AMS NEVE

CAPRICORN

USER MANUAL

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Issue 5.1

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1 Introduction

1.1 Overview

The Capricorn recording system represents innovative audio technology at its very best. Award winning custom designed integrated circuits give unsurpassed digital sonic performance. The system electronics are remote from the actual console surface, being rack-mounted in a separate unit. The graphical interface and intuitive console surface enable real-time dynamic automation and fast and accurate system setup.

The console surface sections and many of the individual controls are assignable so that they can be used for a variety of different signal paths and signal processing functions. The degree of assignability is designed to maximize simplicity and ease of use with any function being accessible with just one or two key-strokes, allowing changes to be made in signal path processing quickly and efficiently.

The console surface is totally modular and each of the sections are self-contained with their own PSUs (power supply units), making it easier to insert or remove sections, or to make changes to the position of existing sections.

1.1.1 The Assignable Console

Capricorn is an assignable console which means that one strip of controls for each input and output is no longer needed. An assignable console allows a few faders and controls to control any system size. On analogue consoles all the facilities have to be squeezed into each channel strip which restricts the facilities available and can make the control surface difficult to use. On Capricorn there are still a number of controls on each channel strip for immediate use. These controls are laid out so that they can be easily reached.

For control of a function that is not on the strip, a central panel called the Assignable Facilities Unit (AFU) is assigned to the path on the strip by pressing the 

key. The AFU has every control for that strip, just like a traditional console. The AFU is large so that all controls are easily seen and reached. The AFU can be positioned in the centre of the stereo image so that all adjustments can be made while listening in the optimum monitoring position.

The channel strips are used for a number of different purposes so motorized faders and continuous rotary encoders are used throughout. When a strip is reassigned the fader will move to the position for the new signal path and circular bargraph displays around the rotary encoders will show the new setting.

1.1.2 Multi-user Operation

The console can have up to 5 sections of 24 strips giving a maximum of 120 faders. Up to 3 AFUs can also be fitted, and each AFU can be linked to a different section of strips so that the console can be used by several people at a time. When an ACCESS key is pressed only the AFU associated with that strip is reassigned so that an operator working on another AFU is not affected.

Note: During split working there are still only 12 global fader banks and each split unit does not have its own set of banks. However, when a new bank is selected only the strips associated with that AFU will be reassigned.

The global functions which override SPLIT divisions are:

Reverse routing and interrogation
Link formation and interrogation

1.1.3 Hard Disk Organisation

The hard disk is partitioned into three notional areas - System, User and Project. These partitions are maintained by the System Manager who requires a password to enable access to the various housekeeping functions such as deleting and moving data.

System Partition

The System Partition contains all the files needed for running the system, and is not directly accessible to the user. These files include down-loadable code and data for all the node processors, tables of defaults and command and fault logs. The System Manager has access to some data in the System Partition (e.g. the command and fault logs) through special utilities but cannot normally edit or delete files in this area.

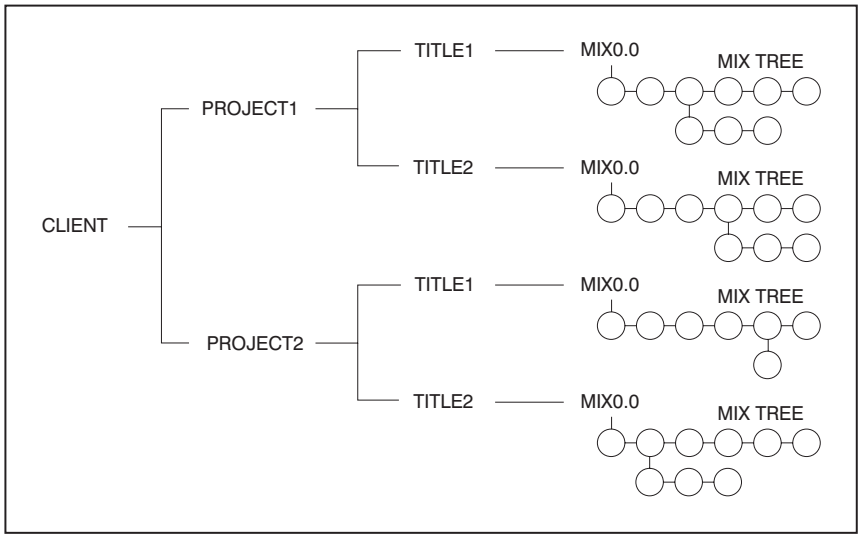
User Partition

The User Partition is subdivided into areas, or directories, for each user. This partition holds configuration data that defines desk setups. Each user can have a number of configurations which can be recalled in part or in full at any time. It is necessary to log on to the system as a named user in order to create and store personalised data. If the operator does not log on then data is stored in the Default user area which may be used by anyone.

User directories can be created and removed only by the System Manager. Each user directory can contain console setups and default information to customise the operation of the system. Each user directory can be protected by a personal password.

Project Partition

The Project Partition is the area of the storage system which contains dynamic automation data including all the system configurations, mix data, cue lists and notes for particular jobs. The partition is divided into Client directories, beneath which are Project directories and beneath these are Title directories. For example, an album project will have several titles, each of which contains its individual mix tree.



A default scratch mix directory is provided for general use. This can be convenient for quick, unplanned operations which do not need the data preserving (e.g. testing a procedure).

Client directories and sub-directories can be created by any user, but may only be removed by the System Manager. Client data can be password protected in the same way as user data.

Copying data to and from removable disks

The system allows the user to transfer data to and from removable Optical Disks and Floppy disks (if the drive is fitted). This enables both mix data and system configurations to be copied between Capricorn systems or archived. This procedure can also be used to back-up data, however the facility to back-up the whole of the Hard Disk onto Optical disk is a more thorough and rapid backup mechanism. It is recommended that the complete backup operation is performed weekly, this operation is described in the technical manual.

Floppy disks can hold configuration data only.

1.2 Concepts of Allocating Processing

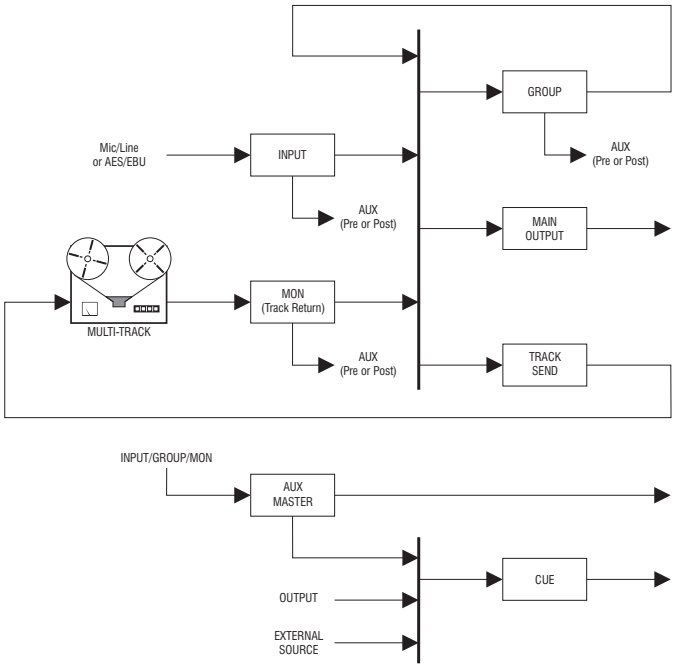
The Capricorn is a digital console which uses software controlled processing power to provide signal paths and signal processing elements such as EQ, Compressor and Filter. Processing elements can be put in any order on a signal path. Processing is assigned to the paths as needed by the operator, using the Path Configuration screen on the Graphics Display monitor.

Inputs, Monitors, Groups, Outputs, Aux Masters and Cues are the types of signal path. The number of each type of signal path is set up by the operator and will depend on the type of session. Configurations can be stored and recalled. The size of a Capricorn system will define the maximum number of all signal paths. The maximum number of each type of signal path is:

Input Paths	-	Limited by number of PCBs fitted
Monitor Paths	-	Limited by number of PCBs fitted
Group Paths	-	24
Main Output Paths	-	8
Aux Master Paths	-	16
Cue Paths	-	16

Any type of signal path can be configured as stereo and will use two signal paths. All controls are ganged together so that identical processing is applied to the left and right channels.

1.2.1 Path Structure



Input, Monitor, Group, Aux, Cue and Main Output paths can be configured with EQ, Filter, Limiter, Compressor and Expander/Gate.

Track Send paths do not exist in the same way as other signals and the level for them is controlled via the screen only.

1.2.2 Signal Ports

Since the routing within Capricorn is inherently flexible, the port (or connector) that feeds a signal path can be changed. This gives the operator a number of advantages.

1. External equipment can be permanently connected to a patch bay and then patched to an input or output through software using the screen.

2. If an error or fault occurs on an external I/O rack the operator can patch around the problem

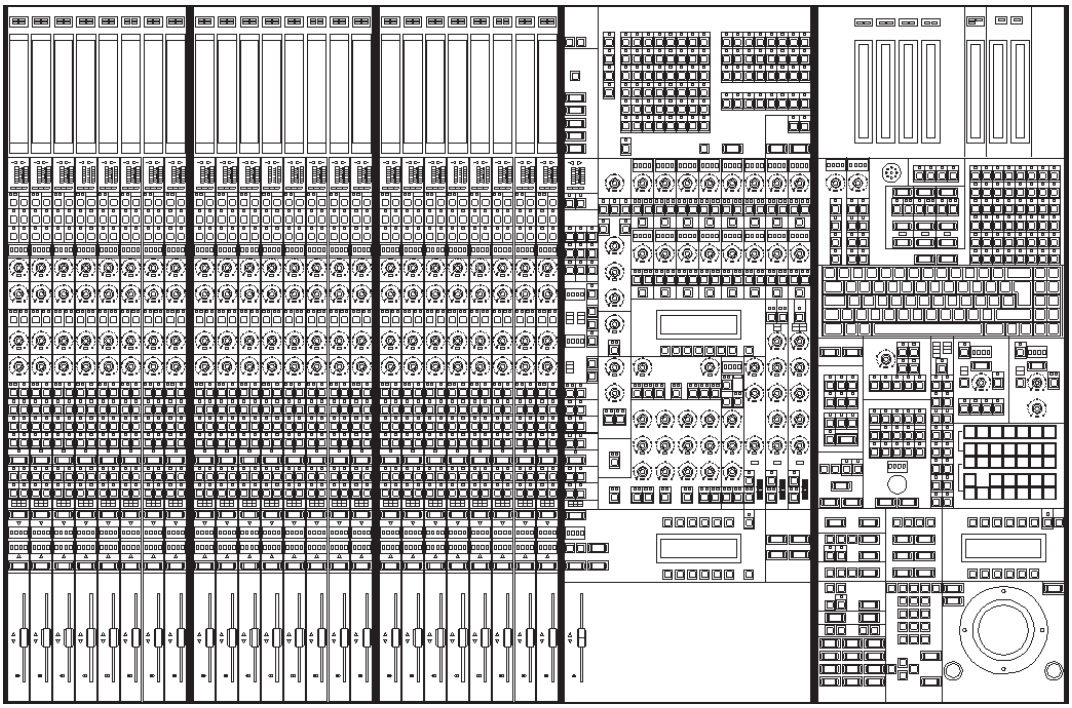
3. The ports can be changed during a ‘scene change’ so that the same channels can be used to control different sources.

Usually the ports will remain assigned to the same path and the selector will be transparent to the operator since it is recalled from the configuration store.

1.3 The Console Surface

There are three type of section in a Capricorn console surface:

Strip Sections	Contain the Path (or Channel) Strips. Each Strip Section has eight Path Strips. A Capricorn will have at least 24 Path Strips (i.e. 3 Strip Sections).
Monitor Section	Contains master controls for tape machines, monitoring, etc., and the keyboard and trackball for controlling the graphics display.
AFU Section	Contains controls for routing and all the processing and signal elements which can be assigned to a path.

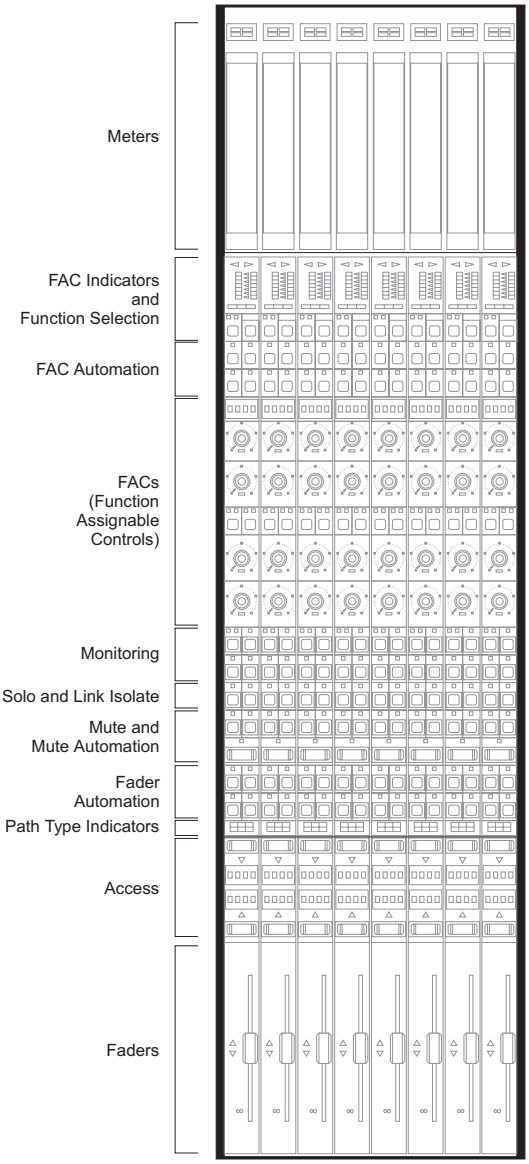


1.3.1 Strip Section

Each strip section contains eight strips. There is no correlation between the number of strips and the electrical size of the system. Any console frame size can therefore control and operate any system size.

The strip differs from a traditional channel strip in various ways. It is assignable to a number of audio paths and path types. Facilities such as EQ and dynamics are removed from the strip and placed in an Assignable Facilities Unit (AFU). All functions can still be accessed from the strip by using the Function Assignable Controls.

The Function Assignable Controls (FACs) are rotary controls which use shaft-encoders rather than conventional potentiometers. Each FAC has a circular bargraph surrounding it which illuminates in different ways depending on the parameter being controlled.



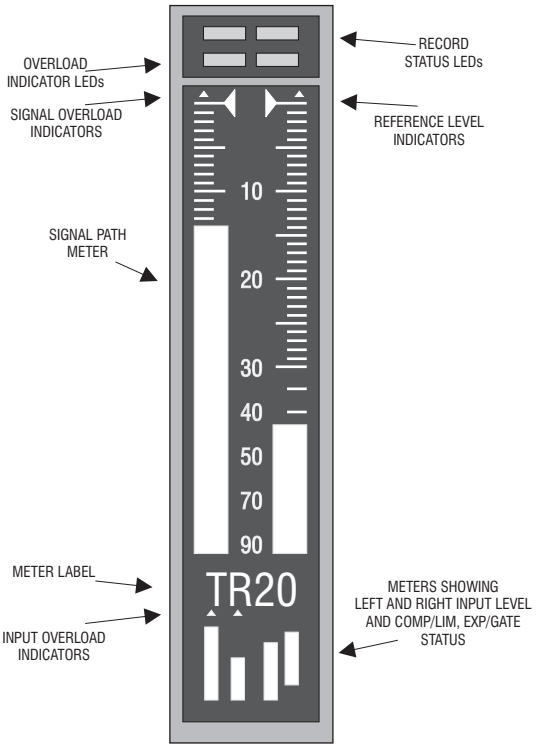
Meters

Each channel strip has a Vacuum Fluorescent Display (VFD) to show metering information.

The lower part of the display is used to show the signal on the channel strip, the upper part is used for high resolution metering and its mode is selected on the AFU.

If the signals are stereo then two bars will be shown on the input meter and high resolution meter.

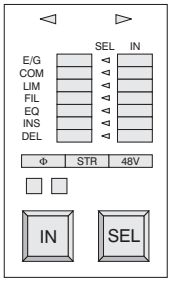
The VFDs are high resolution dot matrix displays and can also be used to show non-metering information such as path configuration.



FAC Indicators and Selector

The FAC indicators show which signal processing elements have been assigned to the Path in the strip and which elements are switched in and out.

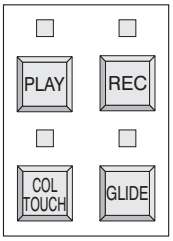
The SEL key is used to cycle the function which will be switched in and out.



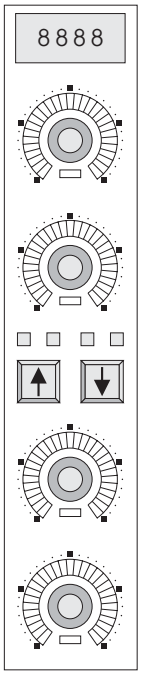
FAC Automation

Used for setting the Automation Mode of all controls except the Fader and the Mute key.

Collect Touch will put all controls in the path into touch (including the Fader and the Mute key) except those which have been isolated from the automation system.



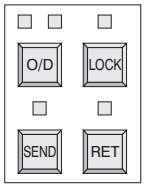
FACs (Function Assignable Controls)



The Function Assignable Controls are the rotary controls on each path strip. They can be used for different functions according to the FAC Selection keys on the AFU. The function of the two centre rotary controls are indicated on the AFU.

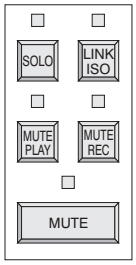
Nominally the top FAC is for input functions such as Mic/Line Gain, the middle two are for auxilliary contributions and the bottom FAC is for Pan. A 4-digit alphanumeric display above the top FAC shows either the status of the assignments or the precise numeric value of the last control touched.

Monitoring



The monitoring controls are only used on the monitor paths for monitor source selection and are inactive for other path types.

Solo and Link Isolate



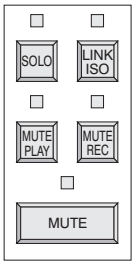
Used to Solo the path assigned to the strip and exclude individual controls from a link structure.

Solo has three modes (Cut Solo, APL or PFL) which are set globally.

Mute and Mute Automation

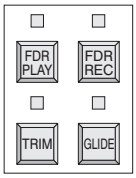
Mute is used for pre-fader cut of the signal currently assigned to the strip.

Mute keys also have their own keys for setting automation modes.



Fader Automation

Used to set the automation mode for the fader in the path currently assigned to the strip.



Path Type Indication

The type of signal path the strip is assigned to is indicated by 6 LEDs which illuminate to show Group, VCA, Auxiliary, Input, Monitor or Output.

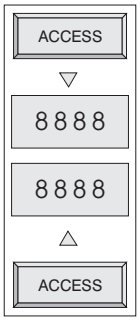
The VCA LED together with the channel path LED to show that the channel is under control of a VCA.

GRP	VCA	AUX
I/P	MON	O/P

Access

Two ACCESS keys are provided in each strip to assign the processing controls of the Assignable Facilities Unit (AFU) to the selected path.The ACCESS keys are also used for routing, link and copy functions.

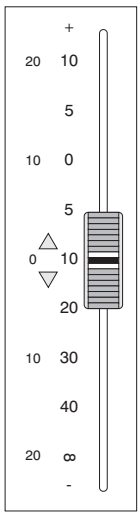
The two ACCESS keys allow two banks to be assigned across the console, primary on the upper key and secondary on the lower key. The paths in each bank are shown on the 4-digit alpha displays. Illumination of the display is bright for the active path and dim for the passive path. Pressing the ACCESS key for the passive path makes it active.



Faders

The faders are touch sensitive, motorised and automated so that fader moves may be stored and replayed. The faders may also be linked together in groups, one fader controlling the movement of all faders linked to it. Audio does not pass through the fader so they can be assigned to other functions such as Aux Gain or trim controls.

The right hand scale (-8 to +10dB) shows the gain or attenuation applied to the signal by the fader.

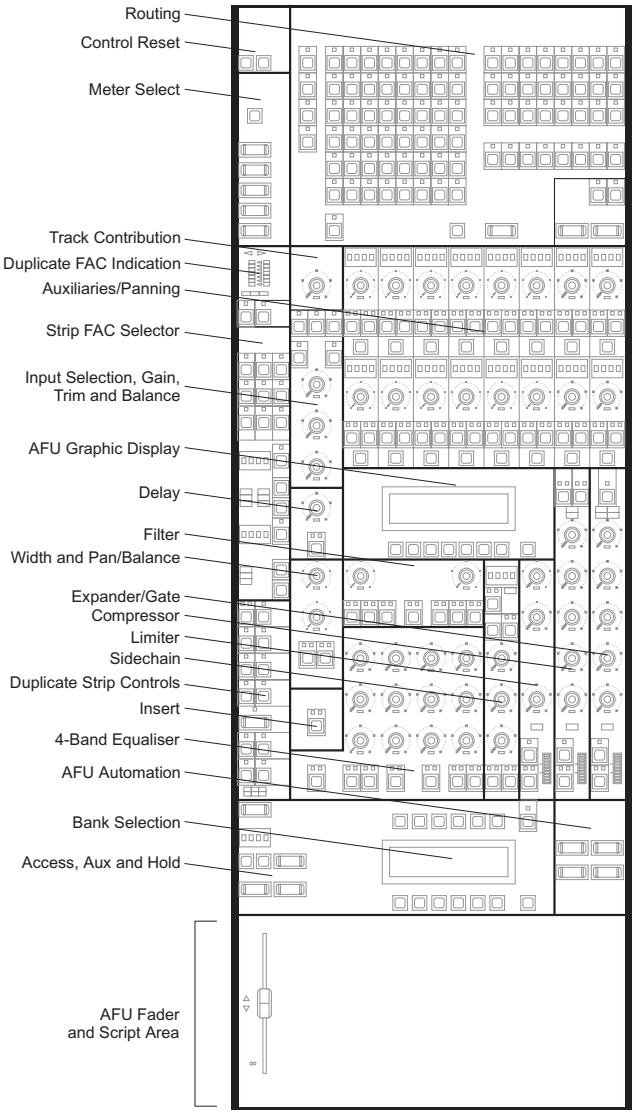


The left hand scale (-20 to +20dB) indicates the offset which may be applied to the fader while in trim mode. This enables a static or dynamic offset to be applied to previously recorded fader moves.

Arrow shaped LEDs are provided to show which way the fader knob must be moved to reach the null position. Once the fader is nulled both LEDs go out. Other methods of nulling are available through the automation system.

1.3.2 AFU Section

The Assignable Facilities Unit (AFU) contains individual controls for auxiliaries, EQ, dynamics, routing, etc. This provides the currently accessed strip with all the controls necessary for the processing elements which can be assigned to a path. The AFU removes the need to have individual controls for every function on every strip. Up to three AFUs may be fitted for multi-man operation. The AFU controls are accessed by pressing the ACCESS key for the required path.

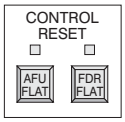


Control Duplication

The left hand side of the AFU duplicates the controls on a strip, except the FACs are replaced by the Strip FAC Selector controls which are used to globally assign functions to the strip FACs. The access section is also different, with Aux, Hold and strip stepping keys in place of the secondary ACCESS key and its alpha display.

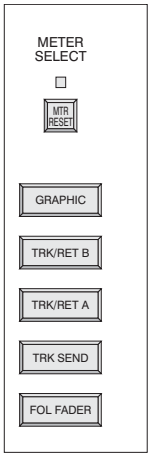
Control Reset

Used to reset controls to the default null or 0dB position.



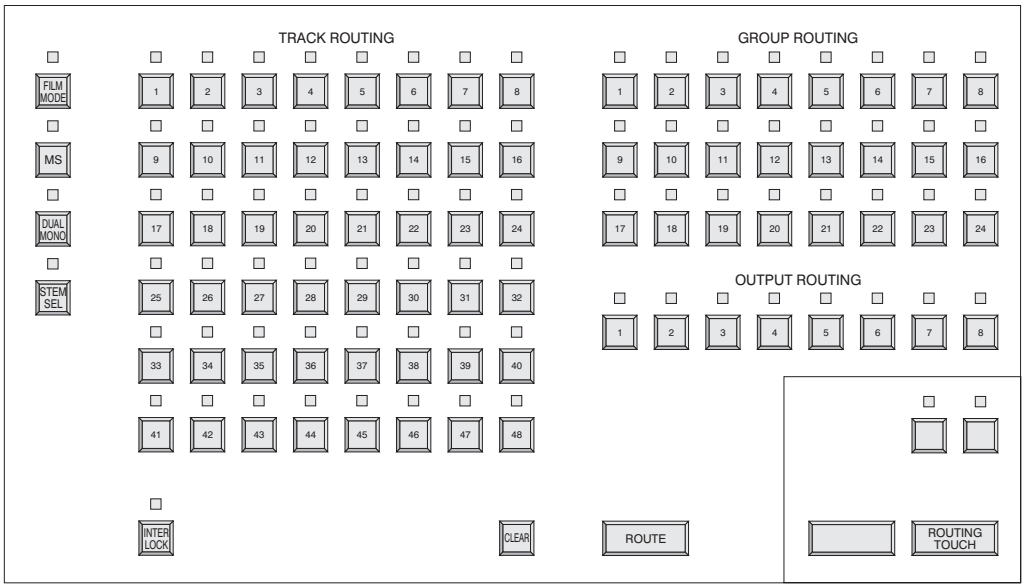
Meter Select

Used to select the signal shown on the VFD meters at the top of the path strips. A graphic mode is also available, which causes the VFDs to display alternative information such as path configuration.



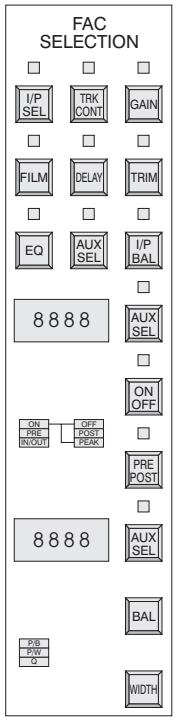
Routing

The Routing panel is used to control and interrogate routing to tracks, sub-groups and main outputs. The Routing panel is also used when setting up track sends for film stems.



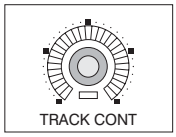
Strip FAC Selection

Used for global assignment of functions to the FACs on the path strips.



Track Contribution

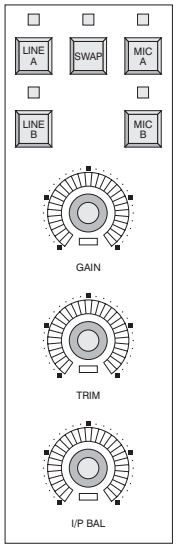
Used to adjust the level of the send from a channel path to a track.



Input Controls

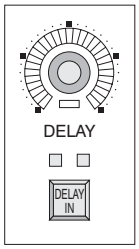
Used to select the input source for inputs from a Mic/Line rack.

Used to set the input gain, trim and balance.



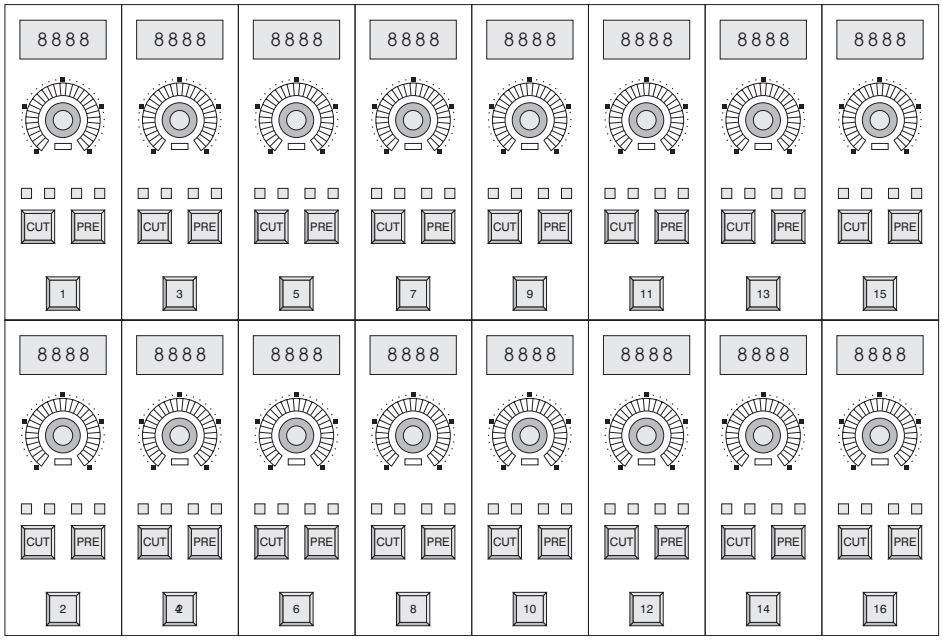
Delay

Used to adjust delay and switch it in and out.



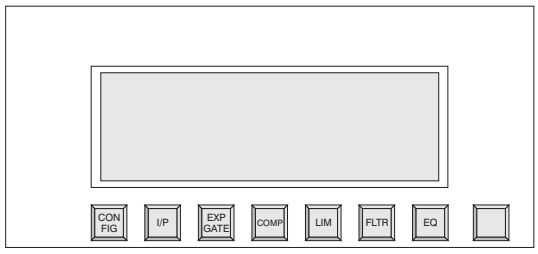
Auxiliaries/Panning

Used to adjust the contribution level from the currently accessed path to the auxiliary busses. There can be up to 16 auxiliaries configured in the current setup. The top row of controls are also used for surround panning for film stems.



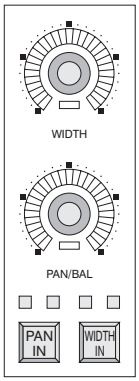
AFU Graphic Display

This is a vacuum fluorescent display (VFD) which shows the precise settings of an AFU rotary control when it is touched. Signal elements can be selected for viewing by the keys under the display.



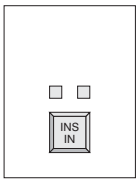
Width and Pan/Balance

Used to adjust width and balance on stereo paths, or pan on mono paths. Each control can be switched in and out of the path individually.



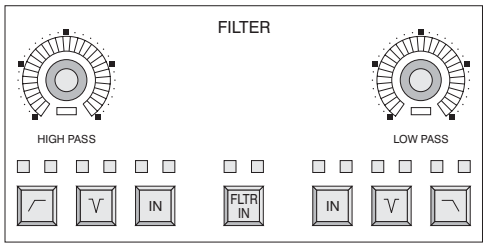
Insert

Used to switch an insert in and out of the path.



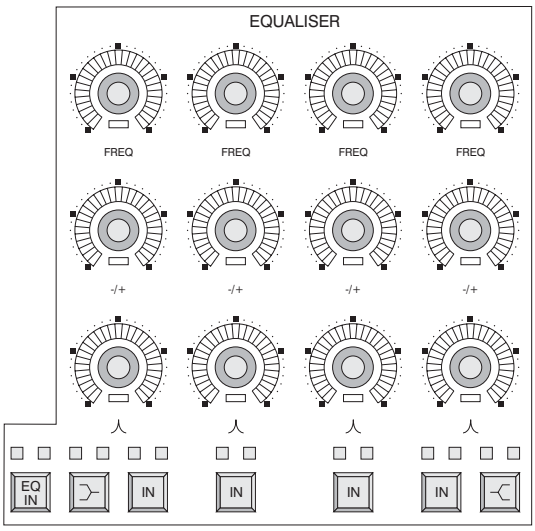
Filter

Used to change the settings on the high and low band filters. The whole filter is switched in and then each band is switched on and off individually.



4-Band Equaliser

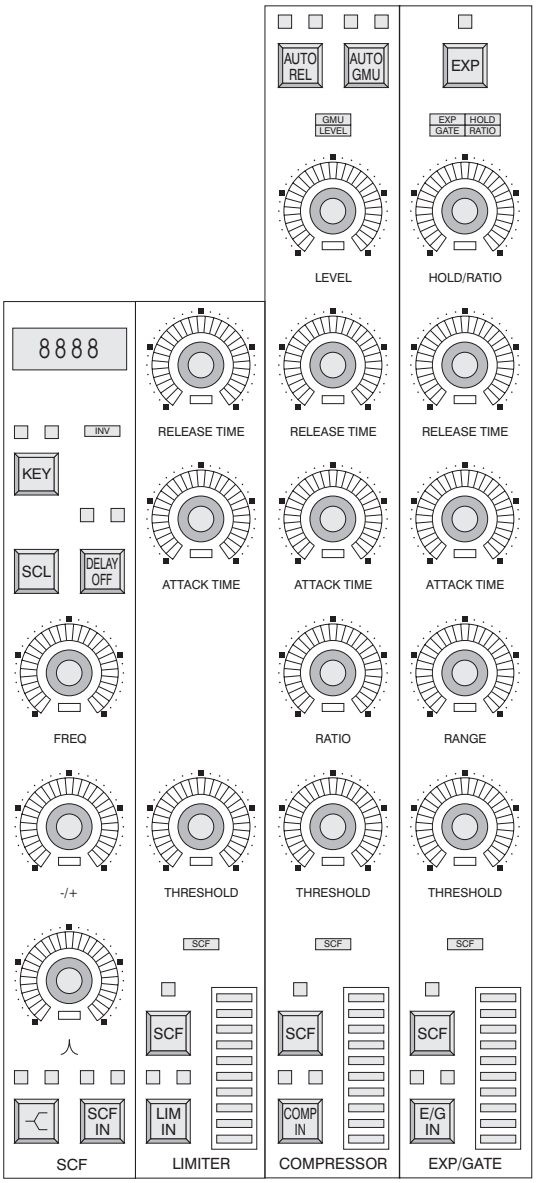
The Equaliser is switched in as a single unit and then each band is switched in and out of circuit individually. The rotary controls are used to change frequency, cut/boost and Q.



Dynamics - Expander/Gate, Compressor, Limiter and Sidechain

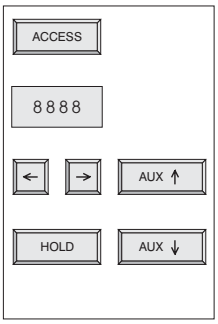
The Expander/Gate, Compressor and Limiter are each switched in and out of circuit individually. They each have a small bargraph meter which shows the effect on the signal.

The Sidechain can be selected to control any of the other dynamics elements. The Sidechain can be keyed from another signal source and the keying can be inverted to reversed the action of the Sidechain.

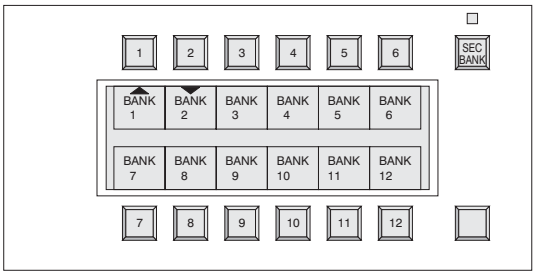


Access, Aux and Hold

The AFU ACCESS key is used for routing, link and copy functions. The name of the current path assigned (or called) to the AFU is shown in the alpha display. The current path on the AFU can be locked in using the HOLD key. The arrow keys are used to step along the paths on the surface, and the Aux keys are for using faders for aux contribution.

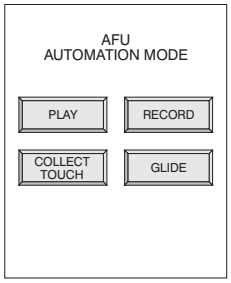


Bank Selection



The bank selection keys are used to assign the required bank of paths to the upper and lower ACCESS keys. The vacuum fluorescent display (VFD) uses arrows to show the bank selection. The banks of paths are setup using the Graphics Display.

AFU Automation



These keys duplicate the FAC Automation keys on the path strip for setting the automation mode of all controls except the fader and mute.

Collect Touch will put all controls in the path into touch (including the Fader and the Mute key) except those which have been isolated from the automation system.

AFU Fader

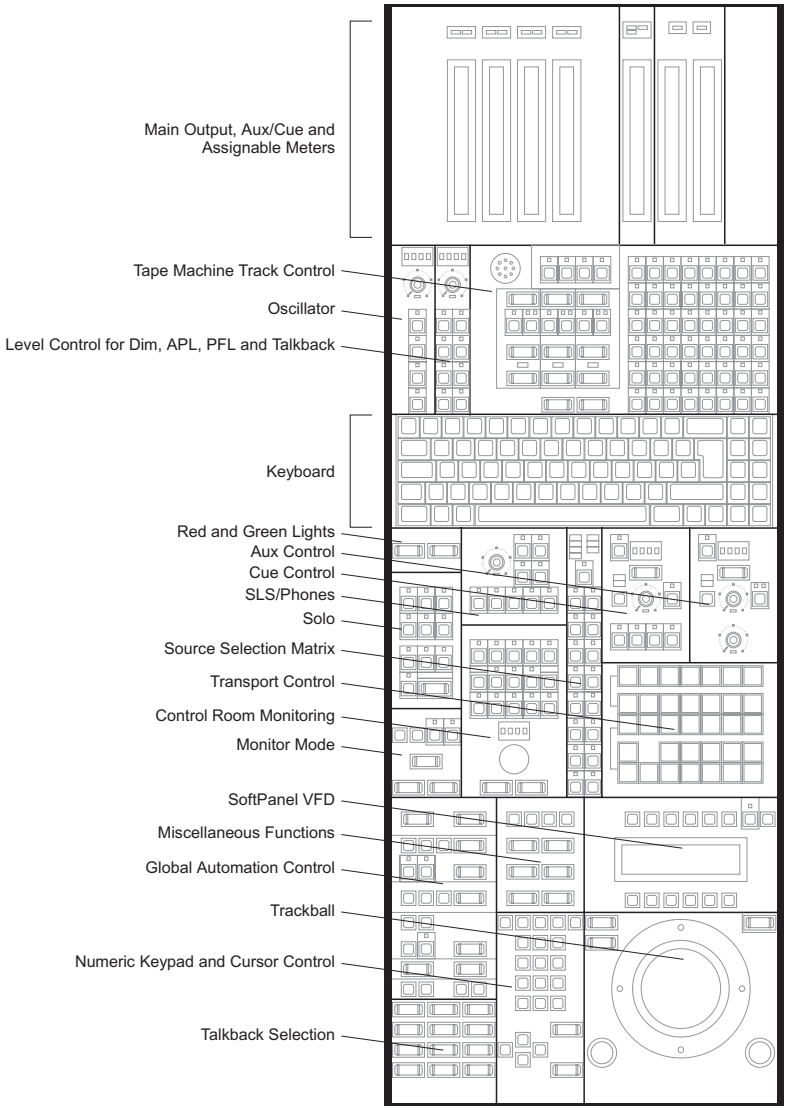
The AFU fader is identical to the path strip faders. It is a duplicate control for the fader on the path currently accessing the AFU.

Script Area

A blank area next to the fader.

1.3.3 Monitor Section

The Monitor Section contains all the monitoring controls as well as housing the keyboard and trackball for the interactive graphics of the computer system. Global automation and tape machines are also controlled from this section.

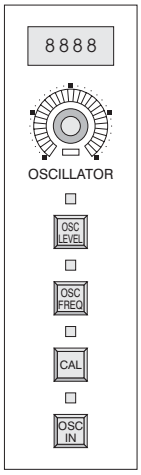


Monitor Section Meters

There are four meters for the Main Outputs, a pair of meters for Auxes or Cues and an assignable meter which can show Peak, VU or Phase characteristics.

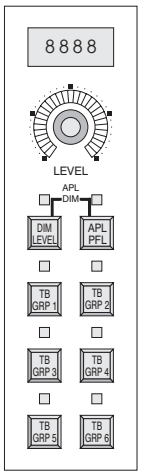
Oscillator

Used to provide tone. A pre-defined calibration frequency and level can be switched on at any time.



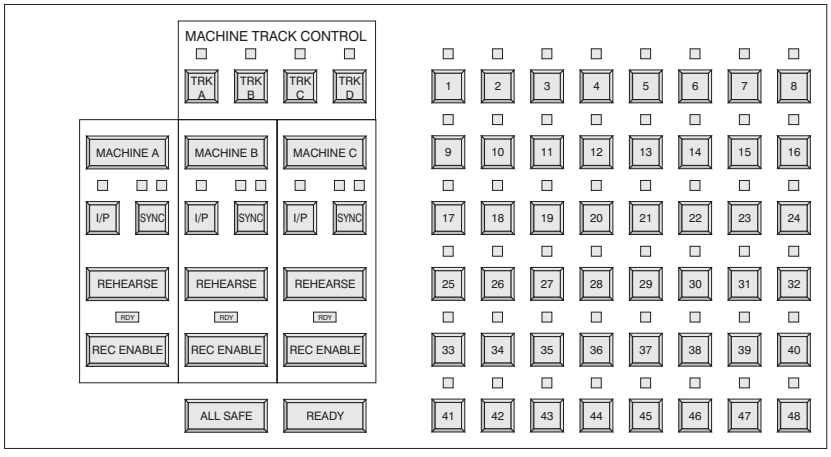
Level Control for Dim, APL, PFL and Talkback

Used to set the Dim level and monitoring levels for pre-fade listen, after pan listen and six talkback groups.



Tape Machine Track Control

Used for simultaneous control of track ready/record enable on up to three tape machines according to the setup on the Graphics Display.

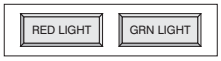


Keyboard

The QWERTY keyboard is used in conjunction with the Trackball and its associated controls to interact with programs displayed on the main Graphics Display monitor.

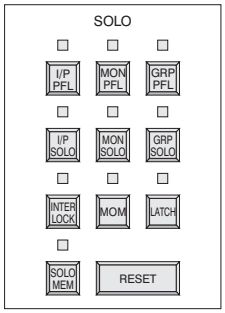
Red and Green Light

Used to operate the relays for the red and green lights. The red light function also causes Talkback to be disengaged.



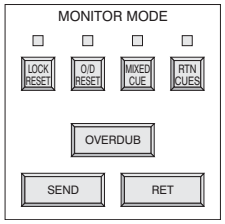
Solo

Used to set the solo, APL and PFL modes separately for input, monitor and group paths. Also used to setup solo groups and clear all solos across the console.



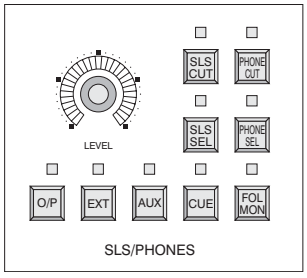
Monitor Mode

Used to globally set the monitoring on all paths. Also used to set the source on overdub ready paths to Line In for the overdubbing operation.



SLS/Phones

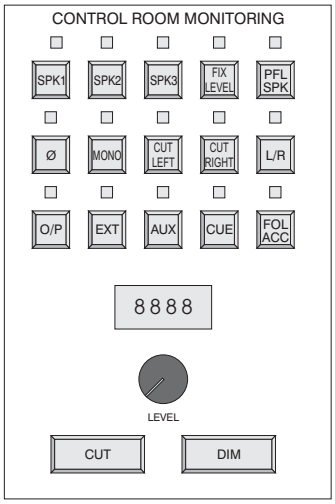
Used to independently select and control the sources for the Studio LoudSpeaker and Headphone outputs. The Source Selection Matrix is used to select the Output, External, Aux or Cue according to the selected key on the SLS/Phones panel.



The source can be set to Follow Monitor to use the same selection as the main Control Room Monitor.

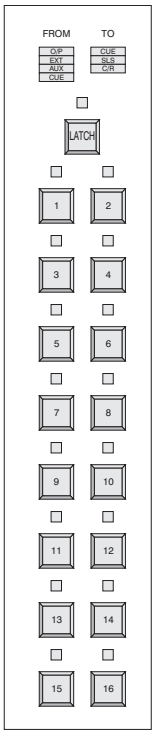
Control Room Monitoring

Used to control the main monitoring system in the control room. The alpha display above the level control shows the monitoring level. The source is selected with the row of keys above the alpha display and the Source Selection Matrix, unless Follow Access is selected when the source will depend on the ACCESS key pressed on the strip sections. Different sets of speakers can also be setup and selected.



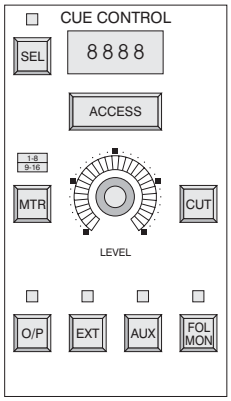
Source Selection Matrix

This is used to select Outputs, Externals, Auxiliaries or Cues as the source for Cues, SLS/Phones or Control Room Monitor. The LED panel at the top indicates the selection which will be changed by pressing keys on the panel. If Latching mode is selected then multiple sources of the same type can be selected (except Externals).



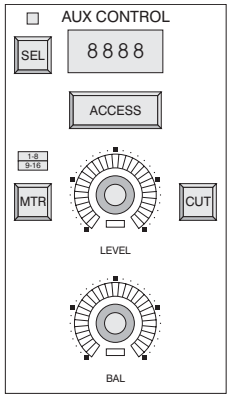
Cue Control

The Cue to work with (1 to 16) is selected by pressing the SEL key. This causes the Source Selection Matrix to behave as the Cue selector. The selected Cue is shown in the alpha display. The ACCESS key allows the Cue to be assigned to the AFU for adjusting and switching signal processing elements.



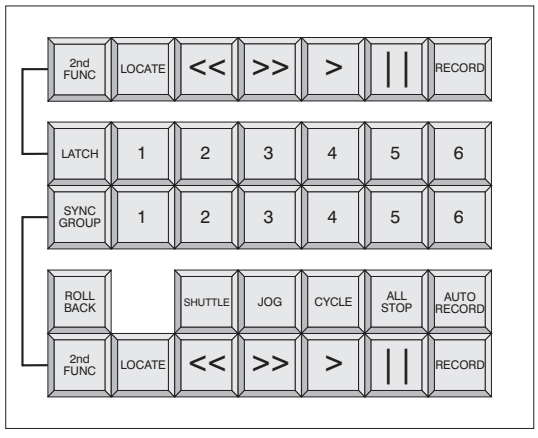
Aux Control

The Aux to work with (1 to 16) is selected by pressing the SEL key. This causes the Source Selection Matrix to behave as the Aux selector. The selected Aux is shown in the alpha display. The ACCESS key allows the Aux to be assigned to the AFU for adjusting and switching signal processing elements.



Transport Control

Up to six machines can be controlled from the two sets of transport keys. The machines assigned to the 1 to 6 keys are setup using the Graphics Display screen.

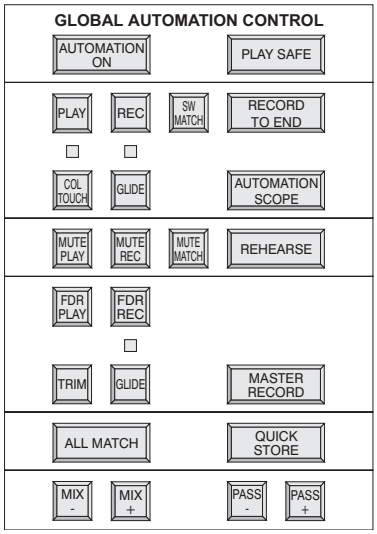


Note : If a CSP (Capricorn Surround Panel) is fitted then this will replace the normal Transport Controls. See the Capricorn Surround chapter.

Global Automation Control

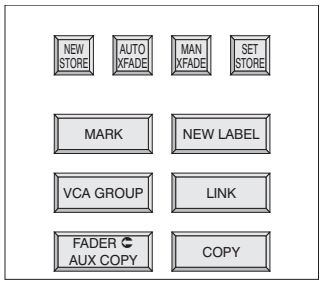
The Global Automation Controls are used to turn the Automation System on and off and to set the Automation Modes for the whole console. There are global controls for fader automation mode, mute automation mode and the automation mode of all other controls.

Controls are also provided for selecting the current Mix/Pass and special automation modes.



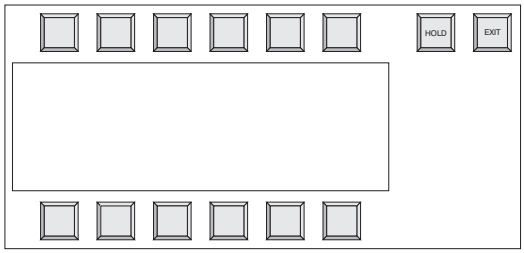
Miscellaneous Functions

Provides a selection of utilities and additional controls for the automation system.



The Soft Panel

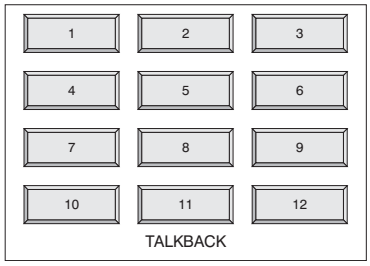
The Soft Panel is a vacuum fluorescent display with twelve programmable keys for function control, a HOLD key and an EXIT key.



This panel provides a menu interface to a number of diverse functions which do not require the trackball and screen.

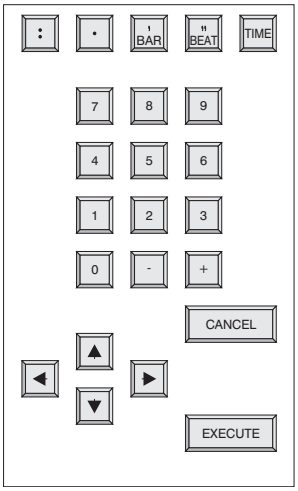
Talkback Selection

The Graphics Display is used to setup Talkback destinations which are associated with the keys on this panel. See the Talkback chapter.



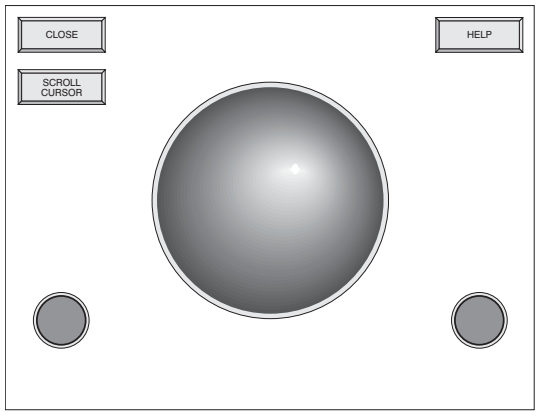
Numeric Keypad and Cursor Control

The numeric keys and cursor keys are used for data entry. The bar and beats-in-a-bar keys are provided for music recording. The Cancel and Execute keys are direct functional duplicates for the Cancel and Execute buttons on the Graphics Display screen.



Trackball

The trackball is used in conjunction with the QWERTY keyboard and numeric keypad for interfacing with the Graphic Display screen.



1.4 The Graphics Display

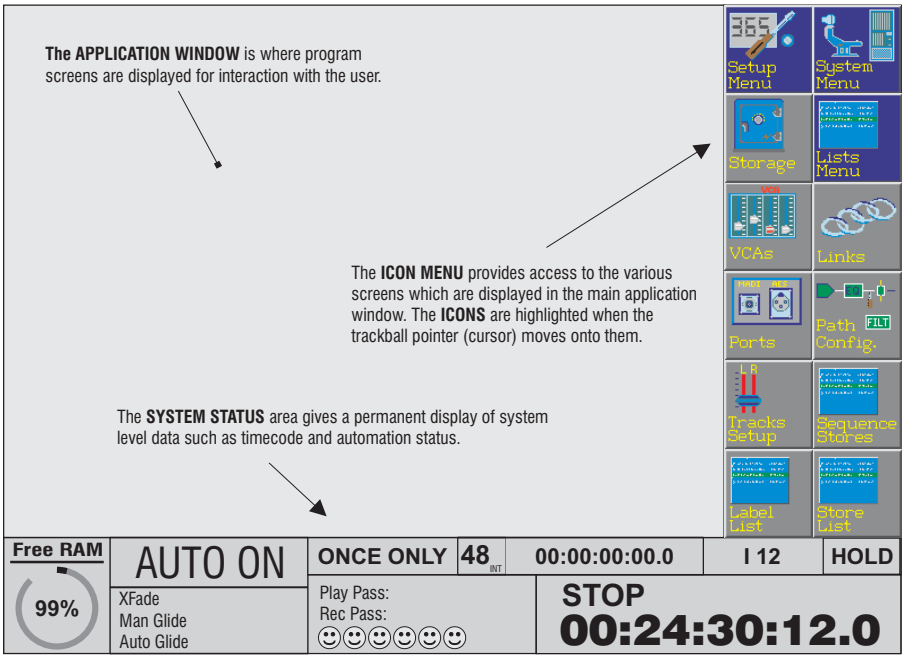
The high resolution colour graphics screen, the trackball and the keyboard are the primary tools for using the graphical interface to the utilities which are used to perform some of the more complex functions.

The trackball operates in several ways. It controls a cursor for pointing and selecting, it can be used to modify data values on the screen during editing operations and can be used to configure or move audio processing components within the signal path.

The Graphic Display system is used for off-line functions such as:

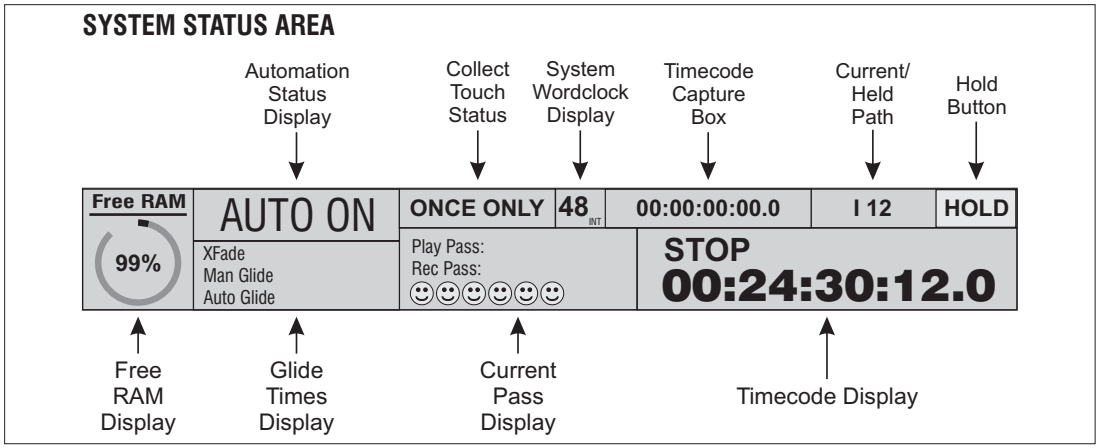
Setting and displaying signal path information
Naming paths and banks for console displays
Strip assignment
Port Routing
Disk and memory management
System configuration
Setting of options
Self Test and error reporting
Tape Machine Configuration
Diagnostics

1.4.1 Screen Area Utilisation



The Application Window is where the majority of the information is displayed, according to the current task selected on the screen. Clicking on an ICON displays the associated screen in the application window. When the system is not using the Application Window for any specific command, the operator has a choice of up to three background displays which are selected through the Soft Panel.

The Application Window is also used to display dialogue boxes which overlay the window and can contain prompts, error messages, selection lists and option switches.



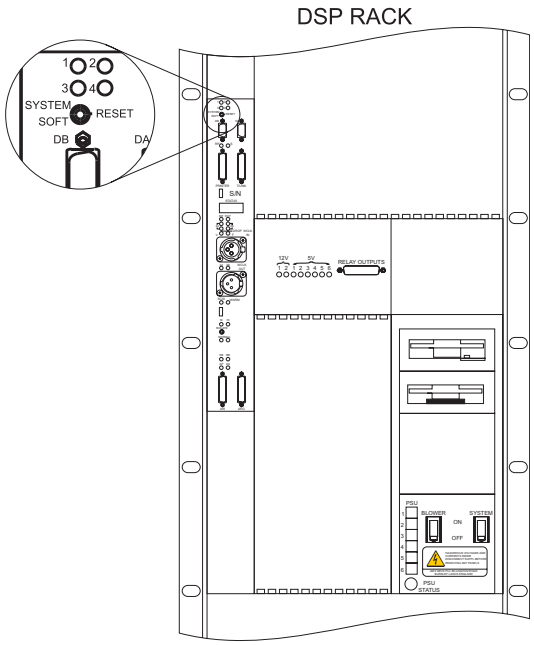
2 Getting Started

This chapter describes how to use the various types of control that the Capricorn has and how to log-on to the system as a valid user. This chapter assumes that the user is familiar with the information presented in the Introduction chapter.

Starting Up Capricorn

Capricorn is a multi-processor system and, when switched on from cold, it is possible that the system will boot without full synchronisation with all sub-systems. In order to ensure that the system boots correctly, it is recommended that the following procedure is used when switching on Capricorn:

- Switch on all the racks and the console surface.
- Press the reset switch upwards on the Storage Node in the DSP Rack.



Logging-On To The System

The Capricorn can be used in an environment where several different people can use the console for different applications and projects. Under these circumstances, it is anticipated that different people will require the console to be setup to suit their individual needs, and that these setups (or configurations) should be protected against accidental alteration by other users.

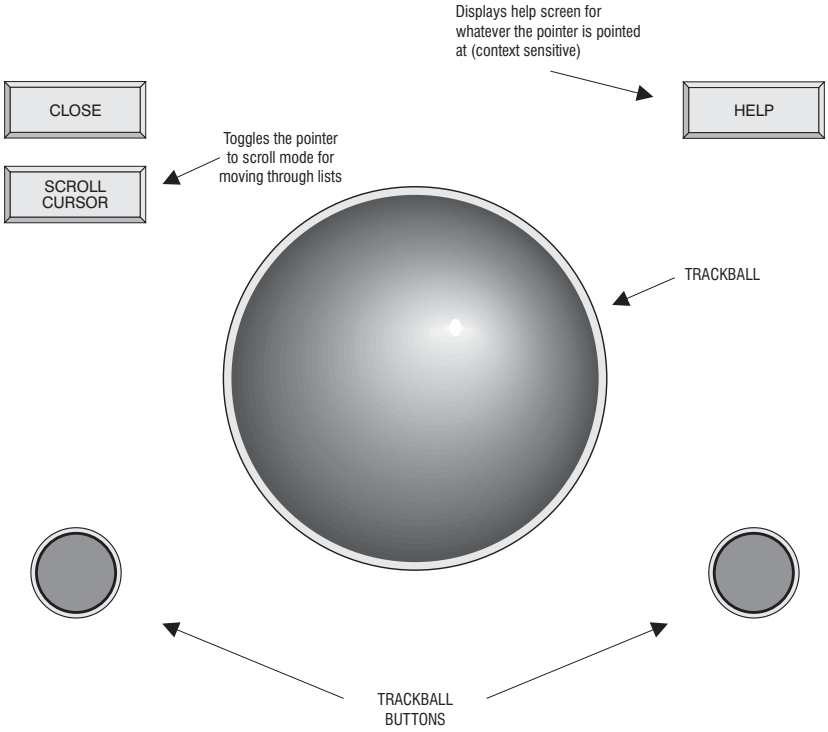
The Graphics Display screen is used to present the user with programs and information and this is how the user logs-on to the console. This is the first thing a user should do when starting a session on the console.

Using the Graphics Display screen is described first, followed by instructions on logging-on.

2.1 Using the Trackball with the Graphics Display

The trackball controls the pointer on the screen for pointing, selecting and modifying data values on the screen during editing operations. The speed of the pointer in response to trackball movements is adjustable and for long sustained movements a degree of automatic acceleration is introduced when the trackball is spun rapidly. The speed and acceleration characteristics are modified in Miscellaneous Setup.

Normally, the pointer is shown as an arrow which is used to point to objects on the screen. When the system is busy, the pointer will change to an hourglass shape and will revert to an arrow once the operation is completed.



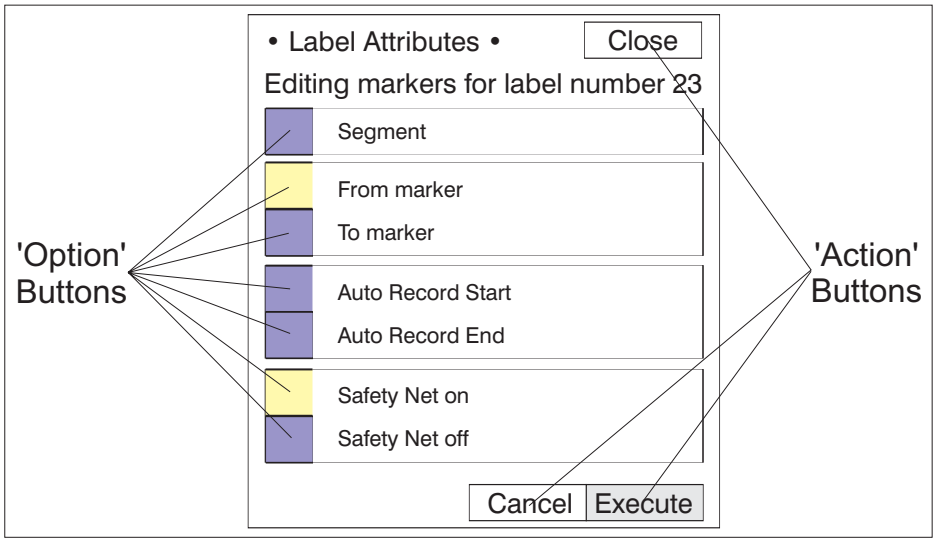
Associated with the trackball are two buttons, used to select screen items for further actions or to confirm commands. They are similar to the buttons on a mouse. The two select buttons perform identical functions. Operating these buttons is referred to as ‘clicking’.

The term **click** refers to a single press and release of the a trackball button. The term double click means two clicks in rapid succession. The time period that qualifies a double click can be set up and stored to suit user preference.

When the pointer is on top of an area that can be selected the box or Icon will be highlighted. In the text, reference will be made to clicking on objects on the screen. This means using the trackball to point to the object and then pressing either of the trackball buttons. The term **select** (a screen object) also means to move the pointer over an object and click one of the buttons.

Buttons

The term BUTTON for screen objects refers to square or rectangular objects on the screen which may be clicked on. There are two types of buttons, buttons which perform actions (e.g. the Close, Execute and Cancel buttons which appear on most screens), and the square buttons used to select one of a set of options.



Icons

Icons are a special type of button with a pictorial representation of the function it performs. The Icon Menu is used to launch the main screens which are displayed in the Application Window. The icons at the top of the Icon Menu are used to select a different set of icons for display in the Icon Menu. The example shown under Screen Area Utilisation above is the Main Menu that Capricorn displays at start-up.

Scrolling

In some screens the trackball can be used to scroll lists up and down. In this mode there is no pointer and the selected item in the list is highlighted.

To use scroll mode

➤ Move the trackball pointer over the list and press the SCROLL CURSOR key.

➤ Press the SCROLL CURSOR key again to return the trackball to normal pointer operation.

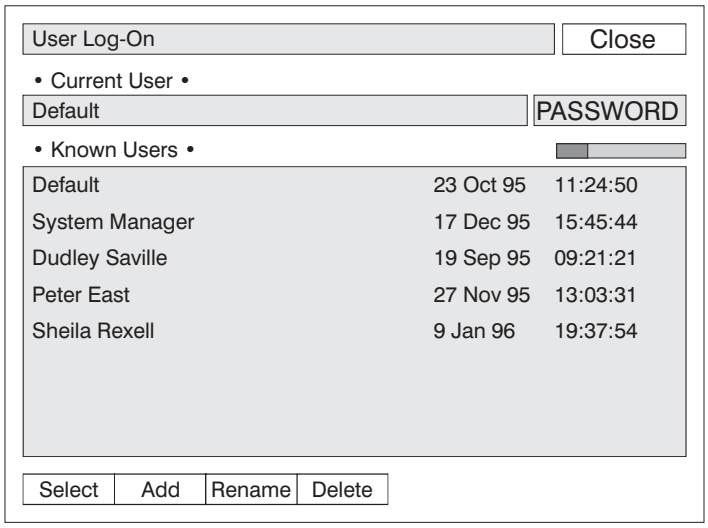
2.2 Logging on to the system

Individual users are recommended to log-on to the desk and store their personal configurations separately, protected by a password. If a user does not log-on then the desk will operate as normal but there will only be access to the Guest configuration stores.

To log-on to the system

➤ Click on the User Sel icon.

The User Log-On screen will be displayed:



The list shows the names of all users currently listed in the system together with the time and date that each entry was made.

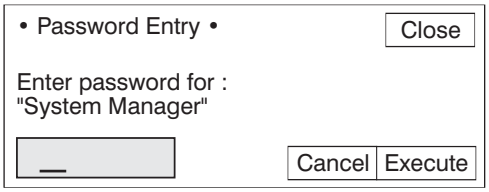
➤ Click on the Select button at the bottom of the screen.

➤ Click on the required user ID in the list.

Note : The System Manager is a special user ID which has additional rights for adding, deleting and renaming other users. To log-on as the System Manager simply click on the name from the list and then enter the password.

If the user ID has no password then the Current User will display the selected user ID.

If the user ID has a password then the Password Entry dialogue box will be displayed:



➤ Type in the password on the keyboard.

➤ Then press Return or click the **Execute** button in the window.

The Current User box will display the newly logged-on user name.

To log out from the current user

➤ Click the Select button at the bottom of the User Log-On screen.

➤ Click the Default user ID.

The current user will return to Default.

There is no password for the Default user ID.

2.2.1 Creating a Password

When a new user is entered into the system there is no password for the user and the user's Configurations are accessible.

To add a password for a new user

➤ Log-on with the new user ID.

➤ Click on the PASSWORD button.

The new password dialogue box will be displayed.

➤ Type in the password on the keyboard.

The password must be at least six characters and can use any of the standard characters from the keyboard. The password is not case sensitive.

➤ Press Enter or click the Execute button.

The system will then ask for the password to be confirmed.

➤ Re-enter the new password.

➤ Press Return or click Execute again.

To cancel or change a password

➤ Log-on as the user with the existing password.

➤ Click the PASSWORD button.

➤ Enter the existing password.

The system will now ask for the new password.

➤ Enter the new password on the keyboard.

➤ Press Return or click Execute.

The system will then ask for the password to be confirmed.

➤ Re-enter the new password.

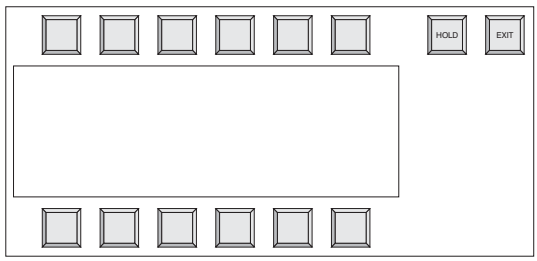
➤ Press Return or click Execute again.

The new password will replace the old one.

To remove a password

➤ Follow the same procedure as above for changing the password, but instead of entering a new password press the Space Bar once each for the new password and password confirmation.

2.3 Using the Soft Panel Menus



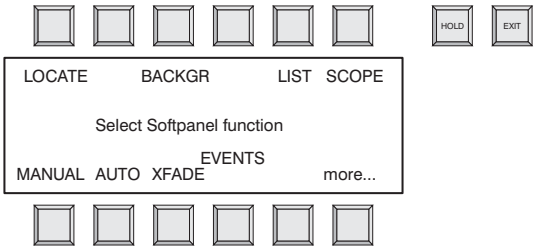
The Soft Panel is the vacuum fluorescent display above the Trackball in the Monitor Section of the console. It has twelve programmable keys for function control, a HOLD key and an EXIT key. It is used for miscellaneous tasks and setup routines.

The panel works by showing labels next to some or all of the keys. The label shows the current function of the key. When a labelled key is pressed, the panel displays the key labels for the selected function. Some functions will transfer control to the screen and trackball. The numeric keypad and the keyboard can also be used to augment the Soft Panel keys for data entry. The panel can be used directly, starting from the Entry Level Menu, or it can be automatically assigned to a function by activity on another part of the console. The startup display is the Entry Level Menu.

The HOLD key stops the Soft Panel from being automatically reassigned by an action elsewhere in the system and also prevents any automatic return to a higher level menu. EXIT always returns the Soft Panel to the Entry Level Menu and any uncompleted command sequence is abandoned safely.

2.3.1 Entry Level Menu

The Entry Level Menu offers a choice of sub-menus and options.



LOCATE Used to set programmable LOCATE sequences.

BACKGR Used to specify the background on the Graphics Display screen.

LIST Provides fast access to the list screens.

SCOPE Provides fast access to the Scope screens.

MANUAL Manual Glide Time setting.

AUTO Auto Glide Time setting.

XFADE Crossfade time setting.

EVENTS Used to operate event relays and automate them.

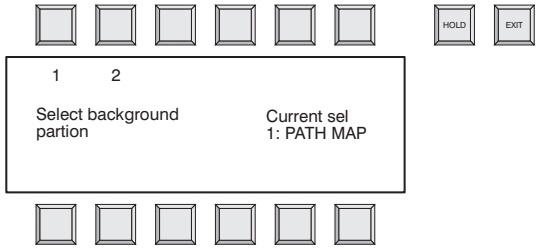
more... Displays an alternative menu with some of the same options, plus a MIDI option.

The background display option for the Graphics Display screen is described opposite. Other options are described in the relevant part of the manual.

2.3.2 Selecting the Background Display on the Graphics Screen

The [BACKGR] option is used to select what is displayed in the Application Area of the Graphics Display screen when the screen is not showing anything else. The background can be split into up to three sections (or partitions) so that more than one type of display can be seen at a time. The default is to have no background display.

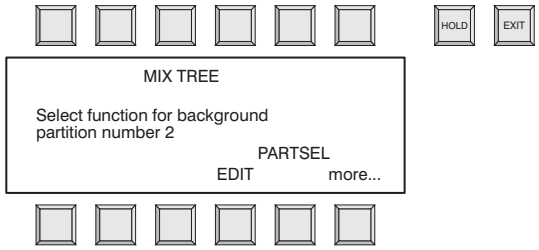
Assuming the screen is currently configured to have one partition showing the currently accessed path, the Soft Panel is displayed with partition 1 showing the PATH MAP. The menu provides the option of redefining Partition 1 or defining a new Partition 2.



To split the screen and display the mix tree in Partition 2

➤ Press the key labelled [2].

The Soft Panel display changes to show the available selections.



➤ Press the key labelled [MIX TREE].

The Graphics Display screen is reconfigured accordingly and the Soft Panel returns to the **Select background partition** menu.

Note that Partition 3 is now a valid selection. The system waits in this menu until the EXIT key is pressed or a further partition definition is performed.

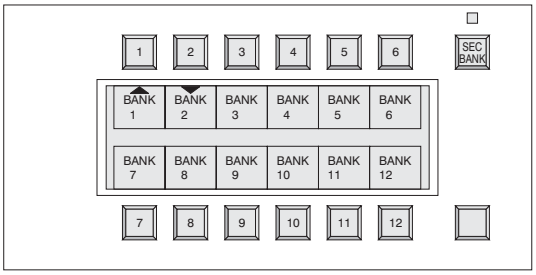
Current background options include:

Path Map	Displays information about the accessed path and provides controls for changing the configuration and routing of the signal.
Edit	The Applications Area of the screen shows a number of icons used for off-line automation edit functions.
Mix Tree	Displays Mix/Pass tree.
List	Displays the selected list. LIST is shown as an option when [more...] is pressed.

2.4 Bank Assignments

Capricorn provides twelve sets of signal path to channel strip assignments and these are called banks. The sequence of signal paths which appears in each bank is selected by the user (it is not obligatory to use all twelve banks) and this is setup using the Graphics Display screen - see the following chapter on Console Setup.

The banks assigned to the console surface are selected with the Bank Assignment VFD. The VFD shows the bank name next to each numbered key, and the banks assigned to the console surface are indicated with arrows.



Primary and Secondary Banks

Two rows of ACCESS keys are provided so that two sets of signal paths can be displayed and immediately accessed. Different banks may be assigned to the primary (upper) or secondary (lower) rows of keys. Banks are assigned to the primary ACCESS keys by pressing the required bank number key and to the secondary ACCESS keys by pressing the SEC BANK key and then pressing the bank number key.

Each ACCESS key has a 4 character alpha display associated with it which shows the names of the signal paths assigned to the primary and secondary ACCESS keys on each strip. The active bank on each strip is the one which is on the surface and will be affected by changes to controls on the strip. It is indicated by brighter illumination of the path name in the alpha display. The active bank is the last one assigned and may be changed on individual strips by pressing the ACCESS key of the inactive bank.

Example : Bank 1 has Inputs 1-24 assigned to strips 1-24 and Bank 2 has Monitors (track send/return) 1-24 also on strips 1-24.
Bank 1 is assigned to the primary ACCESS keys by pressing the 1 key and Bank 2 is assigned to the secondary ACCESS keys by pressing the SEC BANK followed by 2.

2.5 Using Console Surface Controls

Double Action Keys

All the automated keys are ‘double action’ and have two levels of depression when they are pressed. The first level puts the key into WRITE (if automation is running) and illuminates the associated red LED. This is similar to touch on a fader or rotary control. The second level toggles the key on or off and the green LED illuminates when the key is ON.

If the key is tapped quickly then the system recognises this and will toggle the key on or off without going into WRITE - this is called Tap Toggle. Tap Toggle can be disabled in Miscellaneous Setup.

Rotary Controls

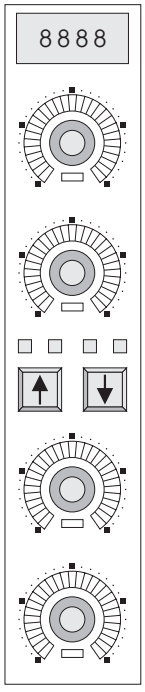
All the rotary controls on the desk use rotary shaft encoders which do not have an end stop. The setting on the control is displayed by the Circular Bargraph. This allows the function of the control to be changed and dynamically automated.

The control is touch sensitive so that the operator can override previous automation settings. The red LED under the control illuminates when it is touched.

2.5.1 Function Assignable Controls (FACs)

The Function Assignable Controls are the rotary controls on each path strip. They can be used for different functions according to user requirements using keys on the Assignable Facilities Unit (AFU). The function of the two centre rotary controls are indicated on the AFU.

The 4-digit alphanumeric display above the top FAC shows the path assigned to the strip or the precise setting of the FAC being touched. It also shows the Aux selected for contribution or the EQ band being adjusted when the FACs are used for these functions.



Function Assignable Control (FAC) Selection

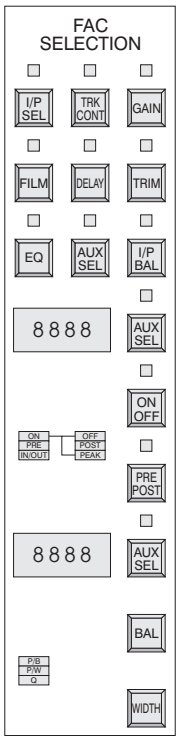
The function of the FACs is assigned globally from the FAC Selection panel on the AFU.

The nine keys at the top of the panel are used to assign the top FAC to one of the following functions:



Input select
Track contribution level
Input gain
Film panning
Delay
Input gain trim
EQ
Aux select
Input balance

When FILM is selected then the middle FACs are also used for additional film (surround) panning axes.



When EQ is selected then all the FACs are assigned to EQ functions. The top FAC is used to select one of the four EQ bands and the other FACs control frequency, cut/boost and Q. The alpha display above the FACs shows the EQ band selected for adjustment.

When any other functions are selected then the two centre FACs are used to control aux contributions. One of the AUX SEL keys next to one of the FAC Selection alpha displays must be pressed followed by one of the number keys in the AFU Auxiliary section to select the bus. The ON OFF and PRE POST keys selects the function of the up and down arrow keys in between the FACs. See the Auxiliaries And Cues chapter for more information.

The bottom FAC controls pan for mono paths. It can be switched between balance and width for stereo paths.

See the Signal Processing chapter for more information on FAC functionality.

2.6 Using the AFU

The Assignable Facilities Unit (AFU) contains individual controls for auxiliaries, equalization, dynamics and routing etc. which may be 'accessed' from any signal path assigned to a strip on the console surface. The AFU is an assignable expanded channel strip, with all the controls necessary for adjusting any signal processing element in a path.

To assign (or call) a signal path to the AFU

➤ Press the ACCESS for the required path.

The AFU controls will jump to the settings of signal processing elements which are configured into the selected signal path.

To step the AFU through paths on the console surface

➤ Press ← the → and keys above the AFU fader.

As each path is accessed, the AFU controls will display the settings of the appropriate signal processing elements.

2.6.1 Resetting Controls

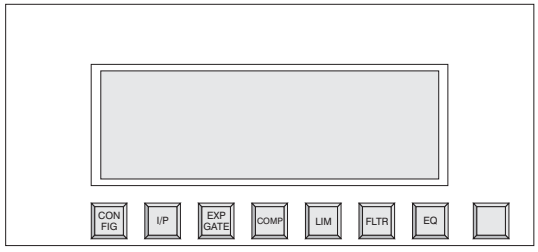
AFU FLAT sets all the controls on the AFU to their default (null) position.

FDR FLAT sets the fader to exactly 0dBu.

2.6.2 AFU Graphic Display

The AFU Graphic Display gives information on the following attributes of the signal path:

Configuration
Input
Expander/gate
Compressor
Limiter
Filter
Equalizer



When any control on the AFU is touched the graphic display will automatically show the precise settings. Information can also be selected by pressing the appropriate key under the display. Symbols next to each setting show when a control is being touched (circle) or is part of a link (square).

2.7 Further Information

Setup and Configuration

See the following chapters for details about setting up and configuring the console for use:

- Console Setup
- Path Configuration
- Input/Output Configuration
- Routing
- Monitoring
- Tape Machine Control

Using Capricorn

See the following chapters for information on basic operation of the console:

- Metering
- Signal Processing
- Auxiliaries and Cues
- Automation Overview
- Automation Operations

3 Console Setup

3.1 Introduction

The console is setup using the Graphics Display screen and can be configured for various modes of operation such as recording, mixdown, broadcast and overdub. Configurations can be copied and edited to tailor the console for specific applications, preferences and sessions.

Basic console setup tasks include managing configurations, changing the numbers of different types of paths (Inputs, Monitors, Aux Busses, etc.), assigning paths to banks and selecting which banks appear on the console surface. These tasks are described in this chapter.

Configurations

Configurations are saved for each user so that the minimum amount of time has to be spent initialising the console at the start of a new session. Users can keep their configurations protected by a password. This is done by logging-on to the system, as described in the Getting Started chapter.

A configuration holds data to completely reset the desk. Each includes:

Path numbers
Processing allocation
Port assignment
Bank assignments
Links and VCA groups
Talkback setup
Solo modes
Operating Levels
Digital Word length and Dither
Routing
Control positions (snapshot stores)
Path names
Scope settings
Timecode labels
Glide times

A configuration contains the desk setup only and does not include any dynamic automation data. Automation data is stored separately.

A large number of configurations can be stored on the integral hard disk and new configurations can be stored or recalled at any time. Configurations can also be copied to floppy or magneto optical disk.

The desk configuration can be modified at any time that the automation system is not running.

Snapshot Stores

In addition to Configurations which contain the data to completely reset the console, static Stores are available for storing snapshots of the position of all controls or controls selected according to the Store Scope. Each Configuration can contain up to 300 Stores.

Automation Titles (see Automation Overview and Automation Operations) can also contain Stores. An Automation Title can contain up to 100 Stores. If any Stores exist in the current Configuration when a new Title is started then the first 100 Stores (if there are that many) will be copied into the Title.

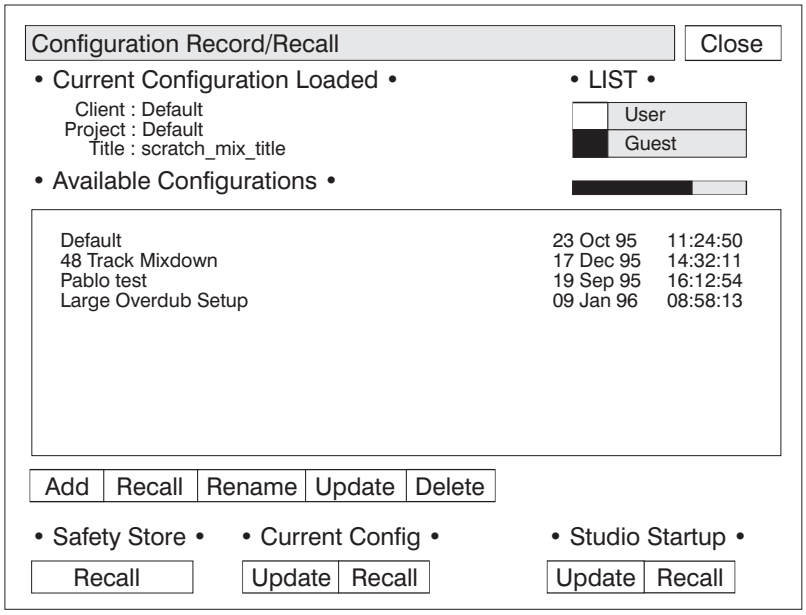
3.2 Configuration Management

The Configuration Record/Recall screen is used to manage the configurations which are stored under the currently logged-on user ID.

To access the Configuration Record/Recall screen

➤ Click on the Storage icon in the Main Menu.

The screen will be displayed as follows:



Current Configuration Loaded

Displays the current user ID and the currently loaded Configuration. If automation is in operation, the current Client, Project, and Title will be shown.

List

The User button switches the list to display the Configurations stored by the current user.

The Guest button switches the list to display the configurations stored by guest users. Guest Configurations may be stored and recalled by anyone using the console and are not password protected.

Available Configurations

The Configurations available to the current user. Each configuration is named and stamped with the date and time that it was created or most recently modified.

Safety Store

As a safety back up, the system automatically takes a snapshot of the control positions at an interval specified in Miscellaneous Setup. This is called the Safety Store.

In the event of a system failure

➤ Recall the Configuration.

➤ Click the Safety Store Recall button.

Current Config

To bring the current Configuration up to date with any changes

➤ Click the Current Config Update button.

To recall the current Configuration and undo any changes

➤ Click the Current Config Recall button.

Studio Start-Up

When the system is powered up or re-booted, it will always be set to the last Configuration or Title that was loaded.

To recall the Studio Default Configuration

➤ Click on Studio Startup Recall.

To update the Studio Default Configuration

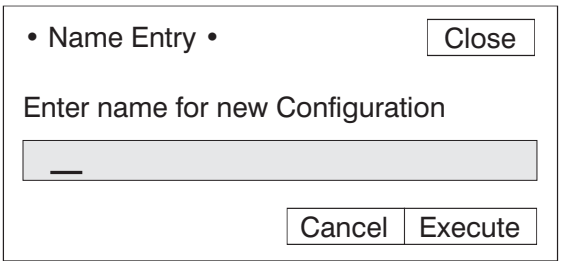
➤ Click on Studio Startup Update.

Note: This button only becomes available when the System Manager is logged in.

3.2.1 To Store a new configuration

➤ Click the Add button.

The following dialogue box will be displayed on the screen



➤ Type in new name using the keyboard.

The name can have a maximum of 36 characters.

➤ Press return or click Execute.

The new configuration is now shown in the list.

The configuration will be stored according to the current state of the console.

Note : It is not possible to use a duplicate name.

3.2.2 To Recall a Configuration

➤ Click on **Recall** in the Configuration Record/Recall screen.

➤ Click on the configuration required in the list.

If the list is too long to fit on the screen

➤ Press the SCROLL CURSOR key associated with the trackball to scroll the list up and down.

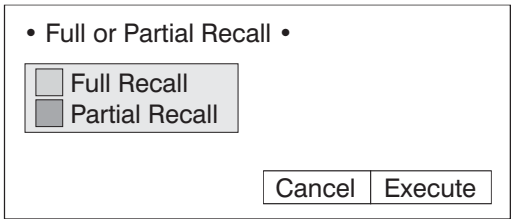
The configurations will be highlighted as the trackball is moved up and down.

➤ Find the required configuration.

➤ Click one of the trackball buttons to select the highlighted configuration.

The trackball will be taken out of scroll mode.

When a Configuration is selected, the Full or Partial Recall dialogue box will be displayed.



Full Recall is selected by default.

➤ Click on the Full Recall or Partial Recall button.

The selected button will turn yellow.

➤ Click on Execute to confirm

OR

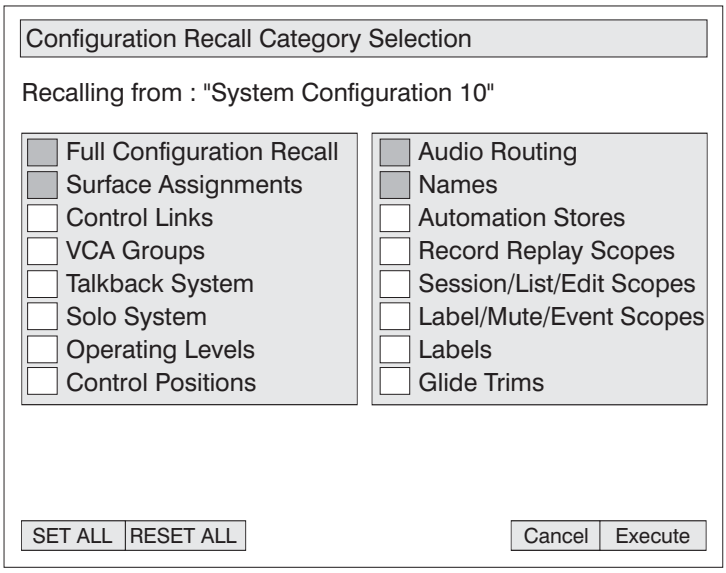
➤ Click on Cancel to return to the Configuration Record/Recall screen.

Full Recall

If Full Recall was selected, the system will recall all of the settings in the chosen configuration. The Configuration Record/Recall screen will be cleared from the screen.

Partial Recall

When partial recall is executed the following screen is displayed which is used to select the parts of a configuration to recall.



➤ Select the categories to be recalled by clicking the associated buttons.

The buttons will turn yellow to show that they have been selected.

Note: If this is the first Partial Recall after a system start-up, all categories will be selected by default. If a Partial Recall has already been executed, the selection will default to the categories selected last time.

Any combination of categories can be recalled.

➤ Click the SET ALL button to select all categories.

All the selection buttons will turn yellow.

➤ Click RESET ALL to de-select all categories.

All the selection buttons will turn blue.

➤ Click **Execute** to confirm the selection and recall the configuration.

OR

➤ Click Cancel to abandon the recall and return to the Configuration Record/Recall screen.

3.2.3 To Update an existing configuration

➤ Click on Update in the main Configuration Record/Recall screen.

➤ Select the configuration you wish to update by highlighting and clicking the entry in the list with the trackball button.

The selected store will be updated according to the current state of the desk.

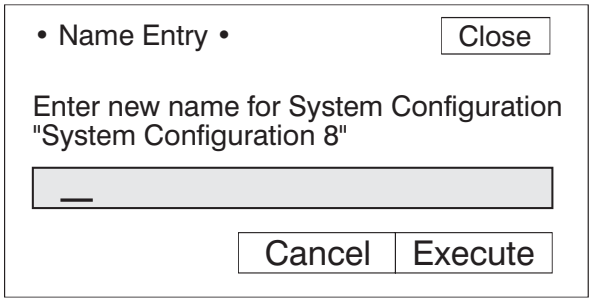
➤ Confirm the operation by clicking **Execute**.

3.2.4 To Rename an existing configuration

➤ Click on Rename.

➤ Select the configuration you wish to rename by highlighting and clicking the entry in the list with the trackball button.

The following dialogue box will be displayed on the screen:



➤ Type in the new name and press return or click Execute.

The renamed configuration is now shown in the list.

Note : It is not possible to duplicate a name.

3.2.5 To Delete a configuration

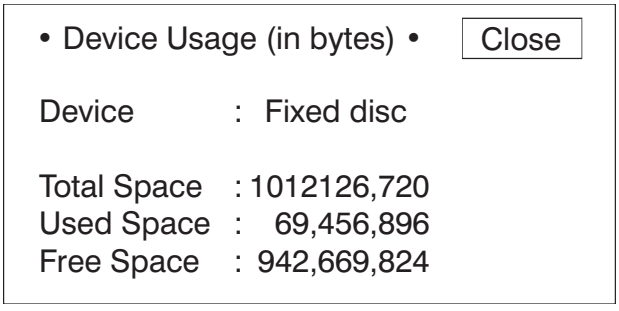
➤ Click on **Delete** in the Configuration Record/Recall screen.

➤ Select the configuration you wish to remove by highlighting and clicking the entry in the list with the trackball button.

➤ Confirm delete by clicking on **Execute**.

3.2.6 The Fuel Gauge

The fuel gauge shows an approximation of the amount of hard disk space currently used. To obtain an exact reading, click on the fuel gauge. This will display the hard disk Device Usage overlay screen.



3.3 Backup and Restore

The system allows the user to transfer data to and from removable Optical disks and Floppy disks (according to drives fitted). This enables both mix data and system configurations to be copied between Capricorn systems or archived. This procedure may be used to back-up data as a safety measure, however the system also provides the facility to back-up the whole of the Hard Disk onto Optical disk which is a more rapid and thorough method. It is recommended that the complete back-up operation is performed weekly as described in the Service Manual.

Floppy disks are used to store configuration data only. The capacity of a floppy disk is 1.4Mb.

The magneto-optical disk can hold configuration and/or client/project/title mix data. The capacity of a magneto-optical disk is 128Mb.

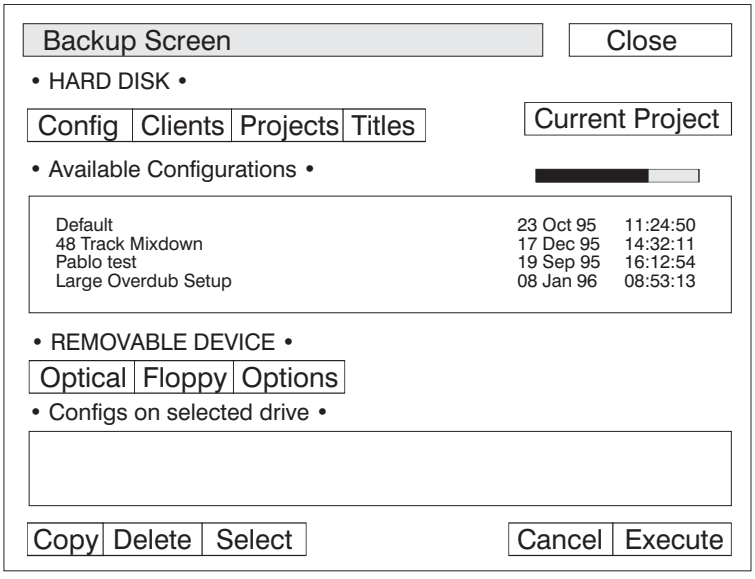
The drives (if present) will be fitted in the DSP Rack.

Note: The automation system is disable while a backup is in progress.

To display the Backup Screen

➤ Click on the COPY icon.

The following screen is displayed:



To select the data to backup

➤ Click the Config, Clients, Projects, Titles or Current Project buttons at the top of the screen.

The Available Configurations list will display the selection.

When a Client is selected the list will show all Projects for the Client. Selecting a Project will show all Titles in the Project.

Note : If the system is logged in to an automation Title, the Title will be selected automatically on entry to the Backup Screen.

To allow automation Project and Title files to be copied from the hard disk to the Magneto Optical disk

➤ Log On to the required automation Title via the Clients screen.

This is described in Automation Operations.

Notes on copying

When copying Configurations from a removable disk to the system hard disk the file will be copied to the currently selected User ID.

When copying automation files from a removable disk to the system hard disk the files will be copied into the current Title.

Copying can only be performed from the removable disk when the correct level of hierarchy has been selected via the Config, Clients, Projects or Titles buttons. This state is indicated when the entry in the list is blue. When the entry is selected it turns gold.

List entries that are pale yellow may not be selected.

3.3.1 Selecting the removable disk drive

To select the removable disk

➤ Click the Optical or Floppy button as required.

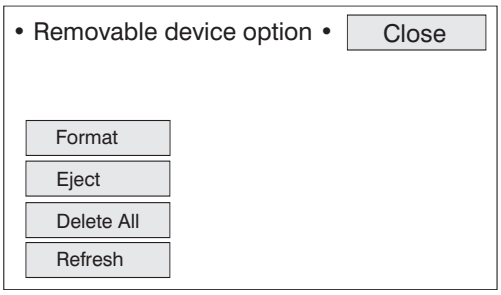
The floppy disk drives cannot be used to store Client/Project/Title information.

The Removable Device list will show the contents of the selected device and will list all of the Configurations, Clients, Projects and Titles together with the date and time the entry was copied or last modified. In addition each entry is initialled to indicate if it is a CFG, CLI, PRJ or TTL entry.

To format a removable disk

➤ Click the Options button.

The Removable device options dialogue box will be displayed.



➤ Click the Format button.

Note : A disk must be formatted before any data is copied onto it.

To eject a magneto-optical disk from its drive

➤ Click the Options button.

The Removable device options dialogue box will be displayed.

➤ Click the Eject button.

To remove all data from a disk

➤ Click the Options button.

The Removable device options dialogue box will be displayed.

➤ Click the Delete All button.

To update the list to show the contents of a new disk

➤ Click the Options button.

The Removable device options dialogue box will be displayed.

➤ Click the Refresh button.

3.3.2 To copy data from the hard disk to the removable device

➤ Ensure a disk of the required type is inserted in its drive.

➤ Click on the Optical or Floppy button as appropriate.

The Removable Device list will show any data that is already stored on the disk.

➤ Click on the type of data to be copied by clicking on one of the Config, Clients, Projects or Titles buttons.

➤ Click on the entry or entries in the Available Configurations list to be copied.

➤ Click on Select, followed by clicking on the respective Client, or Project, to copy only selected Projects or Titles.

➤ Click on Execute.

The system will ask for confirmation.

➤ Click Execute again to confirm or click Cancel to quit.

3.3.3 Copying complete Client or Project data

When a Client is selected then all of the associated Projects and Titles are implicitly selected and will be copied. Similarly a Project will include all of its Titles. If the Client has an exceptional amount of data, the data may exceed the 128 Mb limit of the magneto optical disk. In this case the copy process is terminated and the user must copy the Projects separately onto different disks.

3.3.4 To copy data from a removable device onto the hard disk

➤ Click the Floppy or Optical button as required.

The removable device list will show the files currently held on the selected disk.

Normally Copy is selected as the default (Yellow).

If Copy is not selected

➤ Click the Copy button.

It will turn yellow.

The file type that may be selected for copying is controlled by selecting Config, Clients, Projects or Titles at the top of the screen. This selection dictates where the file will be copied to on the hard disk. Files that may be copied are indicated in Blue. Files that may not be selected are indicated in pale Yellow.

➤ Move the pointer to the files to be copied in the lower list and click to select.

The selected files will be indicated in Gold.

➤ Click on Execute.

The system will ask for confirmation.

➤ Click Execute again to confirm or click Cancel to quit.

3.3.5 To delete files from a removable disk

➤ Click the Floppy or Optical button as required.

The removable device list will show the files currently held on the selected disk.

➤ Click the Delete button.

➤ Select the files to be deleted by clicking on them.

➤ Click on Execute,

The system will ask for confirmation.

➤ Click Execute again to confirm or click Cancel to quit.

3.3.6 Fuel Gauges

Two fuel gauges are provided in the Backup Screen.

Hard Disk Gauge

The fuel gauge at the top of the screen shows an approximation of the amount of hard disk space currently used.

To obtain an exact reading of hard disk usage

➤ Click on the hard disk fuel gauge.

The hard disk Device Usage dialogue box will be displayed.

Removable Device Gauge

The fuel gauge located at the bottom of the screen shows an approximation of the amount of disk space currently used on the selected removable disk.

To obtain an exact reading of removable disk usage

➤ Click on the removable disk fuel gauge.

The removable disk Device Usage dialogue box will be displayed.

3.4 Path Numbers

There are six different types of path which can be used in the Capricorn: Inputs, Monitors, Groups, Mains, Auxiliaries and Cues. The number of each type of path determines the basis of the console setup in the current configuration.

The maximum number of each type of signal path is:

Input Paths	-	Limited by number of PCBs fitted
Monitor Paths	-	Limited by number of PCBs fitted
Group Paths	-	24
Main Output Paths	-	8
Aux Master Paths	-	16
Cue Paths	-	16

For instance, a system with 64 signal paths could be configured in the following ways:

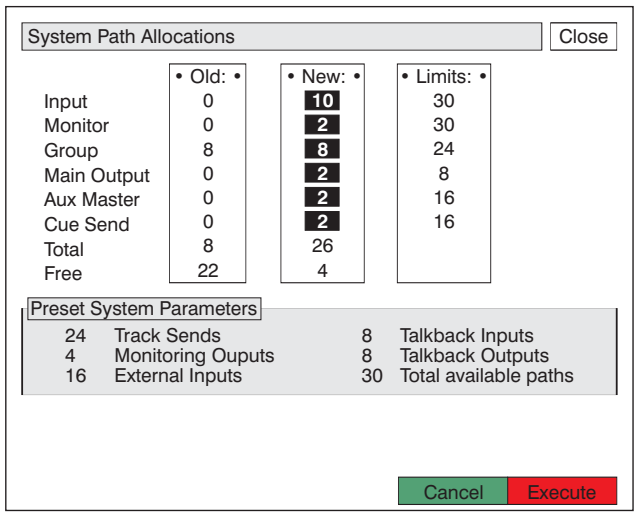
	24Trk Recording	48Trk Mixdown	32 Trk Overdub
Inputs	24	4	8
Monitors	24	48	32
Groups	8	8	8
Auxes	2	2	10
Cues	4	0	4
Main Output	2	2	2

Signal Paths within Capricorn can be reallocated for different applications as required. There will always be at least 8 Groups.

3.4.1 To change the numbers of each path type

➤ Click the Path Numbers icon.

The Path Numbers screen is displayed.



The Old column shows the current configuration of the desk and gives the number of each type of signal path.

The New column is used to change the number of each path type up to the amount shown in the Limits column.

The Limits column shows the maximum number of paths according to the installed hardware. Group, Main Output, Aux Master and Cue Send paths always have the same limits. The limit for Input and Monitor paths depends on the number of contribution cards that are fitted. The maximum number of paths in the system is the Total Available Paths under Pre-set System parameters.

To change the number of paths

➤ Click on a number in the New column.

➤ Roll the trackball to the left and right to decrement and increment the number respectively, or enter a number on the numeric keypad, or use the left and right cursor keys.

➤ Click a trackball button when the required number is displayed.

Note : Numbers of paths must be entered as even numbers.

➤ When all changes have been made, click on **Execute**.

If any path numbers have been reduced (de-configured) then a dialogue box is displayed to confirm the change.

3.5 Strip Assignment To Banks

A system of Bank switching has been implemented to allow paths to be assigned to channel strips in the most convenient layout for the session in hand, and to allow easy access to the additional paths that are not currently on the surface.

12 Banks are provided.

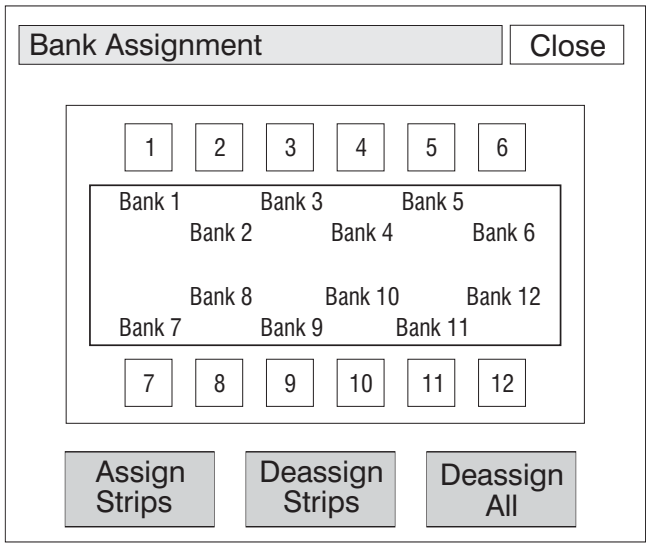
Paths can be assigned to any channel strip on the surface. A signal path can be assigned to any number of Banks and any number of channel strips on the same Bank.

3.5.1 Creating or Editing a Bank

To access the Bank Assignment screen

➤ Click on to the Bank Assignment icon in the System Menu.

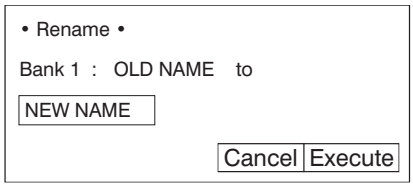
The Bank Assignment screen will be displayed.



To rename a bank

➤ Click on the desired bank name in the middle of the screen.

The following dialogue box will be displayed:



➤ Use the QWERTY keyboard to edit the bank name.

A maximum of 8 characters may be used.

➤ Click on Execute to confirm.

To select the bank to be edited

➤ Click on one of the bank buttons 1 to 12.

The selected bank will be shown in yellow.

or

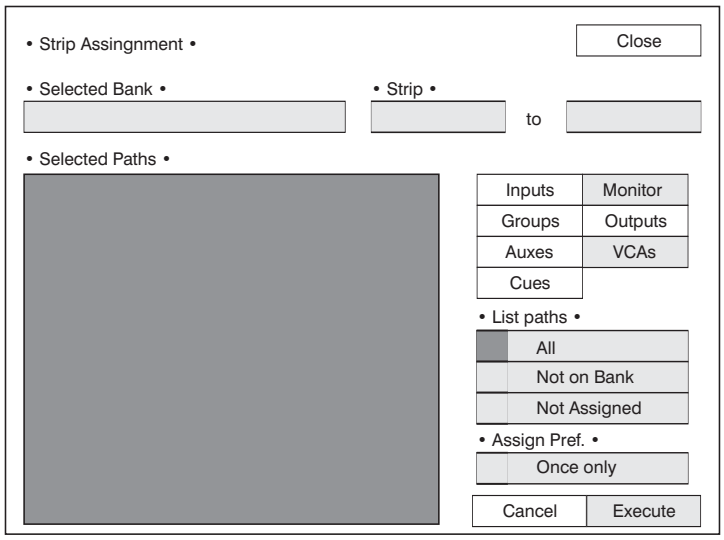
➤ Press the respective bank selector key on the lower AFU.

3.5.2 Assigning Channel Strips to a Bank

To assign strips to a Bank

➤ Click the **ASSIGN STRIPS** button.

The Strip Assignment screen is displayed for the selected bank.



The list on the left of the screen contains a number of signal paths, the content of the list will depend on the List Paths buttons:

➤ Click on **All** to include every path in the system.

➤ Click on **Not on Bank** to list just those paths that have not already been assigned to the current Bank.

➤ Click on **Not Assigned** to reduce the list to only those paths not assigned on any bank.

To specify which channel strips to assign a signal to

➤ Click in the Strip box.

➤ Select strip number can be entered by:

1. Rolling the trackball left-right to decrease-increase the number, then click the Trackball button.
2. Entering the number through the keypad, then click the Trackball button.
3. Pressing the ACCESS key on the channel strip.

To select which paths are to be assigned to the channel strips

➤ Moving the pointer to the Path List and clicking on the required paths.

Each time a path is selected the strip number will increment. Any number of paths can be selected.

Particular path types can be shown in the list by clicking on one of the **Inputs**, **Monitor**, **Groups**, **Outputs**, **Auxes, Cues** or **VCAs** buttons.

To assign a signal path to more than one channel strip simultaneously on the current Bank

➤ Click on the Once Only box.

This will toggle the mode.

To confirm the current selection

➤ Click on **Execute**.

Any selected paths will be assigned to the channel strips.

To abandon the current selection

➤ Click on **Cancel**.

The selection is cleared.

To return to Bank Assignment screen

➤ Click on **Close** or press the CLOSE.

3.5.3 De-assigning Channel Strips from a Bank

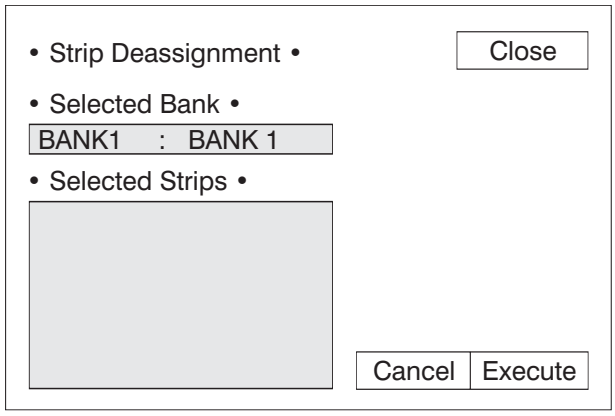
This is done through the Bank Assignment screen.

To de-assign strips from a bank

➤ Select the bank to be edited by clicking on one of the Bank buttons numbered 1 to 12.

➤ Click on De-Assign Strips.

The Strip Deassignment screen is displayed:



To select which paths are to be de-assigned from the bank

➤ Move the pointer to the path list and click on the required paths.

The selected paths will turn yellow. Any number of paths may be selected.

Note: Clicking twice on an item will select and then de-select it.

To reach paths that are not on the list

➤ Press the SCROLL CURSOR key associated with the Trackball (while the pointer is in the list).

The Trackball will now scroll through the list.

➤ Click the Trackball button to select the item under the highlight.

To leave the scroll mode

➤ Press the SCROLL CURSOR key again.

To confirm the de-assignment

➤ Click on Execute.

The selected paths will be removed from the list.

To abandon the de-assignment

➤ Click on Cancel.

The current selection will be cleared (all selected items will turn blue again).

To return to the Bank Assignment screen

➤ Click on Close or press the CLOSE.

3.5.4 De-assign All

Removes all paths from all faders on the bank. This is done from the Bank Assignment screen.

To de-assign all strips from a bank

➤ Select the bank to be edited by clicking on one of the Bank buttons numbered 1 to 12.

➤ Click on De-Assign All.

A confirmation dialogue box will be displayed.

➤ Click on Execute.

All assignments to the selected bank will be cleared.

To abandon de-assignment

➤ Click on Cancel in the confirmation dialogue box.

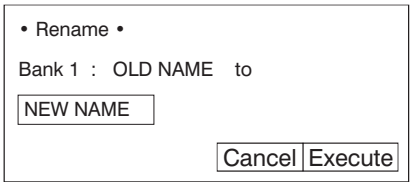
3.5.5 Renaming a Bank

This is a second method of renaming a bank.

To rename a bank

➤ Click on the box showing the selected bank name in the Strip Deassignment screen.

The following overlay will be displayed.



➤ Type in the new name on the QWERTY keyboard.

➤ Click on Execute to confirm.

To reset a Bank to its default name

➤ Click on the Bank to be renamed.

➤ Press ← (backspace) on the QWERTY keyboard until the name is erased.

➤ Click on Execute to confirm.

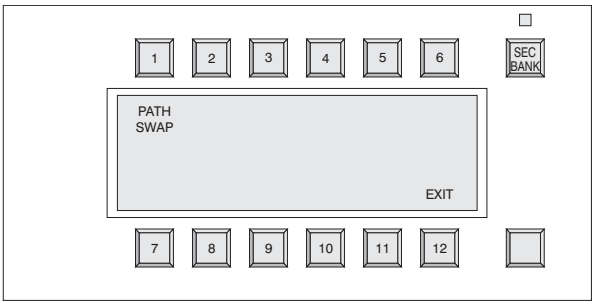
3.5.6 Path Swap

When paths have been assigned to the console surface, the Path Swap function can be used to move them to different fader strips and/or different Banks.

To swap paths

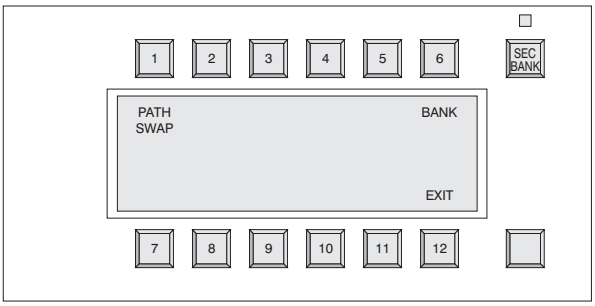
➤ Press the ☐ key next to the 12 key for the Bank Selection display.

The Bank Selection display will change to show the Path Swap option.



➤ Press the 1 key (labelled PATH SWAP).

The alpha displays associated with the ACCESS keys will flash and the Bank Selection display will change as follows:



➤ Press any two ACCESS keys in turn.

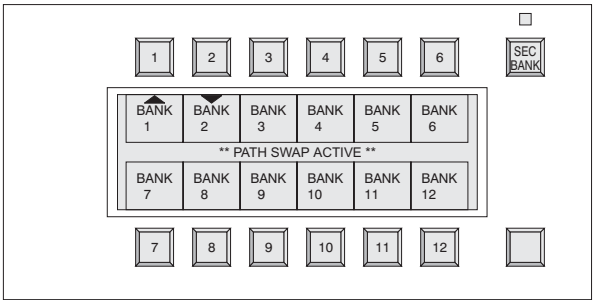
The associated alpha displays will show the names of the paths that have been swapped.

As many paths can be swapped as required.

To change banks in Path Swap

➤ Press the 6 key (labelled BANK).

The Bank Selection display will change to allow selection of different Banks for swapping paths.



➤ Press the required number keys to select the required Banks.

➤ Press the SEC BANK to switch between selecting Primary and Secondary banks.

➤ Press the key to return to the Path Swap display.

To end Path Swap

➤ Press the 12 key (labelled EXIT) until the Bank Selection display returns to normal.

The alpha displays will also stop flashing.

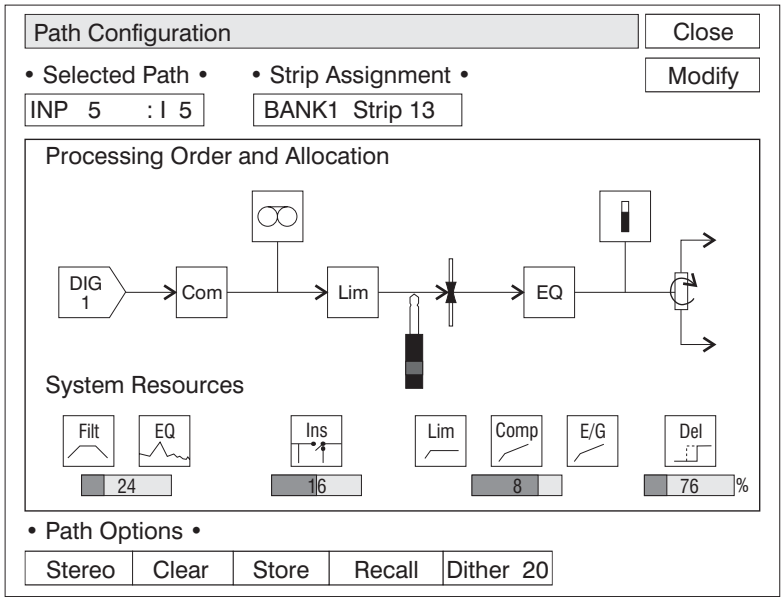
4 Path Configuration

This chapter describes how to use the Path Configuration screen to setup Bank assignments, signal processing and the fader relay matrix. How to rename paths is also covered.

To access the Path Configuration screen

➤ Click the Path Config icon.

The Path Configuration screen will appear.



4.1 Naming a Path

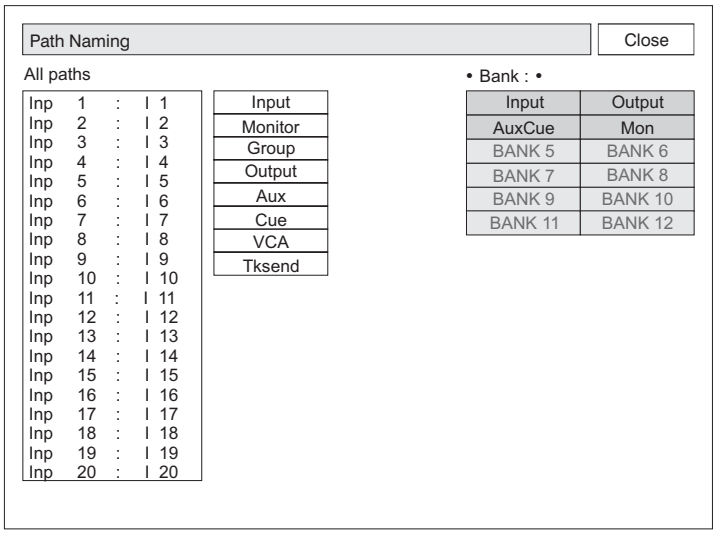
A Path that has been assigned to a Channel Strip may be provided with a four character user name which will be shown in the alpha display associated with the ACCESS for the path.

Note : The System name and number will always be retained in the four character display at the top of the channel strip.

4.1.1 To rename paths

➤ Click the Path Name icon in the Main Menu.

The Path Naming screen will appear.



To list paths in a specific bank

➤ Click the required Bank button.

The ‘All paths’ title above the path list will change to ‘Paths on Bank x’ according to the bank clicked.

To show paths of a particular type

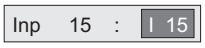
➤ Click on one of the Input, Monitor, Groups, Output, Aux or Cue buttons.

The list will jump to the corresponding path type.

To select the path to be named

➤ Click the required Path in the path list or press the relevant ACCESS key.

A box will appear below the list of paths for entry of the name.



When this box is displayed, the SCROLL CURSOR key is automatically activated. The Trackball or the Up/Down keys will scroll through the list and the name entry box will show the path names as the list is scrolled.

➤ Enter the required name on the keyboard (maximum four characters).

➤ Press Return to save the name.

The next entry in the list will be highlighted automatically in the name entry field.

To reset the path name to its default

➤ Press the space bar once.

➤ Press Return to confirm resetting the name.

To skip an entry

➤ Press Return without making any change.

To finish entering names

➤ Press ESC on the keyboard or press the SCROLL CURSOR key.

The trackball will return to normal pointer mode and the name entry box will be removed from the screen.

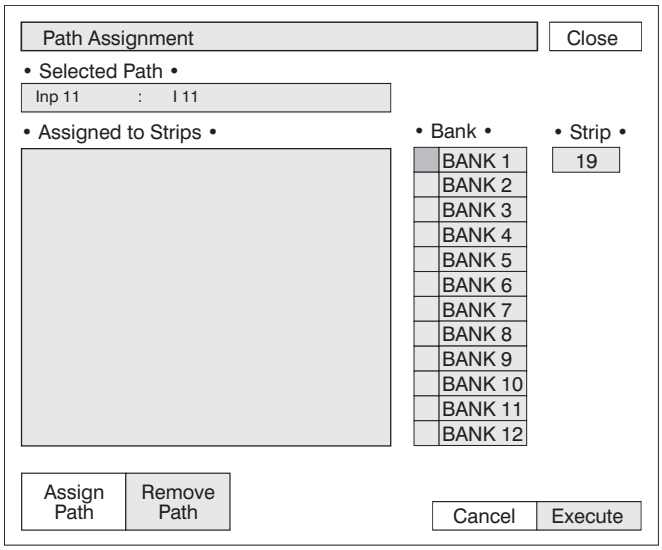
➤ Click the Close button to finish.

4.2 Assigning a Path to new Fader

An alternative method of assigning a path to a fader on a different bank is through the Path Configuration Screen.

➤ Click on the Strip Assignment button.

The Path Assignment screen will appear.



➤ Click in the Strip number box and enter the number of the required channel strip by either pressing an ACCESS key, scrolling through to the number with the trackball or by using the left and right cursor keys.

➤ Click on the required Banks.

➤ Click on **Execute** to perform the assignment.

To remove a path from a Bank

➤ Click on Remove Path.

➤ Click on the Bank or Banks to de-assign the path from.

➤ Click on Execute to confirm.

TIP : It is often useful to assign a signal to the same fader on every bank so that the operator can always control it. This can be done quickly in this screen by clicking on the bank, followed by the **Execute** key.

4.3 Processing Configuration

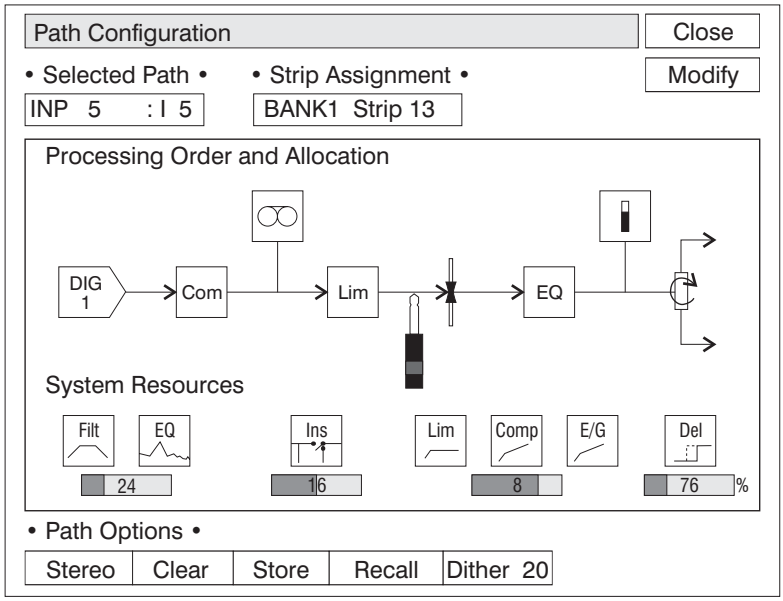
Processing elements can be placed in any order in the signal path, pre or post fader. Each path can be configured with one each of :

Four Band Equaliser
Two Band Filter
Limiter
Compressor
Expander/Gate
Insertion Point

The Path Configuration screen gives information about the currently accessed path.

To display the configuration of a path

➤ Press the ACCESS key for the required path.



The screen shows the signal path flowing from left to right.

The System Resources show the various signal processing elements which may be configured into a path. Below each set of resources is a ‘fuel gauge’ showing how much of each type of resource is still available. The number in the gauge shows the number of resources available. If the path displayed is a stereo path then the fuel gauge number will be the number of stereo resources remaining.

The system resources are greyed out when they are used up and are no longer accessible.

4.3.1 To add processing to a path

➤ Click on a system resource box.

The red jackplug will jump to the standard point in the path for the resource to be placed.

➤ Roll the trackball left and right to move the jackplug along the path.

➤ Click the trackball button to apply.

4.3.2 To change the Path configuration

➤ Click on the processing element to be moved.

➤ Move the jackplug to the new position.

➤ Click the trackball button.

Note: The Meter point () and the track send point () can be moved individually in the same way to any point in the signal path.

4.3.3 To remove a processing element from the signal path

➤ Click on the element to be removed.

➤ Move the jackplug to the system resource box.

➤ Click the trackball button.

The available resources gauge will increment.

4.3.4 To remove all processing elements from a path

➤ Click the Clear button.

A confirmation box will be displayed.

➤ Click Execute.

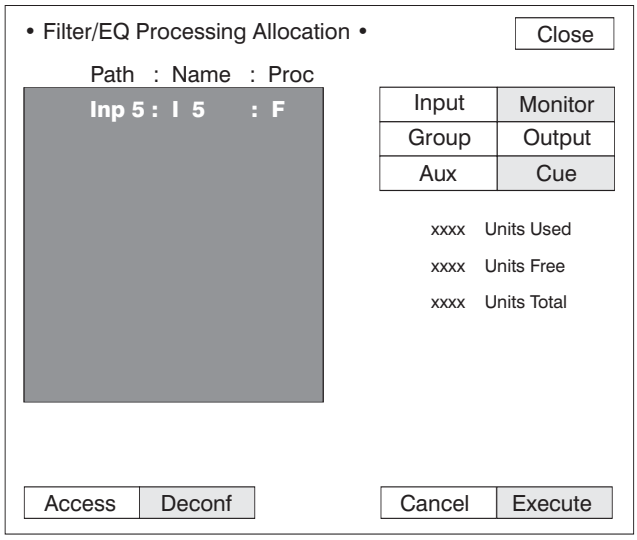
4.3.5 What to do when a Resource is used up

In this case it is possible to remove a selected number of processing elements simultaneously to make them available for other paths.

To free up a resource

➤ Click on the required System Resource gauge.

The appropriate Processing Allocation screen will be displayed.

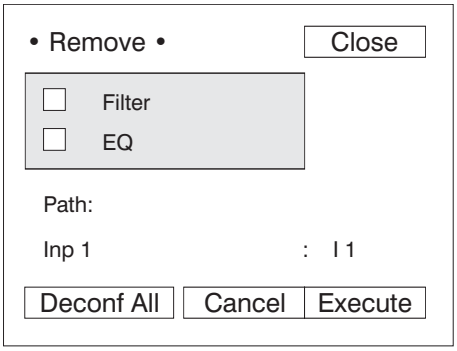


➤ Click on the Deconf button.

➤ Click on the Paths to free up in the list.

➤ Click Execute.

A window will be displayed to select either the element in the resource to be removed. The following window is for the Filter/EQ resource.



➤ Select which elements to remove.

➤ Click Execute.

The following confirmation screen will be displayed.



➤ Click Execute.

A resource of the appropriate type will now be free which can be used in the required signal path.

4.3.6 Dynamics processing

Some parameters within the Limiter, Compressor and Gate can only be changed by clicking on the modify box.

This is described in detail in the Signal Processing chapter.

4.3.7 To make a signal path stereo

➤ Click the Stereo button.

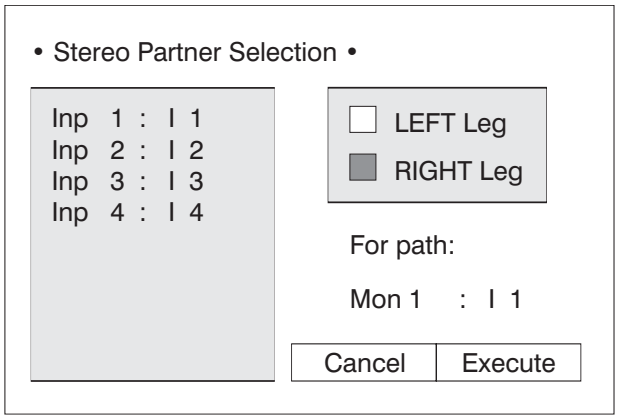
Outputs, Groups and Auxes

The stereo pair will always be made up of the sequential odd and even number paths.

Inputs and Tracks

A stereo pair can be made up from any pair of Inputs or any pair of Tracks.

The following screen will be displayed from which to select the stereo partner:



By default an odd numbered signal path will be put on the left leg and an even numbered path on the right leg.

To override left and right leg assignment

➤ Click the Right or Left button as required.

To select the stereo partner

➤ Click the required path in the list.

➤ Click Execute.

For all path types

Any processing in the Accessed path will be copied into the stereo partner. The Accessed strip will become stereo. If the new partner is assigned to any strips then it will be removed from any Banks in which it appears.

All routing will be cleared for both paths.

4.3.8 To make the signal path mono

➤ Click the Mono button.

The pair of paths will be treated as completely independent signals. The right leg will no longer be assigned to a channel strip. The left leg will remain where the stereo path was and will retain the stereo path name.

The paths will inherit the same processing configuration as the stereo path had.

All routing will be cleared for both paths.

4.3.9 To copy path Configurations

A path configuration can be copied from one path to any number of other paths of the same type.

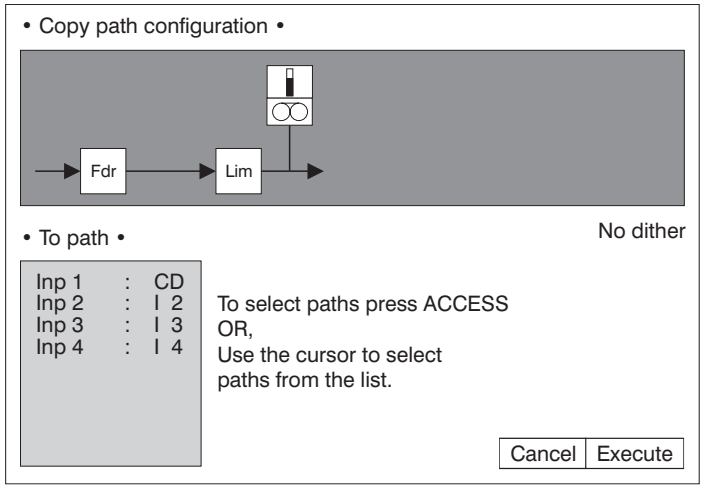
Note: It is not possible to copy Inserts between paths.

➤ ACCESS the path to copy the Configuration from.

➤ Click the Store button on the Path Configuration screen.

➤ Click the Recall button.

The following screen will be displayed.



➤ Click on Paths in the list to copy the stored configuration to.

➤ Alternatively press the ACCESS keys on the paths to copy the Configuration to. This will automatically highlight the entries in the list.

➤ Click Execute.

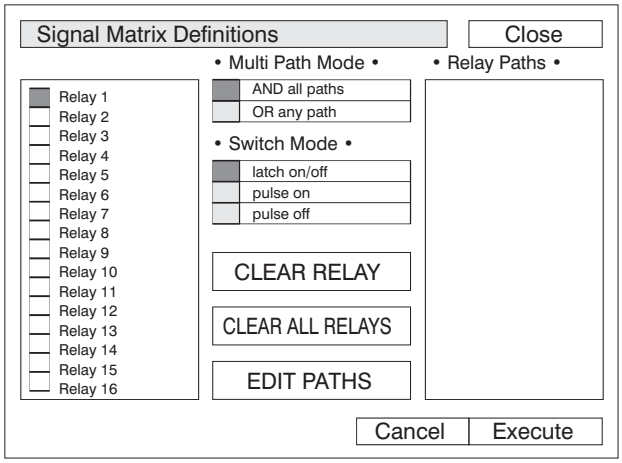
4.4 Signal Matrix

The Signal Matrix facility is a system option that enables a Matrix of 16 relays to be triggered by the action of opening a Fader.

The function may be used by the operator to start any device that may be triggered by a relay closure, e.g. Studio Red light systems, Cart machines, etc.

To set up fader relays

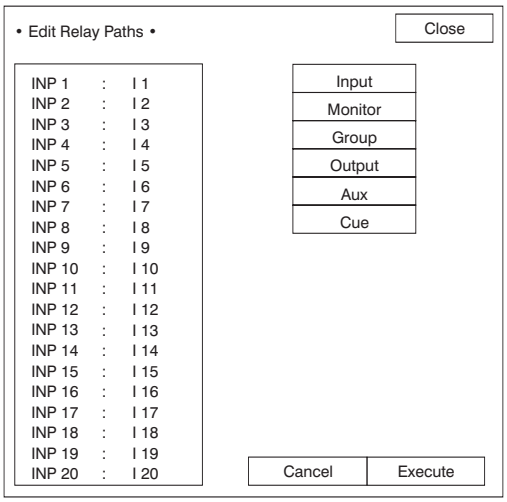
➤ Click on the Signal Matrix icon.



➤ Click on one of the Relays numbered 1-16 to select the Relay to be actioned.

➤ Click on EDIT PATHS.

The Edit Relay Paths screen will be displayed.



➤ Click on the path type that is to be used to control the relay.

➤ Click on the path or paths required.

➤ Click on Execute to return to the Signal Matrix Definitions screen.

➤ Click on AND All Paths or OR Any Path under Multi Path Mode to select whether one or any of the associated paths will trigger the relay.

To select the Switch Mode

➤ Click on Latch On/Off, Pulse On or Pulse Off.

This should match the command needed for the respective device.

To de-select specific relays

➤ Click on CLEAR RELAY.

To de-select all relays

➤ Click on CLEAR ALL RELAYS.

5 Input/Output Configuration

5.1 Ports and Paths

All input and output paths within Capricorn need to be connected to either digital or analogue input or output Ports.

These Ports relate directly to the following:

- The output D/A converters that reside either in the monitor facilities rack, or in the analogue I/O racks.
- The input A/D converters including the respective Mic/Line amps that reside in the Mic/Line racks.
- The input A/D converters that reside in the analogue I/O rack.
- The AES/EBU digital termination's that reside in the AES/EBU rack.
- The MADI digital input/output Ports associated with the respective Tape Machine.

Any input or output path including Auxes and Cues can be connected (or Port Routed) to any respective input or output Port. Input paths may only be connected to one Port, either analogue or digital, at a time. However any number of Input or Track Return paths may be connected to the same Port simultaneously. Output paths may be connected to a maximum of 4 output Ports at a time. These four output Ports can be any combination of Analogue or Digital Ports.

Multitrack Send/Return paths are normally terminated directly to a digital Multitrack via the recorders MADI interface. Alternatively connection to Analogue or digital Multitracks may be made via the Analogue I/O rack or AES/EBU racks respective MADI link.

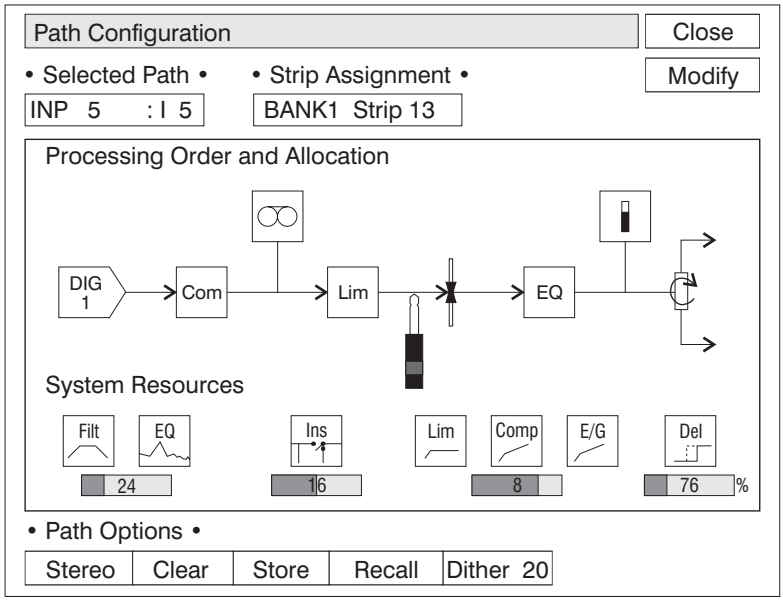
When Multitrack Send/Return paths are connected to the Multitrack via MADI the Track Send and matching Track Return Ports are terminated simultaneously.

In addition to the automatic mapping afforded by direct connection of Track Send/Return paths via MADI, the system allows both Track Return and Track send Paths to be cross patched to alternative Ports within the system. Track Return paths may be Port routed directly to the Analogue I/O rack, Digital I/O rack, and the Mic/Line rack. An Input Port may be Port routed to any number of Track Return Paths simultaneously irrespective of whether the source is via MADI, or an Input rack.

5.2 To Assign Ports to Paths

➤ Click on the Path Config icon.

The Path Configuration screen will be displayed.



➤ Press the ACCESS key on the path you wish to Port route.

To select an Aux or Cue bus for Port Routing

➤ Press the SEL key on the master Aux Control or Cue Control panel.

➤ Press the respective number of the Aux/Cue bus on the multi-purpose 16 button select matrix in the monitor section.

➤ Press the ACCESS key on the Aux Control or Cue Control panel.

To access Ports for input paths

➤ Click on the **INPUT** symbol at the beginning of the signal path shown on the Path Configuration screen.

To access ports for output paths

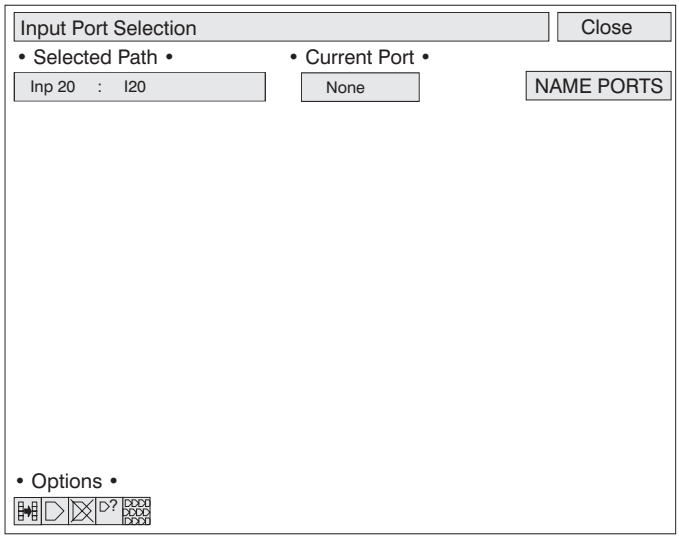
➤ Click on the **OUTPUT** symbol at the end of the signal path.

To access ports for Track Return Paths

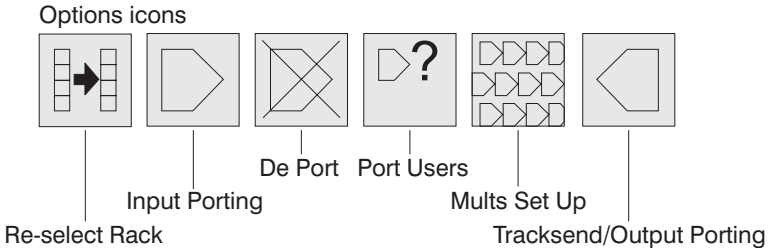
➤ Click on the Tape Machine symbol at the beginning of the signal path.

In all three cases, a Port Selection screen will be displayed.

If a MADI Link has not been selected then the screen will show no ports, as in the following example.



The Options icons in the bottom left hand corner show the various options for setting up ports.



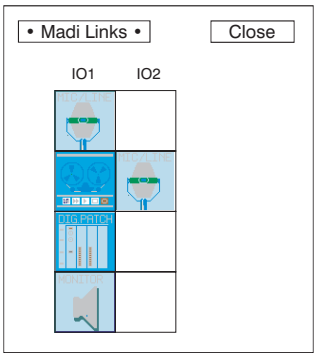
5.2.1 MADI Link Selection

When there are no ports shown on the Port Selection screen, a Rack or Tape Machine must be selected before any further operations can be performed on the ports. Selecting a rack provides access to the ports in the rack. Selecting a Tape Machine provides access to the tracks available from the machine.

To select a MADI Link

➤ Click on the **RE-SELECT RACK** icon .

The following screen which allows selection of the specific external rack or tape machine will be displayed.

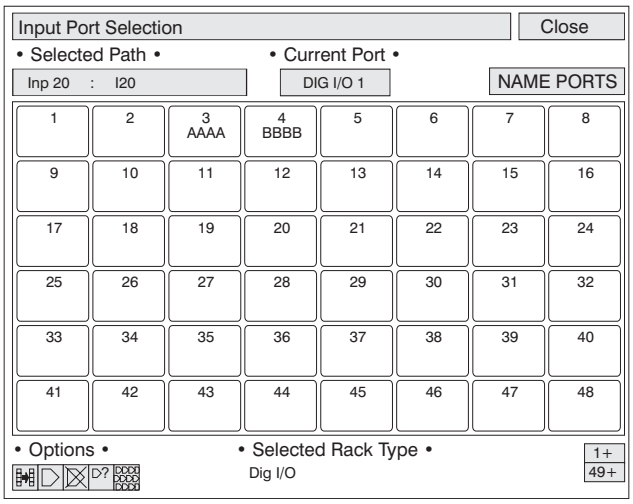


➤ Click on the Icon of the rack or tape machine to connect to.

The Icon will turn yellow to show it has been selected.

➤ Click on **Close**.

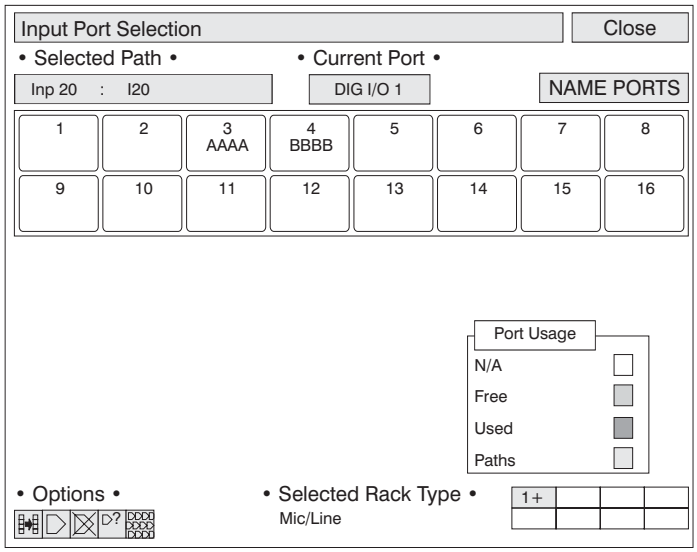
The Port routing screen will be re-displayed showing the ports for the selected rack (or tape machine). When a rack has been selected, the screen will be similar to the following.



Note: If there are more than 48 ports for the selected rack, there will be additional buttons for accessing the ports that do not fit on the screen. In the example above, clicking on 1+ will show port numbers 1 to 48, and clicking on 49+ will show the remainder.

5.2.2 Port Selection

➤ Click on the required Port in the Port Selection screen.



The Port that is connected to the currently accessed path is indicated in **Yellow**.

Ports that are connected to other paths in the system are indicated in **Grey**.

Ports that are currently free and unassigned are indicated in **Blue**.

Ports that are unavailable or are not fitted are blanked out.

Ports that are assigned elsewhere can be re-ported to the currently accessed path by clicking on it. A dialogue box will ask to confirm the reassignment of the port from its current path to the accessed path.

If a stereo path is accessed the Port routing screen will automatically display the Ports in stereo pairs.

The system allows mono paths to be Port routed to one half of an AES/EBU digital connection.

5.2.3 Port Naming

In addition to the Port Number, a user name relating to the Port may be provided.

➤ Click on the **NAME PORTS** button.

The button will turn yellow.

➤ Click on the Port to name.

A dialogue box will be displayed for entering the port name.

➤ Enter the required user name.

Two lines of up to 6 characters each can be entered for mono ports, or two lines of up to 12 characters each for stereo ports.

➤ Click on Execute or press the Return key to confirm the name.

The text entered will be shown under the port number.

➤ Click on other Ports to give them names.

To end Port Naming

➤ Click on the **NAME PORTS** button.

The button will turn grey.

5.2.4 Multiple Output Ports

Main, Aux and Cue Outputs may be Port routed to 4 destinations simultaneously. These Ports may be analogue or digital.

The four buttons numbered 1-2-3-4 adjacent to the Output symbol in the Path Configuration screen highlight when an output path is Ported to more than one Port simultaneously. Each time an additional Port is connected to the Accessed path the next number becomes available. Clicking on each highlighted number causes the output Port symbol to show the respective Port type and number the currently Accessed path is connected to.

5.2.5 Multiple Output Ports - Track Sends

Each Track Send can be connected simultaneously to a maximum of 4 output Ports, either Analogue or Digital. When a Multitrack is connected directly via MADI then by default the Track Sends are connected sequentially to their respective MADI ports. Subsequently any Track Send may be re-ported to any other MADI port. In addition, any Track Send may be ported simultaneously to any other output rack type.

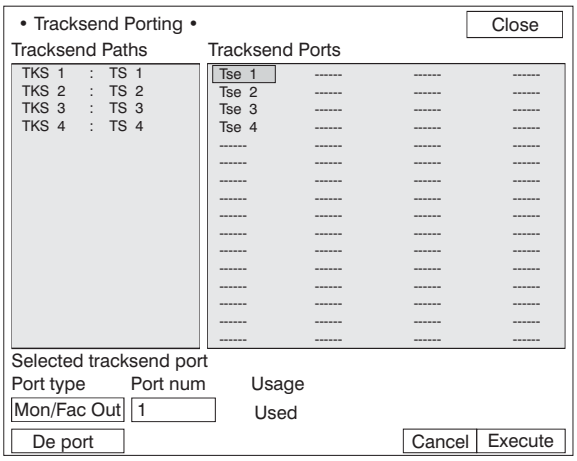
To access Tracksend Porting

➤ Click on the Tape Machine Icon at the beginning of the Track Return Path in the Path Configuration screen.

The INPUT PORT SELECTION screen will be displayed.

➤ Click on the Out Port Icon .

The Tracksend Porting screen will be displayed.



To select each Track send output

➤ Click on the required blank port number (shown as dashes) in the Tracksend Ports list.

➤ Click on the Port Type box.

➤ Move the trackball up and down (or press the up/down cursor keys) to scroll through the following port types:

Tape Machine out (tracksends)
Monitor Facilities out
AES/EBU digital out
Analogue out

➤ Click when the required Port Type is shown.

➤ Click in the Port num box.

➤ Use the Trackball, cursor or numeric keypad to select Port number.

Ports that are already connected to other paths in the system are shown in yellow. Ports that are available are shown in white. Ports that are not available are shown in red.

➤ Click when the required Port number is shown.

➤ Click on Execute or press the EXECUTE key to confirm.

The port will be shown in the Tracksend Ports list as selected initially.

The highlight will jump to the first empty port for the next Track send and the Port number will increment automatically.

➤ Click on Execute or press the EXECUTE key to repeatedly assign subsequent Port numbers to Track sends.

If a Port that is already connected to an output Path is selected, a dialogue box will advise that the Port will be removed from its current connection.

A maximum of 4 Ports may be connected to any one Track Send.

To De Port an output from a Track send

➤ Click the De port button.

The button will turn yellow.

➤ Click on the port in the Tracksend Ports list to be de ported.

➤ Click on Execute to confirm.

➤ Click the De port button again.

The button will turn blue and de porting will no longer be active.

5.2.6 Mults Set Up

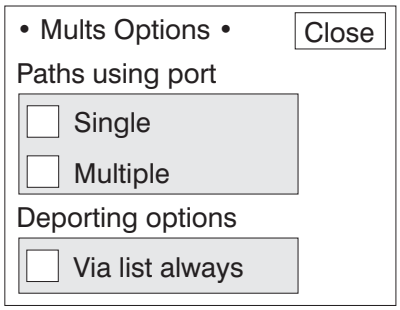
The Mults facility allows selection between single or multiple Path connections to all Input Ports.

To set Mults options

➤ Click on the INPUT symbol at the beginning of the channel strip indicated in the Path Configuration screen.

➤ Click on the Mults Setup Icon .

The Mults Options dialogue box is displayed.



Paths using port

Single
Port routing a path to a Port that is already assigned will automatically De Port it from its current assignment and re-assign it to the current Path.

Multiple
Allows a selected port to be assigned to any number of Input Paths simultaneously.

Note : When a number of paths are connected simultaneously to the same Input Port, input selection. I.e. Line A/B, Mic A/B, input gain, Phantom Power operate simultaneously across all paths. Input Phase Reverse may be selected independently for each path.

Deporting Options

If Via list always is active (Yellow)
When the current path is an Input or Monitor path then clicking the De Port icon will display the De port screen. The De port screen lists all paths of the current type which are ported (eg. if the path type is Input, all ported Input paths will be listed). Individual paths can be de-ported from this list (see De Port).

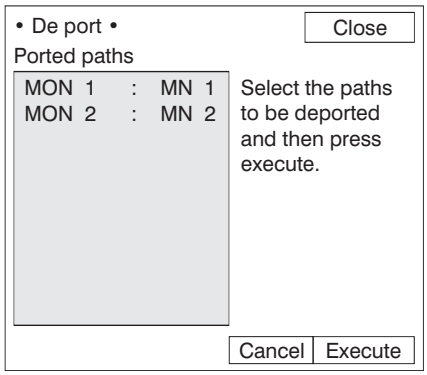
If Via list always is not active (Blue)
Clicking the De Port icon will cause the active Port for the current path to be de-ported immediately.

If there is no active Port for the current Input or Monitor path. Selecting De Port will display the De port screen. This allows the user to free a specific port which is required for use with the current path.

5.2.7 De Port

This allows you to de-port any number of Input or Monitor paths. This list will display paths of the same type as the current path (eg. if the current path is a Monitor path, then the list will show all ported Monitor paths).

➤ Click on the De Port icon .



➤ Select the paths to be de-ported by clicking on them.

➤ Use the 

key to browse further down the list.

➤ Click on Execute to confirm the operation.

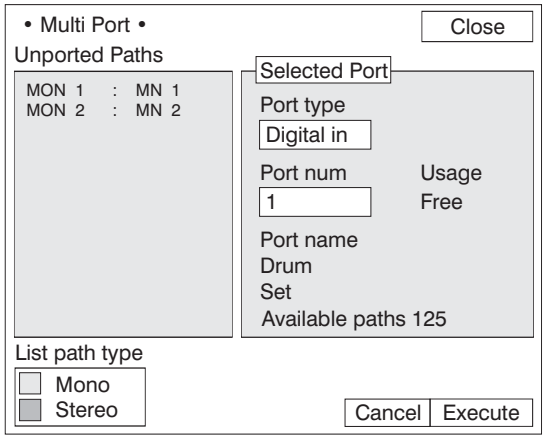
The main Port Selection screen will be shown.

5.2.8 In Port

This facility allows rapid assignment of any number of Input or Track Return paths simultaneously to a single Port.

➤ Click on the In Port Icon .

The Multi Port screen will be displayed.



The Unported Paths list will indicate all Input or Track Return paths currently not Ported.

➤ Click on Mono or Stereo, dependent on Path type.

➤ Click on the Port Type box.

➤ Use the Trackball (or cursor keys) to select the rack type from

Mic/Line AES/EBU Tape Machine

➤ Click again to confirm the Port Type.

➤ Click on the Port Number box.

➤ Use the numeric key pad, cursor, or Trackball to select the Port Number.

➤ Click again to confirm.

➤ Click on the paths to be ported in the Unported Paths list.

The selected paths will be highlighted.

➤ Click on Execute to route the Input Port to the selected Paths.

Note : Multiple Path selection will only work if the Multiple Ports option is selected via the Mults Set Up Icon.

5.2.9 Port Users

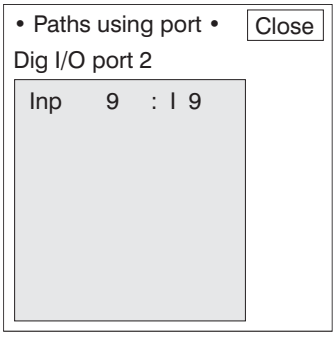
Port Users shows which paths are using the interrogated port.

➤ Click on the Port Users Icon .

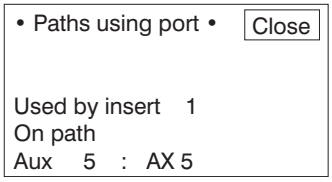
The Icon highlights.

➤ Click on the Port to interrogate.

This displays a screen indicating all paths currently connected to the selected Port.



If the port is in use by an Insert then the following screen will be displayed.



5.2.10 Digital Word length and Dither

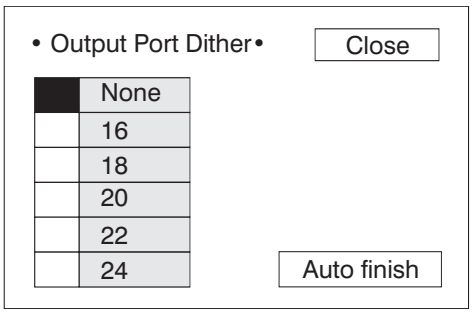
The correct Digital Word length and Dither can be selected for individual output ports that are connected via an AES/EBU or MADI port.

If an output Path is routed to more than one AES/EBU output Port then the Dither may be selected independently for each Port.

To set Dither

➤ Click on the **Dither** button in the Path configuration screen.

The Dither Bit dialogue box will be displayed.



➤ Click on the Dither required.

➤ Clicking on **Close**.

If **Auto Finish** is selected then clicking on a Dither setting will automatically execute the command and close the dialogue box.

The Dither selected will be displayed on the Dither button on the Path Configuration screen.

Note: The default word length set for Inserts that are connected via AES/EBU is 16 bits.
The default word length set for Multitrack sends that are connected via MADI is 16 bits.
The 16 bit default word length for Digital Multitrack sends that are connected via MADI may be changed on a per output basis. To change the word length, Click on the Track Return path, and select the Dither as described above.

5.3 Inserts

Capricorn provides 32 Inserts, each of which may be Port Routed to either an Analogue or Digital input/output Port. Each Insert may be placed anywhere on any signal path in the system.

5.3.1 To place an insert into the signal path

➤ Click on the Insert icon in the Path Configuration Screen.

or

➤ Click on the Insert fuel gauge.

The Insert Selection screen will be displayed:

• Insert Selection • Close

1	I 16	Digi 11	17	No path	None
2	No path	None	18	No path	None
3	No path	None	19	No path	None
4	No path	None	20	No path	None
5	No path	None	21	No path	None
6	No path	None	22	No path	None
7	No path	None	23	No path	None
8	No path	None	24	No path	None
9	No path	None	25	No path	None
10	No path	None	26	No path	None
11	No path	None	27	No path	None
12	No path	None	28	No path	None
13	No path	None	29	No path	None
14	No path	None	30	No path	None
15	No path	None	31	No path	None
16	No path	None	32	No path	None

Remove insert | Show: Port name | Deport unused

The columns in the screen are Insert Number, Path Using Insert and Routed I/O Port.

Insert numbers in use by other paths will have a grey button. Available insert numbers have blue buttons.

➤ Click the Show Port Name/Show Port Num button to toggle between port names and port numbers.

➤ Click on the required Insert Number which has been routed to an I/O Port.

Note : Clicking on an insert which has no I/O port selected will have no effect. See Allocation of Ports to Inserts below.

The red jack plug will jump to the position in the path immediately before the fader.

➤ Move the trackball left or right and the jackplug will move along the signal path.

➤ Click a trackball button to apply.

To remove an Insert element from the signal path

➤ Click on the Insert element.

➤ Move the jackplug on to the Insert resource box.

➤ Click again.

The Insert is now returned to the storage tank. The available facilities gauge will increment.

5.3.2 To de-port all unused Inserts

➤ Click on the Deport unused button in the Insert Selection screen.

A dialogue box will appear asking for confirmation of the action.

➤ Click on Execute.

All Inserts which have ports assigned but which are not configured into a path will be de-ported.

5.3.3 Allocating Ports to Inserts

To allocate ports to inserts

➤ Click on the Insert resource in the Path Configuration Screen.

or

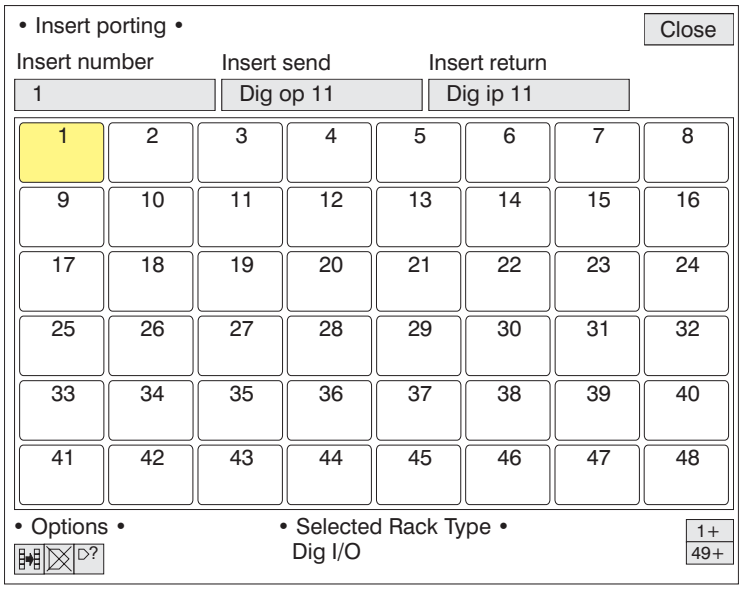
➤ Click on the Insert fuel gauge.

The Insert Selection screen will be displayed.

Inserts which are not Port Routed will have the word None in the port column.

➤ Click on the Routed I/O Port box for the required Insert.

The Insert Porting screen is displayed:



➤ Click on an unused port number (blue port).

The port will be assigned to the next available Insert or the Insert selected in the Insert Selection screen.

The port will turn yellow.

When a Port is connected to an Insert then both the Input and Output Port are selected simultaneously.

➤ Click on additional ports to assign ports to sequential Inserts.

➤ Click on Close.

If no ports are displayed

➤ Click on the Re-Select Rack icon.

➤ Select a rack in the MADI Ports screen.

The ports from the selected rack will be displayed in the Insert Porting screen.

To find out how ports are used

➤ Click on the Port Users icon.

➤ Click on an assigned port (yellow).

The assignment of the port will be displayed.

5.4 Multitrack Tape Machine Interconnection

5.4.1 Track Allocation

Since Capricorn has software routing, it is possible to connect the multitrack tape machines in different ways across the Track send outputs and the Track return inputs. For instance two 24 track machines could be attached across the outputs like a 48 track machine, or they could be mapped across the same 24 track sends in parallel. The Transport Control Configuration screen allows the operator to specify which tracks are used by each machine.

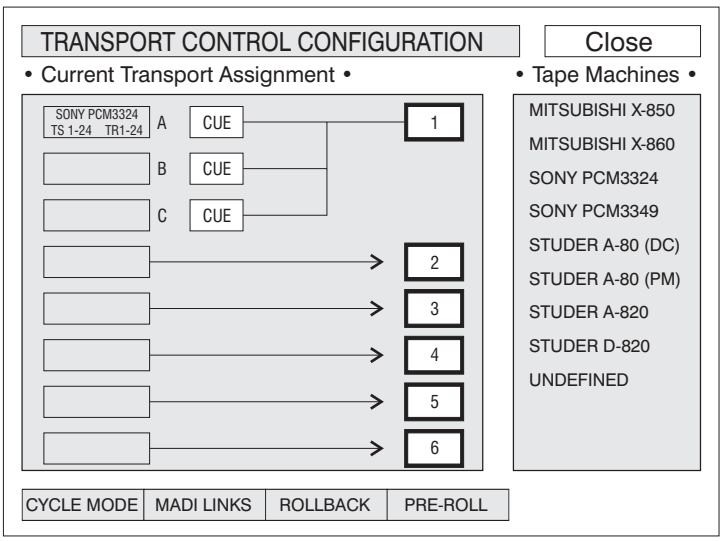
In the display below, a Sony 3324S is patched on to track send 1-24 and track return 1-24.

The system can be operated with up to 3 multitrack tape machines. The switch matrix at the top of the Monitor section allows individual track arming on up to 48 tracks for each machine.

To access Transport Control Configuration

➤ Click the Tape Machine icon.

The Transport Control Configuration screen will be displayed.



5.4.2 Tape Machine Controls

A number of different tape machines can be connected to the system and can be controlled together by assigning them to 1 of 6 control groups. The 6 groups indicated on the screen relate directly to the 6 transport select keys in the Tape Transport Control panel on the console surface.

The box on the right of the tape machine in the Transport Control Configuration screen shows which group the tape machine belongs to. All multitracks must be controlled through Group 1. This relates directly to key 1 on the Tape Transport Control panel.

5.4.3 Setting up the Tape Machine

The Current Transport Assignment area of the screen is used to specify what type of machine is attached to the console and which ports it is using.

➤ Click on one of the boxes on the left hand side of the screen.

Note : Remember that multitrack recorders need to be assigned to boxes A, B or C as they need to be controlled by key No 1.

➤ Click on the required machine in the Tape Machines list.

The box now displays the assigned tape machine and which tracks it is allocated to by default.

If two 24 Trk machines are assigned then the second machine can be connected in parallel with the first or it can be connected sequentially.

Other machines can be assigned to other groups by clicking on the box on the left hand side and specifying the machine in the same way as described above.

If the required tape machine does not appear in the list then it can be added by editing a low level file. Please contact your AMS Neve distributor for details of this operation.

5.4.4 Madi Links

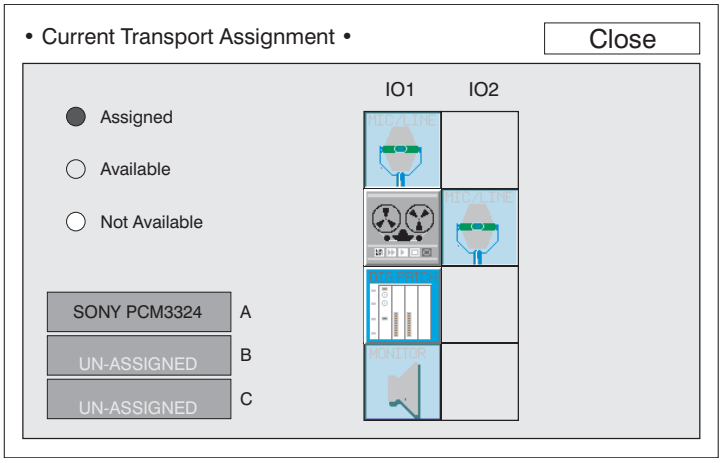
Digital multitrack machines may be connected via MADI directly into the systems MADI I/O connectors located on the DSP I/O cards.

Digital Multitrack recorders can also be connected into the system via the AES/EBU rack. This could include Digital work stations such as the AMS Neve AudioFile that can connected into the system as though they were a conventional mutitrack recorder, thereby enabling the systems track send/return monitoring and overdub facilities to operate as normal.

Analogue multitrack recorders are normally connected into the system via the Analogue I/O rack.

➤ Click the **MADI LINKS** button in the Transport Control Configuration screen.

The Current Transport Assignment screen will be displayed.



When Capricorn is powered up the system automatically recognises the type of rack or MADI multitrack that has been connected to the DSP I/O cards. The Current Transport Assignment screen automatically provides an Icon to represent the rack type or multitrack connection for the respective I/O connector.

For digital multitrack machines that are connected via MADI

➤ Click on the appropriate tape machine box (A, B or C).

The box will highlight in Gold.

➤ Click on the matching Tape machine Icon.

A dialogue box will be displayed to select the Track Send to start assigning from. The default will map Track Send 1 to Track 1 on the Tape Machine.

➤ Click in the number box and scroll the number with the trackball or cursor keys.

The Icon will change from Blue to Yellow to confirm connection.

For digital multitrack recorders that are connected to the system via the AES/EBU rack

➤ Click on the box with the name of the machine.

➤ Click on the matching AES/EBU rack Icon.

A dialogue box will be displayed to select the Port to start assigning from.

➤ Click in the number box select a starting number.

If the machine is a 24 Trk machine the system will automatically assign the next 24 AES/EBU input and output Ports following the number you select.

If it is for example an AMS Neve AudioFile, and it has been entered as an 8 Trk recorder in the systems machine set up file, the system will automatically assign the next 8 AES/EBU input and output Ports following the number you select.

For analogue multitrack recorders that are connected to the system via an analogue I/O rack

➤ Click on the respective machine dialogue box

➤ Click the matching analogue I/O rack Icon.

A dialogue box will be displayed to select the Port to start assigning from.

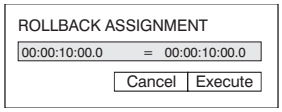
➤ Click in the number box select a starting number.

If the machine is a 24 Trk machine the system will automatically assign the next 24 analogue input and output Ports following the number you select.

5.4.5 Setting up the Rollback Time

The Rollback Time is the offset that the Tape Machine will rewind when the ROLL BACK key is pressed.

➤ Click the ROLLBACK button in the Transport Control Configuration screen.



The rollback time is always a positive value. The current rollback time is on the left-hand side. The default is 250 frames.

➤ Add or subtract an offset to the current rollback time with the trackball.

or

➤ Enter a new time with the numeric keypad in timecode format.

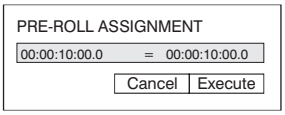
➤ Click to set the new time.

➤ Click Execute to confirm and exit.

5.4.6 Setting up the Pre-Roll Time

The Pre-Roll Time is the offset that a Tape Machine will rewind when it is locating.

➤ Click the PRE-ROLL button in the Transport Control Configuration screen.



The pre-roll time is always a positive value. The current pre-roll time is on the left-hand side. The default is 83 frames.

➤ Add or subtract an offset to the current rollback time with the trackball.

or

➤ Enter a new time with the numeric keypad in timecode format.

➤ Click to set the new time.

➤ Click Execute to confirm and exit.

6 Miscellaneous Setup

The Miscellaneous Setup screen is used for entering a selection of system settings. Default values are provided for each setting in the Default Configuration.

Changed values will be stored with a new or updated Configuration. This would include the Studio Start-up Configuration.

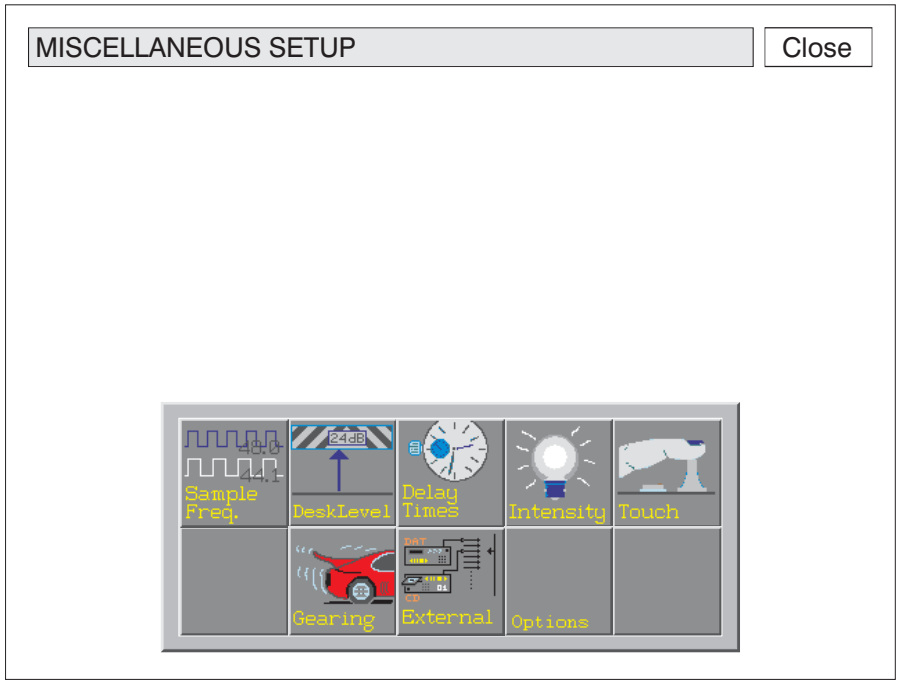
To access the Miscellaneous Setup screen

➤ Click on the Misc Setup Icon in the System Menu.

OR

➤ Click on the Wordclock Display box in the System Status area of the screen.

The Miscellaneous Setup screen will be displayed



6.1 Sample Frequency

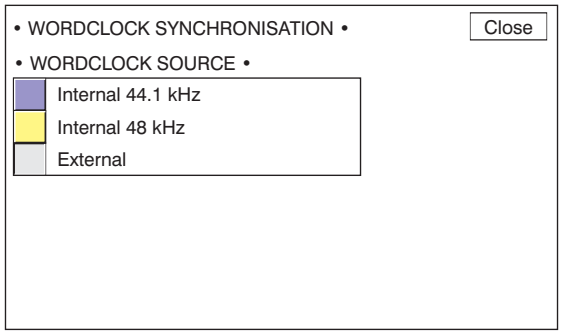
This allows the Wordclock Synchronisation rate and source to be set.

The last Word Clock value set, is automatically stored into a separate dedicated file that is completely independent of the Configuration or Title that is loaded. When the system is re-powered or re-booted, the system will automatically reset to the last sampling frequency used, or external source if selected.

To select the Wordclock Source

➤ Click on the Sample Freq icon in the Miscellaneous Setup screen.

The Wordclock Synchronisation screen will be displayed:



➤ Click on one of the three buttons.

The options to select from are

Internal 44.1 KHz

Internal 48 KHz

External. This button will only be available for selection when an external Word Clock source has been plugged into the DSP rack. When connected, the word **External** will by followed by the external Word Clock rate, either 48 or 44.1 kHz.

A dialogue box will be displayed asking for confirmation.

➤ Click on Execute to confirm the selection.

➤ Click on Cancel to abort the current operation.

The display will return to the Miscellaneous Setup screen.

The Wordclock Display will flash while the system re-synchronises to the new sample rate.

6.2 Desk Level

Allows the input and output operating levels of the console to be adjusted by a hybrid switched gain amplifier before signals pass through the ADCs or DACs.

The clipping point for the ADCs (and DACs) is +24dBu (0dBFS). This is sufficiently high to allow for applying up to 24dB of gain to inputs to improve signal to noise ratio.

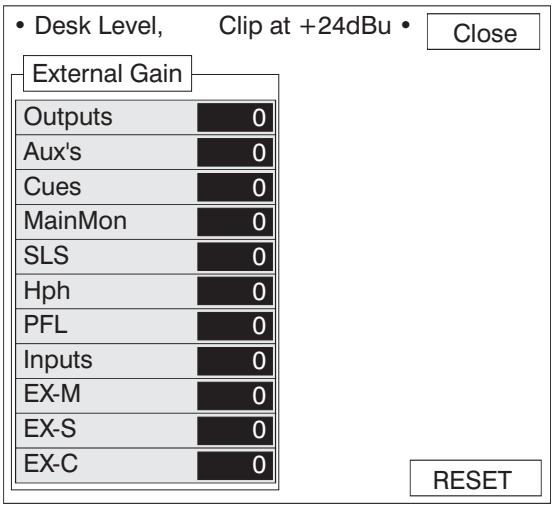
Input gain can be increased by 0 to +24db in 6dB steps. This takes place before the input metering point so the meter will show the cumulative signal level (i.e. the level that the console ends up working with).

Outputs can be attenuated by 0 to -24db in 6dB steps. This takes place after the metering point, so a 0dB output signal with -6dB of attenuation applied will show on the meter as 0dBu.

To change the desk operating levels

➤ Click on the Desk Level icon in the Miscellaneous Setup screen.

The Desk Level screen will appear.



The outputs are:

Outputs	All outputs except for those specifically listed separately here
Aux's	Auxiliary outputs
Cues	Outputs from the Cues
MainMon	The outputs from the Control Room Monitoring system
SLS	The Studio Loudspeaker outputs.
Hph	The Headphone outputs.
PFL	The Pre-Fader Listen solo outputs.

The inputs are:

Inputs	All inputs except those specifically listed separately here
EX-M	External inputs to the Control Room Monitor
EX-S	External inputs to the SLS bus
EX-C	External inputs to the Cues

➤ Click on a value you wish to change.

The trackball will switch to scroll mode and the pointer will disappear from the screen.

➤ Roll the trackball left or right to change the value.

➤ Click a trackball button when the desired value is shown.

The trackball will return to pointer mode.

The new operating level will take effect at the appropriate point.

To reset all values to zero

➤ Click on the RESET button.

Note: The RESET button will not be available if all values are already zero.

A dialogue box will appear for confirmation of the reset.

➤ Click on Execute to zero all values.

The Desk Level screen will be re-displayed with all values at zero.

OR

➤ Click on Cancel.

The Desk Level screen will remain unchanged.

To return to the Miscellaneous Setup screen

➤ Click on the Close button or press the 

key.

6.3 Delay Times

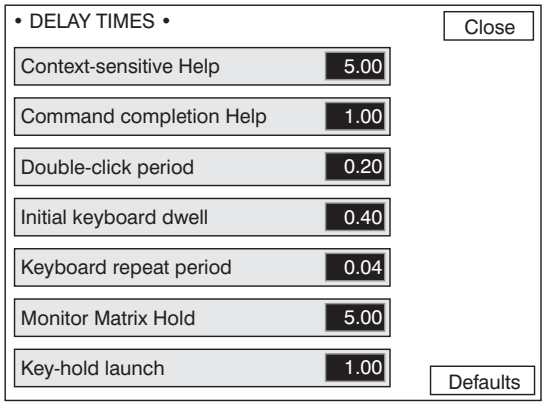
Note: This should not be confused with signal path delay.

Click in the entry box and use the Trackball, cursor or numeric keys to change the selected delay period for the following functions :

To set Delay Times

➤ Click on the Delay Times icon in the Miscellaneous Setup screen.

The Delay Times screen will be displayed:



The times are displayed in seconds and can be set to hundredths of a second. The range is 0.01sec to 9.99sec.

Context-sensitive help
This is the amount of time that a requested help screen takes to be displayed.

Command completion Help
Not currently used.

Double-click period
This is the maximum amount of time allowed between subsequent clicks of the Trackball buttons for the clicks to be recognised as a Double Click (i.e. a double click must be done in this time or less).

Initial keyboard dwell
This is the amount of time that a key must be held down on the QWERTY keyboard before the system recognises that it is being held down. The key then starts to repeat, as per the Keyboard repeat period.

Keyboard repeat period
This is interval between repeats of a key that is held down on the QWERTY keyboard.

Monitor Matrix Hold
Not currently used.

Key-hold launch
Not currently used.

To change a delay time

➤ Click on the box containing the time you wish to change.

The trackball pointer will disappear from the screen.

➤ Roll the trackball to the left or right to change the time.

➤ Click a trackball button when the desired time is displayed.

The trackball pointer will return to pointer mode.

To reset the times to their default values

➤ Click on the Defaults button.

The times will be reset to the values shown in the screen illustration above.

To return to the Miscellaneous Setup screen

➤ Click on the Close button or press the CLOSE key.

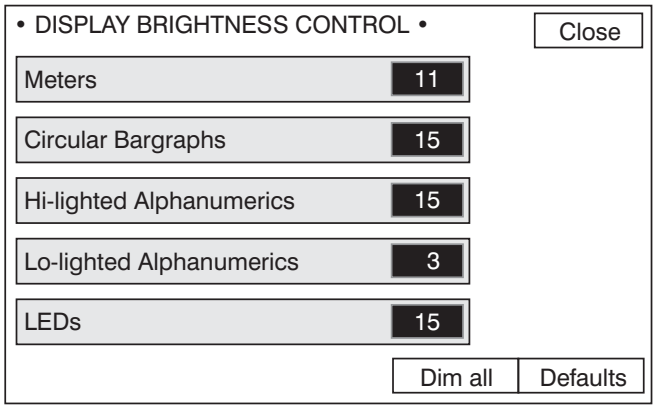
6.4 Intensity

Allows users to adjust the brightness of controls and displays on the console surface. This is set by a number in the range of 1 to 15 (brightest).

To change the intensity of surface controls

➤ Click on the Intensity icon in the Miscellaneous Setup screen

The Display Brightness Control screen will be displayed:



➤ Click on a value you wish to change.

The trackball will switch to scroll mode.

➤ Roll the trackball left (dimmer) or right (brighter) to change the value.

The brightness of the controls on the surface will change as the value changes.

➤ Click a trackball button when the value is at the desired level.

The trackball will return to pointer mode.

To set the brightness of all controls to minimum

➤ Click on the Dim all button.

All the values will change to 1.

The surface controls will be dimmed.

To set the values to default settings

➤ Click on the Defaults button.

The values will be set to their defaults, as shown in the screen illustration above.

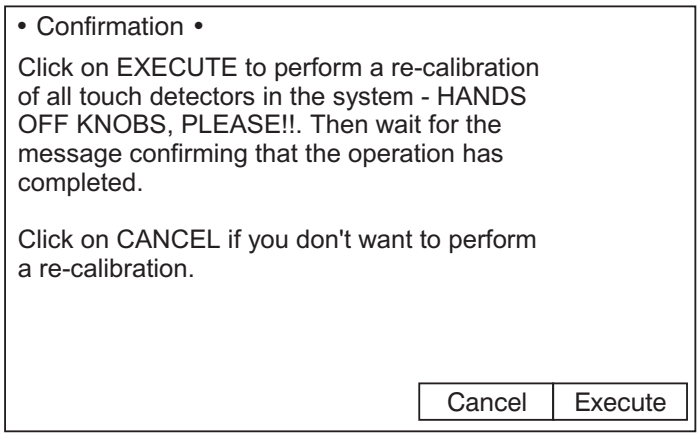
6.5 Touch

The touch sensitivity for faders and controls is performed automatically when the system is powered up or re-booted. If there are problems with touch this screen allows the sensitivity to be re-calibrated whilst the system is still in operation.

To re-calibrate all touch detectors

➤ Click on the Touch icon in the Miscellaneous Setup screen.

A confirmation dialogue box will be displayed:



➤ Click on Execute to perform the re-calibration.

Note: Do not touch any faders or controls when re-calibration is in progress.

A message will appear when the operation is complete.

➤ Click on Close or press the CLOSE key to return to the Miscellaneous Setup screen.

OR

➤ Click on Cancel to abort the re-calibration and return to the Miscellaneous Setup screen.

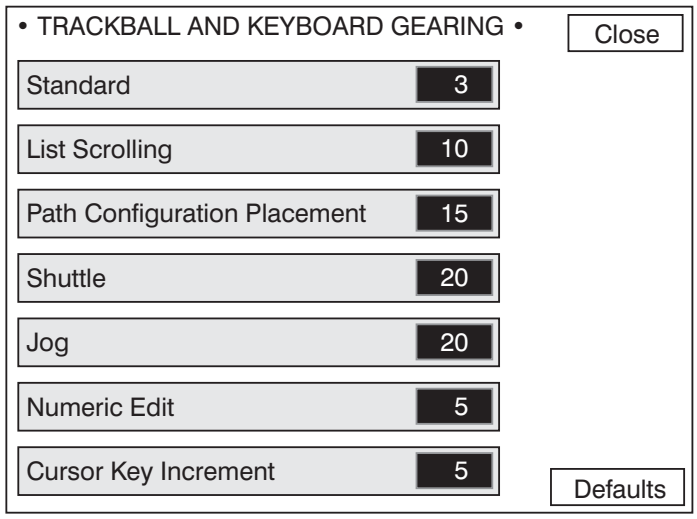
6.6 Gearing

Used to adjust trackball and keyboard gearing (e.g. how fast the trackball pointer moves when the trackball is rolled).

To change gearing

➤ Click on the Gearing icon in the Miscellaneous Setup screen.

The Trackball and Keyboard Gearing screen will appear:



Standard
This governs how fast the trackball pointer moves in normal pointer mode.

List Scrolling
This governs how fast lists are scrolled up and down with the trackball.

Path Configuration Placement
This is how quickly a selected processing element moves between its possible locations in the Path Configuration screen when the trackball is move left or right.

Shuttle
Not currently used.

Jog
Not currently used.

Numeric Edit
This governs the rate at which numeric values are changed with the trackball.

Cursor Key Increment
This governs the speed of the pointer when it is moved with the cursor keys.

➤ Click on a value you wish to change.

The trackball will switch to scroll mode and the pointer will disappear from the screen.

➤ Roll the trackball left or right to change the value.

The range is 1 to 50 (fastest).

➤ Click a trackball button when the desired value is shown.

The trackball will return to pointer mode.

To set the values to default settings

➤ Click on the Defaults button.

The values will be set to their defaults, as shown in the screen illustration above.

6.7 External

Allows the assignment of digital inputs to the external input selection keys (numbered 1 to 16) in place of the analogue input associated with the key.

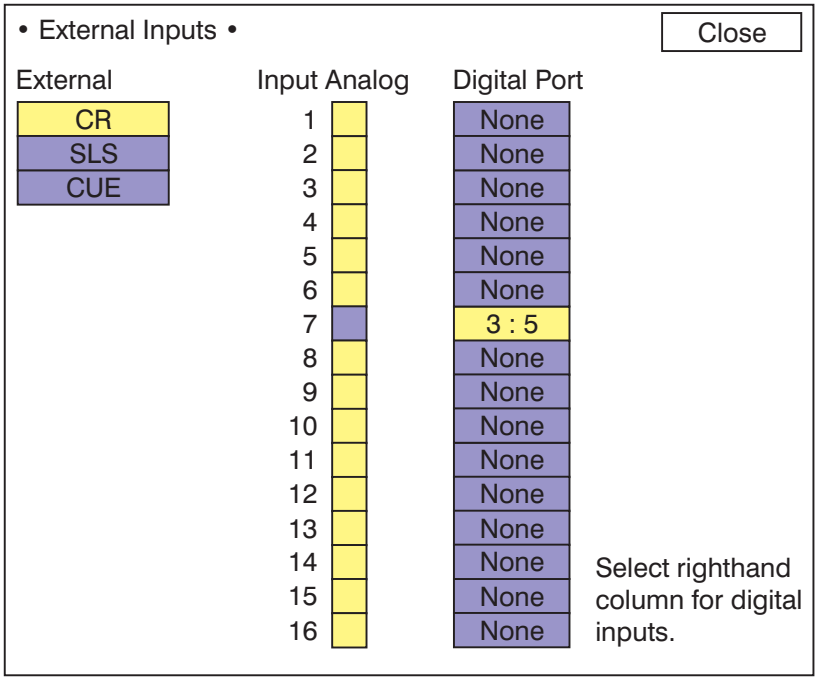
When the EXT key in the Control Room Monitoring, SLS/Phones or Cues sections is pressed, the user can then send a selected digital source to the output.

The ports for external inputs must be on the same I/O card as the Monitor Facilities Rack.

To select external inputs from digital sources

➤ Click on the External icon in the Miscellaneous setup screen.

The External Inputs screen will be displayed:



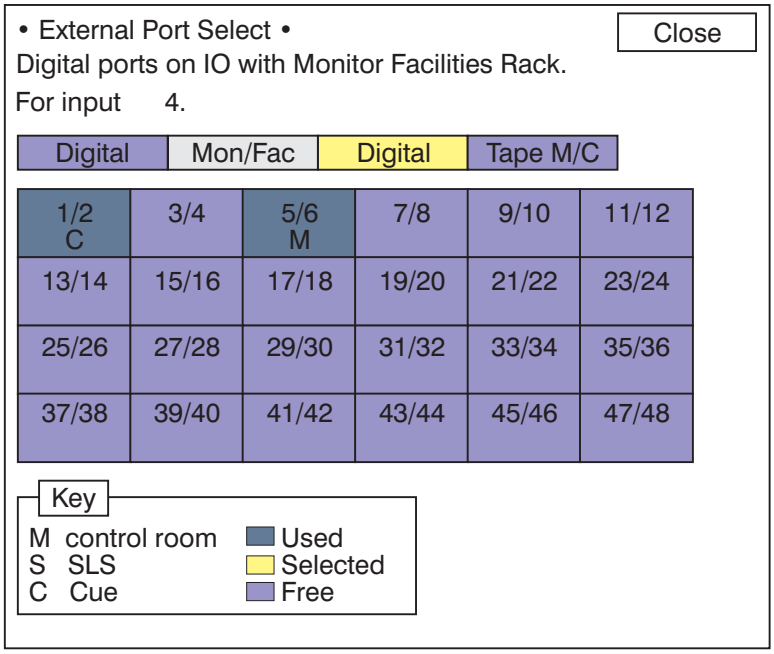
In the screen above, the analogue port 7 has been replaced with the signal on ports 5 and 6 from the digital device connected to Madi 3. When the EXT key is pressed in the Control Room Monitoring section, selecting key 7 from the external input selector will send the digital signal output from ports 5 and 6.

➤ Click on the External button you wish to select the input for (i.e. CR, SLS or CUE).

The button will turn yellow.

➤ Click on a Digital Port button.

The External Port Select screen will be displayed:



➤ Click on the device (e.g. Digital, Tape M/C, etc.) you wish to select a port from.

The button will turn yellow.

➤ Click on the pair of port numbers you wish to assign.

The button will turn yellow.

Note: The key at the bottom of the screen indicates how the different colours and legends indicate port usage. Only ports which are free may be selected.
If a port is already assigned, it will be highlighted in yellow. Clicking a different port will move the highlight to the newly selected port.

➤ Click on Close.

The selection will be saved.

The Input Analogue button next to the selected Digital Port will turn blue. The legend on the selected Digital Port button will indicate the Madi number and port assigned (the odd number from the port pair is shown).

To de-select a digital port

➤ Click on the Input Analogue button next to the Digital Port button which requires de-selecting.

The Analogue button will turn yellow.

The legend on the Digital Port button will change to **None**.

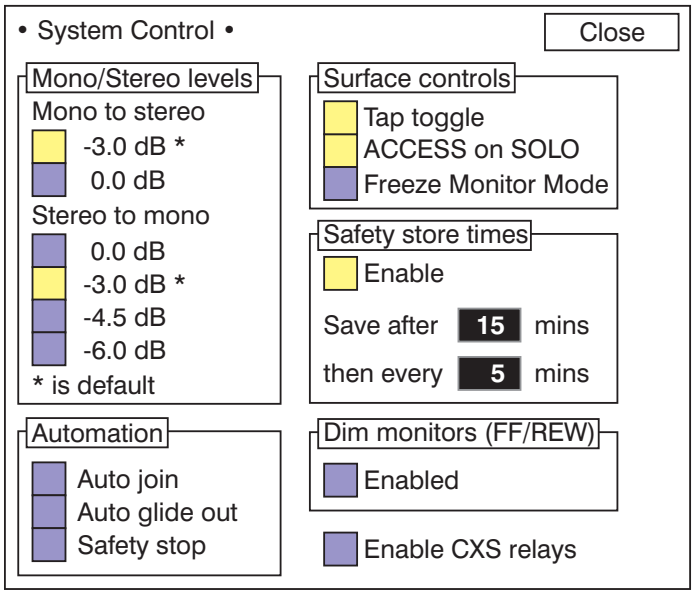
6.8 Options

Allows users to set miscellaneous options for the console.

To set miscellaneous options

➤ Click on the Options icon in the Miscellaneous Setup screen.

The System Control screen will be displayed:



➤ Select options as described on the following pages.

Note: Enable CXS relays is not currently implemented.

6.8.1 Mono/Stereo Levels

Mono to stereo

-3.0 dB * Automatically drops the level of each channel by 3 dB to compensate for the increase in output gain when panning between a stereo output. The * denotes this as the default setting.

0.0 dB Gives full output from both legs when panning between a stereo output. Therefore the output will increase by 3 dB when the signal is panned to centre.

Stereo to mono

0.0 dB A stereo signal routed to a mono output will create a 6.0dB rise at the output.

-3.0 dB * Attenuates the output by 3.0dB. The * denotes this as the default setting.

-4.5 dB Attenuates the output by 4.5dB

-6.0 dB Attenuates the output by 6dB and therefore provides constant gain.

6.8.2 Automation

There are three automation options: Auto join, Auto glide out and Safety stop. Auto join and Auto glide out can be enabled at the same time. If Safety stop is enabled then Auto join and/or Auto glide out will be disabled, and vice versa.

The operation of Auto glide out takes precedence over Auto join.

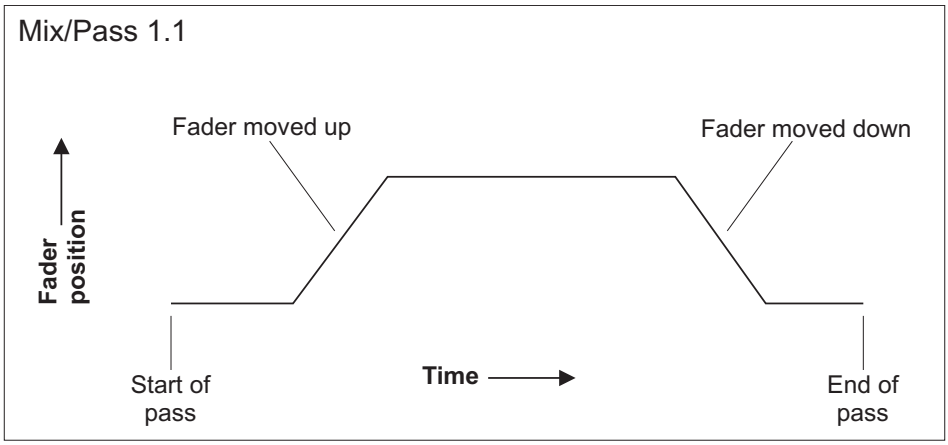
Auto join

This is disabled (blue button) in the Default Configuration. The setting will be saved as part of the current Configuration.

The following example explains how Auto join operates when it is enabled.

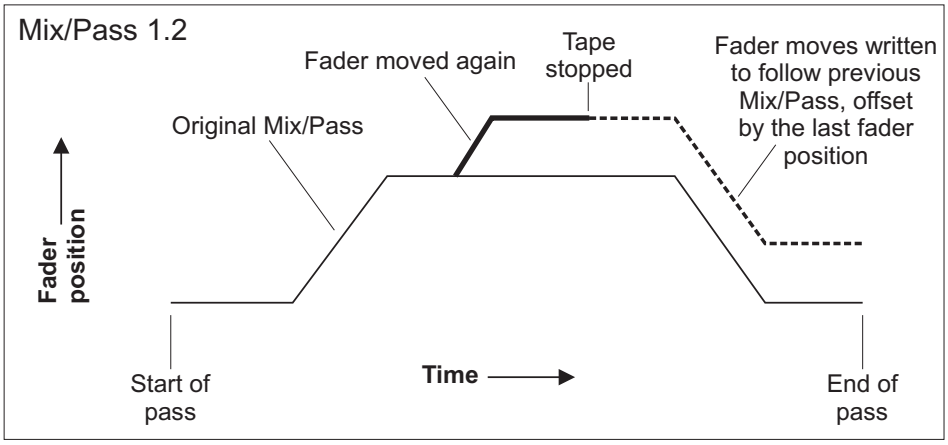
Auto join example

The following diagram shows a very simple first Mix/Pass (i.e. 1/1) where only one fader move has been recorded:



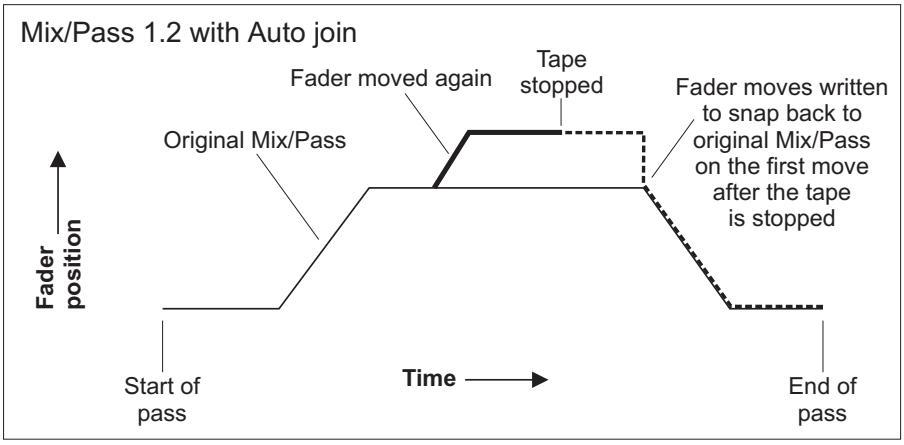
A new Mix/Pass (1.2) is then created where an additional fader move is added. The tape is stopped before the end of the Mix/Pass.

The following diagram shows what will happen with Auto join off (assuming no automation modes are used to alter the mix in any other way):



As noted, the fader moves recorded by Mix/Pass 1.1 are added to the last fader position when the tape is stopped so that the position of the fader on replaying the new Mix/Pass is **relative** to its original position.

The following diagram shows what would happen to the same Mix/Pass (1.2) with Auto join enabled:



When the tape is stopped, the automation data is searched for the next fader move, and this is written back to Mix/Pass 1.2 to snap the fader back to its original position. This restores the remaining fader moves to the **absolute** settings recorded in Mix/Pass 1.1.

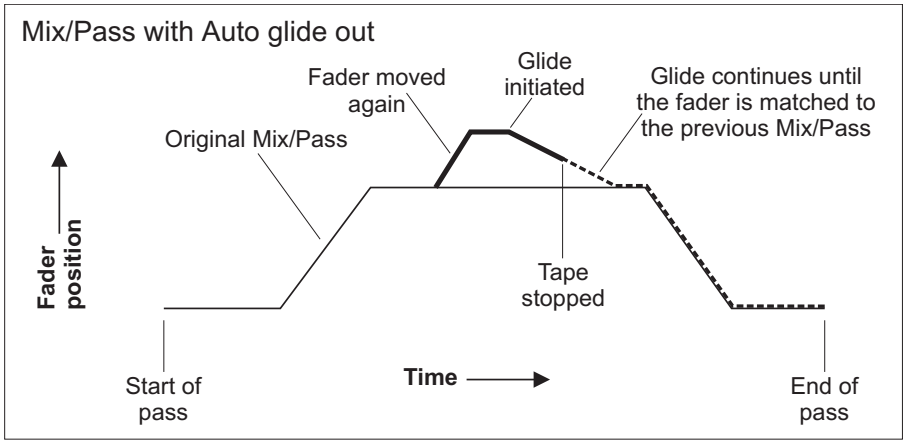
In a more complex Mix/Pass, Auto join will cause the system to search forward through the automation data to the next change to each control after the tape has been stopped. The positions of each control will be restored to their absolute positions (snapped back as in the fader example above), and the remainder of the automation data will be the same as the previous Mix/Pass.

Auto glide out

This is disabled (blue button) in the Default Configuration. The setting will be saved as part of the current Configuration.

When Auto glide out is enabled then a glide that has not finished will continue to be written to a Mix/Pass when the tape is stopped, until the glide has matched to the control's original position.

This is illustrated in the following diagram:



The operation of Auto glide out takes precedence over Auto join.

Safety stop

This is disabled (blue button) in the Default Configuration. The setting will be saved as part of the current Configuration.

Safety stop causes all controls to match back to the previous Mix/Pass with a 1 frame glide when the tape is stopped.

Safety stop can not be enabled at the same time as Auto join or Auto glide out.

6.8.3 Surface controls

Tap toggle

The button is enabled (yellow) by default and allows the operator to tap the Mute keys to toggle them on and off as an alternative to pressing them all the way down. Click on the button to disable this feature (the button turns blue).

ACCESS on SOLO

Disabling this button (blue) stops the AFU from following the Soloed path. This button is enabled (yellow) by default.

Freeze Monitor Mode

Enabling this button (yellow) prevents the global Overdub and global Track Send/Return keys on the Monitor section from changing state.

The individual Channel strip Overdub and Track Send/Return keys will continue to operate as normal.

This button is disabled (blue) by default.

6.8.4 Safety store times

To enable user settings on the safety store timer

➤ Click on the Enable button so it turns yellow.

➤ Click on the **Save after** box and roll the trackball left or right to set the time.

➤ Click on the **then every** box and roll the trackball left or right to set the time.

To disable user setting on the safety store time

➤ Click on the Enable button so it turns blue.

The Safety Store will be updated every 15 minutes.

6.8.5 Dim monitors

Dim monitors is disabled (blue Enabled button) by default. When it is enabled, the main control room monitors will be dimmed automatically when a tape machine is in fast-forward or rewind.

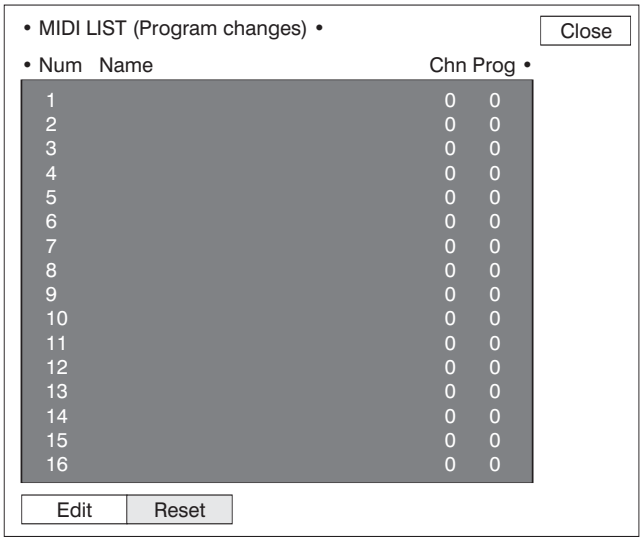
6.9 MIDI

The MIDI List allows MIDI program change commands to be associated with the keys in the soft panel when the MIDI Soft Menu is selected (see chapter 21).

To display the MIDI List

➤ Click the MIDI icon in the Miscellaneous Setup screen.

The MIDI LIST (Program Changes) screen will be displayed.



Num corresponds to the numbered key in the MIDI Soft Menu. Up to 24 can be defined. (These are displayed in three groups of 8 by the soft panel.)

Name is a description that can be applied. This is not displayed by the MIDI Soft Menu.

Chn is the MIDI Channel that will be given the program change.

Prog is the Program Number that will be issued to the MIDI Channel.

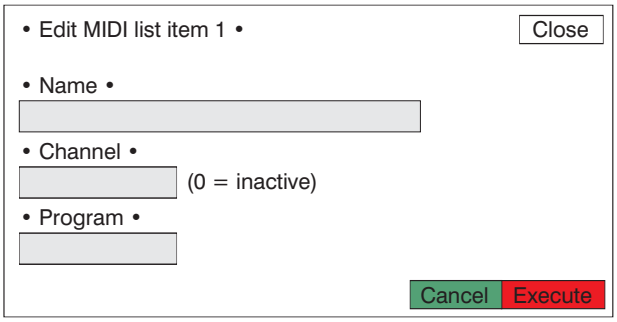
To change a MIDI program

➤ Click the Edit button.

It will turn yellow.

➤ Click on the required Num (use Scroll to access 17-24).

The Edit MIDI list item dialogue box will be displayed, indicating which Num has been selected.



➤ Click in the Name box and enter a description if required.

➤ Click in the Channel box and roll the trackball left/right to change the Channel number.

The MIDI Channel number can be in the range 0-16. A value 0 will make the corresponding Soft Menu key inactive.

➤ Click to set the number and return to normal pointer mode.

➤ Click in the Program box and roll the trackball left/right to change the Program number.

The Program number can be in the range 0-127.

➤ Click to set the number and return to normal pointer mode.

➤ Click Execute.

The new settings will be shown in the MIDI List screen.

To reset all Names to blank and all Channels and Programs to zero

➤ Click the Reset button.

Note: There is no warning or confirmation for this action.

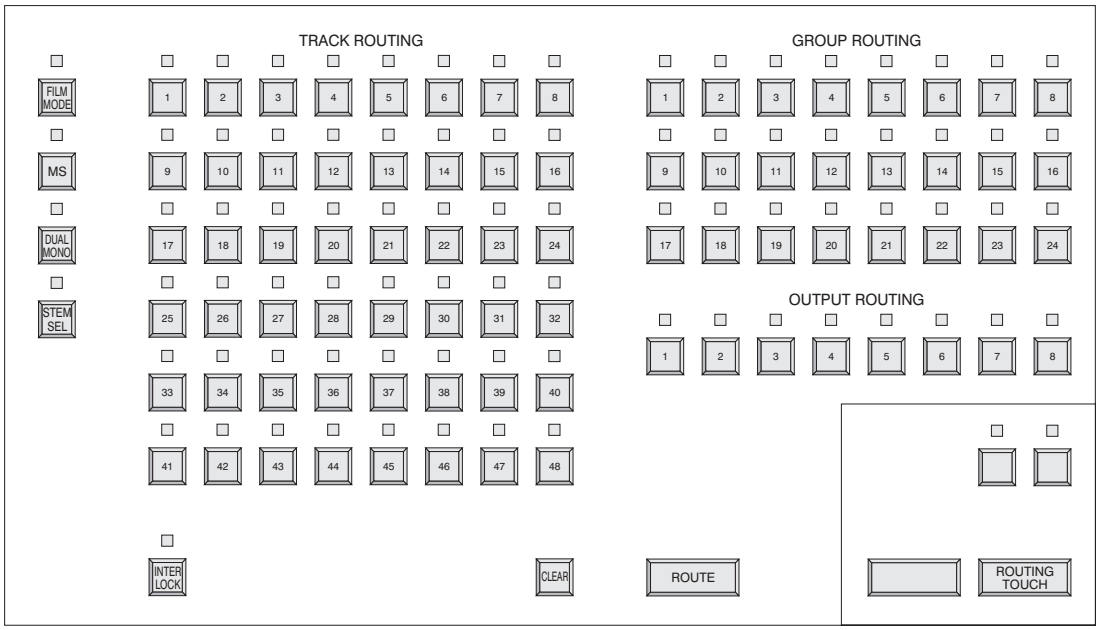
7 Routing

Internal signal routing between paths is displayed and controlled with the dedicated matrix of keys on the Assignable Facilities Unit and the ACCESS keys.

The AFU Routing Panel has a matrix of keys each for Tracks, Groups and Main outputs. Each matrix always shows which tracks, groups and outputs the currently accessed path is routed to.

The matrix does not show which paths are routed *to* the accessed path so the panel will be blank for output paths (Main Outputs, Cues and Aux Masters).

The matrix keys are double-action switches. A light press to the first level is used for routing interrogation. A full press to the second level is used to perform routing.



7.1 Routing

7.1.1 Forward Routing

AFU Forward Routing

To route the currently accessed path

➤ Fully press number keys in the Track Routing, Group Routing and/or Output Routing matrices.

The LEDs for each routing key pressed will illuminate. The operation is executed immediately.

If the destination path is stereo then either left or right leg can be pressed for selection and both LEDs will illuminate.

It is not possible to route to paths if they are not present in the current configuration (i.e. if the system configuration only has main outputs 1 to 4 then outputs 5 to 8 are not available for routing).

To allow routing to a single Track only

➤ Press the INTER LOCK key.

The LED above the key will illuminate. The key only controls track routing.

To cancel all forward routing for the currently accessed path

➤ Press the CLEAR key.

The accessed path will no longer be routed to any Tracks, Groups or Main Outputs.

The CLEAR key also clears reverse routing.

For example, to route input 1 to track 1 and track 3

➤ Press the ACCESS key on the Input 1 strip.

➤ Press 1 and 3 in the AFU Track Routing matrix.

7.1.2 Reverse Routing

This allows several channels at the same time to be routed to one track, group or output. The operation can be performed on the AFU and/or with the ACCESS keys.

AFU Reverse Routing

During reverse routing the other AFU and strip controls will operate as normal on the accessed path.

To use the AFU for reverse routing

➤ Pressing the ROUTE key.

The key will flash.

➤ Press the number key for the required Group, Track or Output.

The LED above the key will illuminate.

The ACCESS keys for paths routed to the selected destination will illuminate. The alpha displays will flash to indicate that the ACCESS keys are used for a special mode.

The Bank selector panel will show a ◆ symbol on banks with any hidden routed paths.

➤ Press the ACCESS keys to toggle routing of paths to the selected destination.

➤ Use the Bank selector panel to reach hidden paths for routing.

To end the operation

➤ Press the ROUTE key.

The key will cease flashing.

Momentary Reverse Routing

Momentary reverse routing is only activated after one of the routing keys is held down for about two seconds.

➤ Touch and hold down a routing destination key on the AFU.

The ROUTE key will flash.

➤ Press ACCESS keys to toggle routing to the selected destination.

➤ Release the routing destination key to end.

Access Key Reverse Routing

If an ACCESS key for a Group or Main Output path is held down for longer than about a second then reverse routing is initiated. The operation is similar to Momentary Reverse Routing.

➤ Hold down the ACCESS key for a Group or Main Output.

The ROUTE key and the strip alpha displays will flash when the routing mode is activated.

➤ Press the ACCESS keys for the source paths (Inputs or Monitors) to toggle routing to the destination.

➤ Release the destination ACCESS key to end the operation.

7.2 Interrogation

Two forms of interrogation are available: forward interrogation and reverse interrogation.

Forward Interrogation allows the operator to see which destinations the accessed channel strip is routed to.

Reverse interrogation allows the operator to select a destination and see which paths are routed to it.

7.2.1 Forward Interrogation

The Routing keys on the AFU provide forward interrogation at all times for the accessed path.

7.2.2 Reverse AFU Interrogation

To find out which paths are routed to a Track, Group or Main Output

➤ Press one of the routing keys in the routing matrix to the first level of depression.

The ACCESS keys will illuminate on routed paths and the bank selector display will show a ◆ symbol on banks with any hidden routed paths. The channel strip alphanumeric displays will flash to indicate that the control surface is in a special mode.

7.2.3 Reverse Access Interrogation

To find out which paths are routed to a Group or Main Output

➤ Press and hold the ACCESS key for the required Group or Main Output.

After about two seconds, the ACCESS key LEDs for paths that are routed to that path will illuminate and the bank selector display will show a ◆ symbol on banks with any hidden routed paths. The ACCESS key LEDs showing AFU assignment will turn off unless they are part of the routing. Interrogation will be desk wide.

7.3 Other Routing Panel Functions

Film Mode and Stem Sel

Pressing FILM MODE changes the operation of three of the AFU FACs to select pan law, front/back pan and rear surround split.

STEM SEL is used to simultaneously route one or more paths to all track sends associated with a film stem.

➤ See Track Send Signals in the Signal Processing chapter.

MS and Dual Mono

These keys are used to define stereo input sources as being MS or Dual Mono sources. They are only used with stereo paths.

➤ See the Signal Processing chapter.

8 Monitoring

Capricorn provides comprehensive monitoring outputs and facilities.

The Control Room Monitor is a stereo output that can feed one of 3 speaker sets, plus a PFL speaker. It has dedicated level control and switching.

Separate outputs are provided for the Studio Loudspeaker and Headphone.

All the monitoring outputs can monitor Main Outputs, Auxes, Cues or External sources.

Monitor modes for the Monitor paths can be set globally and locally, including the operation of Overdub mode.

Comprehensive solo facilities are provided with normal Solo, PFL and APL modes provided.

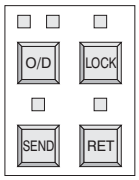
Solo operation is set with global controls in the Monitor section and the Solo setup screen on the Graphics Display.

Mutes are controlled from the path strips.

8.1 Monitoring Controls

8.1.1 Strip Monitor Mode Controls

These keys are only used to set monitoring modes on the Monitor paths and are inactive on all other path types.



The SEND and RET keys select the source for the monitor path and selecting both keys sets Super Mon mode. Super Mon mode is when the track send and track return are monitored together. If the Track is dropped into record then the track return is cut to the monitor (this prevents an offset between the signals being heard, as caused by delay introduced by the length of the signal path to, from and within a tape machine).

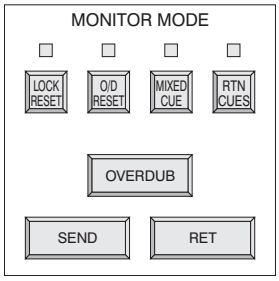
The local O/D key causes any Cues fed from this path to monitor the signal that is sent to the tape.

The LOCK key is used to prevent the global keys from changing the local monitoring modes.

8.1.2 Global Monitor Mode Controls

Used to globally set the monitoring mode on Monitor paths.

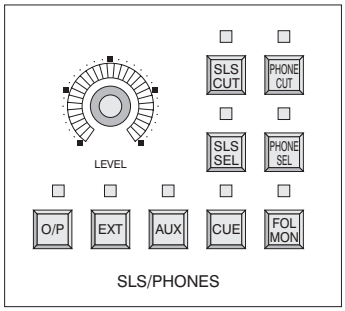
OVERDUB sets controls which are in Overdub to the Line In source ready for overdubbing.



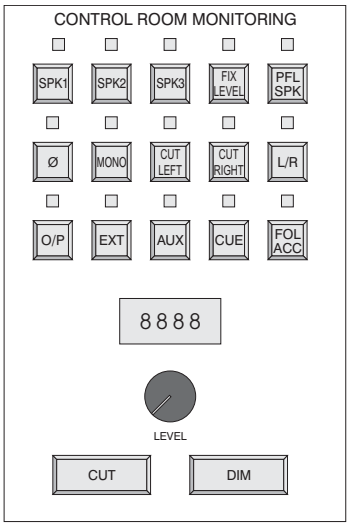
8.1.3 SLS/Phones

The level for studio loudspeakers and headphones may be set independently using the LEVEL control. The studio loudspeakers and headphones are cut separately.

The SEL keys are used to switch the Source Selection Matrix to selecting sources for studio loudspeakers or headphones.



8.1.4 Control Room Monitoring



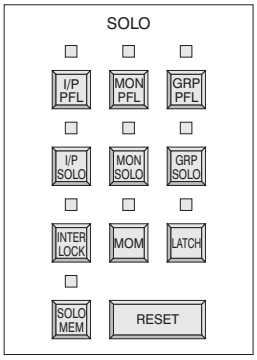
The top row of keys is used to select the set of loudspeakers for monitoring.

The middle row of keys is used to modify the signal sent to the speakers.

The bottom row of keys is used to select the monitoring source.

The 4-digit alpha display shows the monitoring level set by the level control below it.

8.1.5 Master Solo Controls

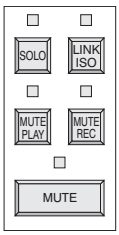


Sets the Solo or APL mode and PFL mode separately for Input, Monitor and Group paths. Sets solo on the strips to operate in interlocking, momentary or latching mode.

Banks or groups of solos can be setup.

RESET clears previously set solo, APL and PFL banks.

8.1.6 Strip Solo and Mute Controls



Used to solo and mute the path which is currently assigned to the strip.

Mutes are automated and have keys for setting the automation mode. See Automation Operations.

8.2 Control Room Monitoring

8.2.1 Source Selection

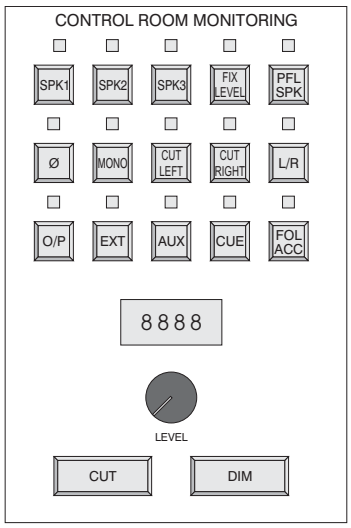
To select the source to be monitored

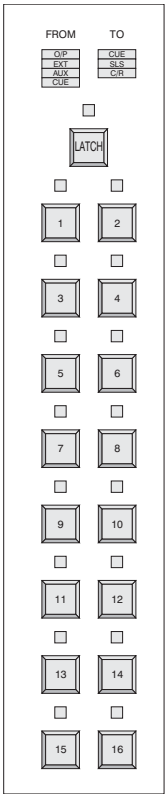
➤ Press one of the O/P, EXT, AUX or CUE keys.

The associated LED will light.

Note : See the Miscellaneous Setup chapter for information on setting External sources.

➤ Press the source matrix key for the required source.





The LED above the key will illuminate and if a stereo source is selected then both legs will be monitored and both LEDs will illuminate.

If the LATCH key is pressed then several signals can be monitored at the same time.

To monitor the accessed path

➤ Press FOL ACC.

➤ Press ACCESS keys as required to monitor different paths.

8.2.2 Monitoring Options

To set the overall monitoring level

➤ Rotate the LEVEL pot to the required setting.

The 4-digit alpha-numeric display shows the monitoring level.

To offset the monitoring level for a set of speakers

➤ Press and hold the SPK1 SPK2 or SPK3 key.

The alpha display above the level pot will display the current offset.

➤ Rotate the LEVEL pot to the required setting.

The offset can be in the range -60dB to +20dB in 1dB steps. The default is 0dB.

➤ Release the SPK1 SPK2 or SPK3 key.

The offset will be applied to the setting on the LEVEL pot when the set of speakers is selected.

To fix the monitoring level for speakers

➤ Rotate the LEVEL pot to the required setting.

➤ Press the FIX LEVEL key.

The LED above the key will illuminate and the level will now be fixed for each set of speakers.

To select the set of loudspeakers for monitoring

➤ Press the SPK1 SPK2 or SPK3 key.

To Cut the Control Room Monitor output

➤ Press the CUT key.

To cut the signal to the left or right speaker

➤ Press the CUT LEFT or CUT RIGHT keys as required.

The LED above the selected key(s) will illuminate. The signal to the corresponding speaker will be cut.

Note : Pressing both keys is the same as using the main CUT key.

To swap the signals appearing on the left and right speakers

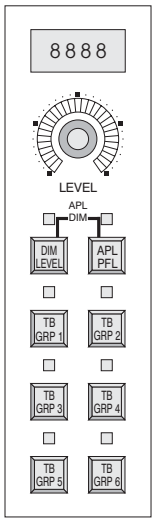
➤ Press the L/R key.

Left-right swap stops when the key is released (momentary action).

To set the Control Room Monitor Dim level

➤ Press the DIM LEVEL key to change the mode of the Level control.

The Circular Bargraph and the alpha display will show the current Dim level setting.



➤ Turn the rotary control to the required level.

To Dim the Control Room Monitor output

➤ Press the DIM key.

To monitor the PFL/Solo output on a separate loudspeaker

➤ Press the PFL SPK key.

To invert the phase on one side of the output

➤ Press the Ø key.

Phase inversion stops when the Ø key is released (momentary action).

To monitor a mono sum

➤ Press the MONO key.

The LED above the key will illuminate.

8.3 SLS and Headphone Monitoring

8.3.1 Source Selection

To select studio loudspeaker sources

➤ Press the SLS SEL key.

To select headphone sources

Press the PHONE SEL key.

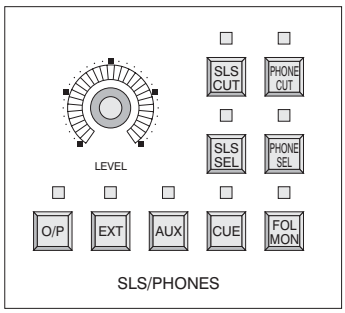
To select the source

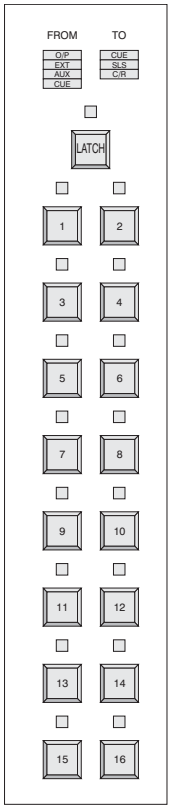
➤ Press one of the O/P EXT AUX or CUE keys.

The associated LED will light.

Note : See the Miscellaneous Setup chapter for information on setting External sources.

➤ Press the source matrix key for the required source.





The LED above the selected source key will illuminate and if a stereo source is selected then both legs will be monitored and both LEDs will illuminate.

If the LATCH key is pressed then several signals can be monitored at the same time.

To set the studio loudspeaker or headphones source to follow the source selection on the Control Room Monitor

➤ Press the SLS SEL or PHONE SEL key as required.

➤ Press the FOL MON key.

Note : If FOL ACC is selected as the Control Room Monitor source, then the studio loudspeaker or headphones will monitor the signal on the currently accessed path.

To cut the signal to the studio loudspeaker or headphones

➤ Press SLS CUT or PHONE CUT as required.

8.4 Overdub Monitoring

Comprehensive controls are provided to give maximum flexibility for monitoring during overdub or mixdown sessions. These include separate cue monitoring so the artist can listen to tape up to the overdub point.

The overdub facility enables the engineer and the artist to independently listen to any combination of Track Send, Track Return or both.

Cue sends are normally used for the foldback to the artist to monitor Auxes, Main Outputs or follow the control room monitor selection. Auxes feeding the artist are usually fed from the Monitor paths, pre fade.

8.4.1 Monitor Path Signal Sources

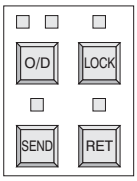
To select the source for a Monitor path

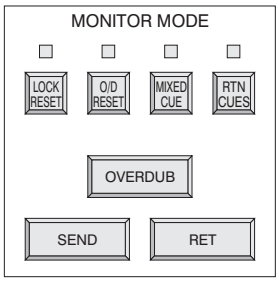
➤ Press the SEND or RET key as required.

To select the source for all Monitor paths

➤ Press the SEND or RET key as required.

All Monitor paths will be switched to the Track Send or Track Return, including any which may be in hidden Banks.





To set Super Mon mode

➤ Press both the SEND and RET keys on individual Monitor paths.

or

➤ Press both the SEND and RET keys to set the mode globally.

To isolate an individual Monitor path from global mode changes

➤ Press the LOCK key.

To un-set any active LOCK keys

➤ Press the master LOCK RESET key.

8.4.2 Overdubbing

The O/D key on the channel strip allows individual Monitor paths to be selected for overdub. This facility allows the operator to monitor the recorded signals off tape together with the live signal from the studio during overdub operation.

To select a Monitor path to be included in the overdub

➤ Press the O/D key for the required paths.

To activate overdub mode

➤ Press the global OVERDUB key.

The paths with the O/D key on will be forced to take the signal from the Track Send.

All other Monitor paths will continue to use normal Track Send and Return switching.

8.4.3 Foldback Mix

A foldback mix can only be active when the O/D key for a Monitor path is switched on and the Monitor path is contributing to an Aux bus with pre-fader pick-off.

Under these circumstances, the signal fed to the Aux bus from the Monitor path can be switched between the Track Send and Track Return. This does not affect the Monitor path which will still take the source from the Track Send.

The Aux can then be used as a source for the control room, studio loudspeaker or headphones as required.

To setup a foldback mix

➤ Press the ACCESS key for the required Monitor path.

This will allow the Auxes to be selected on the AFU.

➤ Press the PRE key for the Aux required for the foldback mix.

➤ Set the required contribution level, make sure the CUT key is off and the contribution is on.

➤ Select the Aux as the source for the Studio Loudspeaker or Headphones.

➤ Repeat the procedure for each of the required Monitor paths.

To use the foldback mix

➤ Press the local O/D keys for the paths contributing to the foldback mix.

The source for the Monitors will be forced to the Track Send.

The source of the Aux contribution on these paths is now controlled with the MIXED CUE and RTN CUES keys. While both keys are off, the foldback mix will monitor the Track Send.

To monitor the Track Returns on the foldback mix

➤ Press the RTN CUES key.

The LED above the key will illuminate.

To monitor the Track Return and Track Send together on the foldback mix

➤ Press the MIXED CUE key.

The LED above the key will illuminate.

When the tape machine goes into record the Mixed Cue mode will drop out to prevent phasing.

8.4.4 Resetting the overdub system

To reset all O/D keys on the Monitor paths

➤ Press the O/D RESET key.

All O/D keys will be turned off, including Monitor paths which are not on the surface.

To reset all LOCK RESET keys on the Monitor paths

➤ Press the LOCK key.

All LOCK keys will be turned off, including Monitor paths which are not on the surface.

8.5 Solo

8.5.1 Solo Modes

There are three modes of operation for Inputs, Track Return Monitor and Group paths. Each mode is set separately for these three path types.

Main Outputs, Track Send Monitors, Auxes and Cues can only be soloed in APL.

The solo modes are desk wide and cannot be independently set for split sections.

Cut Solo

This mode physically cuts the signal from all other channels. The soloed channel is post fader and includes any processing applied.

A.P.L.

After Pan Listen. This mode only cuts the signal to the monitor. The output of the console is uninterrupted. Any processing applied is monitored.

P.F.L.

Pre Fade Listen. This mode only cuts the signal to the monitor. Any processing applied is not monitored.

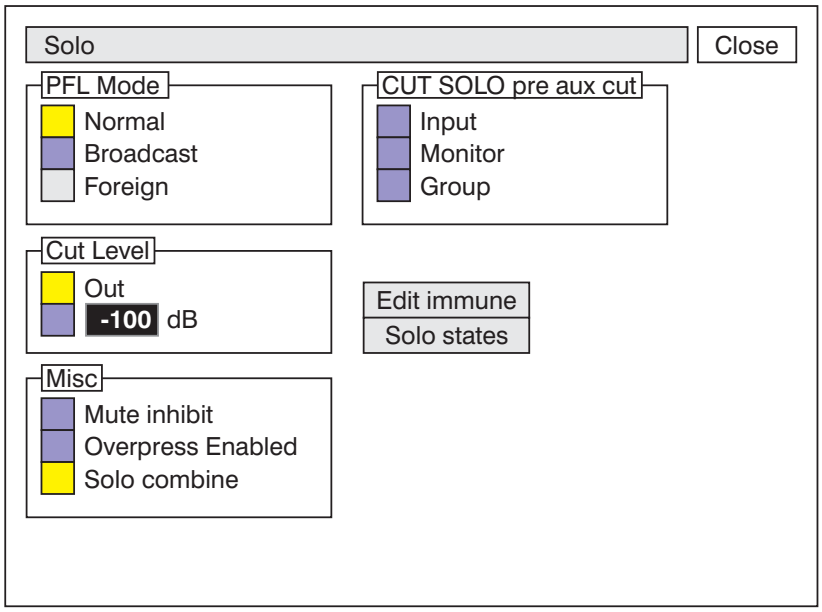
8.5.2 Solo Setup

The Solo screen is used to set global solo options and specify which paths are to be solo immune.

To access the Solo screen

➤ Click on the Solo icon in the System Menu.

The Solo screen is displayed:



PFL Mode

The PFL mode is either Normal or Broadcast (Foreign is not implemented).

Broadcast Mode

This allows the operator to listen to a path with the fader fully down and when the fader is moved up the solo disengages automatically.

To select PFL Mode

➤ Click on the Normal or Broadcast button.

The selected button will turn yellow. The other button will be blue.

Cut Level

The paths cut when a solo is engaged may either be cut completely or dimmed to a preset level.

To cut all paths completely when a solo is engaged

➤ Click on the Out button.

The button will turn yellow and the cut level button will turn blue.

To set the dim level for other paths when a solo is engaged

This only applies to Cut Solo modes.

➤ Click on the cut level button next to the level entry box.

The button will turn yellow and the Out button will turn blue.

➤ Click on the box containing the current dim level.

➤ Roll the trackball to the left or right to change the value.

The level may be set from -100dB to 0dB.

➤ Click a trackball button when the desired value is displayed.

Miscellaneous

Each of these options may be enabled (yellow button) or disabled (blue button) individually by clicking on the appropriate button.

Mute inhibit

Mute inhibit prevents the 

keys from operating on soloed paths.

Overpress Enabled

This enables paths to be PFL soloed when the fader is overpressed.

Solo combine

This is only applicable when Input and Monitor paths are both in Cut Solo Mode.

When Solo combine is enabled, engaging solo on an Input or Monitor path will cut all the remaining Input and Monitor paths.

When Solo combine is disabled, engaging solo on an Input path will cut the other Input paths only and engaging solo on a Monitor path will cut the other Monitor paths only.

Cut Solo Pre Aux Cut

This allows the point at which the signal is cut to be selected between before or after the pre-fader auxiliary pick off point when the I/P SOLO, MON SOLO or GRP SOLO keys are used and a solo is engaged (see Cut Solo Mode above). This is selected separately for Input, Monitor or Group paths.

Note: The aux must be taken pre-fader for this feature to operate.

To cut the signal before the pre-fader auxiliary pick off point

➤ Click on the button for the required path type so that the button is yellow.

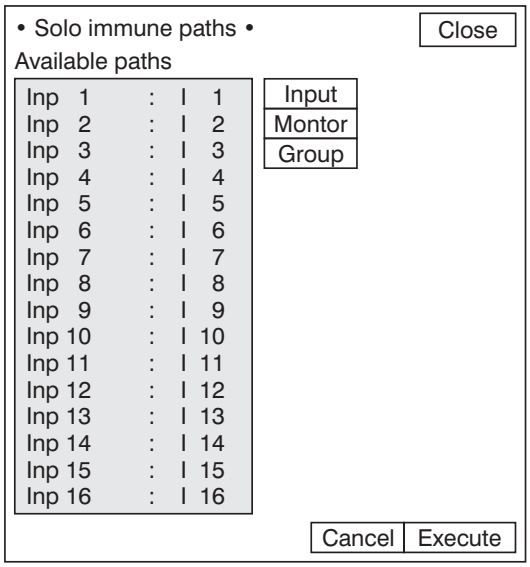
8.5.3 Solo Immune

Paths which are Solo Immune will not be cut when another path is soloed. This means that if a path is used for an effects return it does not have to be cut when a path is soloed and the signal plus the effect can be monitored.

To select paths to be solo immune

➤ Click on the **Edit immune** button.

The Solo Immune Paths screen will appear:



The path name alphanumeric displays on the console will flash.

➤ Click on the desired path names in the list or press their ACCESS keys.

➤ Press the SCROLL CURSOR to scroll the list up and down (press again to drop out of scroll mode).

➤ Click on the Input, Montor or Group buttons to jump through the list (e.g. clicking on the Montor button jumps the list to the first Monitor path).

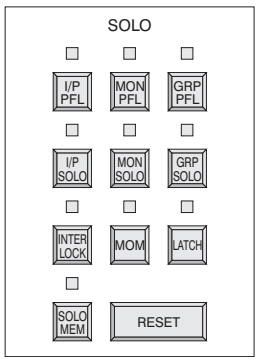
➤ Click on the Close to end.

8.5.4 Cut Solo Mode

To select Cut Solo mode

➤ Press the I/P SOLO, MON SOLO or GRP SOLO keys.

The LED above the selected key(s) will illuminate.



The SOLO key on corresponding path strips will work as Cut Solo.

In this mode all paths of the same path type are cut and the MUTE keys will illuminate. The mix output will be changed.

The point at which the signal is cut can be either before or after the pre-fader auxiliary pick off point. See Cut Solo Pre Aux Cut in the Solo Setup description on the preceding pages.

Capricorn provides the facility to dim the other channels rather than Cut them. The dim level is also enabled and set in the Solo screen.

8.5.5 After Pan Listen (APL) Mode

To select APL mode

Make sure the pairs of I/P SOLO and I/P PFL, MON SOLO and MON PFL, or GRP SOLO and GRP PFL keys are off.

The corresponding SOLO key for the different path types will operate in After Pan Listen mode.

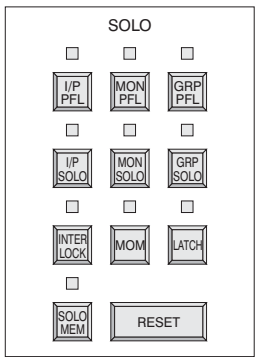
The signal is monitored on the stereo APL/PFL bus.

8.5.6 Pre-Fade Listen (PFL) Mode

To select PFL mode

➤ Press the I/P PFL, MON PFL or GRP PFL keys.

The LED above the selected key(s) will illuminate.



The SOLO key on corresponding path strips will work as PFL solo.

The signal will be picked-off immediately before the fader but after any pre-fader processing. The signal is monitored on the stereo APL/PFL bus.

PFL Overpress

The Overpress switch on the fader can activate PFL completely separately from the SOLO key selection. This operates as a momentary non-interlocking switch, so that all the paths that are held down will be monitored.

If the SOLO key is pressed while overpress is enabled the path will be PFL'd and not follow the assignment of the key. The Overpress switch will be inoperative for paths that can only be APL'ed.

The Overpress function is enabled and disabled from the Solo screen.

8.5.7 APL/PFL Bus Monitoring

The APL/PFL bus can either be monitored through a separate speaker or in combination with the main monitoring system.

There is only a single APL/PFL bus so independent monitoring is not possible during split operation.

To monitor the APL/PFL bus on a separate speaker

➤ Press the PFL SPK key on the Control Room Monitor panel.

The LED above the key will illuminate.

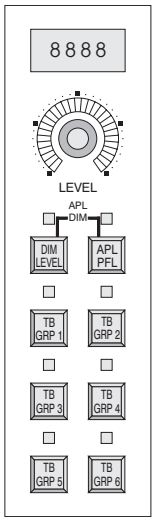
If the key is off then the APL/PFL signal is combined with the main monitor signal. When this is the case, the main monitor signal can be dimmed (or cut) to a preset level with the DIM key.

To set the monitor dim level for when APL/PFL is active

➤ Press and hold the DIM and APL PFL keys simultaneously.

➤ Adjust the LEVEL control to the required setting.

The level is shown in the alpha display.



To set the output level for the APL/PFL bus

➤ Pressing the APL PFL key.

➤ Rotate the LEVEL control to the required setting.

The level is shown in the alpha display.

8.5.8 Solo Reset

When any path is being soloed, in any mode, the RESET key on the Monitor section will flash and the Bank Selector panel will show an S next to banks with soloed paths.

To cancel all soloed paths on all banks

Press the RESET key.

8.5.9 Solo Switch Operation

The system allows the channel strip SOLO keys to work in a variety of ways.

Momentary Operation

Paths are monitored while the SOLO key is held down and more than one path can be monitored simultaneously. If the SOLO key is being held during a bank change then the channel strip will not change bank and the path will continue to be monitored. If further SOLO keys are pressed while one is held down then they will latch on and remain on until all the last SOLO key is released.

Latched Operation

Paths will remain SOLOed after the SOLO key is released and are only reset if the key is pressed a second time or the global RESET key on the monitor section is pressed.

Note: Solo is activated as the switch is pressed and deactivated as the switch is released.

Interlock Operation

When a SOLO key is pressed then all other SOLO keys will be disabled and the selected path will be latched on.

The keys will latch on and remain on until the RESET key is pressed or another path is selected.

8.5.10 Solo Memory

Solo memory will operate in all solo modes.

To create a Solo Memory

➤ Select the paths to be included in the store by pressing the SOLO keys for those paths.

➤ If necessary, change banks to get to other paths.

➤ Press the SOLO MEM key.

A store of all the currently soloed channels is made.

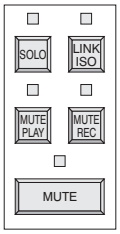
When any member of the store is selected the whole store will be recalled.

Paths can be added and subtracted from a store after it is recalled by pressing the SOLO MEM key after the change has been made.

To cancel the Solo Memory

➤ Press the SOLO MEM key when no paths are soloed.

8.6 Mute



The MUTE key is used to cut the signal pre-fader. It will affect any mix that a cut path is part of.

The MUTE key is double action to provide automation 'touch' at the first level of depression.

To cut a path

➤ Press the MUTE key to the second level.

The integral LED will illuminate.

The key will toggle on and off each time it is pressed.

or

➤ Tap the key rapidly.

Tap toggle must be enabled for this to operate. See the Miscellaneous Setup chapter.

Tip - Cancelling all mutes

There is no direct method of un-muting all paths simultaneously.

If it is necessary to do this then

➤ Set the Set Store Scope to include all paths for Mute controls only.

➤ Make sure all the Mutes are off.

➤ Make a New Store.

The Store will un-mute all the paths without affecting any other controls when it is recalled.

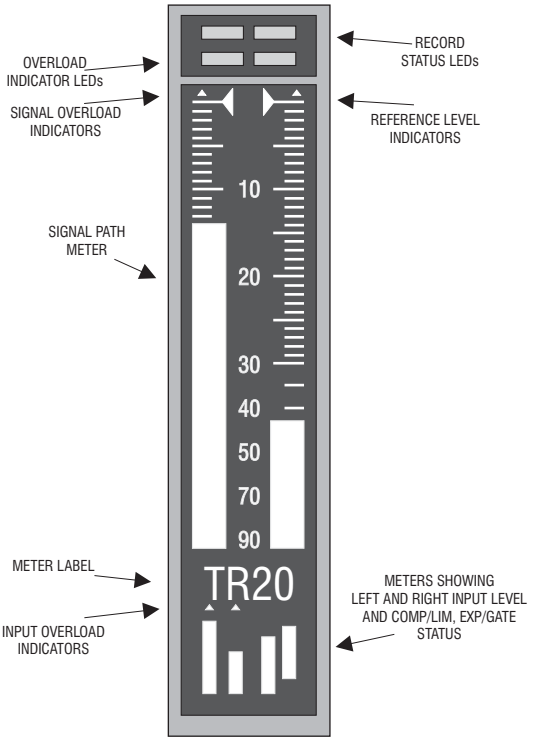
See the Stores chapter.

9 Metering

The channel strip meters are Vacuum Fluorescent Displays (VFDs) which produce a fine dot matrix illumination. These meters are divided into two sections:

The upper part of the display is used for high resolution metering of track send/return level or the signal currently assigned to the channel strip. A four character label shows its current assignment. This area can also be used to display graphical information relating to the channel strip such as EQ setting and routing.

In the lower portion of the VFD a further 4 mini bargraph displays may be selected to meter the input level (mono or stereo), compressor/ limiter, expander/gate gain reduction status. These meters are always related to the strip. The Input meters show the modulation of the input port, in other words the top of the meter is the clipping point of the ADC or full coding on a digital line. The bottom segment will illuminate when the signal exceeds a programmable threshold, this will allow the operator to see when a signal is present.



Stereo Metering

9.1 Meter Scale

The main system metering has PPI characteristics, this has a true instantaneous rise time and a hold and fall time equivalent to PPM. The assignable meter on the Monitor section can be selected to show VU characteristics or phase and may be assigned as required through the Meter Control screen. Peak hold and riding peak indication may be selected.

The scale of the meters is in dBFS (Full Scale) with 0dB at the top of the scale, or dBu with +24dB at the top of the scale. For recording to digital destinations, peaking to 0dBFS represents full modulation of all bits.

The meter scale can be set to 10dB or 1dB intervals (see Other options).

9.2 Overload

Signal Path Meter

The orange LEDs at the top of the meter section show when the main meter overloads (ie. exceeds 0dBfsd). They can be set to flash for approximately 5 seconds or 2.5 seconds, or to light solid until they are reset by 

(see Other options).

If the strip is set up for a stereo pair, then the orange LEDs will show overloads of the left and right channels separately (ie. one LED for each channel).

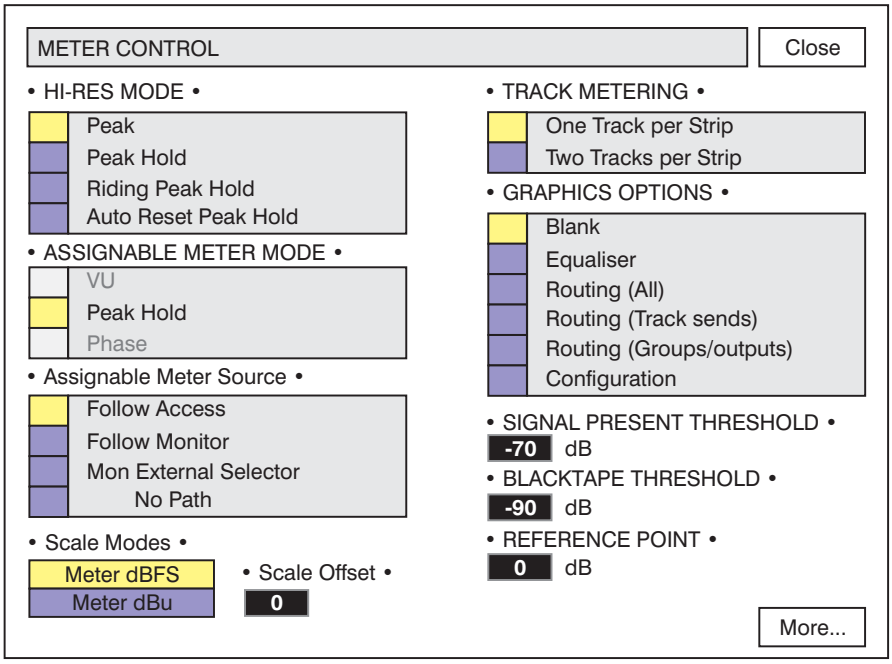
There is also a ▲ symbol at the top of each meter bar which will light for the duration of the overload.

Input Meter

On the input meters a ▲ symbol is shown when the signal overloads. The symbol stays lit for approximately 3 seconds. This is detected at the ADC directly for analogue inputs.

9.3 Meter Operation

The meter modes and operations are set up though the Meter Control screen.



The meter displays will change as changes are made within this screen.

Hi-Res Mode

The High resolution meters can operate in one of the following modes:

Peak: The meter will follow the audio with an instantaneous rise time and fall time equated to the PPM law.

Peak Hold: The maximum level is held and maintained until the MTR RESET key is pressed.

Riding Peak Hold: The maximum level is held for about 1 second before falling back to the current value.

Automatic Reset Peak Hold: The maximum level is held through-out a pass until the tape machine goes into PLAY, at which time the peak indicator falls to the current meter level.

Assignable Meter Mode

The assignable meter can work as a VU, Peak or Phase meter. The meter point is always at the input of Input and Monitor paths and at the output of Output, Aux and Cue paths.

VU and Phase metering is only available when the source is set to Follow Monitor.

Assignable Meter Source

The assignable meter can be set to show the signal from one of four sources.

Follow Access

The meter will show the signal on the currently accessed path.

Follow Monitor

The main monitor output will be metered. The VU and Phase metering buttons become available.

Mon External Selector

The currently selected External source for the Monitor will be metered.

User Definable

The last source can be specified by the user. If a selection has not been made, then No Path will be displayed next to the button. The user can select a source by clicking on No Path (or the currently selected path name).

Scale Modes

The meters will display either a dBFS or dBu scale.

➤ Click on the Meter dBFS or Meter dBu button to select the scale.

This selection does not affect the assignable meter.

Scale Offset

This is only applicable to dBu metering.

A meter offset may be added to account for the preferred operating level, ie. a meter offset of -6dB will change a +6dBu reading to show 0dB.

To change the Scale Offset

➤ Click on the current value.

➤ Roll the trackball to the left or right to change the value.

The range is -24dB to +24dB.

➤ Click a trackball button when the desired value is displayed.

The trackball will return to pointer mode.

Note: Changing the meter scale has no effect at all on the input/output levels, it is only a display change.

Track Metering

This allows the selection of one or two tracks per strip for metering. See Channel Strip Meter Mode Selection below.

Graphics Options

The channel strip meters can be used to give alternative information about the channels. The selected graphic display is shown when the GRAPHIC key on the Meter Select section is pressed.

Signal Present Threshold

The bottom segment of the low resolution input meters indicates that a signal is present at the input.

To change the Signal Present Threshold

➤ Click on the current value.

➤ Roll the trackball to the left or right to change the value.

The range is -90dB to -40dB.

➤ Click a trackball button when the desired value is displayed.

The trackball will return to pointer mode.

Example: If the signal present threshold is set to -50dB then the segment will light when the signal exceeds -50dB below the clipping point of the input port.

Blacktape Threshold

The Blacktape Threshold allows the user to set a level below which the strip meters will not display. The default setting is -90dB, which is the bottom of the meter in the default display (dBFS mode).

To change the Blacktape Threshold

➤ Click on the current value.

➤ Roll the trackball to the left or right to change the value.

The range is -90dB to -40dB.

➤ Click a trackball button when the desired value is displayed.

The trackball will return to pointer mode.

Example: If the threshold was set to -40dB, the scale below -40dB would no longer be displayed and signals would not register on the meter display until they reached -40dB.

Reference Point

The setting for the reference point moves the reference level indicators to the value set. The reference level indicators are a triangle and a thick line for mono metering, and back-to-back triangles for stereo and two track metering.

To change the Reference Point

➤ Click on the current value.

➤ Roll the trackball to the left or right to change the value.

The range is -40dB to +24dB.

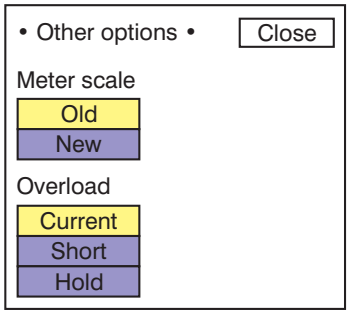
➤ Click a trackball button when the desired value is displayed.

The trackball will return to pointer mode.

Note: If the scale mode is switched between dBFS and dBu, the reference level indicators will move to the point on the scale which matches this setting.

Other Options

The Other options dialogue box is displayed by clicking the More... button in the Meter Control screen.



To set the meter scale

➤ Click Old to set the meter scale to intervals of 10dB.

➤ Click New to set the meter scale to intervals of 1dB.

The selected button will be yellow and the other button will be blue.

To set the overload LED display

➤ Click Current to cause the overload LED to flash for approximately 5 seconds.

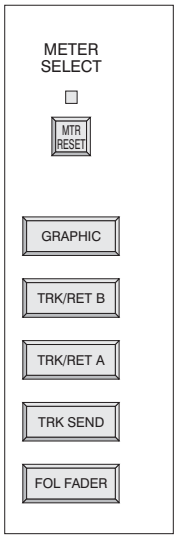
➤ Click Short to cause the overload LED to flash for approximately 2.5 seconds.

➤ Click Hold to cause the overload LED to illuminate solid until a different overload option is selected or the meters are reset by MTR RESET .

The selected button will be yellow and the other two buttons will be blue.

9.4 Channel strip Meter Mode Selection

The meter modes are selected using the Meter Select panel.



The GRAPHIC key selects a pre-assigned alternative display to the VFDs, e.g. graphical representation of equalization.

The FOL FADER key causes the meters to follow the channel strip path assignment. The meter point is set in the Path Configuration screen.

The TRK SEND key assigns the meters to the track send signal. The meters are assigned sequentially from left to right. A desk with 24 channel strips will show two tracks on each meter (like a stereo signal).

The TRK/RET A and TRK/RET B keys assign the meters to the track return signal. Two keys are provided so that a small control surface can meter a large number of tracks.

If the user has selected only one track per display then for a 24 fader desk:

TRK/RET A	assigns tracks 1 to 24 to the meters
TRK/RET B	assigns tracks 25 to 48 to the meters

If the user has selected two tracks per display then for a 24 fader desk:

TRK/RET A	assigns tracks 1 to 48 to the meters
TRK/RET B	assigns tracks 49 to 96 to the meters

If the user has selected only one track per display then for a 48 fader desk:

TRK/RET A	assigns tracks 1 to 48 to the meters
TRK/RET B	assigns tracks 49 to 96 to the meters

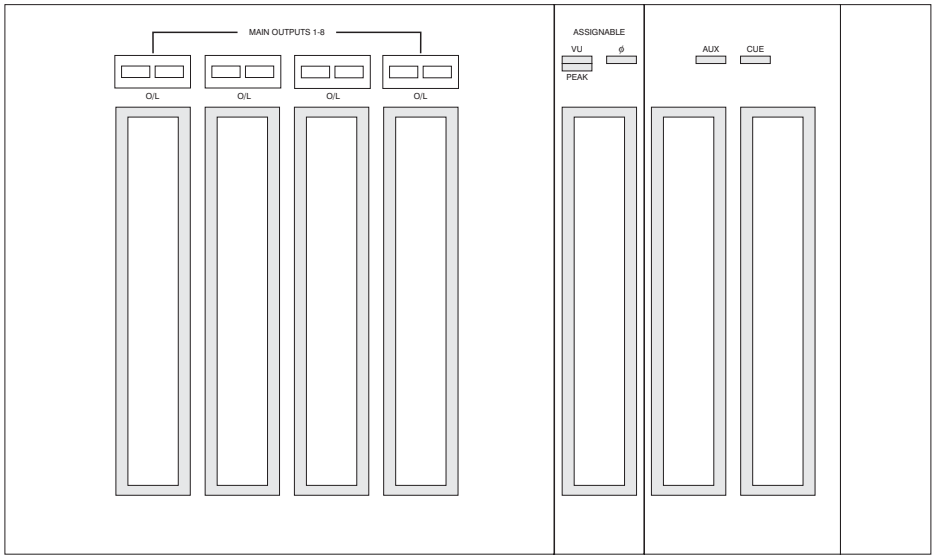
If the user has selected two tracks per display then for a 48 fader desk:

TRK/RET A	assigns tracks 1 to 96 to the meters
TRK/RET B	assigns tracks 97 to 192 to the meters

9.5 Monitor Meters

There are four Main Output Meters, the Assignable Meter and a pair of Aux/Cue meters.

The Main Output Meters always show the levels on the stereo Main Outputs.



The function of the Assignable Meter is set in the Meter Control screen described earlier in this chapter.

See the Auxiliaries and Cues chapter for information on selecting the signal shown on the Aux/Cue Meters.

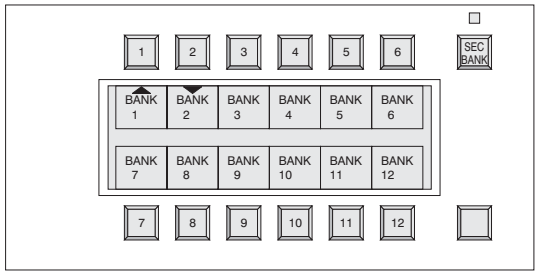
10 Signal Processing

10.1 Using Channel Strip Banks

The 12 Banks are used to pre-define different sets of path to strip assignments which can be called to the console surface as required. Each bank can have a completely different set of paths assigned to all the channel strips. For instance, Inputs 1 to 48 on Bank 1 and Monitors 1 to 48 on Bank 2.

All defined banks are active at all times. The concept is like a stack of console surfaces which are all operational, but each one must be brought to the top in order to allow direct changes to the controls.

The Banks are selected by dedicated keys on the AFU. Each bank can be labelled with an eight character name provided by the operator. During routing and certain other processes the Bank display indicates when paths on hidden banks have been selected.



Selecting a new Bank changes the strip assignments but the AFU will remain assigned to the most recently accessed path until a different path is accessed.

If a fader or control is being touched or the ACCESS key is held down on a given strip when a new bank is selected then the strip will not change bank.

10.1.1 Primary and Secondary Access

Each ACCESS key has an associated alpha display which shows the path assigned to each key. Normally the primary (upper) alpha will be illuminated brightly and the secondary (lower) alpha will be dim indicating that the primary signal path is assigned to the strip. (See page 6:7 in Miscellaneous Setup for details of setting alpha display brightness.)

When the lower ACCESS key is pressed then the strip is reassigned to the secondary signal path and this is indicated by the lower alpha illuminating brightly and the upper alpha dimming. The AFU will also be assigned to the selected path.

Any Bank can be assigned to the secondary ACCESS keys.

To assign a bank to the secondary ACCESS keys

➤ Press the SEC BANK key.

The led above the key will illuminate.

➤ Press the required Bank selector key.

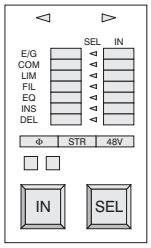
The led above the SEC BANK key will go out.

The secondary alpha displays will be illuminated brightly.

The strips will remain assigned to the paths on the secondary bank until either primary ACCESS keys are pressed to select individual primary paths or until a new bank is selected for the primary ACCESS keys.

10.2 Function Indicators

The Function Indicators at the top of each strip show which signal processing elements have been assigned to the path by Path Configuration and which of those elements are switched on. The IN column shows processing which is switched on.



In addition, there are three LEDs which indicate phase inversion, stereo operation and phantom power, and nulling indicators which show the direction to turn the FAC being touch to reach its null position (see Automation Operations).

To switch an element in and out of the signal path

➤ Press the ACCESS key for the required path.

The AFU will be assigned to the path.

➤ Press the appropriate IN key on the AFU (e.g. the EQ IN key for EQ).

OR

➤ Press the SEL key below the function indicators.

With each press, the red arrow LEDs in the SEL column will illuminate in turn to indicate the function which will be affected by the IN key.

➤ Press the IN key.

In both cases

The appropriate LED in the IN column will illuminate.

Note: Only processing that is assigned to a signal path with Path Configuration can be switched in.

10.3 Input Paths

Input paths are used for inputs from microphones and line sources. Input paths must be fed from ports on the Mic/Line Input racks (analogue sources) or the Digital I/O racks (digital sources). Any Input port can be used to drive an Input path (port assignment is described in Input/Output Configuration). Input paths can be routed to Tracks, Groups or Outputs. Any pair of Input paths can be associated as a stereo path.

10.3.1 Input Source Selection

As described above, an Input path can be fed from either analogue or digital Input ports. Each analogue port can be fed from one of the following sources:

Microphone A
Microphone B
Line Input A
Line Input B

On stereo analogue ports the keys will select between 2 stereo line sources and 2 stereo microphone sources. The selection is made with keys on the AFU.

If a digital port is selected then Mic A and Mic B are ignored. If the path is stereo then Line B will not be available, i.e. there is no source selection.

To select an input source

➤ Press the LINE A LINE B MIC A or MIC B key as required.

To swap the left and right legs on a stereo digital input

➤ Press the SWAP key.

To use the top FAC for Input Source selection

➤ Press the I/P SEL key on the FAC Selector panel.

The alpha display above the FAC will show the current source.

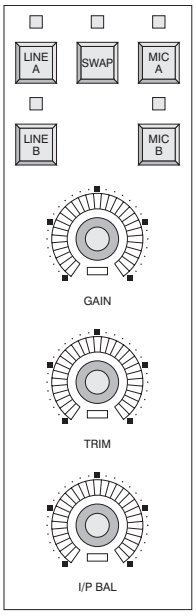
➤ Rotate the FAC to the required source.

10.3.2 Mic/Line Gain and Trim

Mic or line gain is controlled through the rotary control on the AFU. The same control is used for both mic and line gain but the range of values is independent for each source selected.

The Gain control has 2dB steps. For fine control the Trim rotary control is used with 1/2 dB steps.

The AFU vacuum Fluorescent display will show the amount of total input gain.



To use the FACs for Mic/Line Gain and Trim

➤ Press the GAIN key on the FAC Selector panel.

The top FAC will now control Mic/Line Gain and the alpha numeric display will show the level in dB.

➤ Press the TRIM key.

The top FAC will now control further fine adjustment of the input gain.

The alphanumeric display shows the total amount of coarse Gain plus or minus Trim control.

10.3.3 Input Balance (Offset Gain)

The I/P BAL function only applies to Mic/Line Inputs to stereo paths and is inoperative on mono paths. It provides balance control at the input (pre-fader).

The display will show a value between 2L - 0 -2R.

10.3.4 MS Sources

The MS key is used to convert an MS source to a normal stereo signal so that the console can apply processing correctly.

To select an MS source

➤ Setup the MS stereo input on a stereo path.

➤ Press the appropriate ACCESS key to call the stereo path into the AFU.

➤ Press the MS key on the Routing panel.

All stereo functions will now operate as expected.

Note: The MS key can only be used on stereo paths.

10.3.5 Dual Mono Sources

The DUAL MONO key is used to define a Dual Mono source from a stereo input.

To select a Dual Mono source

➤ Setup the Dual Mono source (on a stereo input) on a stereo path.

➤ Press the appropriate ACCESS key to call the stereo path into the AFU.

➤ Press the DUAL MONO key on the Routing panel.

Note: The DUAL MONO key can only be used on stereo paths.

A Dual Mono source is not a true stereo source. Panning the pair will not move the sound from left to right, but will proportionally adjust the level on each side.

A Dual Mono signal is not suitable for routing to a film stem and should only be routed to stereo track sends.

The Mults option in Port Selection screens allows a stereo input to also be used as a pair of mono inputs. This would allow the two separate signals in a Dual Mono input to be split onto two separate mono paths.

10.3.6 Phantom Power

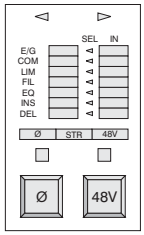
Any Input path fed from the mic source can have phantom power.

Phantom power can be switched on at any time whether or not a microphone source is selected. Phantom power is applied to both A and B microphones.

This function is not dynamically automated but can be stored as part of the system set up.

To apply phantom power to mic inputs

➤ Press the 48V key below the duplicate Function Indicators on the AFU.



The 48V LED at the top of the strip for the currently accessed Input path will illuminate.

10.3.7 Phase Reverse

Any Input signal can be phase reversed. Individual input sources (i.e. Mic A, Mic B) have independent phase control.

This function is not dynamically automated but can be stored as part of the system setup.

To apply phase reversal to an Input

➤ Press the Ø key below the duplicate Function Indicators on the AFU.

The phase reversal LED at the top of the strip for the currently accessed Input path will illuminate.

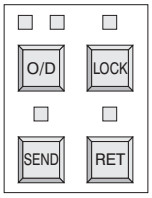
10.4 Monitor Signal Paths

Monitor (or Track Return) paths have different functions from Input paths. These signals are the returns from the Multitrack tape machines.

Monitor paths always have an associated Track Send signal, the system knows how many sends are required when the Tape machines are allocated as part of the system set-up (see section 3.4). During this set up procedure the Track Sends can either be mapped in series (i.e. 1-24 and 25-48) or in parallel (i.e. 1-24 and 1-24).

The source of the Monitor path can be switched between the Track Send signal and the Track Return signal. There are global SEND and RET switches on the Monitor Section to select the source and local switches on the channel strips.

The SEND and RET keys select the source for the monitor path. When both keys are pressed together, this sets the Super Mon mode. Super Mon mode is when the track send and track return are monitored together. If the Track is dropped into record then the track return is cut to the monitor (this prevents an offset between the signals being heard, as caused by delay introduced by the length of the signal path to, from and within a tape machine).



Note: If the tape machine is not in Play, the Track RETURN signal will be the same as the SEND signal.

The monitor path source can be selected globally using the global SEND and RET switches on the monitor section. When the global send and return buttons are pressed, all monitor paths will be reset to the global state, unless the LOCK key is selected on the channel strip. When the LOCK key is selected, the source for the channel strip will remain as selected on the local SEND and RET buttons. The LOCK RESET button on the monitor section will clear any Locked channels.

10.5 Track Sends

10.5.1 Track Contribution

The TRACK CONT control is located on the AFU. Alternatively the function can be assigned to the top row of channel strip FACs by pressing the TRK CONT button on the upper FAC function select panel.

The Track Contribution control may be used as an independent gain control to control the individual level of signals routed to multitrack mix busses. This control will effect the signal either pre or post fader depending on whether the multitrack pick off point is assigned pre or post fader using the Path Configuration screen.

Alternatively the Track Contribution control may be used as an individual Aux contribution control if the operator wishes to use the systems multitrack buses as additional AUX buses.

Tracks Setup

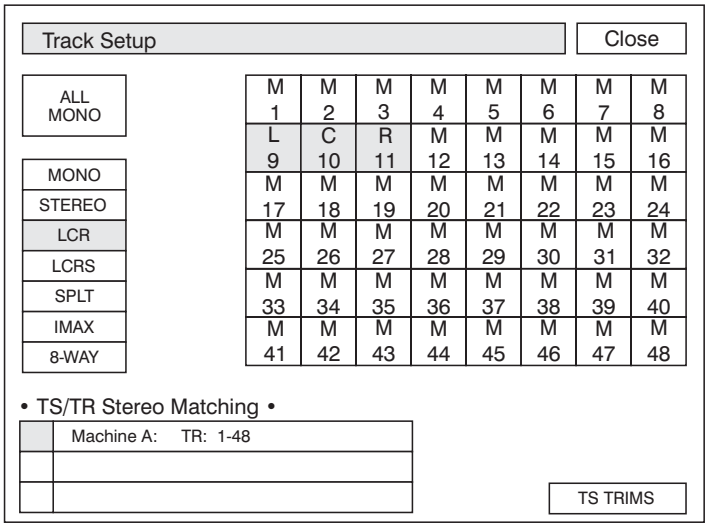
Allows the operator to decide which track sends are mono, stereo (in any combination) or used for surround sound.

Note: It is important that if paths are routed to any stereo destination, panning will not work unless the destination is made stereo.

To define Multitrack send busses

➤ Click on the Tracks Setup icon.

The Track Setup screen is displayed.



10.5.2 Stereo Tracks

Capricorn is not limited to stereo track sends being adjacent pairs, nor do they have to be odd and even. Any of the multitrack busses may be selected.

When a path is routed to a stereo Track Send destination, pressing the routing button of either leg of a stereo pair will automatically select the other, and panning will operate across the selected pair.

To define stereo track sends

➤ Click on the STEREO button.

➤ Click on the Track Send that you wish to be the left leg of the stereo pair.

➤ Click on the Track Send you wish to be the right leg.

The track number boxes will indicate the stereo pairing.

Any number of stereo Track Sends may be configured in this way.

To de-select a stereo pair

➤ Click on the MONO button.

➤ Click on the stereo pair that you wish to make mono.

To de-select all stereo pairings simultaneously

➤ Click on the ALL MONO button.

A dialogue box will appear asking for confirmation.

➤ Click on Execute.

Note: This will set all track sends to mono, including those set for film types (surround sound).

TS/TR Stereo Matching

If a number of Track Sends have been configured as stereo pairs, the reciprocal Track Returns can be collectively configured as stereo paths from the Stereo Tracks menu.

To select TS/TR Stereo Matching

➤ Click on the “TS/TR Stereo Matching” button for the respective tape machine.

A screen will be displayed to confirm that Track Returns will assume the stereo pairing of the Track Sends.

➤ Click on EXECUTE.

ALL MONO will also automatically de-select the stereo pairings of Track Returns.

Note: Track Sends can be paired with more than one Track Return if two or three machines are connected in parallel. When a Track Return becomes stereo with this operation the fader and controls for the right leg will be disabled on the channel strips and the left leg will control the stereo pair.

10.5.3 Film Tracks

Capricorn provides the facility for any of the 48 multitrack mix busses to be configured for LCR, LCRS, Split Surround, IMAX and 8-Way operation.

Note: IMAX and 8-Way are only available if the relevant software upgrade has been purchased.

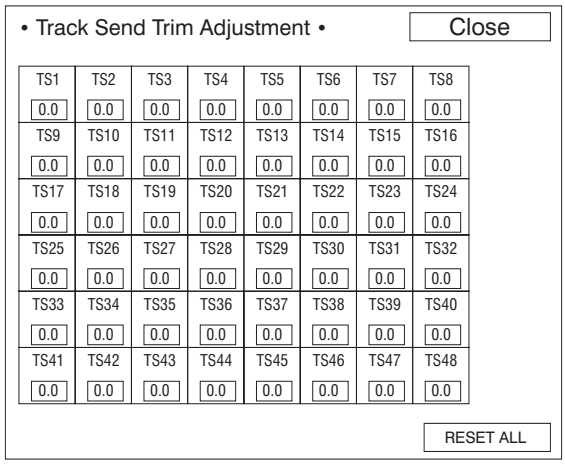
See the Surround Sound chapter for details.

10.5.4 Track Send Level Control

To alter the track send output levels

➤ Click on the TS TRIM button in the Track Setup screen.

The Track Send Trim Adjustment screen is displayed:



➤ Click on the box showing the current output gain.

➤ Roll the trackball to the left or right to change the value.

➤ Click when the required trim value is shown.

➤ Click on Close once the gains have been set on all tracks.

10.6 4-Band Parametric Equalizer

The 4-band parametric equalizer has individual controls for frequency, gain and Q for each section. The **FREQ** controls allow the centre frequencies of the bands to be moved across the audio spectrum, each widely overlapping and in 57 actual steps. The **+/–** control varies the gain/attenuation between +/-20dB in logarithmic steps and **Q** varies the shape.

EQ's are assigned to signal paths using the Path Configuration screen.

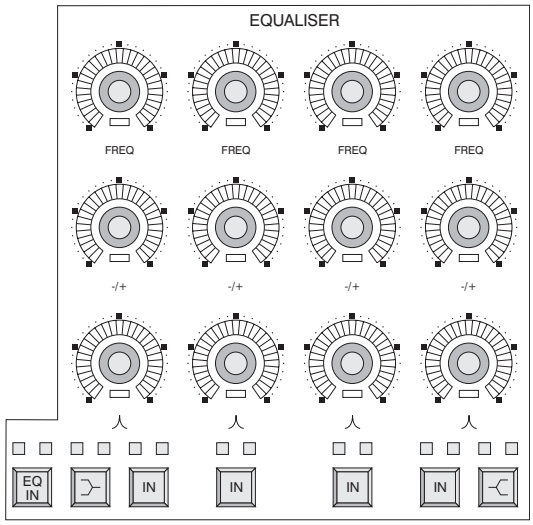
The Function Indicators at the top of each strip show the processing configured and switched in to each path. A left hand LED illuminates when the associated processing element is configured into the path. The right hand LEDs show when processing is switched in or out.

The EQ is switched into circuit by pressing the EQ IN key. Each band may then be switched in or out by pressing its IN key. Alternatively the EQ In/Out can be controlled on the channel strip using the IN and SEL keys.

The outer bands may be configured as shelving filters by pressing the appropriate or key.

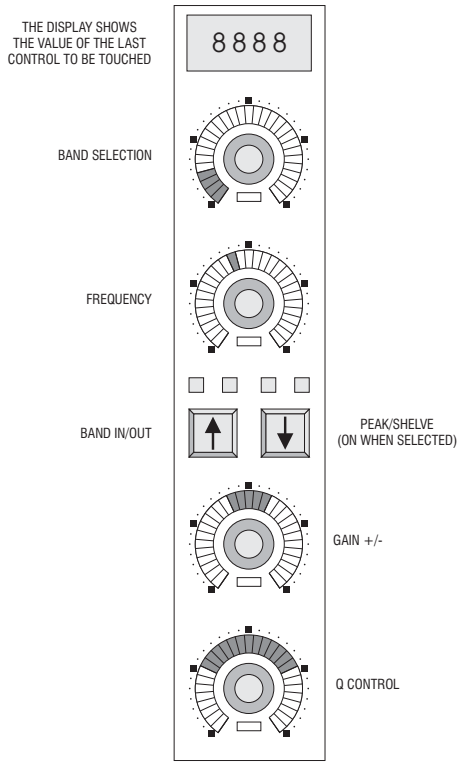
All the controls on the EQ section are automated, the switches are therefore all 'double action'. The first press being equivalent to touch, the full press is required to activate the function. As with all switch functions on the desk, the green LED illuminates when the function is on. The red LED is used to indicate WRITE.

When any control is touched, the V.F.D. display situated in the AFU section will show the settings of the whole EQ section.



10.6.1 Controlling EQ on the Strip FACs

To control EQ's on the channel strip, Press the EQ button on the FAC selection panel. The channel strip rotary control will be assigned as:

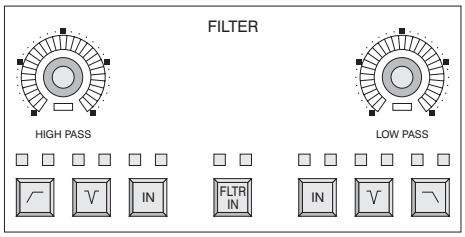


In this mode the channel controls cannot be used for Aux control. However, the lower rotary knob can control Pan/Balance or width by pressing the BAL or WIDTH key.

10.7 Filters

There are separate High and Low Pass Filters each with dedicated Frequency Controls located on the AFU, above the EQ Section.

Filters are assigned to the signal path using the Path Configuration screen. See the Path Configuration chapter.



The filter section may be switched into circuit using the FLTR IN key. The associated High and Low pass filters may then be selected individually using the appropriate IN key. The slope of the filter can be changed using the and keys. When pressed, the filters are set to 4th order (24dB/oct, when the filters are off they are set to 2nd order (12dB/oct).

Each Filter can be configured as a notch filter by pressing the key. The and keys change the notch width of the associated filter to wide or narrow.

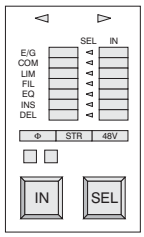
All these keys may be dynamically automated and so use double action switches.

The red LED indicates when the control is in record.

The green LED indicates when the function is turned on.

When any control is touched, the vacuum fluorescent display will show the settings of the whole filter section.

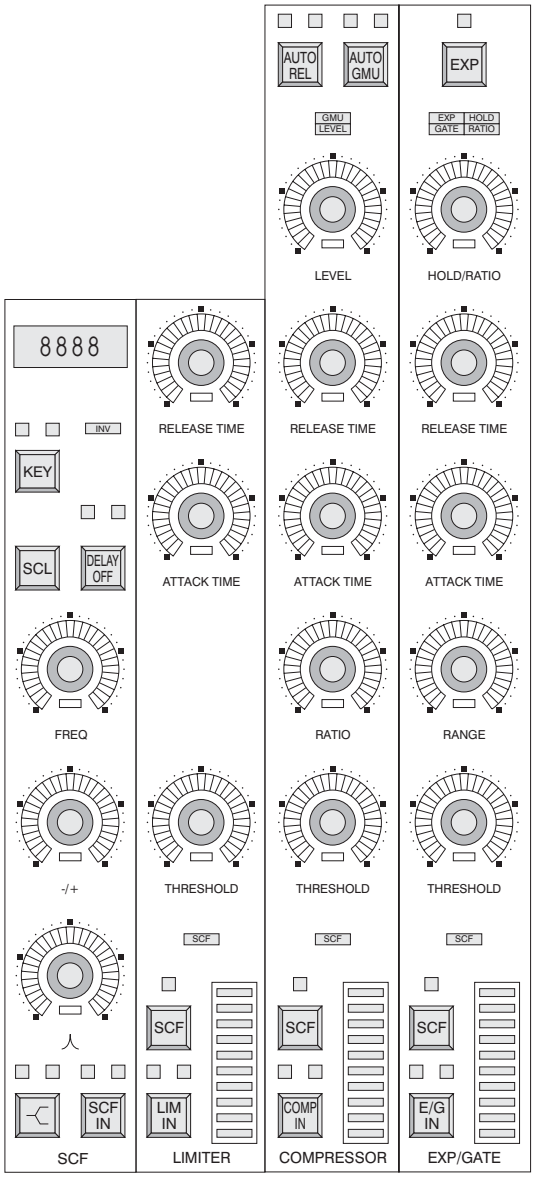
Alternatively, Filter IN/OUT can be controlled on the channel strip using the IN and SEL keys and the Function Indicators at the top of channel strip. When the SEL key is pressed the red arrow will step through all of the processing elements. When the FIL arrow is illuminated Press the IN key to turn the Filter On or Off.



The Function Indicators at the top of each strip show the processing configured and switched in to each path. A left hand LED illuminates when the associated processing element is configured into the path. The right hand LEDs show when processing is switched in or out.

10.8 Dynamics

The Compressor, Limiter and Expander/Gate are treated as completely separate processing elements. They can be configured in any order in the signal path using the Path Configuration screen.



10.8.1 Side-Chain Filter

The Limiter, Compressor and Expander/Gate each have a completely separate side chain filter. The filter controls are located next to the Dynamics controls and are assigned to one of the elements by pressing the SCF key.

The filter has Frequency, Boost/Cut and Q controls together which switches for Peak/Shelve and IN/OUT, it operates in the same way as a band of the EQ.

Side-chain control

The system allows the sidechains of the Limiter, Compressor and Expander to be individually controlled.

Several side-chain signals can be ganged together so that they are all compressed/limited or expanded by a similar amount.

The side-chains can also be driven from a completely different source, this is known as an External Key source and is some times used on expander/gates to give signal ducking. Within Capricorn the facility is provided on Compressors and Expander/Gates. The source of the side-chain is displayed in the alphanumeric display above the Side-chain filter, it will show the source of which ever element is currently assigned to the Side-chain Filter.

Side-chain Listen

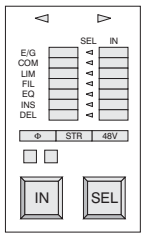
The Side-Chain Listen key SCL is latching and works in the same way as APL SOLO, replacing the main monitor output with the side chain signal.

10.8.2 Limiter

The Limiter is assigned to signal paths using the GDS and the Path Configuration Menu. (see section 3.4)

It is then switched in and out of circuit by pressing the limiter's LIM IN key. Rotary controls are provided for threshold, attack time and release time. Pressing SCF assigns the sidechain filter controls to the limiter. When the SCF is in circuit the LED illuminates.

Alternatively, the limiter can be switched in circuit using the IN and SEL keys with the Function Indicators at the top of channel strip.



When the key is pressed the red arrow will step through all of the processing elements. When the LIM arrow is illuminated Press the IN key to turn the LIM ON or OFF.

On the Function Indicators the right hand green Indicator will show whether processing is in or out and therefore will follow the state of the IN key. The left hand indicator illuminates when processing is configured into the path via the GDS.

Side chain ganging

Several signals can be ganged together so that they are all compressed by a similar amount and the overall balance is not altered when the channel with the greatest signal reaches the limiter threshold.

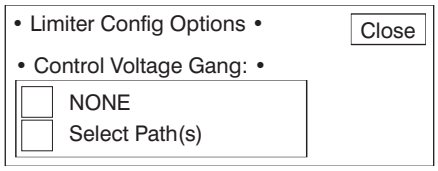
To make a sidechain gang for Limiters

➤ Click the Path Config icon.

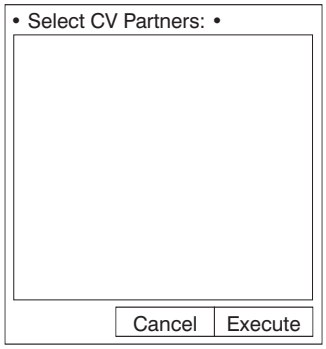
The Path Configuration screen will be displayed.

➤ Click on the Modify button.

➤ Click on the Limiter element in the Signal Path.



➤ Click on the Select Path(s) box, the following overlay will be displayed, the list shows all the signals that currently have a Limiter configured.



➤ Using the trackball, highlight the paths you wish to gang together. Click on the required paths.

➤ Having made your selection, click on Execute. Click on Cancel to quit without making any changes.

➤ Click on Close to leave the window and end the operation.

SideChain Delay

The system provides a small delay in the signal path which allows the side chain gain cell to control the audio instantaneously. This delay is normally in circuit but can be switched out by pressing the DELAY OFF key.

10.8.3 Compressor

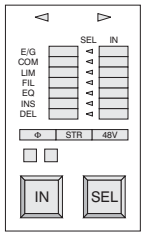
The operation of the compressor is similar to that of the limiter described above. Rotary controls set threshold, ratio, attack time, release time and level. Auto release and auto gain make-up are also available. A dedicated meter shows the action of the compressor.

The compressor is assigned to signal paths in the Path Configuration screen.

It is then switched in and out of circuit by pressing the COMP IN key. This is an automated function and therefore has a double action switch. The green LED associated with the switch will illuminate when the Compressor is switched in circuit. The red LED will indicate when in record.

The compressor can be switched in circuit using the IN and SEL keys and the Function Indicators at the top of channel strip. When the SEL key is pressed the red arrow will step through all of the processing elements. When the COM arrow is illuminated Press the IN key to turn the COM ON or OFF.

On the Function Indicators the right hand green Indicator will show whether processing is in or out and therefore will follow the state of the IN key. The left hand indicator illuminates when processing is configured into the path.



Auto Release Time

When the AUTO REL button is pressed the release time is automatically calculated.

Auto Gain Make-up

When AUTO GMU is pressed the upper rotary control is used to control the operating level. The OPER LEVEL LED will illuminate. In this mode the rotary control is used to set the output level of the compressor. When the button is off the upper rotary knob controls the gain makeup.

SideChain filter

Pressing SCF assigns the sidechain filter to the limiter, when the SCF is in circuit the SCF LED will illuminate.

Sidechain ganging

Several signals can be ganged together so that they are all compressed by a similar amount and the overall balance is not altered when the channel with the greatest signal reaches the compressor threshold.

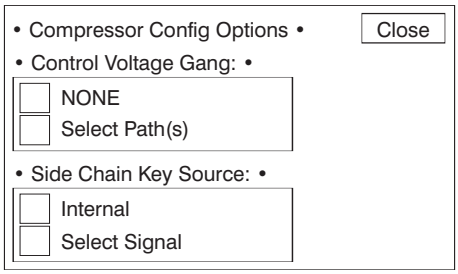
To make a sidechain gang for Compressors

➤ Click the Path Config icon.

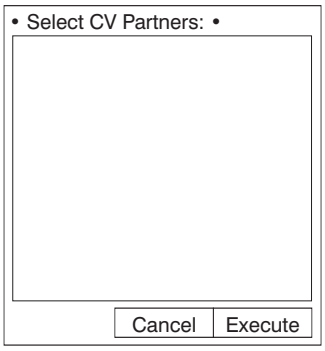
The Path Configuration screen will be displayed.

➤ Click on the Modify button.

➤ Click on the Compressor element in the Signal Path.



➤ Click on the Select Path(s) box, the following overlay will be displayed, the list shows all the signals that currently have a compressor configured.



➤ Using the trackball, highlight the paths you wish to gang together.

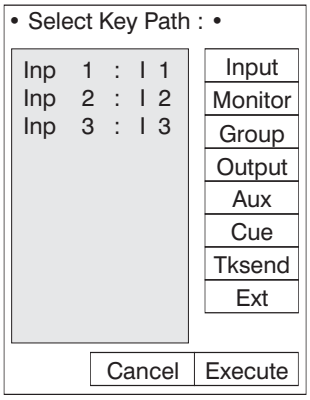
➤ Click on the selected paths.

➤ Having made your selection, click on Execute. Click on Cancel to quit without making any changes.

➤ Click on Close to leave the window and end the operation.

External Key source

Using Modify from the Path Configuration screen it is possible to select the source signal for the side-chain. Normally Internal will be selected, but if the Select signal box is selected then the user can choose any signal path in the desk to drive the sidechain control.



Side Chain Delay

The system provides a small delay in the signal path which allows the side chain gain cell to control the audio instantaneously. This delay is normally in circuit but can be switched out by pressing the DELAY OFF button.

10.8.4 Expander Gate

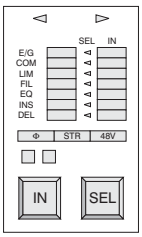
The Expander/Gate is assigned to signal paths with the Path Configuration screen. The processing can operate either as an Expander or as a Noise Gate. The selection is made with the EXP key. When the controls are switched to EXP the upper rotary control operates as HOLD, when operating as a GATE the control operates as RATIO.

The Expander/Gate is then switched in and out of circuit by pressing the EG IN key. Rotary controls are provided for threshold, attack time and release time and Range. Pressing SCF assigns the sidechain filter controls to the Expander/Gate. When the SCF is in circuit the LED illuminates.

Alternatively, the Expander/Gate can be switched in circuit using the IN and SEL keys with the Function Indicators at the top of channel strip.

When the SEL key is pressed the red arrow will step through all of the processing elements. When the E/G arrow is illuminated press the IN key to turn the E/G On or OFF.

On the Function Indicators the right hand green indicator will show whether processing is in or out and therefore will follow the state of the IN key. The left hand indicator illuminates when processing is configured into the path.



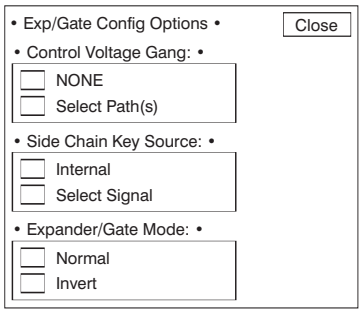
Side-chain source selection

To select the source (or key) signal to drive the side chain of the expander use the Path Configuration screen.

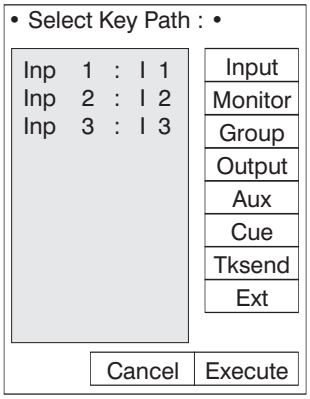
➤ Click on the Modify button.

➤ Click on the EXP/GATE element in the signal path.

➤ The Exp/Gate Config Options screen is displayed:



➤ Click on the Select Signal box in the Sidechain Key Source. The Select Key Path screen is displayed from which the key signal is selected.



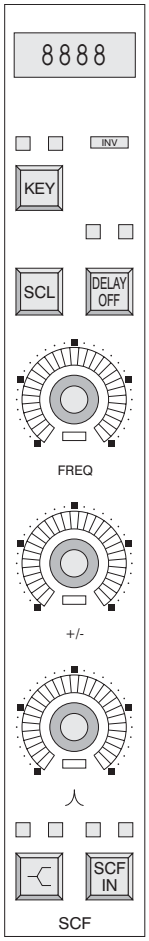
➤ Using the trackball select the sidechain key signal from the list. Select the path type by clicking on the relevant button. Click on the desired path then click on Execute.

➤ The signal feeding the sidechain can be inverted by clicking on INVERT in the Exp/Gate Config Options screen.

The name of the External key signal for the Expander/Gate is displayed in the alphanumeric display above the sidechain filter.

The INV LED illuminates when the key source is inverted. The KEY switch switches the sidechain source between the External Key and the internal signal.

When the SCF is in circuit the SCF LED will illuminate.



External Key

The sidechain for the Expander/Gate can be driven from another source.

The alpha-numeric display will label the input path driving the sidechain. This signal may be inverted (for ducking) by selection on the GDS. When selected the INV LED will illuminate.

10.9 Signal Path Delay (Optional)

The facility to introduce signal Delay is an option and is dependent on additional hardware being fitted to the system.

The delay function consists of a separate 19" rack unit that can be fitted with the option of two card types:

4 Mb = 5 secs total
16 Mb = 22 secs total

Each card includes the provision to interface to 4 MADI I/O connections.

When Delay is configured into a path, the maximum amount which can be used by that path is set to any of the following :

5ms 10ms 50ms 100ms 500ms 1s 10s 20s

To set Delay on a Signal Path

➤ Click on the Path Config icon.

➤ Click on the DELAY element.

A dialogue box will be displayed for selecting the maximum amount of delay.

➤ Click the required maximum amount.

➤ Click Execute.

The delay element will be placed against the input or output port where the signal will be delayed (this depends on the path type).

➤ Press the button marked 

on the AFU.

➤ Turn the Delay control to the desired Delay period.

Note: The Delay function is only available to the inputs and outputs of the system. Delay cannot be configured within internal paths. Delay cannot be moved to a different position within a path.

The time period cannot be changed in real time (e.g. during a live production). Delay cannot be controlled by dynamic automation, but the settings are stored as part of the initial snapshot (I.S.S.).

10.10 Insert Switching

Inserts are assigned to signal paths and ports are assigned to Inserts through the Path Configuration screen. See the Path Configuration and Input/Output Configuration chapters.

To switch an Insert into circuit

➤ Press the INS IN key.

The external device is in circuit while the green LED is on.

or

➤ Press the SEL key at the top of the channel strip until the red arrow points at the INS element.

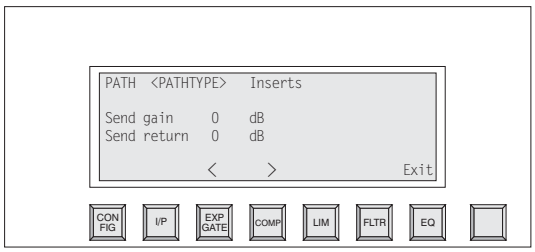
➤ Press the IN key.

10.10.1 Level Control for Inserts

The analogue gain can be varied in 6dB steps for each of the 32 Inserts independently. The gain will be reciprocal across the Insert send and return.

To set the gain on an Insert

When the INS IN key on the AFU is pressed to activate an Insert, the Inserts menu is displayed on the central AFU display.



Three of the keys will be assigned to [<], [>] and [Exit] functions.

➤ Press the [<] key to reduce the Send gain in 6dB steps and increase the Send return gain by the same amount.

The Send gain can be varied between -24dB and 0dB.

➤ Press the [>] to increase Send gain and decrease Return gain.

10.11 Copying

Copy allows selected processing parameters to be copied exactly from one path to any number of other paths. This includes Fader levels, EQ settings, Dynamics values, Pan/Balance positions, etc. Any number of controls can be copied from the selected path in a single operation.

Note : Complete functions (EQ, Compressor, etc.) can be copied but not individual controls within a function selected.

To copy settings of signal processing elements

➤ Press the COPY key on the Monitor section.

All of the ACCESS keys will be turned off. The AFU will be disabled except for the the Bank selection and the FAC Selection panels.

All Touch LEDs on the AFU will illuminate. All control settings from the source path are selected for copying unless a specific control on the AFU is selected.

To select a smaller set of elements to copy

➤ Touch the AFU controls for the required signal processing elements.

When the first control is touched, all the touch LEDs on the AFU will extinguish except for the touched control. Processes are then added to the selection.

To copy the Fader level

➤ Touch the AFU Fader.

The nulling LEDs for the fader will illuminate.

To select the source path for the copy operation

➤ Press the ACCESS key.

The ACCESS key will flash.

To select the destination path(s)

➤ Press the ACCESS keys for the required paths.

The pressed ACCESS keys will illuminate. Each time an ACCESS key is pressed it will be toggled in and out of the destination group.

➤ Use Bank switching to select destination paths which are hidden.

To execute the copy

➤ Press the COPY key again.

The selected settings will be copied and the console will return to normal operation. The selection for the next copy operation will be returned to the default of all controls.

Or

➤ Press the flashing source ACCESS key.

The selected settings will be copied and the copy operation will continue for selection of additional destination paths.

The control selection on the AFU will remain until the COPY key is used to terminate the copy mode.

10.12 Fader to Aux Copy

This function allows the level on a Fader to be copied to the aux contribution levels for the path the Fader is on. This can be done on several paths at the same time.

Alternatively, the level of one aux contribution can be copied to the any of the other aux contribution level controls for the same path.

To copy Fader levels to Aux Contribution levels

➤ Press the FADER ⇔ AUX COPY key in the Monitor section.

All the Access LEDs will be turned off and the AFU is disabled.

The strip alpha displays will flash.

➤ Touch the AFU Fader.

The nulling LEDs for the AFU fader will flash and the system will be put into Copy Faders mode.

➤ Press the ACCESS keys for the paths to transfer the fader level from.

The integral LEDs will illuminate.

Only Inputs, Monitors and Groups can be selected as other path types do not make Aux contributions.

➤ Touch the Aux Contribution controls on the AFU to copy the Fader levels to.

The touch LEDs on the Contribution controls will illuminate.

➤ Press the FADER ⇔ AUX COPY key.

The level on each selected fader will be copied to the selected Aux Contribution levels in the same path.

To copy an Aux Contribution level to other Aux Contribution levels

➤ Press the FADER ⇔ AUX COPY key on the Monitor section.

All the Access LEDs will be turned off and the AFU is disabled.

The strip alpha displays will flash.

➤ Touch the Aux Contribution control on the AFU to copy the levels from.

The touch LEDs for the selected control will flash.

➤ Press the ACCESS keys for the paths to transfer the contribution level from.

Only Inputs, Monitors and Groups can be selected as other path types do not make Aux contributions.

➤ Touch the Aux Contribution controls on the AFU to copy the contribution levels to.

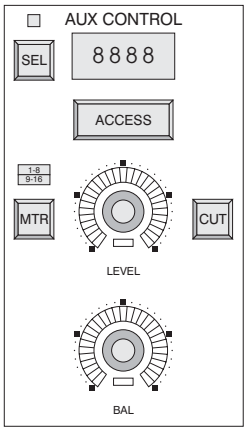
The touch LEDs on the target Contribution controls will illuminate steady.

➤ Press the FADER ⇔ AUX COPY key.

The level on the source contribution control will be copied to the selected Aux Contribution levels in the same path.

11 Auxiliaries and Cues

11.1 Aux Control



An auxiliary path can be configured with EQ, Filters, Limiter, Compressor, Expander/Gate and Inserts and and auxiliary path can be mono or stereo. Use Path Configuration to setup an auxiliary in the same way as any other path type.

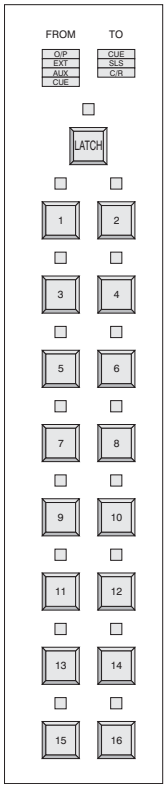
Auxiliary paths can be assigned to Banks or controlled from the dedicated Aux Control panel on the Monitor section. Aux Control can only be used by one auxiliary path at a time.

To select an Aux to the Aux Control panel

➤ Press the SEL key on the Aux Control panel.

The LED above the key will flash.

➤ Press the required number key on the Selection Matrix.



The Aux name is shown in the alpha display.

The LED above the SEL key will continue to flash until the SEL key is pressed again or the Selection Matrix is used by a different function.

When one of the rotary controls is touched, the alpha display will give a readout of the control setting. When released the path assignment will be shown.

Auxes on the AFU

The ACCESS key allows the path to be assigned to the AFU in the same way as a path on a strip and the fader on the AFU duplicates the Level Control.

Aux Cut

The CUT key on the Aux Control panel cuts the currently selected Auxiliary path. The cut is pre-fader (i.e. before the Level control).

Aux Metering

The MTR key assigns the two AUX/CUE meters at the top of the monitor section to display auxiliary output levels. An Aux must be have an output port assigned to it for the signal to be metered. Each press of the MTR key will toggle the meter display between Auxes 1-8 and 9-16.

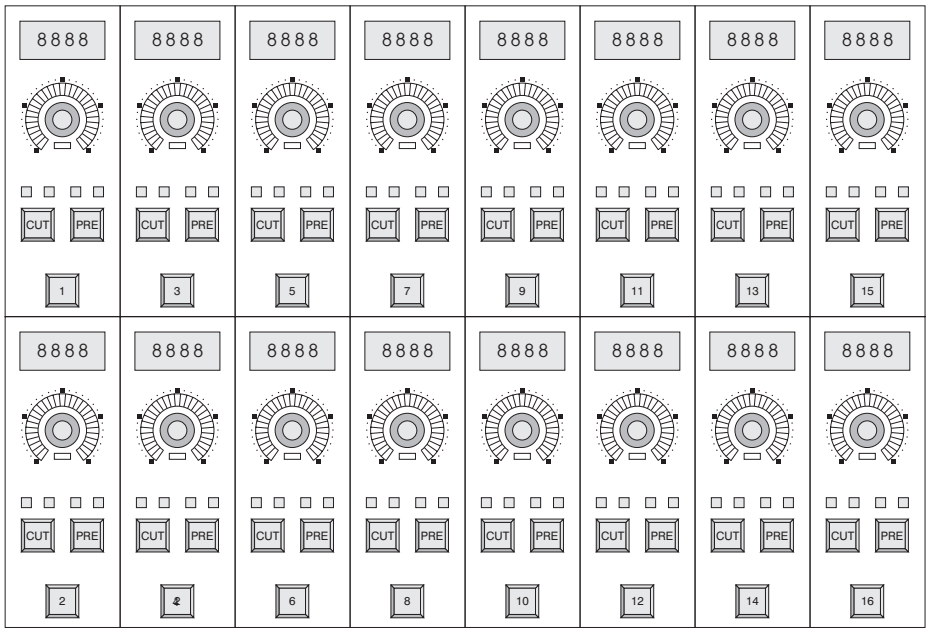
Aux Routing

Auxes can only be routed to Track Sends using the AFU Routing panel.

11.2 Contribution Control

11.2.1 AFU Contribution Control

The contribution from the current path assigned to the AFU to all Auxiliaries can be adjusted using the Auxiliary/Panning controls. Only Input, Monitor and Group paths can contribute to Auxiliaries.



The alpha displays show the names of the Auxiliary paths. The number of alpha displays showing path names depends on the number of Aux Masters set in the Path Numbers screen.

The number keys are used for selecting the Aux contribution control assigned to the middle FACs on the channel strips.

To change the contribution levels

➤ Turn the rotary controls to the required settings.

The alpha display will show the setting when the control is touched.

To turn a contribution off

➤ Turn the rotary control anti-clockwise until the alpha displays OFF.

Stereo Auxes

Stereo Auxes are paired sequentially with odd numbered auxes as left legs and even numbered auxes as right legs (e.g. Aux 5 and 6 can be a stereo pair, but not Aux 6 and 7).

When this is the case, the rotary control for contribution to the even numbered Aux will operate as a panning control across the stereo pair.

Aux Pick-Off Point

The contribution to each Aux can be picked off either pre or post fader. The default is post fader.

To select a pre-fader contribution pick-off

➤ Press the PRE key for each required Aux contribution.

To cut the contribution to an Aux

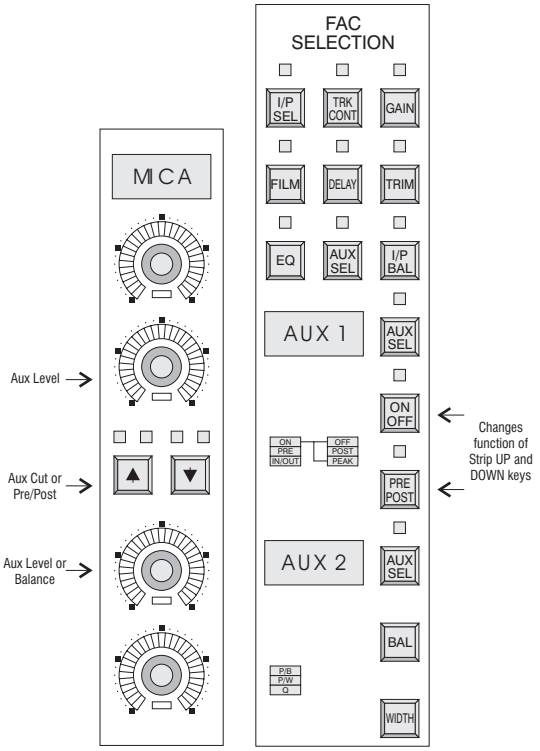
➤ Press the CUT key for the required Aux contribution.

11.2.2 FAC Contribution Control

The second and third row of FACs on the channel strips are used to control Aux contributions. For a Stereo Aux the second FAC will control gain and the third FAC will control Aux Pan.

The contribution FACs have associated up and down arrow keys which operate as Aux Pre/Post or Aux Cut.

Aux contribution control can only be assigned to the middle FACs if the controls are not already being used for EQ, Aux Selection or Film Panning.



To select the Aux to contribute to on a row of FACs

➤ Press one of the AUX SEL keys to the right of an alpha display on the FAC Selector panel.

The LED above the key will illuminate.

➤ Press one of the number keys on the Auxiliary/Panning panel on the AFU.

The path name of the Aux which will be contributed to will be displayed in the alpha display next to the AUX SEL key.

The LED above the AUX SEL key will cease to be illuminated.

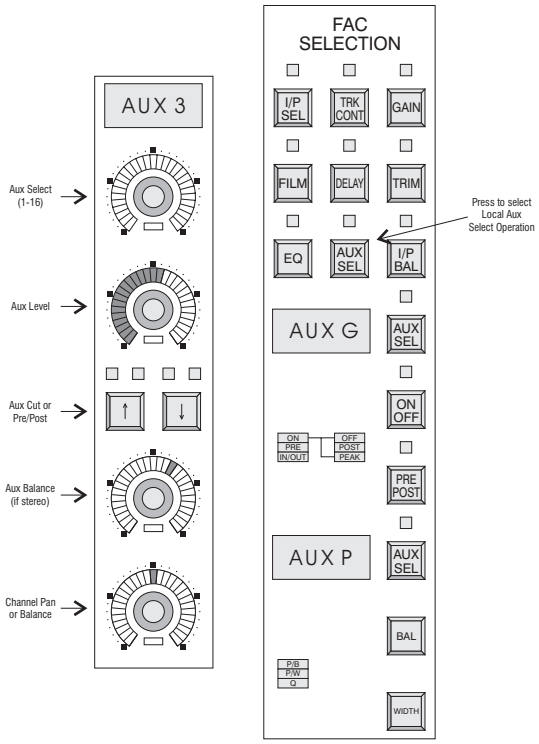
To select the function of the ↑ and ↓ keys

➤ Press the ON OFF or PRE POST key on the FAC Selection panel.

The selected function is shown on the LED display next to the keys.

Local Aux selection on channel strips

The top FAC can be used to select the Aux which will be contributed to. This allows the Aux to be contributed to be different on each strip, instead of being globally selected.



To enable Aux contribution selection on the top FAC

➤ Press the top-most AUX SEL key on the FAC Selection panel.

The top alpha displays will show the Aux selected last time the function was used.

When a stereo Aux is selected the lower control will become balance, otherwise the control will be inactive.

11.3 Aux Flip

The Aux Flip function allows the faders to be used to control the Aux contribution level.

To activate Aux Flip

➤ Press the AUX ↑ or AUX ↓ key above the AFU fader.

The integral LEDs in the selected key will illuminate. The alpha displays associated with the ACCESS keys will flash on paths which can make aux contributions.

If the AUX ↑ key is pressed then the faders will control the Aux contributions that the second row of FACs is selected to.

If the AUX ↓ key is pressed then the faders will control the Aux contributions that the third row of FACs is selected to.

The FACs can still be used to change the Aux contribution. If this is done then the fader will move to show the level changes.

The ↑ and ↓ keys associated with the FACs will continue to control Aux Cut or Pre/Post fader pick off.

The Aux selected for contribution on each row of FACs can be changed during Aux Flip.

If the FACs are being used by the EQ, Local Aux selection or Film Panning functions then Aux Flip will not operate. Conversely, the FAC Selection AUX SEL FILM and EQ keys are inactive during Aux Flip.

The ACCESS keys will function as normal and the AFU will continue to control any accessed path.

If a fader is being touched when the AUX ↑ and AUX ↓ keys are pressed then the Flip operation will not be executed on that strip until the fader is released and touched again. If any other unrelated control on the AFU or channel strip is being touched then the operation is unaffected.

Banks can be changed during Aux Flip to use the faders to change contribution levels from paths on other Banks.

Note : The Fader and Mute automation controls will NOT automate Aux contribution level and cut. This is still controlled with the FAC Automation controls.

To cut Aux Contribution during Aux Flip

➤ Press the MUTE key.

To APL monitor the Aux contribution during Aux Flip

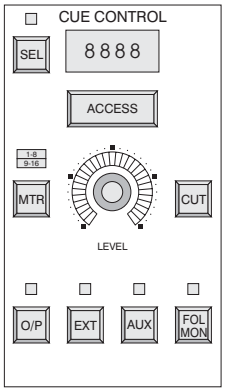
➤ Press the SOLO key.

PFL and CUT SOLO facilities are not provided for Auxes and the fader overpress switch is also inactive.

To end Aux Flip

➤ Press the active AUX ↑ or AUX ↓ key.

11.4 Cue Sends



The cue outputs can be controlled from the Cue Control panel in the Monitor section or assigned to strips.

Up to 16 Cues may be available, depending on the setting in the Path Numbers screen.

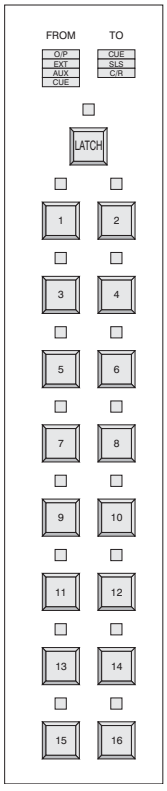
Cues can have Filters, EQ and Inserts and can be defined as stereo. Processing is applied with the Path Configuration screen.

To select the Cue to work with

➤ Press the SEL key on the Cue Control panel.

The LED above the key will illuminate.

➤ Press the number key for the required Cue on the Selection Matrix.



The name of the selected Cue will appear in the Cue Control alpha display.

The LED above the SEL key will remain lit for re-selection of cues until it is pressed again or until the Selection Matrix is assigned to a different function.

The Cue controls will remain assigned until another cue is selected. The Level control will now set the output level for the selected Cue and the alpha display will show the setting when the control is touched.

The ACCESS key assigns the selected Cue to the AFU. The output level can then be controlled with the AFU fader and signal processing elements can be adjusted as required. AFU controls which do not apply to Cues will be inactive.

11.4.1 Cue Source

Cue sends can be fed from the following sources:

Aux Masters
External Inputs
Main Outputs

A Cue can also be set to follow the selection on the Control Room Monitor.

To select a source for a Cue

➤ Press one of the O/P EXT or AUX keys on the Cue Control panel.

The LED above the selected key will illuminate.

The LEDs at the top of the Selection Matrix will illuminate to show the Cue source selection status. The LED above the current source key will illuminate.

➤ Press the number key for the required source on the Selection Matrix.

To set the Cue to follow the selection on the Control Room Monitor

➤ Press the FOL MON key.

To deselect this mode

➤ Press one of the O/P EXT or AUX keys.

Note : This mode will prevent the Control Room Monitor from having a Cue selected as a source. This is a safety measure to prevent feedback.

To meter the Cues

➤ Press the MTR key.

The AUX/CUE meters at the top of the monitor section will display Cue output levels.

Each press of the MTR key will toggle the meter display between Cues 1-8 and Cues 9-16.

No signal level will be shown for Cues which do not have an output port assigned to them.

To cut a Cue

➤ Press the CUT key.

This cuts the Cue at the beginning of the signal path.

12 Links and VCA Ganging

12.1 Control Links

Controls can be linked together across any number of paths so that moving a control on one path has the same proportional effect on the others.

Any type of control or path can be linked. A link can only consist of one control type. Up to 256 links may be defined. Any member of a link can be used to control all the other members. A control can only belong to one link at a time.

If a linked control is being touched, a second control in the same link group can be moved independently of the remainder of the link.

12.1.1 To Form a New Link

➤ Press the LINK key.

The key will flash. All the strip alpha displays will flash and the AFU will be inactive.

➤ Touch the required type of control on the AFU.

The touch indicators will illuminate on the selected control.

➤ Press the ACCESS keys of paths to be included in the link. Use the bank selector controls to reach hidden paths.

The first ACCESS key pressed will flash. Further ACCESS keys pressed will illuminate steady.

Note: For faders or mutes the first path selected will set the automation mode of all the other faders or mutes in the link.

To save the link

➤ Press the LINK key or the flashing ACCESS key (Link Master).

If the flashing ACCESS key is pressed then the currently defined link will be completed and the desk will remain in Link formation mode to allow additional links to be created.

12.1.2 Editing Links

To edit a Link

➤ Press the LINK key.

The key will flash. All the strip alpha displays will flash and the AFU will be inactive.

➤ Touch the required type of control on the AFU.

The touch indicators will illuminate on the selected control.

➤ Press the ACCESS key of any path in the required Link.

The pressed ACCESS key will flash and the other ACCESS keys for paths in the link will illuminate steady. The Bank selector display will show any banks with paths in the link with a ◆ symbol.

➤ Press ACCESS keys to toggle paths in and out of the Link.

The path with the flashing ACCESS key cannot be removed from the link while there are other members in the Link.

Note: When a link is being edited a control may be moved as normal on the channel strips. However if a member of a link is being touched then paths cannot be added to or deleted from that link. A control which is being touched can be added to a link but will not affect the position of the other link members until it is released.

To delete a link

➤ Follow the same procedure as editing a Link above.

➤ Press the ACCESS keys which are illuminated steady to take all of the associated paths out of the Link.

➤ Lastly, press the flashing ACCESS key.

The Link will no longer exist.

12.1.3 Out-of-range Offsets

Controls (faders) can be moved beyond their physical end-stops and the audio and control positions will be maintained. If the control is touched while there is an out-of-range offset, this offset will be set to zero but the relative offset the control and other members in the link, will jump to the new position.

12.1.4 Overriding Links with Link Isolate

To isolate a path from a link

➤ Press the LINK ISO key.

The LED above the key will illuminate.

Any control that is now touched on that path will operate without affecting or being affected by any links that any controls in the path belong to.

To return controls to their links

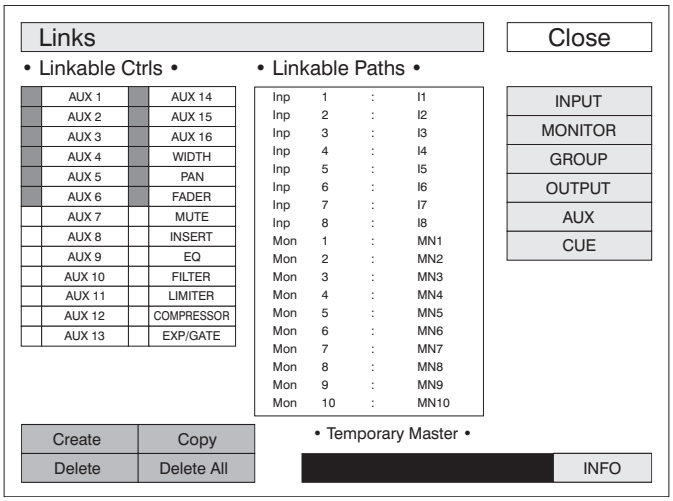
➤ Press the LINK ISO key again.

The LED is turned off.

When control are returned to links then any new offsets are maintained.

12.1.5 Managing Links with the Graphics Display screen

The Link screen is displayed when the LINK key is held down for more than about 1 second, or when the Link icon is clicked.



The alpha displays on the strips will flash and the AFU will be disabled while the Links screen is displayed.

To create a link with the Link screen

➤ Click the button for the required linkable control.

The touch LED on the selected control will illuminate on the AFU.

➤ Click on a path to become a member of the link.

This first path is the Temporary Master of the link. If the control is a Fader or Mute then the automation mode on this path will be used for other members of the link.

To reach paths that are not visible in the list

➤ Click on the INPUT, MONITOR, GROUP, OUTPUT, AUX, CUE buttons.

➤ Click on the other required link member paths.

or

➤ Press the ACCESS keys for the required link members.

➤ Click the CREATE button.

The new link will be formed.

Copying Links between Control types

When a Link is formed using the Graphics Display then the set of paths in the Link is temporarily retained by the Link screen. This can be used immediately to create another Link on a different control for the same set of paths.

To re-use the same paths for a new link

➤ Click the button for the required control.

➤ Click the COPY button.

Deleting Links

To delete all existing links

➤ Click the DELETE ALL button.

A confirmation dialogue box will appear.

➤ Click the Execute button.

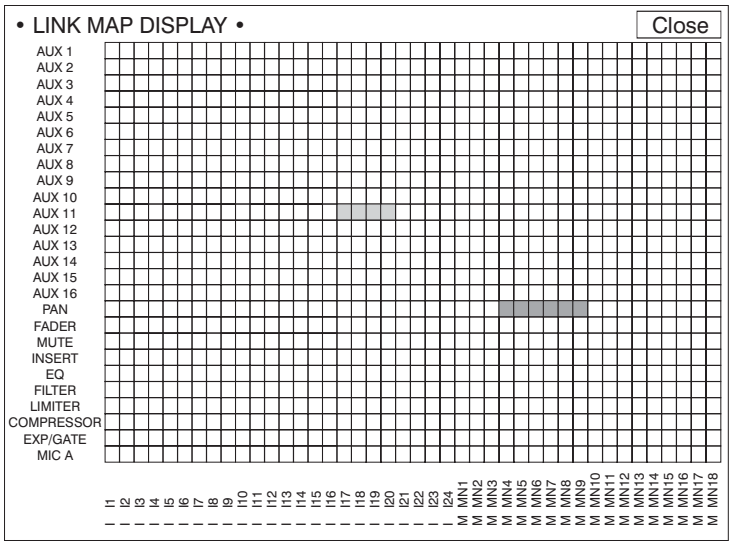
To delete the last link formed

➤ Click the DELETE button.

It is not possible to delete an existing link from the Link screen without deleting all Links. Existing Links must be removed on the console surface as described previously.

Link Information

➤ Click the INFO button to display the LINK MAP DISPLAY screen.



Each link is shown as a different coloured square in the grid.

To move the grid

➤ Press the SCROLL CURSOR key.

➤ Move the trackball to move the grid.

The legends along the side and the bottom will scroll with the grid.

➤ Press the key SCROLL CURSOR again to return the trackball to pointer mode.

➤ Click Close to return to the LINKS screen.

12.1.6 Links and Automation

Automation Mode

The Automation mode is the same for all faders or mutes in the same Link. Changing the automation mode on any member of the link copies the new mode to the rest of the link. For other controls the automation modes are changed without affecting other members of a Link.

Control Touch

When one control in a link is touched then the other controls in the link are touched as well. This will affect the data recorded by the automation system if some of the controls in the link are in a suitable Record mode.

12.1.7 Links and trim

Using trim mode for linked faders allows a common level change to be applied to all faders over a pass.

All faders in a link have the same automation mode, so if trim is selected for one fader the whole link is put into trim. When TRIM is pressed then all the faders in the link will move to the offset position.

If a link is formed while the faders are in trim mode then the trim function will continue when the link forming is completed. Each fader in the link will then move to its individual trim position.

When a Fader has been selected for a link, override does not prevent it from going into trim, it only means it delays the operation until the control is released, then applies its own trim value.

Otherwise trim movement works as any other control movement.

12.2 VCA Control

VCA Groups allow one fader and mute to modify the gain of other faders in a similar way as a traditional VCA control. When a Master fader moves or is muted then the Slaves move and mute with it. Slave faders may be moved individually with no effect on the Master or on other Slaves.

A Master can also be a slave to another VCA group but any fader can only be slave to one Master. If a Grand Master is moved then any Sub-Masters and their Slaves will move with it.

16 VCA Groups are provided, each of which can have any number of Slaves.

12.2.1 Forming and Editing

To create a new VCA group

➤ Press the VCA GROUP key on the Monitor section.

The key will flash.

➤ Press the ACCESS key on a strip assigned to a VCA Master.

If the ACCESS key on a strip not assigned to VCA Master is pressed first

The strip will be reassigned to the next unused VCA Master. The fader will be set to 0dB and the Mute key will be set to Off. The ACCESS key will illuminate.

To assign Slave paths to the VCA Master

➤ Press the ACCESS key for the required paths adds those paths.

The selected ACCESS keys will flash. Each press of an ACCESS key will toggle it in and out of the VCA group.

Different banks may be selected to bring other paths onto the surface. Banks with group members will indicate this with a ◆ symbol.

To complete forming the group

➤ Press the flashing ACCESS key of the master.

The ACCESS key of another Master could now be pressed to form another group.

If a group has slaves already

The ACCESS keys will illuminate and the master fader will not be set to 0dB.

To abandon changes to the current VCA group

➤ Press the CANCEL key.

Note: The ACCESS keys will not change illuminate to indicate the cancel.

To finish creating or editing VCA groups

➤ Press the VCA GROUP key.

The ACCESS keys will return to normal use and the channel strips remain on the same Bank.

12.2.2 VCA Fader Operation

When a Master fader is moved manually or by automation, all the slaves move by the same amount in dBs. This does not depend on the slave automation modes.

Off Scale Moves

If a slave is at the top of its travel (+10dB) and its master is moved upwards then the slave will be Off Scale. This will not change the instantaneous balance of the group, although that fader and audio is unable to go above +10dB. The system will record the offset as if the fader has been moved above +10dB.

When the master is moved down again the system will reduce the Off Scale move until the physical fader can move below +10dB.

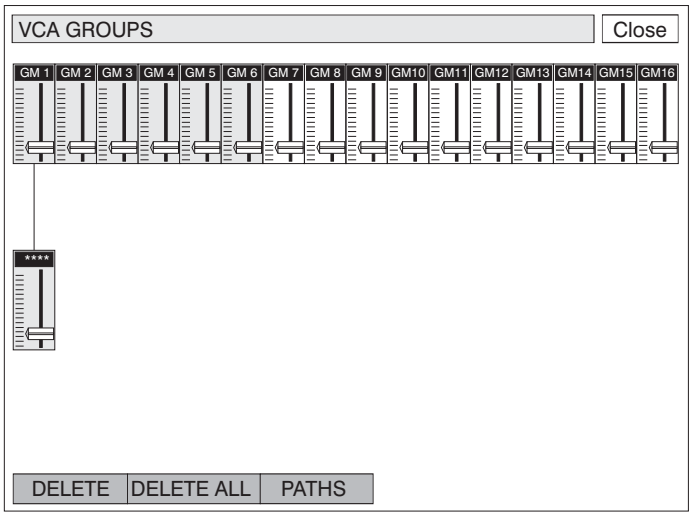
If a fader is touched when it is Off Scale then it will be treated it as if it were touched at the Off Scale value and also instantaneously moved down to +10dB. If this fader is also a Master or in a link then the move will be applied as normal and there will be a drop in position for the slaved or linked faders.

12.2.3 VCA Group Control via the Graphics Display

VCA groups can be viewed or deleted using the Graphics screen.

➤ Click on the VCA icon or press the VCA GROUP key.

The VCA Groups screen is displayed:

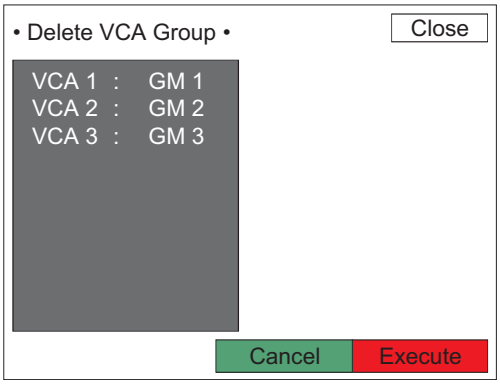


To remove a VCA

➤ Click the box representing the VCA Master on the screen or press its ACCESS key.

➤ Click the DELETE button.

The Delete VCA Group dialogue box will be displayed.



➤ Click the VCA Groups to remove.

➤ Click Execute.

A confirmation dialogue box will be displayed.



➤ If required, click the Coalesce button.

The button will change from yellow to blue. This causes any automation data recorded against the VCA master to be written to its slaves and sub-masters.

➤ Click Execute to confirm deletion.

To remove all VCA Groups

➤ Click the DELETE ALL button.

A dialogue box will ask for confirmation.



➤ If required, click the Coalesce button.

The button will change from yellow to blue. This causes any automation data recorded against the VCA masters to be written to their slaves.

➤ Click Execute.

To display all the paths which are VCA slaves

➤ Click the PATHS button.

A dialogue box will appear which shows all slaved paths as a scrolling list.

To display all the slaves of a master

➤ Move the trackball pointer over the box representing the VCA Master on the screen or press its ACCESS key.

The ACCESS keys for the slaves will flash.

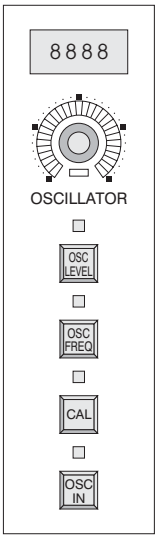
13 Oscillator

Capricorn has two internal oscillators, one a fixed low frequency used for Slate, the other has variable level and frequency and is used as a multi-purpose tone source.

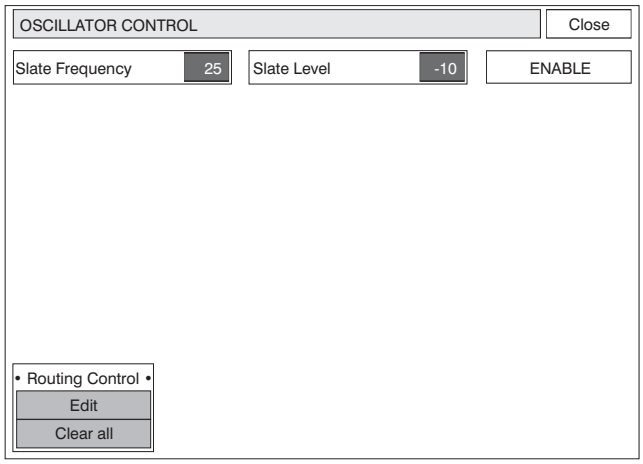
13.1 Tone oscillator

The tone oscillator is controlled through the Monitor Section. The rotary control either controls frequency or level as selected by the OSC FREQ and OSC LEVEL buttons. The numeric value for the selected control is shown in the alphanumeric display.

To turn the oscillator on press the OSC IN button.



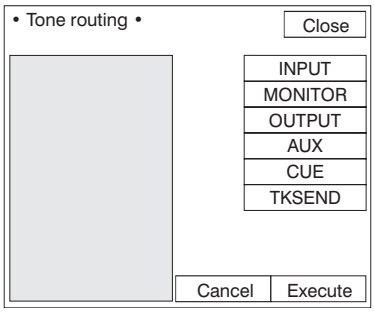
The OSC IN key is double action: fully pressing this button will display a screen allowing the operator to set up the tone routing as follows:



To route the tone to a new destination

➤ Click on Edit under Routing Control.

The Tone routing screen is displayed:



➤ Click on the buttons on the right hand side to choose the path type that is displayed in the list.

➤ Select the destination signal paths from the list or press the ACCESS keys for the required paths.

➤ Press the SCROLL CURSOR key to scroll through the list to reach paths that are not visible.

➤ Press the SCROLL CURSOR key again to change back to pointer mode afterwards.

➤ Click on Close when you have selected the destinations.

13.1.1 Preset Oscillator Settings

Pressing the CAL key will set the oscillator frequency and level to a pre-defined setting. To change the preset values hold the CAL button down while turning the rotary control, use the OSC FREQ and OSC LEVEL buttons to change the control between frequency and level.

13.2 Slate Oscillator

The slate oscillator has a fixed low level tone normally used for recording onto analogue tape.

To turn the oscillator on

➤ Fully press the 

to display the OSCILLATOR CONTROL screen.

➤ Click on ENABLE.

➤ The Slate tone is routed to all track send outputs.

14 Talkback

Capricorn supports up to ten talkback stations, with Talkback Station 1 (called Engineer) fixed at the console. Talkback Station 2 is called Producer.

Each station can have up to twelve keys which are freely assignable to switch on talkback to other stations and/or talkback groups.

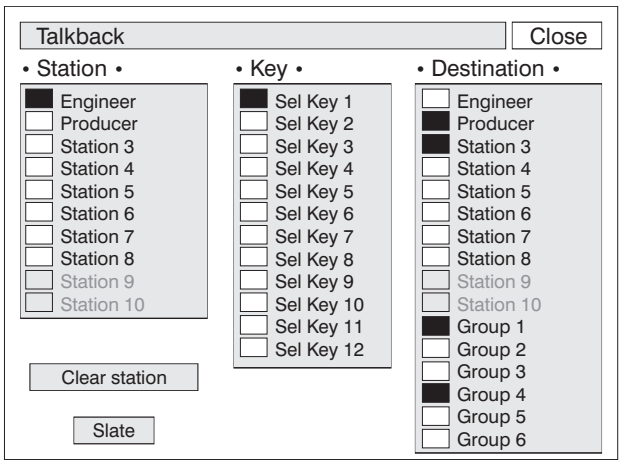
There are six talkback groups which allow talkback to be sent to track sends, main outputs, cues, headphones and the studio loudspeakers. The talkback groups are shared between the ten talkback stations.

14.1 Talkback Setup

To setup Talkback switching

➤ Click the Talkback icon.

The Talkback screen will be displayed.



➤ Click the button for the required station.

➤ Click the button for the key to configure.

➤ Click the buttons for the destinations the key will switch talkback to.

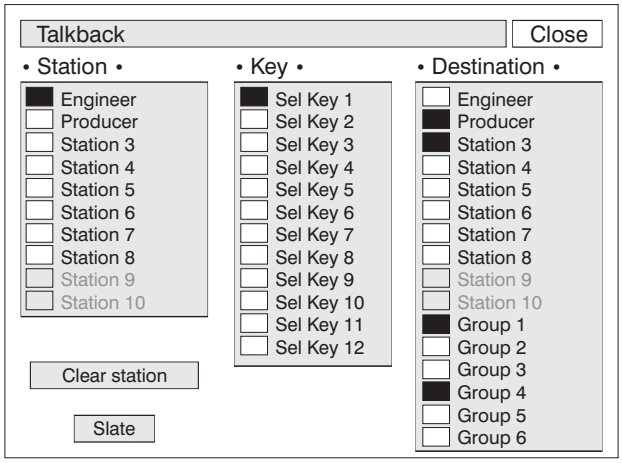
➤ Click Close to enable the new configuration.

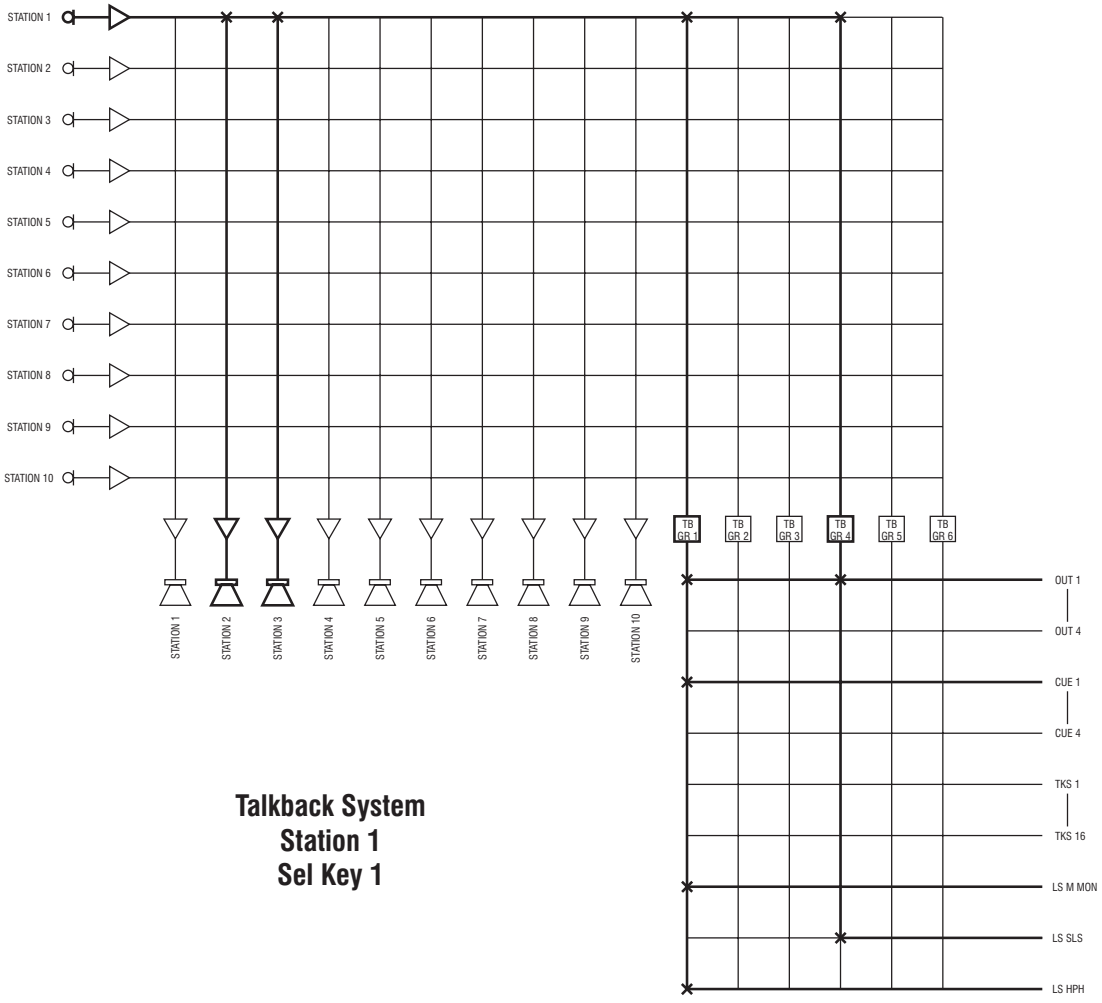
If either ‘Engineer’ or ‘Producer’ presses a talkback key then MAIN LS is dimmed. Also, the ‘Red Light’ switch on the console prevents accidental routing of talkback to main outputs and to track sends.

If Slate is enabled when talking to a talkback group which includes track sends then tone is sent to track sends. Slate will not be routed to main outputs.

14.1.1 Example 1:

Sel Key 1 for talkback Station 1 (Engineer) routes talkback to Station 2 (Producer), Station 3, Talkback Group 1 (Main Output 1, Cue 1, LS M Mon, LS HPH) and Talkback Group 4 (Main Output 1, LS SLS).

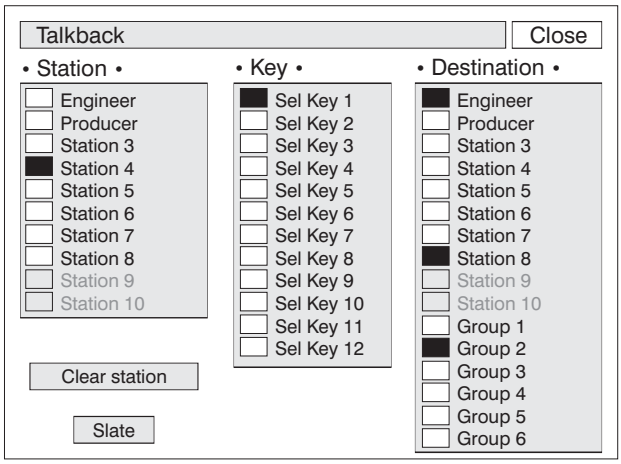


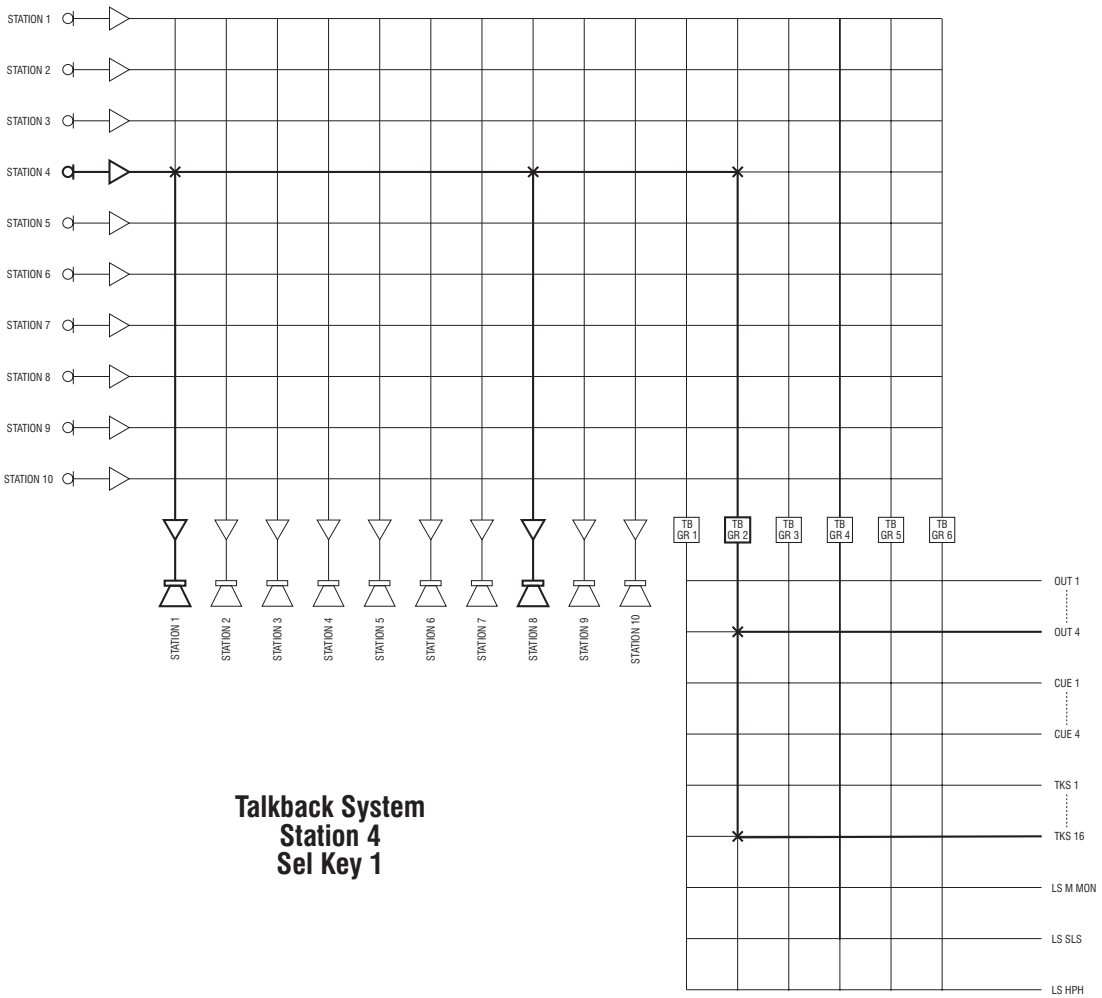


Talkback System
Station 1
Sel Key 1

14.1.2 Example 2:

Sel Key 1 for talkback Station 4 routes talkback to Station 1 (Engineer), Station 8 and Talkback Group 2 (Main Output 4, Track send 16).





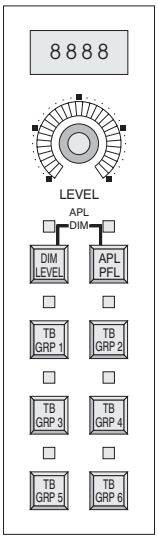
Talkback System
Station 4
Sel Key 1

14.2 Talkback Group Levels

The level for each Talkback Group is set independently.

To set the level for a Talkback Group

➤ Press the required TB GRP key on the Levels panel in the Monitor section.



The LED above the key will illuminate.

The alpha display and the circular bargraph will show the current setting.

➤ Turn the rotary control to the required setting.

15 Transport Control

Introduction

Tape machines are assigned to one of six groups using the Transport Control Configuration screen. Transport Control groups are normally defined as part of the console configuration (see Input/Output Configuration).

The six groups are then controlled using the two sets of transport keys in the Monitor section of the console.

Multitrack tape machines in Group 1 are armed for recording using the keys on the Tape Machine Track Control panel in the Monitor section.

Timecode and Labels are used to track the progress of audio.

Timecode Labels have numerous uses, including setting up Cycle times, executing Locates and altering the Auto Record drop-in point.

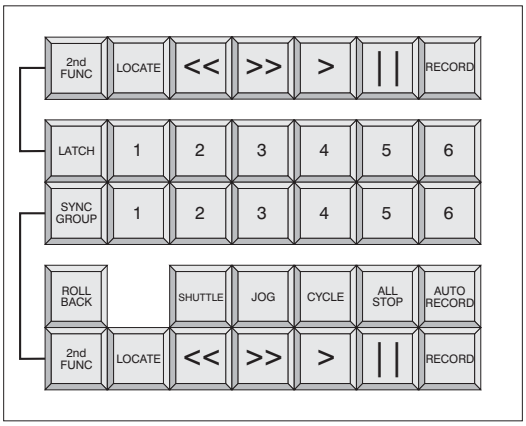
15.1 Machine Control

There are two sets of Transport Control keys which are used to control the machine groups setup using the Transport Control Configuration screen.

15.1.1 Machine Selection

To select the machine groups for each set of keys

➤ Press the upper 1 to 6 keys for the upper set of controls, and the lower 1 to 6 keys for the lower set of transport controls.



The same machine cannot be controlled on both sets of keys at the same time.

To select more than one machine on the upper set of keys

➤ Press the 

key.

The key will illuminate.

➤ Press the required upper 1 to 6 keys.

Each key pressed will now toggle on and off without de-selecting any of the other upper 1-6 keys.

The machines will not necessarily be synchronised together.

Note : The lower set of keys is usually used to control the multitrack machines configured on the 1 key. This is because the extra functions of the autolocator are engaged on keys in the lower set of transport controls.

15.1.2 Controlling the Transports

Each set of Transport Controls has the usual keys for play, stop, pause, fast-forward, rewind and record. Added functionality is provided by extra keys in each set.

Note : If the Capricorn Surround Panel (CSP) is fitted, the functionality of the panel as a Transport Controller will be reduced. See the Capricorn Surround chapter.

Extra Function Keys



This key rewinds the tape by a pre-defined amount. The time is set in the Transport Control Configuration screen (see the I/O Configuration chapter). Rollback is only available on the machines controlled by the autolocator in machine Group 1.



Not implemented yet.



Not implemented yet.



When cycle is pressed the tape machine will cycle between two user defined label points. See the section on Cycle later in this chapter.



Stops all machines.



Puts the machine into RECORD at the time that it went into record in the last pass. This function is used for rehearsing drop-ins. See the Auto Record section later in this chapter.



Not implemented yet.



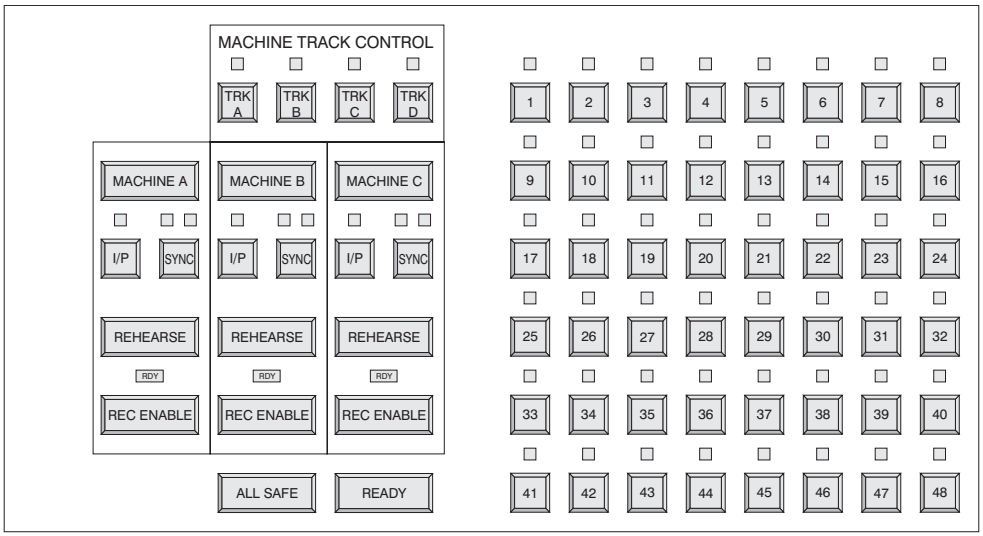
Machines controlled through the autolocator will locate to a pre-defined Label point. In the case of relay controlled equipment the Locate relay will be activated. See Locating later in this chapter.



Not implemented yet.

15.2 Track Control

The track ready and record enable controls of up to three multitrack machines can be addressed independently.



15.2.1 Track Arming

To arm a selection of tracks on a machine

➤ Press either MACHINE A MACHINE B or MACHINE C to select the required machine.

The integral LED in the key will illuminate.

The keys are interlocked so that only one machine can be selected at a time.

➤ Press the number keys for the tracks which require arming.

The LEDs above the selected keys will flash. The indicators above the meters for the associated paths will also flash.

The RDY LED for the current machine will flash.

When the tape machine goes into Record, the Ready indicators will cease flashing and illuminate steady.

If a machine is already in Record then any track which is deselected will drop out immediately.

To make Safe all tracks on the currently selected machine

➤ Press the ALL SAFE key.

This overrides the arming selection for the Tracks. The set of Tracks which are selected for arming will not be changed.

To arm all tracks on the currently selected machine

➤ Press the READY key.

15.2.2 Machine Record Enable Switching

When the REC ENABLE key is off (not illuminated) then no record commands can be sent to the associated machine.

To arm a multitrack machine as Record Ready

➤ Press the associated REC ENABLE key.

The integral LED will flash. When a record tally is returned from the machine the integral LED will be illuminated steady.

To issue a record command to a multitrack machine which is Record Ready

➤ Press the 1 key for one of the sets of Transport Control keys.

➤ Press the relevant RECORD and > keys.

Any tracks which were armed will now start recording.

Note : The illumination of the RECORD key indicates that a record command has been requested by the operator. It does not reflect the actual state of any of the machines connected to the system.

15.2.3 Machine Status Switching

To always use the input to the tape machine as the return signal to the console

➤ Press the I/P key for the required machine.

The LED above the key will illuminate.

This will override the normal state where the machine automatically selects the off-tape signal when in PLAY, switching to its input signal in all other cases.

To put a machine into Rehearse

➤ Press the REHEARSE key for the required machine.

This allows all the normal actions of Recording to take place without actually recording new material onto tape.

For example, this allows a sensitive drop-in to be fully rehearsed without doing damage to existing material. This is particularly useful when used in conjunction with the Auto-Record function.

To use the Sync Replay channel in a machine for reproduction

➤ Press the SYNC key for the required machine.

The yellow LED above the key will illuminate and the green LED will go out.

This is necessary with analogue machines when performing overdubs. It is not usually required with digital ATRs because the delays between the Play and Record heads are compensated for internally.

15.2.4 Auxiliary Tracks

Each machine can also have up to four auxiliary tracks controlled by the system in addition to the the 48 main tracks. This provides a total of 156 track ready circuits.

The 4 auxiliary track switches TRK A TRK B TRK C and TRK D are usually used to arm the various ancilliary tracks available on digital multitrack recorders, and will follow the machine assignment of the main 48 track matrix.

15.3 Timecode

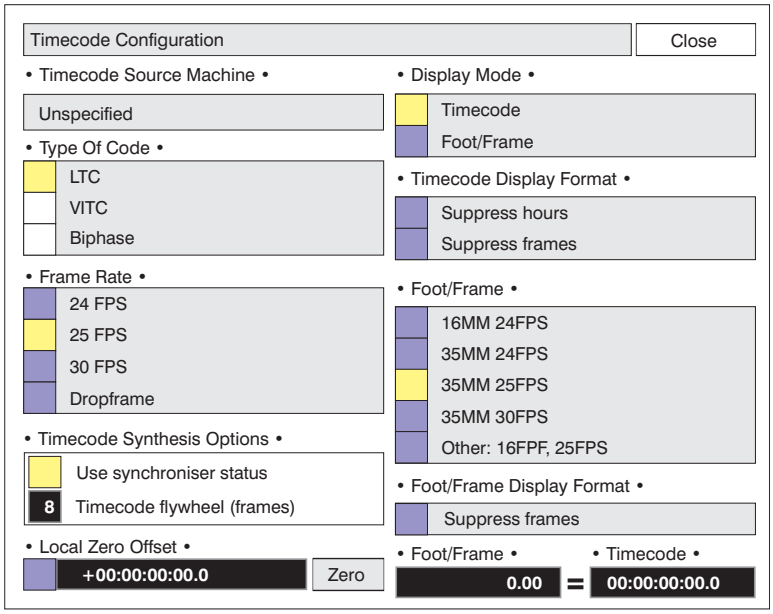
15.3.1 Timecode Configuration

The Timecode Configuration is used to match internal timecode handling to the timecode coming from the source.

To set the Timecode Configuration

➤ Click on the Timecode Icon.

The Timecode Configuration screen will be displayed.



The Timecode Source Machine shows Tape Machine A as setup in the Transport Control Configuration screen.

The items in each option with yellow buttons are the current settings.

Type Of Code

This will always be set to LTC (Longitudinal Timecode). VITC (Vertical Interval Timecode) and Biphase are not yet operational.

Frame Rate

This can be set to 24 FPS, 25 FPS, 30 FPS or Dropframe.

The Frame Rate is stored within the current Configuration or Title. If the current Frame Rate is not the same as the incoming Frame Rate from the source machine then a warning message will be displayed on the screen.

Timecode Synthesis Options

Use Synchroniser Status

This button is on (yellow) by default to indicate that the state of the tape machine is derived from the tape machine synchroniser.

➤ Click the button to turn it off.

The button will turn blue and the state of the tape machine will be derived directly from Timecode. For example if automation is operating directly from a Timecode source and no synchroniser is employed.

Timecode flywheel (frames)

This is the number of frames that the system will resolve before it registers a drop out. The default value is 8 frames and should not be increased unless a lot of bad Timecode is being received from the source machine which is causing automation mix passes to drop out. Increasing the value increases the time period before automation will recognise that a mix pass has ended unless the Use Synchroniser Status is turned on.

➤ Click on the number to change it.

➤ Roll the Trackball left and right to decrease and increase the value or enter a value with the keypad.

➤ Click again to set the displayed value.

Local Zero Offset

This is used to alter the Timecode that is displayed on the screen with an offset. This Offset can be Zero, or it may be any Offset time entered via the Timecode modifier field.

To engage the Local Zero Offset

➤ Click the button so that it turns yellow.

The screen will display LZ under the Timecode.

To change the Offset

➤ Click the current Offset value.

A dialogue box will appear for adjusting the Timecode. See Timecode Entry and Editing in this chapter.

To reset the Offset value

➤ Click the Zero button.

Note: When the Zero button is clicked, the Offset is automatically enabled (the button will turn yellow).

Display Mode

The Display Mode determines whether the screen will show normal Timecode or a Foot/Frame format used in film and video editing.

➤ Click the button for the required display mode.

The selected button will turn yellow and the other button will turn blue.

Note : The Foot/Frame format is for display only. When it is enabled the Capricorn will still use normal Timecode internally.

Timecode Display Format

Suppress Hours

When this is selected, the hour field in Timecode displays will be suppressed until the Timecode reaches one hour.

Suppress Frames

When this is selected, the Frame field in Timecode displays will not be shown.

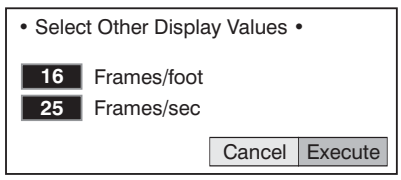
Foot/Frame

This is used to select the Foot/Frame rate between 16MM 24FPS, 35MM 24FPS, 35MM 25FPS, 35MM 30FPS and Other.

To set a non-standard rate

➤ Click the Other button.

The Select Other Display Values dialogue box will appear.



➤ Click in the Frames/sec box.

- Roll the trackball left and right to change the value or enter the required number on the numeric keypad.
- Click again to set the number.
- Click the Trackball in the Frames/sec box.
- Roll the trackball left and right to change the value or enter the required number on the numeric keypad.
- Click again to set the number.
- Click Execute.

The dialogue box will close.

The Other button will be yellow, indicating that the rates just entered will be used for Foot/Frame display.

Foot Frame Display Format

When the Suppress Frames button is on (Yellow), the Frame field in the Foot/Frame display will not be shown.

Foot/Frame = Timecode

This sets the reference point against Timecode from which the Foot/Frame display is measured.

To change the Foot/Frame point

- Click on the value in either box.
- Alter the values as for normal Timecode editing (see Timecode Entry and Editing in this chapter).

15.3.2 Timecode Display Area

The lower right-hand corner of the screen always shows the current timecode.

Ancillary information in the box is the state of the Tape Machine being controlled by the Autolocator, the type of timecode source (always LTC) and the timecode rate in frames per second.

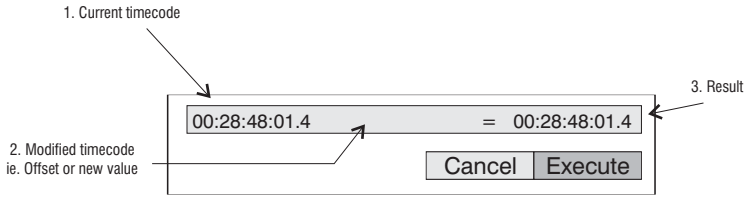
Also, LZ is displayed when a Local Zero Offset is in use.

Correctly running timecode is indicated by PLAY in green. If PLAY turns red then the timecode is running more slowly than Capricorn is expecting. Check the timecode source or change the expected frame rate.

15.3.3 Timecode Entry and Editing

Several methods of entering and modifying timecode values are available and and can be used according to preference.

Timecode is edited in a standard dialogue box as follows:



1 The current field is the original timecode selected for editing.

2 The modifier field is the area for displaying user input.

3 The result field shows the total of the original and the modifier.

15.3.4 Timecode Entry Formats

Timecode can be numerically entered using the 0-9 keypad next to the trackball or an offset can be entered using the keypad or trackball.

Timecode can be entered in either formal or free formats. Formal entry is numeric only and appears in the form in which timecode is always displayed, formatted as HH:MM:SS:FF.S (hours:minutes:seconds:frames.subframes).

Free format contains both numbers and punctuation marks, the resultant timecode value being translated into the formal form for display.

The following examples illustrate the free format.

1::2	1 hr 2 secs	.1	one tenth frame
:12	12 secs	10.	10 frames
12:	12 mins	10.1	10.1 frames
12:12	12 mins 12 secs	12:10.	12 secs 10 frames
2::	2 hrs	::12:10	12 secs 10 frames
2:::	2 hrs		

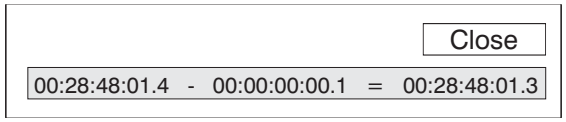
Leading zeros are unnecessary and blank fields are implied zeros.

For clarity of display, the representation of timecode in lists can have suppression of leading zeroes in the hours field and/or suppression of the frames and subframes fields. This is done in the Timecode Configuration screen as described previously. When editing timecode values, however, the full timecode representation is always used.

15.3.5 Offset Specification by Trackball

If the trackball is moved first when a timecode editing dialogue is displayed then an offset field will appear with a one-quarter frame offset corresponding to the direction in which the trackball was moved.

For example:



To increase the offset

➤ Move the trackball right.

To decrease the offset

➤ Move the trackball left.

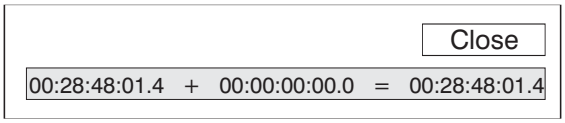
To set the current value

➤ Click a trackball button.

15.3.6 Offset Specification by Numeric Keys

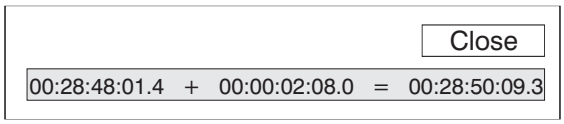
If instead of moving the ball, any of "**+**", "**–**", "**:**", "**.**" or the numeric keys are pressed, the operator is deemed to be entering values by keys only. At this time the ball will be available for controlling the data entry cursor pointing in the modifier field

Entering "**+**" or "**–**" signifies the entry of an offset to the original timecode field. A zero modifier field will appear with the + or - character as follows:

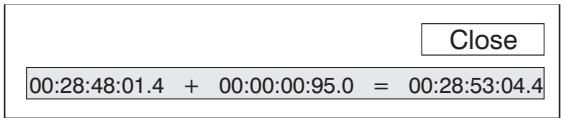


Entering digits at this point will cause them to start overwriting the modifier field, beginning at the frames digit, and shifting one place left with each new digit. So, to enter an offset of 2 secs 8 frames, the digits **2 0 8** need to be entered.

This results in a display as follows :



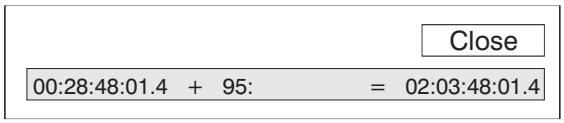
There is no restriction on the numeric range of any of the two digit fields in the modifier. It is therefore possible to specify a 95 frame offset by entering **9 5**, the result field being recalculated according to the current system frame rate to show a valid timecode format as follows (assuming 30 fps code) :



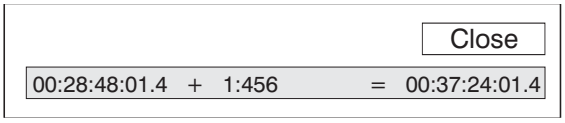
Pressing "**+**" or "**–**" again during the numeric entry restarts the edit with a zero modifier field.

15.3.7 Offset Specification in Free Format

If during the entry of the modifier field, a punctuation key is pressed, the display changes to show the user input in that format. All previous keystrokes are retained, and the result field is recalculated to show the new effect. For example, if a "**:**" was entered in the example above the user input would represent 95 minutes. The display would then appear as follows:



In any field between punctuation characters up to three digits will be allowed. If any more are entered the field will rotate leftwards, adding the new digits at the right. Thus if a modifier of "**+**", **1**, "**:**", **2 3 4 5 6** is entered the display will appear as follows:

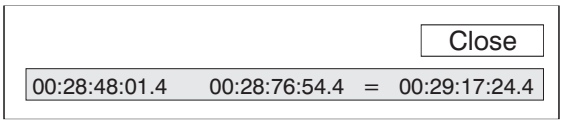


because 1:456 represents 8 mins 36 secs.

Pressing "+" or "–" again during numeric entry restarts the edit with a zero modifier field, as described in the preceding section.

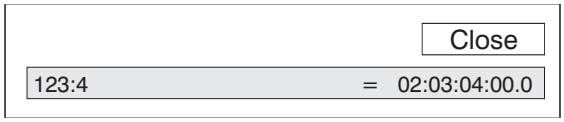
15.3.8 Replacement of Original Timecode

If a numeric key is pressed when the overlay window is first opened, it signifies that the operator wishes to overwrite the original timecode. On the display the original field is moved to the modifier field, and entered key starts the overwriting process at the frames digit (or the seconds digit if frames are suppressed). Further numeric key entries cause the newly entered digits only to shift leftwards, replacing the original. So for an entry of **7 6 5 4**, the display would appear as follows (again assuming 30 fps code):



15.3.9 Replacement of Timecode in Free Format

If a punctuation character is entered as part of a numeric entry then the system will assume that an absolute timecode value is being entered. The original field will disappear and will be replaced with the entered data, with the punctuated form being translated into the result field as a totally new timecode. This provides a quick way of specifying any arbitrary time without having to erase the supplied original field by entering all the leading zeros. Again, three digits are allowed in any field except the tenth-frame field, where only one is legal. For example, entering **1 2 3 : 4** would produce the following display:



15.3.10 Correction of Numeric Entry

In any of the above cases of numeric entry, a wrongly typed digit can be corrected by using the TIME key. Only user-supplied input can be rubbed out, so if a replacement edit is being done and TIME is pressed more times than there have been new digits entered the display will return to showing the original, but no more deletion will take place.

Pressing CANCEL at any point in this process will return to the initial displayed state, without the modifier field. This will also be the case if CANCEL is used during entry of a timecode offset by the trackball.

15.4 Labels

Labels provide a means of identifying or tagging particular points in a programme which are significant to the user . They may, for example, be used to mark the start of each verse and chorus section, or perhaps to flag a point in the mix which needs later attention or an added effect.

Labels are particularly important in locate operations, and a number of well placed labels in a mix can save a lot of time and frustration in timecode specification.

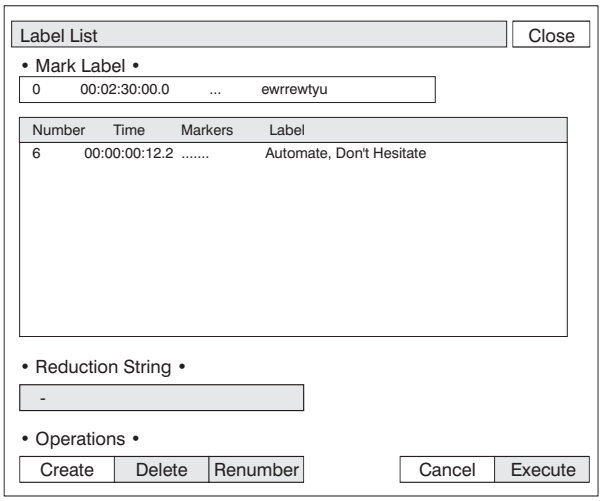
15.4.1 The Label List

To access the Label List

➤ Click the Label List Icon.

The list is also displayed when a Locate is requested and can be made part of the application area background on the screen.

The following screen is displayed:



If timecode is running then the list will scroll to progress through the timecodes the labels have tagged.

The Mark Label box shows the current timecode assigned to Label 0.

The main list shows labels in timecode order. Each entry has a Label number (assigned by the system), the timecode the label refers to, any Markers on the label and the label name which can be blank.

If any Markers are present then their meaning is as follows:

S Segment marker
A Segment marker is used to delimit sections of the programme. These Labels are displayed in graphical representations of the mix and can be useful locate points. They are also used by the Cycle function in the absence of Cycle From or To markers.

< > Cycle From and To markers
Used to specify the default start and end points for the Cycle function that enables a section of material to be replayed repeatedly.

{ } The Auto Record Punch In and Out points
Auto Record Markers can be created to define the punch-in and punch-out times.

[ ] Safety Net On and Off
These markers are used to specify the section of programme when Dynamic Automation is enabled.

To edit a label

➤ Click on the required label.

To select labels in the list that are not shown

➤ Use the 

to move through the the list with the trackball.

or

➤ Type the first few letters of the label name.

The letters will appear in the Reduction String box and the list will shrink to show only those labels starting with the letters typed.

To edit labels when timecode is running

➤ Click in the title bar at the top of the label list where the word Unfrozen is shown.

The title bar will display the word Frozen.

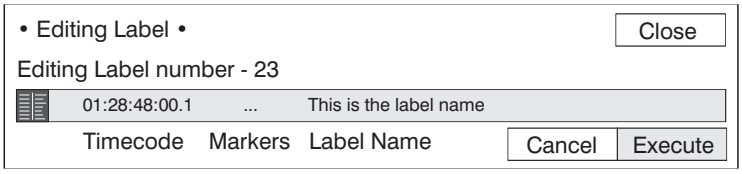
The list will stop scrolling and labels can now be selected for editing.

➤ Click the title bar again to un-freeze the label list.

The highlight will resume following the labels as timecode progresses.

When the required label has been clicked

The Editing Label dialogue box will be displayed.



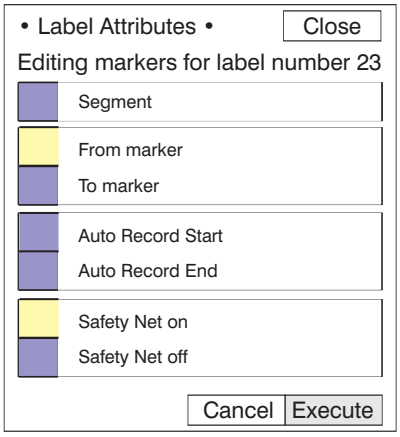
To change the Timecode

➤ Click on the Timecode and enter it as described previously in Timecode Entry and Editing.

To change the Markers

➤ Click on the Marker field.

The Label Attributes dialogue box is displayed:



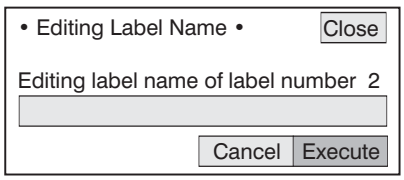
➤ Click on the buttons for the required markers.

➤ Click Execute to finish.

To edit the label name

➤ Click on the existing name.

The Editing Label Name dialogue box will appear.



➤ Edit the name as required with the main keyboard.

A name can have up to 32 characters with spaces and punctuation marks. Label names must begin with a letter. The name does not need to be unique.

➤ Press <RETURN> on the keyboard or the EXECUTE key to save the new name.

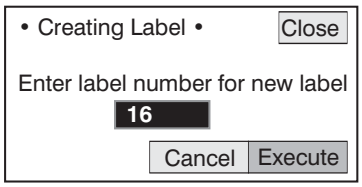
or

➤ Press the CANCEL key to restart editing the name.

To create a label through the screen

➤ Click the Create button.

The Creating Label dialogue box is displayed.



The next available label number is supplied by default (this is the highest current label number plus one).

To accept the default label number supplied

➤ Press the EXECUTE key.

To change the number

➤ Roll the trackball left and right.

➤ Press the EXECUTE key.

Note : If the number selected already exists then a dialogue box will appear to inform the user and the number must be changed to one that is not already used.

To abort the operation

➤ Click a trackball key.

➤ Click the Close button.

To delete a label from the list

➤ Click the Delete button.

The button will turn yellow. The Create and Renumber buttons will no longer be available.

➤ Click on the required labels in the list.

➤ Click the Execute button.

A confirmation dialogue box will appear.

➤ Click on the Execute or Cancel button.

No other labels are affected when the item is removed from the list.

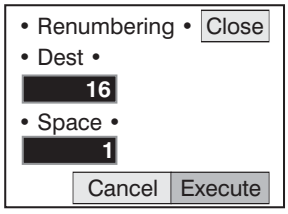
To renumber labels

➤ Click the Renumber button.

The button will turn yellow and the Create and Delete buttons will no longer be available.

➤ Click the required label in the list.

The Renumbering dialogue box will appear.



The Dest box is used to set the new label number and shows the next available label number by default.

The Space box shows the default increment between the renumbered label and all subsequent label numbers currently in the list.

E.g.: If there are four labels numbered 1,2,3,4 and label number 2 is renumbered to number 10 with spacing of 2 then the labels will be renumbered to: 1,10,12,14.

➤ Click the Dest box.

➤ Set the number by rolling the trackball or entering the number with the numeric keypad.

Note : If the number selected already exists then a dialogue box will appear to inform the user and the number must be changed to one that is not already used.

➤ Click again to set the number.

➤ Click the Space box if an increment other than 1 is required, roll the trackball and click again to set.

➤ Click Execute.

The labels will be renumbered as selected.

➤ Click the Renumber button again to end renumbering mode.

15.4.2 Creating Labels

The NEW LABEL key is used to create a label with the current timecode and the MARK key is used to set the Mark Label to the current timecode.

To create a Label

➤ Press the NEW LABEL key.

A new label will be instantly added to the label list and the Enter new label name dialogue box will appear. It is placed over the System Status Area of the screen.



The dialogue box shows the label number assigned to the new label. If the Label List screen is currently displayed then the user will see the new label inserted in the list with the timecode at the point when the NEW LABEL key was pressed.

➤ Use the keyboard to type in a name if a name is required.

➤ Further labels can be created by pressing the NEW LABEL key as required.

To remove the dialogue box from the screen

➤ Press <RETURN> on the keyboard or the EXECUTE key.

The MARK label

The Mark Label is Label 0. It is useful as a temporary point of timecode which does not need to be permanently saved in the label list. If the Mark Label has not been updated yet then it will have a timecode of 00:00:00:00.0.

To update the Mark Label

➤ Press the MARK key.

Label 0 is displayed in a separate box above the main Label List as well as appearing in its correct timecode ordered position in the list.

15.5 Cycle

When 

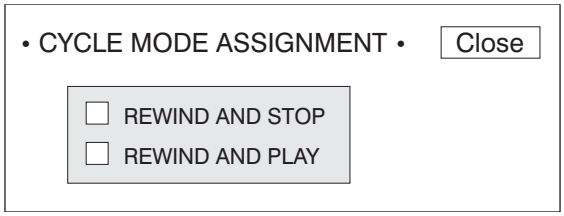
is pressed the tape machines on the autolocator will cycle between the timecodes on the labels with the From and To markers.

The system can either rewind and stop when it reaches the From marker, or it can rewind and go directly into play. This option is selected in the Transport Control Configuration screen.

15.5.1 To set the Cycle Mode

➤ Click on the CYCLE MODE button in the Tape Machine Configuration screen.

The Cycle Mode Assignment dialogue box will be displayed.



➤ Click on the required button.

The selected button will turn yellow and the other button will be blue.

➤ Click on Close.

15.6 Auto Record

The system provides a means of performing automatic punch-ins. In any one period of forward play the points at which the operator drops in and out of RECORD will be stored. Returning to the start of the section and pressing 

will cause the system to replay the store, dropping in and out of RECORD at the same times. In this way an overdub pass which had correct drop in and out points, but an incorrect performance, can be re-done by the artist with exactly the same timings.

The system will only perform the equivalent of pressing RECORD while holding down PLAY, and will not modify the machine RECORD ENABLE status. In this way, drop-ins can be rehearsed if required with the machine SAFE, before finally committing to a take.

Note that entering AUTO RECORD mode at a point which would be in the middle of a RECORD segment will not result in the machine going directly into RECORD. It is therefore important to start an AUTO RECORD pass prior to the first drop-in point.

During an AUTO RECORD pass, the 

key will be illuminated. This mode will be cancelled immediately if the RECORD button is pressed, or if 

is pressed by itself.

Starting a new PLAY pass and entering RECORD will delete any old stored drop-in points and start storing new timings.

AUTO RECORD is always available, regardless of the state of the 

switch.

Editing the Auto Record drop-in time

As an alternative to manually setting Auto Record drop-in and drop-out points, the Label List screen allows the operator to define and “fine tune” the the drop-in and drop-out times.

Two labels must be created and each is given a special attribute to define the Auto Record drop-in and drop-out times. Existing labels can also be used by editing them and applying the Auto Record attributes.

As with manual Auto Record mode, the 

must be pressed before the drop-in time. As timecode passes the drop-in time the Tape Machine will go into RECORD.

There can only be one drop-in and one drop-out label defined.

15.7 Locating

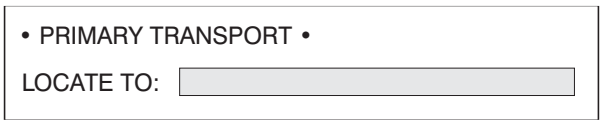
Both sets of Transport Controls have a Locate facility, assuming the transports assigned to them can execute locate commands. Locate mainly uses the Label List for the timecode that will be located to, but a timecode can also be specified manually if necessary. The Soft Panel can also be used for quick locating to pre-defined points.

The locate point used most recently is displayed above the current timecode display on the screen.

To Locate

➤ Press the LOCATE key.

The key will flash and the Locate To dialogue box will appear.



The dialogue box will indicate the PRIMARY or SECONDARY transport controller according to which LOCATE key was pressed. The full Label List will also be displayed on the screen a few seconds after the Locate To dialogue box.

There are now several options:

- Locate to the timecode used for the previous locate.
- Select a label to locate to.
- Enter a Timecode to locate to.

To execute the Locate when the Locate To timecode has been selected

➤ Press the > key to locate to the timecode and start to play.

or

➤ Press the EXECUTE or || key to locate to the timecode and stop.

To abort the Locate command before the Locate is executed

➤ Press the CANCEL key.

To locate to the timecode used for the previous locate

➤ Press the > or || key immediately.

To interrupt a Locate operation once the tape has started running

➤ Press ALL STOP || > << or >> key.

The Locate will be cancelled and the transport will execute the command according to the key pressed.

or

➤ Press the LOCATE key again.

The transport will stop and a new locate point can be selected.

15.7.1 To locate to a Label

To select a Label by number

➤ Enter a number key on the keyboard or numeric keypad.

➤ If the wrong number is entered, press the LOCATE key again to clear the number.

➤ Execute the locate.

If the number exists in the label list then the transport will locate to the relevant timecode. If the number does not exist then the transport will locate to the last label.

To select a Label by name

➤ Enter the first letters of the label name.

This will have the same effect as selecting labels in the list with the Reduction String. That is, the list will shrink to show only those labels with the matching letters at the start of their names.

The highlight on the list will select the first matching label by default.

➤ Either continue typing letters until only one label remains or roll the trackball up and down to highlight the required label.

➤ Execute the locate.

To select a Label from the List

➤ Roll the trackball up and down the list (when it has been displayed).

The SCROLL CURSOR key is automatically switched to Scroll mode when the Label List is displayed so that the trackball can scroll through the whole list. The SCROLL CURSOR key is switched back to Cursor mode when the Label List is removed from the screen.

➤ Execute the locate.

15.7.2 To Locate to a Specific Timecode

To enter a timecode to locate to

➤ Press the TIME key above the numeric keypad.

The Locate To label dialogue box (and the Label List if it had appeared) will be removed from the screen and a standard timecode entry dialogue box will appear with the current timecode as the starting point.

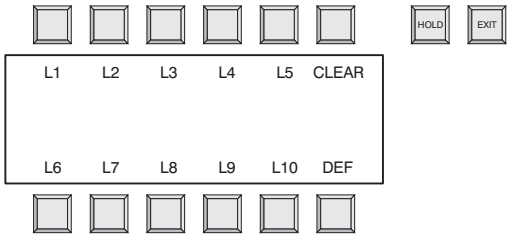
➤ Edit the timecode as usual to produce the required Result timecode.

➤ Execute the locate.

15.7.3 To Locate using the Soft Panel

➤ Press [LOCATE] in the Entry Level Menu on the Soft Panel.

The Locate Point menu will appear:



To Locate instantly

➤ Press one of the programmable keys.

The default labels for the keys are [L1] through to [L10].

The transport defined on the key will locate to the specified timecode. The default is the Primary Transport to timecode 00:00:00:00.0.

To define the Soft Panel Locate To settings

➤ Press the key labelled **[DEF]**.

The Soft Panel will display a message “Nominate key for redefinition”.

➤ Press one of the programmable keys.

The Soft Panel will prompt for the Primary or Secondary Transport Controller.

➤ Press the key labelled [PRIMARY] or [SECONDARY].

The Soft Panel will display a message instructing the user to use the VDU to set the required timecode. The screen will display the Label List.

➤ Select the label with the timecode which is nearest to the required timecode and click a trackball button.

Control will be transferred to a standard timecode entry dialogue box.

➤ Adjust the timecode (if required) to the desired value.

➤ Press the EXECUTE key.

The Soft Panel will ask if the transport should Stop or Play when the timecode has been located to.

➤ Press the key labelled STOP or PLAY as required.

The Soft Panel will ask for the label to be displayed next to the key being defined. It will display the current label by default.

➤ Edit the label as required using the main keyboard and press <RETURN>.

The new label will be displayed next to the key which was defined. If the key is pressed then the transport selected for the key will locate to the time specified.

16 Automation Overview

16.1 Introduction

Capricorn provides full dynamic automation on virtually all controls and switch functions. All rotary and linear controls are touch sensitive so that manual moves can be written and instinctively updated. During playback, non–moving controls have displays to indicate their positions and faders are motorised. The operator can see the actual control settings at all times and is able to update settings without any key–presses or nulling.

Automation data is stored in the system memory and is automatically backed–up onto the hard disk. Mixes can be copied from the hard disk to magneto-optical disks for safe keeping and to increase free space on the system. Each pass is stored in the automation system, which allows all previous passes and mixes to be rapidly retrieved.

The fader position usually shows actual gain of the signal. However, a trim mode is provided for offsets to be added to an existing fader move.

Changes to the controls contained in the following table are recorded against timecode as a pass update. When static data is changed (such as the configuration of the desk) the Initial Snapshot Store is updated and the whole of the mix is affected.

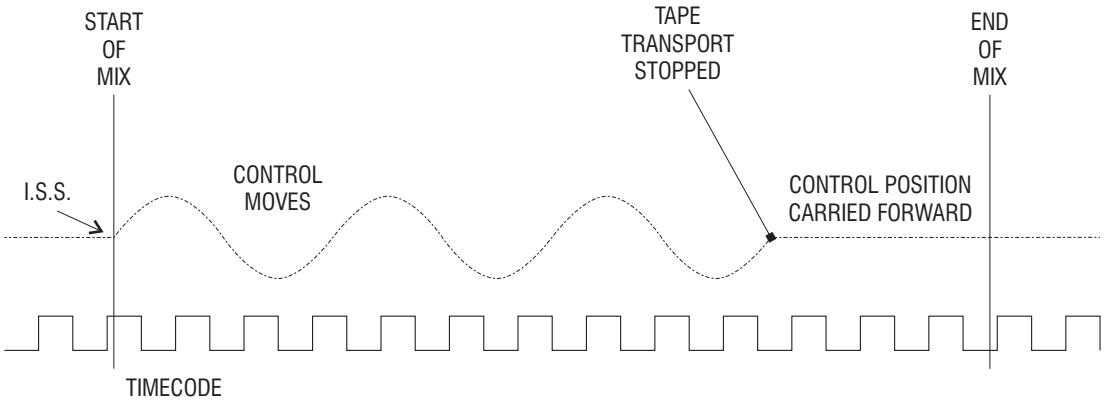
Controls that can be Dynamically Automated	Static settings contained in the Initial Snapshot Store
Fader	Numbers of each type of path
Mute	Port Assignment
Pan/Balance	Path Configuration (Mono/Stereo, position of EQ, Processing, etc.)
Aux Contribution	Routing
Track Contribution	Fader and Bank Assignment
EQ Controls	Input Selection
Dynamics Controls (Limiter, Expander/Gate, Sidechain Filter)	Mic/Line Gain and Trim
Filter Controls	Input Balance
Width	Insertion Point
All In/Out Switch	Cue Fader Level

Automation Principles

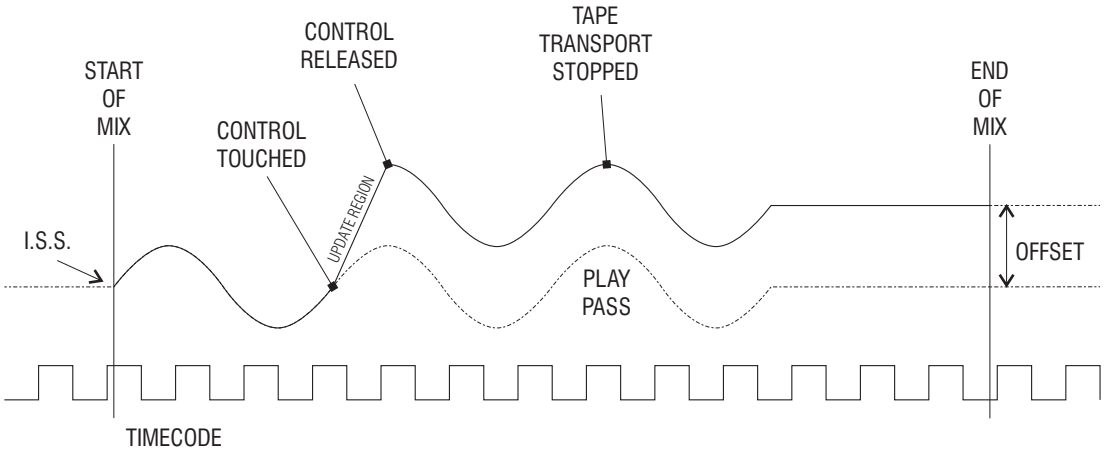
The automation system provided within Capricorn operates on a principle of "Relative" gain structures. For example when automation is turned on and the tape transport is run for the first time. The Initial Snapshot (ISS) is taken for all controls that are included within Session Scope. This has the advantage that if the basic mix is set up prior to automation being turned on for the first time, automation only has to run long enough for the I.S.S to be taken, and the mix balance is automatically written for the duration of the track.

Likewise for Dynamic moves made with faders and rotary controls. At the time the automation pass stops, the current position of faders or rotary controls are also automatically written to the end of the mix.

In addition the On state, or Off state of Mute or Switch transitions are also automatically written to the end of the mix.



Note: This means that if the transport is subsequently located to a period within the mix extent, the moves in the previous pass are updated and automation is stopped without Matching controls to the Play Pass position then the offset values of the controls moved will be added to all subsequent mix values.



16.2 Automation Controls

The automation system is controlled by the AUTOMATION ON key which acts as a toggle. When automation is OFF, no new automation data is recorded and no previous data is replayed.

Automation can only be turned on if a project directory has been opened because the system needs to know where to place the recorded data. If no directory is currently open the AUTOMATION ON key will flash and the system is ready to start the project logon procedure. On successful completion of this, the automation system is activated and the AUTOMATION ON is illuminated. Any control moves now made on the console are recorded against timecode and any previous moves can be replayed depending on the individual control settings.

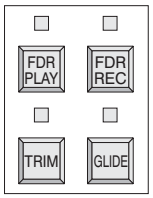
To turn off Automation press the AUTOMATION ON key so that it is no longer illuminated. Any outstanding mix update is saved to disk. The current play pass number is recorded with the mix data so that the user may return to the same point in the mixing process.

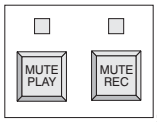
The system subdivides the automation control so that Faders and Mutes can be independently controlled. The controls that are going to be influenced by automation are defined by Scope, i.e. which signals and controls are automated.

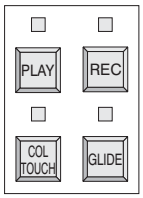
16.2.1 Path Automation Controls

The REC > and GLIDE keys below the function selector set the automation mode for all functions on a Path Strip except Mutes and Faders. This includes setting the automation modes for the strip FACs and their associated switches. These controls will also control the automation modes for all functions that may be automated on the AFU when a path is Accessed. The AFU automation keys provide the same functionality as the Strip automation keys.

The Faders and Mutes have separate controls to set their automation modes.

Faders 

, Mutes 

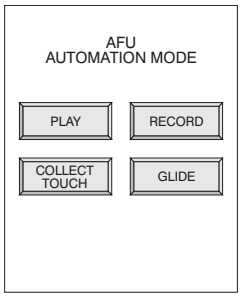
, Strip 

There are also dedicated global automation keys for faders and mutes on the Monitor section.

The COL TOUCH key affects all controls on a Path Strip, including Faders, Mutes and controls on the AFU for the currently Accessed path.

16.2.2 AFU Automation Controls

The AFU automation controls duplicate the functionality of the Strip automation controls.

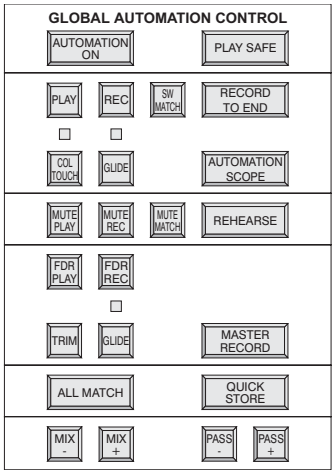


16.2.3 Global Automation Controls

Global Mode control keys are provided in the monitor section for Faders and Mutes. In addition a separate set of global mode keys are provided to control all other rotary and switch controls that may be dynamically automated except Faders and Mutes.

Separate global GLIDE keys are provided for Faders and Rotary controls, and global Match keys are provided for Mutes and all switches. In addition an ALL MATCH key is provided that may be used to simultaneously glide and switch all controls to the play pass position.

When a Global Mode is selected, all controls are set to that mode and the locally selected mode is overridden.



The global automation controls are divided into sub-sections for switches, mutes, faders and all. At the top of the section are AUTOMATION ON and PLAY SAFE keys for enabling or disabling the automation system and record modes.

16.3 Scope

Not all controls have to be automated, and so the operator can reduce the scope of the automation system.

Scope provides the facility to reduce the number of controls that are recognised by automation data, stores, or offline edit list information.

In the case of automation it may be desirable to reduce which controls are recognised by automation. Controls that are not “dynamically” automated are still recognised by the initial snapshot. Therefore they will always return to the state or position they were at when the initial snapshot was taken each time a new “pass” is started, if they are included within Automation scope.

For example, if routing changes are made after the initial snapshot is taken, the routing will switch back to its original state when an automation pass is started.

Faders and Mutes that are not in Automation Scope do not have their Automation Modes displayed.

Scope can also be set for Stores (see the Stores chapter).

The user can select the scope for:

Automation This defines the range of controls that are included within automation in the current mixing session.

Mix Edit This defines the range of controls that are to be affected by the off–line editing functions.

List The user can define 6 independent lists to show switch automation states for a range of selected signal paths.

Mute List This selects the channels that are displayed in the Mute List.

CH/SW List This selects the channels that are displayed in the Channel Switch list.

16.4 Automation Modes

Touch Record

Touch Record is the default mode that all controls that may be dynamically automated set themselves to when the system is powered up for the first time.

In Touch Record mode, a control replays moves from the play pass until the control is touched. The control then starts to record moves until it is released. The control then continues to replay moves, with an offset added according to the difference in the play position and the control setting when it was released.

Record

A control in Record will play back moves until it is touched. When a control is touched, the setting will be recorded as it is changed. When the control is released, it will continue to record the setting it was left at until the end of the pass.

Play

The Play mode is used to play back a previously recorded mix pass. If controls are moved the effect will be heard but will not be recorded.

Play Safe

The Play safe mode is used to play back a previously recorded mix pass. If controls are moved the effect will not be heard, and a new Record pass will not be created.

Isolate

In this mode the controls are isolated from the automation system and will not playback the automation data or record new data.

Auto Glide

A fader or rotary control in Auto Glide will replay moves until it is touched, record moves while in touch and then automatically match to the play pass position when it is released.

Manual Glide

Manual Glide allows Faders and rotary controls in Record, Touch Record, Play or Trim mode to be matched back to the previous play pass position and to continue replaying dynamic moves.

Auto Takeover

Auto Takeover allows faders and rotary controls in Record or Touch Record to be manually matched to the play pass position without using the nulling indicators. The control is held and its Glide key is pressed. The control is then moved until it moves through the play pass position, at which point it will drop out of record.

Record To End

Record To End causes any controls which are in Record mode to write their current settings to the end of the current pass when the transport is stopped.

Trim

Trim mode is only available on Faders.

Trim mode is used to add an offset to any previously recorded fader moves without effecting the dynamic structure of the moves.

Auto Join, Auto Glide Out and Safety Stop

These modes are enabled and disabled in the Options screen accessed from Miscellaneous Setup. They determine how moves are written to the end of the pass after the transport is stopped for controls in Record.

Auto Join causes a control to snap back to the play pass at the next move of the control. Auto Glide Out causes a glide to continue to be written after transport is stopped, until the control matches the play pass. Auto Join and Auto Glide Out can be enabled at the same time, but Auto Glide Out will take precedence.

Safety Stop causes all controls in Record to match back to the play pass with a glide rate of 1 frame when the transport is stopped. It can not be combined with Auto Join or Auto Glide Out.

16.4.1 Collect Touch

Collect Touch allows any number of pre-selected controls to be armed for Record before a new pass is created. The 

key is used to drop the collected controls into Record. The function can be set to Once Only or Latched, and this is shown in the system status area of the screen.

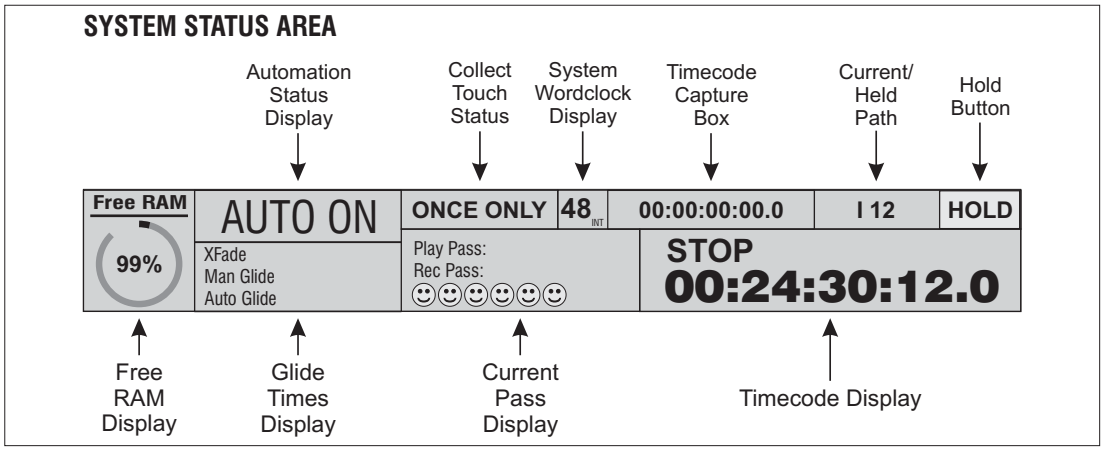
In Once Only, the controls selected for Collect Touch will drop back into the playback state as soon as the current pass ends.

In Latched operation, the controls will stay in Record during successive passes until Collect Touch is turned off.

16.5 Mixes, Passes and the Mix Tree

The basic principle of the Capricorn Automation system is that all Mix/Passes are kept.

Working Mix/Passes are kept in RAM and all modifications to a Mix are performed in RAM. As a background task, the system transfers data between RAM and the hard disk. The circular gauge in the bottom of the screen shows the amount of available RAM.



16.5.1 Mixes and Passes

Mix/Pass Numbers

The Mix/Pass number is displayed and used in the form mix.pass (e.g. 3.17). Each part of the number can be in the range 1 to 99, giving a maximum 99 mixes by 99 passes.

The first Mix/Pass in a Title is 0.0. This is a static starting point with no dynamic automation data. When Timecode is received and the first move is recorded, the first record Mix/Pass will be 1.1.

Initial Snapshot

An automation mix structure (a Mix Tree) is based on the Initial Snapshot (ISS). The Initial Snapshot is associated with Mix/Pass 0.0.

When automation is turned on for the first time a snapshot is taken of the current position of every control and switch, including those controls that are not dynamically automated. All subsequent dynamic automation moves are based on the ISS.

The ISS is taken for controls irrespective of which automation mode they are in, including Isolate.

The ISS is even taken for controls that are not included in Automation Scope. Therefore controls that are put into Automation Scope after automation has started will be set to their ISS positions when the next Play Pass is started.

Play and Record Passes

During mixing, the mix data that is being replayed onto the control surface comes from the Play Pass. If updates are made by the user then the data generated by those updates is combined with the Play Pass data to become the Record Pass. The Play and Record Pass numbers are displayed on the screen. The Record Pass number will only be created when new data is produced by moving (or touching) an automated control or when an off-line edit is executed.

Every time the tape is started and a control is updated then a new pass is created. The Mix and Pass numbers are incremented depending on which numbers have already been used and what the numbers for the Play Pass are. The first Mix/Pass (from the base mix 0.0) will be 1.1.

Note that Mix 0.0 is special because it is the start of the mix and contains a snapshot of the configuration of the desk but no dynamic automation data.

A Record Pass is the data gathered during a single continuous period of Play. The times when the record pass starts and stops are not confined to those of the play pass.

If the transport (and timecode) is stopped and then started the current record pass becomes the play pass, and a new record pass will be created if changes are made on the control surface. If no changes are made the pass is ignored.

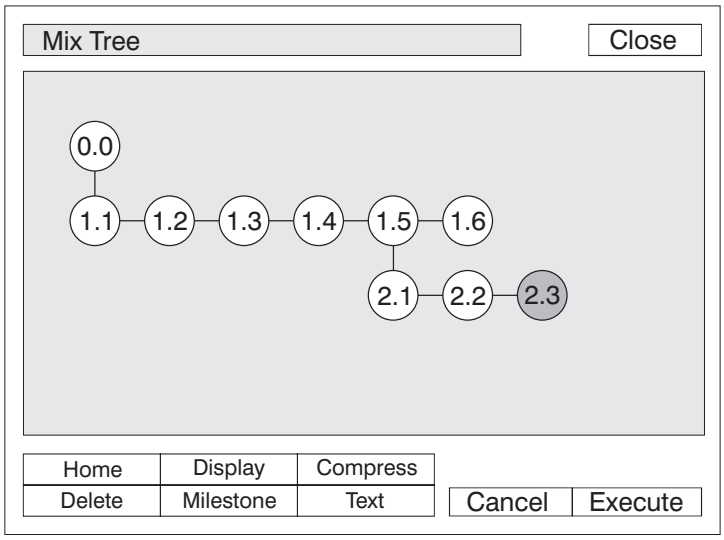
At any time during the mixing process the mix has defined boundaries in time. The start and end of a mix are the earliest and latest points for which data has been recorded or generated by editing. So if the transport rewinds to a point before the current start of the mix then the system will move the initial snapshot backwards in time.

16.5.2 The Mix Tree

The Capricorn Automation system allows the user to select any previous Mix/Pass as the current Play Pass.

This leads to a structure of data which can branch at many points and is called the Mix Tree. The root of the tree is always the Initial Snapshot 0.0.

A Mix Tree is built up as new passes are created and the Tree is displayed graphically as follows:



The current play pass is shown in green. Milestone mixes (see below) are indicated by a thick circle.

The 'parenthood' of updates can be clearly seen from this form of presentation but as the mix tree becomes large, it will not all fit on the screen. The screen is arranged to act as a window into the tree, and the user can scroll left-right and up-down by using the trackball in SCROLL mode. Alternatively the operator can request an abbreviated form of display by clicking on the DISPLAY box.

The mix tree display can be shown as a background display so that it is visible while other applications are not active.

The buttons on the Mix Tree screen provide the following options:

HOME	Moves the display window back to the start, showing pass 0.0
DISPLAY	Toggles between full and brief display modes
DELETE	Delete one or more mix tree nodes
MILESTONE	Mark a mix/pass as a milestone
COMPRESS	Provides the facility to reduce the size of the mix tree

16.6 Automation Data Storage

As previously described the system has a large hard disk to hold system configuration data, Node processor Instruction data and dynamic automation data. Data on the hard disk can be transferred to a Magneto–Optical Disk.

The hard disk is partitioned into three areas: System, User and Project. These partitions are maintained by the System Manager who requires a password to enable him (in addition to AMS Neve service engineers) to access the various housekeeping functions such as deleting and moving data.

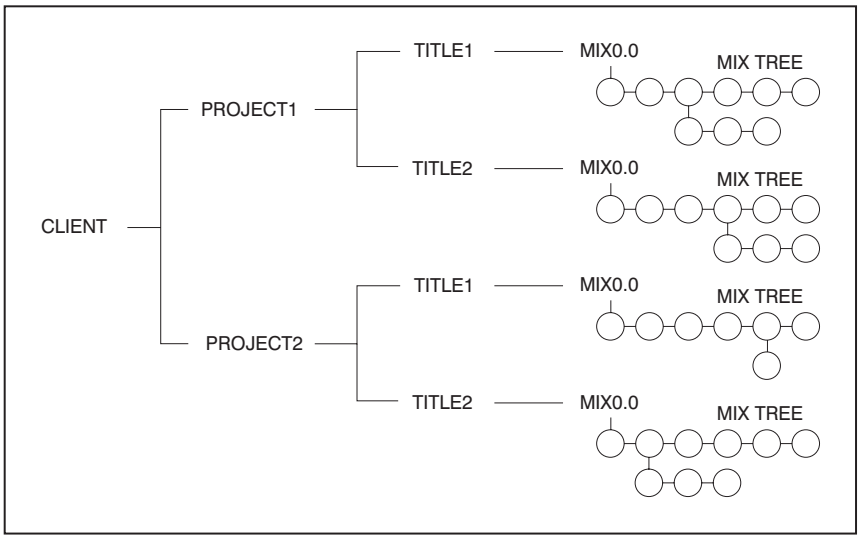
The System Partition contains all the files needed for running the system, and is not directly accessible to the user. The User Partition holds configuration data which defines how the system is set up, users can log on to recall or save their own personal configuration stores. The Project Partition contains the dynamic automation data in a hierarchical structure for each client.

Project Partition

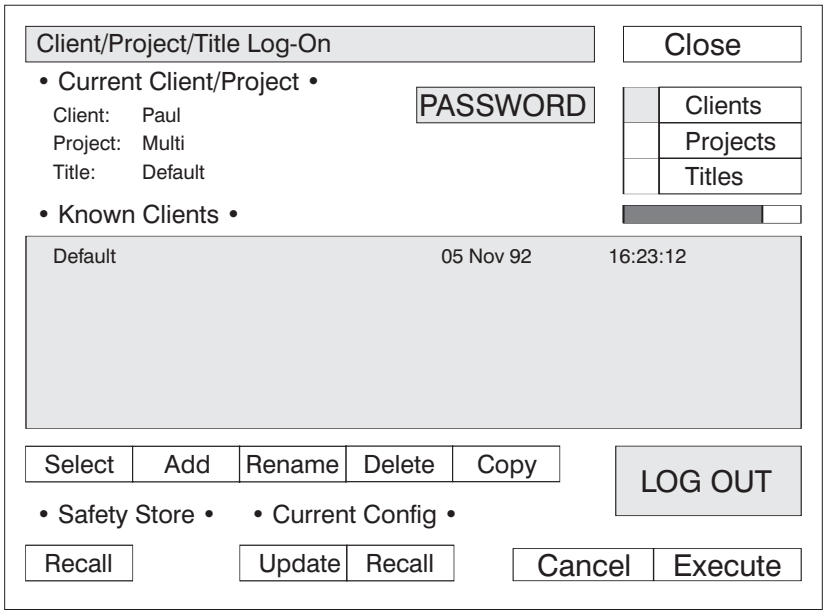
The Project Partition contains client information and all the system configurations, mix data, cue lists and notes for particular jobs. The partition is sub-divided into Client directories, beneath which are Project directories containing snapshots (Stores). Projects are then further sub-divided into Titles (e.g. tracks on an album).

A Title contains the automation data in a Mix Tree and a complete configuration store. Every time a new Title is created a new configuration store will be made.

The system also provides a default ‘scratch mix’ directory which is available for general use. This may be convenient for quick, unplanned excursions into automated operation which do not need their data preserved.



Client directories and sub-directories can be created by any user. Client data can be password protected in the same way as user data.



Note: Project and Title directories and sub-directories can be deleted by any user. Client directories can only be deleted by the System Manager.

17 Automation Operations

17.1 Automation Quick Start

The following steps allow a first Mix/Pass to be made:

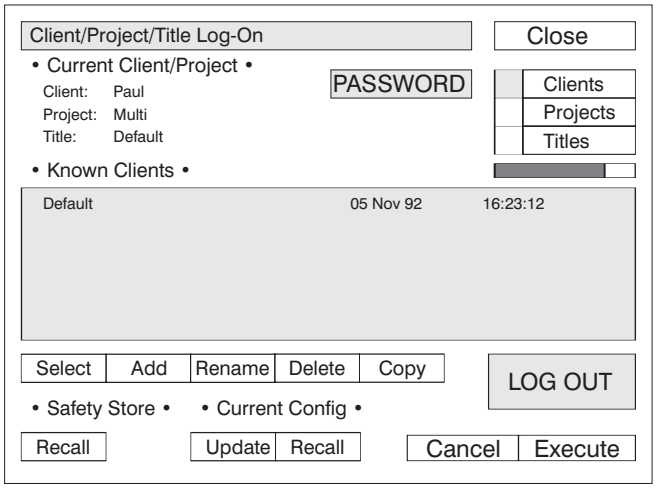
➤ Select or create an appropriate console setup (how many paths, path processing, bank assignment, routing, etc.) if the current setup is not as required.

Note : See the Configuration chapters.

➤ Set the Automation Scope to All Controls and All Paths.
(Click the Scope icon or press SCOPE on the Soft Panel Entry Menu.
Click the AUTOMATION button or press AUTO on the Soft Panel Scope Menu.
Click the ALL CONTROLS button.
Click the ALL PATHS button.
Click Execute or press AUTO again on the Soft Panel Scope Menu.)

➤ Press the AUTOMATION ON key.

The Client/Project/Title Log On screen will be displayed.



➤ Select or create the Client/Project/Title to be worked on.

Note : Select the Default Client to create an instant ‘scratch mix’. Click the Execute button on the Scratch Mix dialogue boxes which will appear.

Automation will now be turned on.

If this is a new Title (or a scratch mix), then faders and mutes will be in Touch Record and all other controls will be in Play by default.

➤ Put the Transport into play.

Timecode should start running on the screen.

➤ Make moves to controls as required.

A new Record Pass will be created.

➤ Stop the Transport.

The Record Pass will be saved and added to the Mix Tree.

The Record Pass will become the Play Pass.

17.2 Automation Data

17.2.1 Starting the Automation System

Automation data is stored in a Mix Tree. Each Mix Tree is stored in a Title. The automation system cannot be switched on until the operator has selected or created a Title to work with. This is done with the Client/Project/Title Log-On screen.

Automation is toggled on and off by the AUTOMATION ON key. When automation is off then no new automation data is recorded and no data is replayed.

If the AUTOMATION ON key is pressed when no Title has been selected then the Client/Project/Title Log-On screen will be displayed automatically and the AUTOMATION ON key will flash. When a Title is logged on then the automation system is activated and the AUTOMATION ON key illuminates solid. Control moves can then be replayed and recorded against timecode.

To turn off automation press the AUTOMATION ON key. Any outstanding mix update is saved to disk so the user can return to the same point in the mixing process.

17.2.2 Using Titles

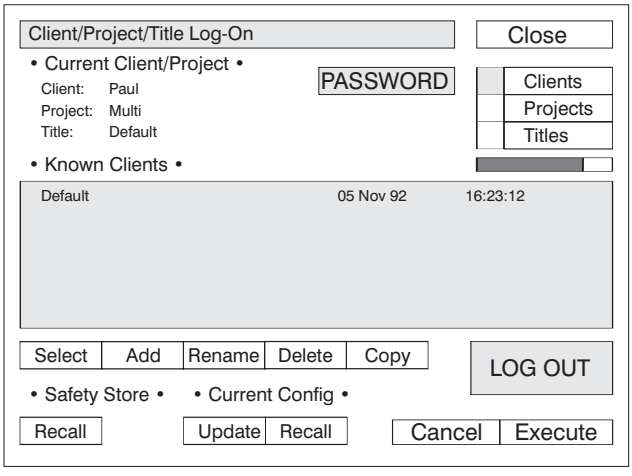
To display Client/Project/Title Log-On screen

➤ Press and hold the AUTOMATION ON key.

or

➤ Click the Client icon.

The Client/Project/Title Log-On screen will be displayed. Clients will be shown in the list.



To select a Title to work with

➤ Click the required Client in the list.

If the Client is protected by a password then a dialogue box will be displayed for entering the password. Type in the password on the keyboard and press <RETURN> or click Execute.

The Projects stored within the Client will be displayed.

➤ Click the required Project in the list.

The Titles stored within the Project will be displayed. The Store List for the Project will be loaded.

➤ Click the required Title.

The configuration and Mix Tree stored in the Title will be loaded. The system will allow automation to be switched on.

To create a Client, Project or Title

➤ Click the Add button when the required list is displayed.

A dialogue box will appear for entry of the name.

➤ Enter a unique name using the keyboard.

The name can be up to 36 characters long. A Client name must be unique on the system. A Project name must be unique within a Client. A Title name must be unique within a Project.

➤ Press <ENTER> to save the new name.

A new Client will automatically have a Project name Default. A new Project will automatically have a Title named Default.

Default Client

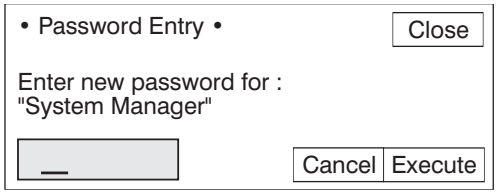
Every time a Client is being selected the Default client is highlighted automatically. By repeatedly clicking on Default at each level, the operator will quickly start an automation mix store in a scratch-pad area.

To set a Password for a Client

When a Client has been created or selected:

➤ Click the large PASSWORD button.

If no password already exists then the following dialogue box is displayed:



➤ Enter a password with at least 6 characters and no more than 12.

The password will not be echoed to the screen as it is typed.

➤ Press <RETURN> or click Execute.

A confirmation dialogue box will be displayed.

➤ Re-enter the password and press <RETURN> or click Execute.

Two successive identical entries are required to confirm a new password.

The system will now request a password each time the Client is opened.

The password will only be requested once when opening the Client, and not every time a storage operation is performed. All attempts to access the data from outside of the directory will require the appropriate password to be entered.

Password protection is not permitted on the Default Client.

To remove a password

➤ Log on to the Client and provide the existing password as part of the process.

➤ Click the PASSWORD button.

➤ Instead of typing in a password, press the space bar once each in the password entry dialogue box and in the confirmation dialogue box, followed each time by <ENTER> or Execute.

The password will be removed.

To rename a Client, Project or Title

➤ Click the Rename button when the required item is displayed in the list.

Note: The Client must be the current Client in order to be renamed.

➤ Click the item to be renamed.

A name entry dialogue box will appear.

➤ Type in the new name and press <RETURN> or click Execute.

The name is immediately changed in the list.

➤ Click the Rename button again to turn it off.

To delete a Client, Project or Title

Note: Projects and Titles can be deleted when logged on as any user. Client directories may only be deleted when logged on as System Manager. See Getting Started.

➤ Click the Delete button when the required list of items is displayed.

➤ Click the item to be deleted.

A confirmation dialogue box will be displayed.

➤ Click Execute.

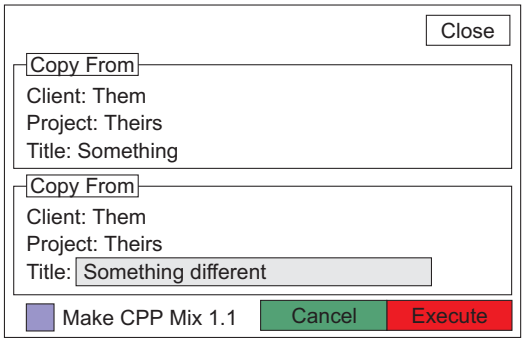
Note: Deleting a Client will automatically delete all Projects and Titles under the selected Client. Likewise deleting a Project will delete all Titles under the selected Project.

To Copy a Title

The Copy function is only available when a title has been selected to work with.

➤ Click the Copy button.

The Copy Title dialogue box will be displayed for a new name.



➤ Enter the name for the copied Title.

The name must be unique within the Project and can be up to 36 characters long.

If required, click the Make CPP Mix 1.1 button.

The button will turn yellow to indicate that it is active. This causes the current Play Pass to be copied to the new Title as Mix/Pass 1.1.

➤ Press <RETURN> or click Execute to confirm the name.

The title will be copied without affecting the currently loaded title.

Current Config Update

If changes are made to the Configuration that is stored by a Title (e.g. adding processing, changing the number of paths, changing port routing, etc.) then the changes are automatically saved in the Configuration.

However, changes to control positions are not automatically saved in the Configuration because these changes are automatically saved in the Mix Tree.

To save control changes in a Title Configuration

➤ Click the Current Config Update button.

Safety Store

As a safety back up, the system automatically takes a static store of the console's control positions approximately every 15 minutes. The interval for taking a Safety Store can be changed in the Options in the Miscellaneous Setup screen (see the Miscellaneous Setup chapter).

The Safety Store is unaffected by Scope as it is a desk wide operation.

To use the Safety Store in the event of a system failure

➤ Recall the Configuration.

➤ Click the Safety Store Recall button.

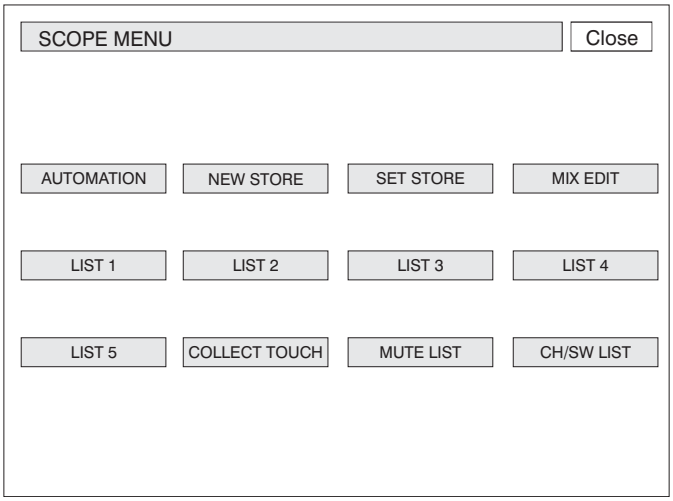
If you wish the control positions from the safety store to be updated within the Mix Tree, the control positions will need to be recorded by using the Collect Touch function.

17.3 Scope

To set Scope

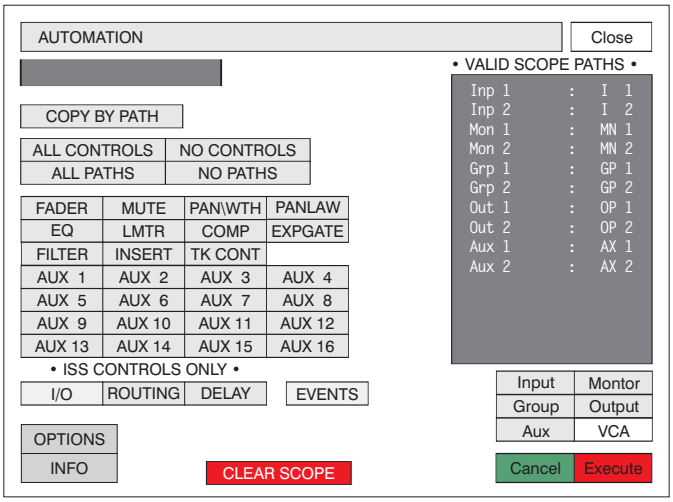
➤ Click the SCOPE icon.

The following screen is displayed:



➤ Click on the button for the required type of Scope.

The alpha displays associated with the ACCESS keys will flash and a screen will be displayed for the type of Scope selected:

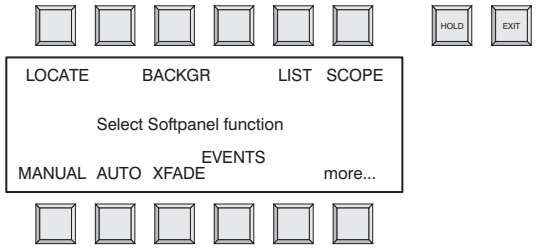


The OPTIONS button is only available in the Automation Scope screen.

The ISS Controls (I/O and Routing) are only available in Automation and Store Scope screens (see the Stores chapter for more information on Stores).

To select a Scope screen with the Soft Panel

➤ Press the SCOPE key on the Soft Panel Main Menu.



The Soft Panel will display the SCOPE MENU.



➤ Press the Soft Panel key corresponding to the required Scope screen.

The selected screen will be displayed and the Soft Panel SCOPE MENU will indicate the selection.

The alpha displays associated with the ACCESS keys will flash.

Scope screens can be switched freely using the Soft Panel. The current screen can be removed by pressing its key on the Soft Panel again.

17.3.1 Specifying Scope

Scope can be set by selecting a control (or all controls) and then selecting which paths to put in Scope for that control, or by selecting a path and then selecting which controls to put in Scope for that path.

The Scope screen will show the existing Scope for controls or paths when they are first selected.

Note: Faders and Mutes that are not in Automation Scope do not have their Automation Modes displayed.

17.3.2 To set Scope by Control

➤ Click the button for the required processing function or aux, or touch the required control on the AFU.

The selected button will turn yellow and the touch LED for the control will illuminate on the AFU.

Only one control can be selected at a time with this method.

The box above the COPY BY PATH button will display Setting By Control.

When selecting a control on the AFU, touching any touch sensitive control or pressing a key to put it in touch will select a whole function. For instance, any of the rotary controls or any of the keys in the EQ section will select EQ for Scope.

or

➤ Click the ALL CONTROLS button.

All the control buttons will turn yellow and the touch LEDs for all controls will illuminate on the AFU.

The box above the COPY BY PATH button will display Applying ALL Controls.

To de-select all controls

➤ Click the NO CONTROLS button.

All the control buttons will turn blue. Individual controls can be selected again.

In both cases

The paths which are already in Scope for the selected (or all) control will be highlighted in the Valid Scope Paths list, and the ACCESS keys for any of those paths in Scope that are on the surface will be illuminated.

To toggle paths in and out of Scope for the selected control

➤ Click the path in the Valid Scope Paths list.

or

➤ Press the ACCESS keys for the required paths. (Use Bank selection for hidden paths).

17.3.3 To set Scope by Path

➤ Click the required path in the Valid Scope Paths list.

or

➤ Press the ACCESS key for the required path.

The box above the COPY BY PATH button will display Setting By Path.

➤ Click the buttons or touch controls on the AFU for the controls which are to be in Scope for the selected path.

The buttons will turn yellow and the touch LEDs will illuminate.

To copy Scope control selections between paths

➤ Click the COPY BY PATH button.

The currently selected path will appear in a box next to the button.

➤ Click the paths in the Valid Scope Paths list to copy the settings to.

The paths will be highlighted and their Scope settings will be changed.

17.3.4 To put the whole console into Scope

➤ Click the ALL CONTROLS button.

➤ Click the ALL PATH button.

Note : This automatically activates the COPY BY PATH button. Click the button off if it is necessary to make further changes to Scope before Executing the changes.

Note: This does not include I/O, Routing or Delay scope for the ISS. These must be added to Scope separately, if required.

17.3.5 To include Relay Events in Scope

➤ Click the EVENTS button so that it turns yellow.

To save the changes to Scope settings

➤ Click Execute.

A confirmation dialogue box will be displayed.



➤ Click Execute to confirm changes, or Cancel to ignore changes.

To start again from the current Scope settings

➤ Click Cancel.

A confirmation dialogue box will be displayed.

➤ Click Execute.

The Scope will be reset to the settings present when the screen was opened.

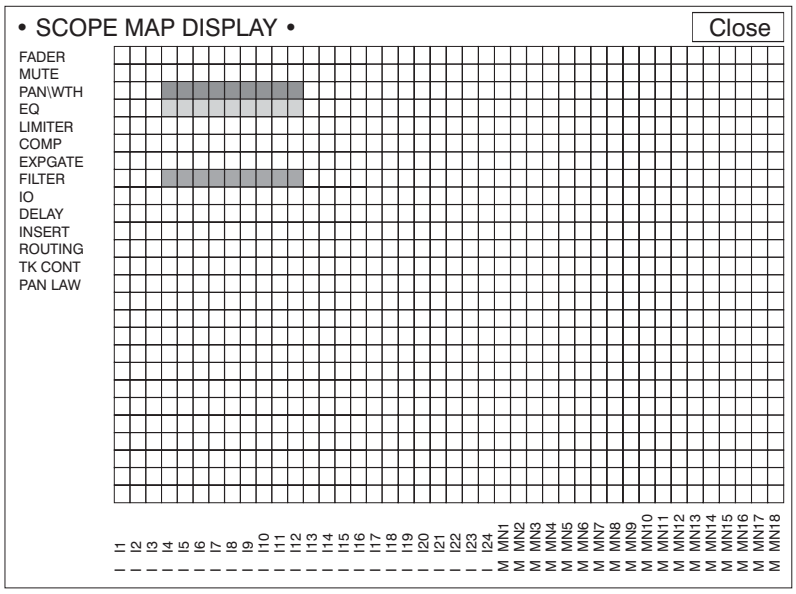
To set Scope from scratch

➤ Click the CLEAR SCOPE button.

17.3.6 Scope Information

➤ Click the INFO button.

The Scope Map Display will appear.



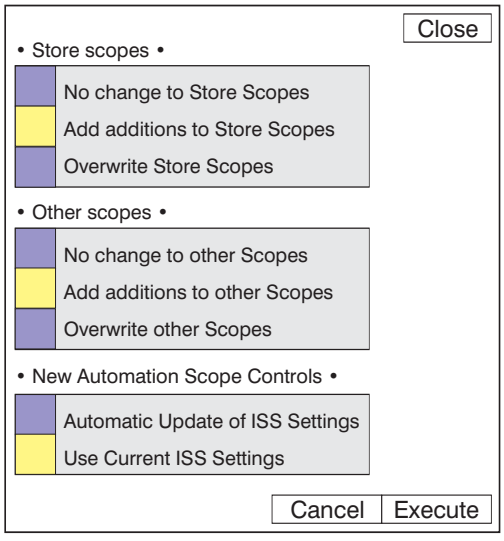
➤ Press the SCROLL CURSOR key to move the grid and show additional paths.

➤ Click on Close to return to the scope screen.

Automation Scope Options

In Automation scope, the OPTIONS button at the bottom of the screen is available.

➤ Click on OPTIONS to display the following Automation Scope options :



Store Scopes and Other Scopes

These options allow the Scope settings for New and Set Store and all other Scopes to be kept in line with Automation Scope.

No change
The Scope settings will not be forced to be in line with Automation Scope.

Add additions
If controls and paths are added to Automation Scope then they will also be added to the Store and/or Other Scope settings as selected.

Overwrite
The Store and/or Other Scope settings will be forced to be the same as the Automation Scope every time that Automation Scope is saved.

New Automation Scope Controls

This selects whether or not the ISS will be updated when the Automation Scope is changed. If Automatic Update of ISS Settings is selected then a new ISS will be made of the console settings when the Automation Scope is saved.

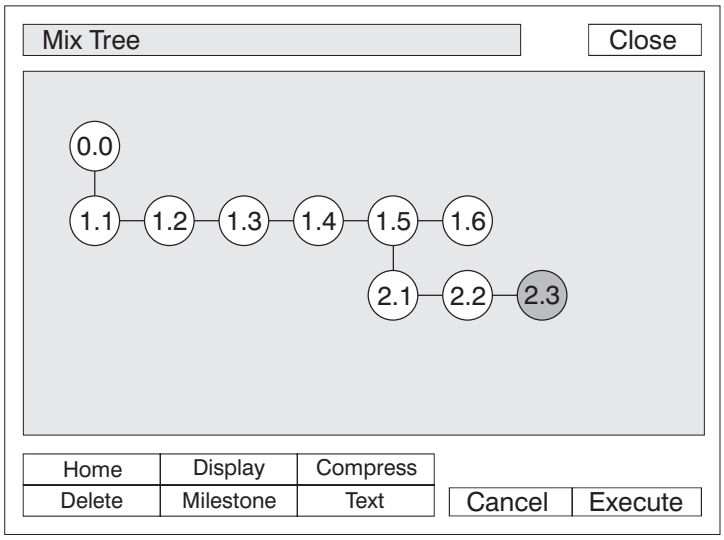
17.4 Managing Mixes and Passes

17.4.1 The Mix Tree

To display the Mix Tree

➤ Click on the MIX TREE Icon

The Mix Tree screen will be displayed.



The current Play Pass is shown in green. Milestone mixes are indicated by a thick yellow circle.

The screen is a window onto the Tree and can be scrolled across the Tree by using the trackball in Scroll mode. Also, the Tree can be abbreviated with the Display button.

The Mix Tree screen can be used as a background display so that it is visible when other functions are not active.

The buttons on the Mix Tree screen provide the following options:

Home Moves the display window back to Mix/Pass 0.0
Display Toggles between full and abbreviated Tree displays
Delete Delete one or more Mix Tree nodes to reduce clutter, and/or recover automation data storage space
Milestone Mark a Mix/Pass as a milestone
Compress Provides the facility to reduce the size of the mix tree
Text Show the Mix Tree in text form.

To abbreviate the Mix Tree

➤ Click the Display button.

This causes long chains of continuously numbered passes to be collapsed so that only the pass at each end of the chain is displayed on the screen. A dashed line will connect pairs of passes which have a series of passes in between.

No data is affected by abbreviating the display.

The first and last pass of every mix and all milestone passes will be shown.

To expand the Mix Tree again

➤ Click the Display button again.

Mix Compress

Mix Compress provides the facility to compress any number of Mix Passes within the mix tree into a single Mix Pass. This reduces the size of the tree by combining any number of spurious passes into a single unit.

To compress Mix/Passes

➤ Click the Compress button.

The button turns yellow.

➤ Click on the Mix/Pass which is to be the Base Mix.

The Mix/Pass will turn yellow.

➤ Click the end point for the set of passes to be compressed.

That Mix/Pass will also turn yellow. All the Mix/Passes between the two end points will turn blue to show what will be compressed.

➤ Click Execute.

A warning dialogue box will advise that the operation cannot be undone.

➤ Click Execute to perform the Compression.

The Base Mix and intermediate passes will be compressed into the end Mix.

Note: The current Mix Pass, Milestone Mixes and side shoots cannot be compressed. Unwanted side shoots should be Deleted before Compressing the tree.

To Delete a Mix/Pass

➤ Click the Delete button.

➤ Click the Mix/Pass to be deleted.

This will set the selected Mix/Pass and all subsequent passes to be deleted.

The passes to be deleted will be highlighted and a dialogue box will appear for confirmation.

➤ Click Execute.

The items will be deleted. The operation cannot be undone. The Mix/Pass numbers will be re-used as necessary.

Note : The current Mix/Pass and Milestone mixes cannot be deleted.

To Delete an entire Mix Tree

The operator may wish to Delete the entire Mix Tree. If the Mix Tree is deleted, the Initial Snapshot is also deleted.

This may be useful if the operator wishes to record an automated Mix of the same Title, at the same Time Code period but with a completely different Mix structure to the first Mix including a completely different snapshot.

To delete the Mix Tree

➤ Click on HOME to position the Tree at Mix 0.0, or use the Mix/Pass keys to select Mix/Pass 0.0.

➤ Click on DELETE and EXECUTE.

You will be asked to confirm before Deleting the entire Tree.

Note: You cannot delete the Mix Tree if Milestones are present.

17.4.2 Milestone Mixes

The purpose of a Milestone Mix is to mark a particular Mix/Pass as significant, such as being kept as a reference point for further work.

Creating a milestone mix also creates a Milestone Store which is added to the end of the Store List.

Milestone Mixes are protected from compress and delete operations and are identified by a thick yellow circle in the Mix Tree display.

Mix Notes can be used to record the reason for marking a mix as a milestone.

To mark a Milestone Mix

➤ Click the Milestone button.

➤ Click the required mix.

A thick yellow circle will be displayed around the mix.

A milestone store will be added to the end of the Store List. A milestone store is not restricted by Scope and contains the control positions for every path. The store description will contain the current Title, the Mix/Pass number and the name of the Mix/Pass .

See the Stores chapter for further information on the Store List.

To un-mark a Milestone Mix

➤ Click the Milestone button.

➤ Click the milestone mix to un-mark.

The yellow circle will be removed from the mix.

Note: Un-marking a mix does not remove or affect the store created when the mix was originally marked as milestone.

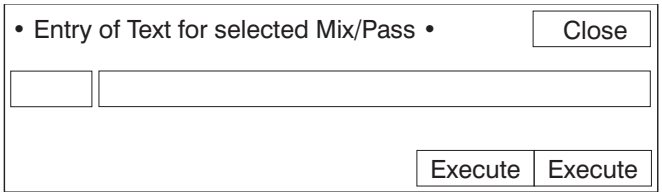
17.4.3 Mix Tree Notes

This function allows Mix/Passes to be named and have notes associated with them.

To name a Mix/Pass and add notes to it

➤ Click once on a Mix/Pass in the Mix Tree.

The Mix Notes entry screen will be displayed:



Note: Mix/Pass 0.0 is named ISS (for Initial SnapShot) and the name and text cannot be edited.

The cursor will be flashing in the name box.

➤ Enter a name for the Mix/Pass of up to 4 characters.

The name does not need to be unique. An existing name may be edited.

➤ Move to the notes box by clicking on it or by pressing TAB on the keyboard.

➤ Enter up to 48 characters of notes for the Mix/Pass (or edit the existing text).

Note: Each press of the TAB key will jump the cursor from one text box to the other.

➤ Click on EXECUTE.

The 4 character entry will be displayed in the respective Mix/Pass Icon in the Mix Tree.

17.4.4 Mix Tree Text

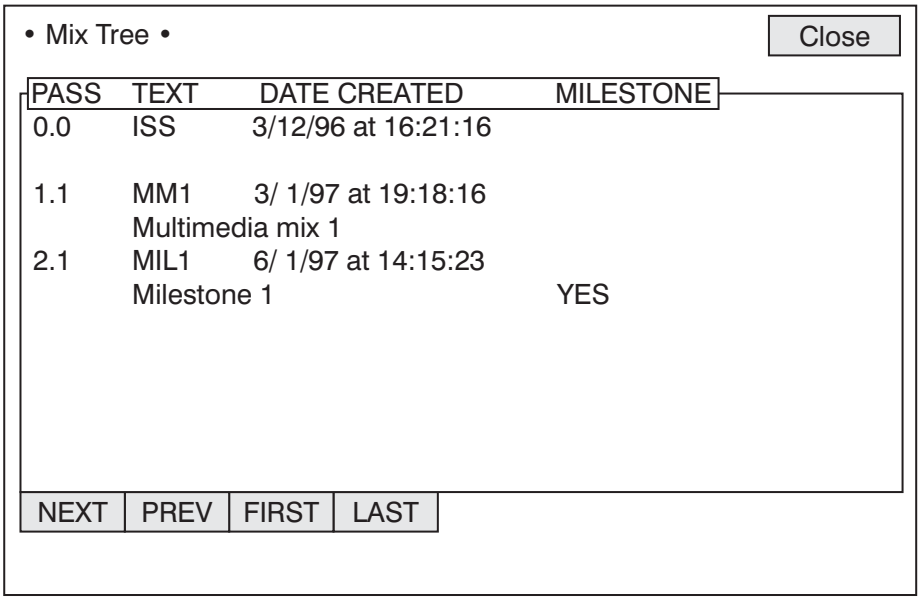
There are two ways to view text entered against a Mix/Pass.

➤ Click on the Mix/Pass Icon to display the text entry dialogue box shown above.

OR

➤ Click the Text button.

The Mix Tree text screen will be displayed:



This screen displays Mix/Passes with text against them and those marked as Milestones (YES in the MILESTONE column). This is so that only mix/passes which have significance will appear on this screen.

Note: No editing of text or the milestone attribute may take place in this screen.

The buttons at the bottom of the screen are used to navigate through the list. NEXT displays the next screenful of the list and PREV displays the previous screenful. FIRST displays the top of the list (from Mix/Pass 0.0) and LAST displays the end of the list.

➤ Click on Close to return to the Mix/Pass Tree.

17.5 Play Pass Selection

The play pass number is normally incremented by the system automatically after each record pass where changes have been made. This linear progression can be interrupted so that the last few passes are ignored, or start another section of the work based on a different pass.

This can be done from the Mix Tree display, with the transport stopped, by double clicking on the node to be the new Play Pass. The next record pass will become Pass 1 of the next mix number.

There are four buttons in the Global Automation Control area which can be used for play pass selection;



When any of the four buttons are pressed a window is displayed showing the newly selected pass, pressing 

or 

increases or decreases the Pass number displayed. 

and 

are used to increase or decrease the Mix number. When a new branch is selected in this way, the system uses the last pass on that branch as the current play pass.

Having selected the new pass using these keys press the 

key to change the current play-pass. To terminate the operation without changing anything press 

.

Repeatedly pressing 

or 

will eventually select the ISS (0.0) as the play pass.

17.5.1 Mix Abort

It is possible to abort the current record pass while automation is running.

Operation

If the 

key is pressed when the current record pass is in progress, the current record pass will be aborted. The next time tape is started the same play pass will be played. This allows repeated updates to be made to a selected play pass without having to download the previous play pass, and reduces the amount of data that needs to be stored within the system.

17.5.2 Mix/Pass Backup

When tape is stopped the current record pass is automatically backed up to the Hard Disk. It is not possible to select an alternative play pass when the system is still backing up mix passes to the Hard Disk.

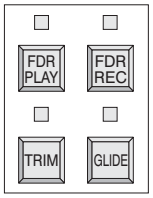
The state of the back up procedure is indicated by the row of six smiley icons in the Mix/Pass display area. The smileys are normally yellow. When a record pass is being backed up to the hard disk, then a smiley turns red for each pass being backed up. As each back up is completed a smiley turns yellow again.

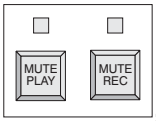
Additional Mix/Passes can be created while the backup is in progress.

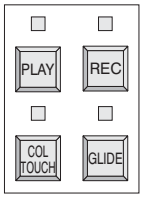
17.6 Automation Modes

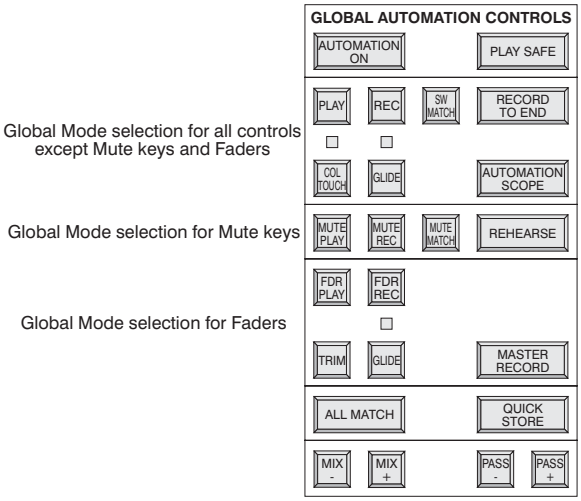
The following mode descriptions apply to faders and all rotary controls that can be dynamically automated.

17.6.1 Mode Summary

Faders 

, Mutes 

, Strip 



Isolate	> key twice in succession
Play	> key
Play Safe	> keys and the master PLAY SAFE key
Record	REC key
Touch Record	REC and > keys together
Auto Glide	REC and GLIDE keys together
Manual Glide	GLIDE key for any control in Play, Record, Touch Record or Trim
Auto Takeover	Hold the control and press the GLIDE key
Trim	TRIM key (faders only)
Auto Trim	TRIM and GLIDE keys together

There are also four special automation functions which are Record To End, Auto Join, Auto Glide Out and Safety Stop. Record To End is described after the automation modes. The other three are global modes which are selected in the miscellaneous Options as described in the Miscellaneous Setup chapter (page 6:16). The modes can be switched freely when the automation system is active.

17.6.2 Isolate

Controls in this mode are isolated from the automation system and will not playback the automation data or record new data. The controls will still operate on the audio.

To set Isolate mode

➤ Press the global [>] key twice or the local [>] key once so that the associated LED is not illuminated.

Controls can be switched directly from Isolate to Record while a play pass is running. Controls that are switched from Isolate to Record will have the new positions updated from that point.

17.6.3 Play

Play mode is used to play back a previously recorded Mix/Pass. If a control in Play is moved or switched then the effect will be heard but will not be recorded.

To enable Play mode

➤ Press the respective [>] key,

The associated green LED will illuminate solid.

When controls are moved from the Play Pass position then the fader nulling LEDs will indicate the offset. On circular bargraphs the end segment will flash to indicate which way to turn it to null the control. Manual Glide or Match can be used to match the control back to the Play Pass position.

Note: Play/Glide and Auto Takeover do not work in Play mode.

17.6.4 Play Safe

Play Safe is used to play back a Mix/Pass and prevent controls in Play from affecting audio output if they are moved. Play Safe can be used as a security lock to prevent accidental changes occurring at the output of the console during automation playback. It can also be used to create a step change by switching a control directly from Play Safe into a Record mode.

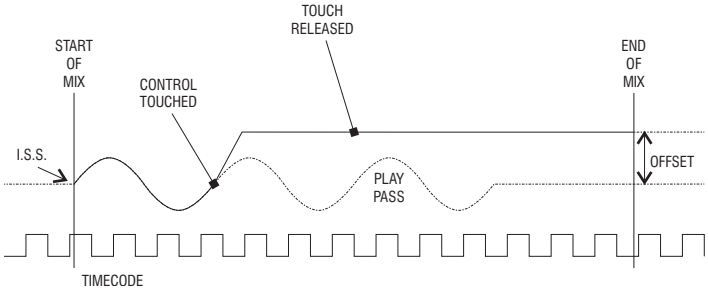
To enable Play Safe

➤ Put the required controls into Play with the respective [>] keys.

➤ Press the master [PLAY SAFE] key when timecode is not running.

17.6.5 Record

Used to record new absolute positions.



To enable Record mode

➤ Press the respective REC key.

The associated LED will illuminate RED.

Controls start at the position recorded on the Play Pass and replay any dynamic moves which are in that Mix/Pass.

When a fader or rotary control is touched it drops into Record and the LED for the control's REC key will flash. All new moves are recorded.

When a control is released the LED continues to flash and the control will continue to Record at the position where it was released.

The nulling LEDs show if an offset is present and point in the direction the control or fader has to be moved to remove the offset. The nulling LEDs for the fader are on the fader plate. The nulling LEDs for the FACs are at the top of the path strip and indicate for the most recent FAC on the strip that was touched. Also, the last LED on the circular bargraph for rotary controls flashes to indicate that an offset is present and which way to turn the control.

Note : If timecode is stopped or automation is turned off with an offset in effect then the offset will be carried to the end of the mix. A Match (or Glide) must be performed if is is not desired.

Record mode on Mutes and Switches

The Mutes have a dedicated MUTE REC key and all other switches are put into Record with the rotary controls by using the REC key at the top of the path strips or the RECORD key on the AFU (for the accessed path).

Mutes and other switches which can be automated have double action keys with two levels of depression.

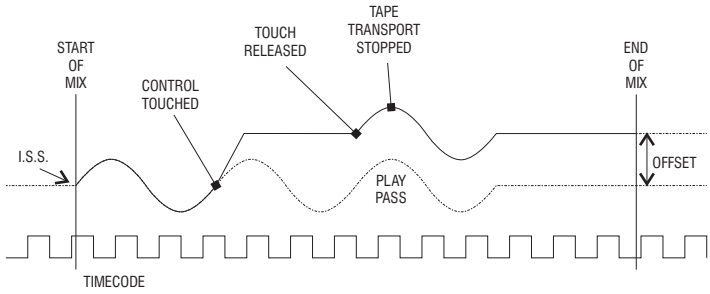
The first level will put the key into touch and drops the key into Record. The key will write its current state and the record LED will flash. This can also be used for overwriting actions from a Play Pass. Also, the key can be tapped (if Tap Toggle is enabled) to switch the key at the same time as putting it into touch.

The second level switches the key and an action will be recorded.

Pressing MUTE MATCH, SW MATCH, or ALL MATCH will match the respective Mute/Switch states to the Play Pass and resume play back.

17.6.6 Touch Record

Touch Record is the default mode that all controls that can be automated are set to when a blank automation Title is opened and the automation system is switched on.



To enable Touch Record

➤ Press the respective REC and > keys simultaneously.

The associated LEDs will illuminate.

A control in Touch Record will play back from the Play Pass until it is touched. When the control is touched it will drop into Record and the red LED above the REC key will flash. Any moves made will be recorded.

When the control is released it drops out of record. The red LED above the REC key will stop flashing.

The control resumes play back of the Play Pass with an offset added. The offset will be added until the end of the Pass. The offset is equal to the difference between the Play Pass position and the position of the control when it was released.

The Nulling (or Match) LEDs show if an offset is present and point in the direction the control has to move to reduce the offset, as described in Record Mode.

Touch Record on Mutes and Switches

The Mutes have dedicated MUTE REC and MUTE PLAY keys and all other switches are put into Touch Record with the rotary controls by using the REC and > keys at the top of the path strips or the RECORD and PLAY keys on the AFU (for the accessed path).

Mutes and other switches that can be automated have double action keys with two levels of depression.

The first level will put the key into touch and drops the key into Touch Record. The key will write its current state and the record LED will flash. This can also be used for overwriting actions from a Play Pass.

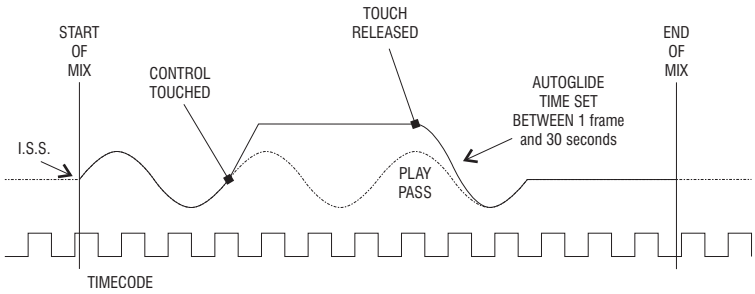
The second level switches the key and an action will be recorded.

When a key is released it will match back to the Play Pass when the next switching action is played back.

Also, the key can be tapped (if Tap Toggle is enabled) to switch the key. The key will stay switched until the next action is played back.

17.6.7 Auto Glide

Auto Glide is used to automatically match faders and rotary controls to the Play Pass when the control is released from touch.



To enable Auto Glide

➤ Press the respective REC and GLIDE keys simultaneously.

The associated LEDs will be illuminated solid.

A fader or rotary control in Auto Glide will play back from the Play Pass until it is touched. When the control is touched it drops into Record and the red LED above the REC key will flash. Any moves made will be recorded.

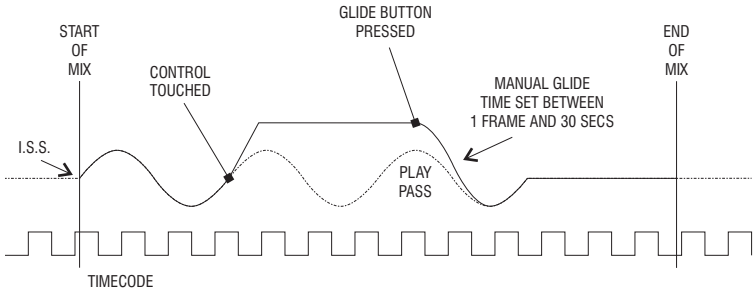
When the control is is released the LED above the GLIDE key will flash and the control will glide back to the Play Pass position at the rate set for the Auto Glide Time on the Soft Panel.

When the control has matched to the play pass position the record and glide LEDs will go solid. The control will resume play back.

Note: If a mode change was performed earlier in the pass, the offset created is carried over to the Auto Glide mode. A further offset can be added which will be removed on release of the control leaving the previous offset unchanged.

17.6.8 Manual Glide

Manual Glide is used to match faders and rotary controls to the Play Pass at any time.



To use Manual Glide

➤ Press the respective GLIDE key for a control in Touch Record, Record, Play or Trim.

The LED above the key will flash and the control will match back to the play pass position at the Manual Glide Rate. When the control has matched to the play pass position the glide LED will go out. The control will resume playing back the moves of the play pass.

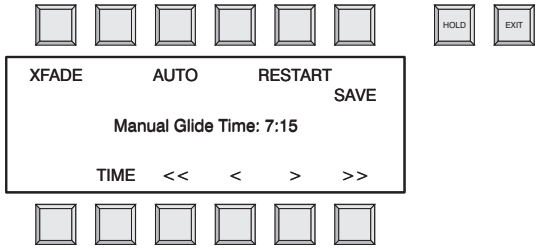
17.6.9 Setting the Glide times

The Manual Glide time, Auto Glide time and Auto xFade Time are stored independently and they are displayed in the System Status area of the Graphics Display screen. The maximum time for each is 30 seconds.

To edit a glide time

➤ Press the [**MAN**], [**AUTO**] or [**XFADE**] keys at the entry level menu of the Soft Panel.

If the [MAN] key is pressed, for instance, the Soft Panel will display the current Manual Glide time, keys for adjusting the time and keys for access to the other Glide times.



To adjust the Glide time in 1 second steps

➤ Press the [<<] and [>>] keys as required.

To adjust the Glide time in Frames

➤ Press the [<] and [>] keys as required.

To use the numeric keypad to set a Glide time

➤ Press the [TIME] key.

To reset the Glide time to the current value

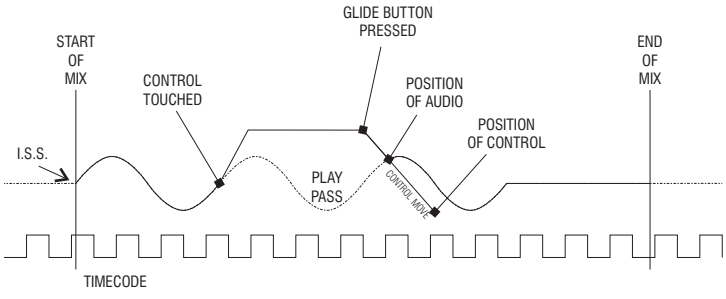
➤ Press the [RESTART] key.

To store the Glide time

➤ Press the [SAVE] key.

17.6.10 Auto Takeover

Auto Takeover enables faders and rotary controls to be manually matched to the play pass position using the nulling indicators.



To use Auto Takeover

The required fader or rotary control must be in either Record or Touch Record mode and the control must be in touch.

➤ Press the GLIDE key for the control while still touching it.

The LED above the key will flash. The nulling indicators for the control will show the direction in which the control must be manually glided to match to the Play Pass.

➤ Move the control to match the Play Pass.

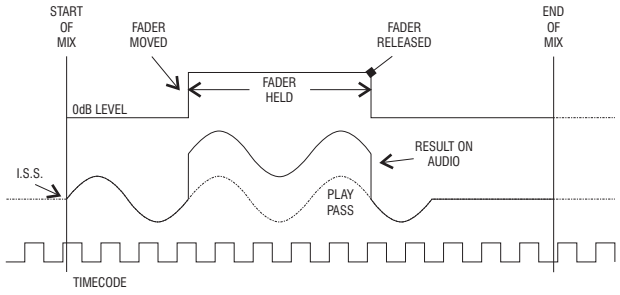
When the control goes through the Play Pass position the Glide and Record LEDs will stop flashing. The audio will follow the Play Pass.

➤ Release the control.

The control will return to the Play Pass position and continue to play back.

17.6.11 Trim

Trim is only used for Faders to add an offset to any previously recorded fader moves without affecting the dynamic structure of the moves.



To use Trim

➤ Press either the local or global TRIM key.

The Trim LED on the respective Faders will go on solid. The Faders selected will jump to the zero position as indicated by the left hand fader scale. The fader will remain stationary at the zero position irrespective of the original position of the Play Pass or any dynamic moves.

Auto Trim can be selected by pressing TRIM and GLIDE together.

The left hand fader scale is only used for Trim mode. It indicates 0 in the middle of the scale, and shows -20dB to +20dB.

Moving the fader +/- will increase or decrease the dynamic or static gain structure of previously written fader movements by +/- 20dB without overwriting the dynamic moves.

If Auto Trim is selected then the fader will move back to the zero position when touch is released. Alternatively manual Glide may be selected by pressing the glide key at the desired point. The respective glide rates set for Auto and Manual Glide will apply.

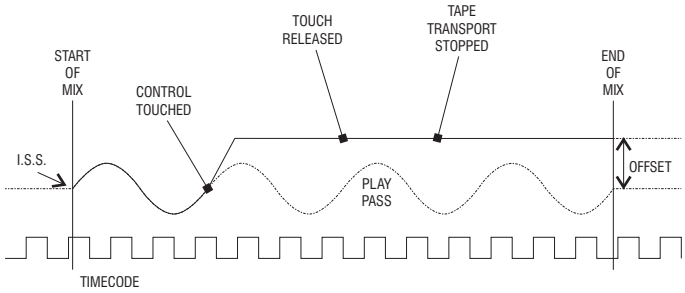
Note: Auto Takeover does not work in the Trim mode.

When the pass is played back with the faders in a Record or Play mode then they will play back a combination of the original moves plus the offset introduced by the Trim mode.

Note: If Trim has already been used in the current pass then the Trim offset will be retained until the transport is stopped. The Trim will then be consolidated with the original fader moves.

17.6.12 Record To End

Record To End is used to automatically write the current position of controls to the end of the mix from the point the pass is stopped. This automatically overwrites any remaining moves to the end of the pass.



To use Record To End

➤ Put the required controls into Record so that absolute control settings will be recorded.

➤ Move the controls to their required settings.

The Record LEDs will flash.

Note : Record to End can also be used in conjunction with controls selected for Collect Touch.

➤ Press the RECORD TO END key Global Automation control panel.

The RECORD TO END key has two levels of operation.

When the key is pressed to the first level, the Record to End function drops out automatically at the end of the current pass. The key will flash to indicate this.

When the RECORD TO END key is pressed to the second level then the function will remain engaged until the RECORD TO END key is pressed fully to the second level again, or until Automation is turned off. The key will illuminate steady to indicate this.

When Record To End is active then the last position of any controls which are in Record will have their last positions written to the end of the Record Pass when the transport is stopped.

If the function is engaged for every pass (RECORD TO END illuminated steady), then any moves for controls in Record that were made on the previous Pass will be deleted beyond the point where the current pass is stopped.

17.6.13 Miscellaneous Automation Options

These are Auto Join, Auto Glide Out and Safety Stop. They are enabled and disabled in the Options screen accessed from Miscellaneous Setup (see page 6:16).

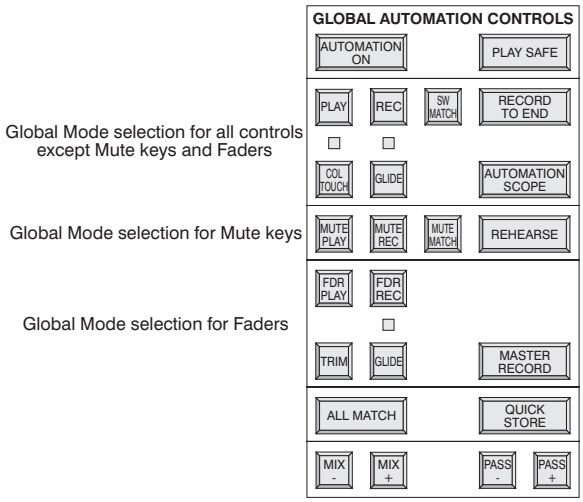
17.7 Collect Touch

Collect touch provides the operator with the facility to put any number of pre selected controls that may be automated, into a state of Record either prior to the start of a new pass, or at any time the current Mix Pass is playing.

This allows the operator to set up a new mix structure that may be captured at any time the MASTER RECORD key is activated.

The function can be set to operate “once only”. In this condition controls selected for Collect touch will drop back into the playback state as soon as the current pass ends.

Alternatively the function may be “latched”. In this condition controls will remain in the Record state during successive passes until the operator terminates the function.



17.7.1 Using Collect Touch

➤ Press the COL TOUCH key, either locally on the channel strip or the global COL TOUCH key.

The LEDs for the respective > keys will flash and the automation system goes into a quasi Collect Touch mode called Collect.

➤ Touch the control or controls to be collected for the function.

The Touch LEDs will flash to indicate selection. Touch status is indicated for the faders by the Nulling LEDs.

Note: Pressing the Local or Global COL TOUCH key again illuminates the LEDs for the COL TOUCH keys steady, and returns controls “not previously collected” to their previous modes.

Once Only operation

➤ Press the MASTER RECORD key either before tape starts, or at any time after.

The collected controls will collectively drop into Record. The mode indication for the respective controls, will change to indicate a flashing Record status.

Note: The Master status selected is indicated in the AUTOMATION box on the screen as ONCE ONLY.

Latching Operation

The Every Pass function is obtained by pressing the MASTER RECORD key to the second level. Controls that are selected for Collect Touch will remain in the Record state each time a new pass is started.

The Every pass function may be terminated by pressing the MASTER RECORD key again to the second level.

Note: The Master status selected is indicated in the AUTOMATION box on the screen as EVERY PASS.

Dropping pre collected controls individually into RECORD

Pre Collected controls may be individually dropped into a record state independently of the MASTER RECORD key. Pressing the respective controls automation REC key either locally or globally will drop the pre collected controls into a record state.

Note: When the Collect Touch operation has been completed, either by using Once Only or terminating Every Pass, the controls are no longer collected and have to be collected again for the next operation.

17.7.2 Glide

When Glide is pressed either locally or globally the respective controls will glide to the play pass position and resume in a play back state.

If the MASTER RECORD key has been pressed to the second level then the Every Pass function will cause the respective controls to be in a Record state when the next automation pass is started.

The Collect Touch function can be terminated by switching the AUTOMATION ON key Off/On.

17.7.3 Rehearse Collect Touch

The Rehearse function allows the operator to set up a completely new mix structure on one or any number of controls, and then by selecting Rehearse, monitor the audio relevant to previous play pass up to the Automation drop in point. This is useful when a levels or EQ values change dramatically at a particular point in the mix.

To use Rehearse Collect Touch

➤ Press the REHEARSE key before pressing the MASTER RECORD key.

The MASTER RECORD key LED will flash to indicate a Record Ready status.

When the tape transport is started the audio monitored will be the Play Pass.

Pressing the MASTER RECORD key when automation is playing drops all pre-Collected controls into Record, and the audio monitored switches from the Play Pass to the Record Pass. The LEDs on the collected controls will change from flashing Play to flashing Record.

Note: The Rehearse status is indicated in the AUTOMATION status box on the screen with the following text: REHEARSE.

17.8 Capture Start Of Pass Timecode

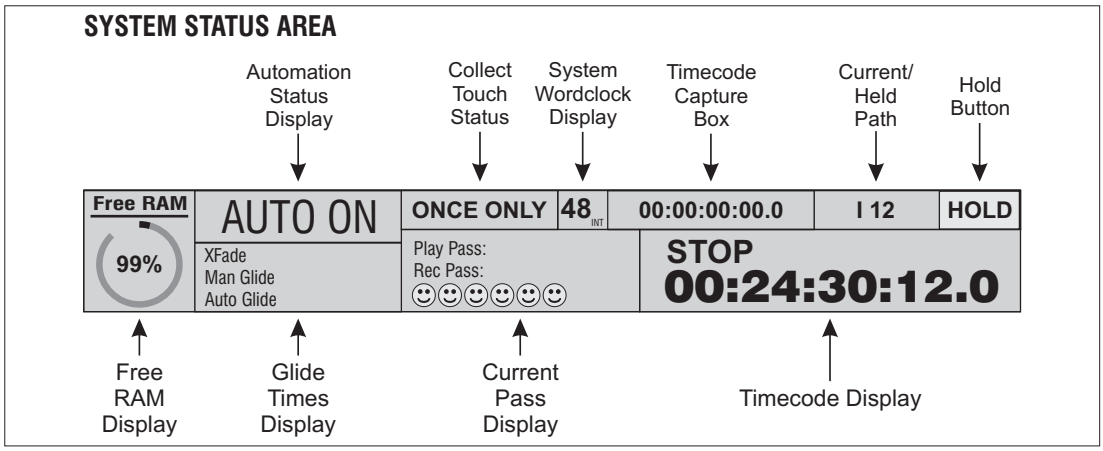
Users can set the timecode for the start of a pass to set the drop in point for recording a pass.

When timecode passes the point specified (with automation on), a new mix/pass will be created from that point onwards.

To set the starting point for recording a pass

➤ Click on the Timecode Capture Box in the System Status area of the screen.

Note: This box normally displays the Locate To time in yellow.



The Select a Label Service dialogue box will appear and an Enter Timecode dialogue box will appear over the System Status area.

➤ Click on the label with the required timecode or click the Close button to enter a timecode manually.

The Select a Label dialogue box will close.

➤ Enter or modify the timecode in the Enter Timecode dialogue box.

➤ Click Execute or press <RETURN> to save the value.

The timecode entered will be displayed in GREEN in the Timecode Capture Box to indicate it is the automation record drop in point.

Note: If a Locate To time has been previously entered, it will not be affected by setting the start of pass timecode. If a Locate is executed while the timecode is red, then the Locate To time (now hidden) will still be used.

To use the start of pass timecode

➤ Select the faders and controls to automate for the new mix/pass (or use or modify the existing selection).

➤ Set the faders and controls to the initial settings desired.

➤ Locate the tape to a point before the timecode entered for the start of the pass.

➤ Press the AUTOMATION ON key if automation is not already active.

The AUTOMATION ON key will illuminate.

➤ Press PLAY.

The Automation Status Display in the System Status area of the screen will display REPLAY.

Any changes to controls will not be recorded.

When timecode reaches the starting point entered, the display will change to AUTO ON.

Rec Pass in the Current Pass Display will show a new Mix/Pass number.

Any changes to controls will now be recorded against the new mix pass.

Note: The usual method of fader and control selection for this feature is Collect Touch. Faders and/or controls which are held when the timecode start point is reached will also be recorded.

Note: If the tape is put into play at a timecode point after the start point entered, the system will go straight into automation record mode and create a new Mix/Pass.

17.9 Initial Snapshot (ISS) Amendment

The entire automation mix structure is based on the “INITIAL SNAPSHOT” (ISS). When automation is turned on for the first time a snapshot is taken of the current position of every control and switch, including those controls that are not dynamically automated.

The ISS may be amended or updated at any time after the ISS has been created for the following controls:

Routing
Input Selection
Mic/Line Gain and Trim
Input Balance
Track Contribution
Track Return Level

Operation for rotary controls.

➤ Press the COL TOUCH key.

➤ Touch and change the value of the respective control.

The Touch LED will illuminate.

➤ Press the COL TOUCH key again.

➤ Press the MASTER RECORD key.

When automation is started a new record pass is created and the ISS will be amended.

ISS amendment for Routing

➤ Press the COL TOUCH key.

➤ Change routing using the ACCESS key on the required path.

➤ Press the ROUTING TOUCH key situated at the bottom right of the Routing panel.

This has the effect of Touching the amended routing structure.

➤ Continue to change routing using the ACCESS key on the required paths, pressing the ROUTING TOUCH key after the change to each path.

➤ Press the COL TOUCH key again when all routing changes have been made.

➤ Press the MASTER RECORD key.

When automation is started a new record pass is created and the ISS will be amended.

ISS amendment for MIC/Line input selection

➤ Press the I/P SEL key on the FAC selection panel.

This assigns the function for input selection to the top row of FAC rotary controls.

➤ Select and Touch the respective input required.

Keep the control in touch by holding the control. When automation is started a new record pass will be created and the I.S.S. will be amended.

17.10 Mute/Switch Lists

All Mute and Switch actions that are created when automation is running are automatically entered into Switch Lists.

These lists can be used for offline viewing and editing of Mute/Switch actions and for offline creation of new Mute/Switch actions.

Mute actions are recorded in the Mute List. Mute actions, plus all other switch actions are entered into a separate Switch List.

The Switch List can become very long so 6 User Lists are also provided. These can have the Scope set to include only a selection of Switch actions.

To set the Scope for Switch and User Lists

➤ Click on the Switch List icon.

The screen will show all Mute and Switch transitions recorded by automation for the current Play Pass.

➤ Click on Scope.

The Scope screen will be displayed.

➤ Select the paths and processing functions that are needed in the Switch List.

Note : See Scope in Automation Operations.

The procedure is the same for the six User Lists.

Solo

In addition to using Scope to reduce the number of events that are displayed in the Lists, the Solo button is used to view just one path and its respective events.

➤ Click on SOLO.

The Path Edit screen will be displayed.

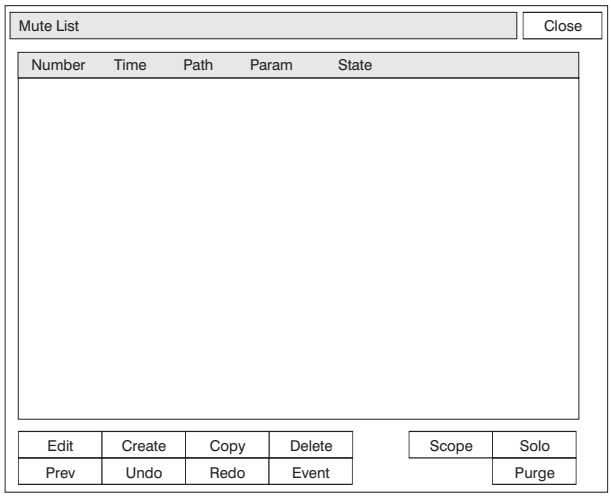
➤ Select the respective path or paths.

➤ Click SOLO again to revert the list to display all events.

The edited user list information will be stored with the automation data, and will be available if the Mix title is subsequently recalled at a later stage.

17.10.1 Mute/Switch List Editing

Offline editing is available for all Mute/Switch transitions that allows new Mute/Switch actions to be created and existing entries to be modified.



To Edit a Mute/Switch event

➤ Click on the Mute/Switch entry in the list to be edited.

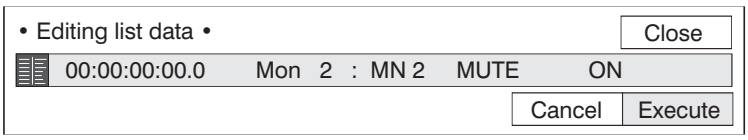
To edit Mute/Switch actions when Timecode is running

➤ Click in the title bar at the top of the Mute List where the word Unfrozen is shown.

The word Frozen will now be displayed in the title bar.

➤ Click the EDIT button in the Mute/Switch list.

This brings up the Edit Field.



The Edit Field shows the Timecode for the event, the path name and number, the switch type and whether the action was On or Off.

The Timecode is edited in exactly the same way as normal.

Mute/Switch actions can be edited individually or in groups.

E.g. If a Mute/Switch action occurs at the same time on a number of paths simultaneously :

➤ Click and drag in the edit list and select all the required Mute/Switch actions that are occurring at the same time.

When the Timecode is edited then all of the selected entries will be set to occur at the same time.

E.g. If a number of Mute/Switch entries are selected for editing but the Mute/Switch actions do not occur at the same time :

The first entry to be selected is the entry that is shown in the Timecode field. When the Timecode is modified, all of the other switch entries that were selected will be incremented or decremented by the same Timecode offset.

To use the Timecode from a Label

➤ Click on the icon on the left of the timecode field.

This displays the Label List.

➤ Click on the required Label.

➤ Click Execute.

To Create a Mute/Switch event

➤ Click on the CREATE button in the Mute/Switch list.

This brings up the Edit Field.

➤ Set the timecode for the event.

➤ Click in the Path numbers field.

This selects which path the Mute/Switch action is to occur on.

➤ Click on the Switch type field.

This allows you to select which Mute or Switch action is to occur.

➤ Click in the Mute field.

This selects if the action is On or Off.

To Copy a Mute/Switch event

The Copy function allows an existing Mute/Switch event to be copied to a new event at the same Timecode.

➤ Click on the Mute/Switch entry in the list to copy.

➤ Click the COPY button.

This brings up the Edit Field.

➤ Click on the path numbers field.

➤ Set the path to copy the event to.

➤ Click on the Switch type field.

➤ Select which Mute or Switch action is to occur at the same Timecode as the existing Mute/Switch entry.

➤ Click in the Mute field.

➤ Select if the copied Mute/Switch action is On or Off.

To Delete a Mute/Switch event

➤ Click on the Mute/Switch entry to be deleted.

➤ Click on DELETE button.

➤ Click Execute to confirm.

Prev

Previous allows selection of the last Mute/Switch edit that took place. When selected the last entry is highlighted in yellow.

Undo

The UNDO button reverses the last edit of a Mute/Switch event that took place.

Redo

The REDO button is used to reverse the effect of the UNDO button.

17.10.2 Purge Repeated Mute/Switch Events

Purge is used to remove repeated switch actions (e.g. two consecutive ON events on the same switch on the same path). The automation system will automatically remove repeated events the next time the tape is played, but only for the duration that the tape is running. A new Record pass is created automatically when this happens. The Purge function can be used to remove all other repeat events.

To Purge repeat events from a Mute/Switch list

➤ Click the Purge button.

This brings up a screen with the following selections.

No purge

Purge All
This will Purge all repeated Mute/Switch entries across the whole Mix/Pass.

Purge between Timecodes
A dialogue box will be displayed for setting the Timecodes to start and end the Purge on. Timecodes can also be set from the Label List.

➤ Click the button for the required option and, if necessary, set Timecodes as required.

➤ Click Execute.

17.11 Relay Event List

Up to 24 relays can be triggered with a pulse or latching signal from the Soft Panel. Each time this happens it is a relay event and the events are recorded by the automation system in the Event List against timecode.

17.11.1 Event List

The Event List screen allows Relay Events to be edited, created, copied and deleted. These functions are used in the same manner as the same functions in the Mute/Switch List.

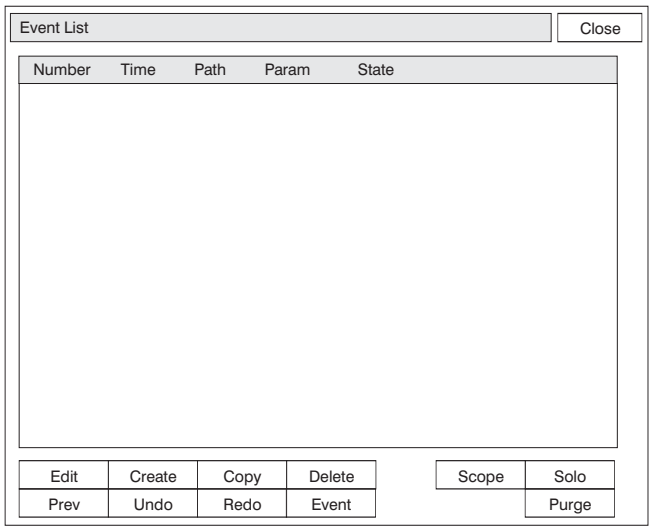
17.11.2 Relay Setup

The behaviour of each relay is controlled with a setup screen accessible via the Event List screen.

To setup Relays

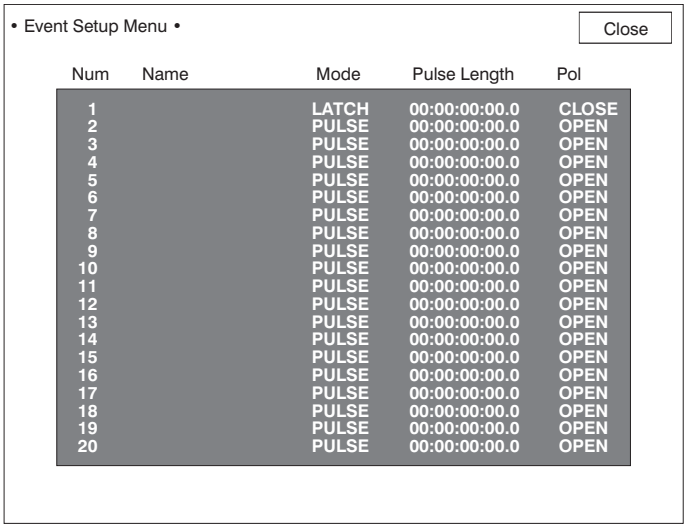
➤ Click the Event List icon.

The Event List will be displayed.



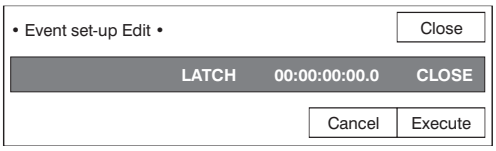
➤ Click the Event button.

The Event Setup screen will be displayed.



➤ Click the Relay Event to setup.

A dialogue box will be displayed for adjusting the Relay Event.



There are four parts to the Relay Event field that can be changed: the name, the event mode, the pulse length and the polarity.

To change the Relay Event name

➤ Click in the name area.

A dialogue box will appear for entry of the name.

➤ Type in the name on the keyboard and press <ENTER> or click Execute.

To change the Relay Event mode

➤ Click the current mode type (PULSE or LATCH).

The mode will toggle between PULSE and LATCH each time it is clicked.

To change the Pulse Length

➤ Click on the Timecode value for the Pulse Length.

A standard box will appear for editing the Timecode.

➤ Set the time to the required value and Execute.

To change the Polarity

➤ Click the current Polarity setting (OPEN or CLOSE).

The mode will toggle between OPEN and CLOSE each time it is clicked.

To save changes to the Relay Event

➤ Click Execute.

The changes will appear in the Setup list.

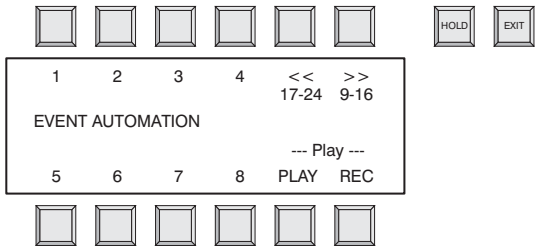
17.11.3 Using Relays

Each time a Relay is used it creates an entry in the Event List.

To use Relays

➤ Press the [EVENT] key at the Entry Level Menu on the Soft Panel.

The Soft Panel will display the EVENT AUTOMATION menu with Relays 1 to 8 directly available.



➤ Engage the automation system (if it is not already running).

➤ Press the [PLAY] and [REC] keys to set the automation mode of the Relays.

➤ Press the numbered keys to switch the Relays.

➤ Press the [<<] and [>>] keys to access different groups of relays.

18 Offline Editing

To access the Offline Editing functions

➤ Press the EXIT key associated with the VFD to return the Soft panel to the entry level menu.

➤ Press the [BACKGROUND] key.

➤ Press the key for the next available Background number (i.e. 1, 2, or 3).

➤ Press [EDIT].

The screen will display the Offline Edit icons as part of the background.

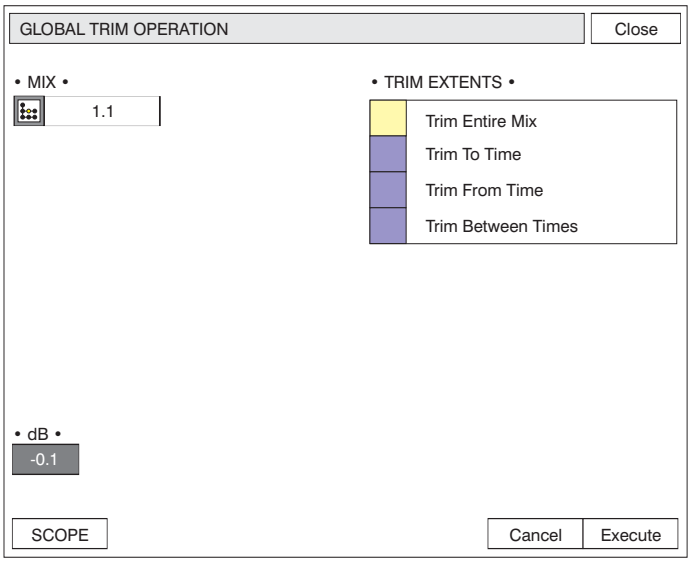
18.1 Offline Trim

Offline Trim enables the value of any number of pre-selected faders to be trimmed either for the extent of the Mix, or between points in timecode. The Trim value may be monitored in real time when Tape is running, or executed as an offline function.

To use Offline Trim

➤ Click on the TRIM icon.

The Global Trim Operation screen will be displayed.



➤ Click on Scope.

The Trim Scope screen will be displayed.

➤ Select the faders to be Trimmed.

➤ Execute the Scope.

➤ Click the Tree button to select a Mix/Pass from the Mix Tree.

Note: Mix/Pass 0.0 may not be selected for Trim.

➤ Click the required TRIM EXTENTS button.

This controls the fields which are displayed to select the amount of the Mix/Pass which will be affected by the Trim operation, as follows:

TRIM ENTIRE MIX
The Trim value will be applied to the faders in Scope across the whole of the Mix/Pass. Only the Mix/Pass needs to be selected.

TRIM TO TIME
The Trim will be applied to the faders in Scope from the start of the Mix/Pass to an End Time. An End Time will be displayed to set the required Timecode. The Label List can be used to set the timecode by clicking the button next to the End Time.

TRIM FROM TIME
The Trim will be applied to the faders in Scope from the Start Time to the end of the Mix/Pass. A Start Time will be displayed to set the required Timecode. The Label List can be used to set the timecode by clicking the button next to the Start Time.

TRIM BETWEEN TIMES
Both a Start Time and End Time will be displayed to set the required Timecodes. Each can be set from the Label List. A Duration will also be displayed. The Duration is automatically calculated or it can be set instead of setting the End Time.

➤ Click in the dB box to set the trim value.

The trim range is ±20dB.

➤ Use the Trackball or Cursor keys to scroll the value.

The dB value can be adjusted irrespective of whether tape transport is running or not. The Trim value entered will be reflected by the position of the selected faders, and if the tape transport is running the effect of the trimmed value will be monitored.

➤ Press 

or click the Execute button.

This will execute the offline Trim and create a new Mix/Pass.

Note: The transport must be stopped before the function can be Executed.

18.2 Offline Delete

Enables dynamic moves or switch actions for any number of pre-selected controls to be Deleted between nominated timecode points. All dynamic moves or switch actions previously recorded between the nominated timecode values will be erased.

To Delete events

➤ Click the DELETE icon.

This will launch the offline DELETE screen.

➤ Click the Scope button.

This will launch the Scope screen.

➤ Select via Scope the controls to be included in the offline Delete.

➤ Clost the Scope screen.

➤ Click in the Mix field to select the Mix/Pass that offline delete should be based on.

➤ Click on the Start field and enter the timecode that the Delete will start from.

➤ Click on the End field and enter the timecode up to which events will be deleted.

Both the Start and End timecodes are edited in standard timecode editing dialogue boxes, and the Label List can be used to set the times.

The Duration time will be automatically calculated.

➤ Click Execute.

This will execute the offline Delete and create a new Mix/Pass.

Note: Tape transport must be stopped before the function is Executed.

18.3 Mix Conform

Mix Conform allows the automation system to follow changes in the running order of film and video productions. The timecodes for automation events are adjusted according to the Mix Conform function used.

Timecode must be continuous to allow Mix Conform functions to operate.

The functions are:

Move
Used to move a section of automation data from one position to another.

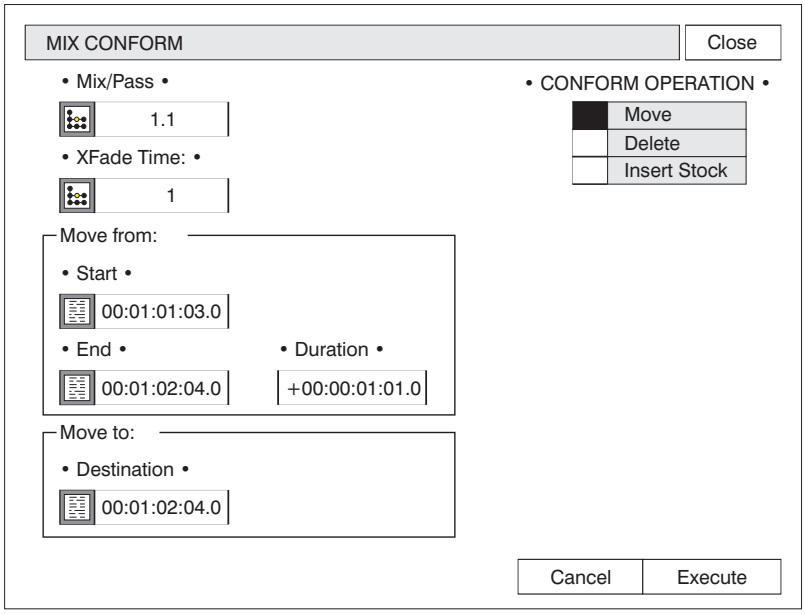
Delete
Used to cut out a section of automation data.

Insert Stock
Used to insert blank space into a mix (e.g. when a new scene is added).

To access Mix Conform

➤ Click on the Mix Conform icon when the Offline Edit icons are displayed.

The Mix Conform screen will be displayed.



18.3.1 To Move a section of a Mix/Pass

➤ Click on the Move button in the CONFORM OPERATION options.

➤ Click on the Tree button to the left of the Mix/Pass field.

The Mix/Pass Tree will be displayed.

➤ Click on the Mix/Pass to be edited.

Note : The default is the current Play Pass.

➤ Click on the Start timecode to set the start time for the section to move.

➤ Click on the End timecode to set the end time for the section to move.

The Duration timecode field will be automatically calculated.

➤ Alternatively, enter the Duration time for the section to be moved.

The End time will be automatically calculated.

➤ Click on the Destination timecode to set the time to move the section to.

The Start, End and Destination timecodes can also be set using the Label List.

➤ Click in the Xfade Time dialogue box if you wish the section to crossfade at the edit points.

The crossfade period may be selected between 1 & 100 frames.

➤ Click Execute to perform the Move.

A new Mix Pass will be created.

18.3.2 To Delete a section of a Mix/Pass

➤ Click the Delete button in the CONFORM OPERATION options.

➤ Click on the dialogue button in the Mix/Pass field.

This will launch the Mix Tree.

➤ Click on the Mix Pass you wish to edit.

Note : The default is the current Play Pass.

➤ Click on the Start timecode to set the start time for the section to be deleted.

➤ Alternatively, click the Label icon next to the Start time and select a time using the Label List.

➤ Click on the End timecode to set the end time for the section to be deleted.

➤ Alternatively, click the Label icon next to the End time and select a time using the Label List.

The Duration timecode will be calculated automatically.

➤ Alternatively, set the Duration time for the section to be deleted and the End time will be calculated automatically.

➤ Click on the Xfade Time box to set the crossfade duration at the Start and End points.

The crossfade period may be selected between 1 & 100 frames.

➤ Clicking on Execute to perform the Delete.

A new Mix Pass will be created.

18.3.3 To Insert Stock

➤ Click on the Insert Stock button in the CONFORM OPERATION options.

➤ Click on the tree button in the Mix/Pass field.

The Mix Tree will be displayed.

➤ Click on the Mix Pass to edit.

Note : The default is the current Play Pass.

➤ Click on the Start timecode to set the time for the beginning of the blank section.

➤ Alternatively, click the Label icon next to the Start time and select a time using the Label List.

➤ Click on the End timecode to set the time for the end of the blank section.

➤ Alternatively, click the Label icon next to the End time and select a time using the Label List.

The Duration timecode will be calculated automatically.

➤ Alternatively, set the Duration time for the blank section and the End time will be calculated automatically.

➤ Click on the Xfade Time box to set the crossfade duration at the Start and End points.

The crossfade period may be selected between 1 & 100 frames.

➤ Clicking on Execute to insert the blank stock.

A new Mix Pass will be created.

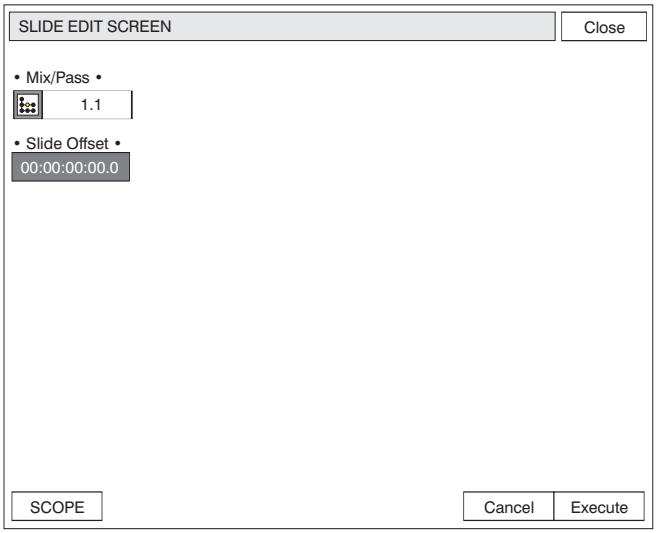
18.4 Slide

The Slide function allows the Timecodes for an entire Mix/Pass to be adjusted by a selected amount. For instance, this is useful in post-production or mix-down when a new section of material is required at the beginning of a Mix.

To Slide a Mix/Pass

➤ Click the Slide icon in the Offline Edits background screen.

The Slide Edit Screen will be displayed.



➤ Click the Tree button to select a Mix/Pass from the Mix Tree.

➤ Click in the Slide Offset timecode field.

A standard Timecode editing dialogue box will be displayed.

➤ Set the Timecode to the required value and Execute.

➤ Click the SCOPE button to change the selection of controls and paths which will be adjusted.

➤ Click the Execute button to Slide the Mix/Pass.

A new Mix/Pass will be created.

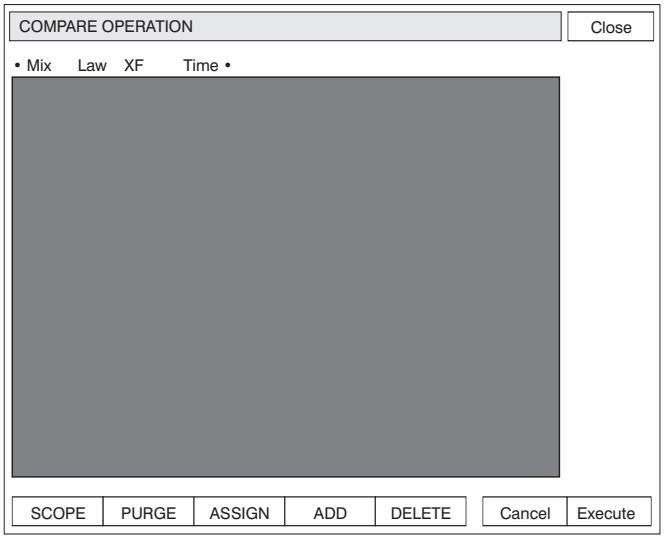
18.5 Mix Compare

Mix Compare facility allows a merge between selected Mix/Passes or Stores in real time. The merge information is held in memory, but allows the merge information to be changed and updated before creating an additional Mix/Pass. A combination of up to three Mix/Passes or Stores can be pre-selected for merging. Merge information can also be performed and edited off-line.

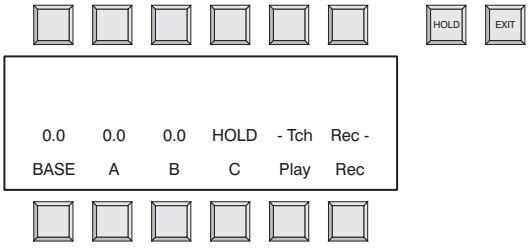
To perform Mix Compare (Merge)

➤ Click the Mix Compare icon in the Offline Edits background screen.

The Compare Operation screen will be displayed.



At the same time the Soft Panel on the Monitor section will be setup for Real Time Merge operation.



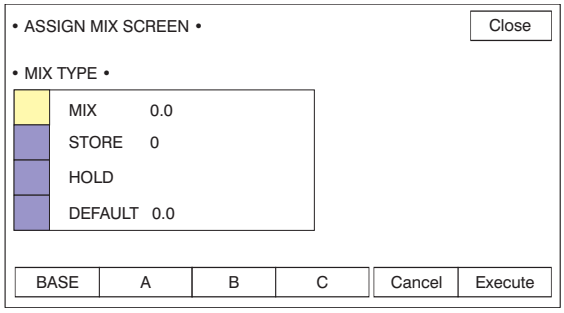
➤ Click the Scope button.

The MIX EDIT Scope screen will be displayed.

➤ Select the controls to be included in the Merge and Execute the scope.

➤ Click the ASSIGN button.

The ASSIGN MIX SCREEN will be displayed.



Up to three Mix/Passes or Stores can be selected for Merging in real time with the selected base mix.

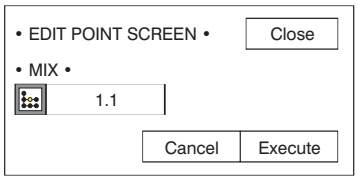
➤ Click the BASE button.

The current Mix/Pass is automatically selected by default.

To change the Mix/Pass

➤ Click the Mix/Pass number.

The EDIT POINT SCREEN will appear for entry of the Mix/Pass number.



➤ Click in the MIX field and enter the required Mix/Pass or click the Tree button and select a Mix/Pass from the Mix/Pass Tree.

➤ Click Execute.

The selected Base Mix/Pass number will be shown above the [BASE] key on the Soft Panel.

To select a Mix/Pass to Merge with the Base Mix/Pass

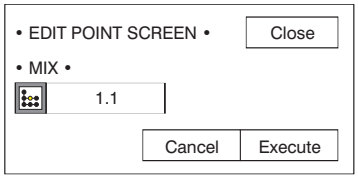
➤ Click the A or B button on the ASSIGN MIX SCREEN screen.

Note : The C button can only be used for a Store or HOLD.

➤ Click the MIX button.

➤ Click on the Mix/Pass number.

The EDIT POINT SCREEN will appear for entry of the Mix/Pass number.



➤ Click in the MIX field and enter the required Mix/Pass or click the Tree button and select a Mix/Pass from the Mix/Pass Tree.

➤ Click Execute.

The selected Base Mix/Pass number will be shown above the [A] or [B] key, as selected, on the Soft Panel.

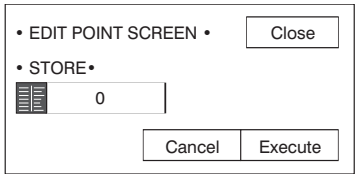
To select a Store to Merge with the Base Mix/Pass

➤ Click the A, B or C button.

➤ Click the STORE button in the MIX TYPE area.

➤ Click on the current STORE number.

The EDIT POINT SCREEN will appear for entry of the Store number.



➤ Click on the Store number and use the Trackball, numeric keypad or cursor keys to set the required Store number.

or

➤ Click on the List icon and select the required Store from the Store List.

➤ Click Execute to set the Store number and return to the Assign Mix Screen.

The selected Store number will appear above the [A], [B] or [C] key, as selected, on the Soft Panel.

To set C to HOLD

➤ Click the C button.

➤ Click the HOLD button in the MIX TYPE area.

The word HOLD will appear above the [C] key on the Soft Panel.

This function enables the current mix position to be held and all dynamic moves will be disregarded until disengaged.

18.5.1 Real Time Merge

Real Time Merge can be pre-set to operate in several ways :

Isolate

➤ Press the PLAY button twice on the Soft Panel.

This enables the Merge to be rehearsed in real time, but the merge points are not stored.

Play

➤ Press the PLAY button on the Soft Panel.

This enables a merge mix from memory to be played back and make changes in real time, but the changes will not be recorded to memory.

Record

➤ Press the RECORD button on the Soft Panel.

This enables a Merge Mix to be Recorded and Played back. The mix points will be recorded, and will be listed on the screen. On play back the Mix Merge can be overwritten and the changes will be reflected on the screen list for any controls touched until tape is stopped.

Touch Record

➤ Press the PLAY and RECORD button together on the Soft Panel.

This enables a Merge Mix to be Recorded and Played back. The mix points will be recorded, and will be listed on the screen. On play back the Mix Merge may be overwritten and the changes will be reflected on the screen list, but only for the period that controls are touched.

To perform a Real Time Merge

➤ Run Automation.

The mix will start by playing the selected Base Mix.

➤ Press the A-B-C buttons at the required merge points.

If a Record modes has been used then the Merge Points will be shown on the screen. On playback the merges performed will be played back, but at this stage a new Mix Pass has not been created. The Merged Mix can be updated or amended as required.

To save the Merged Mix

➤ Click Execute.

A new Mix/Pass will be created.

To cancel the Real Time Merge

➤ Click on CANCEL on the screen.

18.5.2 Off-line Merge

Merge entries performed may be edited off-line, and additional entries may be added.

To edit an existing entry

➤ Click on the entry in the list.

This will launch the EDIT POINT SCREEN screen.

The mix selected will be the default, but an alternate mix may be selected by clicking on the respective dialogue box.

To enter an XFade value

➤ Click in the Frames field and use the Trackball, numeric key pad or cursor keys to select the Xfade value.

➤ Click to set the value.

To change the timecode

➤ Click in the EDIT POINT TIME box.

This will launch the Timecode edit dialoge box.

➤ Or, click on the Icon at the beginning of the Timecode field to select a label from the Label List.

To add an entry

➤ Click the ADD button.

This will launch the EDIT POINT SCREEN screen.

Add the information in the same manner as described above.

To delete an entry in the merge list

➤ Click on DELETE.

➤ Click on the entry in the list.

➤ Click on Execute to confirm.

19 Stores

Stores are a static snapshot of the positions of the controls that are selected by New Store Scope, and are based on a specific Configuration or automation Title. The Store can then be recalled (or Set) to the console surface at a later time.

Stores can be used independently of Automation.

A User Configuration can contain up to 300 Stores.

A Title within the Client/Project Automation hierarchy can contain up to 100 Stores.

If a new user Configuration is added, or if a new Title is created within Automation, any Stores that are resident in the current Store list are carried across into the new Configuration or Title. When Logging In to Automation from a user Configuration that contains more than 100 Stores, a message will indicate that the excess number of Stores needs to be deleted.

The Stores List shows all of the Stores relating to the Configuration or Title that is currently logged on.

Store Scope

New and Set Store Scope are used to limit the controls which are included in a snapshot or recalled from a snapshot (E.g. save a Store of the position of Faders and E/Q on track return paths 1 to 8).

New Store Scope This defines the range of controls that are included when a snapshot store is taken.

Set Store Scope This defines the range of controls that are updated when a snapshot store is recalled (controls that are within the Set Store Scope that were not within the New Store Scope when the store was saved will not be affected by a Set Store).

19.1 The Store List

➤ Clicking on the LIST icon followed by the STORE LIST icon.

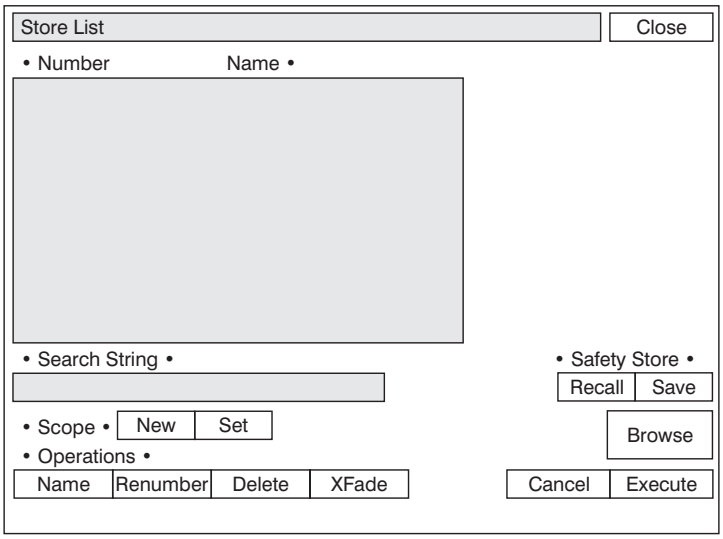
or

➤ Press the [LIST] key on the Soft Panel followed by the [STORE LIST] key.

or

➤ Press and hold the SET STORE key for a short period of time.

The Store List will be displayed.



The screen shows all the stores in numeric order.

To reduce the size of the list

➤ Use the keyboard to type in the first few letters of a Store name.

As each letter is typed, the list displayed will be reduced to the items with the names with the same first few letters. The letters will be displayed in the Search String box.

➤ Press the BACKSPACE key to erase letters and restore the full list to the display.

To scroll through the list

➤ Press the SCROLL CURSOR key.

The key will illuminate.

➤ Roll the trackball up and down.

➤ Press the SCROLL CURSOR key again to change the trackball back to pointer mode.

19.1.1 New and Set Store Scope

New Store Scope and Set Store Scope are used to select which controls are included when a Store is taken and which controls are Set when a Store is recalled.

New Store and Set Store Scopes may be set up independently of Automation Scope. Set Store Scope cannot recall settings for controls that are not included within New Store Scope.

To select NEW STORE or SET STORE scope screens

➤ Click on the SCOPE icon.

➤ Click on either NEW STORE or SET STORE buttons.

or

➤ Click on the New or Set Scope buttons in the Store List screen.

Note: New Store Scope should be reduced to include only those controls that are necessary for the production so that the amount of data that is stored is minimised. This also reduces the amount of time required to load Configurations and Titles that have large Store Lists.

➤ See the Scope section in Automation Operations.

19.1.2 To create a Store

➤ Press the NEW STORE key.

The new Store will be given a unique number which is one greater than the last number currently in use.

A dialogue box will appear for entry of a name for the Store.

➤ Type a name on the keyboard (if required) and press the <ENTER> or EXECUTE key.

The name must start with a letter.

Store names are for user reference only and do not need to be unique.

19.1.3 To delete a Store

➤ Click the Delete button in the Store List screen.

➤ Select the required Store from the list.

Any number of Stores may be deleted simultaneously.

➤ Click the Execute button.

19.1.4 To rename a Store

➤ Click the Name button in the Store List screen.

➤ Click the Store to rename.

A dialogue box will appear with the existing Store name (if any), ready for editing.

➤ Use the keyboard to change the name or enter a new name.

➤ Press the <ENTER> or EXECUTE key.

19.1.5 To Renumber Stores

➤ Click the Renumber button.

A confirmation dialogue box will appear.

➤ Click Execute.

The Store numbers will be changed.

19.1.6 Quick Store

Quick Store is used to save an instant global Store to Store zero in the Store List. Store zero can not be deleted and is not available for use in the Sequence Store List.

To make a Quick Store

➤ Press the QUICK STORE key.

19.2 Recalling Stores

There are two ways to Set a Store to the console surface. The first is the standard Set Store function which instantly sets the controls (in Set Store Scope) to the values in the Store. The second uses the Auto XFade time (between 1 frame and 30 seconds) to glide the controls to their new values.

See Setting Up Glidetimes in Automation Operations.

19.2.1 To Recall a Store

➤ Press and hold the SET STORE or AUTO XFADE key.

A dialogue box will appear for selection of the required Store.

➤ Enter the Store number with the numeric keypad or enter the Store name with the keyboard.

The Store List will also appear after a small delay.

➤ Select a Store from the list by clicking on the required entry.

➤ Press the EXECUTE key.

The Store will be Set to the console surface. If the AUTO XFADE key was originally pressed then the controls will glide to their new settings.

The next Store in the List will be highlighted each time a Store is Set.

Or

➤ Double click on each Store as required.

This is used to recall Stores in any order, as required.

19.2.2 Automation Notes

If a Store is recalled when automation is running then the automation Modes of controls which have settings recalled will apply.

Controls in Touch Record or Auto Glide will move to the recalled values, but they will immediately go to the play back state and continue to play the original play pass moves. If this is not required then the respective controls should be set to Record mode either locally or globally. Controls in Record mode will move to the value in the Store and will stay at the Store position until a glide is activated either the locally or globally, or until Timecode stops.

19.3 Browse Stores

This is used to view Stores from other Configurations or Titles and copy them to the current Configuration or Title.

19.3.1 To browse stores

➤ Click on the Browse button in the Store List screen.

The following dialogue box will appear:



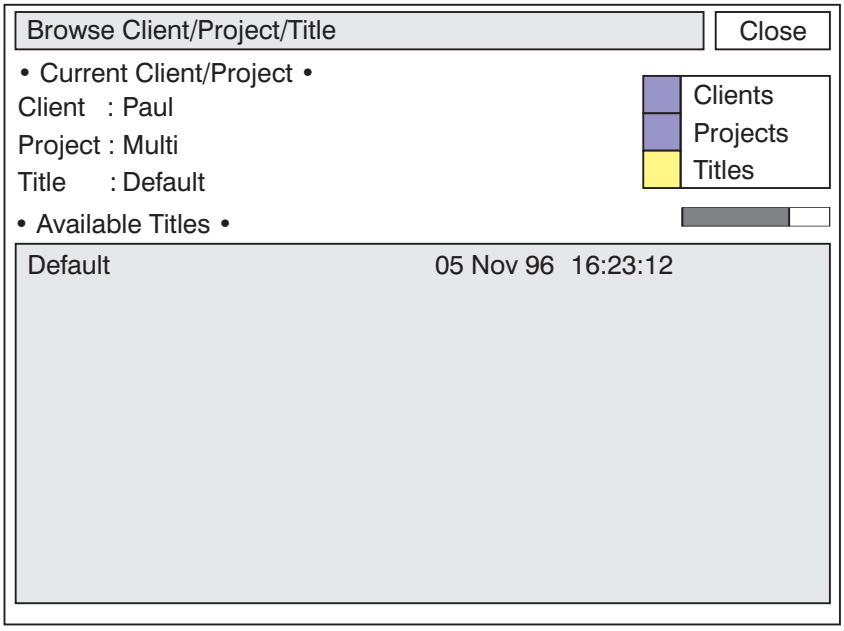
➤ Click on the Client/Project/Title or User/Configuration button.

The associated Browse screen will be displayed.

or

➤ Click on Close to cancel the operation.

19.3.2 Browse Client/Project/Title

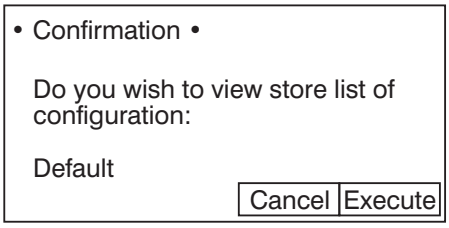


The Browse Client/Project/Title defaults to showing Titles for the current Client and Project.

Any Client/Project/Title combination can be selected.

➤ Click on a Title (from the Available Titles list) to browse the associated Stores.

The following confirmation dialogue box will be displayed:

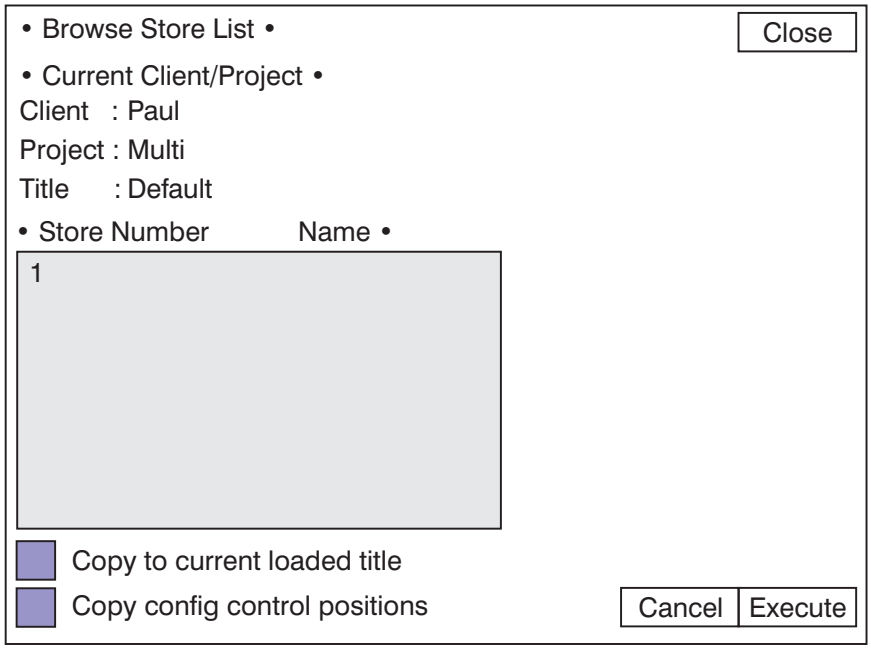


➤ Click on Cancel to return to the Browse screen.

OR

➤ Click on Execute.

The Browse Store List screen will be displayed:



To copy a store

➤ Click on the **Copy to current loaded title** button.

The button will turn yellow.

➤ Click on the required stores in the list.

The Execute and Cancel buttons will become available.

➤ Click on Execute.

The selected store(s) will be copied to the end of current store list with the next available number(s).

Note: Copied stores do not keep their original numbers as they are likely to clash with existing store numbers in the current list.

The screen will return to the Browse Client/Project/Title screen to allow selection of further stores.

To finish browsing stores

➤ Click on Close in the Browse Client/Project/Title screen.

19.3.3 Browse User/Configuration

Browse User/Configuration follows the same procedure as Browse Client/Project/Title.

The screens will show Users and Configurations. The Browse Store List screen has the same options available. The confirmation dialogue boxes are also the same.

Use the instructions given for Browse Client/Project/Title above.

19.3.4 Copying Configurations

The Browse Store List screens have a button labelled **Copy config control positions**. If this is selected (clicked on to make it yellow), then when the copy is Executed the current configuration will be replaced.

The copied configuration will not be active on the console surface until it is re-loaded. (This means the configuration can be re-saved which, if necessary, will undo the Config copy.)

19.4 Sequenced Stores List

The Sequenced Stores List provides the facility to arrange any of the Stores that have been created in the current Configuration or Automation Title into a specific running order. The Sequenced Stores List can also be set against timecode, independently from the automation system.

A Store can be entered into the Sequence list as many times as required, inserted or moved to any position in the list, and an entry in the Sequence list can be copied to other positions in the list.

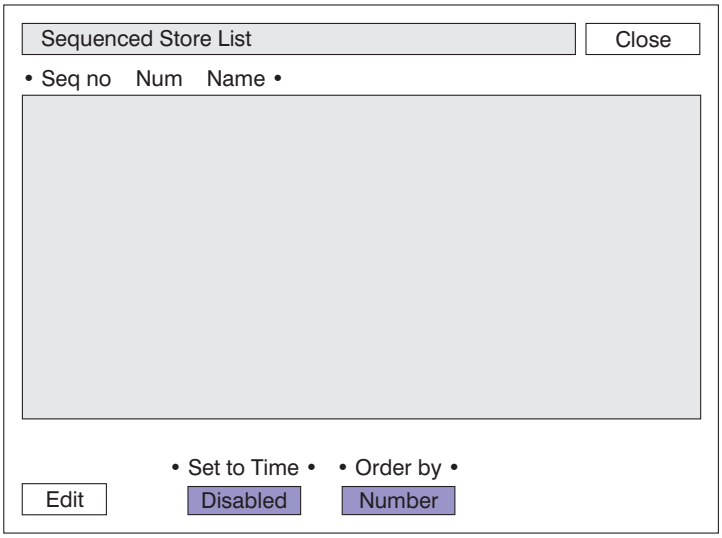
Stores in the Sequence list are given a Sequence number corresponding to the sequential position within the list. When a Store is Set from the Sequence list it is the Sequence Store number that the system references to.

In addition to the independent number allocated to Stores within the Sequence list, Stores can be independently named.

To access the Sequence List

➤ Click the Stores Sequence icon.

The Sequenced Stores List screen is displayed.



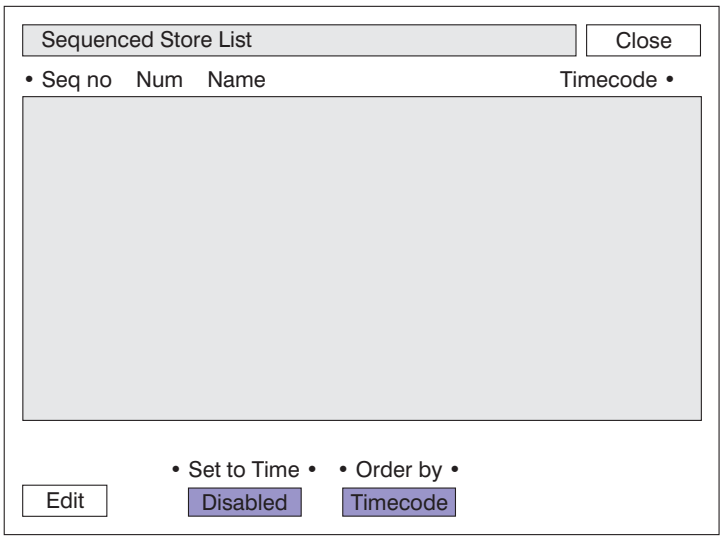
The screen shows the Store Sequence number, the original Store number and the original Store name or the name that has been entered to override the name copied from the originating Store.

By default, the list is ordered by the Sequence number and the Set to Time function is disabled.

To order the Sequenced Store List by Timecode

➤ Click the Order by button so that the legend changes from Number to Timecode.

The List display will change so that the Timecode for each Sequenced Store is also shown.

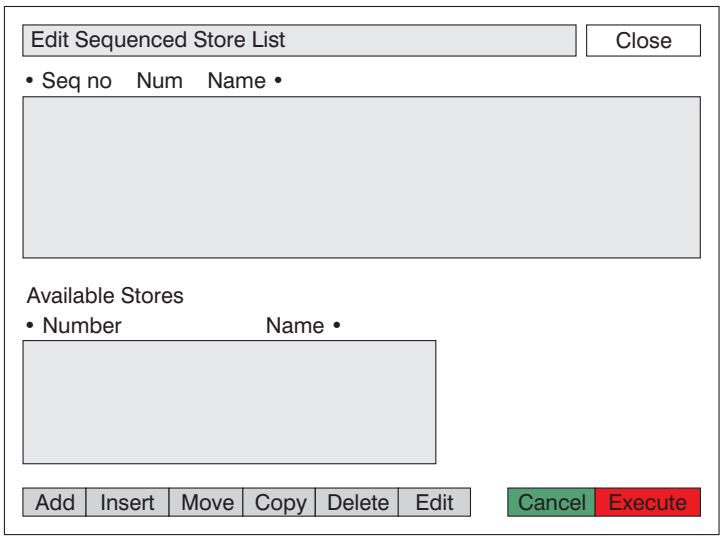


Order by must be set to Timecode in order for the Timecode field to also be available in the Edit Sequenced Store List screen.

19.4.1 Creating a Sequenced Store List

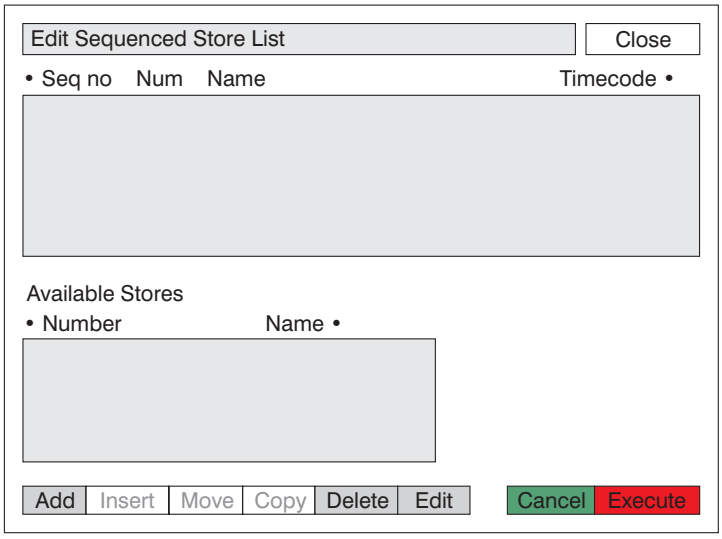
➤ Click on the Edit button.

The Edit Sequenced Store List screen will be displayed.



The Available Stores list shows all of the Stores associated with the current Configuration or Title.

If Order By is set to Timecode in the Sequenced Store List screen then the Timecode column will be shown.



Note also that the Insert, Move and Copy buttons are not available.

To Add a Store to the Sequence List

➤ Click the Add button.

➤ Click the required Store in the Available Stores list.

The selected Store will added to the Sequence list and it will be given a Sequence Number.

If Timecode order is enabled then the Sequenced Store will be given the current Timecode.

To Insert a Store in the Sequence List

➤ Click the Insert button.

➤ Click the required Store in the Available Stores list.

➤ Click on the entry in the Sequence list where you wish to insert the selected Store.

The Store selected in the Available Stores list will be inserted into the Sequence list above the clicked entry.

All the Stores in the Sequence List will be renumbered to keep them in order.

To Move a Sequence List entry to a different position

➤ Click the Move button.

➤ Click the entry to be moved.

➤ Click the entry in the Sequence list that the moved item is going to be above.

The Store will be moved to its new position within the Sequence List. The List will be re-numbered to keep the items in the new order.

To Copy a Sequence List entry to addition positions

➤ Click the Copy button.

➤ Click the entry in the Sequence Stores list to be copied.

➤ Click the entry in the Sequence list that the copied item is going to be above.

The Store will be copied to the selected position in the Sequence list. The List will be re-numbered to keep the items in the new order.

To Delete a Sequence List entry

➤ Click the Delete button.

➤ Click the Sequence Stores List entries to be deleted.

Any number of entries can be selected.

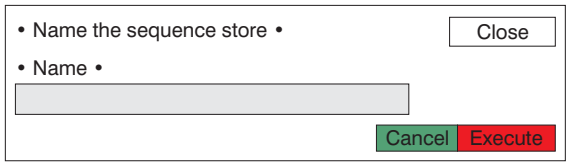
➤ Click on Execute.

To change the Name of a Sequence List entry

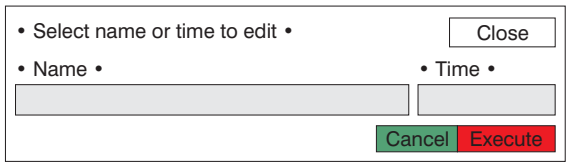
➤ Click the Edit button.

➤ Click the required entry in the Sequence Stores list.

If the list is ordered by Number then the Name the Sequenced Store dialogue box will be displayed.



If the list is ordered by Timecode then the Select name or time to edit dialogue box will be displayed.



➤ Enter or edit the name from the keyboard.

➤ Click on Execute or press the RETURN key to confirm the new name.

The name given to the Store in the Sequence list will override the name copied from the Store list. The original Store will remain unaffected.

➤ Click on Close to return to the Edit Sequenced Store List screen.

To change the Timecode of a Sequence List entry

➤ Click in the Time field when the Select name or time to edit dialogue box is displayed.

See Timecode Entry and Editing (page 15:11).

The Sequenced Stores will change order accordingly.

19.4.2 Using the Sequenced List

The Sequenced Store List can be stepped through with the cursor keys on the numeric keypad or the keyboard, or the Stores can be recalled against running Timecode.

Each time a Store is recalled, the controls will Xfade at the current rate set with the Soft Panel. Set the Xfade time to the minimum of 1 frame if the Stores are to be Set instantaneously.

To use the Sequenced List

➤ Click on the first Store to be Set.

The item will be highlighted.

➤ Press the 

key to use Scroll mode.

➤ Press <ENTER> on the keyboard or click a Trackball button.

The Store will be recalled.

To move down the list and set each Store in turn

➤ Press the down cursor key.

The next Store will be highlighted to indicate it will be used next.

➤ Press <ENTER> on the keyboard or click a Trackball button.

The Store will be recalled.

To move up the list and set each Store in turn

➤ Press the up cursor key.

The next Store upwards will be highlighted to indicate it will be used next.

➤ Press <ENTER> on the keyboard or click a Trackball button.

The Store will be recalled.

To continually Set the same Store

➤ Press <ENTER> on the keyboard or click a Trackball button as many times as required.

To recall Stores against Timecode

➤ Click the Set to Time button so that the legend changes to Enabled.

The button will also turn yellow.

➤ Click the Order by button so that the legend displays Timecode.

➤ Put the transport into Play.

When the running Timecode matches the Timecode on a Sequenced Store then the Store will be recalled.

Note: It is advisable to avoid having Stores with the same Timecode in the Sequence List.

20 Capricorn Surround

This chapter describes the operation of three hardware options that can be used to extend the surround sound capabilities of the Capricorn console.

Standard Surround Features

The Capricorn console allows surround panning to sets of tracks (called Film Groups) as standard. The panning formats available are LCR, LCRS and Split Surround (also called 5.1). IMAX and 8-Way (7.1) formats can be purchased as software upgrades (they are included as standard with CXS and CSP).

CXS

This is a console section that allows full control of surround sound monitoring and Film Stem configuration. The Capricorn system software automatically detects the presence of the CXS and extends the functionality of configuration software for setting up Film Stems, direct playback inputs and speaker trims.

The CXS adds a full section to the console, consisting of a dedicated meter bridge (moving coil VU meters), a Joystick Module, faders for dialogue and music, and a main section for monitoring and stem control.

Joystick Module

The Joystick Module is used to provide intuitive control over the pan position of signals within a surround sound field. Up to two channels can be controlled simultaneously, and the module is fully automated to preserve panning that has already been completed.

A maximum of two Joystick Modules can be installed in a Capricorn console. Joystick Modules are compatible with the CSP or the CXS. Note that one Joystick Module is supplied as standard as part of the CXS.

Capricorn Surround Panel (CSP)

This alters the functionality of the transport panel to provide a complete set of surround monitoring facilities.

This option is not compatible with the CXS.

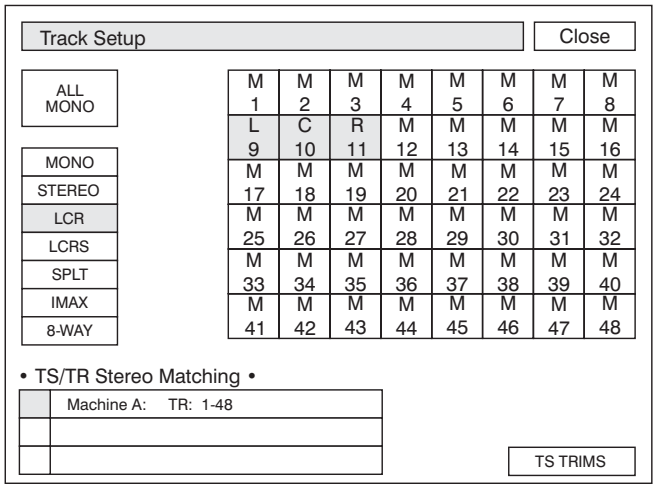
20.1 Standard Surround Features

This allows a set of consecutive Track Sends to be associated as a Film Group with a user selected surround sound format. Source paths can then be routed to the Film Group. A pan law is selected for each source path to determine how the signal is apportioned to the Track Sends in the Film Group. The pan law of a source path would normally match the surround format of a Film Group, although it does not have to.

20.1.1 To define Track Sends for Film Groups

➤ Click on the Tracks Setup icon.

The Tracks Setup screen will be displayed.



➤ Click on the LCR, LCRS, SPLT, IMAX or 8-WAY button as required.

The button will turn yellow.

➤ Click on the track send that is going to be Left.

Note: There must be enough consecutive mono track sends following the track selected for Left for the assignment to take place.

The consecutive track sends (following the send selected for Left) will automatically be assigned as follows:

Left. Centre. Right
The next two adjacent Track Sends will become Centre and Right (this is illustrated in the example screen above).

Left. Centre. Right. Surround
The next three adjacent Track Sends will become Centre, Right and Surround.

Split Surround (5.1)
The next four adjacent Track Sends will become Centre, Right, Left Surround and Right Surround.

IMAX
The next five adjacent track sends will become Centre, Right, Left Surround, Top and Right Surround.

8-Way (7.1)
The next six adjacent track sends will become Left Extra, Centre, Right Extra, Right, Left Surround and Right Surround.

The speaker assignments will be indicated above the track numbers.

The sub-woofer must be designated manually for Split, IMAX and 8-way. It can be a track send or an aux. Using an aux for the sub-woofer has the advantage of allowing the source paths to contribute to the sub-woofer separately from the level and pan sent to the rest of the film group.

20.1.2 Routing to Film Groups

There are two quick methods of routing inputs to all track sends used for a film group: route a single input to a film group, or route multiple inputs to a film group simultaneously.

To route a single input to a film group

➤ Press the STEM SEL key on the Routing panel.

The LED above the key will illuminate.

➤ Press the ACCESS key on the desired source path.

➤ Press one of the track send keys which corresponds to a track send in the film group.

The LEDs associated with the set of track sends for the film group will illuminate. Additional film groups can be selected.

➤ Press a different ACCESS key to change the source path.

➤ Press the STEM SEL key on the Routing panel to turn it off and finish.

To route several inputs to a film group

➤ Press the STEM SEL key on the Routing panel.

The LED above the key will illuminate.

➤ Press the ROUTE key.

The ROUTE key will flash.

➤ Press the number key for one of the track sends in a film group.

The path names on the console surface will flash.

➤ Press the ACCESS keys of the required source paths.

➤ Press the ROUTE key to end the process.

➤ Press the STEM SEL key on the Routing panel to turn it off.

20.1.3 Panning Routed Inputs

Each path that is routed to a Film Group must have the pan law set (the default is stereo). The selected pan law determines the portions of the signal that will be sent to the Track Sends in the Film Group.

For instance, if there is an IMAX Film Group then the pan law on source paths would normally be set to match this. However, it is possible to use different pan laws to achieve different effects. In this example, the sound of a motorbike crossing the screen could have the pan law set to LCR so that the sound 'sticks' to screen (i.e. the front of the surround field).

Signals that are routed to the Film Groups can be panned using the optional Joysticks Module. The joysticks provide an intuitive control over surround panning and this is described later in this chapter in the section on the Joystick Module (see page 20:35).

Also, the FACs on the channel strips or the AFU can be used for panning.

To select the Pan Law

➤ Press the FILM key on the FAC selection panel.

The channel strip FACs now operate as follows:

The top row of FACs select PAN LAW
The second row of FACs control SPLIT between LS and RS
The third row of FACs control FRONT/BACK PAN
The fourth row of FACs control PAN, dependent on the law set.

➤ Rotate the top FAC to select the required Pan Law.

This will change the FAC assignments as follows:

FAC	Pan Law						
1 - Pan Law	MONO	STR	LCR	LCRS	SPLT	IMAX	8WAY
2 - LS/RS Split					LS/RS	LS, Top, RS	LS/RS
3 - F/B Pan				F/B	F/B	F/B	F/B
4 - Pan		Stereo pan	LCR	LCR	LCR	LCR	L, LE, C, RE, R
Width (AFU)	Stereo inputs only	Stereo inputs only	Width for stereo input, divergence for mono	Divergence	Divergence	Divergence	Divergence

Note: This also enables the corresponding pan axes for paths when they are called to the Joystick Module (if installed).

To pan with the channel strip FACs

➤ Press the FILM key on the FAC selection panel.

➤ Rotate FACs 2, 3 and 4 as required, according to the selected Pan Law.

Panning to Film Stems on the AFU

The PAN and WIDTH controls are available to the accessed path according to the current pan law. In addition, three of the FACs on the AFU can be set to control pan law, surround split and front/back pan.

To use the FACs on the AFU for film panning

➤ Press the FILM MODE key on the Routing panel.

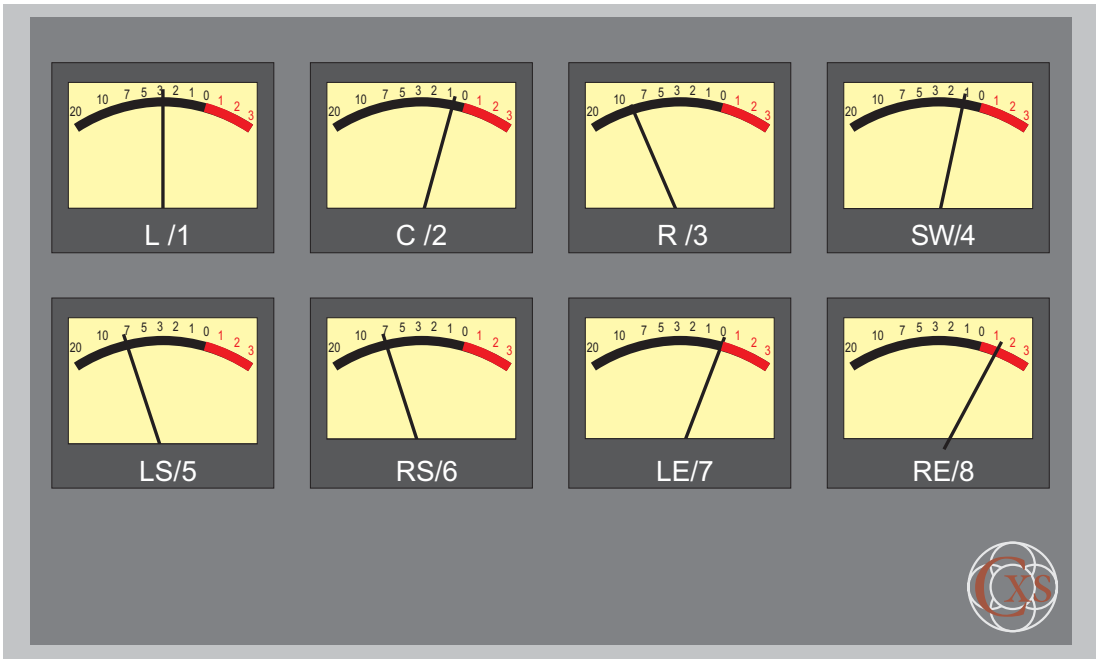
The three furthest to the right on the bottom row of AFU Aux FACs will become (from right to left) pan law, surround split and front/back pan controls (normally used for Auxes 12, 14 and 16).

The display in the middle of the AFU will show the current settings for the accessed path. It will also show which controls are available for the current pan law. If the display changes, it can be restored to show the film settings by touching one of the FACs enabled by FILM MODE. Alternatively, the display may be locked to showing the film panning settings with the HOLD key.

20.2 CXS

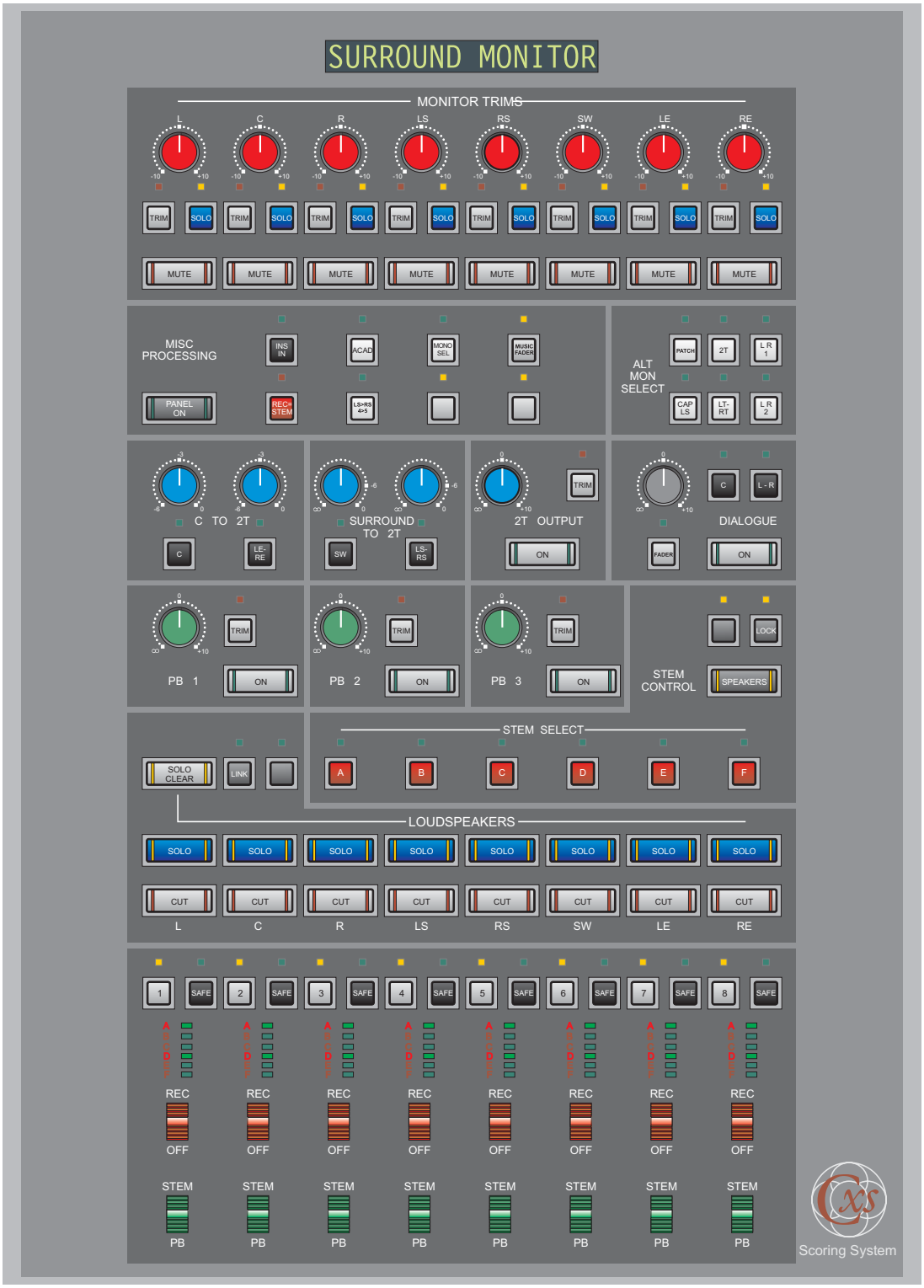
The CXS consists of a dedicated meter bridge, a main panel for monitoring and stem control, a pair of faders for music and dialogue and a joystick module.

Meter Bridge



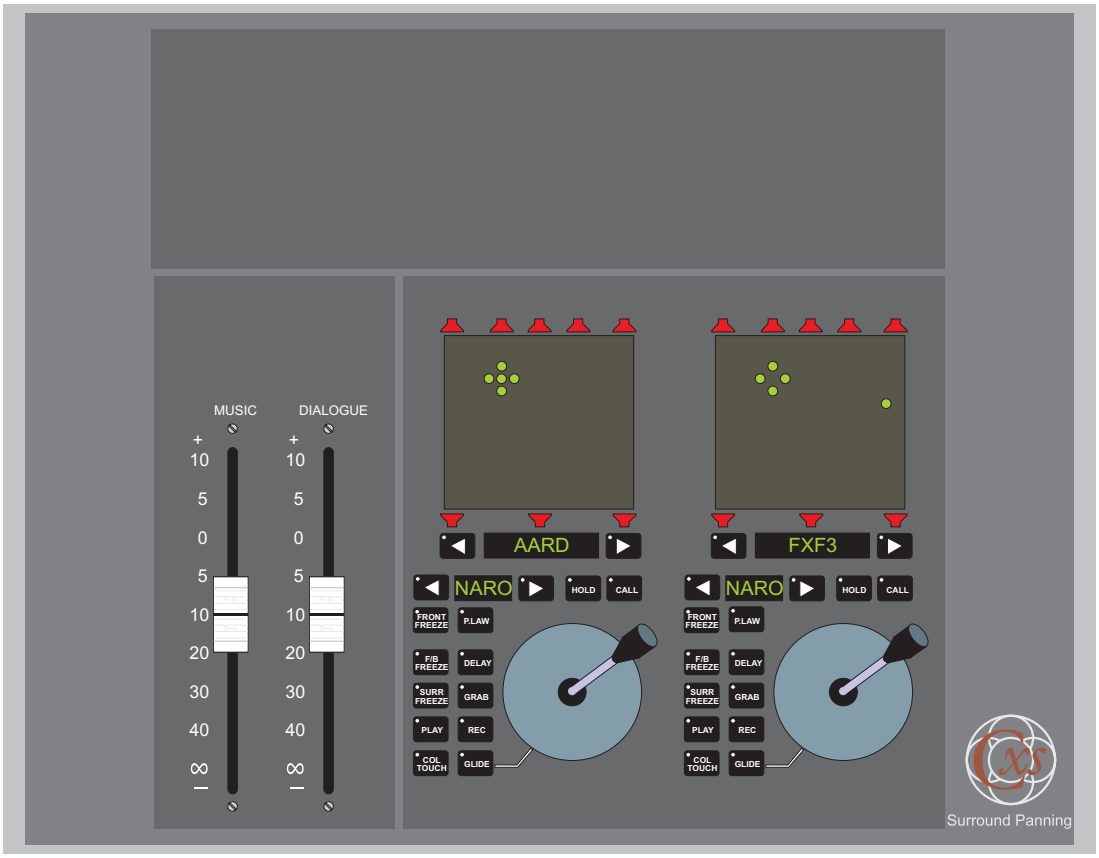
The dedicated meters show the analogue monitor level.

Main CXS Panel



The main CXS panel controls the stems, playbacks, surround monitoring and the 2-track mix.

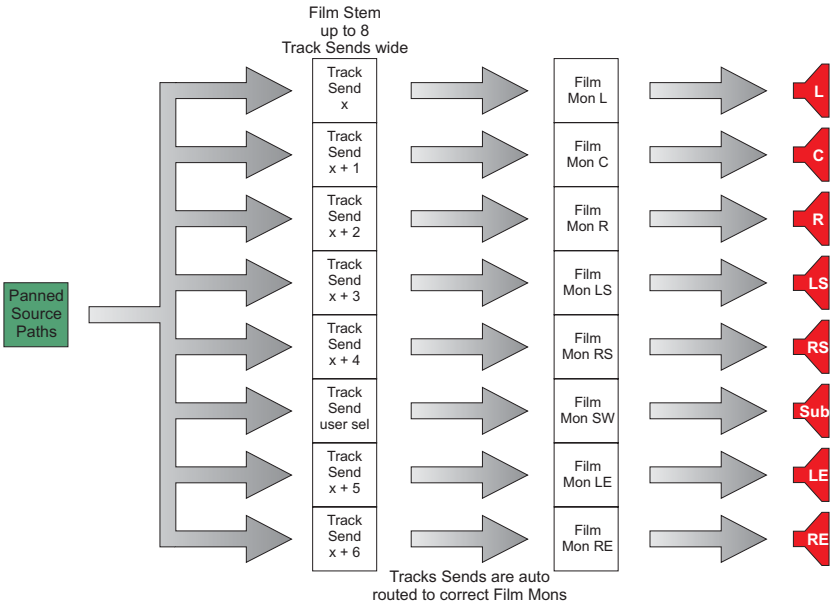
Faders and Joysticks



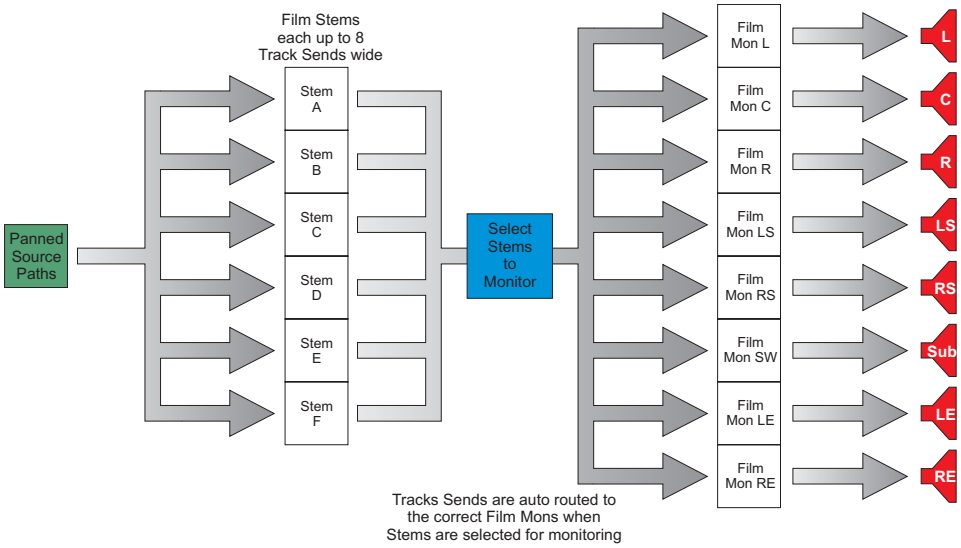
The faders provide dedicated level control for dialogue and musical score inputs. The joysticks are used for panning channels across film stems. The joysticks are identical to the standalone Joystick Module (see page 20:35 for operational details on the joysticks).

20.2.1 How CXS Operates

The CXS uses Film Stems which are film groups that have been labelled with a letter from A to F. A film group is a set of Track Sends which have been grouped together according to a surround sound output format (e.g. Split Surround - also known as 5.1 format). The film group is created as normal in the Tracks Setup screen and then labelled as a stem.



A source path can then be routed to all the Track Sends in a Stem in a single operation. The source signal is apportioned to the Track Sends according to the pan control settings and the pan law for the speaker that each Track Send corresponds to. The routing of the Track Sends in a Stem to the correct Film Monitors is transparent and automatic when a Stem is selected for monitoring.



Labelling the Film Stems from A to F is a convenient reference technique and is used on the CXS for Stem Selection, both for monitoring purposes and for recorder control.

The CXS has three playbacks. These can be taken directly from Inputs or Monitors and one playback at a time can be used in the monitor mix.

A 2-Track Mix can be created - this must enabled in addition to enabling the CXS. The 2-Track Mix starts with the Left and Right Film monitors. Adjustable contributions can then be added from the other Film Monitor paths and the overall output level can be trimmed.

The Music fader is used to control the overall output level to the speakers. This can be switched to operate from the main Control Room Level pot.

The Dialogue fader is used to control the level of the analogue dialogue input. This is mixed directly with the analogue output to the Centre speaker or the Left and Right speakers. The level control can be switched to the pot on the Dialogue section.

20.2.2 Configuring for CXS

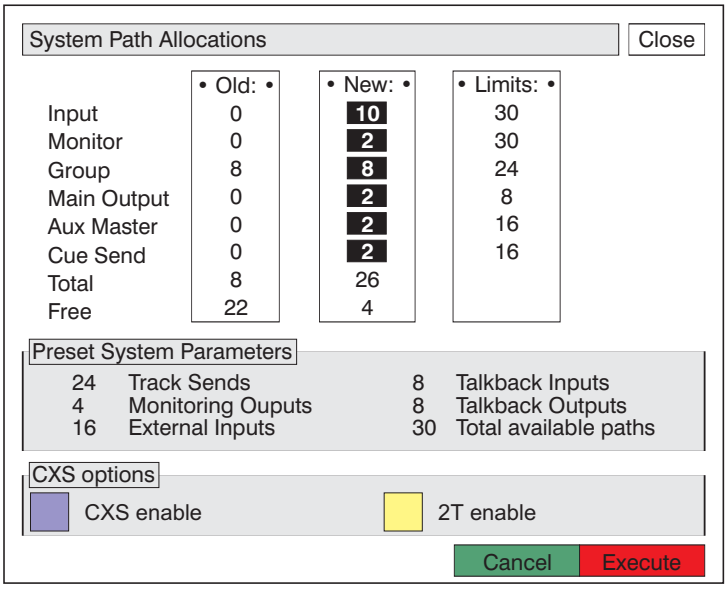
The system must be configured correctly before the CXS can be used. This has three main steps:

- Enable the CXS (and 2-Track Mix if required).
- Select which Tracks will belong to which Film Stems.
- Route source paths to the Film Stems.

To enable CXS

➤ Click the Path Numbers icon.

The System Path Allocations screen will be displayed.



Two extra buttons are available at the bottom of the screen because the CXS is installed.

➤ Click the CXS enable button.

This automatically allocates Cues 9 to 16 for use as Film Paths. If necessary, the number of Cue Sends allocated will be increased by up to 8. The current usage of Cues 9 to 16 will be cancelled. The 2T enable button will become available.

➤ If required, click the 2T enable button.

This automatically allocates Cues 7 and 8 for use as the 2-Track mixdown bus. If necessary, the number of Cue Sends allocated will be increased by up to 2. The current usage of Cues 7 and 8 will be cancelled.

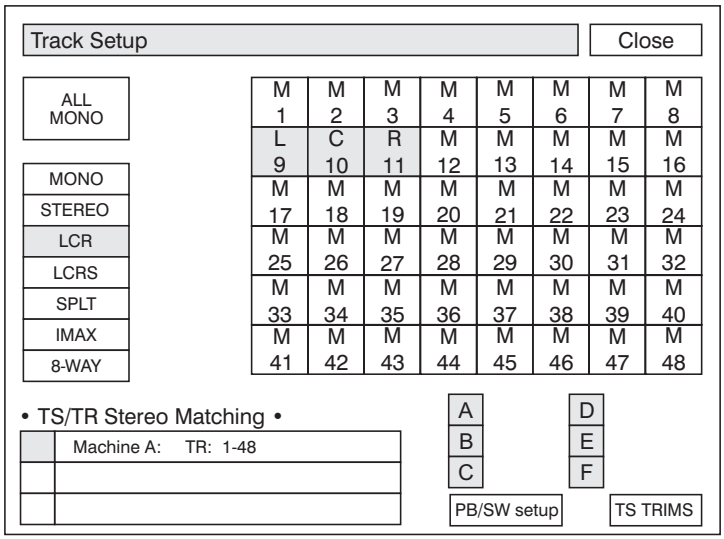
Note: There is no Execute required for CXS enable and 2T enable.

Note: Each Cue that is used as a Film Monitor can feed up to four output ports. At least one of these outputs from each Film Monitor must feed the analogue part of the surround sound monitoring system. The additional ports could be used, for instance, for simultaneous track laying.

To define Film Stems

➤ Click on the Tracks Setup icon.

The Tracks Setup screen will be displayed.



The CXS has been enabled so there are now buttons available for Film Stems A to F and PB/SW setup (playback and sub-woofer).

A Film Group with the desired surround format is created first, and then the Film Group is labelled as a Film Stem.

To make a Film Group

➤ Click on the LCR, LCRS, SPLT, IMAX or 8-WAY button as required.

The button will turn yellow.

➤ Click on the track send that is going to be Left.

Note: There must be enough consecutive mono track sends following the track selected for Left for the assignment to take place.

The consecutive track sends (following the send selected for Left) will be automatically assigned as follows:

LCR The next two adjacent Track Sends will be Centre and Right.

LCRS The next three adjacent Track Sends will be Centre, Right and Surround.

Split (5.1) The next four adjacent Track Sends will become Centre, Right, Left Surround and Right Surround.

IMAX The next five adjacent track sends will become Centre, Right, Left Surround, Top and Right Surround.

8-Way (7.1) The next six adjacent track sends will become Left Extra, Centre, Right Extra, Right, Left Surround and Right Surround.

The speaker assignments will be indicated above the track numbers.

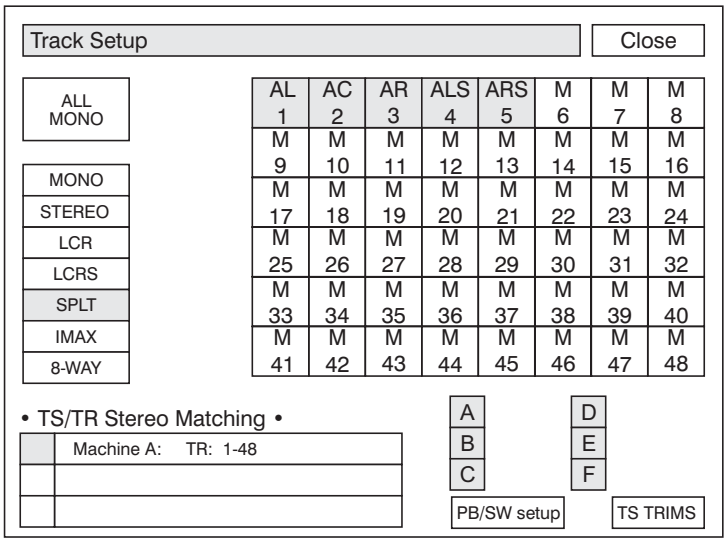
To label a Film Group as a Film Stem

➤ Click the required Stem button, A to F.

The button will turn yellow.

➤ Click any of the Tracks that have been assigned to to the Film Group.

The speaker assignment legends will change to show the Stem letter and the speaker. The following example shows Split Surround starting on Track 1 assigned as Stem A:



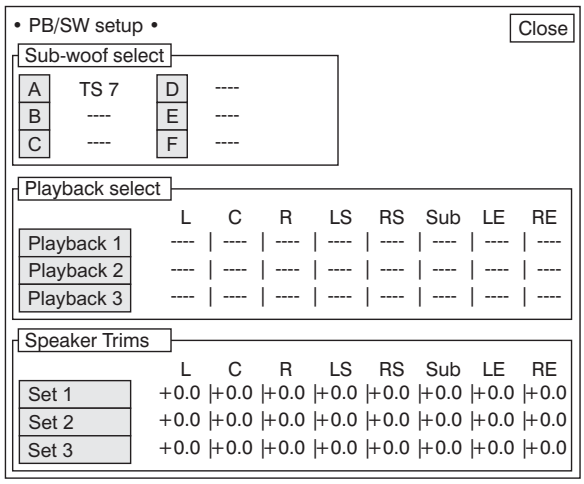
Note: A stereo pair can also be labelled as a Film Stem, if required.

If Split Surround, IMAX or 8-Way has been selected

The Sub-Woofer must be assigned individually.

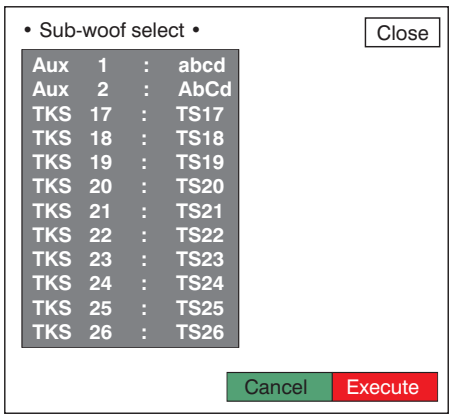
➤ Click the PB/SW setup button.

The PB/SW setup screen will be displayed.



➤ Click the button for the required Stem in the Sub-woof Select box.

The Sub-woof select dialogue box will be displayed.



➤ Select the required path from the list.

Note that Auxes can be used for the Sub-Woofer.

➤ Click Execute.

The Sub-woof select dialogue box will be removed and the selected path will be indicated next to the selected Stem. This is also shown next to the Stem letter on the Tracks Setup screen.

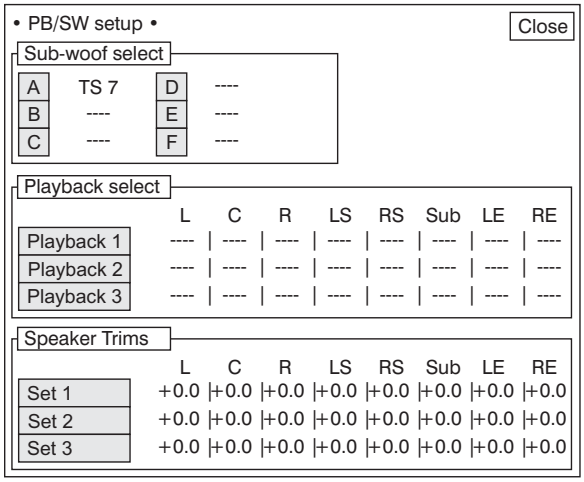
Playbacks and Speaker Trims

The PB/SW screen is also used to select the inputs for the Playbacks and for trimming the analogue output level to the speakers.

To change the playback inputs

➤ Click the PB/SW setup button in the Tracks Setup screen.

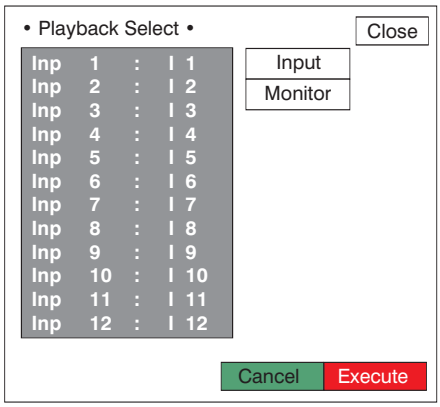
The PB/SW setup screen will be displayed.



Each playback can have up to eight inputs, corresponding to each speaker position. There are no default Playback inputs.

➤ Click the Playback 1, Playback 2 or Playback 3 button.

The Playback Select dialogue box will be displayed.



➤ Click on the required Inputs or Monitors that will feed the playback.

Up to eight can be selected. They will be highlighted.

Note: The playbacks are intended for routing finished tracks on a tape machine directly to the surround monitors, so the selected Inputs or Monitors would normally be consecutive. (This does not preclude other uses.)

➤ Click Execute.

The Playback Select dialogue box will close and the selected paths will be displayed in ascending order from left to right against the selected Playback. The order in which the paths are designated to speakers may not be changed.

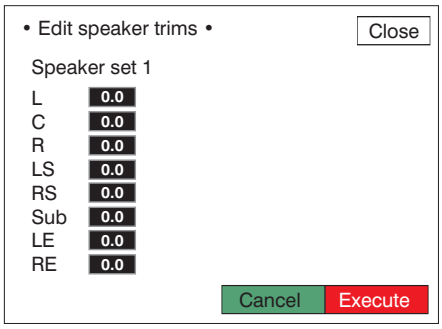
To change the analogue speaker trims

➤ Click the PB/SW setup button in the Tracks Setup screen.

The PB/SW setup screen will be displayed.

➤ Click the Set 1, Set 2 or Set 3 button as required.

The Edit speaker trims dialogue box will be displayed.



➤ Click in the box for the required level.

➤ Enter a trim value with the keypad or roll the trackball left/right to scroll the value.

➤ Click when the value is correct.

➤ Change other speaker trims as required.

➤ Click Execute.

The Edit speaker trims dialogue box will close and the trim values will be shown in the PB/SW setup screen.

Note: If Set 3 is selected then only the trim values for L and R will have an effect. Speaker Set 3 has outputs for Left and Right only.

Routing to Film Stems

There are two quick methods of routing source paths to track sends used for film stems: routing a single input to a film stem, or routing multiple inputs to a film stem simultaneously.

To route a single input to a film stem

➤ Press the STEM SEL key on the Routing panel.

The LED above the key will illuminate.

➤ Press the ACCESS key on the desired source path.

➤ Press one of the track send keys which corresponds to a track send in the Film Stem.

The LEDs associated with the set of track sends for the Film Stem will illuminate. Additional Film Stem can be selected.

➤ Press a different ACCESS key to change the source path.

➤ Press the STEM SEL key on the Routing panel to turn it off and finish.

To route several inputs to a film stem

➤ Press the STEM SEL key on the Routing panel.

The LED above the key will illuminate.

➤ Press the ROUTE key.

The ROUTE key will flash.

➤ Press the number key for one of the track sends in a Film Stem.

The path names on the console surface will flash.

➤ Press the ACCESS keys of the required source paths.

➤ Press the ROUTE key to end the process.

➤ Press the STEM SEL key on the Routing panel to turn it off.

Panning Routed Inputs

Each path that is routed to a Film Stem must have the pan law set according to the desired signal to be sent to the Track Sends in the Stem. This is described on page 20:5.

For instance, if there is an IMAX stem then the pan law on source paths would normally be set to match this. However, it is possible to use different pan laws to achieve different effects. In this example, a the sound of a motorbike crossing the screen could have the pan law set to LCR so that the sound 'sticks' to screen (i.e. the front of the surround field).

Signals that are routed to the Film Stems can be panned using the joysticks that are supplied as part of the CXS. The joysticks provide an intuitive control over surround panning and this is described in the following section on the Joystick Module (see page 20:35).

Also, the FACs on the channel strips or the AFU can be used for panning as usual. See page 20:5.

20.2.3 Using CXS

A Capricorn console with CXS installed supports two monitoring systems: standard stereo monitoring and surround sound monitoring. There are three sets of speakers and the Left and Right speakers are shared by the two monitoring systems. The CXS panel must be switched on to take control of the monitoring system.

To enable CXS to control surround monitoring

➤ Press the PANEL ON key.

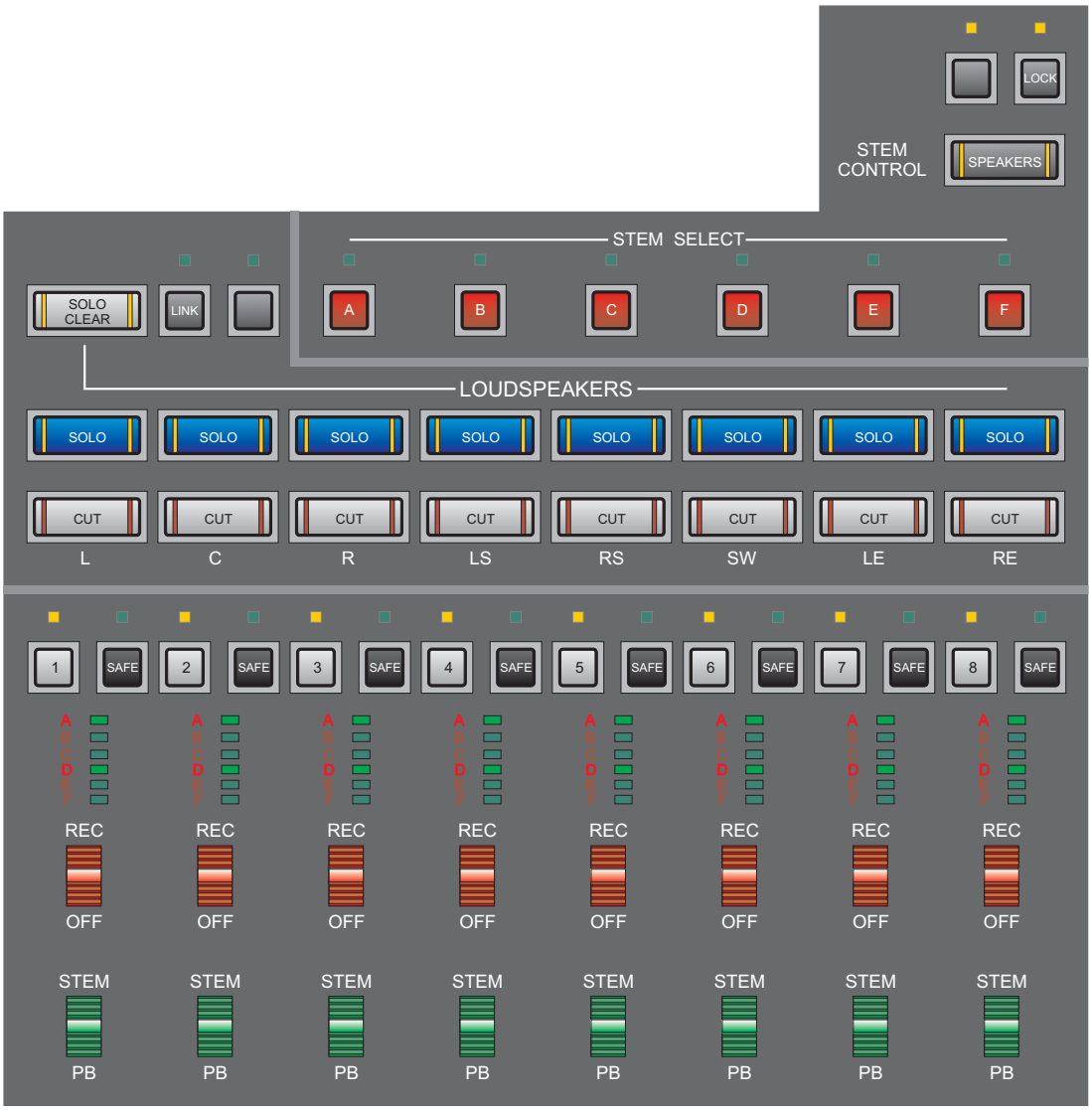
The key will illuminate and the monitoring system will switch to eight speaker surround output controlled by CXS.

The direct feeds to Left and Right from the standard control room monitoring system will be cut. They can still be selected as a source using the Alternative Monitor Select section (see page 20:30).

Note: It is advisable to move the Music fader to its minimum setting and turn down the level control pot on the Control Room Monitoring section before switching control between standard and surround monitoring. This will prevent sudden loud noises.

Stem Control

The Stem Controls consist of two sets of paddle switches for Stem/Playback selection (also called Bus/Tape switching) and recorder control, a matrix of indicators showing the status of all Stems, track safe keys, cut, solo and stem selection. Stems can be linked so that paddle switches operate in unison.



The Stem Select keys (A to F) and Loudspeakers keys (cut and solo) are shared between Stem Control and Monitoring.

To assign the Stem Select, cut and solo keys to Stem Control

➤ Press the SPEAKERS key so that it is not illuminated.

To select which Stem to work with

➤ Press the A B C D E or F key.

The LED above the key will illuminate and the keys and paddles will show the status of the Stem.

To select multiple Stems to work with

➤ Press the LOCK key.

The LED above the key will illuminate. The currently selected Stem will remain active.

➤ Press the A B C D E and F keys as required.

The most recently selected stem is active on the keys and switches. If the active stem is de-selected then the active stem will default to the first one available from left to right.

All the selected Stems will be switched by the paddles, CUT SOLO and SAFE keys. When a paddle or key is used then the same switch on other stems will be forced to follow the state of the paddle or key for the active stem.

For instance, Stems A, C and F have been selected and Stem C is active. If the SAFE key for Centre is toggled off then it will also be forced off on Stems A and F.

To switch a Track between the tape send and tape return

➤ Push the required paddle to STEM to monitor the tape send.

➤ Push the required paddle to PB to monitor the tape return.

The paddle will illuminate green when it is switched to PB. The corresponding green LED in the stem status matrix will also illuminate.

To record a Track

The tape machine must be record ready and the Track must not be safe.

➤ Push the required paddle to REC.

The paddle and the corresponding letter indicator in the stem status matrix will flash red until a Rec Tally is returned from the tape machine. The paddle and the indicator will then illuminate red steady.

➤ Push the paddle to OFF when the required material has been recorded.

To make a Track safe

➤ Press the required SAFE key.

The LED above the key will illuminate. If the Track was recording then this will be turned off. The default status is all tracks safe.

To force STEM selection when going into REC

➤ Press the REC= STEM key.

The LED above the key will illuminate.

When a record paddle is switched to REC, the corresponding STEM/PB switch will be forced to STEM.

To link a group of Stems

➤ Press the LINK key.

The LED above the key will flash. The LED above the currently selected Stem will cease to be illuminated.

➤ Press one of the A B C D E or F keys.

The LED above the key will flash. This indicates that the selected Stem is the temporary master for setting up the link.

➤ Press other Stem Select keys.

The LEDs above further selected keys will illuminate steady. Each time a Stem Select key (other than the link master) is pressed the Stem will be toggled in and out of the link.

➤ Press the LINK key again to end link setup.

The LED above the key will stop flashing and the LED above the currently selected Stem will illuminate again.

When a Stem in a link is selected then all the other Stems in the link will be selected at the same time, regardless of the status of the LOCK key. The LEDs above the appropriate A B C D E and F keys will illuminate.

Multiple links can be setup as required, but they may not overlap. When setting up links, selecting any Stem in an existing link will make it the temporary master for link setup.

To un-link Stems

➤ Press the LINK key.

➤ Press any of the A B C D E or F keys that belong to the required link.

The LED above the key will flash to show it is the temporary master.

➤ Press the keys for the other link members until they are all de-selected.

To link paddle switches, CUT keys, SOLO keys or SAFE keys

➤ Press the LINK key.

The LED above the key will flash.

➤ Push the required paddle switch down (to OFF or PB) or press the required CUT, SOLO or SAFE key.

The paddle, key or LED will flash as appropriate.

The LED above the active stem key will illuminate. This shows that the switches or keys are being linked for that stem. If there is no active stem then the switches or keys may not be linked.

➤ Switch additional paddles or keys as appropriate (e.g. if making a solo group then press SOLO keys).

➤ Press the flashing paddle or key when the link is complete.

➤ If required, make a link for any of the other paddles or switches.

➤ Press the LINK key again to finish.

The link can be deconstructed in the same way as deconstructing a link of stems, as described above (i.e. go to link mode, select a link, remove non-flashing members).

To cut a Track

➤ Press the required 

key.

The key will illuminate.

The signal will no longer be sent to the surround monitors. This does not affect the tape send or return.

To solo a Track

➤ Press the required 

key.

The key will illuminate. The 

key will flash. The 

keys for all other Tracks in the Stem will illuminate. All the Tracks in other Stems will also be cut.

Only the signal from the path in solo will be sent to the surround monitors.

➤ Press additional 

keys to monitor a custom combination of Tracks.

Tracks from other Stems can also be monitored by selecting the Stem and then pressing the appropriate 

keys.

Each time a 

key is pressed it will be toggle on or off.

To cancel solo

➤ Toggle off all the 

keys that are on.

or

➤ Press the 

key.

Surround Monitoring with CXS

The Stem Select keys (A to F) and Loudspeakers keys (cut and solo) are shared between Stem Control and Monitoring.

To assign the Stem Select, cut and solo keys to Monitoring

➤ Press the SPEAKERS key so that it is flashing.

To adjust the overall monitor level

➤ Rotate the Control Room Level pot to the required setting.

or

➤ Press the MUSIC FADER key.

The LED above the key will illuminate. Level control will be transferred to the Music Fader.

➤ Move the Music Fader to the required setting.

To select a Stem for monitoring

➤ Press the A B C D E or F key.

The LED above the key will illuminate. If another Stem was selected it will be de-selected.

To select no Stems to the monitor

➤ Press the A B C D E or F key that is currently selected.

The LED above the key will cease to be illuminated. This is useful for listening to a Playback or the Dialogue input by itself.

To select multiple Stems to the monitor

➤ Press the LOCK key.

The LED above the key will illuminate.

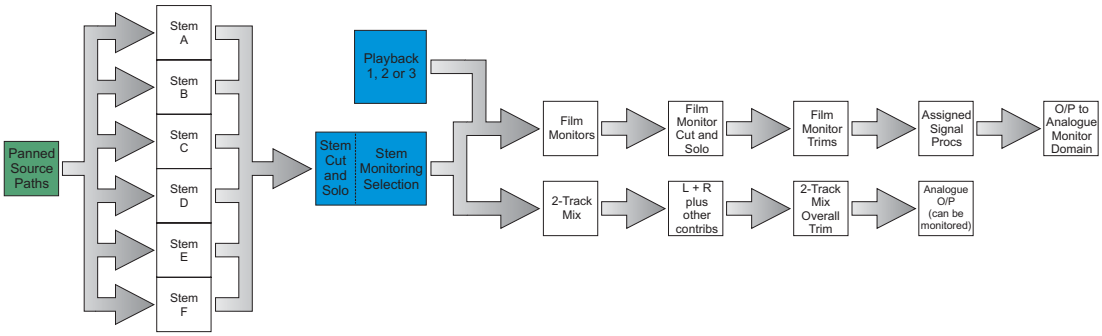
➤ Press the required A B C D E and F keys.

The LEDs above the selected keys will illuminate. The Stems will be summed to the monitors.

To monitor a Playback

➤ Press the ON key for the required Playback.

The selected Playback will be added to the monitor mix.



Only one Playback can be selected at a time. If a different Playback is selected then the current Playback will be de-selected.

To adjust the level of the Playback

➤ Press the TRIM key for the required Playback.

The LED above the key will illuminate.

➤ Rotate the adjacent trim pot to the required level.



The level will be shown in the alphanumeric display at the top of the panel.

The trim pot has the same range as a standard Capricorn fader.

Note: It is advisable to set the trim pot to 0dB (unity gain) or below to prevent sudden jumps in level. The level defaults to 0dB when trim control is off.

To monitor the analogue Dialogue input



➤ Press the Dialogue ON key.

The key will illuminate.

➤ Press the C or L - R key.

The LED above the selected key will illuminate.

The C causes the Dialogue to be summed to the Centre speaker and the L - R key sends the left and right legs of the Dialogue to the Left and Right speakers.

➤ Rotate the level control pot the the required setting.

The setting will be shown on the alphanumeric display at the top of the panel.

Note: Dialogue is not included in the signal shown on the meters.

To use the Dialogue Fader to control the Dialogue level

➤ Press the FADER key.

The LED above the key will illuminate. The Dialogue level will change to match the fader level.

To switch the insert into the Film Monitor

➤ Press the INS IN key.

The LED above the key will illuminate.

This is a standard insert that is added to the Film Monitor paths (Cues 9 to 16) with Path Configuration (see page 5:14).

Note: The insert can be switched in and out of individual Film Monitors (Cues) using the AFU.

To switch in the Academy Filter

➤ Press the ACAD key.

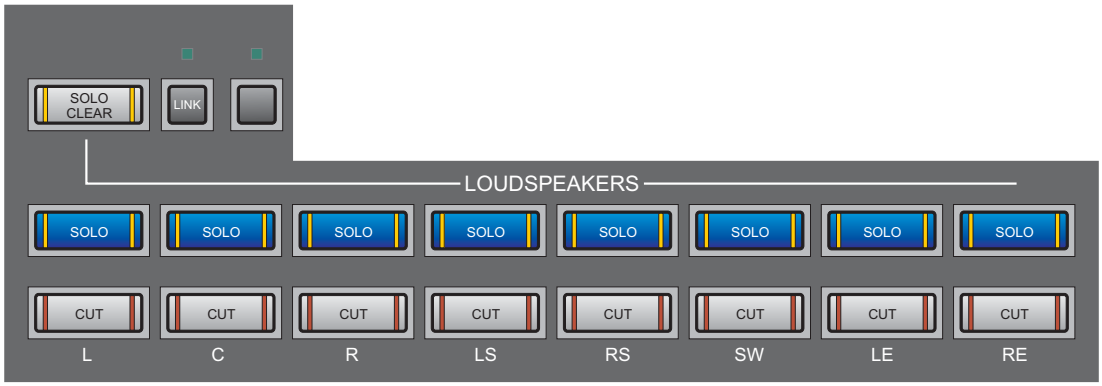
The LED above the key will illuminate and the Academy Filter will be switched into the analogue monitoring path.

To monitor a selectable mono mix

➤ Press the MONO SEL key.

The LED above the key will flash.

The SOLO and CUT keys in the Loudspeakers section will now control selection of the mono mix.



The SOLO keys select the sources - the sources are the analogue feeds to the speakers according to the current monitoring selection (see diagram on following page). The CUT keys select which speakers the mix will be monitored on.

The previous selection is restored when the mono mix is engaged.

➤ Press the required SOLO keys to toggle the sources on and off.

➤ Press the required CUT keys to toggle the speaker destinations on and off.

LS and RS are selected as a pair. LE and RE are selected as a pair. At least one destination must be selected (i.e. if there is only one destination selected it may not be turned off).

Note: This does not affect or include the Dialogue input.

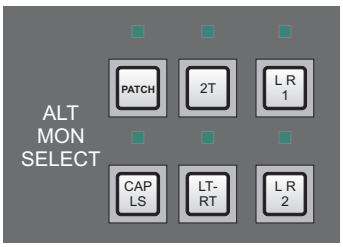
➤ Press MONO SEL or SPEAKERS to return to cancel mono mix selection.

To listen to the mono mix

➤ Press the MONO key on the Control Room Monitoring section.

This can be done at the same time as selecting the mono mix to listen to various combinations as they are made.

To monitor an alternative source

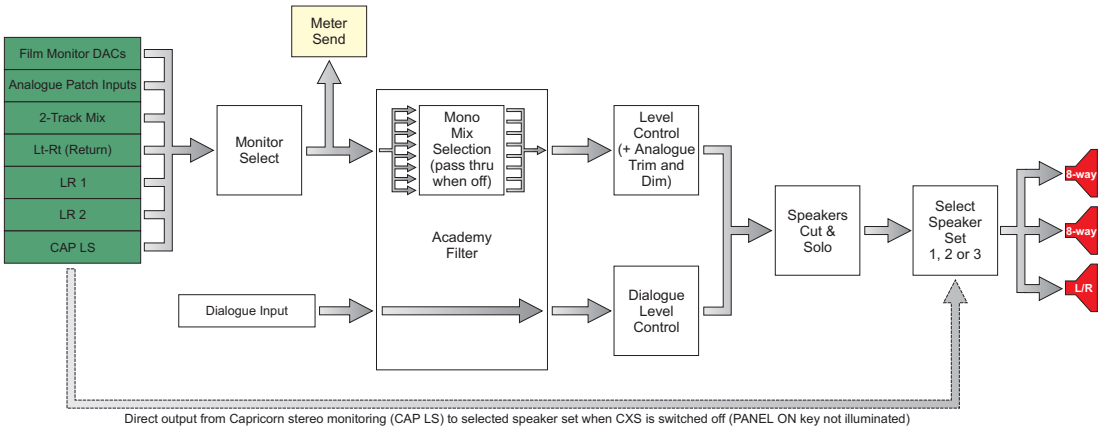


➤ Press the required key in the Alt Mon Select section.

The LED above the key will illuminate.

The selected source will replace the feed from the Film Monitors. The keys are interlocked, so that selecting one will cancel the existing selection.

The following simplified diagram shows how the current monitor source is used in the analogue domain of the CXS:



The PATCH key selects the analogue patch input. This could be used for a Dolby Encoder/Decoder return, for instance.

The LT-RT key selects the Lt-Rt return from the Dolby Matrix Encoder.

The 2T key selects the analogue output from the 2-Track Mix.

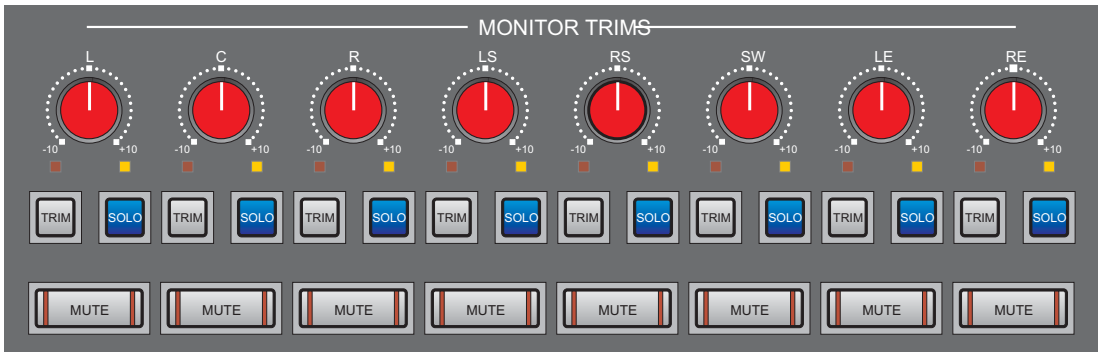
The CAP LS key selects the output from the standard Capricorn monitoring system, as set on the Control Room Monitoring section (including phase reversal, cut right/left, etc.). This does not bypass the rest of the analogue monitoring system unless the PANEL ON key is turned off (as shown above).

Note: When a speaker set is selected, it is changed on both the normal Capricorn monitoring system and the CXS.

The L R 1 and L R 2 keys select the first and second spare analogue Left/Right inputs.

To solo the Film Monitors

➤ Press the required SOLO key.



The LED above the key will illuminate and the MUTE keys for the other Film Monitors will illuminate. The muted Film Monitors will send no signal to the analogue part of the monitoring system.

➤ Press additional SOLO keys as required.

➤ Press the active SOLO keys to cancel solo.

Note: This is separate from the normal solo mechanism that operates on the Capricorn console. Solo on a Film Monitor (Cue) from a channel strip or the AFU will be sent to the APL bus.

To cut individual Film Monitors

➤ Press the required MUTE keys.

The key will illuminate. The muted Film Monitors will send no signal to the analogue part of the monitoring system.

Note: Film Monitor cut and solo do not affect the 2-Track Mix or Dialogue input.

To solo the analogue speaker outputs

➤ Press the SPEAKERS key so that it is flashing.

➤ Press the SOLO key for the required speaker.

The key will illuminate and the CUT keys for the other speakers will illuminate. The SOLO CLEAR key will flash.

➤ Press SOLO keys for additional speakers as required.

➤ Press SOLO CLEAR or turn off the individual SOLO keys to end speaker solo.

To cut the analogue speaker outputs

➤ Press the SPEAKERS key so that it is flashing.

➤ Press the CUT keys for the required speakers.

The keys will illuminate. The selected speakers will receive no audio.

➤ Press the CUT keys again to restore audio to the speakers.

To select the set of speakers in use

➤ Press the SPK1 SPK2 or SPK3 key in the Control Room Monitoring section as required.

The LED above the selected key will illuminate.

Note: The SPK3 key selects output to a stereo pair only. This could be used for testing a mix on near field speakers, for instance.

To use both rear speakers for monitoring LCRS format

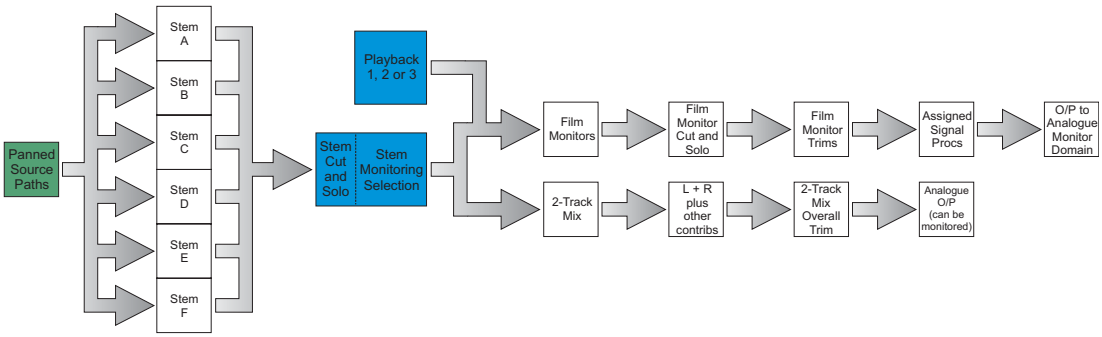
➤ Press the LS>RS 4>5 key.

The LED above the key will illuminate.

The signal being fed to the Left Surround speaker will now also be fed to the Right Surround speaker. This will replace the normal feed to the Right Surround speaker.

2-Track Mix

The 2-Track Mix is a stereo mix created from the current selection of monitored Stems. Cut and solo on the Stems also affects the 2-Track Mix.



The basic 2-Track Mix uses the whole of the signal for Left and Right. The signals for Centre, Sub-Woofer, LS/RS (as a pair) and LE/RE (as a pair) can be switched into the mix and trimmed as required. The resulting stereo mix then has an overall level trim.

Note: The 2-Track Mix must be enabled in the Path Assignment Screen (see page 20:12).

To switch on the 2-Track Mix

➤ Press the ON key in the 2T Output section.



To adjust the overall 2-Track Mix output level

➤ Press the TRIM key in the 2T Output section.

➤ Rotate the trim pot to the required level.

The level will be shown in the alphanumeric display at the top of the panel.

Note: When the TRIM key is off the signal will be passed through at unity gain.

To add the Centre signal to the 2-Track Mix

➤ Press the C key in the C To 2T section.

The LED above the key will illuminate. The signal will be divided evenly across the left and right legs (i.e. no pan).

➤ Rotate the trim pot above the key to the required setting.

The maximum is unity gain (0dB).

To add the Left Extra and Right Extra signals to the 2-Track Mix

➤ Press the LE-RE key in the C To 2T section.

The LED above the key will illuminate. Left Extra will go to the left leg and Right Extra will go to the right leg of the 2-Track Mix.

➤ Rotate the trim pot above the key to the required setting.

The maximum is unity gain (0dB).

To add the Sub-Woofer signal to the 2-Track Mix

➤ Press the SW key in the Surround To 2T section.

The LED above the key will illuminate. The signal will be divided evenly across the left and right legs (i.e. no pan).

➤ Rotate the trim pot above the key to the required setting.

The maximum is unity gain (0dB).

To add the Left Surround and Right Surround signals to the 2-Track Mix

➤ Press the LS-RS key in the Surround To 2T section.

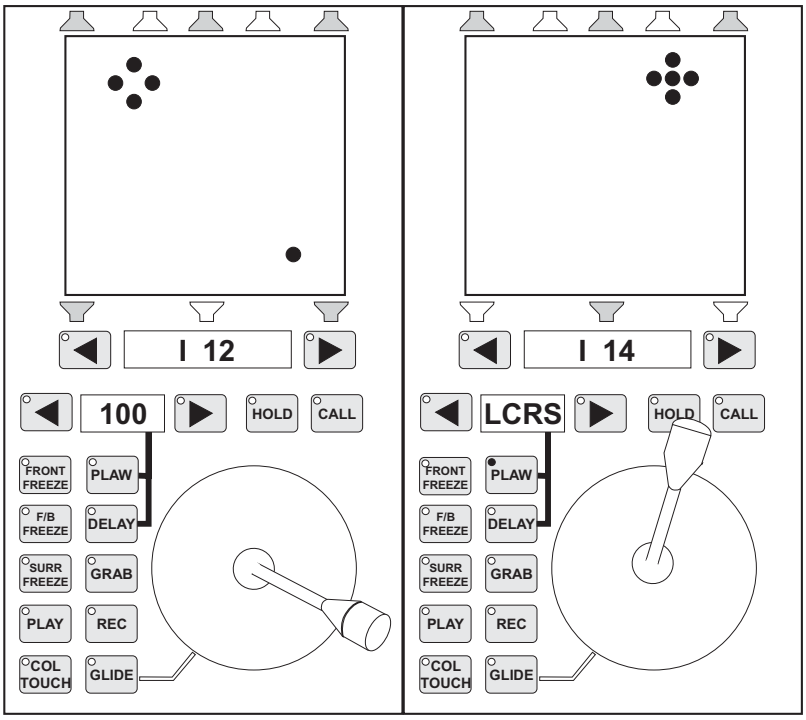
The LED above the key will illuminate. Left Surround will go to the left leg and Right Surround will go to the right leg of the 2-Track Mix.

➤ Rotate the trim pot above the key to the required setting.

The maximum is unity gain (0dB).

20.3 Joystick Module

The Joystick Module is an option for the Capricorn and allows full panning control of up to two paths. The controls are fully automated.



20.3.1 Joystick Module Displays

The green LED matrix display panel shows a diamond of four dots and a separate dot.

The diamond shows the pan position within the soundfield (i.e. where the audio sounds like it is coming from to someone sat in the middle of the surround field), and the dot shows the joystick position.

The diamond and the dot can move independently or together, depending on the controls being used.

The red speaker symbols above and below the LED matrix show the speakers which correspond to the current pan law as they would be used in the final listening environment. The top row are for L, LE, C, RE and R speakers. The bottom row are for LS, CS (or TOP) and RS speakers.

The larger alpha display (immediately below the surround speaker symbols) shows the current path and the smaller alpha display shows the width/divergence setting or the current pan law.

20.3.2 Control Replication

The joystick is used to replicate the actions of the three surround panning FACs (front speaker pan, front/back pan and surround split) which are active when the FILM key on the FAC Selection panel is enabled. The FILM key does not need to be enabled for the joystick to pan the sound.

The PLAW key replicates the top FAC on the channel strip for pan law selection.

The PLAY REC COL TOUCH and GLIDE keys replicate the strip automation keys.

Changes to controls on the Joystick Module will show on the strip for the currently selected path and vice versa. The changes will also register on the AFU if the path on the joystick is accessed and panning control changes will show on the AFU if the FILM MODE key is enabled.

20.3.3 Selecting the Path to Pan

The path to pan with a joystick can be selected by calling a path into the AFU or using the path stepping keys below the joystick.

To call the path into the AFU and the Joystick Module

➤ Press the ACCESS key on the required path.

The path will be called to all joysticks which are not held (see below).

The diamond on the green LED matrix will jump to the pan position set for the path and the speaker symbols will illuminate according to the selected pan law.

To select the path using the path stepping keys

➤ Press the ◀ or ▶ key next to the large alpha display.

The alpha display will step through the user defined path names on the primary access bank.

The diamond on the green LED matrix will jump to the pan position set for the path and the speaker symbols will illuminate according to the selected pan law.

To hold the current path and prevent selection with the ACCESS key

➤ Press the HOLD key.

The ACCESS keys will be prevented from changing the current path on the joystick.

The ◀ and ▶ keys will still operate for path selection.

To take the path off the joystick

➤ Press the ◀ and ▶ keys together.

The alpha displays will go blank, the red speaker symbols will cease to be illuminated and the LED matrix will show only the joystick position dot.

20.3.4 Pan Law

The pan law may be selected using keys on the Joystick Module in addition to using FACs on the strip and AFU.

To select the pan law

➤ Press the PLAW key.

The integral LED will illuminate.

➤ Press the ◀ or ▶ key next to the smaller alpha display.

The alpha display will step through the available pan laws.

The red speaker symbols above and below the green LED matrix will illuminate according to the pan law selected.

20.3.5 Panning the Sound

The main joystick display (green LED matrix) shows a diamond and a dot which can move independently or together as a solid cross. The diamond shows the panned position of the source within the sound field. The dot shows the current position of the joystick.

The diamond may be ‘grabbed’ to the joystick position or picked up as the dot passes through it.

To pick up the diamond

➤ Press the CALL key.

The integral LED will illuminate red.

➤ Move the joystick so that the dot passes through the diamond.

The integral LED on the CALL key will turn green.

Note: If the LED flashes red, this indicates a touch conflict with another film or pan control on the console.

Note: The CALL key puts the joystick into touch on the three pan control functions. This means the corresponding FACs on the strip and AFU will be locked out (if they are in film mode) and will indicate touch conflict if an attempt is made to use them.

Further movement of the joystick will pan the sound. The diamond and the dot will move together as a cross.

To grab the diamond

➤ Press the GRAB key.

The diamond will jump to the position of the dot and the integral LED on the CALL key will turn green.

Movement of the joystick will pan the sound. The diamond and the dot will move together as a cross.

To release the diamond

➤ Press the CALL key.

The LED will cease to be illuminated.

The dot will move away from the diamond when the joystick is moved.

Joystick touch sensitivity

The joystick itself is not touch sensitive. The CALL key puts the joystick into touch so that it takes control of the panning functions.

20.3.6 Width/Divergence

Width/divergence is controlled using the ◀ and ▶ keys on either side of the small alpha display.

To adjust width/divergence

➤ Ensure the LED in the PLAW key is not illuminated.

➤ Press the ◀ or ▶ key on either side of the small alpha display to decrease or increase the setting.

The alpha display will show a range from NARO to WIDE with a range of 1 to 27 in between (i.e. NARO is 0 and WIDE is 28).

20.3.7 Pan Freezing

Three keys are used to freeze each aspect of panning. They restrict the movement of the diamond to show the effect of reduced axis panning.

To freeze a panning axis

➤ Press the FRONT FREEZE F/B FREEZE or SURR FREEZE key as required.

The FRONT FREEZE key freezes panning across the front speakers.

The F/B FREEZE key freezes panning between the front and rear surround speakers.

The SURR FREEZE key freezes panning across the rear surround speakers.

The integrated LED on the key pressed will illuminate.

Any combination of keys may be pressed (assuming the selected pan law allows the relevant panning action).

Movement of the joystick will now cause the dot and diamond to separate as the diamond moves to show the panned position of the sound.

Note: When a freeze key is enabled, the corresponding pan function is taken out of touch on the joystick. This means the FAC on the strip or AFU can be used to adjust the value while the freeze key is enabled.

To un-freeze a panning axis

➤ Press the required freeze key which has its LED illuminated.

The diamond will snap to a new position based on the current joystick position and any remaining freeze keys which are active.

If only one freeze key was active, the diamond will snap to the dot.

20.3.8 Joystick Automation

The automation system only records changes to the settings for the three pan controls, the width/divergence setting and the pan law selection. No recording is made of which controls on the console surface were used to set the value.

This means that when a mix is replayed, the joystick or the panning FACs can be used in any combination to change the mix.

Note: When CALL key is enabled (i.e. green LED), the panning functions are in touch and the pan position will overwrite existing moves until the key is released.

Tip - Grabbing a moving diamond

The GRAB key is useful when replaying a mix. If a path is panning rapidly, the diamond on the LED matrix will move to reflect this rapid panning. This can make the diamond hard to pick up when using the CALL key. The GRAB key will cause the diamond to snap to the dot and give control to the operator.

Glide

Releasing the CALL key in auto-glide mode will cause the diamond to glide back to match the current mix/pass position.

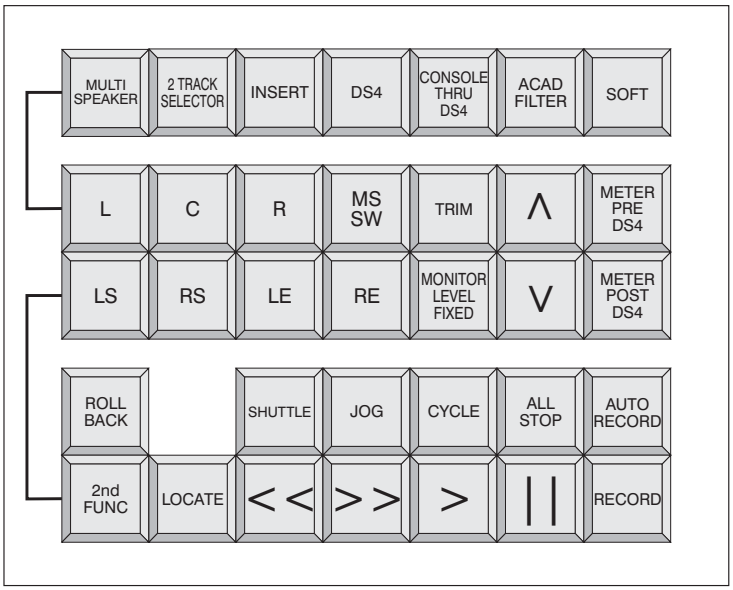
The CALL key will be forced to release control of the panning functions when the GLIDE key is pressed and the diamond will glide back to match the current mix/pass position.

Tape machine controls

The CALL key will be released when the tape machine drops out of play (i.e. when it is stopped, put into fast forward, etc.).

20.4 Capricorn Surround Panel (CSP)

The Capricorn Surround Panel is an option which uses keys which replace the top three rows of transport keys, as shown below.



20.4.1 Enabling and Disabling the CSP

The CSP must be enabled before any of its functions will operate.

To enable the CSP

➤ Press the 

key.

The key will illuminate.

The multi speaker monitor system will be engaged.

The other CSP keys will be enabled.

To disable the CSP

➤ Press the 

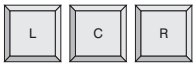
key again.

The key will cease to be illuminated.

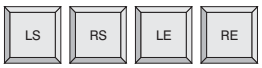
The other CSP keys will be disabled.

20.4.2 Speaker Selection

Eight keys are provided for speaker selection:



Left, Centre and Right



Left Surround, Right Surround, Left Extra and Right Extra



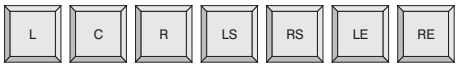
Mono Surround and Sub Woofer

Note: When the CSP is enabled, the speaker select keys 

and 

in the monitor section are used to select between three sets of speakers. Each set of speakers has 8 speaker outputs. This provides a total of 24 speaker feeds.

To select the speaker outputs

➤ Press the 

and 

keys as required.

Each key will illuminate when it and the associated speaker is enabled.

To trim the loudspeaker output level

➤ Press the 

key.

The key will blink.

➤ Press the required speaker selection key.

The key will illuminate.

The 16 character display on the CSP meter bridge will show the current trim for the selected speaker.

➤ Press the 

or 

keys.

Each press will step the trim up or down by 0.1dB.

The display will show changes in the trim value.

To zero the trim value

➤ Press the  and  keys together.

To change the trim value rapidly

➤ Hold down the  or  key as required.

The trim valued will change at the rate of 10 steps per second.

Note: Trims are individual for each loudspeaker in a group of loudspeakers.

Note: Trim values are stored and recalled when the system is powered down and up again.

20.4.3 Monitoring Other Sources

Sources other than the CSP monitor output may be monitored when the CSP monitor is active. The output from the alternative source is sent to the control room left and right speakers via the headphones output. The headphones output is effectively placed into Follow Monitor mode for this function.

To select an alternative monitor source with CSP active

➤ Press the EXT AUX CUE or FOL ACC key in the Control Room Monitor panel.

The associated LED will illuminate.

The 2 TRACK SELECTOR key will illuminate.

The selected source will be heard on the left and right speakers instead of the CSP monitor signal.

OR

➤ Press the O/P key.

The associated LED will illuminate.

The 2 TRACK SELECTOR key will now control whether the CSP monitor source or control room monitor 2-track output is sent to the speakers.

➤ Press the 2 TRACK SELECTOR key.

The key will illuminate.

The 2-track output will be heard on the left and right speakers instead of the CSP monitor signal.

Note: The level of the left and right speakers is still controlled by the level set using the control room monitor level control, plus trim applied in the CSP.
The headphones level control will have no effect.

20.4.4 Inserts

To enable an analogue insert across all eight monitor paths

➤ Press the 

key.

The key will illuminate.

The insert return will be switched in.

Note: The send is always hot.

To enable a second insert across all eight monitor paths

➤ Press the 

key.

The key will illuminate.

The DS4 insert will follow the insert engaged by the 

key (as above) in the signal path.

Note: This is intended for switching Dolby DS4 or a similar encode/decode device into the monitor feeds.

Note: If the 

key is enabled (lit) then this insert will be disabled. The 

key can be used to force 

to be active as described below.

To enable DS4 when monitoring a different source

i.e. Enable 

when the 

key is illuminated.

➤ Press the 

key.

The key will illuminate.

➤ Ensure the 

key is illuminated.

The selected source will now be monitored via the DS4 insert.

Note: The most recent status of the DS4 key is stored. If it was enabled and then cut out by engaging the 2 TRACK SELECTOR key (or other monitor source) then DS4 will engage as soon as CONSOLE THRU DS4 is pressed.

Note: CONSOLE THRU DS4 has no effect if the CSP is not enabled.

20.4.5 Mono Mixes and Academy Filters

A mono mix can be monitored through an Academy Filter with one of three pre-defined curves - X (Standard), Small Room and Cascade.

To select a mono mix from the CSP feeds

➤ Hold down the MONO key (in the Control Room Monitoring section) and press the desired speaker selection keys in the CSP.

The LED associated with the MONO key will illuminate.

The selected speaker keys will illuminate.

A mono mix of the selected feeds will be heard on the centre or left and right speakers.

Note: As more channels are summed, the level is adjusted to maintain constant output level.

To select a mono mix from the standard mix bus

➤ Hold down the MONO key (in the Control Room Monitoring section) and press any speaker selection keys in the CSP which are illuminated.

This will deselect all feeds to the mono mix from the CSP.

The mono mix will be taken from the Control Room Monitoring selection.

MONO Group will be displayed on the CSP meter bridge display.

To select the Academy Filter curve

➤ Hold down the ACAD FILTER key.

The 16 character display on the CSP meter bridge will cycle through the three curve options - X, Small Room and Cascade.

➤ Release the ACAD FILTER key when the desired curve is displayed.

To enable the Academy Filter

➤ Press the MONO key if it is not already enabled.

Note: The Academy Filter will not become active if MONO is not enabled.

➤ Press the ACAD FILTER key.

The key will illuminate.

Note: The on/off state of the ACAD FILTER key is stored when mono mode is disabled, ready for the next time mono is used.

To select the mono mix output speakers

➤ Ensure that mono is active on the console, i.e. the LED for the MONO key is illuminated.

➤ Press the L C and R keys on the CSP as required.

Note: Valid combinations are Centre or Left and Right, but not all three.

Note: The mono mix output can only be routed to these three speakers.

To trim the mono output level

➤ Hold down the MONO and press the Λ and V keys.

Each press of the Λ and V keys will adjust mono sum output in 0.1dB steps.

20.4.6 Solo

The CSP has the facility to allow a solo signal through to the control room speakers when a solo is engaged on the console. This will cut the output from the CSP so that only the solo is heard.

To enable solo to be heard when the CSP is enabled

➤ Engage a solo anywhere on the console.

➤ Press the 

key.

The 

key will flash.

Note: If there is no solo active on the console the 

key will have no effect.

The CSP monitor output will switch to the 

path and the SOLO signal will go to the speakers.

To exit solo mode

➤ Press RESET on the console.

This will deselect the 

monitor immediately.

OR

➤ Release the SOLO directly.

The 

key will stop flashing.

The solo will time out after approximately 250ms after the last transition of the RESET lamp.

20.4.7 Speaker Level Fixed

The CSP provides a facility for using a fixed speaker level which also prevents the Control Room Monitoring level control from adjusting the output level to the loudspeakers.

To select a fixed output level to the speakers

➤ Press the MONITOR LEVEL FIXED key.

The key will illuminate.

The Control Room Monitoring level control will not have any effect on the output level or the value shown in its associated display.

Note: Use caution when using MONITOR LEVEL FIXED for the first time. First selecting DIM on the console will prevent excessively high output levels.

Note: Any adjustment made with the Control Room Monitoring level control will have effect when MONITOR LEVEL FIXED is released.

To adjust the fixed output level

➤ Hold the MONITOR LEVEL FIXED key down and press the ∧ or ∨ keys.

The level will be adjusted in 0.1dB steps.

The loudspeaker output level will change.

To zero the fixed output level to 85dB reference

➤ Press the MONITOR LEVEL FIXED ∧ and ∨ keys together.

To adjust the fixed level relative to the control room level

➤ Hold the 

and 

keys down and press the 

or 

keys.

The reference level displayed in the Control Room Monitoring level display will be adjusted in 1dB steps.

This sets the level displayed for the fixed level relative to the level in the control room when 0 is displayed on the Control Room Monitoring level display.

The level from the loudspeakers will not be changed.

To zero the display reference to 85dB

➤ Press the 





and 

keys together.

20.4.8 Metering Point

The pick off point for the CSP meters may be selected between pre and post the DS4 encoder/decoder insert.

To meter the signal before the DS4 insert

➤ Press the 

key.

The key will illuminate.

If the 

key is illuminated, it will cease to be illuminated.

To meter the signal after the DS4 insert

➤ Press the 

key.

The key will illuminate.

If the 

key is illuminated, it will cease to be illuminated.

Note: The 

and 

keys are interlocked.

To disable CSP metering

➤ Press the 

or 

key which is illuminated.

No signal will be fed to the CSP meter bridge.

20.4.9 Resetting The Console

If the console has been reset, the CSP may not get the correct message from Capricorn. This may cause the CSP to cease operating correctly. There are two ways to force the CSP to operate correctly.

There is also an initial 3 minute delay to allow Capricorn to boot up. The operator can override the delay to allow immediate use of the CSP.

To force the CSP to operate immediately after a console reset

➤ Press the 

and 

keys together.

The CSP will be forced into active mode and the 3 minute delay will be overridden.

To force a full reset of the CSP

➤ Turn the control room monitor level control all the way to down to -103dB.

Note: If this is not done, output signal levels may be excessively high when the CSP is restarted.

➤ Press the 



and 

keys together.

A full reset of the CSP will be forced, and the CSP RAM buffers will be flushed.

Loudspeaker offset levels will be lost.

➤ Re-enable the CSP by pressing 

and 

as above.

21 MIDI

The Capricorn can issue MIDI Program changes on specified MIDI Channels via a modified serial port on the AFU assembly.

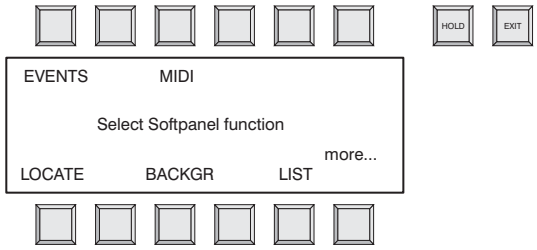
The program changes are selected on the soft panel according to the setup on the MIDI List in Miscellaneous Setup (page 6:20).

21.1 MIDI Program Changes

To send MIDI Program changes

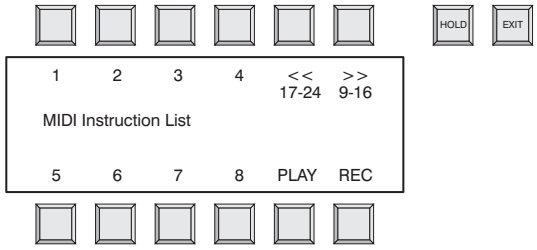
➤ Press the more... key on the Soft Panel Entry Level Menu.

An extra menu with additional options will be displayed.



➤ Press the MIDI key.

The MIDI Instruction List will be displayed.



➤ Press the **<<** or **>>** key if the key with the required MIDI Channel and Program is not shown.

Each time **<<** or **>>** is pressed the 8 numbered keys will cycle through a different set of key numbers. The numbers underneath **<<** and **>>** show which set of key numbers will be displayed.

➤ Press the required number key.

The MIDI Channel and Program number will be transmitted from the MIDI port on the AFU.

21.2 MIDI Automation

The keys labelled PLAY and REC on the MIDI Instruction List are used to automate the MIDI number keys.

Automation modes are selected as usual with PLAY and REC.

The automation system records and plays back MIDI key events as single key presses. There is no change of state to record and play (i.e. on or off).

The automation system only records which key has been pressed. The MIDI Channel and Program associated with the key are ignored.

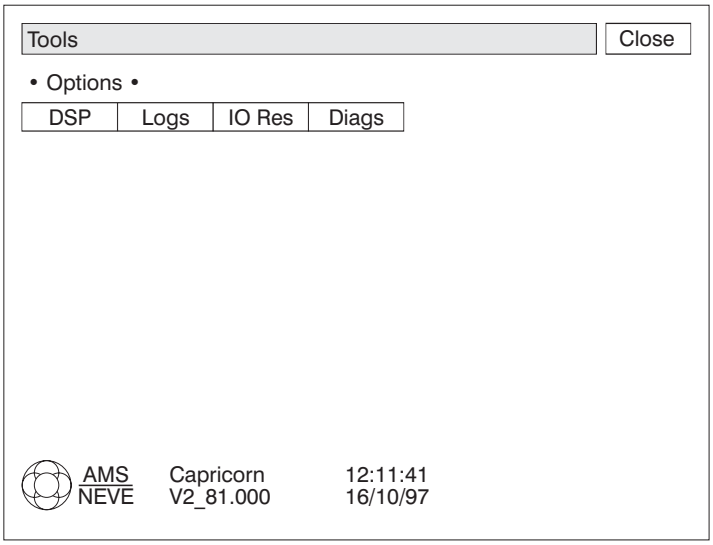
22 Diagnostics

The diagnostics screen provides access to miscellaneous system maintenance options.

To access diagnostics

➤ Click on the Diagnostics Icon.

The Diagnostics screen will be displayed.



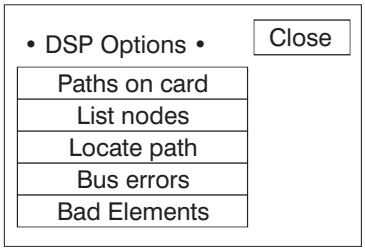
22.1 DSP

The DSP option shows the functionality of the digital signal processing cards in the system. It also allows bad elements on a card to be marked and subsequently ignored.

To access DSP diagnostic options

➤ Click on the DSP button.

The DSP Options dialogue box will be displayed.



➤ Click the required button.

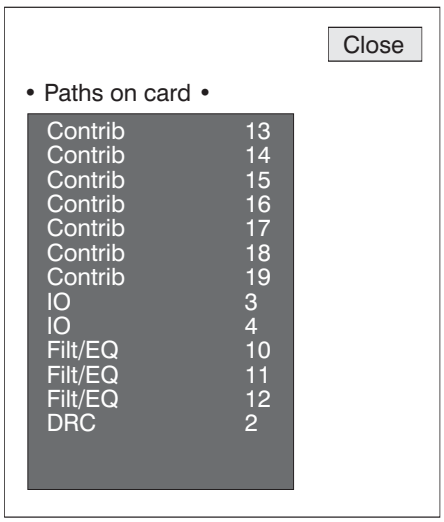
22.1.1 Paths on card

The Paths on card screen allows a particular card in the system to be interrogated and for bad elements on cards to be marked.

To view the paths on a processing card

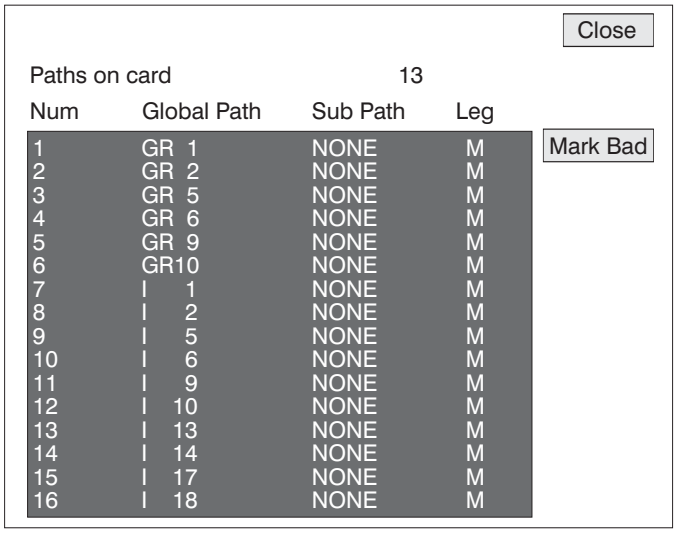
➤ Click the Paths on card button.

The Paths on card selection screen will be displayed.



➤ Click on the processing card in the system to interrogate.

The Paths on card interrogation screen will be displayed.



The number of the card is its Node number within the system. The columns in the list depend on the type of card.

Contribution Cards

Num	The path number on the card the path is resident on.
Global Path	The system name for the path.
Sub Path	Indicates if a sub path is included.
Leg	Indicates if the path is mono (M) or the left (L) or right (R) leg of a stereo pair.

E/Q and DRC Cards

Num	The slot number on the card.
Global Path	The system name for the path
Element	The type of processing.
Leg	Indicates if the path is mono (M) or the left (L) or right (R) leg of a stereo pair.

To remove a faulty element in a card

➤ Click on Mark Bad.

The button will turn yellow.

➤ Click on the faulty slot or slots.

The slot entry will turn yellow. When Capricorn is re-booted, these slots will be ignored and paths and processing will be allocated around them.

To un-mark a faulty element

➤ Click on Mark Bad.

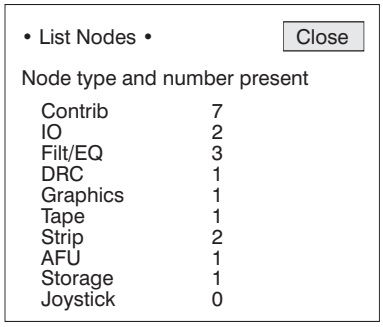
The button will turn yellow.

➤ Click on a previously marked slot.

➤ Re-boot Capricorn to make the elements available again.

22.1.2 List Nodes

The List Nodes dialogue box shows the number of each type of Node in the system. The example shown is for a typical Capricorn console.



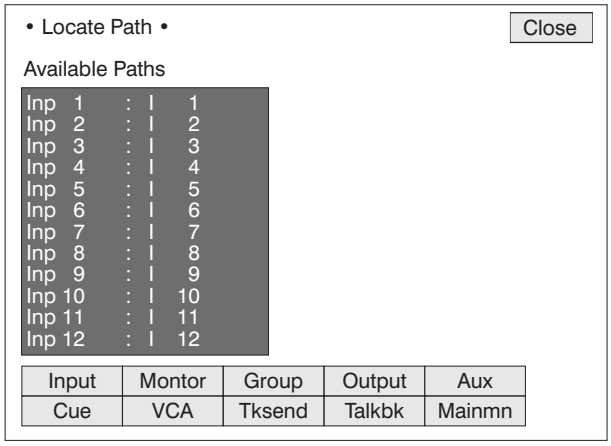
22.1.3 Locate Path

Locate Path is used to indicate the location of a path on the console surface.

To find a path

➤ Click the Locate path button.

The Locate Path screen will be displayed.



➤ Click the required path to be found.

The ACCESS key will illuminate on the strip where the path is assigned. A Path Processing box will be displayed next to the Available Paths list.

22.1.4 Bus Errors

Clicking on Bus Errors shows a list of bus errors.

If there are no Bus Errors then the button will be un-available.

22.1.5 Bad Elements

The Bad Elements option is used to quickly view and un-mark paths or slots that have been marked as bad on processing cards.

If there are no Bad Elements the button will be un-available.

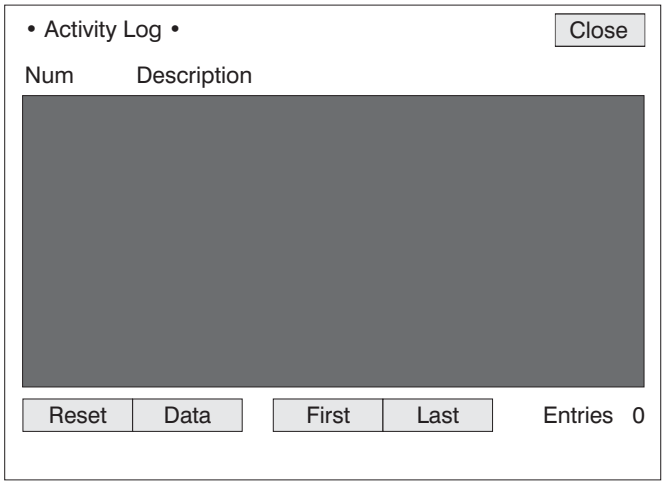
22.2 Logs

The Log is a list of errors that have occurred.

To view the Logs

➤ Click the Logs button in the Diagnostics screen.

The Activity Log screen will be displayed.



To jump to the last entry

➤ Click the Last button.

To jump to the first entry

➤ Click the First button.

To remove all entries in the list

➤ Click the Reset button.

To toggle between text and data entries

➤ Click the Data button.

The button will change legend to show Text. The heading above the list will change from Description to Details. The text descriptions of errors will be replaced with raw data entries which includes the node number and the time and date.

22.3 IO Reset

This is used to force a reset to the rack configuration (which racks are on which MADI ports) the next time that a User Configuration or Automation Title is loaded.

To reset the racks

➤ Click the IO Res button in the Diagnostics screen.

The IO Reset screen will be displayed showing the most recent setup of which racks are on which MADI ports.

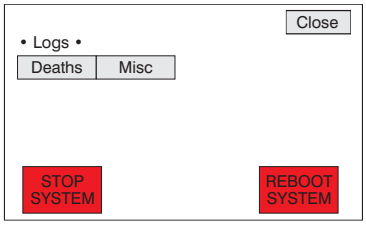
➤ Click the Reset button.

A dialogue box will be displayed with the message : Any new rack(s) will not be seen until the next configuration or title recall.

➤ Click Execute.

22.4 Diags

Miscellaneous items are provided via the Diags button.



22.4.1 Logs

Deaths

The Death Log shows items in the system that have failed. This is primarily intended for use by engineering staff from AMS Neve.

Misc

The Miscellaneous Log provides information not catered for by the System Log or the Death Log. This is primarily intended for use by AMS Neve engineers.

22.4.2 Stop System

This is used to shut down a Capricorn console in a clean and safe manner. All DSP activity should be terminated before the system is stopped.

To stop (shut down) a Capricorn console

➤ Click the STOP SYSTEM button.

A confirmation dialogue box will be displayed.

➤ Click Execute.

or

➤ Type **stop** and press <ENTER> on the DSP terminal.

22.4.3 Reboot System

To re-start the system

➤ Click the REBOOT SYSTEM button.

A confirmation dialogue box will be displayed.

➤ Click Execute.

Note : The software reboot feature is not guaranteed to function correctly on older Capricorn systems. Contact your AMS Neve distributor or the Customer Services Department if your system does not re-start correctly.

Note: If a STOP command has already been executed then the system must be reset manually using the RESET switch on the Storage Node (DSP Rack). This will generate a hard re-boot of the Capricorn system (see the Getting Started chapter).

!

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