use the ▲ and ▼ page keys (1) to control Monitors A and B or Monitors C and D. Pressing the knob toggles the monitor on/off.

Monitors Setup

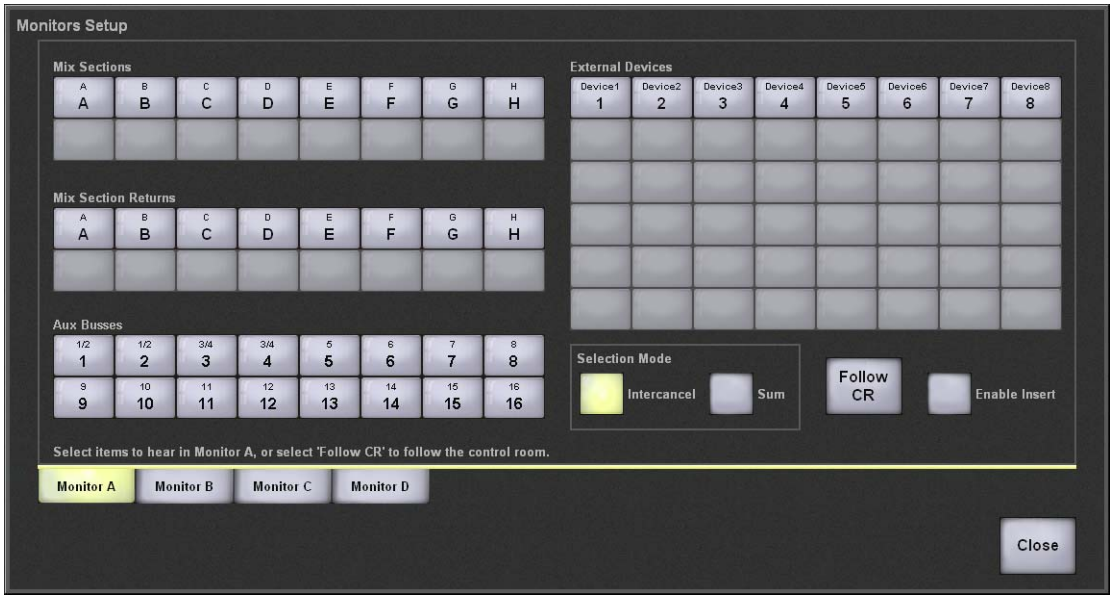


Figure 7-8 Monitors Setup Popup

The sources for Mon A–D outputs are selected using the Touchscreen. Press the **Setup** key in the **Monitors** section (3 in Figure 7-7 shows the setup key) to display the source selection popup (Figure 7-8).

Use the different sections in the popup to select the type of source: external (CD, VTR, etc.), Aux busses, or Main sections. The active source key lights and the name appears in the LCD display for that monitor output.

The **Intercancel** key is active by default, which means that selecting a new source automatically cancels the previous one. When the **Sum** key is lit, multiple sources can be selected simultaneously and he + symbol appears to the left of the first source selected in the LCD display. After selecting multiple sources, pressing the **Intercancel** key *does not deselect theses sources until a new source is explicitly selected*.

Activate the **Follow CR** key so the Mon A–D outputs follow the source selected for the Control Room monitors (see *Control Room* on page 131).

Each main section also has a return that allows bus/tape monitoring. The returns can be patched from the record machine's outputs using the Patch View (see *Main Bus Send/ Return* on page 67). It is not possible to select a Main section and its return at the same time; they intercancel even in Summing mode.

Aux busses appear in the popup as mono or stereo pairs.

The **Enable Insert** button allows insertion of a Surround Matrix, equalizer, or compressor across the monitors.

7.2.2 Control Room

Control Room Level

The Control Room speakers (Main, Alt1, Alt2) have a dedicated level knob (7 in Figure 7-7) and output level LCD display. The knob LEDs also indicate the current level.

Dim and Cut

The **Dim** key reduces the control room monitor level by 20 dB or by a user-specified amount.

The Control Room Monitors may be switched off/on by pressing the output level knob's center key or the **Cut** key.

Control Room Speakers

There are three speaker outputs within the Control Room Monitors: Main (7.1), Alt1 (5.1) and Alt2 (stereo). The **Main, Alt1**, and **Alt2** keys are used to select these speakers; these keys are *after* the control room level, dim, and cut functions which affect all three speaker sets.

Control Room Setup

Press the **Setup** key (4 in Figure 7-7) to display the Control Room Setup popup (below). Setting up the Control Room source is similar to setting up the Monitors source. Select a source by touching a button and see page 130 for more information.

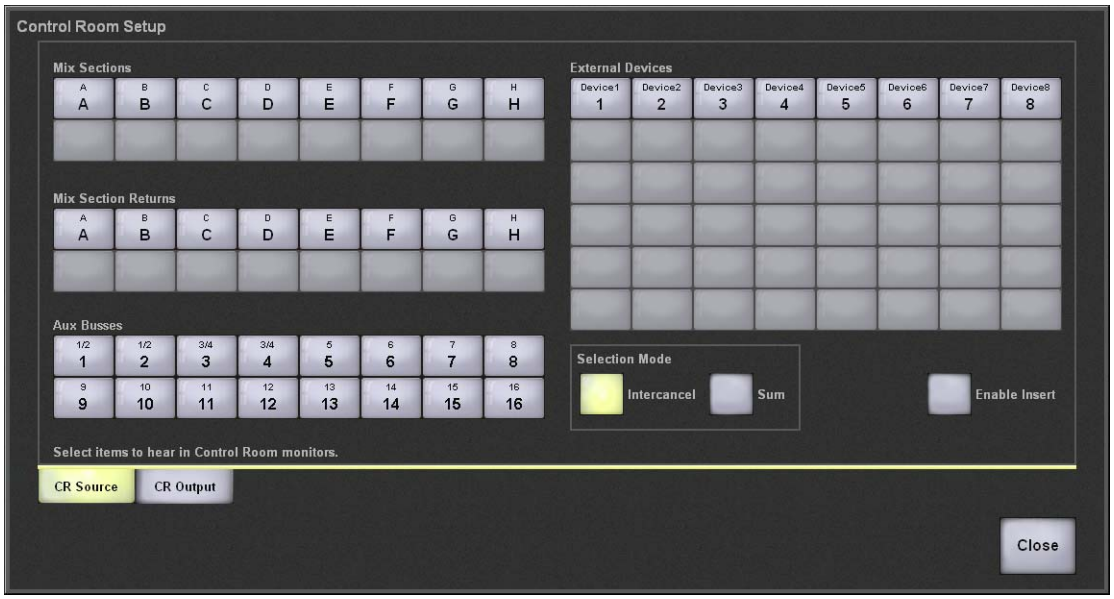


Figure 7-9 Control Room Setup: CR Source

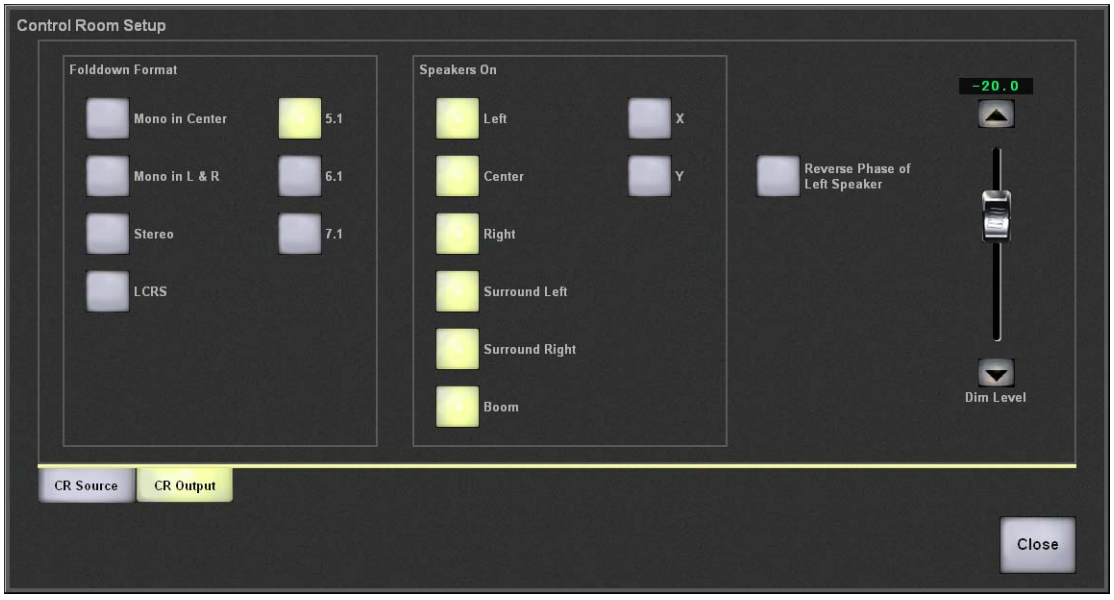


Figure 7-10 Control Room Setup: CR Output

Folddown Format

The Main control room outputs may be folded down from their original format to one with fewer outputs using the keys on the left of the Control Room Output popup (see Figure 7-10).

Cut Individual Control Room Speakers

The Control Room speakers can be individually switched on and off. The **Left**, **Center**, **Right**, **Surround Left**, **Surround Right**, **Boom**, **X and Y** buttons in the Control Room Output popup are lit when on.

Phase Reversal for Left and Right Control Room Speakers

The phase of the left Control Room speaker (Main, Alt1, Alt2) can be reversed by touching the **Reverse Phase of Left Speaker** button in Figure 7-10. The button lights to show the left speaker's phase is reversed with respect to the right.

Dim Level

The Dim level can be set in the Control Room Setup popup by moving the fader to adjust the level (Figure 7-10). This is the reduction in level (dB) that occurs when the **Dim** key is active.

7.3 Talkback/Slate

Max Air's talkback/slate system includes:

- Two talkback microphone inputs

  The surface has an XLR connector for mounting a goose-neck mic and an internal mic. Each input has 111 dB gain, phantom power, and compressor. Talkback can be routed to Mon A–D, the aux busses and the Main sections via the Slate function. Talkback mic 2 shares the same routing as Talkback mic 1 when it is turned on. Talkback can be remotely triggered using the Event system (see Chapter 10: *Event System*).

- Four listenback mic inputs

  Each input has a level control, automatic gain control, and phantom power. Each input can be routed to the monitors. The Listenback mics are routed directly within the Monitor Interface (MC524) so they do not appear in the Patch View.

- Slate facilities

  The Slate function combines Talkback mic 1 and Talkback mic 2 with the user-selectable frequency (see *Oscillator* on page 137) to identify takes.

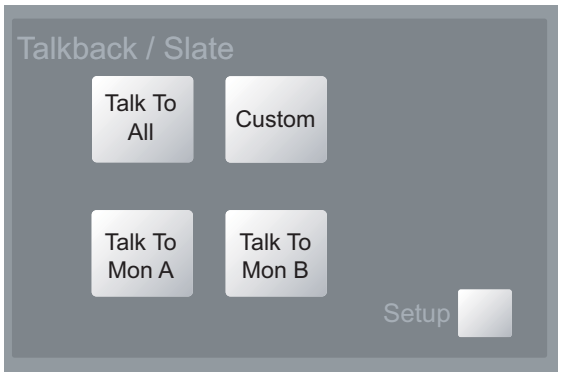


Figure 7-11 CM404 Talkback/Slate

- **Talk To All**: Routes the talkback mics to Mons A–D.
- **Talk To Mon A**: Routes the talkback mics to Mon A only.
- **Talk To Mon B**: Routes the talkback mics to Mon B only.
- **Custom**: Use with the Event system to control talkback or other functions (see Chapter 10: *Event System*).
- **Setup**: Press to display the Talkback/Slate Setup popup (Figure 7-12 shows the Talkback section). The popup has three tabs that divide it into three sections: Talkback, Listenback, and Slate.

7.3.1 Talkback

Touch the **Talkback** tab to display the Talkback section.

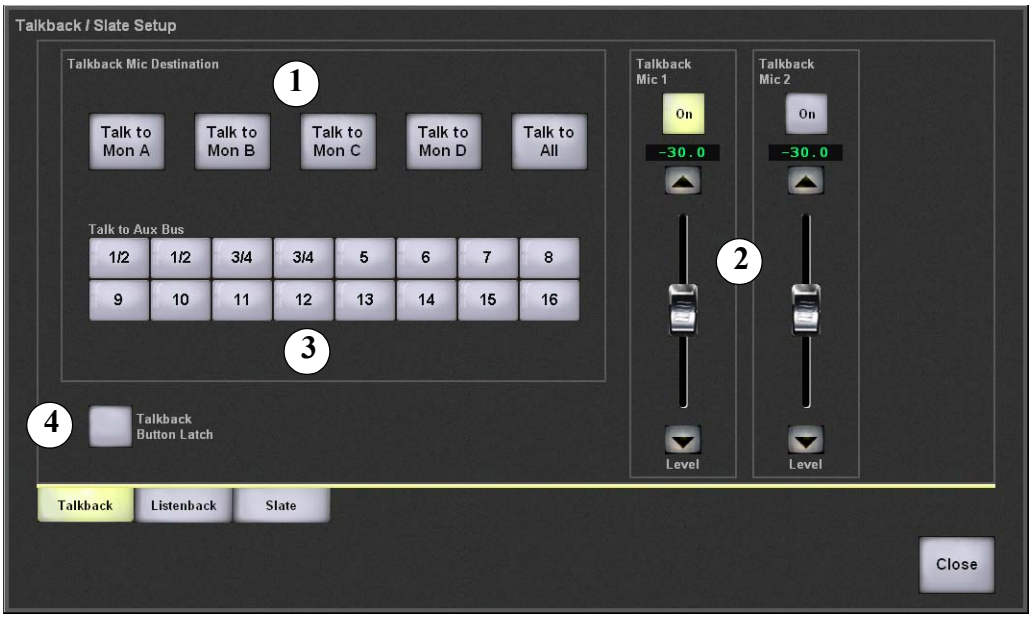


Figure 7-12 Talkback/Slate Setup Popup

Monitors

Talkback Mic 1 and Talkback Mic 2 can be routed to Mon A–D by touching the buttons at the top of the Talkback Setup popup (1 in Figure 7-12). These buttons are momentary unless the **Talkback Button Latch** button (4) is lit, in which case they can be toggled on/off each time they are touched. The **Talkback Button Latch** button also latches the four Talkback/Slate keys on the surface (Figure 7-11). More than one monitor can be active by pressing multiple buttons and all can be active by pressing the **Talk to All** button.

When a talkback button is pressed, the monitors receiving talkback and the main control room speaker are dimmed by the level set for the **Dim** key (see *Dim and Cut* on page 131).

Set Talkback Mic 1 and Talkback Mic 2 levels using the faders (2). Talkback Mic 1 and Mic 2 can be turned on/off by toggling their **On** buttons.

Aux Busses

The same rules apply to the aux busses as monitors. Select the aux busses (single or pairs) to route the talkback signals (3). They latch or are momentary based on the **Talkback Button Latch** button.

7.3.2 Listenback

Touch the **Listenback** tab to display the Listenback section.

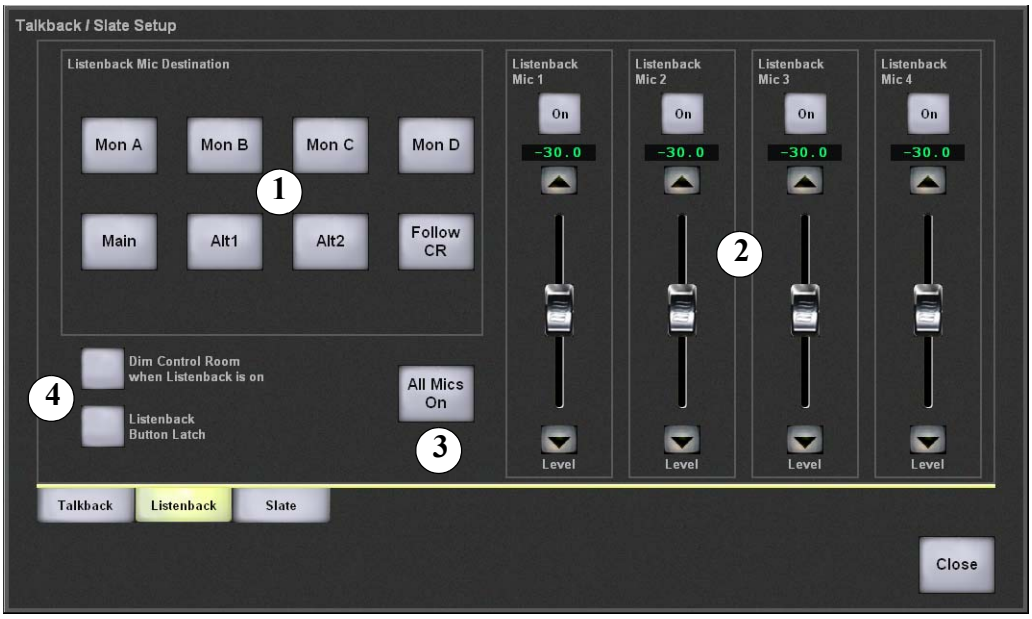


Figure 7-13 Listenback Setup Popup

The listen mics can feed any combination of the control room, Main, Alt1, Alt2, or Mon A–D speakers by activating their keys (1 in Figure 7-13). Activate the **Follow CR** button to route the listen mics to the active control room speaker. These keys are momentary unless **Listenback Button Latch** button (4) is lit, in which case they can be toggled on/off each time they are touched.

Activate **Dim Control Room when Listenback is on** (4) to dim the control room speaker by the level set for the **Dim** key when the listen mics are on (see *Dim and Cut* on page 131).

Turn each listen mic on/off by touching their **On** keys above the faders (2). Turn all listen mics on by activating the **All Mics On** button. The on/off keys are momentary unless **Listenback Button Latch** is active. Set the listen mic levels by moving the faders (2).

7.3.3 Slate

Touch the **Slate** tab to display the Slate section.

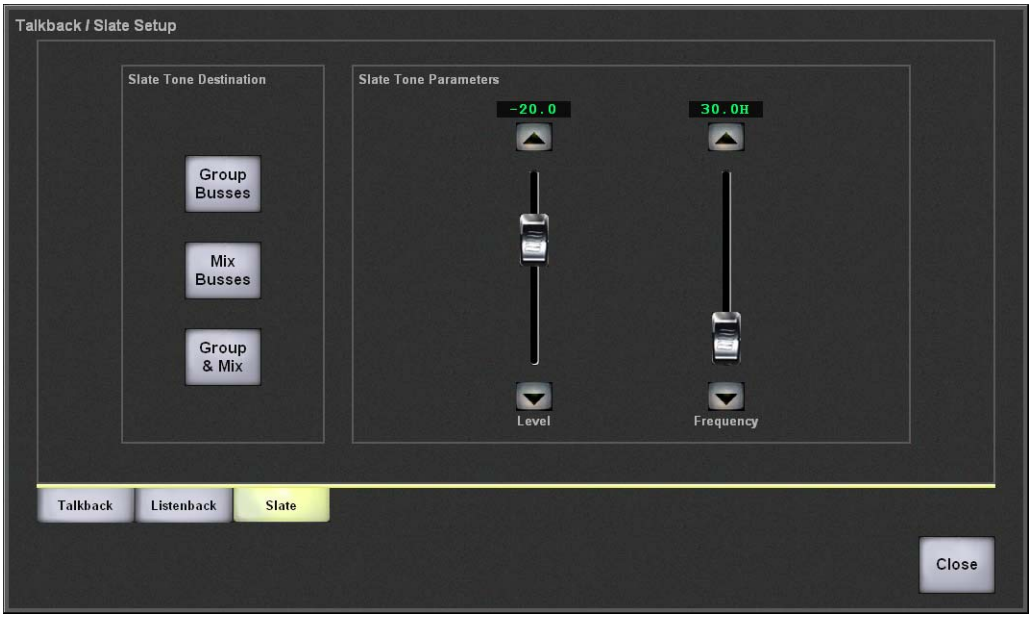


Figure 7-14 Slate Setup Popup

Set the Slate frequency by moving the **Frequency** fader.

Set the Slate level by moving the **Level** fader (111 dB of gain).

Activate the **Group Busses** and/or **Main Busses** keys to route the Slate to Group and/or Main busses, respectively. Activate the **Group & Main** button to route the Slate to group and main busses.

Since the Slate section uses the same oscillator as the Oscillator section, they cannot be used at the same time.

7.4 Oscillator

The oscillator has three fixed frequencies at 100 Hz, 1 kHz, 10 kHz and a user-selectable frequency. The oscillator can also generate pink or white noise and can be routed to the group, aux, or main busses, or to all busses simultaneously. The oscillator can also be routed to any channel or other destination using the Patch View (*Patch* on page 54).

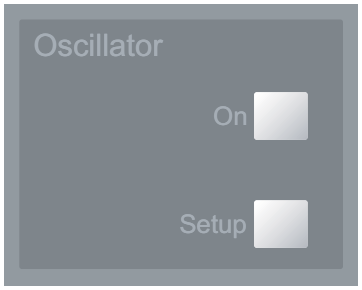


Figure 7-15 CM404 Oscillator

- **On:** Toggles the oscillator on/off.
- **Setup:** Displays the Oscillator Setup popup.

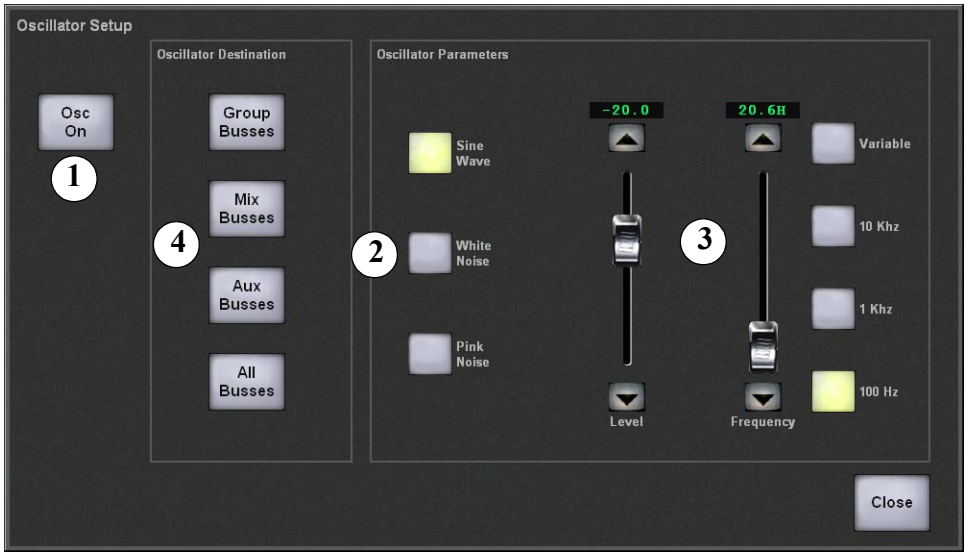


Figure 7-16 Oscillator Setup Popup

Set the Oscillator destination by touching the **Group Busses**, **Main Busses**, **Aux Busses**, or **All Busses** keys (4).

Turn the oscillator on by activating the **Osc On** button (1). Select the oscillator type by touching the **Sine Wave**, **White Noise**, or **Pink Noise** keys (2). These keys intercancel so only one type can be selected at a time.

Select the oscillator frequency by touching the **100 Hz**, **1 kHz**, or **10 kHz** keys to the right of the faders (3). In addition, there is a **Variable** frequency button above the **10 kHz** button. Activate this button and use the **Frequency** fader to set the frequency (20 Hz to 21 kHz). All of the frequency keys intercancel.

Set the oscillator level by moving the **Level** fader (111 dB of gain).

7.5 Solo

Max Air has an extensive solo system that is accessed from the Solo area in the center section.



Figure 7-17 CM404 Solo Controls

- The **Level** knob controls the solo level (AFL and PFL modes) sent to the speakers or the Solo Bus output in Patch View. Press the knob to clear all solos.
- The **Clear Solo** button clears the solo on all channels just like pressing the **Level** knob. It blinks red when any channel is soloed.
- Press the **Setup** key in the solo section to display the Solo Setup popup **(**Figure 7-18).

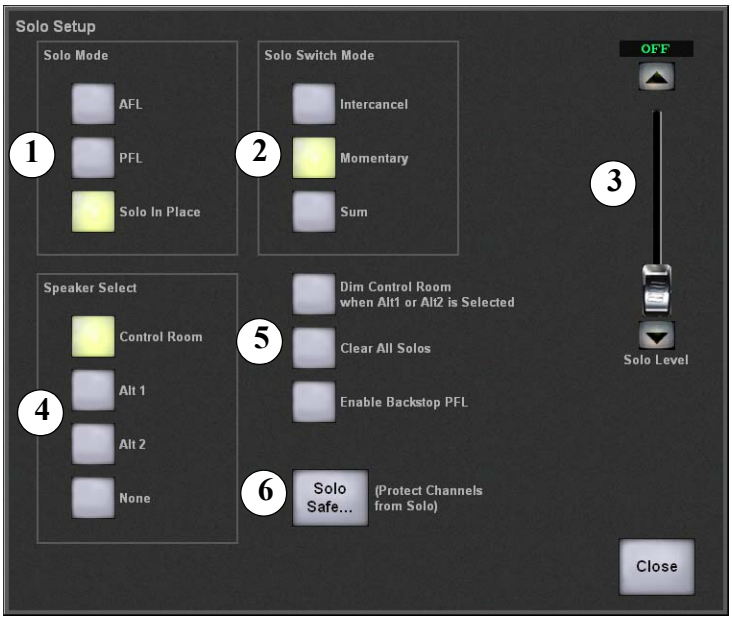


Figure 7-18 Solo Setup Popup

7.5.1 Solo Mode

The three solo modes can be selected by pressing their respective keys (1 in Figure 7-18) in the Solo Setup popup. Selecting one mode deselects the last mode.

AFL (After-Fader Listen): Signal is post-fader and pan (stereo)

PFL (Pre-Fader Listen): Signal is pre-fader in mono

Solo-In-Place: Allows solo channels through to the main busses. Mutes all channels not soloed but not channels designated **Solo-Safe** (page 141). Solo-In-Place allows monitoring soloed channels with panning and effects if the effects returns have been designated Solo-Safe. Because this is a destructive solo mode, we do not recommend Solo-In-Place for live broadcast or for recording.

7.5.2 Solo Level

The **Solo Level** fader (3) controls the solo level (AFL and PFL modes) sent to the speakers or the Solo Output in the Patch View. This controls the same level as the **Level** knob in Solo area of the center section (Figure 7-17).

7.5.3 Clear Solo

Touch the **Clear All Solos** (5) button in the Solo Setup popup to clear all solos on all channels. This can also be done by pressing the **Level** knob or the **Clear Solo** key in the Solo area in the center section (Figure 7-17).

7.5.4 Solo Switch Mode

There are three options available (2) in the Solo Setup popup that control the **Solo** key on a strip:

- **Intercancel**: Pressing each new **Solo** key clears the last solo channel and activates the new one.
- **Momentary**: The **Solo** key must be held down but multiple channels can be active at a time.
- **Sum**: Multiple channels can be soloed by pressing additional **Solo** keys; they must be explicitly cleared.

7.5.5 Speaker Selection

The AFL and PFL solo signals can be routed to the following speakers by activating their respective keys (4 in Figure 7-18) in the Solo Setup popup:

- **None**: The solo signal is not sent to a speaker but the solo bus can be routed to other destinations using the Patch View.
- **Alt 1**: The solo signal is sent to the Alt1 speaker.
- **Alt 2**: The solo signal is sent to the Alt2 speaker.
- **Control Room**: The solo signal follows the active control room speaker selection (Main, Alt1, or Alt2).

7.5.6 Solo Speaker Dim

In AFL and PFL modes, the speakers not fed by the solo signal can be dimmed. Touch the **Dim Control Room when Alt1 or Alt2 is selected** button (5 in Figure 7-18) in the Solo Setup popup.

7.5.7 Solo-Safe

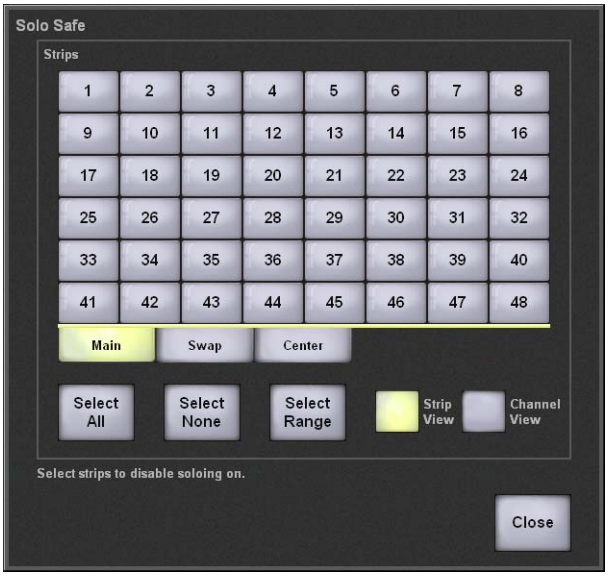


Figure 7-19 Solo Safe Popup

Solo-Safe is used with the Solo-In-Place mode and has no effect in AFL or PFL modes. Solo-In-Place mode effectively mutes all channels except the soloed channel. Designating a channel Solo-Safe allows it through to the Main busses even when another signal is soloed. Solo signals can be heard with effects if the effects returns are designated Solo-Safe.

1. Touch the **Solo Safe** button (6 in Figure 7-18) in the Solo Setup popup.
2. Select the channels or strips from the Solo-Safe popup (Figure 7-19) to be made Solo-Safe.

   The channel's **Solo** key lights dimly when in Solo-safe mode.
3. Press **Close** to exit the popup.

7.5.8 Backstop PFL

The Max Air faders have a backstop PFL switch past the bottom of their travel. Select **Enable Backstop PFL** (5 in Figure 7-18) to enable this feature. Pull a fader past the bottom of its travel to route the signal's PFL level to the solo bus. Releasing the fader cancels that fader's routing to the solo bus. Backstop PFL does not affect normal solo operations and can be used on group and master faders to PFL a group of channels. Deactivating **Enable Backstop PFL** cancels the mode.

7.6 Soft Knobs

A variety of different channel and bus master functions can be assigned to the Soft Knobs. They are most commonly used to control the Aux busses of the channel assigned to the Super Channel.

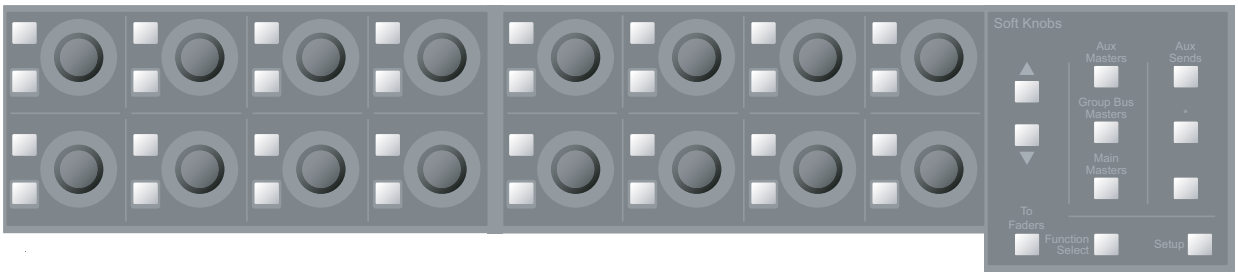


Figure 7-20 CM404 Soft Knobs

The two keys to the left of each knob are used identically to the keys next to the knobs in the channel strip.

The ▲ and ▼ page keys are provided to accommodate more than 16 parameters for a function. These keys scroll through a full page of 16 knobs at a time. Press the ▼ key to scroll to the next page and the ▲ key to scroll to the previous page.

- Press the **Aux Sends** key to display the selected Super Channel's aux sends on the Soft Knobs.
- Press the **Aux Masters** key to display the aux bus master level controls on the Soft Knobs.
- Press the **Group Bus Masters** key to display the group bus master level controls on the Soft Knobs.
- Press the **Main Masters** key to display the Main section master level controls on the Soft Knobs.
- Press a **Soft Knobs** key in the Dynamics, EQ, Filters, Pan, or Input sections of the Super Channel to assign all of those parameters to the Soft Knobs.
- The * and the **To Fader** keys are currently unused.

When a Soft Knobs assignment key is pressed, it remains lit until a new assignment replaces it. There is always a lit key on the surface to indicate the function assigned to the Soft Knobs.

If Aux Masters, Group Bus Masters, or Main Masters are displayed on the Soft Knobs, pressing both ▲ and ▼ keys simultaneously displays the Bus Insert controls (see page 122).

Press the **Setup** key to display the Soft Knobs Setup popup.

7.6.1 Soft Knob Setup Popup

This popup provides an alternate method to assign function to the Soft Knobs. Press a button to assign that function to the Soft Knobs.

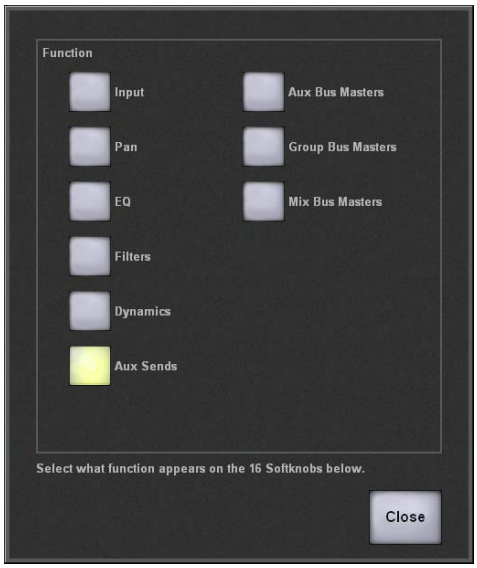


Figure 7-21 Soft Knobs Setup Popup

7.7 Center Section Faders

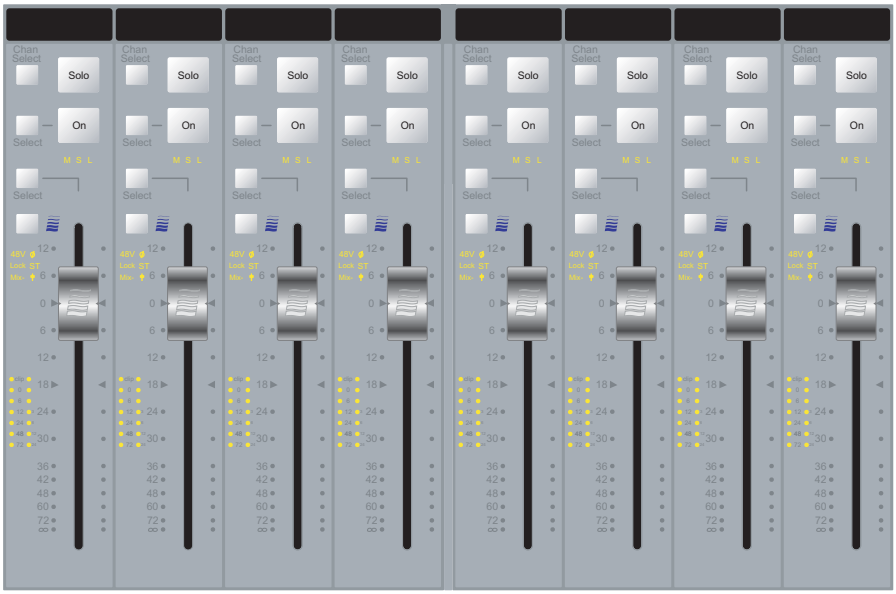


Figure 7-22 CM404 Center Section Faders

The center section faders are similar to faders and displays in the channel strip section except there is no **Swap** key and only one eight-character display per fader (see Chapter 5: *Channels and Strips*). Any channel, control group master, or Multi Format Master can be assigned to the faders. Any fader can be assigned to control the selected Super Channel (page 90).

7.8 Keypad

The keypad is used to recall Layouts, Snapshots, custom (*) channel strip Knobset pages, trigger Custom events, or recall channels to the Super Channel.



Figure 7-23 CM404 Keypad

Press the **Layouts, Snapshots, Knobsets,** or **Custom** keys to recall those respective functions. That key remains active (lit) until another key is pressed or that key is pressed again. If none of the four keys are lit, then the keypad assigns a channel to the Super Channel.

If the **One Shot** key is off, the keypad acts as a normal numeric keypad. Press the desired number and then press the **Enter** key. Press **Clear** to cancel all entered numbers. The numbers display in the lower-right **Keypad** area of the Touchscreen.

If **One Shot** is on, the 1–9 keys immediately recall without pressing **Enter**. The **Keypad** area of the Touchscreen shows the first nine layouts, snapshots, custom knobset pages, or Custom key names.

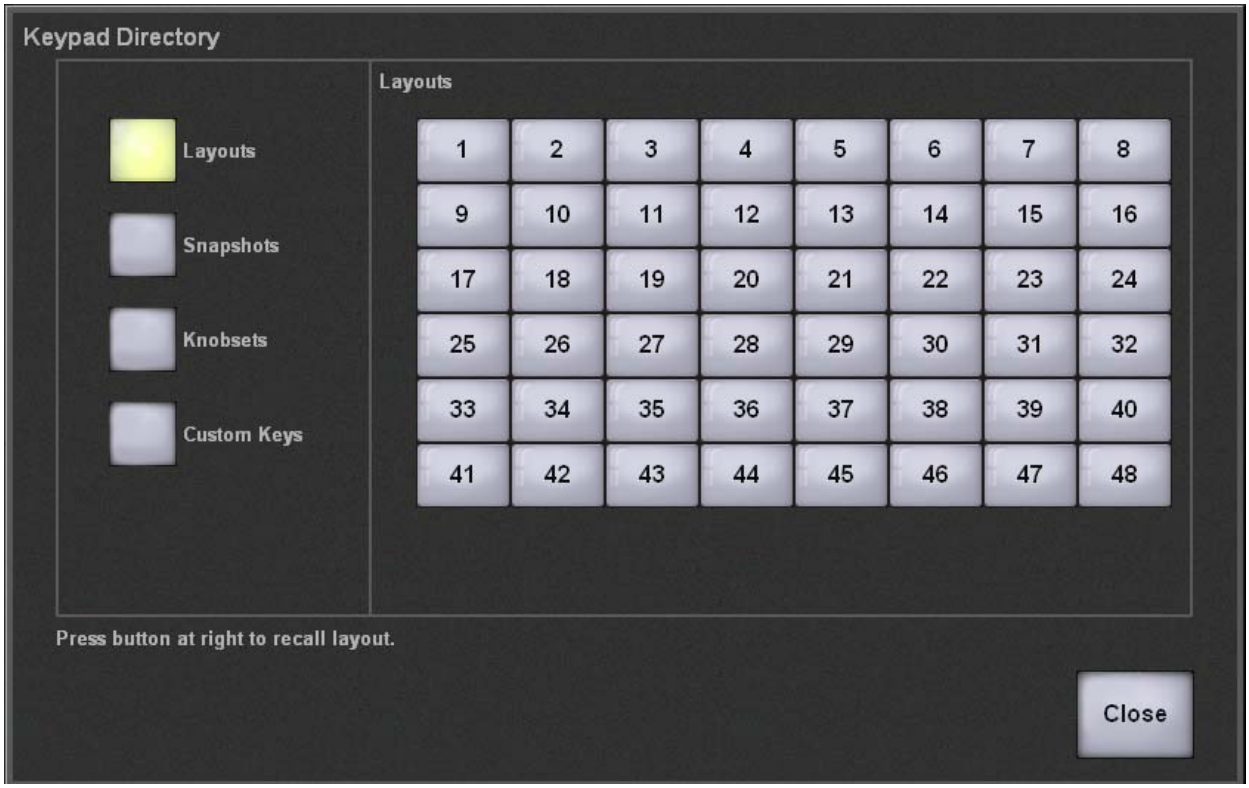


Figure 7-24 Keypad Directory Popup

Press the **Setup** key to view the Keypad Directory popup with Layouts, Snapshots, Knobsets, and Custom Keys. This provides an alternate method to recall these functions.

7.9 Global Functions

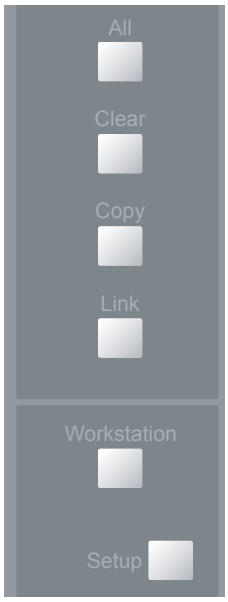


Figure 7-25 Global Function Keys

All Key

Press the **All** key so it is lit. Now pressing any channel strip's **Swap** key, Knobset Select key (*, Ins/Inp, Dyn, EQ, Filt, Pan, Aux, Main, Group), or ◀ ▶ keys causes all strips to perform that function.

For example, when **All** is on, hitting Swap on any single channel strip causes all strips to swap. Hitting an **EQ** key assigns the EQ knobset to all strips.

Note that **All** only works with knobset selection. It does not apply to a bank of 8 strips if **In/Out** key is pressed on those strips. It also does not work on a bank of 8 strips if **Expand** is on those strips.

All stays lit and active until pressed again, at which point it toggles off.

Clear

Clear works with the function on the Super Channel or any channel strip to clear a function. **Clear** lights when active. Pressing a **Select** key of any type on either a channel strip or the super section clears the parameter or function. The **Clear** key turns off after each use; it is a one-shot key.

Copy, Link, and Workstation

Reserved for future use.

7.10 Custom Keys

The Max Air center section has eight Custom keys that can be programmed using the Event system (i.e., start a cart machine, turn speakers on/off, and single-button recall of both a Snapshot and Layout). See Chapter 10: *Event System* for more information.

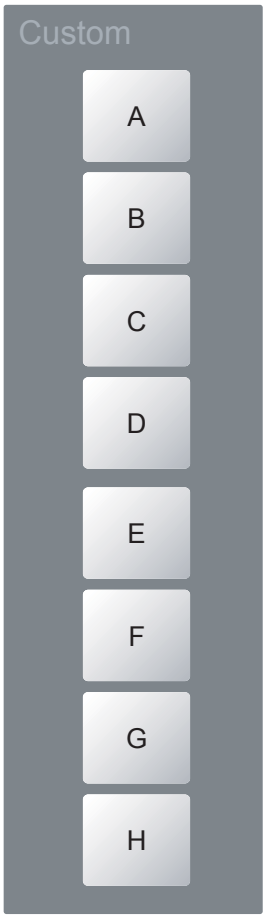


Figure 7-26 Custom Keys

Keys A–H operate as momentary keys with two events reported: key pressed and key released. They light when pressed down, and unlight when released.

Chapter 8: Control Groups and Multi Format Masters

8.1 Control Groups

Max Air supports ***Control Groups*** which allow a ***Group Master*** channel to control multiple *slave channels*. Control Groups are similar to traditional VCA Groups. The Group Master channel can be assigned to a strip just like any other channel. The most common use of a Control Group is to control similar channels from one strip. For example, a single master fader can be used to change the fader level of all announcer mics. Max Air allows up to 48 Control Groups, each of which can control the following channel settings: Fader, On/Off, Pan, Aux, Filters, EQ, Dynamics and Input.

The relative fader level of each slave channel can be individually set and the master channel preserves these relative fader levels as the master fader is altered. This allows all slave channels to be smoothly faded out by bringing down the master fader.

8.1.1 Create a Control Group

From the Touchscreen, select the **Channels** Main Menu button, then select the **Control Groups** tab to display the Control Groups View (Figure 8-1).

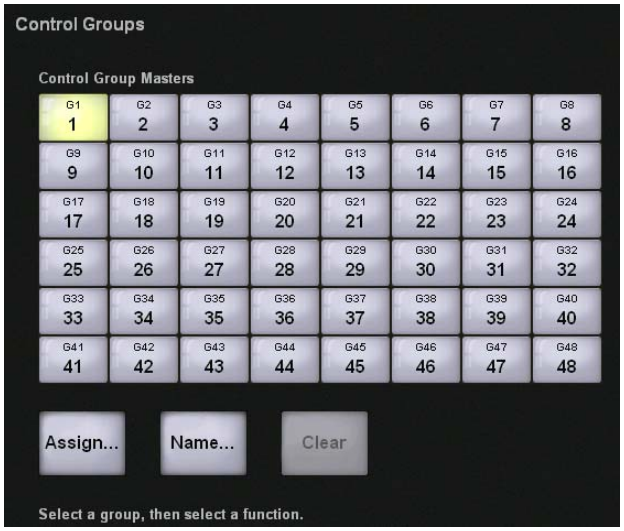


Figure 8-1 Control Groups View

Select a Control Group button and touch the **Name** button to assign a name in the keyboard popup.

Select a Control Group button and touch the **Assign** button to display the Assign Channels to CG View (Figure 8-2).

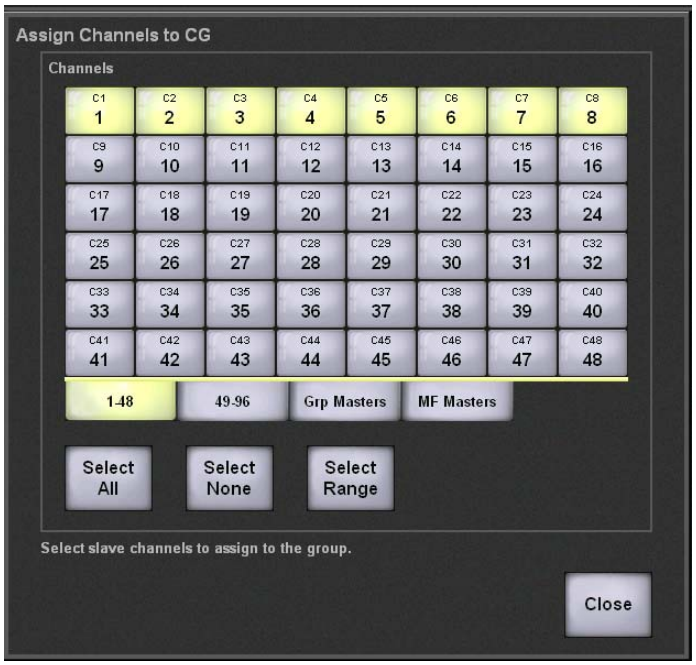


Figure 8-2 Assign Channels to CG View

Select the slave channels to assign to the group. Select each channel by touching it explicitly or by dragging across a range of channels. Deselect a selected channel by touching it again. If the slave channels are assigned to a strip on the console, their **S** LED lights above the fader.

You can also use the three utility buttons (**Select All, Select None, Select Range**) at the bottom of the Assign Channels to CG View to select the desired channels. See page 75 in Chapter 4: *Touchscreen* for information on these buttons.

8.1.2 Assign Control Group Master to Strip

Control Group Master channels are assigned to strips just like any other channel (see *Assign Channels to Strips* on page 89). When the Control Group Master is assigned to a strip, the **M** LED lights above the fader on the console. If the slave channels are assigned to a strip on the console, their **S** LED lights above the fader.

8.2 Multi Format Master Channels

A ***Multi Format Master*** allows stereo, LCRS, 5.1, 6.1, and 7.1 channels to be built from mono channels. The Multi Format Master channel can be assigned to a strip just like a normal channel. There can be up to 48 Multi Format Master channels.

The most common use of Multi Format Masters is to implement stereo channels. Stereo channels have several special features:

- If the Master is assigned to a strip, the **ST** LED to the left of the fader lights, making it easy to see at a glance which strips are stereo channels.
- Stereo channels have the following additional controls: **Balance**, **LTM** (Left to Mono), **RTM** (Right to Mono), **Left/Right Swap**. A *both-to-mono* function is available by pressing both the **RTM** and **LTM** keys. For more information, see *Stereo Controls* on page 97.

8.2.1 Create a Multi Format Master Channel

In the Touchscreen, select the **Channels** Main Menu button and the **MF Masters** tab to display the Multi Format Masters Configuration View.

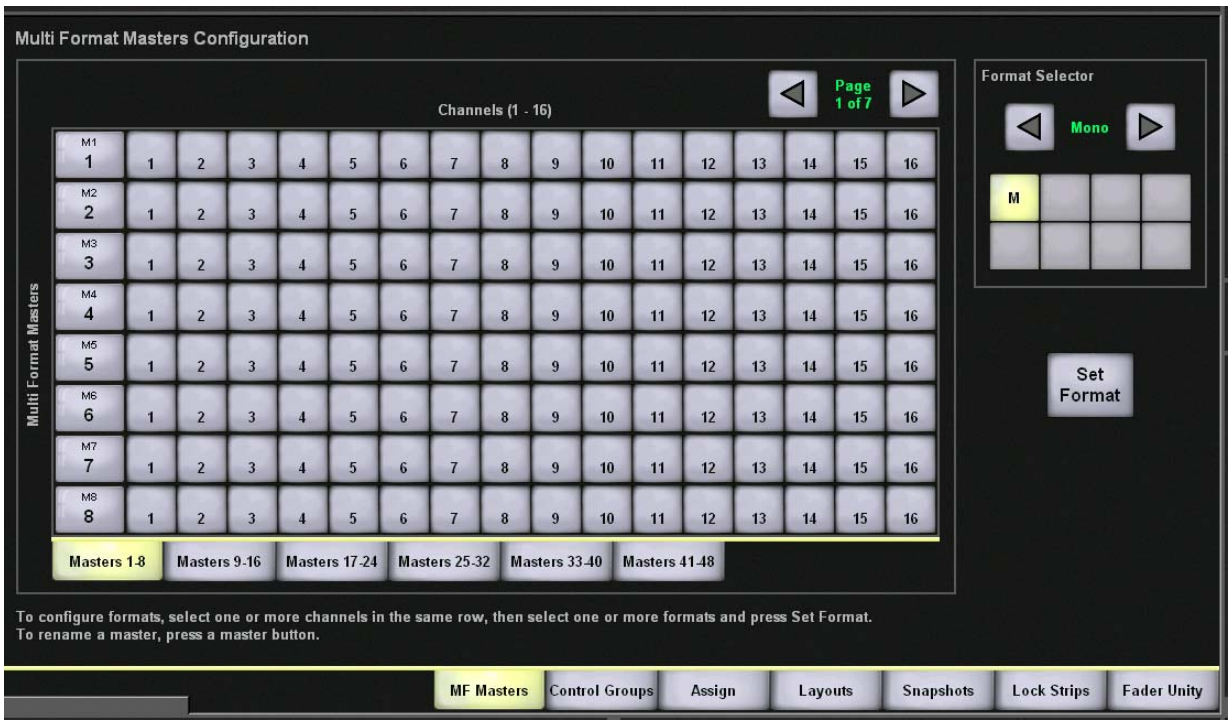


Figure 8-3 MF Masters View

There are 48 Multi Format Masters accessed by six tabs below the channels. Touch the Page buttons to the left of the Format Selector to display additional banks of 16 channels. Channels 97–106 on Page 7 are *bonus* channels. Use caution utilizing them because, although they are present in this and several other views, they are not available in all views.

Select one or more channels in the same row (they can occur across pages) and use the Format Selector to apply a format (see *Format Selector* on page 111). Touch a MF button to name it in the keyboard popup that appears.

All Multi Format channels have a pan width control activated by the upper key to the left of the PanF knob (see *Pan* on page 102).

8.3 Control Groups or Multi Format Masters

This section presents general information to help decide whether to use a Control Group or Multi Format Master for a given task.

If you need to adjust individual parameters on the slave channels, use a Control Group. Multi Format Master channels are set up with all functions on the slave channels switched in. Therefore, adjusting the EQ on the Multi Format Master channel affects all the slave channels. Adjusting parameters on the Control Group Master affects the slave channels only if that function is switched in at the slave when the Control Group was created or subsequently. For example, adjusting EQ on a Control Group master has no effect on the slave channel unless the slave channel's EQ is switched in.

If a VT is playing a stereo format, use a Multi Format Master because they include dedicated stereo functions: LTM, RTM, Balance and Swap (see *Stereo Controls* on page 97).

If the VT is playing dual mono signals (i.e., dialog and music), use a Control Group or just two mono channels because you may want to apply different EQ and compression settings to each signal. Use a Control Group to control multiple mics on a similar source (i.e., crowd or drums).

To summarize:

- True stereo source: Multi Format Master (do not adjust the slave channels)
- Dual mono: Control Group (adjust functions on the slave channels)
- Multiple similar signals: Control Group (adjust functions on the slave channels)

8.4 Spill

The Spill function temporarily assigns the slave's channels of a Control Group or Multi Format Master to predefined Strips. See also *Spill Area* on page 76.

1. From the **Main Menu**, press the **Channels** button.
2. Select the **Spill** tab.
3. Select the strips to include in the Spill area.
4. Press the **Chan Select** key of a Group or Multi Format master to spill its slaves into the specified Spill area.
5. To *unspill* the slave channels from the Spill area and restore the Strip's previous channels, press any master or slave **Chan Select** key.

Chapter 9: Layouts and Snapshots

9.1 Layouts

Layouts are used to store a mapping of channels to strips on the console. A system with 24 strips and 96 channels cannot map all channels to the console surface at once. Since each strip can have two channels (Main and Swap), two Layouts are required to map all 96 channels:

1. Channels 1–24 to strips 1–24 Main

   Channels 25–48 to strips 1–24 Swap

2. Channels 49–72 to strips 1–24 Main

   Channels 73–96 to strips 1–24 Swap

A group of channels sharing a common attribute that are normally required on the console at the same time (i.e., drums, vocals, or dialogue) are ideally stored in a Layout.

Select the **Layouts** tab to display the Layouts View (Figure 9-1), which provides the interface to name, store, clear, and recall up to 48 channel-to-strip maps.

When no Layout is selected, all the function buttons are dim.

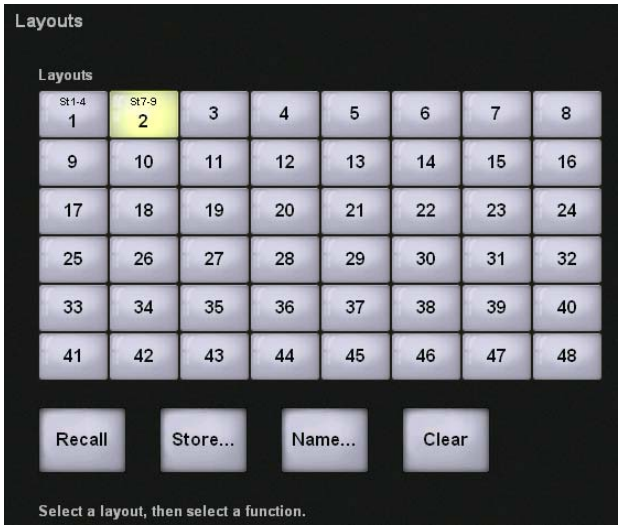


Figure 9-1 Layouts View

9.1.1 Store

Select a Layout button to create or modify. If it is an empty Layout (labeled only with a number), only the **Store** button is illuminated while **Recall**, **Name**, and **Clear** are disabled.

Touch the **Store** button to create or modify the selected Layout in the Store Layout popup.

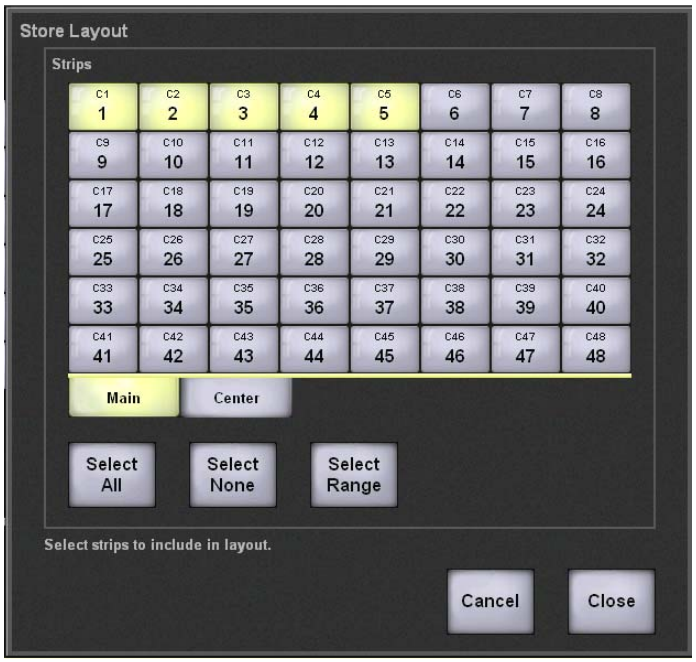


Figure 9-2 Store Layout Popup

Select the Main and/or Center channels to store in the Layout (Main includes both Main and Swap). Use the **Select All**, **Select None**, and **Select Range** buttons (see page 75) to assist your selection. Touch the **Close** button to store the Layout or **Cancel** to abort.

The **Store** button can also be used to query the contents or modify a Layout.

9.1.2 Recall

Select an existing Layout (those with names or L#) and touch the **Recall** button to remap the console with that Layout.

9.1.3 Name

Touch the **Name** button to name the Layout in the keyboard popup (eight characters maximum).

9.1.4 Clear

Select an existing Layout (those with names or L#) and touch the **Clear** button to delete the Layout and return the name to a number.

9.2 Snapshots

A Snapshot stores the settings of selected channel functions, even if they are not currently assigned to the console surface. These settings can then be recalled to reset the console. For example, a Snapshot that contains Channel 3's **EQ** and **Dynamics** will restore the values to both functions, regardless of the current function assigned to the knobset.

Snapshots and Layouts naturally complement each other because their information, while related, does not overlap: Layouts map channels to strips and Snapshots determine all, or part of, their channel settings. Max Air can store a maximum of 240 Snapshots.

When no Snapshot is selected, all the function buttons are disabled.

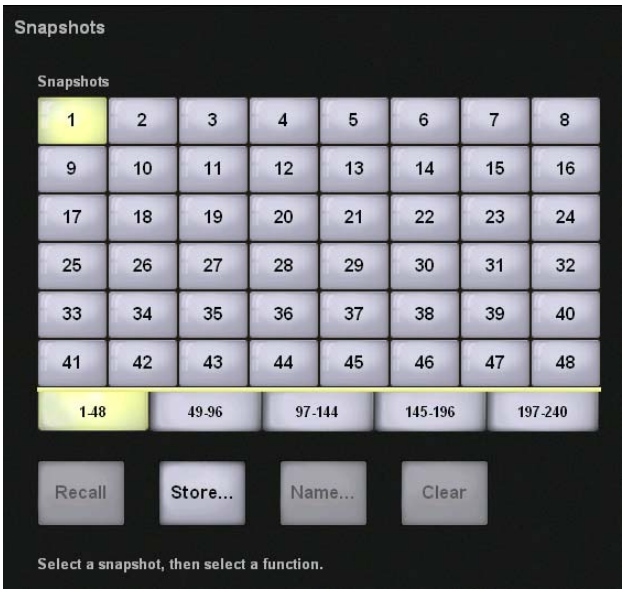


Figure 9-3 Snapshots View

9.2.1 Store

Select a Snapshot button to create. If it is an empty Snapshot (labeled only with a number), only the **Store** button is illuminated while **Recall**, **Name**, and **Clear** are disabled.

Touch the **Store** button to create the selected Snapshot in the Store Snapshot popup. From the left of the Store Snapshot popup (Figure 9-4 and Figure 9-5), select the functions to include in the Snapshot (1 in Figure 9-4). Use the **Select All** and **Select None** buttons to assist your selection (2). Use the **Select all functions on all channels** button to include the entire system (3). Select either the **Strips View** or **Channels View** buttons (discussed below).

Although a Snapshot cannot be modified, use the following technique to achieve the same functionality:

To modify SS 1:

1. Recall SS 1.
2. Adjust parameters on the desk to the desired settings.
3. Clear SS 1.
4. Select the same channels and functions as stored previously.
5. Store SS 1.

Strip View

Select **Strip View** to view strips instead of channels (4 in Figure 9-4). Use the **Main**, **Swap**, and **Center** tabs to select the desired number, level, and type of strips (5).

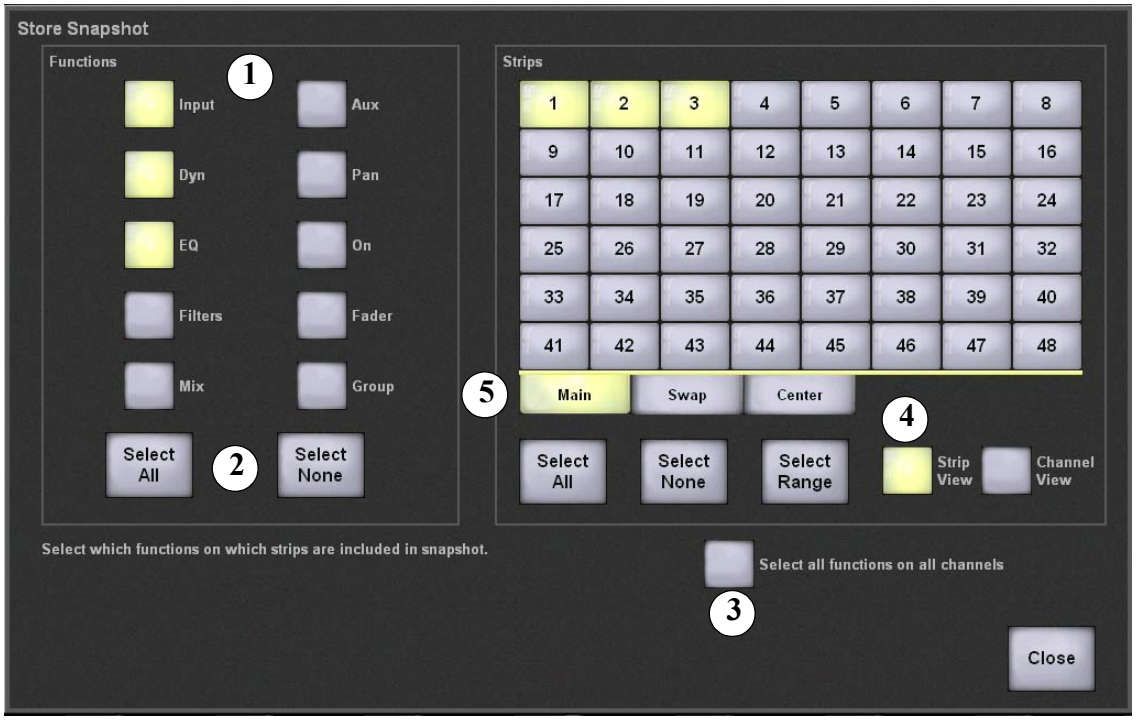


Figure 9-4 Store Snapshot: Strip View

Use the **Select All**, **Select None**, and **Select Range** buttons (see page 75) to assist your selection. Touch the **Close** button to store the Snapshot.

Channel View

Select **Channel View** to view channels instead of strips (1 in Figure 9-5). Use the **1–48**, **49–96**, **Grp Masters**, and **MF Masters** tabs to select the desired type of channels (2). Channels can be selected across tabs. A partially illuminated tab (**1–48** in Figure 9-5) indicates channels are selected there although that is not the active tab.

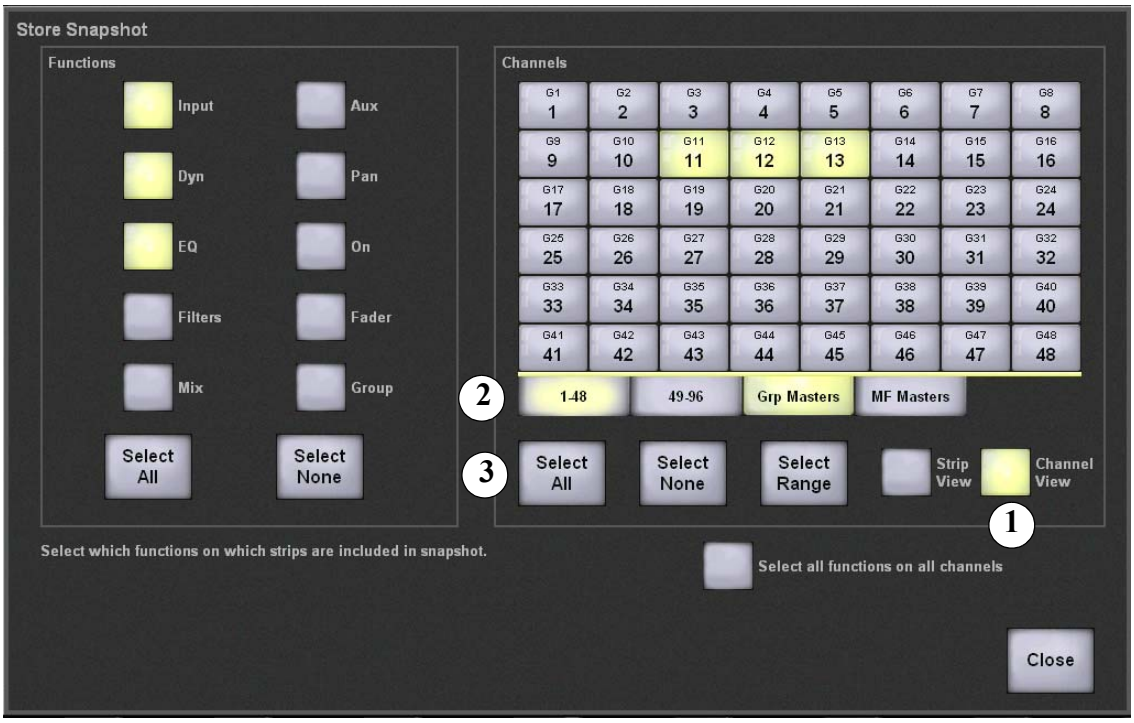


Figure 9-5 Store Snapshot: Channel View

Use the **Select All**, **Select None**, and **Select Range** buttons (3) to assist your selection (see page 75). Touch the **Close** button to store the Snapshot.

9.2.2 Recall

Select an existing Snapshot (those with names or SS#) and touch the **Recall** button to assign the stored values to the designated strips/channels.

9.2.3 Name

Touch the **Name** button to name the Snapshot in the keyboard popup (eight characters maximum).

9.2.4 Clear

Select an existing Snapshot (those with names or SS#) and touch the **Clear** button to delete the Snapshot and return the name to a number.

Chapter 10: Event System

The event system can program many Max Air features:

- use a fader to start a cart machine or turn speakers on/off;
- use Custom key to recall a Layout and Snapshot together;
- turn a channel on/off in response to a camera turning on/off.

An event consists of a set of input conditions governed by a logical operator that determines the output condition. Inputs can be surface parameters (i.e., channel on, fader, Custom keys, etc.) or external inputs via the GP132. Outputs can be Max Air parameters or external outputs via the GP132.

GP132

The GP132 (General Purpose Input/Output Relay System) is used to communicate to devices that use tallies and relays. Although the GP132 is shipped with all systems, many events do not require it.

The following special considerations should be noted when using the GP132:

- MIDI cables are used to connect GP132 to Max Air. The MIDI specification for maximum cable length is 10 m. Cables over this length may cause data loss.
- If power fails on the GP132, none of the relays will function. After restoring power, the GP132 resets ALL relays.

10.1 Input Types

Table 10-1 GP Input Types, Settings, and Activation Values

Input Type	Settings	Activation Values
Control Room	Monitor A Monitor B Monitor C Monitor D Control Room Control Room Dim	On Off
Custom Switch	Switch A-H	Press Release
Fader	Channel #	Level (dB) Activation Type (Above/Below)
GP Input	Relay Input # (1-32) Machine: GP132 One GP132 Two GP132 Three GP132 Four GP132 Five	Open Closed
Switch Input	Dynamics EQ Filters Pan Channel	In Out On/Off
Transport Ctrl	Stop Play Rewind Fast Forward	
Custom Talkback		Press Release
Keypad Input	1-96	Press

10.2 Output Types

Table 10-2 GP Output Types, Settings, and Activation Values

Output Type	Settings	Activation Values
Control Room	Monitor A Monitor B Monitor C Monitor D Control Room Control Room Dim	On Off
GP Output	Relay Output # (1-32) Pulse length ms (0 to latch) 0 to -1000 ms Machine: GP132 One GP132 Two GP132 Three GP132 Four GP132 Five	Open Closed
Switch Output	Dynamics EQ Filters Pan Channel	In Out On/Off
Transport Ctrl	Stop Play Rewind Fast Forward	
Layout Recall	1-48	
Snapshot Recall	1-240	
Talkback Control	Mon A-D All Mons Aux Bus	On Off

10.3 Logical Operators

The logical operators process input event conditions to determine if the output event is executed.

Table 10-3 Logical Operators Used for GPI/O Event Processing

Logical Operator	Required Input Conditions for Output Event Execution	Truth Tables
AND	All input events must be true	1 AND 1 = 1 1 AND 0 = 0 0 AND 0 = 0
OR	Any input event true	1 OR 1 = 1 1 OR 0 = 1 0 OR 0 = 0
XOR	Any input event true, but *not all* true	1 XOR 1 = 0 1 XOR 0 = 1 0 XOR 0 = 0

NOTE: *All logical operators are transitive: 1 AND 0 = 0 AND 1*

10.4 Event Configuration Display

Access the Events View by selecting the **Events** Main Menu button. The Events View has three sections: **Inputs** (1 in Figure 10-1), **Event List** (2), and **Outputs** (3).

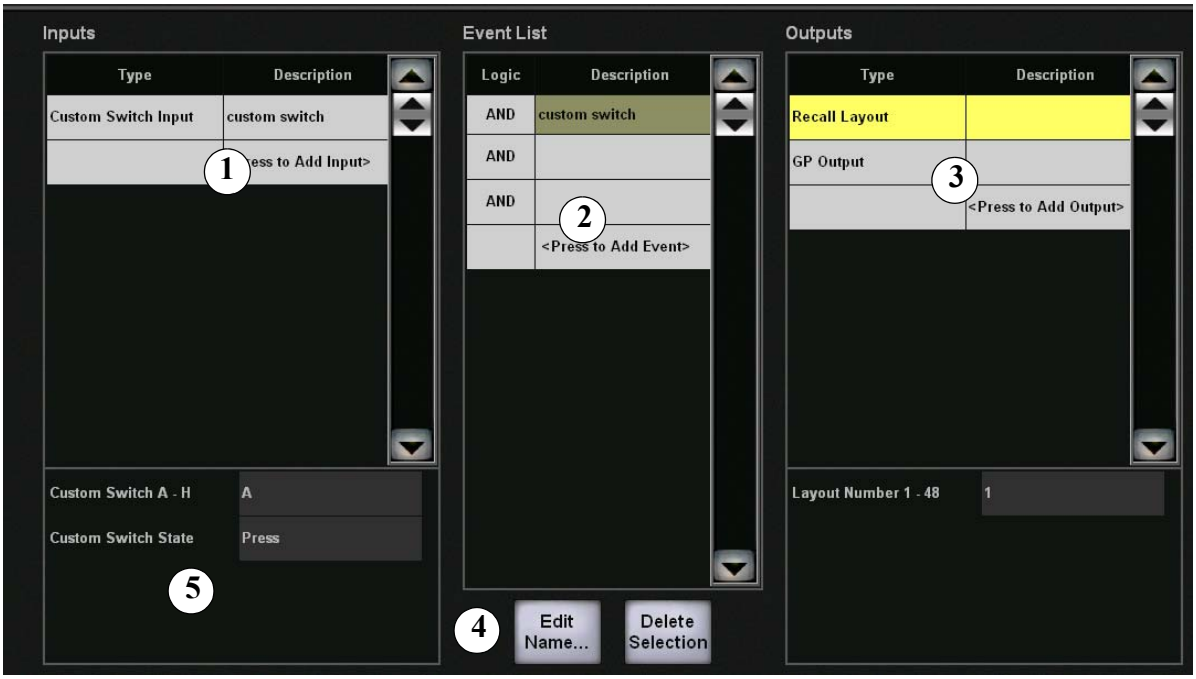


Figure 10-1 Event View

10.5 Event List

An *event* is composed of an input description and type, a logical operator, and an output description and type. Add an event to the list by touching the **<Press to Add Event>** field at the bottom of the **Description** column. Name the event in the keyboard popup. Select the logical operator from the **Logic** popup that appears (AND, OR, XOR).

CAUTION: *Be aware that events can form a logic feedback loop.*

10.6 Input

The input area has two sections: the top contains a list of inputs for all events in the **Event List** (1 in Figure 10-1), the lower shows the properties of the selected input (5).

Create a new input by touching the **<Press to Add Input>** field at the bottom of the list. The **Add Input Event** popup opens to select the input type.

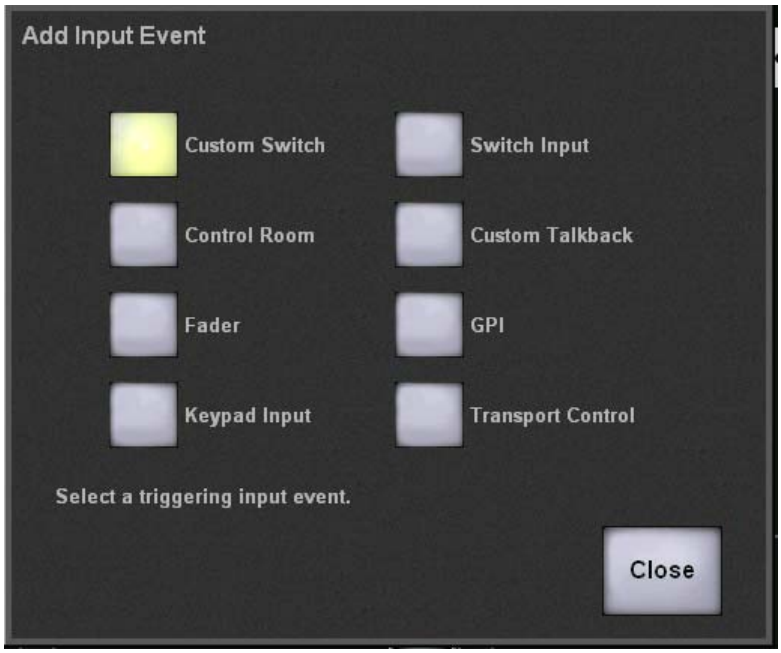


Figure 10-2 Add Input Event Popup

Select the Input Type button and touch **Close**. Touch the **Edit Name** button (4 in Figure 10-1) and enter a description in the keyboard popup; be sure to identify the event it pertains to.

The properties area (5 in Figure 10-1) displays the settings for the selected input type (see Table 10-1 and Table 10-2 for settings for each input/output type). Modify the settings by touching it and selecting a setting from the popup.

10.7 Output

The output area has two sections. The top contains a list of output actions for all events in the **Event List**. These actions occur only if the input conditions for the selected event combined with their logical operator yield *True*. The lower area shows the properties of the selected output. Set the outputs using the same methods as the inputs.

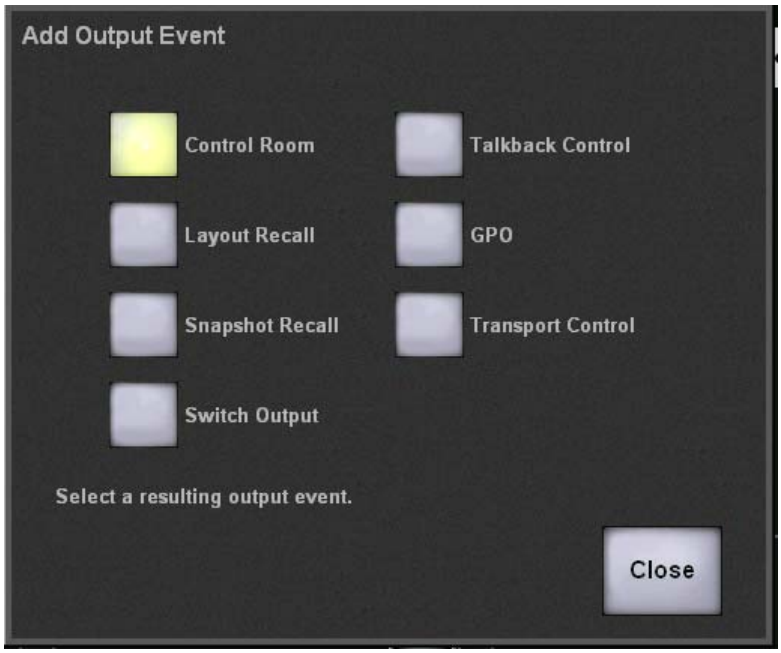


Figure 10-3 Add Output Event Popup

10.8 Deleting Events

Delete an event by selecting the event, input, or output and pressing the **Delete Selection** button at the bottom-center of the **Events** screen.

10.9 GPI Examples

If an event consists of just one input, AND and OR deliver the same result and may be used interchangeably.

10.9.1 Move a Fader to Turn Off the Floor Monitors

This example demonstrates how to turn off the floor monitors by moving any one of several faders above a selected level.

1. Touch the **Events** Main Menu button to display the Events View.
2. In the **Event List** area, touch the **<Press to Add Event>** field. Type something descriptive in the keyboard popup.
3. Touch the **Logic** field to the left of the description and select **OR** as the logical operator from the Logical Operator Popup.
4. In the **Inputs** area, touch the **<Press to Add Input>** field and select **Fader** from the Add Input Event Popup (see Figure 10-2).

   Enter a description by selecting the **Description** field and touching the **Edit Name** button.
5. Touch the numerical field next to **Channel** and type *1* in the keyboard popup.
6. Touch the numerical field next to **Activation level** and type *-50* in the keyboard popup.
7. Touch the field next to **Activation Type** and select *Above* from the Activation Type Popup.
8. Repeat steps 4–7 for any additional channel faders and set the **Channel** in step 5 to the new channel number. The Event View should now look similar to Figure 10-4 (outputs not configured yet so not shown).

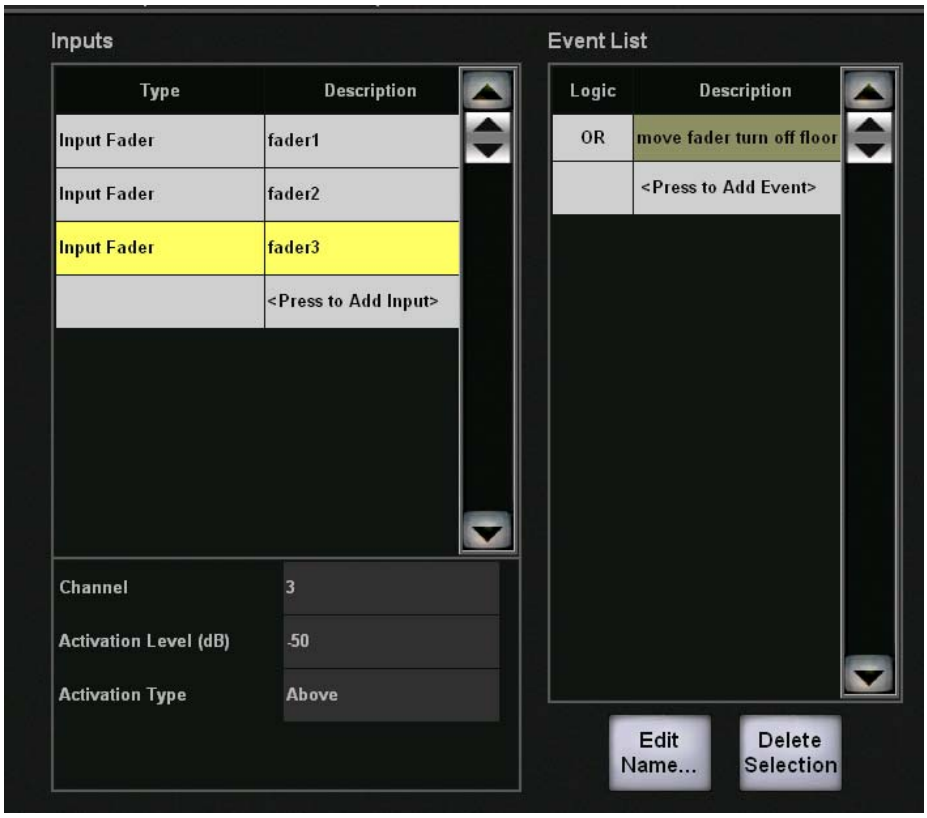


Figure 10-4 Monitor Off: Inputs Set

9. In the **Outputs** area, touch the **<Press to Add Output>** field and select **Control Room** from the Add Output Event Popup (see Figure 10-3.

   Enter a description by selecting the **Description** field and touching the **Edit Name** button.

10. Touch the value to the right of **Action** and select **Monitor A** from the Action Popup.

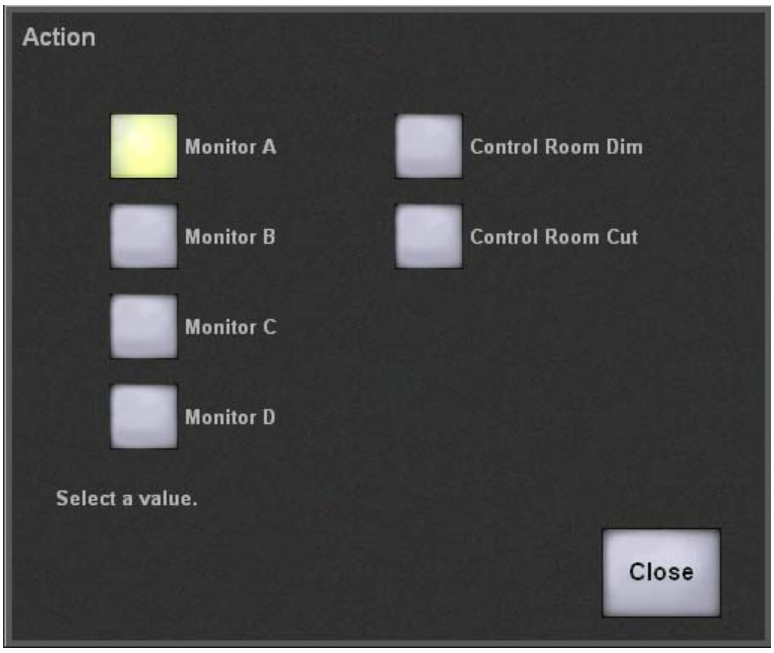


Figure 10-5 Action Popup

11. Touch the value next to **Active State** and select **Off** from the Active State Popup. The **Outputs** should now appear as in Figure 10-6.

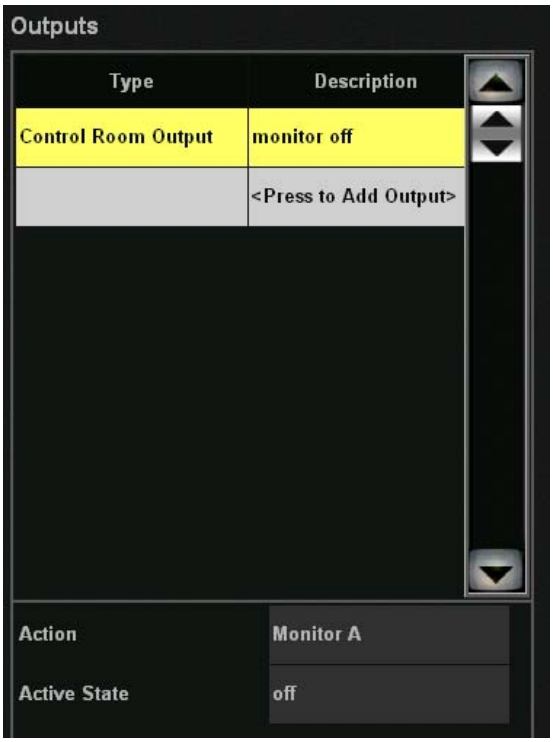


Figure 10-6 Monitor Off: Outputs Set

10.9.2 Move a Fader to Turn On the Floor Monitors

This example demonstrates how to turn on the floor monitors by moving any one of several faders below a selected level.

1. Touch the **Events** Main Menu button to display the Events View.
2. In the **Event List** area, touch the **<Press to Add Event>** field. Type something descriptive in the keyboard popup.
3. Touch the **Logic** field to the left of the description and select **OR** as the logical operator from the Logical Operator Popup.
4. In the **Inputs** area, touch the **<Press to Add Input>** field and select **Fader** from the Add Input Event Popup (see Figure 10-2).

   Enter a description by selecting the **Description** field and touching the **Edit Name** button.
5. Touch the field next to **Channel** and type *1* in the keyboard popup.
6. Touch the field next to **Activation level** and type *-50* in the keyboard popup.
7. Touch the field next to **Activation Type** and select *Below* from the Activation Type Popup.
8. Repeat steps 4–7 for any additional channel faders and set the **Channel** in step 5 to the new channel number. The Event View should now look similar to Figure 10-7 (outputs not configured yet so not shown).

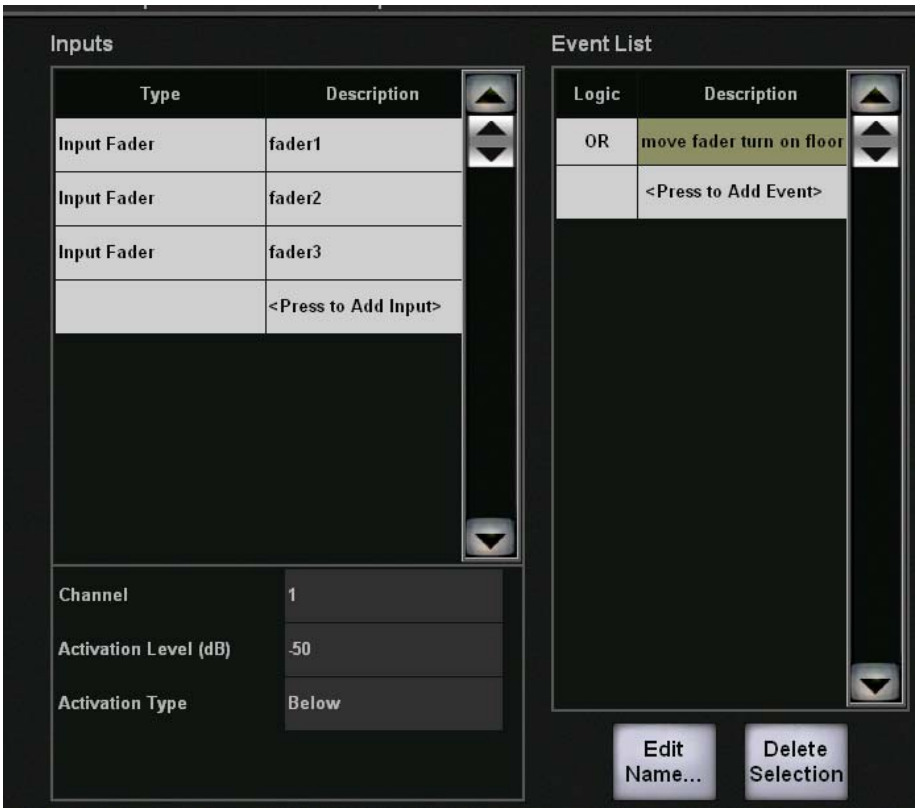


Figure 10-7 Monitor On: Inputs Set

9. In the **Outputs** area, touch the **<Press to Add Output>** field and select **Control Room** from the Add Output Event Popup (see Figure 10-3).

   Enter a description by selecting the **Description** field and touching the **Edit Name** button.

10. Touch the field to the right of **Action** and select **Monitor A** from the Action Popup (Figure 10-5).

11. Touch the field next to **Active State** and select **On** from the Active State Popup.

    The **Outputs** area should now appear as in Figure 10-8.

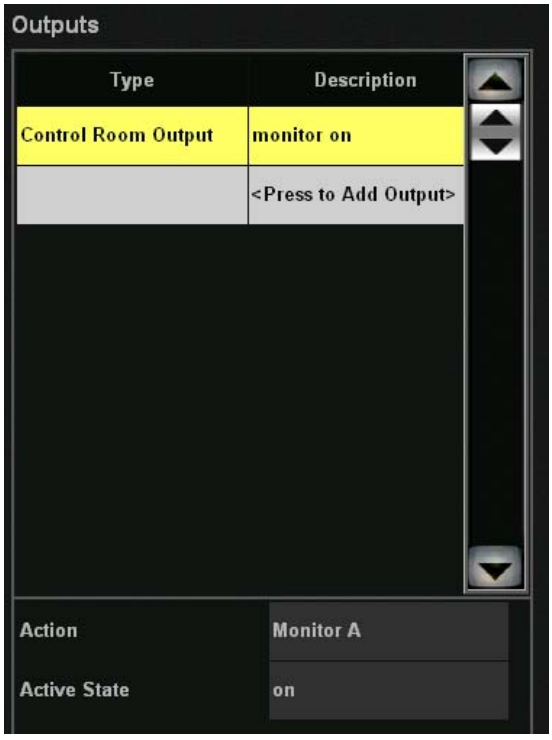


Figure 10-8 Monitor On: Outputs

10.9.3 Move a Fader to Start a Cart Machine

This example demonstrates how to start a Cart machine by moving a fader above a selected level.

1. Touch the **Events** Main Menu button to display the Events View.
2. In the **Event List** area, touch the **<Press to Add Event>** field. Type something descriptive in the keyboard popup.
3. Touch the **Logic** field to the left of the description and select **AND** as the logical operator from the Logical Operator Popup.
4. In the **Inputs** area, touch the **<Press to Add Input>** field and select **Fader** from the Add Input Event Popup (see Figure 10-2).

   Enter a description by selecting the **Description** field and touching the **Edit Name** button.
5. Touch the field next to **Channel** and type *2* in the keyboard popup.
6. Touch the field next to **Activation level** and type *-50* in the keyboard popup.
7. Touch the field next to **Activation Type** and select *Above* from the Activation Type Popup.

8. In the **Outputs** area, touch the **<Press to Add Output>** field and select **GPO** from the Add Output Event Popup (see Figure 10-3)

   Enter a description by selecting the **Description** field and touching the **Edit Name** button.

9. Touch the field next to **Output Number** and type *1* in the keyboard popup.

10. Touch the field next to **Active State** and select **Closed** from the Active State Popup.

11. Touch the field next to **Pulse Length** and type *10* in the keyboard popup.

12. Touch the field next to **Machine** and select **GP132 One** from the Machine Popup (Figure 10-9).

    The Events View should now look similar to Figure 10-10.

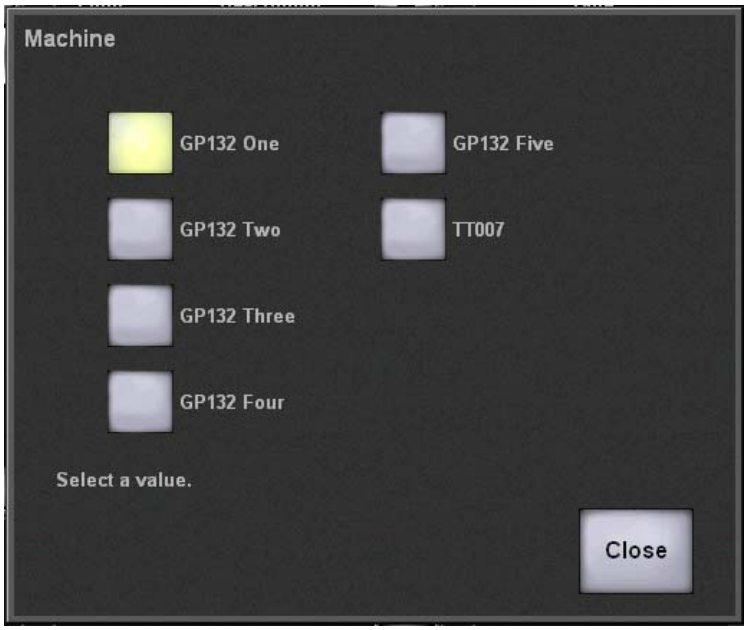


Figure 10-9 Machine Popup

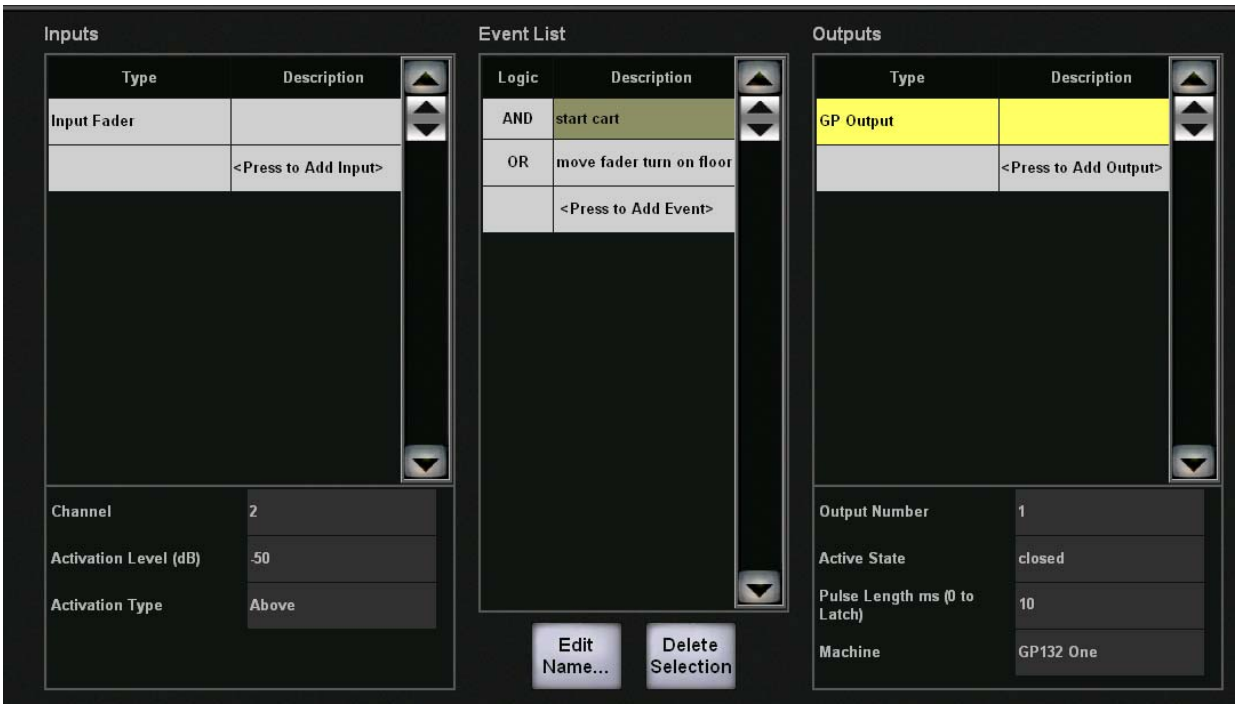


Figure 10-10 Start Cart: Inputs and Outputs Set

10.9.4 Move a Fader to Stop a Cart Machine

This example demonstrates how to stop a Cart machine by moving a fader below a selected level.

1. Touch the **Events** Main Menu button to display the Events View.
2. In the **Event List** area, touch the **<Press to Add Event>** field. Type something descriptive in the keyboard popup.
3. Touch the **Logic** field to the left of the description and select **AND** as the logical operator from the Logical Operator Popup.
4. In the **Inputs** area, touch the **<Press to Add Input>** field and select **Fader** from the Add Input Event Popup (see Figure 10-2).

   Enter a description by selecting the **Description** field and touching the **Edit Name** button.
5. Touch the field next to **Channel** and type *2* in the keyboard popup.
6. Touch the field next to **Activation level** and type *-50* in the keyboard popup.
7. Touch the field next to **Activation Type** and select *Below* from the Activation Type Popup.

8. In the **Outputs** area, touch the **<Press to Add Output>** field and select **GPO** from the Add Output Event Popup (see Figure 10-3)

   Enter a description by selecting the **Description** field and touching the **Edit Name** button.

9. Touch the field next to **Output Number** and type *2* in the keyboard popup.

10. Touch the field next to **Active State** and select **Closed** from the Active State Popup.

11. Touch the field next to **Pulse Length** and type *10* in the keyboard popup.

12. Touch the field next to **Machine** and select **GP132 One** from the Machine Popup (Figure 10-9).

    The Events View should now look similar to Figure 10-11.

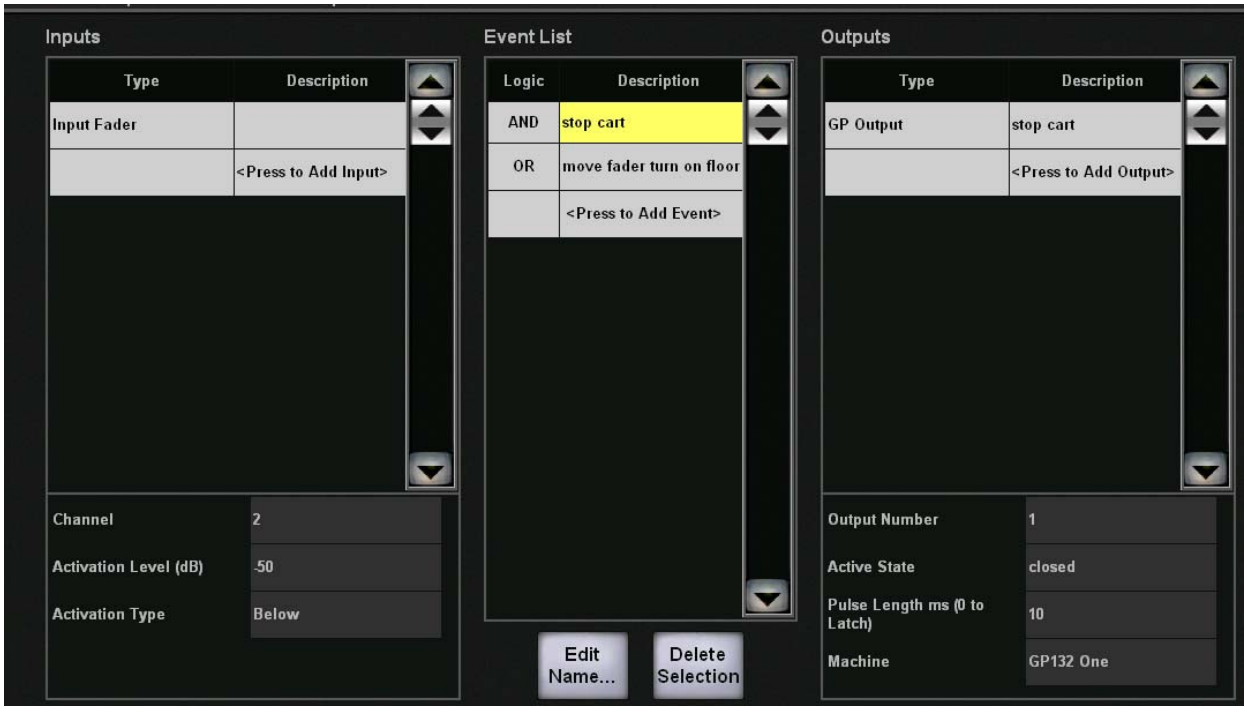


Figure 10-11 Stop Cart: Inputs and Outputs Set

10.9.5 Video Switcher Turns a Specific Camera and Channel On

1. Touch the **Events** Main Menu button to display the Events View.
2. In the **Event List** area, touch the **<Press to Add Event>** field. Type something descriptive in the keyboard popup.
3. Touch the **Logic** field to the left of the description and select **AND** as the logical operator from the Logical Operator Popup.
4. In the **Inputs** area, touch the **<Press to Add Input>** field and select **GPI** from the Add Input Event Popup (see Figure 10-2).

   Enter a description by selecting the **Description** field and touching the **Edit Name** button.
5. In the **Inputs** area, touch the field next to **Input Number** and type *1* in the keyboard popup.
6. Touch the field next to **Active State** and select **On** from the Active State Popup.
7. Touch the field next to **Machine** and select **GP132 One** from the Machine Popup (Figure 10-9).
8. In the **Outputs** area, touch the **<Press to Add Output>** field and select **Switch Output** from the Add Output Event Popup (see Figure 10-3).

   Enter a description by selecting the **Description** field and touching the **Edit Name** button.
9. Touch the field next to **Channel** and type *3* in the keyboard popup.
10. Touch the field next to **Switch Function** and select **Channel** from the Switch Function Popup.
11. Touch the field next to **Active State** and select **On** from the Active State Popup.

    The Events View should now look similar to Figure 10-12.

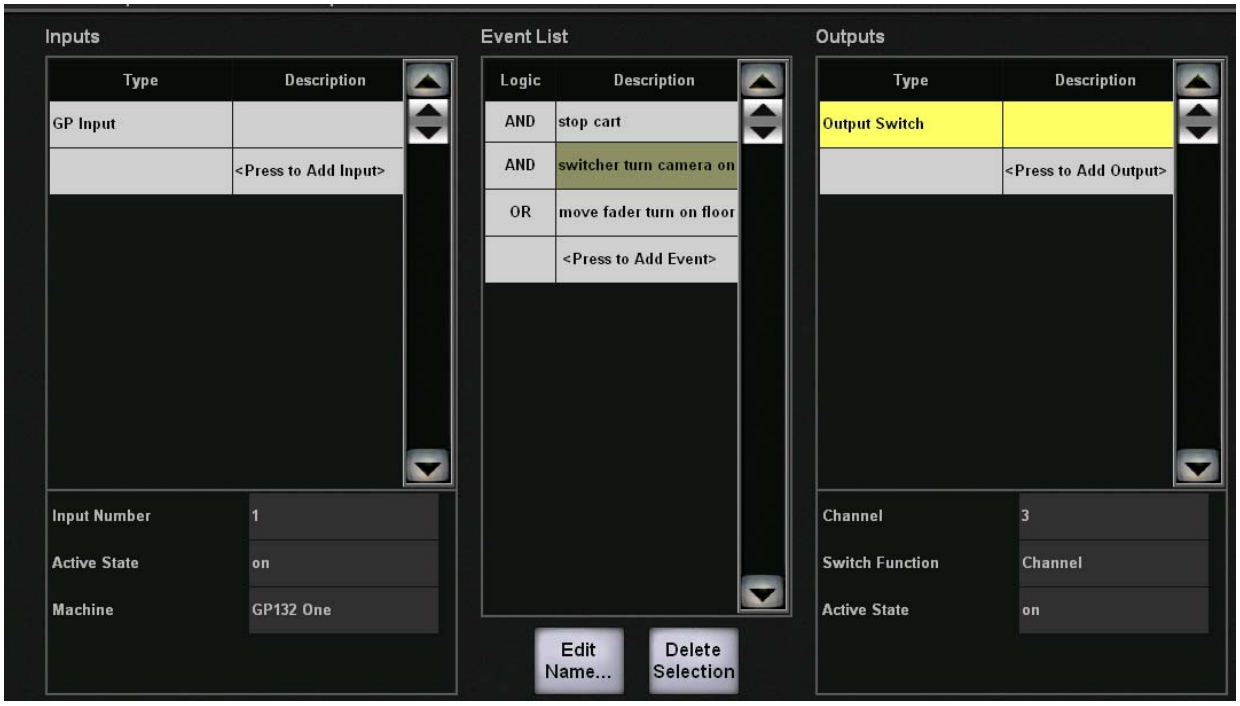


Figure 10-12 Camera/Channel On: Inputs and Outputs Set

10.9.6 Video Switcher Turns a Specific Camera and Channel Off

1. Touch the **Events** Main Menu button to display the Events View.
2. In the **Event List** area, touch the **<Press to Add Event>** field. Type something descriptive in the keyboard popup.
3. Touch the **Logic** field to the left of the description and select **AND** as the logical operator from the Logical Operator Popup.
4. In the **Input** area, touch the **<Press to Add Input>** field and select **GPI** from the Add Input Event Popup (see Figure 10-2).

   Enter a description by selecting the **Description** field and touching the **Edit Name** button.
5. In the lower part of the **Inputs** area, touch the field next to **Input Number** and type *1* in the keyboard popup.
6. Touch the field next to **Active State** and select **Off** from the Active State Popup.
7. Touch the field next to **Machine** and select **GP132 One** from the Machine Popup (Figure 10-9).

8. In the **Outputs** area, touch the **<Press to Add Output>** field and select **Switch Output** from the Add Output Event Popup (see Figure 10-3).

   Enter a description by selecting the **Description** field and touching the **Edit Name** button.

9. Touch the field next to **Channel** and type *3* in the keyboard popup.

10. Touch the field next to **Switch Function** and select **Channel** from the Switch Function Popup.

11. Touch the field next to **Active State** and select **Off** from the Active State Popup.

    The Events View should now look similar to Figure 10-13.

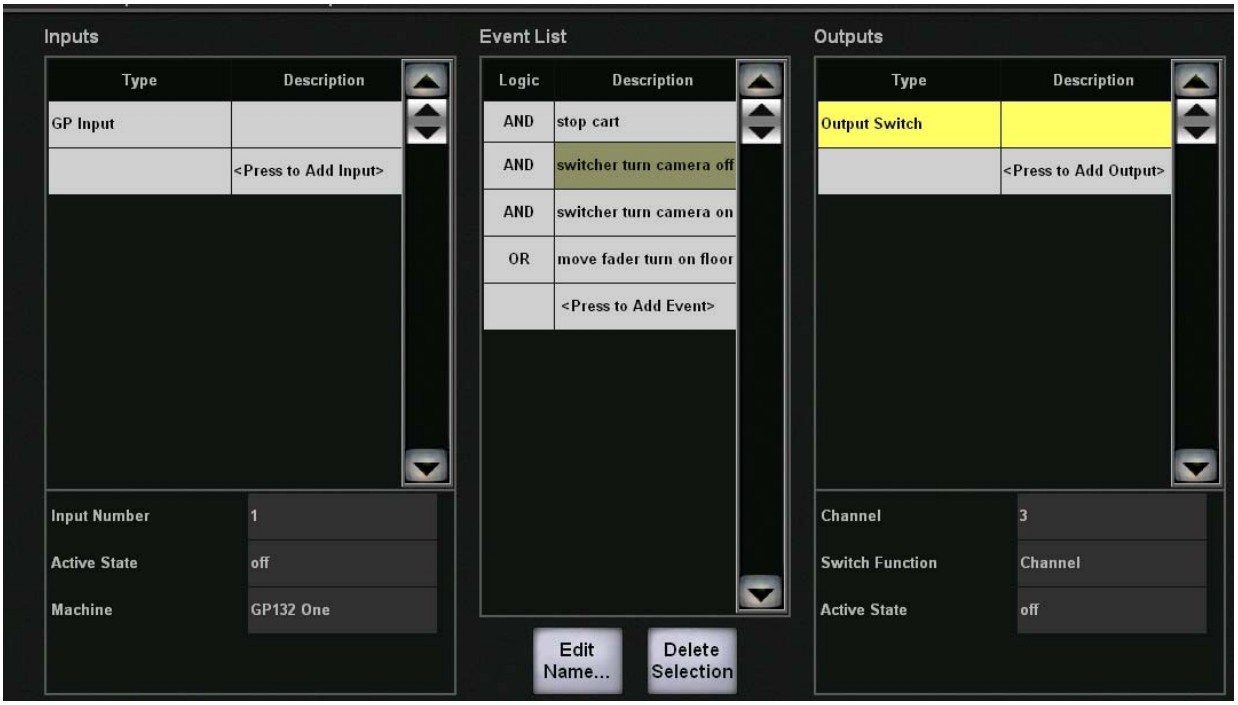


Figure 10-13 Camera/Channel Off: Inputs and Outputs Set

10.9.7 Audio Follow Video

In this example, there are four cameras each with a microphone configured with a video switcher, GP 132, and Max Air console (Figure 10-14).

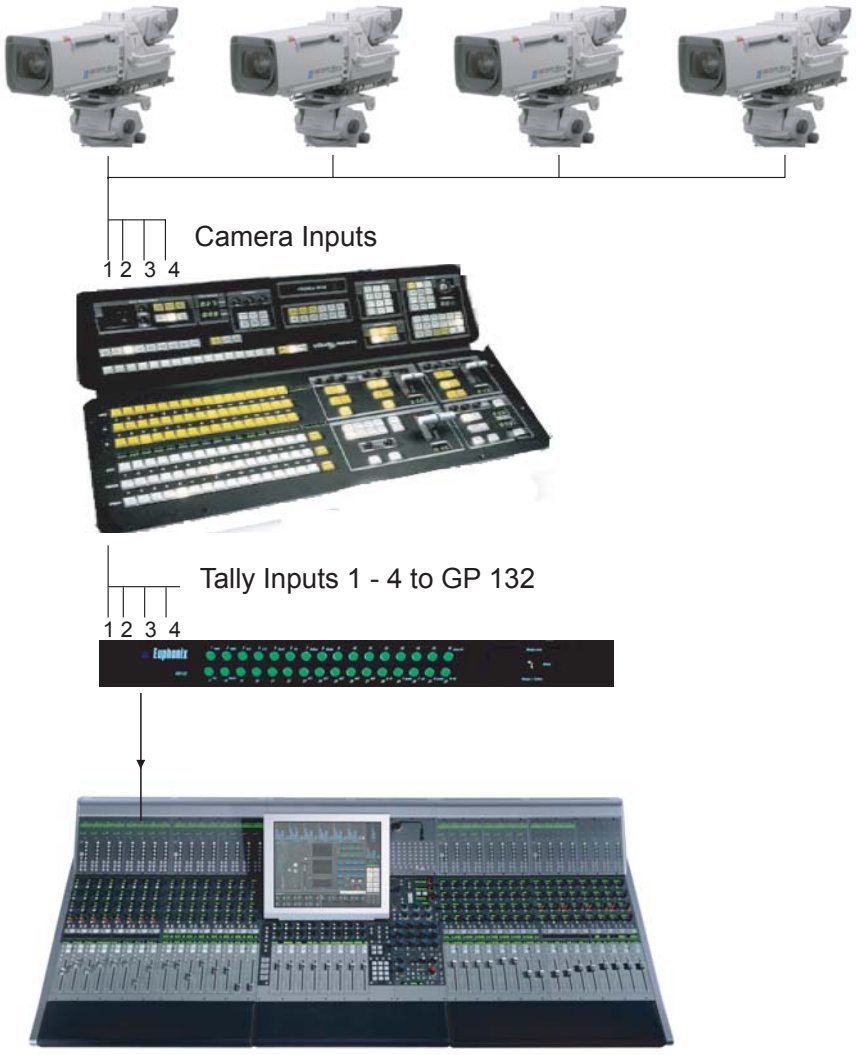


Figure 10-14 Audio Follow Video Configuration

The goal is to enable the following functionality:

- When the video switcher takes camera 1, channel 1's audio is on while channels 2–4 are muted.
- When the video switcher takes camera 2, channel 2's audio is on while channels 1, 3, and 4 are muted.
- When the video switcher takes camera 3, channel 3's audio is on while channels 1, 2, and 4 are muted.
- When the video switcher takes camera 4, channel 4's audio is on while channels 1–3 are muted.

The following procedure explains how to turn channel 1 on and mute the other channels when the video switcher takes camera 1.

1. Choose a tally input to use on the GP 132.

   For example, tally input 1 uses pins 1 and 14 on connector RT1 of the GP 132.

1. Touch the **Events** Main Menu button to display the Events View.
2. In the **Event List** area, touch the **<Press to Add Event>** field. Type something descriptive in the keyboard popup.
3. Touch the **Logic** field to the left of the description and select **OR** as the logical operator from the Logical Operator Popup.
4. In the **Input** area, touch the **<Press to Add Input>** field and select **GPI** from the Add Input Event Popup (see Figure 10-2).

   Enter a description by selecting the **Description** field and touching the **Edit Name** button.
5. In the **Inputs** area, touch the field next to **Input Number** and type *1* in the keyboard popup.
6. Touch the field next to **Active State** and select **On** from the Active State Popup.
7. Touch the field next to **Machine** and select **GP132 One** from the Machine Popup (Figure 10-9).
8. In the **Outputs** area, touch the **<Press to Add Output>** field and select **Switch Output** from the Add Output Event Popup (see Figure 10-3).

   Enter a description by selecting the **Description** field and touching the **Edit Name** button.
9. Touch the field next to **Channel** and type *1* in the keyboard popup.
10. Touch the field next to **Switch Function** and select **Channel** from the Switch Function Popup.

11. Touch the field next to **Active State** and select **On** from the Active State Popup.

    This turns channel 1 on when camera 1 is selected by the video switcher. The Events View should now look similar to Figure 10-15.

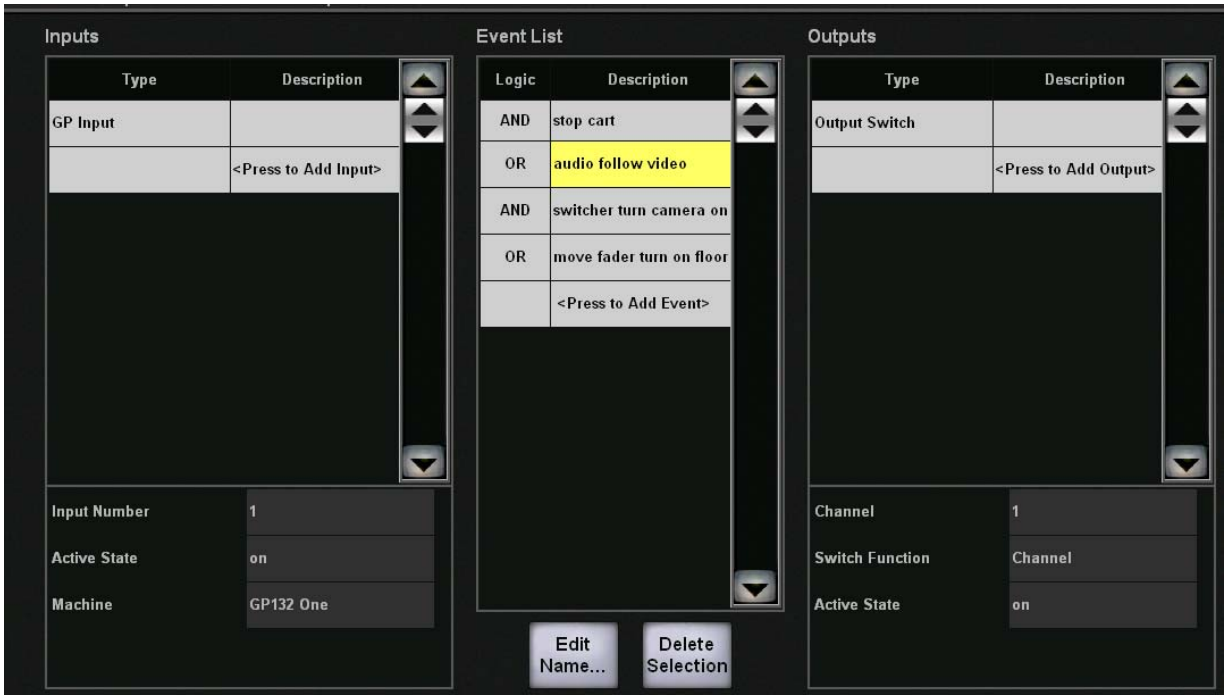


Figure 10-15 Input and One Output Set

12. Repeat Steps 8–11 to create additional output events to mute channels 2, 3, and 4 but set the **Channel** to *2*, *3*, and *4*, respectively, and set the **Active State** to **Off** for each.

So far, you have achieved the following functionality: When the video switcher selects camera 1, channel 1 turns on and channels 2–4 mute.

Repeat the entire procedure with appropriate channel numbers to:

- program channel 2 to turn on when the video switcher selects camera 2 and mute channels 1, 3, and 4.
- program channel 3 to turn on when the video switcher selects camera 3 and mute channels 1, 2, and 4.
- program channel 4 to turn on when the video switcher selects camera 4 and mute channels 1, 2, and 3.

Each tally input requires a discrete connection at the GP 132.

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